CHAPTER IV

ASSEMBLER ENTRANCE GUIDES
MATRIX DELIVERY BELT AND CHANNEL
ASSEMBLER, ASSEMBLER SLIDE
MODEL 15 ASSEMBLY

Lining Up Assembler Entrance Partitions

QUESTION: Two of the fastening lugs have broken from our assembler partitions. How do you take proper care of this plate? — C. L., Garden City, Kan.

HARDING: It is important to keep the partitions clean, to keep them from standing in the path of matrices, as the mats leave the magazine, and to keep them curved at the bottom so that they will permit a free, smooth "flow" of the matrices to the assembler chute. The partitions must not retard any matrices. They must be curved at their lower ends to prevent the matrices from striking the matrix belt and rebounding. Interference by the top or bottom of the partition will cause transpositions of matrices. Dirt on the guides, the back plate or the assembler cover will be transferred to the matrices, and finally to the magazine. Avoid excess oiling throughout the machine.

The Flexible Font

The Models 1 and 3 Linotypes are constructed in a way that allows the upper part of the front to swing forward for the purpose of changing magazines. In these instances, the partitions are in two parts.

The flexible front is adjustable with relation to the magazine by a headless screw at the right lower end of the magazine. When making the adjustment, set the second partition at the left so that it will rest between the lower-case *i* and *n*. Then try all other characters that are adjacent to partitions, especially the first parenthesis. But if the top of only one partition stands in the way of a matrix, use long-nosed pliers to bend it slightly to one side. Be careful, because there is a small lug to hold the partition in place. Careless handling will break the lug.

The Linotype Stationary Front

All assembler fronts are now in a fixed position, except some of the mixer models. Those for the Linotype are still in two pieces, but the partitions are in one piece. If necessary, the top part of the entrance plate can be shifted slightly by removing the four holding screws and the dowel pins, but adjustment is very seldom necessary.

When typewriter or display mats are run in the old Intertypes, the mats will strike the tops of several partitions. To overcome the trouble, cut 5/16″ off the tops of the partitions. However, don't cut all the way back; leave 3/32″ at the back (it will be in the form of a vertical strip) to guide the milled matrix ears. Actually your 5/16″ removal will be in the form of a notch.

To Remove an Assembler Entrance Guide

These guides are held in several ways on different machines. Some of the partitions have eyed lugs that pass through the plate; these are held from behind by wire rods that pass through the eyes. Other partitions have split lugs which are held by a split nut. Still other partitions are held by screws.

It is awkward to reach some of them, but usually it can be managed, with patience and dexterity.

The older style assembler entrance guide (or partition) plates, both Linotype and Intertype, are in two parts. The flexible front for the Models 1 and 3 Linotypes is hinged and may be removed by loosening either hinge. Be careful not to bend the "feathers" at the lower ends of the upper guides.

The upper plate on other Linotypes and older Intertypes is held by two screws on each end. The guides are in one piece. Before starting to remove the screws, move the magazine out of the way and remove the chute spring. Now remove the four screws already mentioned. Look closely and you will discover, almost directly under the pivot for the horizontal spaceband lever, one of the screws that holds the entrance plate to the faceplate. If this is a blind screw, it may not be easily detected. If the spaceband horizontal lever bracket stands in the way, disconnect the spaceband keyrod, remove the two screws that hold the bracket and lift off the bracket. Now look from the rear for a split nut that holds the blind screw. Remove the matrix belt idle pulley.

Remove the other two screws that hold the plate. One is near the bottom of the spaceband box, the other is under the matrix belt support, near the lower end or up near the idle pulley. After the three screws have been removed from the new style Intertype, or the seven screws from the Linotype, the plate is free and may be removed.

Intertype Front Guides

The old style Intertype front guides may be adjusted according to directions for the Linotype stationary front.

The new style Intertype assembler entrance plate is adjusted forward or back, by loosening the three holding screws and turning the adjusting screws, one of which is at the right of the upper end of the chute spring plate and the other behind the mat belt idle pulley.

Matrix Buffer at Top of Assembler Entrance Cover

Wear on the lower front lugs of matrices has been greatly reduced by the application of a pressboard buffer plate (or celluloid or tin) at the top of the upper assembler entrance cover. Do not allow this to become too badly worn before replacing. It is a real saving for matrices.

