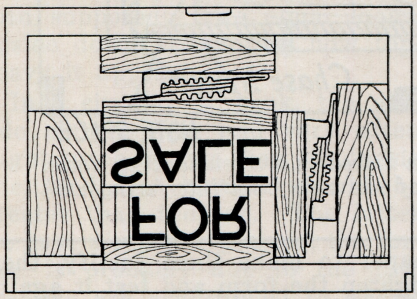
LESSON FOUR

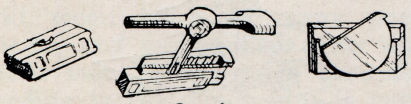
Locking the Form

The form should be laid on the stone or imposing surface, and the chase placed around it. For best results the form should be in the middle of the chase. Second best position is centered from each end, if not exactly so between top and bottom. A low position is better than a high one in most cases. Sometimes the form must be put completely off center, but neither impression or inking is as good as it would be if properly positioned.



① A Good Lock-up
② Illustrating proper use of Hempel Quoins

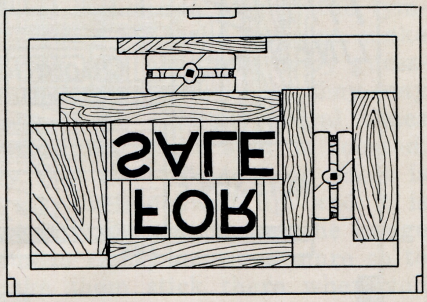
Be sure the stone or surface on which you lay your form for locking is absolutely clean, with no particles of dust or dirt left on it. In the same way, look out for any dirt on galleys, or on any other place where the form may be laid. Dirt specks under the type will raise individual letters, making them print darker, and subjecting the type itself to greater wear. When the form is locked up and on the press such raised spots may cause you to think makeready is necessary, whereas an uneven lock-up is the real trouble. If you are



Quoins

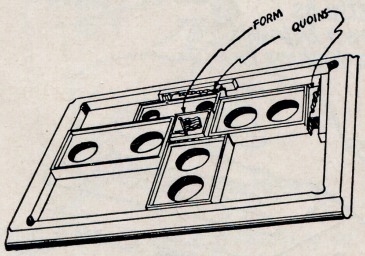
at all uncertain about the condition of the bottom of the form, lock it tightly enough so that it will lift, then raise the chase up on edge and give the bottom a good brushing. You can then lay the form down again, loosen it up, plane and relock it.

Put furniture around the form after the manner illustrated, and place quoins or chase irons on the two sides, depending on whether quoins or chase screws are to be



① Good Lock-up—"Chaser" Method
② Illustrating use of Wickersham Quoins

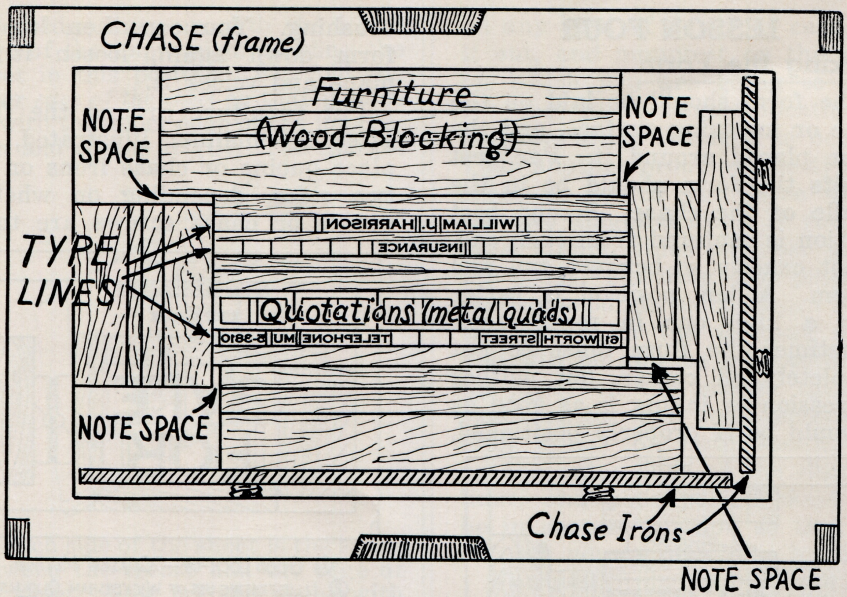
used. Note that the furniture is so arranged that when the form is tightened up, there is no interference with tight locking by reason of furniture from one side bumping into the other. The lapping over must allow for clear-



