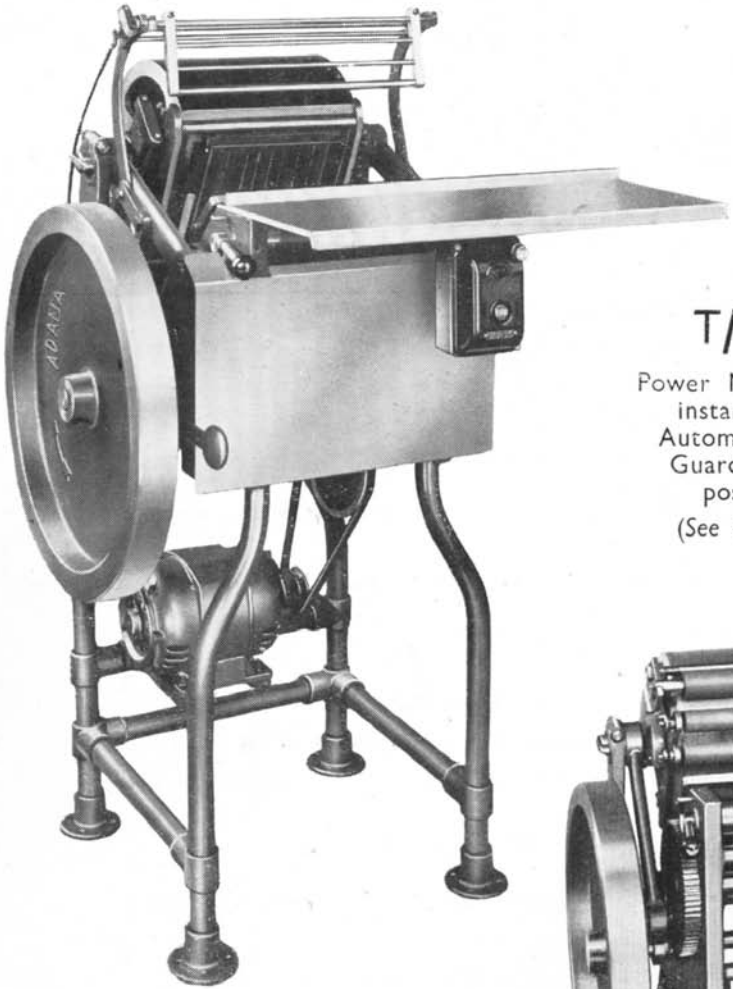
PRINTING *made easy*

A COMPREHENSIVE INSTRUCTION MANUAL FOR BEGINNERS.

ARRESTINGLY WRITTEN IN NON-TECHNICAL STYLE.

FOR USERS OF ADANA PRINTING MACHINES

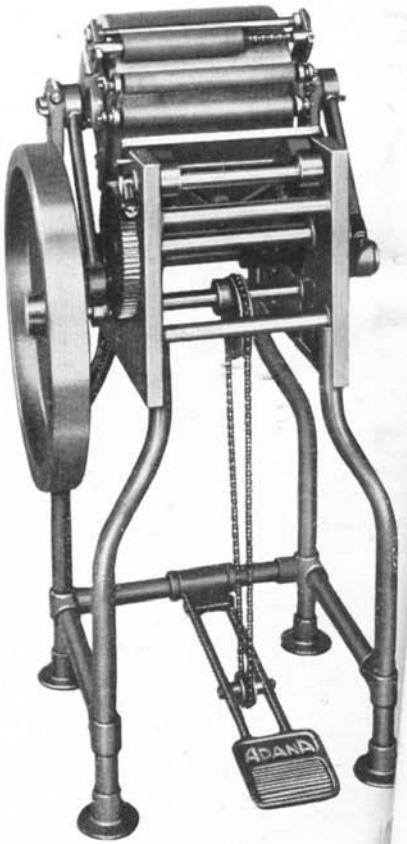
Published by ADANA (Printing Machines) Ltd., Twickenham, Middlesex, England



T/P48

Power Model with instant action Automatic Hand Guard in open position.

(See *opposite*)



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CHAPTER I

THE MATERIALS OF COMPOSITION

THE whole operation of typesetting is described in Chapter 2, but this chapter is devoted to a brief description of type and spacing material and the particular patterns used in type-setting.

The beginner may find this chapter a trifle dull and feel inclined to skip it and get on with the actual job. But that is just asking for trouble. The time spent reading this may prevent a lot of mistakes and confusion later on.

Good composition, or type-setting, is half the battle in producing good print. The art of type-setting cannot be learned in a day, but with care the process will be found perfectly simple. Setting type may be likened to the building of a child's model house with toy bricks—accurate pieces of metal type taking the place of the wooden blocks.

With the exception of the special wooden type used for printing large posters, the ordinary type with which you will have to deal is made out of type metal—an alloy of lead, antimony and tin—cast in a mould.

"Twenty-six soldiers of lead" is a pleasing fancy which, though scarcely accurate, well describes type characters. There are, of course, many more actual characters than the twenty-six letters of the alphabet. A piece of type may carry a figure, a punctuation mark, or any sign or symbol used in printing. By massing these " soldiers of lead " correctly the printer is well on his way to winning " the battle of print."

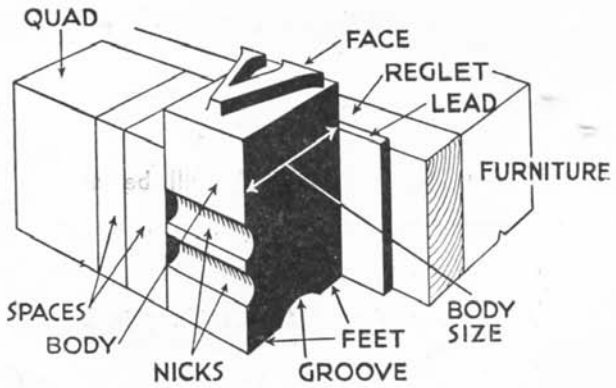

Fig. 6. Type and spacing materials.

Let's take a look at one of these soldiers. Select any piece of type and examine it closely. For the purpose of easy identification of its various parts it is as well to choose as big a piece of type a possible.

Each part of a type character is distinguished by a different name, the names in most instances corresponding to the names given to parts of the human body. These names simplify the understanding of the function of the various parts of a type character and it might be as well to learn and memorise some of them.

Look, then, at your piece of type and at the same time glance at Figure 5, which illustrates a piece of type together with the names of various parts.

The *face* is the name given to that part of the type which actually prints and is the only part of the type to be coated with ink. Note that the face is nearly always shorter than the *body* (the square metal pillar on which the face rests.)

The flat surface on the top of the body above which the face is raised is known as the *shoulder.*

The type stands on *feet,* between which is the *groove.*

By some modern type-casting methods the groove is eliminated, the foot being solid.

You will notice that in one of the upright sides of the metal body—that which is at right angles to the bottom of the type character on the face—one, two or three semi-circular *nicks* are cut. The number and position of these nicks vary with different faces or styles of type.

The principal purpose of the nicks is to guide the compositor when setting type to ensure that all letters are set the right way up. **Actually type is set upside down** and the nicks show whether all letters are turned the same way. Were there no nicks, many inverted letters would result and the business of type-setting would prove very tedious. The nicks also help you to tell whether all letters in the line are of the same face of type.

The exact height of a piece of type from feet to face is 0.918 of an inch.

Fig. 6. Adana New Junior Type Cases and Cabinet.

Of course, the characters on the typeface all appear in reverse in order that the printed impression will show the design facing in the correct direction.

The Measurement of Type

Although all type characters are exactly type-high, as explained above, the actual size of type varies considerably. There is a wide range of type sizes, capable of printing everything from the largest letters down to the tiniest style such as is used in dictionaries, time-tables and other such publications where many words must be got into a small space.

The size of type depends on the size of the body. There is a special unit of measurement used by printers for measuring the type bottom which is called the *point*. The point is 1/72nd part of an inch.

Thus, a type that is designated 72-point, or, as it is more commonly written, 72-pt., is exactly one inch in depth. A piece of 24-pt. type will be one-third of an inch in depth.

By means of the point system it is a simple matter to calculate what depth a number of lines of type of any given size will occupy. Thus, nine lines of type set in 12-pt. will occupy 9 x 12 = 108 points, or 1½ inches in depth. Similarly, nine lines of 8-pt. or twelve lines of 6-pt. would make up one inch in depth.

Metal type sizes vary ordinarily from 6pt. to 72-pt. There are both smaller and larger odd sizes, but they are not standard and do not come within the range of the small jobbing printer.

The "Em" Defined

Just as the depth of type is calculated on the point system, so the width of a type-set line is measured in *ems*.

The em is a very common term in printing and causes endless confusion because, strictly speaking, the em varies with every size of type, being the same width as the depth of the appropriate type size (actually it is the square of the type size). In other words, a 6-pt. em is six points (1/12th of an inch) wide; an 8-pt. em is eight points (1/9th of an inch) wide, and so on

But—and this is extremely important for you to understand—in measuring the width of type matter the em is used as a unit of measurement without any size designation and is taken to be twelve points wide regardless of what size the type is set. This em is the standard unit of linear measurement used by professional printers. So get into the habit right away of measuring the width of type matter in ems rather than in inches.

It is a simple matter to convert ems to inches and *vice versa*. Say, for example, that you want to set your copy to a width of 2 inches. As the em is 12 points in width and there are 72 points to the inch, there are therefore 6 ems to the inch. Multiply 2 by 6 gives you 12 ems, the width of your line in printers' language.

Then again, say your copy has been set 18 ems wide, this is easily converted to inches by dividing 18 by 6, giving you 3 inches.

REMEMBER : The size of type depends upon the size of the body, and is measured in points, there being 72 points to one inch.

The width of type-matter is measured in ems, there being 6 ems to one inch.

Spacing and Other Material

In order that words may be properly spaced out and short lines filled up, *spaces* and *quads* of varying width, but of the same depth as the type, are employed. They are lower in height than the type itself and so they do not print.

There are five different widths of space. They are :—

Em space, as explained above, equivalent to the square of the type size.

En space, equal to half the em space.

Thick space, equal to one-third the em space.

Mid (or middle) space, one-fourth the em space.

Thin space, one-fifth the em space.

Quads are made in multiple widths of the em and are usually supplied in three sizes: 2-em, 3-em and 4-em. Both spaces and quads are cast for all sizes of type.

In order to separate or space out between lines of type, strips of white metal known as *leads* are used. They are supplied in thicknesses of 1-pt., 1½-pt., 2-pt. and 3-pt. The process of spacing the lines by means of these leads is known as leading out.

Thicker spacing material is of two varieties, *reglet* and *furniture*. It is usually made of hard wood, such as oak or beech, and is supplied in strips accurately planed to various thicknesses. Reglet is the thinner kind, being six, eight, ten, twelve and eighteen points thick. Furniture is the term applied to spacing material thicker than eighteen points.

In normal times Adana supply all spacing material, leads, reglet and furniture cut to standard lengths, but under present conditions of shortages it may be necessary for the user to do this himself. Care must then be taken to do this as accurately and squarely as possible.

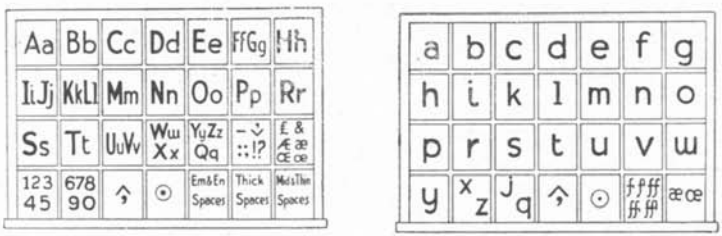

Fig. 7. Alternative "lays" for the 28-compartment Adana Junior Type Case. Suitable for a complete fount (left), or for lower case only (right).

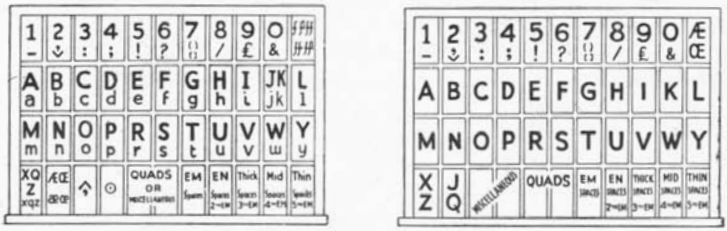

Fig. 8. Alternative "lays" for the 44-compartment Adana Junior Type Case. Suitable for a complete fount (left), or for lower case only (right).

From the point of view of economy the same rule applies to lead spacing material.

All spacing material is lower in height than type.

Dotted, thin, thick and fancy rules, borders and lines are printed by means of brass rules in various styles. This brass rule is accurately planed and is the same height as the type. Rules may be used singly (as in lines and dashes) or in combination, to form borders, dividing lines, etc. Where the line does not extend to the full width of the type measure, as in an underlining rule, the white space on each side of the rule must be filled out with leading material of the same thickness as the rule.

Type border material, in individual units each a separate type, is available from Adana.

Styles and Varieties of Type

There are many different faces or styles of type each known by a different name. The Adana catalogue contains a wealth of different varieties from which the printer can make his selection.

The beginner in print sometimes finds difficulty in differentiating between the innumerable variations and varieties.

The important thing to remember is that there are certain great "families" of type and that these families are divided up into smaller groupings each denoting a slightly different style. Thus there is the Cheltenham Family, the Old Style Family, the Plate Gothic Family, and so on.

Each of these families is divided up into groups—you might almost call them groups of cousins—which have the same family features and a general resemblance, but are possessed of their own individual characteristics.

Thus, in the Cheltenham family, one of the largest and most popular of all type families, you have such variations as Cheltenham Old Style, Cheltenham Old Style Italic, Cheltenham Bold, Cheltenham Bold Condensed, Cheltenham Bold Expanded, Cheltenham Bold Italic.