To Adjust the Assembler Entrance Plate

LOOMIS: There are occasions when it is good to know how the assembler entrance plate should be adjusted in relation to the magazine.

1. There should be from 1/32" to 1/16" (not more) clearance between the plate and the magazine. On many older machines this is adjusted by screws that move the magazine frame forward or back. On others there are adjusting screws on the front plate itself. On others, you will have to shim. Watch both ends.

2. The floor of the plate should be about 1/32" below the floor of the channels in the magazine. Some magazine frames can be adjusted to provide this, but on many machines it is necessary to move the plate. Loosen the screws and pry very gently up or down, then tighten while holding. Sometimes – but not often – you will have to take out the dowel pins. Watch both ends. On old Model 8's, if they have been treated roughly in changing of magazines, you will find the various segments at the upper edge of the thick plate out of alignment. Make them all the same with a large pin punch and a small hammer.

Obviously, if the plate is too high, mats will hit it. Not so obviously, if the plate is too low, the mats will have to drop their bottom ends so far as they leave the magazine that the mat will stop about half-way out and hang there.

3. The sidewise adjustment is best made, as Harding says, primarily on the partition between *i* and *n*. Use your biggest mats. Note that on big mats the partition will have to go as close as possible to the *i* to allow the big overhang on the *n* to clear.

4. On big mats, careful bending with a pair of long-nose pliers may be necessary after the plate is set. Also, Harding points out that on many machines,

with a wide 14-point or with typewriter mats or with aligning gothic, it may be necessary to clip the tops off of some of the partitions to the depth of 5/16". But he adds, be sure to leave at least 3/16" support of the lug. Sometimes it helps to file the partitions on the sides; it doesn't take much thinning to do the trick, as a rule. In testing, try the biggest mats that will be used.

I may add that I personally do not like long partitions that vibrate back and forth like a cavalry pennant when the troop is at the gallop. These partitions should remain steady; otherwise they are not going to be in the right place at the right time, and sometimes they will throw a mat clear out to centerfield. So I take them out and peen a bump on them near the lower end, where it will be bound a little by the upper or large assembler entrance cover (not the small one). With a little patience you can make these pretty solid, and your machine will assemble much better.

Should the First Assembler Guide Partition Be Loose?

LOOMIS: I have already said I do not like loose guides. It seems elemental to me that they should be fixed. When a guide is loose, a mat hits it and it flops. It may hit the next mat and knock it for a loop, and you have a transposition or a jam-up. It is fairly easy to fix this guide if it is loose. Make a tiny right-angle bracket from an old key rod, with the ends about ½" long. Take out the guide and fasten the bracket to it, by a screw which will be filed off smooth on the inside, or a couple of brass nails which will be riveted down, or a good job of soldering. This should be done so the other leg of the bracket will lie flat against the assembler entrance plate, and about 2" to 3" from the bottom end of the guide.

Replace the guide. Spot the bottom end about two picas from the chute rail springs, drill a 5/32" or No. 28 hole, thread it for 8x32 screw, and fasten it down. You can bend the bottom end plenty to secure adjustment.

You can buy D-2738, Assembler Entrance Plate Guide, Assembled, which comes with the little bracket, but you have to drill and tap the hole yourself. I prefer this solid one to those with the flat springs on the end.

Matrix Delivery Belt

HARDING: The mat belt needs replacement when it becomes stretched so far that you cannot keep it snug, or when its edges get worn too thin. When new, most belts fit with the proper tension when the idler pulley is dropped into its lowest position. As it loosens, adjust the pulley. If you stretch the belt too much, it will reach the stage of uselessness sooner. In an emergency you can wrap the idler pulley with a few turns of friction tape, and dust it with talcum powder to prevent stickiness – but order a new belt at once. Do not use home-

made belts. The mat belt looks simple and innocent, but once you install a home-made belt you will have to make all kinds of adjustments to get it to work, and then the regular belt will never fit.

