

LESSON NINETEEN

Mitering or Beveling Rule

A ruled box, or rectangle enclosed by rules, is quite a neat piece of work to do, and if done well, requires some time. Perhaps you have tried mitering or beveling the rule for such a box, and therefore know at first hand.

Where appearance is not too much of a consideration some printers simply cut their rule square off to the required lengths, and butt the end of one against



How to make a butt joint

the side of the other. In its most careless manifestation, and where care is not taken to lock up the form so that the rule stays where it belongs, this method looks rather poor. An improvement can be made if the locking up or tightening of the chase is done so that the rule doesn't poke out of joint. Whether this is possible often depends on whether, when things are tightened, the leads, type, etc., inside the rule are spaced so that the contents of the rectangle or box are neither too large nor too small for the rule. If you have trouble, check up very



Specimen of Mitered Corners

carefully on this. Strips of cardboard, brass or copper thin spaces will sometimes balance it up so that it will lock properly. If, because the ends of the rule are not quite smooth, a little white shows, a small piece of tin foil or lead foil inserted between the two points and a retightening of the chase after this, will often help the appearance.

The more careful printer, however, will want to bevel, chamfer or miter the abutting corners of his rule (three terms for doing the same thing, in this case.) Each

pieces will be mitered off at an angle of 45 degrees, and that is quite a trick if it is to be done right. Moreover, enough rule must be allowed, when cutting, to provide for that cut away in the bevel.

There are many expensive machines on the market for doing mitering a little quicker and a little easier than straight hand work. Those of you who have tinkered around in a home workshop will probably go at it in your own way. A common file may be used, but something similar to a carpenter's miter box should be used to get the bevel exactly 45 degrees.



The instructions for fitting the ends together properly which were mentioned at the beginning of this article also apply to mitered rule. If you take care, you will get good results.

How to Get Good Results on Rule Joints

It must be assumed in the first place that the mitered (beveled) corners of your rule are a perfect 45 degree angle, because unless the angle is perfect, it will never be possible to join the two without a faint white space showing somewhere. The length of the rule must be exact, also, because otherwise, when you tighten up your form, the rule will either spread apart, or it will bind at the corners and shove itself out, either at the corner itself or by bowing in the middle.

Two other characteristics of brass rule must be taken into consideration when using it, particularly as a box around a form of

type. One is, brass rule, being harder than type, does not wear as fast, and when used with type more or less old and worn, will be higher than the type. The type form will therefore require a paper underlay to raise it to the same height as the rule. The second, is joints of brass rule have a tendency to wear more than the rest, consequently it will quite possibly be necessary, when using old rule, to underlay the corners with paper to bring them up to the height of the rest of the rule.

Be sure that the reglet or furniture used in the form is not so long that when you tighten up your form, the ends bind, and prevent the rule from coming together at the corners. If you have metal furniture or quotations, you will find it best to use them against the brass rule, rather than the wood reglet or furniture. Some printers put a piece of thick tin foil between the joints in brass rule before tightening the form, when, after taking a proof they find a white space between the joints. (As mentioned on Page one.) The foil is of course, after the form is tightened, carefully trimmed down to type height. Generally speaking, the points given above, if closely followed, will produce a good job, even with rule which has seen considerable use.

Printing Habits of Brass And Metal Rule

Printers sometimes wonder about their rule. They find it seems to print well in one form, without any making ready—in others it seems either a little too high or too low. Light and heavy rule sometimes does not print the same on the first impression.

Fine face (hairline, for instance) rules, when used with type will actually print if they are less than type high. A rule with a two point face will, on the other hand, print when type high, and larger rule will require more impression. These characteristics may be kept in mind when the different sizes of rule are used together, and those

parts which need more squeeze can be built up underneath with paper.

While these points are operative mainly if type is used with rule, you will find some attention necessary if you are running more than one size of rule in a form. They are characteristics of rule when used with any press, no matter how large.

If you have any more doubts about how to make the rule print clearly, the information on make-ready (underlay and overlay) in the Printer's Guide will help you.

