

## CHAPTER XXII

### EJECTION

#### To Adjust the Ejector Lever Pawl

HARDING in the *Graphic Arts Monthly*:

On machines with an inside galley, the ejector blade should advance  $1/32''$  past the back plate of the galley. On machines with outside galley, the blade should clear the vertical edge of the chute  $1/32''$ .

On the right side of the gear cam in back you will find a lug that engages the ejector pawl. This lug often works loose. If tightening does not hold, get a new lug, pins, and bolt. They come now with a narrow lock washer.

Be careful in unscrewing the adjusting screw, which lowers the pawl for a longer stroke. If you get it too low, one cam will be pulling it forward while another is trying to return it. This is an unhappy situation, for cast iron breaks.

#### To Remove the Ejector Lever Pawl

HARDING: Remove the nut from the pawl screw. Turn the screw out until it touches the cam. Push in the clutch, back the machine until the second elevator starts down, and push the ejector lever forward until the pawl screw can be turned out (from the other side) into the groove in the cam.

#### Slugs Jump out on Floor

QUESTION: I cannot understand why my slugs jump out on the floor. I have set the pawl backward and forward without result. — T.B.S., Whitingham, Vt.

HARDING: Sorry, you can't fix it that way. Invariably this is the result of a broken or absent buffer spring. On old Linotypes and Intertypes it is on the ejector slide; on new Intertypes, on the ejector lever link; on Linotypes with universal ejector, inside the blade pocket.

#### Slugs Tip When Delivering

QUESTION: The 12-em slug hangs up on the very tip of the lower knife block liner, and no amount of adjusting seems to help. Could this be due to a welded ejector lever? — A.C.O., Jasper, Ala.

**HARDING:** As a general principle, polish the slug chute and spring plate with graphite, and the inside surfaces of the side knives.

If an old mold, sometimes the last rib is pretty far from the end and encourages the tip, but this should yield to other measures.

Remove knife block and spring plate. The hook on the lower spring plate lug may be bent, or one or both lugs may be bent or loose. Get new lugs and rivets.

A very common cause is spring plate tension. While the plate is off, see that the flat copper spring is in good shape, and properly caught under the buttons when you replace the plate. To adjust the tension, the best tool is a  $\frac{1}{4}$ " rod with a slot in the end and an L handle on the other end. With this you can bend the flat spring while it is on and get any kind of tension — more or less. If the plate is in good shape, you should be able to stop tipping with this.

A rib trimming caught in the chute will hinder ejection.

As a last resort, here's a trick taught me by the representative of one of the Companies: if short slugs appear to move up as they are ejected, try bowing the spring plate to put pressure on both ends of long slugs but less on the top of short slugs. If there is a projection on the lower end of the spring plate, bend it a little to the left.

#### **Intertype Ejector Cannot Be Changed**

**HARDING:** If the ejector locating lever (the lock) cannot be pushed down, see that the machine is in normal position — especially that the disk is not forward. If there is still trouble, look to the adjustment of the screw and lock nut at the back of the ejector lever.

When the lever goes down but the blade won't change, this may be due to the fact the blade has not been changed for some time. Hold the lever down and work on the shifting lever in both directions. It usually gives.

#### **Old Style Ejector Slide**

**LOOMIS:** Many of them are pretty old. Check these items for an overhaul: See that the buffer spring is operating.

The Ejector Slide Releasing Arm Pins (A-20), four of them, should not be worn so as to allow the blade to sag and knock off the tip of the lower liner. If you install new ones, be sure they go into the holes in the blade. If you have the flat springs off, flatten them out in the ejector blade holes while you tighten the screws.

The Ejector Blade Banking (F-589), a small flat piece, should not be worn much where the blade banks against it. It's easy to replace.

In replacing these small parts, one should in nearly every case put in a new blade also.

Take off the Ejector Blade Guide, just behind the disk, and see that the Pressure Bar, the floating piece, is free and operative. Usually the Pressure Bar Friction, the long brass strip, is badly worn. Replace it, gently tapping the new one into place with a small hammer — the pressure bar being removed from the guide, of course, to enable you to hammer solidly. You may have to round the friction bar a little so the blade won't strike it on the flat side.

#### **Universal Ejector Slide**

**LOOMIS:** These are not difficult either. Take off the plate held by six screws. Note that three screws are shorter and go in the top. Take out the ejector blade links and the various sections of blade. If the links are battered where the controller hits them, replace. If the links are chewed up where the blades fit over them, also replace. If the blades are sprung and bent and wavy, replace. The bottom blade is 4 picas; the others are two except for 13 picas, where you will find a 3-pica piece below and a 1-pica piece above. This blade, set on 12 picas, will make a 12-pica liner look like Galveston after the hurricane.

If you keep old blades and/or old links, put the controller in place and push the blades about one pica through a 30-pica mold. Prop the controller in place with a piece of wood furniture or slugs. File the ends of the blades as a unit, square and straight with the mold. Needless to say, don't file the mold.