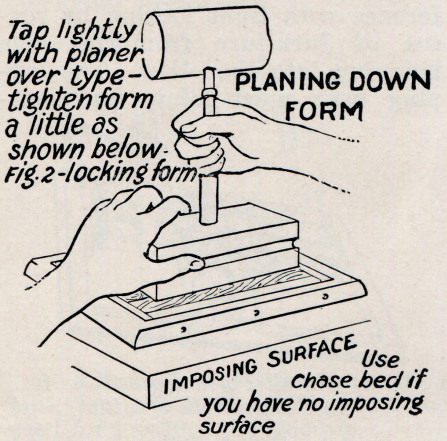
Small Form Locked
In Chase With Quoins

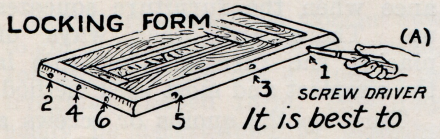
ance when the furniture squeezes up. There are other ways of placing the furniture but this is the simplest and most used method.

Turn up the quoins or screws a little at a time, so that the form is not twisted or distorted. Watch to see that there is no binding on the furniture in the way just mentioned. Do not put too much squeeze on, because the cam action of the quoins exerts a tremendous leverage, and the chase may warp or break.



This is the way a card job will look when locked in a screw-locking chase. Note open spaces to prevent tightening of one side from interfering with tightening of other side.

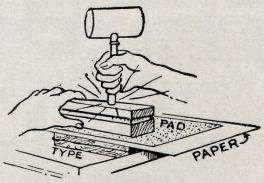




Raise up one corner of the chase, and test the form for soft spots with fingers. If any are found, unlock the form and use thin spaces, cardboard or heavy paper to make them justify, then tighten the form and test it again.

Various Ways of Taking Proofs

The surface on which the type is laid for proof should be absolutely smooth and free from specks or other dirt. On hand presses with removable backplate like the Excelsior, the plate can be used for proof taking, either in or out of the chase. In most plants the imposing surface is either of stone, such as marble, or iron. Whether the surface is of stone or metal, it is called an imposing stone, and taking a proof on it is called taking a stone proof.



Taking a hand proof

The type form is placed face up on the stone, and ink applied with a hand roller or brayer. Be sure to ink it thoroughly and evenly. Lay

the piece of paper on the form carefully, so that there will be no slur.

If you are using a wood-surface planer, lay a piece of felt over the paper, again being careful to avoid any movement on the form. If you have a felt-surface proof planer, place that carefully on the form. Be sure that the bottom of the planer is entirely free from dirt; this can be done by running your hand over it before you set it on the form. Tap the top of the planer sharply with a mallet — either the head or the end of the handle. The handle end is safer, because there is less likelihood of a glancing blow being struck, which might cause the paper to shift a trifle and blur the impression. Pick the planer straight up, for the same reason, and lay it on another part of the form, repeating until the form has been completely covered.

Peel the paper very carefully from the form. Clean the form well with brush and cleaning solution in the regular way. (More about this cleaning in a later lesson.)