Lining Type When Used With Rule

Plenty of jobs, including application blanks, order blanks and the like, require the use of type followed by dotted or solid ruled lines. For proper appearance the bottom of the rule should be lined up with the bottom of the type,

Date

Wrong alignment of rule with type

Name

Correct alignment of rule with type

and this result can be attained by the use of rule alone or in combination with leads and slugs. To make the point more clear we show examples of both the right and the wrong way of rule alignment.

Century Roman and all other medium weight faces of type will look best if hairline rule is used. Heavier or blacker faces of type require heavier rule.

The proper use of rule on such forms will often correct that elusive appearance of something being just a little bit wrong without the cause being apparent at first glance.

Protecting Rollers from Rule

Rollers can be protected from the cutting effect of rule if a small piece of rule—say a pica long—is placed across the end of each rule in the form, first filing off the piece so that it is about 1/32 inch

lower than type high. One longer rule may be used for this if there are two or more rules in the form not more than 3 picas apart. If they are further apart than that the low protecting rule has a tendency to touch the paper. The low rule acts as a bumper, and prevents the sharp edges of the rule in your form from cutting your rollers.



TWO WAYS OF PROTECTING ROLLERS FROM BUTT ENDS OF RULE.

- 1—SHORT PIECES ACROSS BUTT ENDS.
2—ENDS BEVELLED OR ROUNDED OFF BEYOND MARGIN—

Another way of protecting the rollers is to wind a piece of adhesive tape around the part of the roller which comes up against the rule. The ink should be cleaned off that part of the rollers first, so that the tape will stick.

Perforating

The best grade of perforating is, of course, done with a perforating machine. Such a perforator makes the same kind of holes as are used to separate postage stamps.

The other kind of perforating is done with brass or steel perforating rule, both of which are listed in the catalog. It may be done in the same operation as the printing.



A Help in Perforating

or it may be put on the press and run through without ink or rollers. Running both at once saves time,

running each separately saves rollers. Perforating rule, in order to properly cut, has a surface slightly more than type high. This means that if the type matter is run at the same time, the rollers will either cut a little, or they will not ink the surface of the type as they ought. Experienced printers carry a pair of old rollers on hand for brass rule jobs in general, and perforating jobs in particular. For instance, in running our order blanks with perforations down the side, we do the job in one operation to save time, but we always use old rollers for it.

Some printers, when their form is small enough, or the press big enough, run the job "two up," with all but the perforating rule at one end of the chase, and the rule at the other end. The job is then worked once, turned around, and worked the other way, so that two impressions make two complete jobs. They are then cut in two. They print the job in that way because they can use lighter impression on the rule end, and thus save their rollers. When running either that way, or putting the perforating on the press as a separate operation, a thin piece of sheet lead, such as is used to wrap high grade smoking tobacco, or tea, may be put on the tympan opposite the rule, and this will make a nice clean cut perforation on your job.

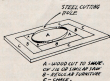
Steel Cutting Rule

While a printing press is made primarily for using printer's ink and for printing, there are one or two other ways in which it can be helpful in the completion of a job before it goes to the hands of the customer, and in some cases on work which requires no printing at all. These additional functions usually pertain to cutting, creasing, perforating, embossing and the like. Perforating has just been covered.

Creasing rule, being more or less rounded in the face, can be run with type, although not necessarily. This rule provides a score or crease along which the paper or card will fold readily. It is



often used in conjunction with cutting rule. The printer who wants to make a small paper cardboard box can so arrange cutting and creasing rule in his press that the stock may be fed into the press, and when it comes out it will be practically ready to fold and paste into a box.



In addition to the ability to use the rule straight, such as on boxes or similar work, the rule may also be bent into shapes so as to die out almost anything you wish. This sometimes involves heating the rule enough to take the spring out of it, but that depends on how sharp the bends are to be. All sorts of odd shapes for printed novelties may be cut out with the rule.