Each group of each family is made in a variety of sizes, ranging as a rule from 6-pt. upwards. Thus you have Cheltenham Bold 6-pt., Cheltenham Bold 8-pt., Cheltenham Bold 10-pt., Cheltenham Bold 12-pt., and so on.

Some of the more common varieties of type suitable for use by the small printer are shown below.

This is CHELTENHAM OLD STYLE 12 Point.

This is CHELTENHAM BOLD 10 point.

This is CHELTENHAM Bold 8 Point.

This is GILL SANS 14 point.

This is GILL SANS BOLD 10 point.

THIS IS COPPERPLATE GOTHIC 6 POINT.

This is OLD STYLE Roman 12 point.

This is OLD STYLE Roman 10 Point.

**This is Old Style Roman Italic 10 point.*

It is not essential for the beginner to have all these different faces of type. Quite a considerable amount of work can be done with one or two faces.

The beginner is apt to imagine that a great deal of type in many different varieties is required in order to turn out good work. This, however, is an entirely mistaken idea. It is much better to have a good quantity of one or two styles and sizes than to have too wide a selection of assorted varieties.

Adana is always prepared to give the beginner free advice on the proper type and the quantity necessary for any particular job.

Founts and Type Cases

Type for the printer is sold in what are known as founts—that is, quantities of type containing every letter and character used, but not in equal numbers of each letter. The number of each letter varies according to the frequency of its occurrence in the English language. All founts, for example, contain more types of the letter E than of any other, whilst letters like J, X and Z are supplied in correspondingly smaller quantities. In listing and ordering type, the letter A is used as a convenient standard for the size of the fount.

For ease in composition it is essential that the type be easily accessible so that no time shall be lost in searching for the necessary character. Therefore the type should be removed from the parcel in which it is despatched and placed in the compartments of a typecase. Various styles of typecases are available. The beginner will probably find the Adana Fibre Case, with twenty-seven compartments, adequate for his requirements. But for more

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**ITALIC*: *Sloping type, such as this sentence, as apart from Roman or upright type. It was first introduced by a Venetian printer, Aldus Manutius, about the year* 1500.

serious work the Wooden Junior Type Cases are to be recommended. They are supplied in three styles—with forty-four compartments, with twenty-eight compartments and blank. Whatever style of case is used, each different style of type and each size thereof should be kept in a separate case.

Neatly built wooden cabinets, with eight shelves, are available for holding the Junior Cases (see Fig. 6).

It will be found convenient to arrange the type in the compartments of the wooden cases, as shown in the illustrations (Figures 7 and 8). The arrangement of the typecase is known as "the lay of the case," and it has been found from experience that the arrangements illustrated are the most convenient for practical working. The lay of the case should be memorised as soon as possible, and with practice you will find your hand going automatically to the appropriate compartment.

Note that, professionally speaking, the term *upper case* is given to all capital letters, whilst all letters that are not capitals are called *lower case*. This naming comes from the practice followed in the trade, where the compositor stands at his frame, on which reposes the two cases; that containing the capital letters being placed above the one which contains the small ones.

Therefore, on buying type the first thing to do is to lay it in the cases. You will find that the type is all arranged in alphabetical order, so many A's, so many B's, so many C's, and so on to the end of the alphabet, together with figures and stops. Starting with the top line of the type in the parcel, take it a line at a time and drop the letters into their appropriate compartments—Cap. A's into Cap. A compartment, lower case a's into their compartment, etc.

Now we are ready to start the actual business of setting.

CHAPTER II

HOW TO SET TYPE

THE small printer can tackle composition in a variety of ways. The professional method is to use a composing stick, and this method is to be strongly recommended. It is, in fact, the method to be described in detail here.

But the beginner with a small machine such as the Adana High-Speed may profitably set his type straight into the bed of the machine or in a chase resting on a galley.* Both these methods are fully described later in this

* The chase is a steel frame into which the type is set and the whole placed in the machine bed. As will be explained, it is possible to set the type direct into the bed of the High-Speed Machines, Models Nos. 1 and 2; but it is quite impossible to set direct into the bed of the Flatbed machine. In any case one of the great advantages of the chase is that type set up for a job which must be continually repeated can be kept set in the chase ready to slip into the machine and run off at any time. Moreover, when the chase is used in the High-Speed machines there is no necessity to remove the bed from the machine—essential, however, if type is set direct into the bed.

A galley is a flat steel tray with three sides—not unlike the inverted lid of a biscuit-tin with one side removed. It is used for carrying typeset matter and is also used for storing type that is tied up and required for a further job at a later date. A No. 1 High-Speed chase and a galley are illustrated in Fig. 9.

chapter. They are indeed adaptations and modifications of the composing stick method. They are useful to the beginner because they familiarise him with the handling of type.

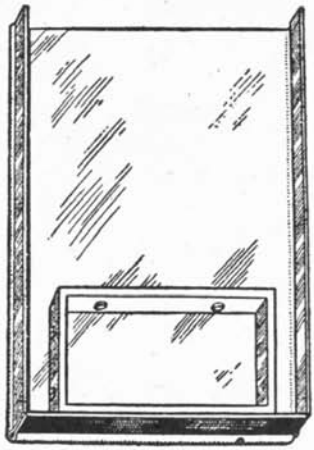

Fig. 9. A chase resting on a galley.

Using the Composing Stick

The Adana Composing Stick is illustrated in Fig. 10.

To use the composing stick it is necessary to make it up to the size required by using some fixed and absolute unit. Beginners are apt to use leads, rules, furniture, or anything else handy as a unit of length for the stick. This is a thoroughly bad practice and should be avoided.

Suppose that it is necessary to set the lines three inches long. You will remember that this measure, three inches, if changed into terms of ems, will represent 3 x 6 ems, that is, 18 ems.

So, set the stick to three inches. The best method is to place pieces of type in the stick—in our particular case six pieces of 36-pt. type—or twelve pieces of 18-pt., or 18 pieces of 12-pt., and so on, to make up 18 ems. Capitals (upper case) should be set up body-wise in the stick and a piece of thin paper inserted at the end (see Fig. 11), so that the leads used for spacing the lines will not bind.

The composing stick should be held as shown in Fig. 12. Sometimes matter is to be set solid, that is, without spacing between the lines. As it is almost impossible to set one line of type direct on another, compositors use a piece of brass rule, cut to shape, as shown in Fig. 13.

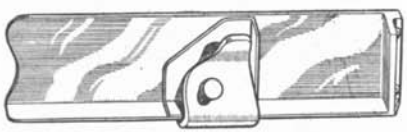

Fig. 10. Adana Composing Stick.

These rules are known as composing rules or setting rules, and sets already cut to various standard em lengths may be purchased complete in boxes. It will be noticed that there are small ears at each end; these ears aid the compositor to lift the rule out of the stick after setting each line.

Should the beginner be unwilling to go to the cost of obtaining a set of proper composing rules, he can employ ordinary brass rules or leads cut to size as a makeshift.

How to Start Type-setting

Before you start setting, read your copy carefully, noting particularly spelling, capitalisation and punctuation. Where the copy demands different sizes and styles of type, make sure that you have the cases of the various types by you so that no time will be lost searching for odd letters. Read a few words at a time and proceed setting up the type nick uppermost from the left-hand corner of the stick.

When setting, look at the letter as it lies in the case, and in picking it up turn it in the fingers so that the nick comes outward and uppermost in the stick. Do not look at the letter once you have picked it up, but look for the nick of the next letter whilst placing the first one in the stick. No attention need be paid to placing spaces and quads nick uppermost. Indeed, the majority of spaces are cast without nicks.

How to Justify Lines of Type

To keep the line under perfect control while composing, the thumb of the left hand should always be held against the last letter of the line, the end of the thumb being slightly raised as each letter is placed in the stick, when the thumb automatically will press the letter down. Continue setting until you have placed in the line as many words as possible.

If the final word in the line will not fit in, and it is a word of more than one syllable, it may be divided with a hyphen. If the line does not

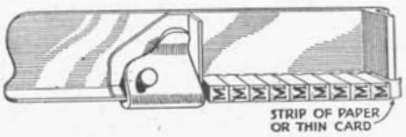

Fig. 11. Making up the composing stick.

exactly fill the measure it is necessary to increase the spacing between words until the line is tight enough to stand alone when pushed up from the bottom of the stick.

Remember: *Never ram spaces home nor leave a line insufficiently spaced so that the type characters are loose.*

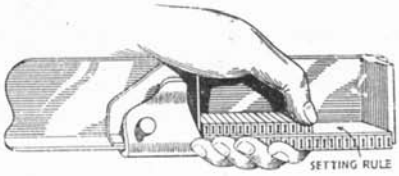

Fig. 12. The composing stick in use.

Both these mistakes are common in the setting of beginners and both lead to endless trouble in later stages of the job. A line should be tight—no more and no less. This process of inserting extra spaces is called justifying the line.

When setting, do not stand stiffly at the case, but assume an easy position and carry the stick in the direction of the compartment from which the next piece of type is to be taken, moving the left hand from compartment to compartment throughout the operation.

Fig. 13. Setting Rules.

Proceed setting each line in the same manner, justifying each line until the stick is full.

A Job—Taken Step by Step

So much for general instructions. Realising, however, the pitfalls that perplex the beginner, we will now take an actual job and demonstrate the setting of it step by step. As an example, it is proposed to print the following with its two headings :—

ADANA

High Speed Machines

A British Product in which special attention has been given to the making of a machine that is simple to operate, efficient in working, yet reasonable in price.

There is no other printing machine made in which every thought has been given to designing a press to enable the novice to enthuse in print and produce first class work immediately.

The width of the type matter for this job is 2⅙ inches or 13 ems. Therefore you must first make up your stick to 13 ems. First, the word ADANA is set in Cheltenham Bold 18-pt. Commencing in the bottom left-hand corner, set the first line in capitals, nick uppermost. As this name is to be printed in the centre of the line, place quads and spaces on both sides in equal thicknesses so that the whole is nicely centred.

Having placed your 13-em setting rule on top of this line, commence setting the next line, "High-Speed Machine," which is to be set in Cheltenham Bold 12-pt., inserting en spaces between words.

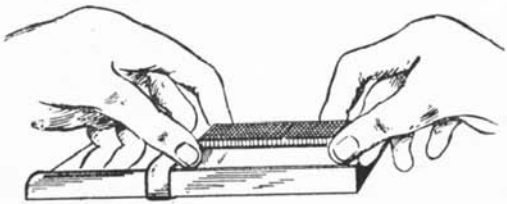

Fig. 14. Removing a "stickful" of type from the composing stick.

As this line must be nicely firm and not wobble from side to side, arrange spacing so that the line is just tight, maintaining the central position.

For the cut-off dash in the next line, get a piece of brass rule, 5 ems long, and two pieces of lead the same thickness as the brass rule, 4 ems long each. Place the piece of brass rule in the centre and a piece of lead on each side. Now place a couple of 2-pt. leads on top of the line composed of lead and brass rule.

Setting Body-matter

Set this in Cheltenham Old Style 10-pt. This paragraph typifies the correct use of spacing to obtain justification of your measure of 13 ems. You will note the following :—

To begin first line an em space is used as indention, and the words are spaced with an en between.

Second line : En space after word " attention " then thick spaces.

Third line : Thick spaces are used to the word " that "—afterwards en spaces.

Fourth line : Note ffi, not f f i.

Fifth line : Quads to fill out line.

Second paragraph.

First line : One em indention then en spaces.

Second line : Thick spacing throughout does not make a tight line. Thin and mid spaces together between the words " made in which " corrects it.

Third line : Thick spaces throughout. Note the word " first "—use fi—not f i.

When setting rules are not available a piece of brass rule or lead spacing cut to the em measure can be used.

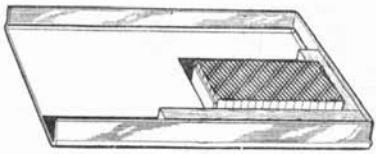

Fig. 15. Type-matter on a Galley.

The last line is completed with quads and spaces to the required length. Note that a quad should always be placed last in the line, not a space. Spaces at the end of a line tend to work loose and may get lost, upsetting the justification of the line. Another piece of lead or reglet on top of the final line and the setting is complete, and the type matter ready to be taken from the composing stick.

Removing Type from the Stick

We will now return, for the moment, from this particular case to the general principles of typesetting. When the stick is full, the type must be removed therefrom on to a flat tray or galley. The best method of performing

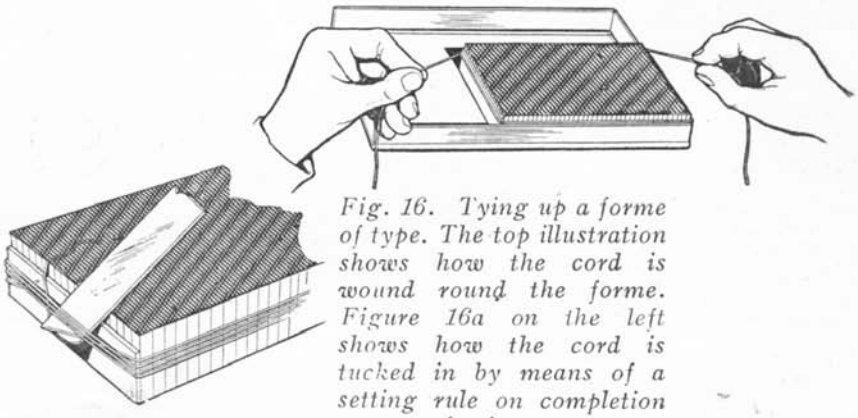

Fig. 16. Tying up a forme of type. The top illustration shows how the cord is wound round the forme. Figure 16a on the left shows how the cord is tucked in by means of a setting rule on completion of tying up.

this manœuvre is to proceed as follows :—First place a piece of brass rule or the composing rule between the bottom of the stick and the set type, then place another piece of brass rule or several pieces of lead at the top so as to get a firm grip on the matter.