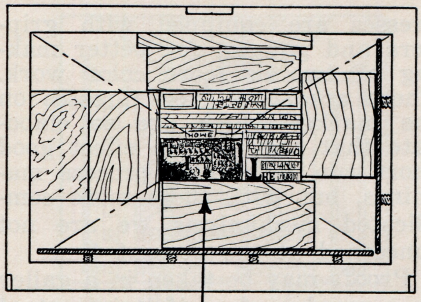
Newsprint is generally best for proofs, as it absorbs the ink, although other grades of book papers may be used. Some prefer french folio, a thin glossy sheet. If the paper is very slightly damp — not wet — pulling a good proof is easier. Where a proof press is available, the procedure is much the same, except that the form is laid on the bed of the proof press. It is then inked as already outlined, the paper laid on, and the roller of the proof press run over it. Some proof presses depend on the weight of the heavy roller to make the impression; some are geared at the sides to prevent the roller sliding; others have hard rubber rollers or rollers made of a similar substance, which are held to the bed of the press through trucks in such a way that pressure is exerted on the form. Some proof presses are equipped with grippers and gauges, for better making of two or more color work. There are some proof presses on the market which are so elaborate that they are in effect good short run four color process machines, but with these more complicated mechanisms we are not concerned at the present time.

Proofs may be taken in a galley on a wood surface if it is a stout one, and, of course, large numbers of them are made on the imposing stone without removal from the galley. Many proof presses have what are called galley thickness bed plates, so that if a proof direct from the galley is wanted, this plate may be removed, and the extra thickness, which would otherwise make a proof impossible on rigid roller machines, is thus compensated for. Proofs taken in the galley are, it is perhaps unnecessary to add, called galley proofs, and are the most common form of proofs. Frequently such proofs are used in pasted or pinned up form to make a layout or dummy of the work in process.

Where Should the Form Be Locked in the Chase?

Many printers are inclined to lock the type form in that part of the chase which will make the job most convenient for feeding the sheets, or cards, as the case may be. This is probably all right on a small card, stationery or similar job where makeready and impression are not troublesome, but when larger or more solid forms are to be run, a more scientific way of deciding will save time and trouble.

Most printers will say that the proper place for the form is slightly below center. That should be amplified a bit. The *heaviest part* of the form should be slightly below center. This may bring the actual center of the form considerably above, below, or to one side of the center of the chase.



① Note That Heavy Part Of Form Is Just Below Center Of Chase
② Illustrating Use of Chase Irons and Screws

This is done for various reasons, the chief of them being that the press will stand considerably more strain in the center without "giving" at all. The center is also the point of best ink distribution. By so setting your form, you not only avoid unnecessary strain on your press, but you make more sure a smoother impression without needless makeready or fussing with the impression screws. You also get ink distribution which may save you a lot of trouble on that score. It will not eliminate all use of impression screws or makeready, but it will help.

In any event, it is best to use the center of your chase as much as possible, and thereby get the best possible results at all times with as little work as possible.

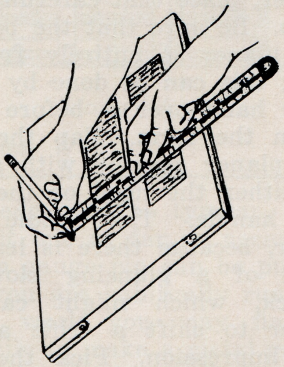
Putting On the Form

As a precaution against mashing the grippers against the type form it is well to loosen and set them out to the ends of the gripper bar before putting the chase on the press.

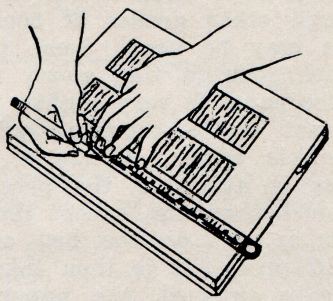
The chase may then be grasped with both hands at its top and placed in the press, taking care that the face of the type is not bumped into the grippers or against any other metal object.