LOOMIS: There is one aspect of installing a new mat belt that is tricky. Often you will put on the belt and watch it turn over a few times, and it looks all right. But a while later you notice dust is gathering on the copy-board, and it looks like leather scrapings. It is. The new belt is being scraped by the upper ends of the Linotype assembler chute rail springs – the long, thin springs. Take the rails off. If the springs are soldered tight, as they should be, either file in the under corners of the springs or grind them against a stone with a square edge. Take off about two points at the top of the spring where it meets the belt. Now bevel it underneath to give a little more clearance. Put it on and try it again. If there's no dust after fifteen minutes, you've got it. You may have to do it again, but *use caution.* If you take off too much, thin mats will catch in the crack. You can remedy that somewhat by bending the flat ends in a little toward the belt. In applying new springs, it is good to apply a new belt at the same time, and it is not unusual to find adjustment necessary when you do. If you put on a new belt without this fitting, the belt will soon be worn thin at the edges and you won't have much belt left. You might as well leave on the old one.

Idler Pulley

QUESTION: The mat belt constantly runs against the assembler entrance cover, which slows it down. I can also occasionally hear mats clicking on the matrix belt supporting plate, which is bare on the far side. Is this something that can be fixed? – R. J. H., Worland, Wyo.

LOOMIS: Indeed it is – and should be. You'll get better assembly if you examine the idler pulley. Generally you will find this canted down toward the star wheel as a result of long wear and lack of oil. Probably you will have to buy both idler pulley and its stud. They are easy to install.

Sometimes on older machines you will find the lower pulley canted upward with the same result. This too can be fixed. If your assembler block has a bronze bushing, then you will need the bushing and the pulley shaft. If there is no bushing – miomi! If you have a good handyman with machine tools, he can bore out the hole in the block and put in a bushing, but it isn't easy. Sometimes it isn't easy to get an old bushing out, either. You may have to improvise a small device like a wheel-puller.

It is worth noting that I have never found a machine that could not be repaired, and in over thirty years I have seen only one that I thought was not worth repairing. The linecasting machine is made up of many small machines (credit to Harding for this statement), and ordinarily it is not necessary to buy

too many parts to repair it. Knowing what parts to buy, and especially the fitting of new parts to old, are the most important. Of course it is obvious that machines long neglected wear out all over in the course of a couple of generations, to the extent that the cost of rebuilding is more than the cash value of the machine after rebuilding. There is also the factor of obsolescence. Sometimes, after spending a great deal of money to rebuild a single-magazine machine, it is found that a more serious trouble is inability of this machine to handle the shop's work. Nevertheless, I have long marveled at the astonishing adaptability to repair of a linecasting machine.

Matrix Belt Support Plate

HARDING: This seldom gets or requires adjustment. The belt should just clear it (and not drag), so it will act as a bumper for falling mats. Take a look once in a while to see that it is not coated with gum which will drag on the belt and slow it down.

Assembler Entrance Cover

LOOMIS: This cover (the large flat brass plate that swings up) sometimes is the source of trouble in assembly. If the crack between it and the mat delivery belt support plate is much over six points wide, you may have mats catch in it, sometimes only temporarily. Get two long blocks of wood, 1x1" square, and with one on each side of the plate, lock the plate up in a big vise so the cover is at right angles to the vise and is held securely. The glass will be safer if you remove it first. (When you return the glass, use rubber insulating tape under the lugs to prevent cracking or chipping.) Lean on the cover and bend the bottom part down a little — not too much. You may have to try it several times. The idea is to bend it at the part just under the glass, and to avoid as far as possible putting a bow in the middle. Put it back and try it for fit.

The bottom part should fit up against the partitions. Now take off the catch. Usually the holding surface of the catch (the surface that lies flat on the cover) is worn rounded so the catch slides off the cover under pressure. Don't try to take this apart; it's brass, and the pin is usually corroded in. Put the catch in the vise, holding it at the smallest part, on the corner of the vise, and file the holding surface so it is flat and with a slight bevel toward the inside, so the catch will hold first on its outer edge. Where you find a catch that seems to have too long a shank, and won't hold the cover snugly, you can bend the shank a little in the middle and shorten it. You can also break it if you bend very much.

There is also the matter of the small cover over the assembler block. This should fit snugly but not in at the top farther than the big cover, or mats will hit on it. Sometimes it is necessary to put a slight bend in the big cover,

about three inches from the bottom, to pull it in. The small cover also has a round bevel to avoid mats' hanging up here. Very frequently assembler trouble is caused at this point. Now suppose the small cover won't stay up — leaves too wide a crack where it meets the large cover. You can take a drill (any size from 5/32" to about ¼") and change the location of the hole where the bump on the flat spring fits in to hold the cover in place. You can use a pin punch for a starting point (usually about 1/16" off center of the old hole), or you can start the drill in the old hole and turn it sidewise to move the hole.