Place the stick firmly against the case or on the galley. With the thumb and forefinger grip the type set up between the two pieces of brass rule, using both hands, the left hand on the left side and the right hand on the right. Fig. 14 illustrates this better than mere words can describe it.

Place the second joint of the second finger against the side of the matter and withdraw the type from the stick, gradually sliding the balls of the thumb down on the type, thus obtaining a firmer hold. The type matter can now

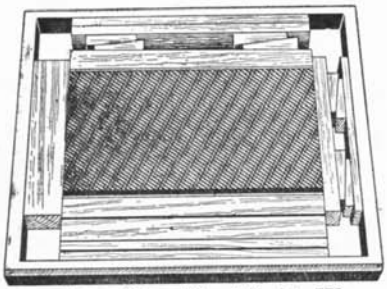

Fig. 17. The Right Way.

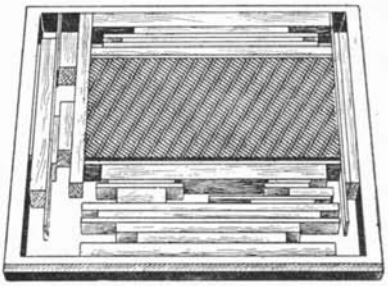

Fig. 18. The Wrong Way.

How—and How NOT—to lock up a Forme of Typematter.

be removed easily from the stick and placed on the galley. Place it in the position shown in Fig. 15, never in any other position.

You will note that in Fig. 15 two pieces of furniture are placed in the galley on two sides of the type. The reason for this is twofold—firstly, to enable the compositor to push the type away from the corner when tying up the job if the matter is bulky, and secondly, so that the type can be placed directly into the position it is to occupy in the chase.

Tying-up Type-matter

Sometimes it is necessary to have matter set and to leave it standing before it is locked up in the chase. To leave standing matter loose is obviously very foolish, as it is likely to be knocked and deranged. Therefore, it is necssary to tie it up.

Fig. 16 shows clearly the method of tying up a job. Using thin, strong twine, begin at the upper left-hand corner, and holding about half an inch of the twine between the thumb and forefinger of the left hand, pass the cord once round the job and cross the cord over the first layer to hold it fast to the corner.

Wind on two or three more layers, then move the job away from the corner of the galley and push the string down on the type. Do this carefully. Continue winding until five or six layers have been put on, then tuck the end in as shown in Fig. 16. Keep a firm hold on the matter while tying it up, making sure that the cord is taut and that layers are not crossed over other layers. If this is done, the cord is likely to catch when being removed and is apt to cause the type to slip and tilt to one side, putting the job "off its feet."

Imposition and Locking-up

In many large printing shops it is customary to take proofs at this stage and make the necessary alterations before locking the type up in a chase. But the small printer will probably find it more convenient to reverse the order and to lock the matter in the chase before he takes a proof. Thus he will be able to proof his matter directly from the machine.

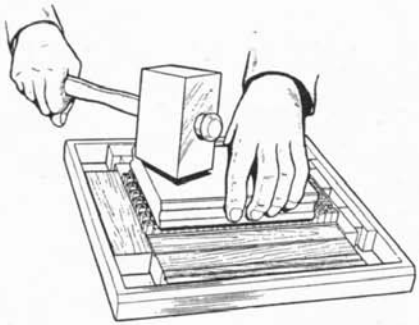

Fig. 19. Planing a Forme.

The general principles in locking up formes of type matter in a chase are practically the same in every case. Where the type has been set up in the stick, placed on a galley and tied up, as previously described, the tied-up matter is now very carefully slid on to the imposing surface.

The imposing surface is a flat, level surface such as stone or a perfectly level piece of metal such as sheet iron. (In professional shops the imposing surface is alway referred to as the stone, and the men who attend to the business of imposition are known as stone-hands.)

Now take the chase and place it on the stone in such a way that the type is in the centre. Place wood furniture round the type to fill the vacant parts, leaving just enough room to insert the quoins or wedges which serve to lock up the job. (N.B.—Chases for Adana High-Speed Machines are fitted with adjustable locking-screws, which obviate the necessity of using quoins.

Fig. 20. Shooting Stick.

Full details for using these special chases follow later. As they are much simpler in operation than quoins, we will not deal further with them here).

The type matter should be placed as near the centre of the chase as possible, with furniture of suitable length on the four sides—two sides bearing close up against the side of the chase, the remaining sides being left open for driving in the quoins one against the other.

Fig. 17 shows the correct way of placing furniture around the job and locking it up. Fig. 18 shows the incorrect way of locking up a forme.

Note the advantages of the first method as against the disadvantages of the second. It is easily seen in Fig. 17 that both the job and the furniture are locked up by the action of the quoins at the same time and there is no likelihood whatever of the job working loose, whereas in Fig. 18 it is obvious that the only bearing which the furniture has is on the short end of the type matter and in consequence the job is apt to work loose and cause endless trouble in machining.

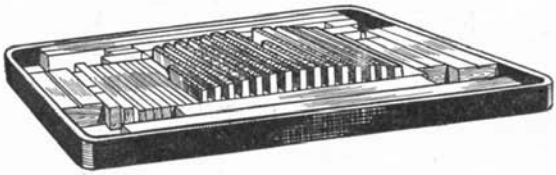

Fig. 21. Bulged Forme.

Having placed the furniture round the tied-up matter and left room for the quoins, carefully remove the cord from the matter and then tighten up the quoins, using only finger-pressure. The job is now ready for planing. This business of planing is very important and should be done carefully, as on it the even appearance of the finished print largely depends. Take the planer, a flat piece of wood, and, placing it face down on the type, tap the back gently with a small wooden mallet (see Fig. 19).

It is important to see that the imposing surface is perfectly clean and free from grit, which would upset the whole purpose of the planing process. Do not slide the planer over the face of the type, but lift it each time you wish to tap a different portion of the surface. The object of planing is to ensure that the type is perfectly flat and level. Having planed the forme, the quoins are now driven tight with a shooting stick (see Fig. 20), when the chase can be lifted and is ready to place in the machine.

Testing the Forme for Faults

Before lifting the chase from the imposing surface and placing it on the machine the forme should be tested to make sure that all the matter is firm

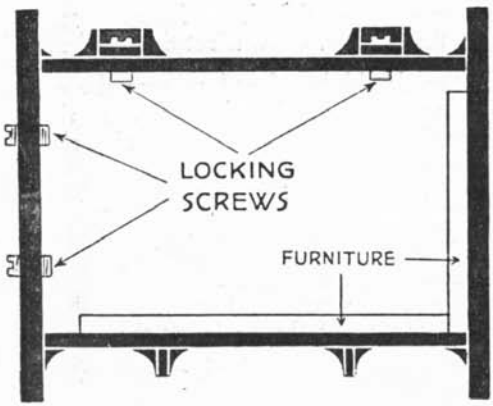

Fig. 22. Typesetting in Machine Bed.

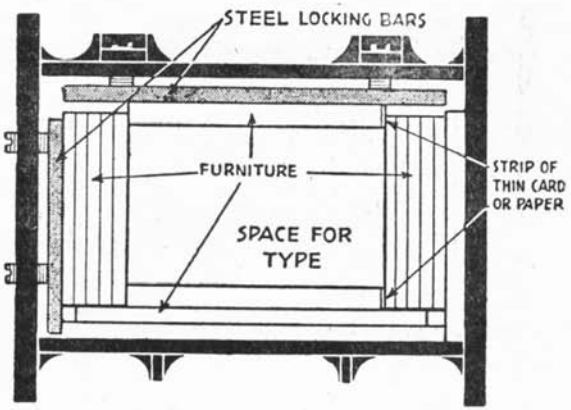

Fig. 23. Typesetting in Machine Bed. Stage two.

and that there is no loose type or spacing material. To do this, gently raise one corner of the chase and then press on the surface of the type matter lightly with the fingers. Should everything feel nice and firm, the forme is securely locked up.

To make absolutely sure raise one side of the chase about an inch and then let it fall on the imposing surface, watching the type matter as the forme drops. If any of the type slips there is something wrong. The trouble will usually be found in a line improperly spaced and not fully justified or if some of the spacing material is shorter—or longer—than the type measure. This must be remedied at once by loosening the quoins or unscrewing the locking screws and putting the fault right.

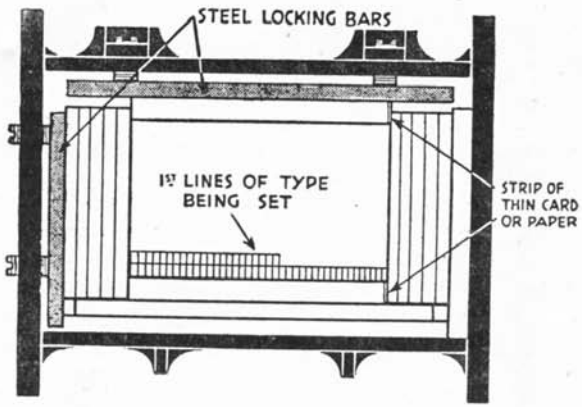

Fig. 24. Setting Type direct in the Machine Bed. Stage three. A few lines of type already set.

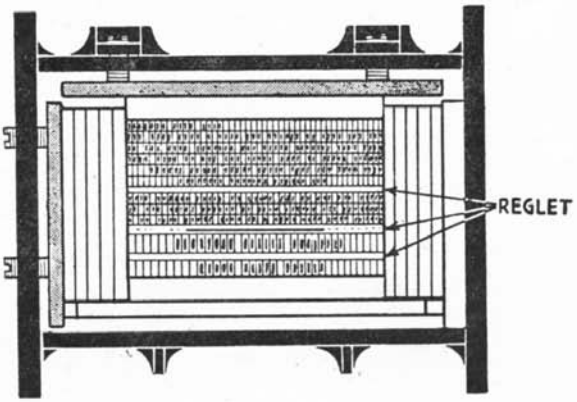

Fig. 25. Typesetting in Machine Bed. Stage four

If a loose forme is put on the machine the type will probably work loose during the operation and mean the ruination of the whole job. An equally serious fault is locking the forme too tightly. The quoins or the locking screws should be so adjusted that the matter in the chase is held firmly. If they are driven up too tight the matter in the chase is likely to bulge and result in endless trouble. The pressure of the machine on a bulged forme is likely to make it burst, and a burst on the machine means the retrieving of all the type and starting the whole job over again. A bulged forme is shown in Fig. 21.

Setting Direct in the Bed

You have already been told that, besides the professional composing stick method, it is possible to set type direct into a chase resting on a galley, or, in the case of High-Speed Machines Nos. 1 and 2, direct into the bed of the machine.

For the benefit of the beginner, particularly the No. 1 High-Speed user, both methods will be briefly described. Fundamentally they are based on the composing stick method, which should be carefully and thoroughly studied.

First, then, setting direct into the bed. (Both text and illustrations assume use of No. 1 High-Speed Machine.) The operation is, of course, identical for the No. 2 High-Speed.

In setting type direct into the bed of the machine first it will be necessary to remove the bed. This is quite a simple matter. At the back of the bed will be seen four adjusting screws and two locking nuts. These latter hold the bed into the machine. Release these two nuts and remove the bed, placing it on the table at a slight angle, the long side without the locking screws at the bottom and the short side with the locking screws to the left. (Full instructions and detailed illustrations for the removal of the bed will be found in Chapter 3, section 3, p. 33. These instructions and illustrations should be carefully studied.)

To start setting, place a strip of wood spacing material in the bottom

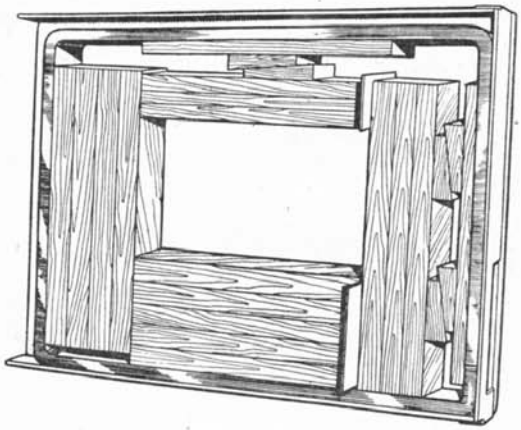

Fig. 26. Chase with furniture and reglet locked up with a vacant space in the centre.

of the bed on which the type is to be set. Then place another piece at right-angles to this, on the side opposite to the locking screws (Fig. 22). Suppose that you wish to set lines of type 2½ inches long and that these lines will occupy a depth of approximately 1½ inches. Place another strip of wood spacing on the first piece at the bottom, then fill in both sides to leave a space 2½ inches wide by 1½ inches deep (Fig. 23).

Note that the illustration shows thin slips of card or thin paper inserted between the furniture uprights on the right of the bed, and the horizontal furniture at top and bottom. These slips give a fraction more space to the area available for type-setting. They are removed as soon as composition is completed, before locking up the type-matter. Their purpose is to ensure that the pressure of the locking screws will bear directly on the type-matter,

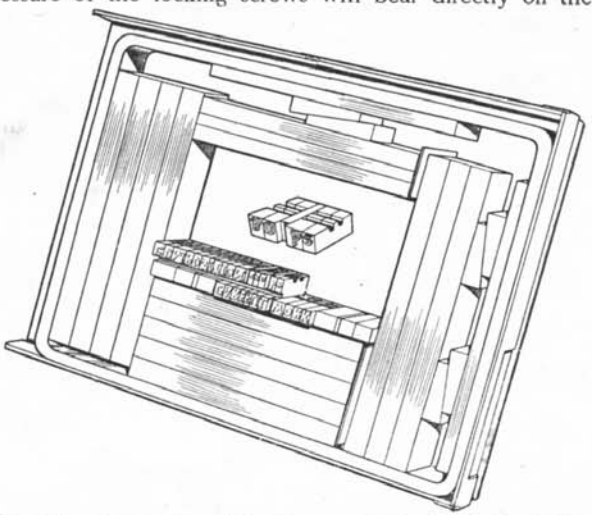

Fig. 27. Showing title line and part of first line set.