To Prevent Cutting Rule from Bending

When using cutting rule, it is well to re-enforce it on each side with metal furniture high enough to protect all except the last pica of the rule. Five pica metal furniture laid out on end will do this. This will prevent the heavy pressure used from bending the rule.

Cutting Heavy Rule

Lead and rule cutters are made to handle brass rule up to six points in thickness, and it is just as well not to use them for cutting type or composition rule any

thicker. To cut heavier rule is to strain the cutter and perhaps make it impossible to cut the smaller sizes accurately.

Larger shops use metal saws, and if you have access to one, or can rig one up, you'll find it a great convenience, as well as a producer of better work. Remember that in cutting you must allow a little extra for the part which will be turned to sawdust, which will be the width of the saw, plus whatever "set" or bend there may be to the teeth which cut their path through the metal.

Any kind of metal saw will do, but small teeth are preferable. If you are going out to find one, here are a few more suggestions:

The teeth should have a slight set, and be about $\frac{1}{16}$ of an inch thick. The saw will work best if it is reinforced on each side by a thicker disc to prevent it from bending. Teeth that are slightly thicker at the cutting edge also give the equivalent of the ordinary set, and work well. A hollow ground saw is preferable.

For a really good job, rub the cut ends over with a fine file after sawing.

An Easily Made Composing Rule

Lines of type should be properly spaced out, and if you are setting lines in your composing stick without leads between them, accurate spacing is very often not obtained unless there is something between the previous line and the line you are setting, because one or two pieces of type in the finished line may be sticking out just enough to catch on the new line—making the new line appear tight, when it really is binding on the previous one. A lead may be used between the lines to prevent this, but it is not so easy to remove when the line is finished. A piece of brass rule the right length is better, and it can be made into real "composing rule" by using a piece somewhat longer than the line you are



A Composing Rule

setting, and then filing the ends so that it will fit the stick, with ears jutting out at the end over the stick for easy removal. As you set lines of different length at different times, you can make up your brass composing rules, and soon you will have a set which will do for practically all the common widths. You will find the use of a composing rule a great help in easily and quickly spacing out your lines.

Printing Ruled Forms Which Come to the Edge of the Paper

The large use of typewriters and billing machines nowadays cause a great deal of billing work to be done on which the only lines, outside of those at the top of the billhead are perpendicular ones. These are usually printed instead of machine ruled, and are done at the same time the rest of the billhead is printed. While the lines are perpendicular, you will probably find it best to feed the job into the press sideways, making the majority of the ruled lines run horizontally, or in other words, just the opposite way from your grippers. This would be all right if the ruled lines were not usually to be run to the very edge of the sheet, leaving no room for the gripper to hold the paper on that end.

You can take care of such a contingency by getting a piece of very stiff pressboard, or any extra stiff cardboard, slotting it so that it will fit over the gripper, and making it wide enough to reach from the gripper (which is put over, out the way of the paper and rule), onto the paper. Cut the pressboard so that the part over the paper will consist of fingers which avoid the rule, and fit in between. Thus when you make an impression, the cardboard will hold the sheet being

printed firmly, but will not prevent the rule from printing.

There are many ways of providing proper gripping accommodations when the regular grippers, if used in the regular manner, are in the way, and the above will be found to be a very helpful sample.



Illustration shows use of Auxiliary Horizontal Gripper Fingers to hold sheet when printing a form which has no margins.

Halftones Require Lots of Pressure and Ink

Halftones and solid cuts require a lot more impression or pressure than the same area in type. Every printer realizes that the bigger the form, the more ink and impression are needed, but a great many do not give their press the credit it deserves for the greatly added strain in a halftone or tint block. A halftone is just what the name implies—a surface practically half of which is taken up with the printing face. No form of type comes anywhere near that, even the most closely set 4, 5 or 6 point.

Halftone Pictures With Vignetted (Fadeout) Edges

Probably the most difficult job you will ever have to get really good work is on halftone illustrations with what are known as vignetted edges. The vignette, or fade-away background, is extremely hard to print without quite a little preparation, and should not be attempted unless the customer is willing to pay for the extra work. Only fine coated paper should be used. Some people get away with it on more ordinary stock, but you will want to have everything you can in your favor.