Don't drill the hole more than enough to catch the bump. You may have to move it forward or backward. This you can do by holding the drill sidewise again. Also you can file off the top edge of the small cover to make it properly meet. If you do, note that the new edge will not be parallel with the old. The cover is pivoted; therefore start at the left edge (cover held in vise with a slug on each side to protect it), and increase the cut toward the right. Try it in place frequently.

Now there's one more trick in connection with the small cover. (Deceptive gadget, isn't it?) That is its fit against the assembling elevator gate. Having moved the hole to the right to get a better fit above, you may now find the cover binds — sometimes much, sometimes little, against the gate. Repair this by filing on the left edge, noting again that the smaller cut will be at the bottom.

We've used a lot of filing here. Note this: a file is a very useful tool; it is also a very dangerous tool. Use it with great discretion. Go slowly, with repeated fittings. This may save buying a new part, much delay, and doing the whole job over again.

This kind of work is not usually necessary on newer machines.

Harding suggests using a two-point lead under the rail springs, which would extend all the way down, and up past the gap. If the right combination is found, work up a piece of two-point brass for more permanence. This is similar to the thin steel plate on an Intertype (which, however, is not usable here, for the Intertype assembler differs).

It is important first to check the delivery belt. If the belt is worn thin, put on a new belt first. This often fills the gap. I have usually had good luck by installing a new belt and new rails. As told above, the rails must be fitted. There is also the problem of soldering the rails in place. I have put on many rails without solder, by bending the rounded ends in a little tighter curve, but these do not always stay.

About soldering rails: Allen's Soldering Liquid is my favorite for jobs like this. First fit the springs in snugly. It may take a slight bit of bending at the curve, and I usually give the spring a slight down curve in the middle, to assure snugness against the rail. Get the spring in place. Take the rounded end first. Solder it on the under side, on the edge of the rail only, to avoid

conflict with the pulley. Rub the spot with emery cloth, use the soldering liquid, and put a piece of solder about as big as ⅛" of pencil lead. With a hot iron, you won't have any trouble. Now take the other end. This is tricky. Use about the same amount of solder, which must be put in the bottom inside corner of the spring. Too much will get you in trouble with the chute block. This place is hard to emery; do it with the spring out of the slot; push the spring sidewise to get it out. It seems to take more heat here for a good soldering job that will stay. If you let the solder spread too far over the rail, so it locks up against the chute block, scrape it back with a knife.

Chute Block

HARDING: This part should be changed when the toes of thin mats get caught between the chute block and the star wheel. This is not the same thing as a mat that gets caught between the chute block and the assembling elevator.

I have seen machines where the dowel pins were missing. You need these, and probably the long flat head screw also (the pins are D-327; the screw is D-17).

Worn Chute Rails

LOOMIS: These are flat plates on which the springs are mounted. The front one in particular is subject to wear at the point where it fits up against the assembling elevator. Hold the assembling elevator to the right and observe this space at the bottom. If it is wide enough for thin toes, it is too wide. Temporarily you can peen it out and square it off with a file to a close fit, but it is now thin and will wear soon, so order a new pair and put them on together. It is easier if you order them assembled (i.e., with springs) to save soldering. Order a matrix delivery belt also, and fit the ends of the springs as described below.

Assembler Chute Rail Springs

LOOMIS: These are the long flat springs that carry the mats from the belt to the assembling elevator on a Linotype. They need replacement when they have that Christian Dior look — when the top is so low it leaves a gap between them and the belt, into which the toes of thin mats may catch. See the third section above on fitting and soldering them.

The Chute Spring

QUESTION: Which is the best chute spring? — K. M. C., Schoharie, N. Y.

HARDING: There are many chute springs. Sometimes one will work where another will not. I do not favor the one made of two flat vertical rails; this probably was designed for display mats, but is often used on small sizes. A good

chute spring should in general offer a flat surface opposed to the chute rail springs, should have a spring to allow give, and should have tips that project to the left to catch the ears of the spacebands and straighten them up. On a Model 15 the best spring is the type with a movable tongue controlled by a separate flat spring, such as the type for which Wm. Reid is well known. But this is not the only solution to the traditional difficult assembly of this model. See what Loomis says under *Making a Model 15 Assemble,* page 70.