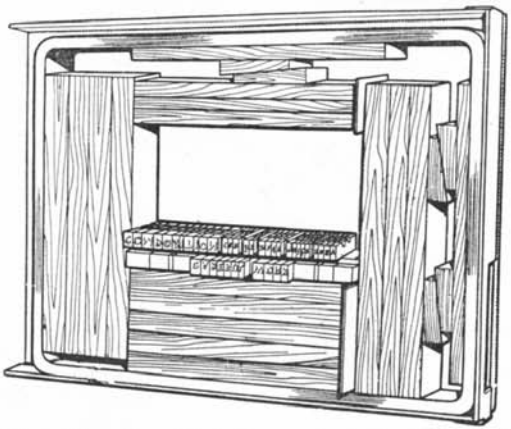

Fig. 28. Showing first line set, but not justified to the measure.

holding it secure, and not, as often happens in the beginner's work, on the horizontal furniture. Between the wood and the two sides where the locking screws are, place the thin strips of steel supplied with the outfit. Place a thin strip of lead on top of the bottom pieces of furniture. It is most important that this piece of lead should be exactly the same length as the wood spacing material.

Now, in the area you have thus prepared, you can start setting up your type. The rules given for setting in the composing stick apply identically here. The fixed screws at the back of the bed enable it to be tilted forward at a convenient angle on the table for setting. Of course, the No. 1 High-Speed machine bed can be held quite satisfactorily in the hand, just like a proper composing stick. (See Fig. 24).

When you have got all your copy up in type, you can give more space

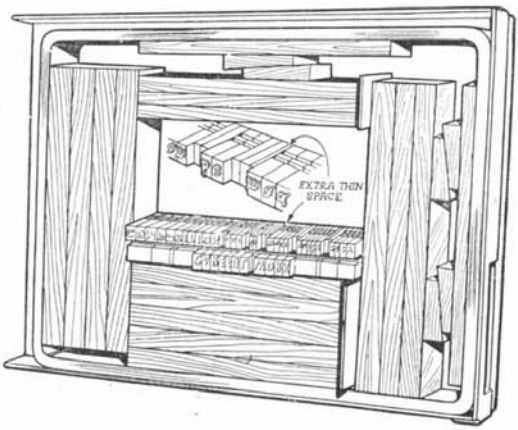

Fig. 29. Showing first line set and justified to full measure.

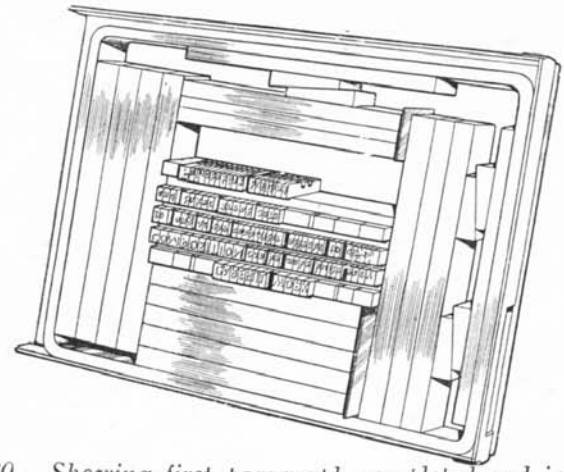

Fig. 30. Showing first paragraph completed and indented line of second paragraph started.

between the lines of type by filling the job out with leads or wood spacing material the width of the type measure. Then, fill in any vacant space above the set type with strips of reglet until the bed of the machine is full. Now give the locking screws a slight turn to keep your type firm. Remove the slips of card, and give the screws a further turn. (See Fig. 25.)

Setting in the Chase

So we come to the third method of setting type—namely, setting into a chase resting on a galley.

The procedure for setting in a chase is practically identical with the method of setting direct into the bed of the machine. The only difference is that since the chase is an open frame, some kind of perfectly flat bottom is required on which to rest the chase. Hence the galley is used. In setting a chase commence by placing the chase on the galley and tilting the galley on the table upwards and slightly to the left. In the actual business of setting the type proceed in exactly the same manner as described for setting direct into the bed.

The series of illustrations (Figures 26 to 33)* should be self-explanatory to those who have carefully studied the earlier instructions. The few brief following notes will, however, give some additional tips well worth observing.

Fig. 26 shows the chase with furniture and reglet locked up leaving a vacant space in the centre for type. Compare this illustration with Fig. 23, showing the same arrangement direct in the typebed. Note here again the use of thin strips of card between the horizontal and upright furniture on one

* The illustrations are of a Flatbed machine chase. The explanatory notes on the illustrations apply, of course, to High-Speed chases as well. Note, however, that locking screws take the place of quoins in chases for High-Speed models Nos. 1 and 2

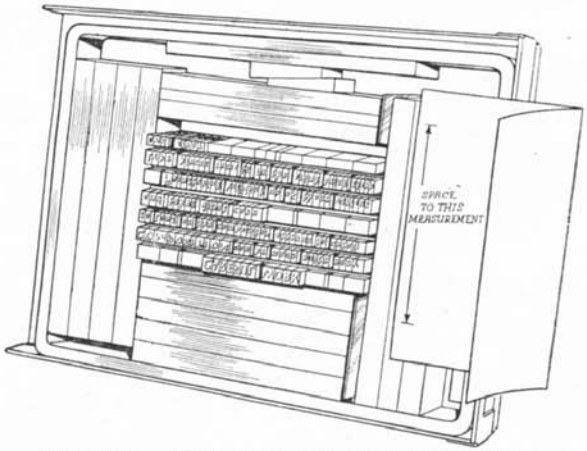

Fig. 31. Full copy set, but not central.

side of the chase. These strips are removed at the completion of setting before finally locking up.

Fig. 27 is self-explanatory. Here we see the first line and part of a subsequent already set in the chase. Inset is an enlarged close-up of typeset matter showing clearly the type characters set upside down with a space between.

Fig. 28 shows a line set as fully as possible, but not justified to measure. The following illustration (Figure 29) shows how the line is justified. Inset close-up shows how extra spaces are inserted between the words.

The next illustration (Fig. 30) shows the job well on the way to completion and in Fig. 31 we see it fully set, but not yet centred or spaced out. This and the following illustration (Fig. 32) shows how to calculate simply

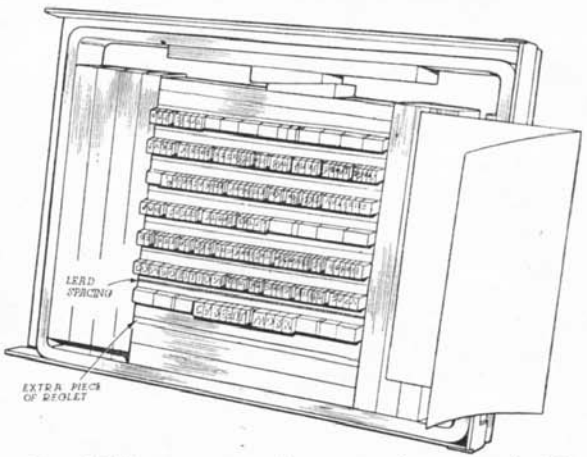

Fig. 32. Full copy spaced out evenly and suitable for size of paper.

Fig. 33. Complete forme ready for machine.

the quantity of spacing material required between the lines of type in order to fill the space it is desired to print. More details follow in the sections which describe the actual use of the machine.

Fig. 33 shows the copy spaced out and the job ready to put on the machine, once it has been planed.

Incidentally, for those who are setting type direct into the machine bed of High-Speed machines models Nos. 1 and 2 here is a good tip. Firmly fix two blocks of wood of length greater than that of the bed and about an inch thick parallel on the work bench with a quarter inch space between them. During the planing operation, the typebed can be laid on these blocks of wood with the locking screws at the back of the bed, projecting down into the groove between the blocks. This arrangement ensures that the typebed is not damaged during planing. Remember, when planing, that the forme should never be locked up tightly. Keep the locking screws just fingertight during the operation and do not finally screw up until the job is done.

Correcting Errors in Typesetting

In the foregoing instructions it is assumed that the type has been accurately set, without mistakes. Should any mistakes have been made they will soon be discovered when the first print is taken.

The professional printer always takes a proof before putting his forme on to the machine, but the beginner and small printer will find it most convenient to make his first print on the machine his proof copy.

If he is using a High-Speed Machine No. 1 or 2 with the type set direct in the bed it will, of course, be necessary to remove the bed from the machine before making corrections. That is one of the advantages of using a chase which can be slipped out with the minimum of trouble.

If there are few errors in the job when a proof is taken and the characters to be substituted in the forme are of the same thickness as those which have been included in error, the job may be corrected on the stone. It is, of course, necessary to first loosen the quoins or the locking screws. If, however, there are a great number of errors, the job is best placed on a galley, and each line taken up in the composing stick, the error corrected and the line accurately replaced.

Always hold the composing stick in the hand when correcting lines and respacing. Do not try to remove the spaces with tweezers, but holding the stick in the hand, remove the last letter of the line so as to loosen it and make the necessary corrections.

Final Hints on Type-setting

To conclude this chapter we summarise briefly the rules and axioms of good typesetting :—

Set from left to right, starting in the bottom left-hand corner.

Type is always set nick uppermost.

Always adjust a line of type so that it is nicely firm.

When adjusting never ram or force spaces in.

Never leave a line loose with too few spaces.

Always use leads or wood reglet as spacing material; paper or card must never be used for packing as, being resilient, it is liable to give and throw type "off its feet."

Wood spacing must always be cleanly cut, as a burr will do any amount of damage to otherwise well set type, causing the lines to become loose and generally disorganising the whole forme.

Lead spacing material must be the exact length of the type measure.

When planing a forme lift the planer, as sliding it over the forme is is liable to cause broken type.

Never hurry over the setting, but proceed slowly and carefully.

Practice in setting type will gradually bring about speed.

Never tighten up the locking-screws before planing.

This chapter may have seemed rather involved and rather painstaking. But actually typesetting is not so difficult as the description may have made it

Fig. 34. Preparing to distribute type.

appear. True, the art of type-setting cannot be learned in a day, but with care the process will be found perfectly simple. In point of fact, it is largely a matter of sheer common-sense. It is worth while taking trouble over your typesetting, because good composition is more than half the battle in producing good print.

Cleaning and Distributing Type

When a forme has been used and is finished with, the letters and other materials should be returned to their cases and appropriate storing places immediately. This process is known as distribution. Should the type matter be required for printing at a later date, it may be left locked up in chase, and stored away on a galley.

Fig. 35. Distributing the type. Note how the thumb controls the line of letters, while the finger pushes out each type character one by one into its own compartment.

To accomplish distribution quickly the type should be taken up and held in the hand as shown in Fig. 34. Hold the type nick upwards and begin at the right-hand corner of the top line. Take off a word and separate the letters one by one, placing them in their respective compartments. The method of separating the letters is shown in Fig. 35. The type is held against the thumb by the index finger, the middle finger tilting the letter from beneath the index finger. At the same time the two fingers are moved backwards and forwards across the thumb, thus constantly pushing forward the first letter so that it will escape beneath the index finger. Do not, on any account, drop or throw the type into the case. Place it in easily and carefully. Type is soon battered if thrown in carelessly. The novice is advised when distributing type to take only a few words in the hand at first, gradually increasing the amount as he gains in proficiency.

If the matter to be distributed contains different sizes and faces of type all the lines of type of the same kind and size should be separated on the galley, grouped together and distributed one size and face at a time.

Leads and furniture also have to be put away, and any brass rule that may have been used for the job. Always endeavour to keep the same lengths of lead and furniture together, as considerable time is saved when it is required to use them again, as lengths do not have to be searched for, but are taken direct from their respective compartments.

CHAPTER III

USING THE ADANA HIGH-SPEED MACHINE

IN this section the operation of the Adana High-Speed machines will be described. Instructions for operating the Flatbed model follow in a later part.

High-Speed machines are made at present in two sizes: the No. 1 with a type-area of 3¾ inches x 2 $\frac{5}{16}$ inches, the No. 2 with a type-area of 6½ inches x 4 inches.

In general working principles the machines are identical, but there are, naturally, some differences on account of the variation in printing area.

The main working principle of the printing machine has already been described in the introductory chapter and it might be as well for the beginner to turn back to that chapter now and refresh his memory before going on to study the specific details to be given here.

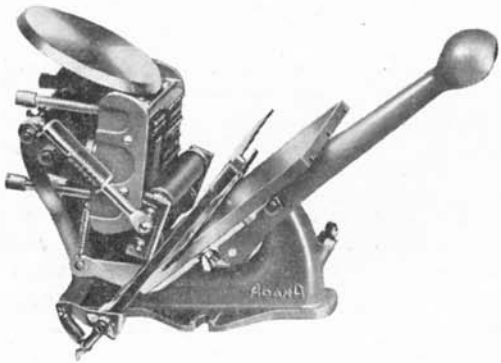

Fig. 36. New Adana High-Speed Printing Machine Model No. 1.

The instructions which follow and the illustrations accompanying them refer specifically to the No. 1 High-Speed model.

Should the instructions given for the No. 1 not apply to Model 2 it will be pointed out in the text and the correct instructions for the specific model will be given. No. 1 has been selected for description because it is the most popular model for the beginner.

It should also be noted that the instructions given apply to the ordinary standard machine fitted with a hand-lever. For the sake of clarity in illustration the gripper finger attachment, standard to all models, is not shown in the working diagram.