Setting the Gauges

Make a printed impression on the tympan, turning the flywheel over by hand rather than by power (if you are using a power press), or push the handle down slowly, so that if there is any undue impression the motion can be stopped, and the cause investigated. Take a sheet of the stock



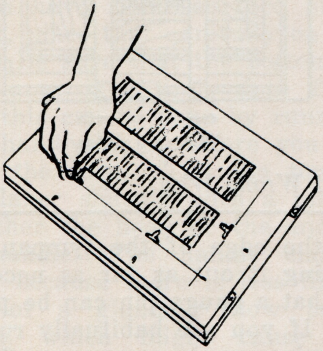
you are going to use for the job, and get the position of the side pin by holding the sheet high enough on the tympan so that the impression shows at the bottom. If you are right handed, the pin goes on the left, if left handed, place it at the right. Do not put the pins in yet; merely mark the



right location. Repeat the process for marking the position of the bottom pins, but this time slide the sheet sideways enough to make the print visible on the left or right edge.

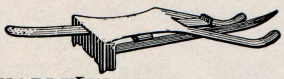
Work varies, but in general the margin at the top should be a little less than at the bottom. Good appearance is the objective; you will soon get the hang of it.

In order to set the pins in the right spot the points should be inserted in the tympan about a pica below the line at the bottom, and the same distance outside the mark on the side. Bring the point



out again further down, and push until the edge is on your mark, then press the teeth of the pin into the tympan just enough to hold until you can take a proof on your stock and get a final check on the position of the pins. If all right, you can anchor them firmly.

ORDINARY STEEL GAUGE PIN

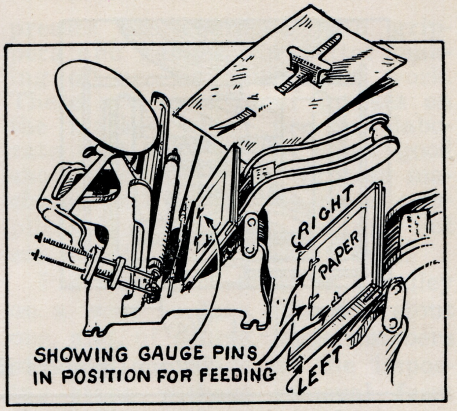


MOVABLE TONGUE GAUGE PIN

SPRING TONGUE GAUGE PIN

Many printers put sealing wax or gummed tape over them to keep them from moving. The impression on the tympan should be removed with cleaner before starting the run.

There are numerous other styles of gauges on the market, including some with sliding adjustment. Quads glued to the tympan are a common kind of guide. Heavy paper or cardboard guides are occasionally used in places where metal ones might interfere with the grippers.



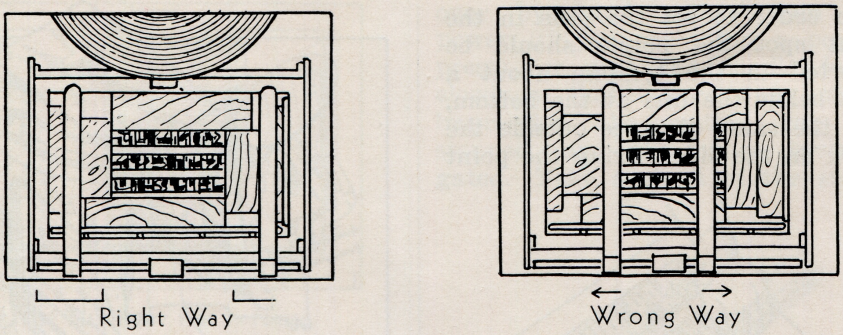
SHOWING GAUGE PINS IN POSITION FOR FEEDING

Substitutes For Gauge Pins And How To Use Them

On many jobs quads for gauges have some advantages over pins. They do not slip, but as no adhesive has been found that will hold them to the tympan indefinitely, they may drop off. Quads are best fastened to the tympan with liquid glue. To insure replacing them in the exact position should they be dislodged, a strip of thick cardboard may be glued to the tympan with its edge firmly against the lower edge of the card. The cardboard is not apt to come loose and insures resetting the quad in exact register.