The halftone should be blocked a little lower than type high, so that the rollers will touch the edges of your plate very lightly, otherwise instead of the edge fading away, you will have a heavy black borderline around the background. This will also allow you to build up your impression in the middle of the plate. Overlays, which are described in Lesson Five, should be used to bring up the center part, and get good impression all over. An overlay between the plate and the block on which it is mounted will also help.

If you are successful, the result will be very pleasing. Remember that halftones take a great deal of ink, but it will have to be put on frequently, in small quantities, rather than a lot at a time, if you want good results.

Dirt On Halftones

Any lint, dirt, dust or other foreign material is to be avoided when printing halftones. Type printing likewise calls for clean rollers and ink plate, but what will pass on ordinary work will give a peck of trouble on a nice halftone picture. Cleaning rags may harbor lint, ink may acquire a skin from exposure to the air, the ink plate may not have been covered up while the press was not in use, or not carefully wiped off, and all the little specks from any of these causes may mix in the ink. Type printing may not show them up, but let a halftone be put on the press and they transfer themselves in ever increasing numbers to the surface of the cut, where they themselves print in black, surrounded by white or gray halos.

Another source of troublesome lint is the paper or card stock, which may have fuzz on its edges from the paper cutter. A careful wiping of the edges of the block of paper or cards before starting to print will get rid of a lot of this. Some printers claim to have had so much trouble with card stock (not ours, by the way) that they have had to fasten a wad of cotton beside the press, and draw the top edge of the cardboard over it,

to prevent the fuzz from that side falling down over the card and getting in front of the cut.

As for the ordinary kinds of lint and dirt first mentioned, the only thing to do is to clean up the ink-plate, form and rollers with a lint-free rag, and put fresh, clean ink on the press. On troublesome jobs it may be necessary to do this several times during the printing. The cut itself should have particularly careful attention, because unless the surface is absolutely clean the impression will be poor and spotty. Complete evaporation of the cleaner should be assured before ink is again put on the press, because otherwise the color will be poor, muddy or blotchy.

Lesson 19—Questions

1. How can you protect your rollers from being cut by rule?
2. What is the difference between cutting and creasing rule?
3. Should you use perforating rule in your printing form or should you make a separate operation of it?
4. What is the reason for using a composing rule?
5. How can you get good results on rule joints?

The Printer's DICTIONARY

Script Type—Type whose face is made in imitation of writing. Used mostly for formal announcements.

Script Type for Wedding

Secondary Color—A color made by mixing two of the primary colors (red, yellow, blue) in any proportion.

Series—One style of type in its various sizes. A type family consists of several series having characteristics in common. See definition of family.

Serif—Small projections at the ends and corners of letters. Sans serif and the so-called Gothic types

(except the plate Gothics) have no serifs. Most other styles do. (This STYLE has serifs. **This has none.**)

Set—The making up of lines of type for printing; the width of type (left to right or right to left dimensions).

Set Close—To set with thin spaces.

Set Solid—Set without leads or other spacing between the lines. (Solid matter)

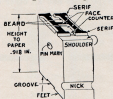
Shade—Technically speaking, a shade is made by adding black to a color. Probably many printers use the word indiscriminately, when making lighter tints, darker shades, or mixing two colors together if it doesn't materially alter the original colors.

Shank—The body of the type on which the face or character is set.

Shooting Stick—An instrument for tightening up quoins. Very rarely used nowadays, when metal quoins are the rule, and wooden quoins more or less a thing of the past.

Short And—The character (&), otherwise called an ampersand.

Short Run—A job of few impressions as contrasting with a long run—one running into a large amount.



Parts of printing type

Shoulder—The top of the body of type, between the face and the sides.

Side Heads—Words in caps or heavier face than the body, at the side or indented in a paragraph. This ABC is set with sideheads.