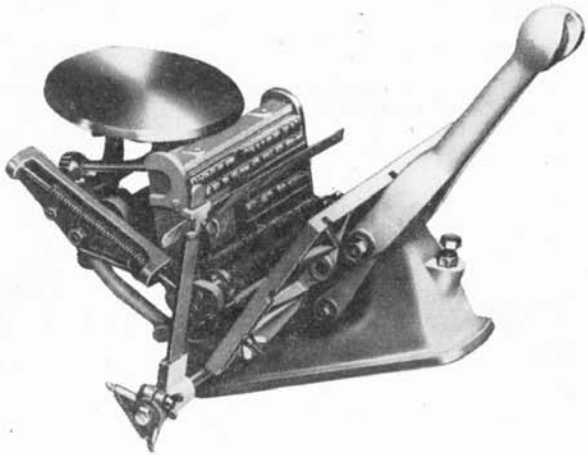

Fig. 37. Adana High-Speed Printing Machine Model No. 2.

Getting Ready for Work . . .

We assume that you have just bought your machine, together with its accessories, and that it is lying before you on the table in its box. Unpack the box carefully and remove the machine. Certain parts of the machine may be separate, notably the lay-guage, the handle, tympan card (a card with slots in its side which later will be placed upon the platen), and the gripper finger attachment.

Put the machine on the table and clean it thoroughly. It was despatched from the works coated with vaseline and other grease to ensure that it would not deteriorate in storage. The best cleaning agent is methylated spirits, which should be used in preference to petrol. Any sediment left after rubbing with the methylated spirit can be removed with a dry rag.

It is essential that all parts are perfectly clean before attempting work —particularly those parts with which the ink will come in contact. If any grease be left on the ink plate it will result in spoiled work. The handle, which is packed in the box, need not be cleaned, but it is advisable to put a drop of oil in each of the two holes where the bolt, which hinges it to the frame, is placed.

The following instructions only apply if through any circumstances the machine is not completely assembled before despatch.

First attach gripper arm and finger to the machine if not already in position. Place the tympan card on the platen so that the slots in the card are over and correspond with the slots in the metal platen. Fix this card to the top edge with the three clips provided. Now place the lay-gauge at the bottom, over the tympan card with the shorter side flat against the card, the small ledge projecting outward. Insert the screws in the slots and fix with the fly nuts under the platen. These can be tightened up when the lay-guage has been adjusted to its correct place.

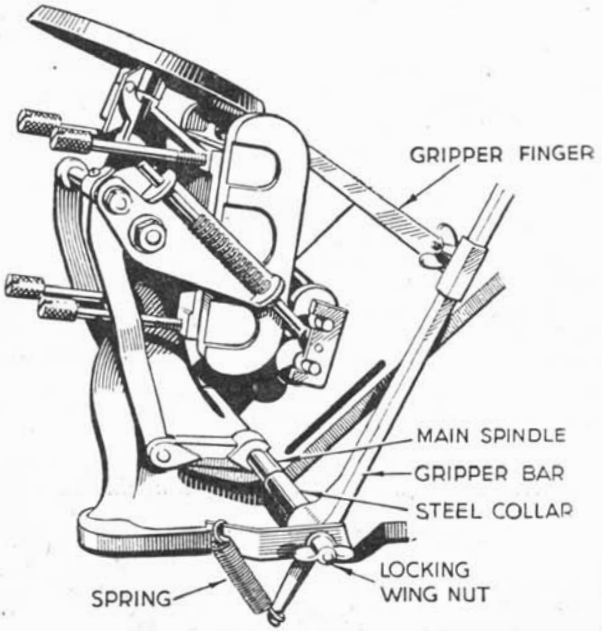

Fig. 65. Gripper Finger attachments on No. 1 High Speed Machine.

If not already fitted, slip the Gripper Finger on to the upper part of the Gripper Bar. It can be firmly fixed in any required position by means of the gripper box or bolt with which it is fitted.

When you unpack the No. 2 High Speed you will find the gripper assembly fitted to but closed up to the platen on the machine. Using a mallet or wood block, tap the spindle through the base of the machine until the upright arm of the gripper is a full inch clear of the left-hand edge of the platen. Turn this arm until it stands at about 30° from the face of the platen. Turn the the machine up and tighten the square-headed screw which will be found beneath the main casting until it firmly grips the bottom spindle and holds the gripper firmly in position. This allows plenty of room for feeding stock into the machine, and at the same time ensures a firm hold by the gripper finger in the printing position.

Adjustment of the No. 2 gripper attachment is similar to that of the No. 1. In this case, however, the gripper bar and sleeve are cast all in one piece and the sleeve is slid on to the main spindle, adjustment being obtained by means of a hexagonal-headed adjusting screw which is threaded into the bored shaft of the spindle (see Fig. 66). The gripper finger itself is adjustable horizontally (as well as vertically), being slid through the gripper box to any desired position.

This gripper finger arrangement is the most effective paper-gripping device fitted to a printing machine. Its purpose is to hold the paper firmly against

the platen during the printing operation so that even the heaviest forme can be printed without the slighest fear of the paper being pulled up from the platen on to the forme by the tension of the ink. The gripper fingers being fully adjustable with a two-way sliding movement can easily be set in position to suit any variety of paper or card.

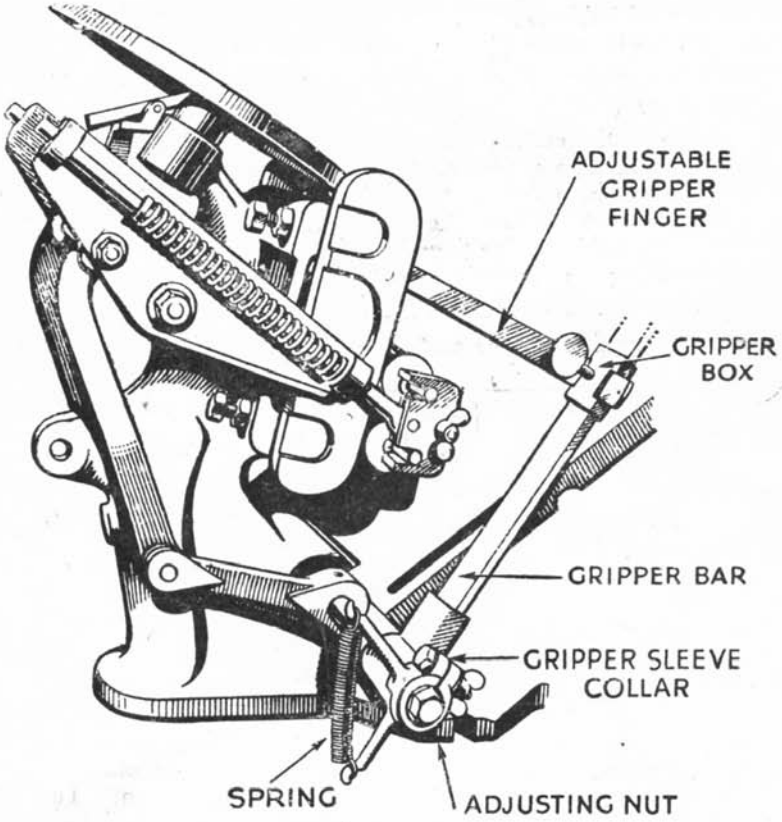

Fig. 86. Gripper Finger Adjustments on No. 2 High Speed Machine

The instructions given up till now apply to both Model No. 1 and Model No. 2. The handle is the next part to be fitted to the machine, and as the design and method of fixing of each varies, separate instructions must be given.

Model No. 1. Place the handle in position by means of the bolt provided for that purpose. The curve of the handle must be downwards with the small roller at its ends against the rib on which it works. Thread the bolt through the holes in the handle and through the spindle hole in the main frame and secure with the locknuts provided.

Model No. 2. The handle on this machine operates on the "toggle" principle instead of the roller acting on rib principle. This means that you

have two bolts to fasten instead of one—the bolt which pivots the handle on the main frame (as in Model No. 1) and the bolt which connects the application end of the handle to the toggle already attached to the back of the platen. Except when packing difficulties arise the machine is despatched from our factory with handle ready fixed.

It will be advisable to remove the ink plate for a moment before fixing the handle. Oil the ink plate spindle lightly and replace.

The question of the position of the machine is of some importance. A strong and rigid work bench is essential. The machine should be firmly screwed down in the centre of the front edge of the table. A good tip is to bolt the machine to a piece of steel or hardwood, then screw or clamp to the table. It has been found by experience that the best position for the machine is on the outer edge of the table, so that the handle projects beyond the table edge. In this position there is no fear of the lever jamming the table and thus preventing the platen from contacting with the type.

Fig. 40 illustrates the best lay-out of your work bench, showing the position of the machine and the disposition of paper to be printed and printed

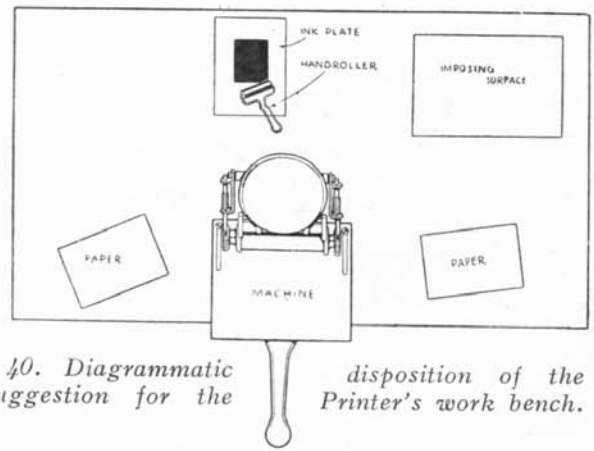

Fig. 40. Diagrammatic suggestion for the disposition of the Printer's work bench.

sheets on either side. This position enables the operator to stand directly behind and over the machine, thus giving a complete control and an easy position for operating.

From now onwards look closely at the illustrations. They have been prepared with a great deal of care and show the working of the machine in every detail. They are worth more, from the instruction point of view, than ten thousand words of written explanation.

In the instructions that follow it may appear that we go back and recapitulate what has already been said, *viz.*, we give instructions for the removal of the type bed of the No. 1 machine when you may already have done so in order to set your type. This is done quite intentionally for the sake of clarity.

You may remember that, in the previous chapter on type-setting, you were referred to this chapter for instructions on the removal of the bed. The apparent reversion of order was made necessary in order to put all the points in their logical sequence.

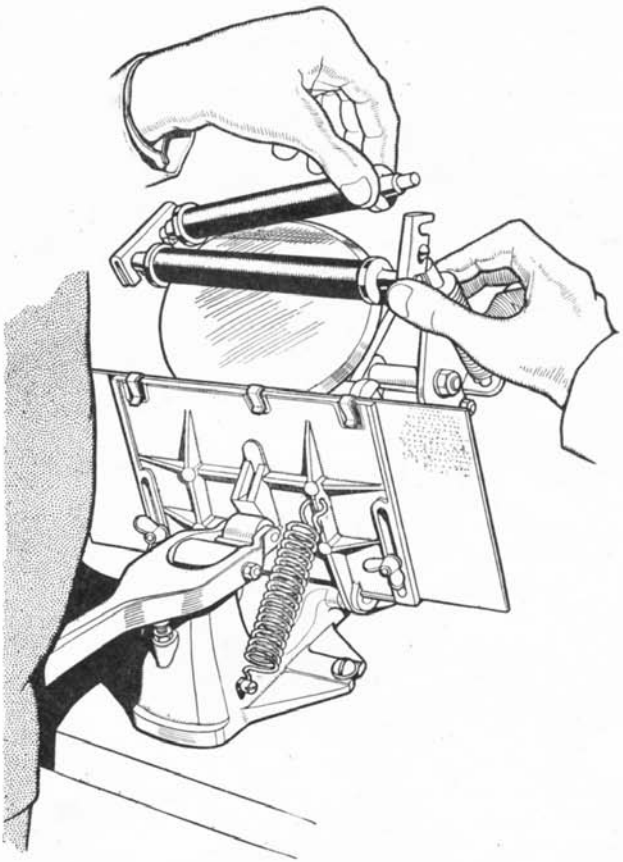

Fig. 41. Removing the rollers. Note that the impression handle is held down to its fullest extent against the body of the operator.

This chapter will be divided into a number of such sequences so that if there is any point on which you find difficulty you can refer with ease to the particular sequence you desire.

1. The Removal of the Rollers

The machine is standing complete, as illustrated in Fig. 36. Before you can remove the bed it will be necessary first to remove the rollers.

Fig. 41 illustrates this operation. Note that the rollers are resting on the top of the ink plate during this operation. This obviously can only be done by pressing down the hand-lever. But as in the removal of the rollers two hands are necessary, the operator must hold down the hand-lever by pressing it against the body. The artist has endeavoured to show this as clearly as

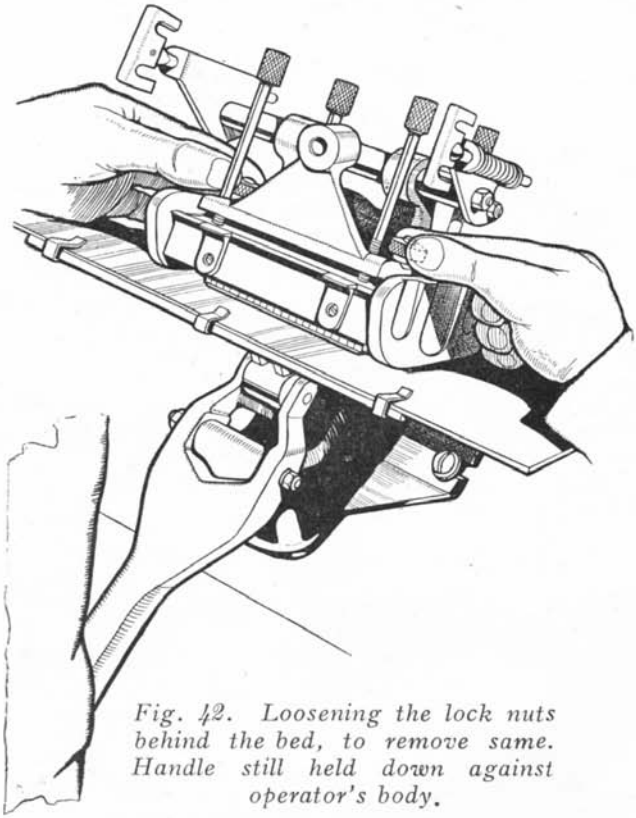

Fig. 42. Loosening the lock nuts behind the bed, to remove same. Handle still held down against operator's body.

possible. Remove the top roller first by sliding out the right-hand side, as shown in the illustration. Then slip out the left-hand bearing. It will then be found a simple matter to withdraw the lower roller.