The chute spring should be adjusted to allow a cap W to slide through freely. Hold the mat under the spring, then release the mat easily; it should drop on through. Less clearance will cause jamming up or delay at this point. More clearance will allow the mats to jump out.

LOOMIS: With many chute springs there is the question of height, a slot being provided for movement up and down (sometimes just enlarged holes). The chute spring should be as low as possible without interfering with the mats as they go into the assembling elevator. Likewise the points should extend about 1/16" to 1/8" inside the assembling elevator, just clearing the two assembling elevator mat retaining pawls.

HARDING: My test for height is to stand a spoke of the star wheel straight to the left (at 9 o'clock) and stand a matrix on the spoke. The top of the mat should just clear the tips of the chute spring ears.

Assembler Drive Belt Shift

HARDING: The newer style shift has a tight pulley and a loose pulley. If the shifter gets hard to move, it probably needs oil on the shaft. Some machines have an oil hole; others do not. The Intertype assembler drive belt must be crossed, with the one that runs to the lower pulley on the outside; otherwise, the belt will run itself onto the idle pulley. It should be noted, too, that sometimes the belt is shifted to the idle pulley but the assembler does not stop. The idle pulley must have oil. In most machines there is a hole at the back, but it is difficult to reach without taking off the assembler block.

Old Style Intermediate Drive Shaft Clutch

Many of these (with the forks that engage) are still in use, and many of them constantly slip out of engagement. There are three reasons: 1, too much oil; 2, weak spring; 3, parts worn rounded. If it is the spring, take off the knob (held on by a pin); the spring is in a slot in the shaft and under the knob; stretch it. If the engaging surfaces are worn, you can file them square (though it isn't easy) or get new parts.

Assembler Block

HARDING: This is technically the Assembler Plate (it does not appear listed complete with gears, etc.), but in most shops it is known as the assembler block. To remove it, take off the chute spring; take out the two large rounded fillister head screws. Pull forward to get the plate off of the dowel pins; then try to work it out. On some machines it comes out easily; on others you may have to take off the assembler slide brake lever. If this doesn't give clearance, remove the two round head screws under the assembling elevator that hold the assembler slide roll bracket, and remove this part. The assembler slide will sag and usually permit the block to come off. In some cases even this is not enough, and you have to remove the assembler slide bracket. See that you are not held up by the assembler drive belt.

Check the set screws that hold the gears. Oil the idle pulley; sometimes you have to remove it for this. See that the belt shifter is working; if the shifter is too loose, drive out the pin that holds the shifter fork and remove the rod. Usually there is a spring and a ball that works on two grooves in the rod. These should hold the rod in either position without requiring too much effort to shift it. See that the rod is oiled.

Matrix Catch Spring

HARDING: Linotypes have a small flat spring that protrudes through the plate about 1/16". This retards the top back ears of the mats and helps assembly. Its tension should be pretty soft. It cannot be adjusted on the machine, so do it now before replacing the assembler block. It must not bank against the left side of the slot before going below the surface.

Worn Assembler Gears

LOOMIS: Well worn gears on the back of the assembler block sometimes howl annoyingly. This usually is repaired by replacing the gears.

Star Wheel

LOOMIS: The older star wheels have a nut on the back with two flat sides. To remove the nut and get at the spring for replacement or readjustment, push in the clutch and send the line delivery over. Disengage the assembler drive so the belt is still. Feel behind with a Crescent wrench opened to ½", or, better, an end wrench. Get it on the nut; push down on the star wheel to break it loose; re-engage the drive belt, still holding the wrench in place, and the nut is off in a second. Keep your fingers in place to avoid losing the friction disk and spring. Disengage the drive.

Put cup grease in the gear before you put it back.

Tension of the Star Wheel

HARDING: If the tension is too great, mats will be thrown out of the assembling elevator; if it is too little, large mats and especially long lines will be slow in falling into position. On an all-around machine, the star wheel should assemble a 30-pica line of your biggest quads without hesitation.