Signature—Each section of a book which is printed on a single sheet is called a signature. The number of signatures depends on the size of the pages, the size of the sheets and the number of pages. The word also covers the

generally accepted ordinary meaning, including the name of the firm at the bottom of an advertisement or announcement.

Signature Mark—Small figure or letter in margin of each signature (part) of a book, which helps the binder to assemble the parts in their right order.

Sizing—The use of size to make paper less porous or absorbent than it would otherwise be, and to give it the proper surface. News stock and blotting stock is devoid of sizing. Writing and bond papers have sizing which make possible the use of writing inks upon them, other papers more or less sizing depending upon the printing surface desired. Sizing may be applied in the early stages of the soft pulp, or put on after the paper is actually manufactured.

Slip Sheeting—When a job is being printed, the sheets sometimes have a tendency to transfer ink from one to the other—offset. This is sometimes overcome by interleaving with plain sheets as the printed ones come off the press, and is called slip sheeting.

Slitting—Cutting slits in paper with steel cutting rule. On cylinder presses wheels are used for slitting or cutting.

Slug—When a lead is thicker than five points it is called a slug. As odd sizes are not very often used, for all practical purposes a six point slug is the smallest commonly so called.

Slur—An impression which is blurred is a slur.

Small Caps—Capital letters somewhat smaller than regular capitals, and cast on the same size body, so that they may be used in combination with the large caps. They are available in most body type faces, but are not so much used as they used to be. The abbreviation for them is s.c.

THE KELSEY COMPANY

Small Pica—The old name for 11 point type.

Social Announcements—Stationery, including cards, envelopes, sheets, suitable for wedding invitations, and similar work.

Solid Matter—Type set without leads between the lines.

Solids—Parts of cuts or other matter which print full color, without shading. The colorless parts are called highlights.

Sorts—The printer's and type founder's term for extra letters or characters. When you run short of some letters and buy more to fill in, you purchase sorts.

Space-Mark—This sign (⌘) when used in correcting proof indicates that space, or more space, is called for between words or letters.

Spaces—Pieces of metal less than type high, to fill in between words. When a space grows up (becomes the width of an "em" or more) it is called a quad. An en quad is just half an em quad, which is a square quad. Spaces are designated by the number which together make an "em." Thus, when it takes three to make an em, or square, they are called 3-em spaces, or, more properly, 3-to-em spaces. A 5-em space is therefore smaller than a 4 or 3-em space, but quads work the other way, the 2 or 3-em quad being bigger than the em quad. In other words, everything begins at the em quad, and works both ways, backward and forward.



Spaces and quads

Spacing—Putting the proper amount of spacing material around and between all parts of the words, sentences, lines, paragraphs, groups of type, and all parts of the form, so that when it is tightened or locked up, everything will be in its proper place, and the form may be picked up without chance of anything dropping out.

Spotsheet—Making ready (overlay) on the tympan requires pasting pieces of paper on a sheet so as to bring up the parts which don't print well, and such a sheet is called a make-ready sheet or spotsheet. The actual operation

is called patching up or spotting up.

Spotting Up—Marking out and pasting patches on the makeready sheet so as to bring out the low spots in the printed press proof.

Spread—Two facing pages. When advertisers use two such pages with a layout which covers both of them as one, it is a double page spread.

Spring—If the form in the chase is not absolutely flat, due to worn furniture, poor spacing, etc., it springs, and if put in the press, the constant putting on and taking off of pressure in printing may cause some parts to work up and get loose.

Spring Tongue Gauge Pins—Pins for holding work on the platen in the proper place when the printed impression is being taken, with



Spring Tongue Gauge Pin

adjustable tongues or projections which bend easily and therefore do not readily break from pressure of the platen against the form.

Stand—The rack used for holding type cases and all other cases.



Case Stand

Standing Matter—Where newspapers, magazines and other periodicals are printed, standing matter is material all set up which is kept and used from one issue to the next.



Stapler

Staplers—Binders using individual staples for binding tickets, circulars, catalogs, etc.

(To be continued)