2. Releasing the Locknuts behind the Bed

Remove the ink disc and lay it aside. Still holding the handle down against the body, loosen the locknuts behind the bed as shown in Fig. 42.

It may be found that at times the locknuts are stiff and difficult to remove. Do not try to force the nuts. It is much better to release slightly the pressure-adjusting screws; a slight movement or release of these will immediately loosen the locknuts. Fig. 43 clearly illustrates this operation.

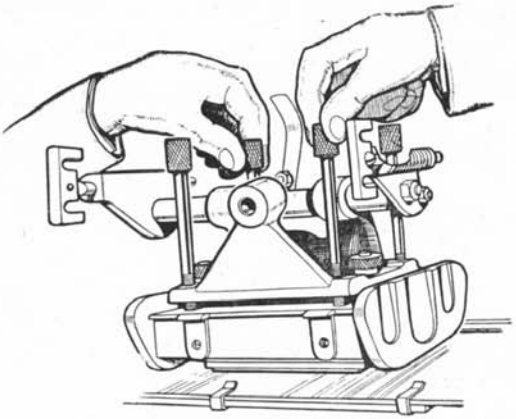

Fig. 43. Loosening the bed-adjusting screws. This operation should only be carried out if absolutely necessary. Note particularly the position of the hands, releasing diagonally opposed screws.

Note that any adjustments to the pressure-screws should be made diagonally, corner to corner. Do not loosen the two top screws and then the two bottom screws or *vice versa*. The top left-hand screw should first be loosened together with the bottom right-hand screw, then the top right-hand together with the bottom left-hand.

3. The Removal of the Bed

Fig. 44 illustrates the removal of the bed from the main frame. Once the locking nuts have been taken off it is a simple matter to withdraw the screws that hold the bed to the frame. Note that in this operation the handle has been released and the platen is in the normal laying-on position.

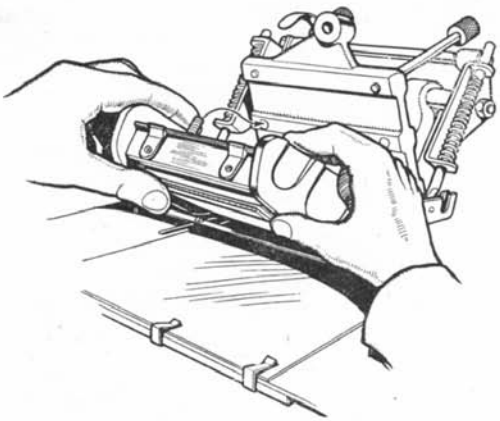

Fig. 44. Removing the bed from the machine.

If you are using a machine fitted with a chase in the type bed, it will not be necessary to remove the bed from the machine. To remove the chase from the bed of either Model 1 or 2 simply loosen the set-screws on the top and left-hand edges of the bed. The chase can then be easily slipped out into the hand.

4. The Return of the Bed

Between stages (3) and (4) comes the setting of the type and the locking of the type forme either in the chase or in the bed. We will presume that the forme has been properly composed, planed, and locked up and that you are ready to return the bed to the machine. (Figures 45 and 46 illustrate a forme locked direct in the bed and in a chase in the bed, of a No. 1 High-Speed machine respectively.)

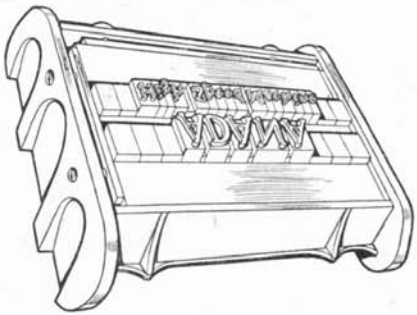

Fig. 45. Forme locked direct in the bed.

In Fig. 47 is shown the replacement of the type bed. You will notice that the illustration shows that the nut is by no means fully onto the screw. This point is very important. Do not fully tighten up the locking nuts until the final adjustment of the pressure screws has been made. The pressure screws should not, however, be adjusted until test prints have been made, and we are not yet at that stage. Therefore, in replacing the bed tighten the screws slightly less than fingertight; failure to observe this point may result in

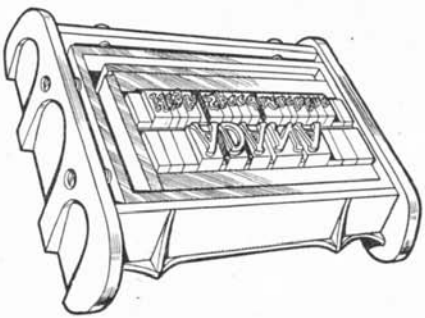

Fig. 46. Forme in a chase, locked in the bed.

your forgetting that the locking nuts are tight when you come to adjust your pressure screws, with the result that you may buckle the bed of your machine or even force the pressure screws through the back of the bed by exerting too much pressure.

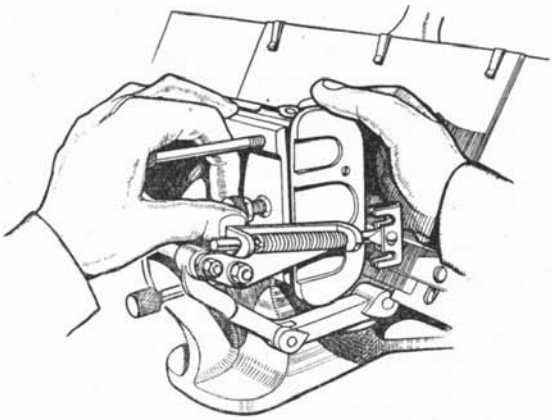

Fig. 47. Replacing the type-bed on the frame.

5. Adjusting the Bed to the Platen

Fig. 48 shows the adjusting of the bed to the platen. Press down to the pressure control stop on main frame beneath handle. Now, making sure that the locking nuts are loose, adjust the pressure screws a quarter-turn at a time. This adjustment needs great care, and the pressure screws should not be given more than a quarter-turn at a time in the following rotation : top left-hand screw, bottom right, top right, bottom left. In no circumstances should two adjacent screws be altered consecutively.

Adjust the screws until the type bed is nice and firm against the face of the platen. After altering the screws, to test whether the adjustment is accurate, place the flat of the hand on the face of the type bed. If no movement can be found, the bed is accurately set and will give a level print, but if it moves or wobbles at all, it shows that one or more of the screws are not holding tight against the back, and these must be adjusted until the bed is as firm as a rock.

For preliminary test prints only the lightest of pressure should be applied. The lighter a test (or make-ready) print is taken, the better can be seen where, if any, make-ready is required. Remember that with the bed properly adjusted very little pressure is required to obtain a clean, level print.

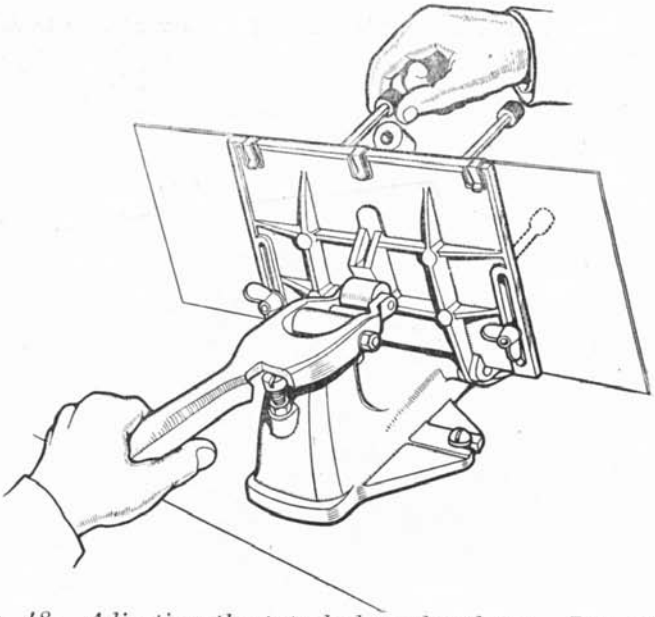

Fig. 48. Adjusting the type-bed to the platen. Part of the handle is cut away in the drawing to show the impression control stop on the main frame. The handle must press down hard on this screw, otherwise adjustment of the bed will be inaccurate.

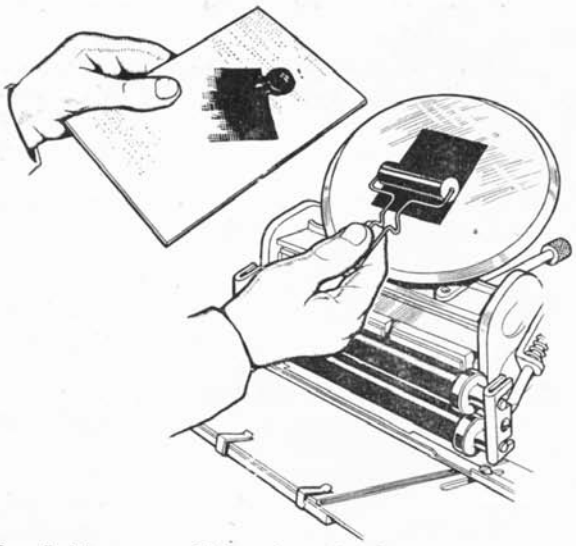

Fig. 49. Inking-up. Note that the operator uses very little ink, and has rolled it out well on a hand ink-plate.

6. The Return of the Rollers

Little need be said about this operation. It is simply the reverse of the operation described in Section (1). Return the ink disc, bring the platen up to the type bed which will bring the roller arms into position at the top of the ink plate, and holding down the hand-lever against the body, replace the rollers in their bearings (Fig. 41).

7. Inking-up

Place a small quantity of ink on a smooth surface such as a piece of level glass and roll it out well with the small hand-roller. Do not use too much ink. This must be thoroughly rolled out again and again until it is well broken up. The more rolling it receives on the ink plate the better will the film of ink become. Apply the ink to the machine

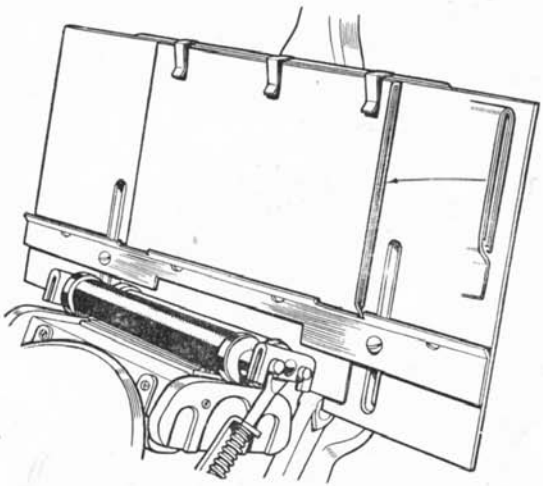

Fig. 50. Make-ready—Putting on the tympan padding paper. The inset shows the method of folding this paper so that only one sheet is held under the lay-gauge.

ink plate with one or two rolls only of the hand-roller. Now bring the rollers to the machine up over the forme in the bed and roll the ink out on the ink plate by running the rollers over the ink plate only. Do not bring them down over the type set. Occasionally give the ink plate a turn to ensure that the whole is well covered (Fig. 49). One of the greatest faults of the beginner is to use too much ink. Too much ink prevents the production of clear, clean and sharp printing. Though the ink on the ink plate may appear to be very little, do not be misled and apply more before making a trial print. You will find as time goes on that the smallest amount is quite sufficient. Remember, it is always easier to apply more ink than to take away too much. The latter means cleaning it all off and starting again.

8. Make-ready (Part 1)

Before taking a trial print on the machine cut a piece of strong white paper to a length less than the distance between the slots in the tympan card and wide enough to extend from the top edge of the tympan card to the bottom edge of the lay-gauge when the latter is in correct position. Secure one edge of this sheet between the lay-guage and the tympan. Three or four sheets of soft paper are placed between the tympan and this top sheet. Pull the paper taut over the padding sheets and secure the loose edge to the top of the card with the padding clips provided, making certain the sides do not foul the slots in the card. Note that only the top sheet goes under the lay-gauge, for if more than one sheet is placed underneath the lay-gauge, it is possible that the lay-gauge will be bent, and therefore unable to hold the job in proper position. These points are fully illustrated in Fig. 50.

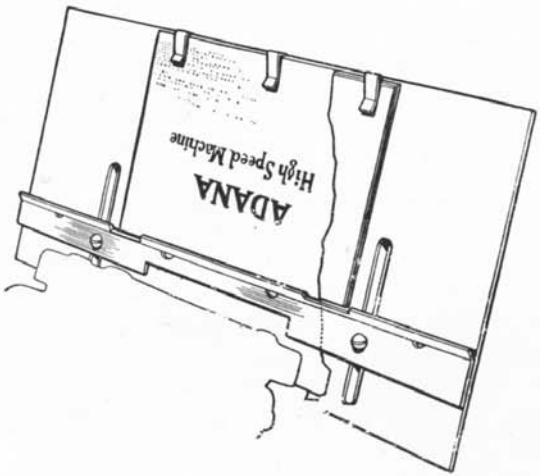

Fig. 51. Make-ready—Taking an impression on the top sheet of the tympan paper.