If you take this stuff apart, note the Ejector Blade Controller Link Lift Roll (F-1688) which came with the machine. The ejector shifter will work much better if that roll is retained.

If you use the old controller, see that the hole is not enlarged very much, and that the stud at the top is still in place. Ten to one it isn't. It should be there. It is designed to slide down the slots in the ejector slide and keep the controller fully behind the top blade instead of only on the corner.

Now let's put the whole works together. Push the mold slide not quite all the way back — about an inch forward. Get under the pot with a light and pull the ejector slide backward until the slot is at the back. Insert controller, put in screw.

Back up the machine from normal position. Push forward gently on the ejector lever, feeling for the bump of the stud at the top of the controller. Most of the time it will hit on a partition and then go over or under. In this case, open the vise and push the blades on through a 30-pica mold. Measure them. Over or under? Usually under. Now on the Ejector Blade Controller Lever Latch Handle (F-1307) is the latch which fits into notches to set the blade. This is held on with screws and can be moved up or down, moving the controller correspondingly until the stud passes easily into the proper slot. If necessary, the top of the latch can be bent. Then set the indicator rod by the threaded piece at the bottom end.

### Improved Controller Link

Now, a word about the controller. If you have trouble on an old machine getting the ejector to push the slug out far enough (and this can happen), you can get an "improved" controller from Lino Parts, with a  $\frac{1}{8}$ " ridge which gives that much additional throw. The long screw should be replaced at the same time.

### Intertype Ejector

**LOOMIS:** This works differently, having a variety of solid blades, one of which is impelled by a master blade. These blades need oiling occasionally or they will freeze up. I drill a hole on the thin cover of the box, near the top, and squirt one squirt of oil about once every six months into the box. If you get too much, it will show up on the slugs.

If a blade gets damaged, you can replace it without taking the box apart. Take off the Ejector Blade Keeper Bar and remove the master blade. With a makeup rule push the damaged blade to the rear. Pull it out. The other blades will stick in place. Slide in the new one, oiled. Hocus, pocus, ems and picas! Easy, too easy.

### When Linotype Ejector Sticks

**HARDING:** If the ejector blade gets stuck in a hollow slug at ejection, you cannot open the vise or move the machine either way.

Release the rear end of the ejector lever link and use the clutch to bring the machine to normal.

Open the vise and pull out the disk. Loosen the liner screws or the Intertype swivel bolts.

Loosen the mold cap and free the ejector.

Push the ejector blade back through the mold with a 6-point reglet.

Now you can hook out the slug with a brass wire with a hook on the end of it.

*Do not* use the ejector lever handle to pound out stuck slugs. You will damage the ejector blade and eventually the mold — if not sooner. If time is pressing, it is occasionally excusable, but not as a regular thing.

Some m-o's cast a new base in a hollow slug, but this can be very complicated.

### When Intertype Blade Jams at Ejection

**LOOMIS:** There is one situation in connection with stuck slugs that should be gone into. This happens to a certain extent with Linotypes occasionally, but in its more violent forms is more fully exemplified on Intertypes. This is the spot where the operator tries to eject a 12-pica slug with, say, an 18-em ejector blade. A 14-em blade would merely twist the liner and pass through, as a rule,

and a 30-cm blade probably would be stopped altogether, but 18 or thereabouts can be very bad. The blade twists the liner but doesn't break it off unless it's 6-point or smaller. The blade comes on through and ejects the slug, then tries to return. But the twisted liner, caught between the mold and the knives, jams against the blade and acts as a wedge. The blade cannot retract, so the master blade either breaks the lugs off of the blade, or it slips out of the blade, or it jams right there.

In this latter situation you have the machine at transfer. You cannot open the vise. You cannot back the machine or move it forward. The ejector blade and lever and connecting link hold it solidly. It is very likely that the heavy pressure on the ejector lever will make it impossible to disconnect the link. This is a good time to go out for coffee.

Turn off the motor. Put in the clutch. Try to disconnect the link to relieve the pressure. If you can't — you can't. With a  $\frac{3}{4}$ " socket wrench take off the knife block. Loosen the screws on the mold cap and take it off. Pry off the liner. Push the ejector blade back to the mold and let the machine finish its revolution.

If the blade itself is damaged — which it likely is — you will have to straighten it or put in a new one. Take out the mold slide. Move the master blade to 30 picas. Take the cover off of the ejector blade box. If the blades are dry, take the whole works apart and clean and oil. If they have been oiled recently, or if you are holding up page one on press-day, pull the blade out slowly while you use a knife blade to maintain the space it leaves. You can slide it back in without disassembling the box. Get it lined up with the others, work the master blade back and forth a few times. You're set.

