SHOP TALK

VOLUME 8 NO. 2

ATTENTION LINOTYPE MACHINIST

Linecasting STAR ★ PARTS Automation

STAR PARTS Co.
SOUTH HACKENSACK, NEW JERSEY
A DIVISION OF POWERS & EATON Industries Inc.

POSTMASTER — FORM 3547 REQUESTED.

SHOP TALK

Address all Communications to:
Alfred Archer, Editor
2 South Main Street
South Hackensack, N. J.

Text of this issue of SHOP TALK set in 9 and 10 point Star News.

THE COMPUTER IN THE COMPOSING ROOM

by Alfred Archer

The function of the computer in the composing room is highly specialized. Its sole purpose is to space, and hyphenate lines in order to produce justified tape. To do this, the memory of the computer must be supplied with precise information regarding the widths of each different matrix; minimum and maximum and spaceband sizes; length of line; and rules for hyphenation where necessary.

This, plus instructions regarding paragraph indention, run arounds, quadding and similar operations comprise the computer "program". Once this information is stored in its memory, the computer can then accept unjustified tape and produce a new, justified tape.

Before discussing the function of a computer let's briefly review automation developments in the composing room as they apply to linecasting machine operation, before the introduction of computers.

The tape system has been in use for over 35 years and is an accepted production tool. In its simplest form it finds application as a perforator keyboard and machine operating unit in the weekly field, to help overcome operator shortages. Daily newspapers and specialty commercial plants have increased production through highly sophisticated systems involving tape transmitters, reperforators, monitor-printers, quadders, safeties & other peripheral equipment.

All tape perforating systems have one thing in common. This is the separation of the keyboard operation from the linecasting machine. The productive capacity of one hot metal machine is no longer tied to the keyboard speed of one operator. Slug casting speed is limited only by the cycle time of the machine itself. It is the assignment of jobs to the man or machine best suited to handle them that makes the tape system work.

The previous ratio of 1 man to 1 machine can now become three men to two machines or three men to five machines depending on the productive capacity of perforator keyboards and linecasting units.

The same principle of division of function makes computers practical in the composing room. The computer does not generate tape, but rather reads unjustified tape and reproduces a duplicate, to which it has added signals for "return", "elevate", hyphenation and other functions when required. Al-

 Continued on page 7

ADJUSTMENTS OF THE MAIN DRIVE CLUTCH

By Walter Butterworth

Star Parts Service Engineer

Walter Butterworth began with Star Parts more than 15 years ago as an apprentice machine assembler. Since then he has had wide mechanical experience, both in Star's machine rebuilding department and as a travelling installation and service engineer.

MAIN DRIVE CLUTCH

Because the main clutch and driving mechanism can take a great deal of abuse and punishment before it seriously affects the operation of the machine, it probably is one of the most neglected of machine adjustments.

There are several ways to detect wear or misadjustment in the clutch and its associated levers and linkage. If the pot hesitates as it comes forward toward the mold, the first place to check would be the clutch adjustments. The same is true if the machine slows up at ejection or if the cams "bounce" when the machine returns to normal.

Some machinists use what appears to be the easy way out, and apply excessive dressing to the driving belt or heavy packing to the clutch leathers. This is treatment of the symptoms rather than the cure of the trouble.

Let's take a look at the right way to do it, because once the clutch and related parts are properly cleaned and adjusted your clutch troubles will be over for a long time. The only attention the well-adjusted clutch requires is the occasional replacing of the leather shoes.

We will outline the adjustments of the driving clutch, and emphasize that each group of adjustments should be made in the order described, because accuracy of adjustment depends on the series of settings rather than just one.

Aside from the usual machinist's screwdrivers and wrenches, no special tools are required. Before beginning the job, it is helpful to have on hand: 2 new clutch leathers, (C-18, S-36); 4 screws (C-231, W-484); clutch rod spring (C-4, W-117). Future adjustments will be easier if the Star improved adjustable clutch rod (C-244-A, S-28-A) is installed during the maintenance and adjustment procedure.