9. Making a Test Print

We are now ready to make a test print. The bed is locked up, the tympan padding on the platen with the lay-gauge at the bottom and the machine is inked up. Bring the rollers once or twice over the ink plate and down over the type forme to ensure that the type is well coated with ink. Then bring the platen firmly up against the type forme. Very little pressure is required, and if you have gone through the previous processes correctly, you will now find an impression of your type matter on the tympan sheet (Fig. 51).

Take two or three more pulls on pieces of paper and examine them. You may find that the print is not quite even, and that the lay-gauge almost

certainly will have to be altered. Therefore, before you proceed with the actual printing, you will have to alter your bottom lay-gauge, put in a side lay-gauge, and alter your make-ready.

10. Adjusting the Lay Gauges

To find the position for the lay-gauges place a sheet of the paper to be used for the print on the tympan allowing the imprint to show at the side of the sheet. Move the paper up or down until the correct margin is obtained at the top and bottom, and mark a line with a pencil at the bottom edge. Loosen the fly nuts that hold the lay-gauge to the platen, and adjust the gauge so that its top edge is on the pencil line you have just marked. Two points must be observed:—Firstly, the lay-gauge must be perfectly horizontal; secondly, not more than the top sheet of the tympan padding must be held by the lay-gauge. As we have already explained, if more than one sheet is placed under the lay-gauge there is a tendency to twist and buckle it.

To obtain the side lay place your sheet of paper in the centre of the tympan (allowing the print to show below the bottom edge), and move the sheet from side to side until you have obtained the correct margins on the sides of the paper. Mark a pencil line down the side on which you wish to fix your gauge. This pencil line is the position of the side lay. For this side lay it will be necessary to use a gauge pin or a side lay made from bent-up paper pasted on the tympan. Fig. 52 demonstrates clearly how the paper lay-gauge is made and shows the platen with lay-gauges in position and a job lying on the platen.

Take another print on an actual sheet to be printed, dropping the sheet to the lay-gauges. If you have been careful in marking out the positions no further adjustment will be necessary. If, however, the margins are not right, it will be necessary to adjust the lay-gauges accordingly.

11. Make-ready (Part 2)

The business of making-ready may possibly appear, to the beginner, very professional, but it is a process which is carried out on all machines, even the giant cylinder presses used by the professional printers. In fact, the printer always allows time for make-ready according to the nature of the job when estimating the time to be spent on any particular piece of work. We will assume that you have taken care with the previous operations, and that now your print is lying before you. It will probably be noted that there are some places on the sheet where the type does not show up as clearly as in other parts. If it is heavy at the bottom of the sheet, *i.e.*, at the hinge end of the platen, and light at the other, it indicates that too much pressure is being used. If it is light at the bottom and heavy at the top. there is not sufficient pressure. If there is not very much difference between the light and the heavy shade, the fault can most easily be rectified by adding to or decreasing the padding from the back of the tympan card taking care not to disturb the register of the job. If, however

there is a big discrepancy between the weight of the print at the top and bottom, it may be found necessary once more to adjust the pressure screws. Remember all you have been told about pressure screw adjustment, and do not forget to loosen the locking nuts before you touch the screws. Obtaining the correct pressure is one of the most important features of making the machine ready.

Once you have got the pressure even, you may find that there are small places where the print is not as clear as the remainder which are not due to insufficient padding. To remedy this, what is known as "Spotting up" is done. "Spotting up" is the sticking of thin pieces of tissue paper on the imprint of the tympan where the unclear print falls, until the print, taken on another sheet, is as clear as the remainder. This point is brought out in Fig. 53, the patch of tone showing where "spotting up" is necessary. Be careful to place the "spotting up" paper only on the part affected. Do not let it overlap or it will cause the print which it overlaps to print too heavily.

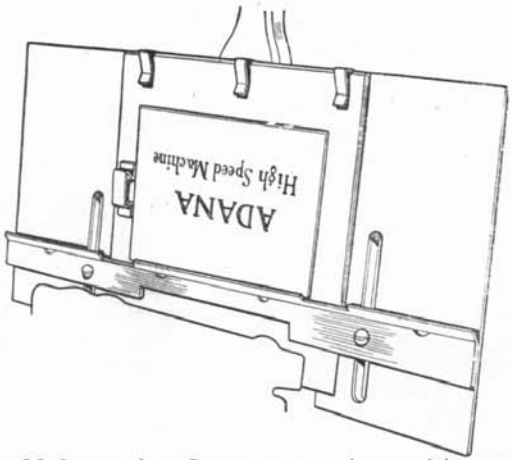

Fig. 52. Make-ready—Lay gauges in position and a trial print taken on the actual stock to be used. Note how the side lay-gauge is simply made from stiff bent-up paper.

Make-ready is, briefly, packing one or other of the pressure surfaces with paper or padding so that the depressed type is brought up or the tympan corresponds with the type surface. Where inequalities occur, due neither to too much padding or too little padding, the matter may usually be rectified either by pasting on or cutting away the padding. Should it, however, be necessary, the methods given above will help to overcome it. As a rule, you will find that most make-ready is necessary when using a forme containing old and new type or a forme which contains blocks as well as type. Due allowance for this fact should therefore be made in estimating the time spent on the job. If the packing is too soft the type is liable to press heavily on the paper and cause an embossing effect on the back. This is distinctly bad, as perfect print shows no sign on the back of the paper at all.

When making ready with a small block amongst the matter, make sure

it is type-high; often it is necessary to bring it up a little, and the best way of doing this is not to add to the padding on the tympan, but to paste a sheet of paper exactly the size of the block underneath the block, taking care that the paper does not project beyond the edge. This process is known as underlaying. Do not put on too thick an underlay to begin with, otherwise you will find that whilst the block prints perfectly, the type will no longer be clear.

The great secret of making-ready, in fact, is to take care and proceed slowly, rectifying one fault at a time, otherwise you will find that the whole of your work is in vain, and that you might as well start all over again.

Once a perfect print has been obtained you can carry on with the printing of the job.

Printing on the Machine

You have taken a perfect test print, and are thoroughly pleased with the result and are now ready to start the actual business of running off the job. Although this may quite possibly be the longest process in length of time, it is very easily described, and this chapter will, therefore, be extremely short. You place your paper to be printed on either the right-hand side or the left-hand side of the machine, according to whether your side lay-gauge is on the left or the right of the platen.

Should you have a very long run to print off, you may find it desirable to change hands during the course of the run. This is easily accomplished by changing your side lay from right to left or *vice versa*. The change of the side-lay automatically entails the change of hands for operating the machine and for feeding it.

So you can go on running off your paper until the end of the job. You will only have to stop occasionally, in order to put a little more ink on the ink plate. Do this each time with the hand roller, rubbing the ink out well each time, and remember what you have been told about using too much ink.

Incidentally, it may be worth while to clear up here a point which commonly puzzles beginners quite a lot. The amateur on starting printing is usually bothered by the fact that printing ink is quite unlike any ink that he has previously known and cannot understand why it should be a thick, sticky substance instead of the fluid to which he has been hitherto accustomed.

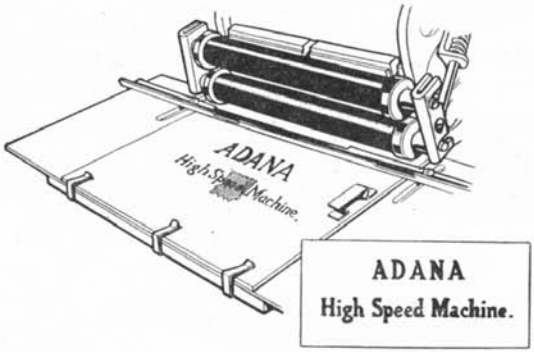

Fig. 53. Make-ready—" Spotting-up." The patch of tone on the platen shows where spotting-up is necessary. See the faulty letters " e, e, d " in the inset.

In fact, there have been cases when customers have written to Adana complaining either that they have received no ink with their outfit or that it has become dry and sticky!

Of course, it would be absolutely impossible to use a fluid ink such as is employed for writing on a printing machine.

Printing ink is a highly concentrated and powerful substance with an intense covering power, and a tiny quantity will go a very long way. So, when using ink remember to remove from the tin only a small "pellet" of ink and rub it well out on a flat plate with your hand roller before ever you apply it to the ink plate of your machine. The more ink is rolled and broken up on your ink plate, the better will be the result on the machine.

Care of the Machine

In order to produce good work it is essential always to clean the press and parts with which ink comes in contact immediately after using the machine. Starting with the press, clean the whole machine thoroughly with paraffin, then remove grease with a dry rag.

No ink should be left on the ink plate, otherwise it will harden and spoil the next job. It is even more important to remove all ink from the rollers as rollers are ruined once ink has been allowed to harden and encrust upon them. The rollers shoud be very carefully looked after. They should never be left resting on a type-forme or in any other place where they can become indented or damaged. The least indentation or cut on rollers starts trouble and is the prelude to bad printing results.

Oil up all the moving parts after cleaning, especially roller carriage and springs, but take care not to let any oil fall on the ink plate or rollers. It has already been explained that printing ink does not mix with oil or grease and any oil left in the machine spoils the printing quality.

CHAPTER IV

PRINTING WITH ADANA FLATBED MACHINES

THIS section of the instruction handbook is devoted to the Flatbed machine only. If the Flatbed user has already read the previous section on High-Speed machines it will not do him any harm. In fact, the reading of this chapter by users of the simpler machine is to be recommended as there are many points of similarity in operation—*e.g.*, the correct procedure in make-ready—and the additional information contained in the previous chapters cannot fail to prove helpful.

In operating the machine a workbench arrangement similar to that adopted for the High-Speed model, the layout of which is shown in Fig. 40, will prove equally suitable. Owing to the heavy and solid construction of the

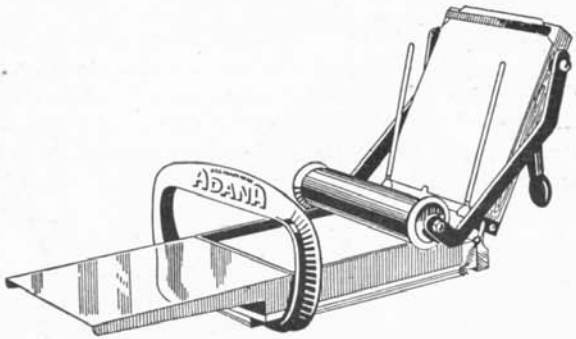

Fig. 54. Opening the machine.

Flatbed and its different method of operation, it will not, however, be essential to screw or bolt the machine to the table. From the amateur worker's point of view this is sometimes an advantage, as it means that the machine can be packed away after use.

As in previous chapters we must recommend the student to look carefully at the illustrations. These, taken in conjunction with the text, will teach you all about the use of the machine.

For instruction purposes we will imagine that the beginner is going to use this machine to print a small card, the setting of which has already been described in the chapter on composition.

The composition is completed and the type forme neatly locked up in the *centre* of the chase (remember this point!) is all ready for the machine.

First Operations

Fig. 54 diagrammatically shows the opening of the machine. The illustration is self-explanatory; this action, with its reverse movement the closing

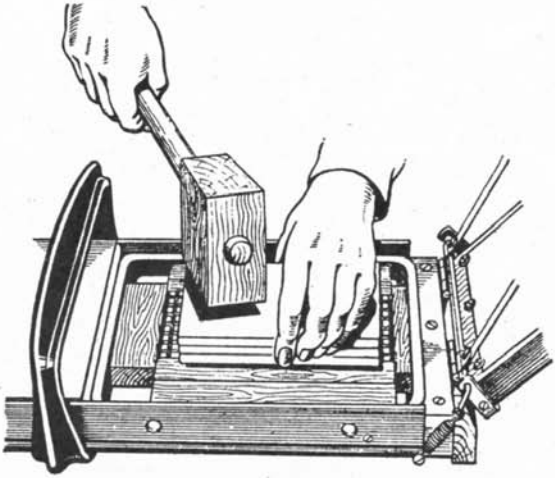

Fig. 55. Planing a Forme.

of the machine, will be made for every print that is taken upon the machine.

The next illustration, Fig. 55, shows the forme dropped into place in the bed of the machine. It also illustrates a very good tip for the Flatbed machine user—the planing of the forme within the bed. Planing the forme in the bed, obviating the necessity for an imposing surface, is just one of the little advantages that the Flatbed machine user has over the High-Speed man.

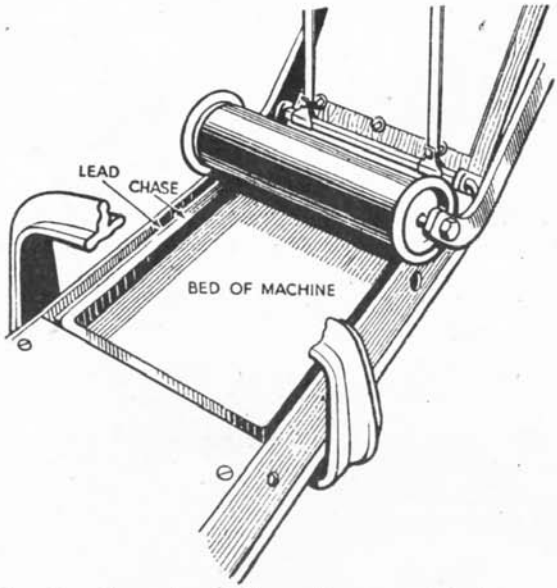

Fig. 56. Chase in machine with piece of lead between side of chase and side of machine.

Fig. 57. Effect of oil on type.

As a rule, most chases are made a tight fit to fix firmly in the bed of the machine, but it occasionally happens that there is a slight sideways play, or to and fro movement, within the confines of the machine bed. Even though this movement be ever so slight it should be checked before actual printing. Trouble would otherwise be caused as there would be no guarantee as to where each successive print would fall on the paper or card being printed, and movement one way or another, however slight, makes all the difference in the correct register of a print.

The trouble can usually be obviated by inserting a lead or leads of appropriate thickness between the side of the chase and the outer frame of the machine bed. (See Fig. 56.)