Sometimes the master blade comes clear out. In this case the ejector slide may jam against the column or frame of the machine and hinder movement of the mold slide and of everything else within two blocks. You can't move the mold slide or anything else. In such a case I have had the best luck by using a long brass drift at the rear of the machine to hammer the ejector slide forward just enough to loosen it. It won't take much. To get the master blade back in, if there are no broken or twisted ejector blades in the box, take off the vertical bar that holds the blades in at the rear, and merely slide the master blade in place.

When you get all through, put the cover on the box and put things back together.

#### **Intertype Master Blade Slips out**

**LOOMIS:** When you lower an Intertype vise to second position and pull out the mold slide, *be sure to disconnect and remove* the ejector lever link. Very new Intertypes have a safety device here, but on most of them, if the link is left in and you pull out the mold slide, the master blade slips out, maybe the link itself becomes wedged against the frame, and the boogiemer comes down the chimney. It can be *very* complicated.

**Why Does Ejector Blade Score Inside of Mold?**

**HARDING:** This is caused by a sprung ejector blade or section, maladjustment of the mold disk guide support screw, or improper setting of the mold disk locking stud blocks (see *Replacing the Mold Disk Locking Studs and Blocks*, page 136).

**Trouble in Ejection Caused by Warped Cap**

**QUESTION:** All our molds work fine except the 10-point 12-em, which starts hanging up when the metal gets to circulating through it. This same mold is all right on 30 picas. — B.A.M.

**LOOMIS:** The body thickness of the slug is greater on the left end. Since 30-pica slugs come through all right, it may be that your 12-em section of ejector blade is rounded off toward the top. It is also likely that your mold cap has a little warp. This can be checked by a machinist with a plane table and a dial indicator, or send it in to the Company and ask them to check and grind it if necessary.

**Slugs Eject With Difficulty**

High temperature. Warped caps, especially on recess molds. Poor ejector blades, un-square on the ends. Rounded edges of mold. Accumulating of metal on back of mold.

Polish the inside of the mold with oil and graphite.

Scales of metal around liners that have been in place for a long time, will fatten a slug and make it hard to push through. A too-short ejector blade may be the trouble. Ad figure molds have flat ribs and do not eject as easily as the others.

On old machines it often helps to have a thicker ejector blade, up to the maximum that will go through the mold. But watch those recess molds!

There is also the possibility that the clutch is too weak (see *Starting and Stopping Adjustments*, page 250).

**Why Do Slugs Pop or Pound at Ejection?**

**HARDING:** Keep the mold polished with oil and graphite. Linolizing is said to help remarkably, but I have not had opportunity to observe this fully.

This popping appears to result from some peculiar property of the steel in the mold, and not from the usual causes of ejection difficulty.

Sometimes this develops into pounding, which usually indicates the need for mold polishing.

**Why Do Slugs Pull Back in Mold?**

They cannot pull back far, but they can pull back a little, and get trimmed under type high. Also, if the liners are not firmly fixed, it will pull the liners back a little, and the back knife will shave them. This pulling back occurs at the breakaway. The slugs are tapered .0025" smaller at the bottom to prevent it, and the liners have tips to help. Invariably this occurs when the mouthpiece is cool and the slug does not break away promptly. Keep mold cap screws tight; turn up mouthpiece heat for starting.

**Too Much Cracking on Breakaway**

**QUESTION:** Our pot makes too much noise on the breakaway — sometimes a positive crash. Is there any way to relieve this? — T.C.L., Fitchburg, Mass.

**HARDING:** Get a jeweler's broach for a 1/16" hole and taper the holes a little, larger at the front. This will facilitate breakaway. Usually happens when mouthpiece is run rather cold.

**LOOMIS:** It is well too to check the pot return cam on the inside of the main driving cam — on the right, looking at it from the back. Sometimes this cam, which is no more than a shoe, is broken, and sometimes the lug on the pot cam lever, which transmits the pot return cam's motion to the mouthpiece, is broken or loose.

A 6/0 taper reamer will do the broaching on the mouthpiece.

**Welded Ejector Lever May Interfere With Setting of Ejector Level Pawl**

**LOOMIS:** Due usually to an inexcusably stiff clutch, an ejector lever, heavy and tough as it is, frequently is broken about the middle. This is one of the most common breaks in linecasting circles. When he has it welded, the m-o should note particularly that the welding does not build up the inside of the lever at a point where it will hit the main cam shaft. When this happens, it is impossible to adjust the ejector pawl so the blade will go as far forward as it should. Clearance at this spot normally is very small.

If you have one like that, there is only one remedy: take out the ejector lever and grind it down to its original contour on that side.

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# LINECASTING OPERATOR-MACHINIST

*Compiled by*

EDWIN B. HARDING

Professor Emeritus of Journalism and Printing  
South Dakota State College

*Edited by*

NOEL M. LOOMIS

*Linecasting Machinist*  
Minneapolis, Minn.

STOCKTON BOOK PUBLISHERS . PITTSBURGH, PENNSYLVANIA

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