Loomis's quick test is to stop the star wheel by bringing the forefinger gradually – not abruptly – against it. It should stop without appreciable pain. Loomis admits, however, that the pain-threshold varies in different persons, and is unreliable except as a first rough test.

To change the tension, I use washers. To weaken the spring and reduce tension, make a washer with outer diameter the size of the stud nut. Put it over the shaft and tighten the nut up against it. To increase tension, make washers with *inside* diameter that of the stud-nut, and slip under the head of the stud-nut. This will compress the spring. Use 1-point or 2-point leads, or, better, brass rule.

LOOMIS: I have used the washers and I like them. However, there is always the danger that a new operator will take off the stud-nut and lose the washers without knowing it, so I favor doing it all with the spring. It isn't as definite but it's more nearly final. If the spring is weak, use a screwdriver blade to stretch it a little. If it is too strong, hold it flat against a grind wheel and take off about two points and try it again. I like to get the spring a little weak – where it won't handle the 30-pica line – and then gradually strengthen it. An old spring sometimes loses its compushency and won't stay when you get it set, but gradually weakens.

I also make a practice of using oil inside the gear where the friction disk runs. You will find that with oil you will need a stronger spring, but the parts will last indefinitely and hold the proper tension. If you run a machine with extreme sizes, such as 6-point and 24-point, you may find yourself wishing you could adjust the tension. You can. Putting fresh oil on the disk will soften the spring; a squirt of gasoline will stiffen it. But use a little discretion in squirting around a gas pot; don't squirt so the gasoline will spray all over.

HARRY G. POTTLE in *Who's Who in the Composing Room* tells of a gauge to test star wheel tension. He fits a piece of ¼" square tubing over the front end of the star wheel shaft (star wheel removed). To the outer end of the tubing he fastens, at right angles, a strip of steel. At exactly 5 inches from the center of the star wheel shaft he hooks an 8-ounce spring scale and turns on the belt. The star wheel shaft should slip on about 4 ounces at this distance. (I like this Pottle; he uses gauges.)

When to Replace a Star Wheel

LOOMIS: When the star wheel is too worn to push mats inside the assembling elevator pawls, put on a new one. There are many kinds, but the fancy ones – large sizes, three-pronged, etc. – are for machines designed for them, and usually machines with unusual conditions. I stick to the old style four-pronged stars when possible. Older stars customarily had to be broached out or filed; the new ones seem to go on more easily.

Making the Assembler Slide Work Right

QUESTION: No matter what I do, I cannot make my assembler slide work right. It chatters; it fails to return. I have put in new brake shoes without success. What do you suggest now? – M. L. R., East Liverpool, Pa.

HARDING: This is not always a simple answer, and yet it is not too involved. Let's go all the way through.

The slide should not be oiled. Rub in graphite with your fingers. The slide itself gets bent or wears out. Take it out and sight along it to see if it is bent. Examine it for nicks or wear-grooves. If you order a new one, lay the old one on the catalog page and check it hole for hole. There are quite a number of different kinds.

Why Does the Assembler Slide Chatter?

There are several reasons. First, drop the assembling elevator to its lowest position. Now set the screw on the brake lever releasing lever so there is about 1/32" play between it and the end of the operating lever (the long lever that extends to the left, under the assembling elevator). This is the usual correction.

Now have a look at this long lever. Take out the one screw that holds it in. Is the flat spring at the right end of this lever in operating condition? It should be strong enough to hold the lever either up or down. A film of grease on the boss against which the spring works will save wear and rust.

Drop the bracket under the assembling elevator that holds the assembler slide roll, by taking out the two screws. Oil the shaft of the roll and replace.

Sometimes the assembler slide finger hits the star wheel. There is an adjustable buffer at the right end to control the banking of the slide.

How about the brake shoes? Are the corners worn down? Most of these are reversible so you can use four corners.

See that the brake spring is there. If you think it is weak, try adding a rubber band before you cut off the spring.

See if the assembler slide bracket (the one that releases a too-full line) is tight on the machine. It may be necessary to set these screws with glue or shellac or Smooth-on or stiff job ink. Be sparing; don't smear it all over.

On newer slides there is a roller that fits over the head of the lower screw in the slide bracket (you reach the screw through the round hole in the slide). Sometimes it helps chatter to put a drop of oil inside the roll.