Note in Figure 55 that the gripper fingers have been moved well aside along the bar quite clear of the type. It is best to keep them in this position until final adjustments of the machine have been made and you are ready to take the first print. Considerable damage can be done to type if a gripper finger is accidentally caught between the surface of the forme and the platen.

Make sure that all parts of the machine are thoroughly clean. Use petrol and be quite sure that any deposits left are carefully wiped away,

Fig. 58. Only the smallest quantity of ink should be used.

Then oil the working parts of the machine. Remember to be careful that no lubricating oil falls on any part of the machine likely to be touched by the inking apparatus. A typical example of " oily print " is shown in Fig. 57; note the smudged effect.

Inking-up

The next stage is the inking up of the machine. Do not apply ink direct to the machine ink plate. Get a sheet of smooth glass or steel and with the aid of a knife put a very small quantity of ink on this improvised ink plate—an amount about the size of a small pea would be quite sufficient. Roll this out thoroughly with the small hand roller supplied with the outfit until it is well broken up and distributed. The more the ink is rolled the better it becomes, giving that smooth, thin film that makes for perfect inking and hence printing (Fig. 58).

This done, give one or two rolls over the machine ink-plate with the hand-roller, coating it with a fine film of ink. It may hardly appear enough to the beginner, but do not add any more for the moment. It is a safe rule always to use too little ink rather than too much.

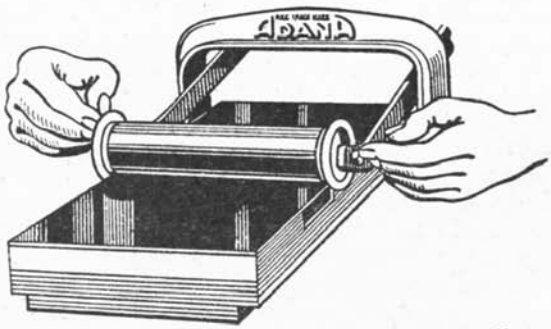

Fig. 59. Turning roller with thumb and forefinger of both hands.

Now get the machine roller coated with ink, by rolling it to and fro over the ink plate. Do not let it roll over the type at this stage. While doing this occasionally turn the roller round with a twist of the forefinger and thumb, to ensure that any parts of the roller which have not become charged with ink get loaded (Fig. 59).

When the ink is fairly distributed over the ink plate and the roller is covered with a thin film, open the platen to its fullest extent, thus drawing the roller back over the type. Press the roller down gently as it goes over the type and make sure that the type is properly inked.

Great care must be taken to ensure that there is not too much ink on either the roller or the machine ink plate. Too much ink will clog up the small counters (the depressions between the lines of the type face), giving a spotty effect to the finished print.

Roll the machine roller once or twice over the forme, making certain that it comes into contact with the type without slurring.

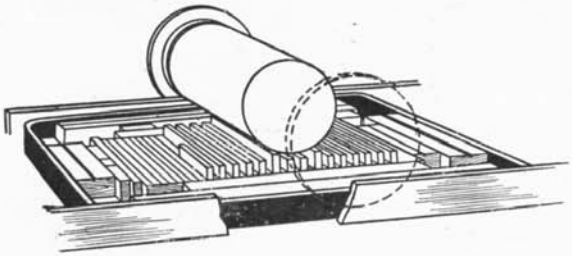

Fig 60. Type pulled up and not being inked by roller.

Actually the machine roller is heavily constructed and balanced so as to obviate any tendency towards slipping. But if it is not running true and parallel on its bearers the defect should be immediately rectified to prevent trouble.

If the forme has not been properly planed and some lines are higher than others, it is obvious that certain parts of the forme will not be properly inked. (See Fig. 60.) Check all these points before going on to the next stage of the operation—preparing the tympan padding.

Make-ready

Before closing the platen down on the type, in order to print, some sort of padding must be fixed onto the face of the platen which comes into contact with the type face.

The padding of the platen, which you have already learned is known as make-ready, is one of the most important steps in preparing the machine for printing. The ill effects of inattention to proper make-ready cannot be minimised.

Two tympan padding cards specially cut are supplied with each Flatbed machine, and further cards can be obtained from Adana as required. The ideal padding for the platen consists of two of these cards with a layer of two or

Fig. 61. Not enough padding.

Too much padding.

Fig. 62. Correct padding.

three sheets of semi-absorbent paper, such as newspaper or tissue, in between. Another good material for padding purposes are the poster sheets issued by newspapers as they are not too heavily indented by type. Consequently they form an excellent padding.

It must be obvious that some kind of padding must be used, whatever the job is—even if it is only a single word. The amount of padding to be used, however, varies according to the nature of the job being printed. Thus a full forme of type such as a magazine page will require considerably more padding than a visiting card forme. This question of the correct amount of thickness of padding constitutes a frequent puzzle to the beginner. As the correct amount to be used is largely governed by the size and weight of the forme, experience and a trial-and-error method of procedure alone can teach.

Fig. 61, an illustration of a full-forme handbill, shows clearly the effect of too much and too little padding on the finished print. Heavy impression at the hinge end of the platen tailing off to faint means that there is too much padding on the platen. The reverse—heavy impression at the ink plate end tailing off to faint at the hinge end, means insufficient padding.

Contrast with Fig. 62, a perfect print, taken on a machine on which the padding is correct.

For trial purposes use two padding cards with three or four sheets of paper in between. The number of sheets of paper can be increased or decreased later once a trial print has been taken.

(In adjusting the quantity of padding on the platen it is not necessary to remove completely the steel bars which hold the padding in place. It is sufficient merely to loosen the wing nuts on the upper side of the platen. The bottom bar at the hinge end of the platen should be dealt with first and completely tightened up, before proceeding to make adjustments from the top.)

To proceed; to take a test print close the platen and apply a slight pressure only. When the platen is lifted a print of the forme in the machine will be found on the tympan. If everything has been done according to instructions and if the quantity of padding used is correct the print will be perfect and no further adjustments will be required.

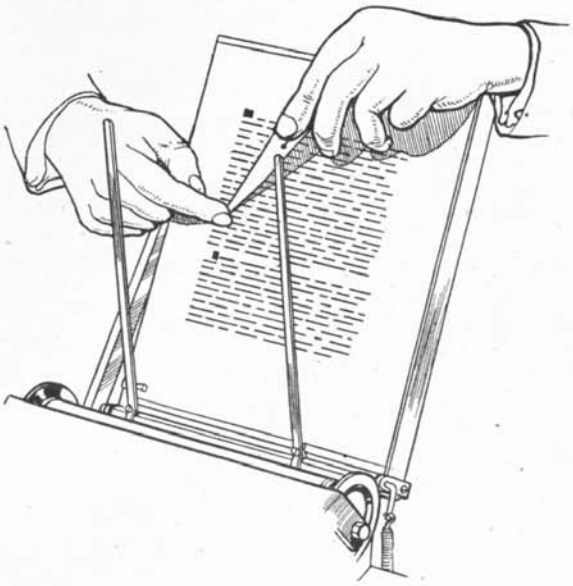

Fig. 63. Spotting up.

It is best, however, to examine the print carefully, watching for certain points :—

(*a*) The density of the print.
(*b*) The "evenness of the impression."
(*c*) The quality of the printing.

(*a*) The density of the print, or rather the density of the inking on the print, is governed by the ink on the ink plate. If the ink is spread unevenly on the ink plate you cannot expect to secure overall even inking on the print. The fault is easily corrected by distributing the ink on the ink plate more evenly with the hand-roller.

(b) The evenness of the impression depends, as already explained, upon correct tympan padding. The tympan padding should be adjusted as described in foregoing paragraphs to correct any faults in this direction.

(c) Where the imprint is sharp and clear over the whole print with the probable exception of one or two small patches, "spotting-up" will be necessary. Spotting-up is a system of pasting onto the tympan thin pieces of paper over the parts that are not clear.

Great care should be taken that the paper only covers the faint part and does not overlap the other parts of the print. Should the spotting-up paper cover any of the clear print, it will throw the whole out of sharpness and cause more trouble. Fig. 63 shows the operation of spotting-up on the

platen of the Flatbed machine. The whole process is referred to in greater detail in the chapter on the operation of High-Speed machines, which should be referred to.

Once a perfect print is obtained all that remains to do is to fix the lay-gauge pins and to adjust the grippers, so that they hold the stock to be printed. Reference to page 39 in the chapter on High-Speed machines gives all necessary details for finding the correct position for the gauge pins. This and a glance at Fig. 64 should make everything quite clear. Note, of course, that there is no adjustable lay-gauge on the Flatbed machine and gauge pins must be used instead. Otherwise the operations are identical.

When the gripper is moved into position as in Fig. 64 do not forget to tighten up the nut at its foot to keep it firm and prevent it from slipping. The gripper not in use should also be tightened up. On some models self-holding gripper fingers are fitted.

Everything is now ready for printing and the printer can go right ahead with the job, inserting one card, closing the platen and applying pressure; opening the platen, extracting the printed card, inserting another and so on until the job is complete.

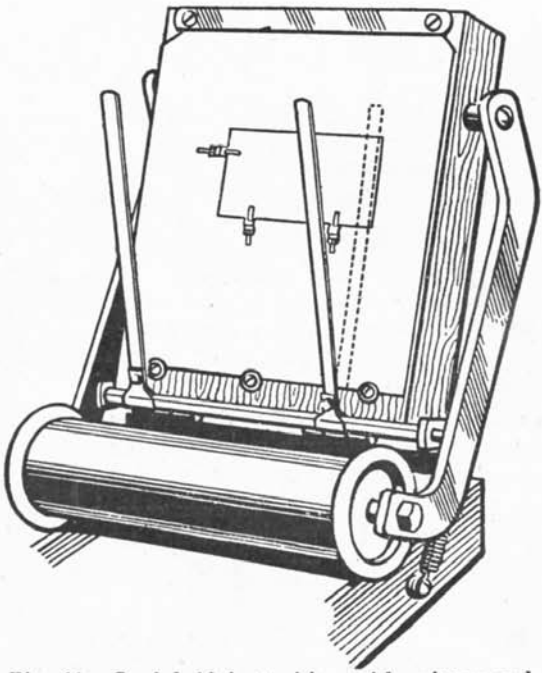

Fig. 64. Card held in position with gripper and gauge pins.

CHAPTER V

Final Hints

IT is our experience that the beginner, through over anxiety, is apt to forget important points—and then blame the machine. So these few pointers—which every beginner in print will do will to remember—are given without apology.

Keep your machine and hands clean.

Oil up the moving parts of the machine, but do not let any oil fall on the ink plates or inking rollers.

Always give the same amount of care to make-ready in subsequent jobs as was given to the first.

A print on the tympan that is not dry is apt to give a set-off to paper that is being printed. It can, however, be obviated by rubbing a little French chalk over the wet print. Be careful not to let the chalk fall on the rollers.

If ever you are in doubt refer to this instruction book.

All necessary information is contained in these instructions, and if they are followed no difficulty should be encountered.

Read the instructions carefully and go slowly.

Remember the old adage, *Festina Lente* (MAKE HASTE SLOWLY)!

Don't be rough with your machine.

Fix machine firmly to bench (see page 30). Do not attempt to work with it unsecured.

If Rozalex or similar cream is worked into hands and finger nails before starting you will find any ink on hands is easily removed by washing with ordinary soap and water afterwards.

Ink.

Remember—use the *minimum* not the maximum.
ADANA No. 1 Black for Soft Papers.
ADANA No. 2 Black for Hard Papers, Cards and Process Blocks.
ADANA No. 3 Black for Very Quick Drying.
Keep ink tin closed; it will save your ink from drying up rapidly.

Running Up Ink For Colour.

To obviate forme getting over-inked, and to use a printers' phrase " bunged up ", run up your colour without the chase in machine.
The judicious use of colour adds attraction to the finished work. Don't overload—use with moderation.
See that your ink is clean—remove any trace of grit or scum.

Rollers.

Always clean them before and after use. Never leave on machine. Do not expose them to heat, strong sunshine or undue humidity.
Keep roller composition free from contact when storing, and free from indentations and cuts.

Impression Screws.

Adjust gently. Never force these to remedy faulty composition. Result would be bad work and damage to machine bed.

Don't forget to loosen the locking nuts before touching the pressure screws.

Rules.

When brass rule is scarce substitute em rules and leaders.

Lead Spacing.

1½ Point is 8 to the 12 point em.
2 Point is 6 to the 12 point em.
3 Point is 4 to the 12 point em.

Angle Quads.

These are the same height as quads and used for setting matter diagonally, such as telephone numbers on stationery.

Blocks.

If you want to print your own designs, make a sketch in Indian Ink on Bristol Board or good quality white paper. Remember the block will reproduce all *faults* unless re-touching is done by artist. The cost of making small line blocks varies, but is in the region of 25/- per minimum of 14 sq. inches, plus 1/6d. per sq. inch every additional inch.

Simple designs can be cut in lino. ADANA supply special mounted type-high lino.

Avoid excessive solid areas as the result is governed by the ink carrying capacity of the rollers.

Quotations.

These are extra large quads and are great labour savers; also of value when furniture is in short supply.

Planing The Forme.

The imposing surface must be dead flat and solid. Small cast iron imposing surfaces can be had for 12/6d.

Lay Gauges.

For High-Speed models. When assembling on machine bow ends very slightly upwards. The tightening will then ensure a good firm and flat lay.

Borders And Illustrations.

These attract, but use sparingly. In the majority of work they should not dominate composition.

Printing On Fabrics.

When printing on silks or other fabric material which has a tendency to slip down the platen and ruck into folds, use two gripper fingers which can be adjusted hard down against the platen so as to actually hold the fabric top and bottom throughout the complete printing operation. Those who have already experimented in fabric printing on ordinary platen machines will appreciate the enormous advantages gained through using the ADANA Gripper Fingers.

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