To prevent sheets working under the quad, make a V-shaped cut just above the quad through the top sheet, fold back the V-shaped tab and glue a bit of cardboard on the second sheet, its lower edge against the quad. Fold the V-tab down again and glue it down smooth. Care must be used that this last piece of card comes in the margin of the blank space in the form.

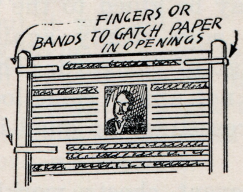
To prevent sheets riding over the quad, glue strips of cardboard, by one end, to the tympan at its inside edge of the quads, then turn up the free end to form tongues.



Setting Grippers Right and Wrong Way

Setting the Grippers

You are now ready to put your grippers in position. They must be clear of the form and the gauges, yet close enough to strip the printed sheet from the type. This is simple enough on most forms, but some have so little margin that ordinary use of the grippers is out of the question. In many such cases the grippers may be left on the outer ends of the gripper bar, and a string or elastic run between them.

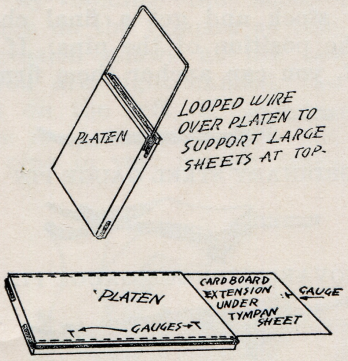


Gripper fingers shown left and right are special fingers to hold paper where there is no margin.

There are also side grippers or fingers available which slide up and down on the press grippers, and which may be fitted in around open parts of the form. Extreme care must be taken not to get them wrongly located, or there will be mashed type with the first impression.

Register

When the stock you are going to print is bigger than your platen, you can paste a piece of cardboard on the edge of the tympan, projecting it out as far as necessary so that a gauge pin can be put on it. If you are habitually running oversize work you may find it worthwhile to make a metal gauge of an L shape, which will not only gauge but give more support to a large sheet.



Two ways of supporting a large sheet on a small platen.

The position of the printing on the sheet or card often makes or breaks the appearance of the job, and a very little change will often help immensely. We have seen many so-called experienced printers who seemed weak on that point. While as a general thing the impression should be centered, it is more important that the work appear to be centered than that it actually be so. The eye plays many tricks on us, and it is sometimes necessary to throw the im-

pression a little one way or the other to compensate for optical illusion. This is particularly true in present day printing, which in many cases "bleeds" (runs off one or more edges of the paper). Such printing cannot be centered in the old sense of the word.

Usually the bottom margin can advantageously be a little wider than the top. If any margin is to be smaller, when the job is a single sheet, that edge should be the top. Our eye requires a broader base than a top. (Evidence of this can be obtained by turning a letter S, with supposedly two equal loops, upside down and noting how top-heavy it appears.)

In a circular or book, the outside margin can, and very often ought to be, larger than the inside one, and the bottom should be greater than the top. The latter we have already explained, the former is probably due to the fact that we are accustomed to seeing smaller margins on the inside because of the way most books and periodicals are bound. A single sheet is something else, but even a pamphlet often looks better with the bigger outer and bottom margin.

It probably isn't necessary to remind the reader that all sheets must be very carefully fed up to the gauge pins, and doubly so if more than one color is to be printed. A slight distance off on one color may not be noticeable, but when a second or more colors are applied, the slip on the first color will probably make the sheet unusable. Moreover, two colors run at about the same accuracy will mean twice as many poor sheets, and each added color will mean more spoilage, so accurate feeding to the gauge pins is very essential if a large number of extra sheets are not provided.