Above all, be sure the assembling elevator is seating every time it returns, so that the operating lever goes down on the left end and up on the right to provide that 1/32" clearance.

Slide Moves to the Left With Difficulty

QUESTION: My assembler slide seems to hit a hard spot as it goes to the left, and causes jumbling of mats. Can you suggest what is causing this? — R. T. S., Ludington, Mich.

HARDING: Check these:

1. Be sure there is sufficient tension on the star wheel.
2. See that the slide is not bent or nicked.
3. Look for a loose screw on which the slide may rub.
4. See if the slide bracket is loose.
5. Graphite the slide with fingertips, rubbing well.
6. One of the most common causes and one of the hardest to spot: interference from the bell hammer trip. It may need oil or it may need a weaker spring. Try grease on the pawl. Interference here is why many operators take off the trip.
7. On rare occasions, the large roller under the left end of the slide will bind in the groove in the slide. The only immediate answer is to thin the edge of the roller on a grind wheel.
8. The screws that hold the assembler slide finger, if a little too long, will hit on the assembling elevator as the slide goes over.

Why Does the Slide Fail to Return?

LOOMIS: Most common fault here is too wide a gap between the brake release lever adjusting screw and the right end of the long operating lever mentioned above. About 1/32" is right, though some machines will take considerably more. Less will cause chatter.

Sometimes the left end of the operating lever, which is moved upward by the assembling elevator at the top of its stroke, is worn until it has very little movement. Some operators have put pins or screws in the end to correct this, but a new one is not very expensive.

Check the same items as for difficulty in moving to the left: graphite, bell hammer trip, loose bracket, loose screw, bent or nicked slide, loose brake shoe.

Should the Assembler Slide Return Spring Be Stiffened?

LOOMIS: I have been guilty of this myself. Very seldom does it need stiffening. Hold the brake lever in the clear and try the slide back and forth by hand. It should be free and easy, and if so the spring need be just strong enough to bring it back to the star wheel. If, when the slide is back to the star wheel, there is still a little tension on the return spring, it should be strong enough. Check the points mentioned above. Too strong a return spring will cause chatter and will also require a stiffer star wheel, which in turn may knock the assembler slide too far with the heavy mats, leaving a gap that causes jumbling. Tricky, isn't it?

Too soft a return spring will give almost the same result.

To test tension: if the slide is free and smooth when tried by hand, watch how it comes back when you send up the assembling elevator. It should return all the way without noticeably slowing down. If it slows down near the star wheel, and the slide is still free, the spring probably is at the limit of its contraction and needs stiffening.

To Remove Assembler Slides

Linotype: Disconnect the short link at the right end; don't bend the slide with the screwdriver. Remove the headless screw from the right side of the release lever in the slide bracket; don't lose the spring. Take out the two screws that hold the bracket (one is reached through the hole). Watch for the roller behind. Remove the brake trip (one screw) and brake (one screw) and the slide should come free. Drop the right end and move to the right.

Intertype: Disconnect the link at the right. Take out the two screws that hold the slide roll bracket just under the right side of the assembling elevator (we've given that thing a bad time, haven't we?), and the whole thing may be taken out. Don't lose the roll on the adjustable pin on the right end of the brake release lever. This can stand a drop of oil or a pinhead of grease.

Will an Extra Spring Help Return the Slide?

QUESTION: I have seen a machine with an extra spring on the right end of the assembler slide. The operator claims this helps it return. Should I try it? — S. I. R., Canoga Park, Calif.

LOOMIS: It is my impression that some machines have come so equipped from the factory. It is indeed a good thing, especially where you have lots of long lines. But first check all the things under *Why Does the Assembler Slide Fail to Return?* Then drill a 1/16" hole in the short connecting link that is fastened to the right end of the assembler slide, about ½" from the left screw head. The idea is to establish spring support in the angle formed by the short lever and the long lever (the one to the other end of which the spring is fastened).

Now about 1½" from the bottom end of the long lever, drill a hole in that lever. Use a keyrod spring; enlarge the loop ends; cut off or stretch so there will be a little tension when the assembler is at its extreme right. This spring will lift the slide as it moves to the left, and makes both right and left movements more smooth, and results in less wear on the parts.

Setting the Assembler Slide Clamp

LOOMIS: Cut a slug two points shorter than the measure you use on straight matter. Put on a new star wheel. Set the clamp so the short slug will just clear the star wheel and not stop it. This gives you a point and a half to play with, but don't fudge on it. Your star wheel will very quickly wear down a point.

MODEL 15 ASSEMBLY

How Can You Make a Model 15 Assemble Better?

QUESTION: We have a Model 15 in a small publication shop. It is a good machine for our use, but I cannot get it to assemble like a 5 or an 8. I wish you could suggest a remedy. – M. D. T., Lincoln, Neb.

LOOMIS: Gather round, students; you are about to be initiated into the secret that will unlock a Great Mystery. The 15 has always been a favorite of mine; in fact, some years ago I wanted a machine of my own for just such things as setting material for this book, and I bought a 15.

There was then the problem of assembly. I served my time on the old piecework machines in Texas, and I am not known for leisurely keyboard operation. I knew about the 15, having been asked this question many times, and I spent about three months working it out. There are basic differences between the 15 and others: the belt runs more nearly horizontal, the mats drop from a magazine more nearly vertical, the partitions are long and loose.

First I put on a Wm. Reid chute spring – the one with the movable tongue controlled by a flat spring. I got it set for height as I explained above in *The Chute Spring*, pages 63-64.

I checked over the assembler slide. I saw that all the belts were good, and I made sure the keyboard was turning at 275-280 r.p.m. The chute rail springs were replaced. (Mighty thorough, wasn't it?) I even checked the height of the assembling elevator, which you will do in the next chapter. The keyboard was clean, the magazine and mats were clean, and I sat down, confident. But an hour later I was groggy. At about three or four mats per second it worked fine. Over that it was terrible.

I watched the long, long partitions flopping around like the tail-end canvas of a covered wagon in a high wind. I studied the first guide. I got my snips

and whacked off about an inch from the bottom end. That was too much. I had to solder a piece of 1-point brass – about ½" – onto the bottom (on the outside, of course) to bring the end down to meet the chute spring. Then I spotted it and marked it. Took the guide to the bench and soldered a paper clip to the outside, 2" from the bottom, crosswise, and let about ¼" project at the back. Put it back in place and marked the spot where the end of the paper clip hit. Drilled a hole there with a 1/16" – No. 52, same as mouthpiece – drill. Dropped the clip in the hole. Now the first guide was stationary.

The second (short) guide was a little different, but it too was floppy. I soldered a paper clip to its right side, about 2" up, and set it in the middle between the first and third guides.

The third guide was too long. Eventually I got a considerable curve in the bottom, to bring the bottom edge about 18 points from the first guide and about 18 points above the rail springs. The fourth guide took still more curve. I cut off some again, and the end is about 1 pica from No. 3, and 18 points above the rail springs. The rest of them worked out as follows: all about 18 points from the preceding guide and about 18 points above the belt. The short ones were spotted in the middle.

All had to be cut off but the three short ones.

Now for the final adjusting. You won't have much trouble until you get over to the channel through which drops the lower case *u*. Here you will run into both the *m* and the *w*, and if you have set the bottom ends as far to the left as reasonable, you will still have some bending to do. Shut off the assembler and hold an *m* just above the belt. Release it gently and note if it goes through freely. If it doesn't, you'll have to bend a little or even cut off a fraction from the end of the No. 5 guide – but not much. (I also had some trouble with the *d* and the *h*, and some with the em quad. But be patient. The result is worth while. If the big mats do not drop through of their own weight, use a little bending, a very little cutting, and lots of patience.)

As a final test, sit down and run out all the mats in a channel by holding the key down with the finger; do this three times. Do the same with every mat that drops in that section. Just sitting there, watching fifteen mats pour out one after the other, you will invariably see a little ball-up if the partitions are not curved or spaced exactly right, and this will show you what needs to be done.

There is one further bit of corrective surgery that improved my assembly. I discovered the line delivery belt was running about 50% faster than on other models, so I got a 5" size B V-belt pulley and fastened it to the assembler drive belt pulley (by screws through the spokes). It throws the belt a little out of line but it has been running that way for four years and works fine.

Mine works like a charm. It is not quite as fast as some machines I have run, but faster than many.

LINECASTING OPERATOR-MACHINIST

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