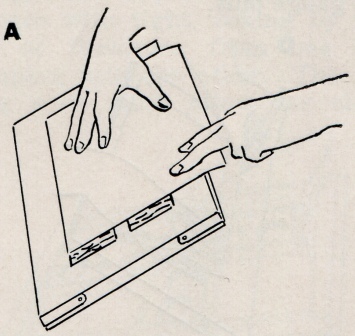
Accuracy of register and proper margins will make a great difference in the final appearance of your printing. Care with both will help to convince people that you can be trusted with their best work.

Setting Your Gauge Pins Without a Lot of Changes

Many printers, when they want to set the gauge pins in the tympan for a job, take a squint, make a stab, and put them in by guesswork, which means that they may have to be shifted several times before the right spot is located. By that time the tympan sheet is pretty well chewed up, and it is not only difficult to get the gauge pins in right, but even more so to make them stick there when you are running the job.

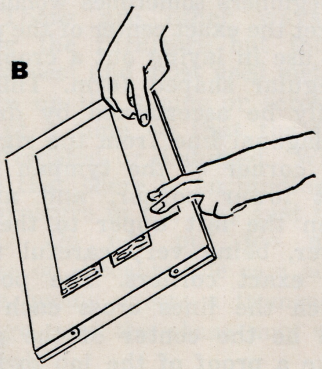
Such guesswork can largely be eliminated. We have described one method of gauge setting—here is another.

A

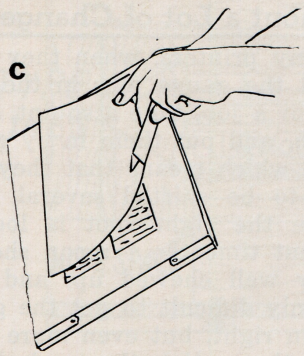


First, make an impression of the form on the tympan, then place a sheet of the stock to be printed over this impression (A), so that the

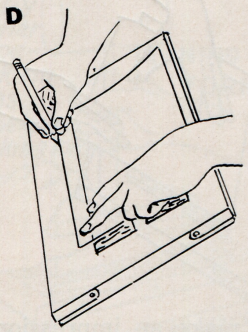
B



sheet edge lines up with the lower edge of the impression. Holding the sheet in this position (B), fold the other *edge of the sheet* so that it lines up with the upper edge of the impression and crease it (C). The margin



for each side of the sheet is the space between the crease and the edge of the sheet. Now lay the sheet with the crease on the exact line of the impression (D), and the sheet edge will be the line on which you will want the gauge pins.



As described, this is for the bottom pins, but the same method can be used for locating the side pin.

Beginners sometimes wonder how to get the exact center of the platen, for use in laying out a crooked or irregular shaped form. This may easily be ascertained by drawing a diagonal line from the right upper corner of the tympan to the left lower corner, and another from the left upper to the right lower, being very careful to use the exact corners. The point at which the lines cross each other will be the center of the platen. Take a proof of the job to be run on any kind of paper or card, cut it out, and mount it on the stock on which you are going to print the job, in the exact location or position which it ought to occupy. Take another proof on the tympan sheet on which you have drawn the two diagonal lines. If you will draw similar lines on your pasted up proof, bisecting the proof at the same points as the lines bisect the proof on the tympan sheet, you will be able to lay the pasted up proof on the platen, spot the exact center (or point where the lines cross) on both sheets, line up the outer ends of the diagonal lines, and your pasted sheet will be in correct position so that you can set your gauge pins by it.

You will probably not have anything which will require the second method very often, but if you do, you will want to go about it so as to use a minimum amount of time.

Lesson Four—Questions

1. *What is the best position for the form in the chase?*
2. *Describe the arrangement of the furniture and quoins which will assure an even pressure on all sides.*
3. *How do you check and correct soft spots in the form?*
4. *What should be guarded against with grippers and gauges?*
5. *Tell how you set the grippers and gauges.*

The Printer's DICTIONARY

Bed — The chase bed, the flat surface on which the chase and type form rests when it is in the press, ready to operate.

Bellows—Used for blowing dust out of cases, etc.

Belly — When a type form bulges out in the locking, it bellies.

(To be continued)