All adjustments should be made with the motor turned off.

Referring to Figure 1, remove screws 1 and 11, allowing the assembled clutch to slide off the drive shaft. Replace worn clutch shoes with new ones, making sure

that the brass screws sit well below the surface of the leather shoes. Do not use any packing under the shoes at this time. Thoroughly clean the inside contact surface of the main driving wheel.

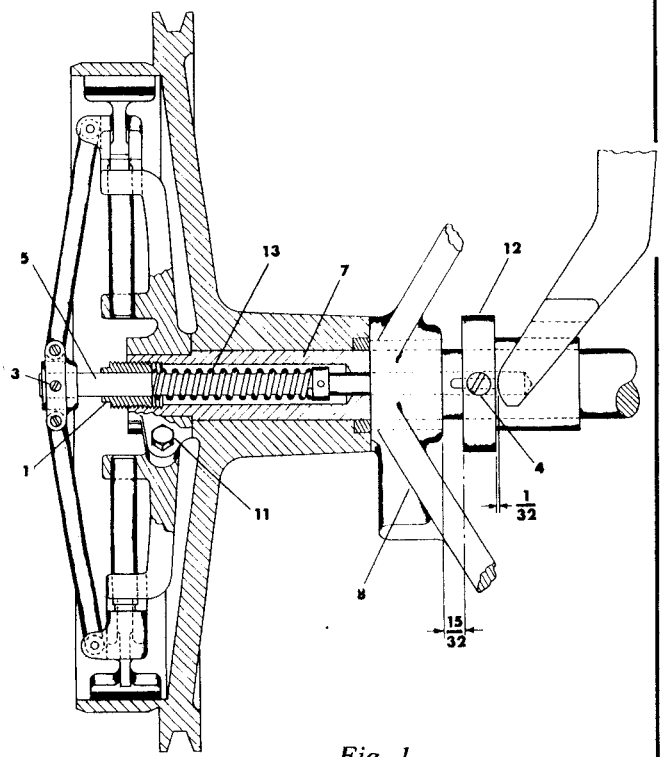

Fig. 1

If your machine is not equipped with the Star Adjustable Clutch Rod, now is a good time to install it. This Rod (C-244-A or S-28-A) provides an easy means of clutch and collar adjustment and eliminates the use of shims under the clutch leathers, as they wear.

To replace the clutch rod 5, remove adjustment bushing 3 and the clutch flange screw 4. The rod and compression spring 13 will then slide out of the drive shaft 7. This is also a good time to examine the compression spring and replace it with a new part (C-4 or W-117), especially if you suspect that it has become weak with time.

Replace the rod in the drive shaft and slide the spring over it, keeping the hole in the rod perpendicular to the floor. Now slip the bushing over the extending portion of the clutch rod and give it two or three turns until it is well engaged in the drive shaft.

To replace the clutch flange screw 4, place a pin punch or screw driver in the hole in the clutch rod 5 that extends out of the drive shaft, and slip the flange screw through the flange. Move the rod 5 horizontally until flange screw 4 passes through the rod and can be tightened with a screw driver.

When replacing the standard C-244 or S-28 rod with the Star improved part, turn the adjustable end in all the way before sliding it into the main drive shaft. Remember the relationship between the holes in the two ends so you can keep the inside end vertical to make replacement of the flange screw easy.

After flange screw 4 is in place, make sure the flange moves with the rod when you pull on it with a punch or screw driver. If the flange does not move, then the flange screw has missed the hole in the inside end of the rod. This means you must remove the flange screw and repeat the above procedure, "fishing" until it has passed through the clutch rod.

Once this has been done, turn bushing 3 about half way in. Now you are ready to replace the clutch. Tighten screw 11 and replace screw 1, but do not tighten it, as you will be removing it several times later. Now that you are certain that the clutch, rod and spring are in good condition, ad-

justments to the clutch and its related parts can be made.

1) To begin, you must adjust the flange. With the machine backed up slightly, pull the starting handle

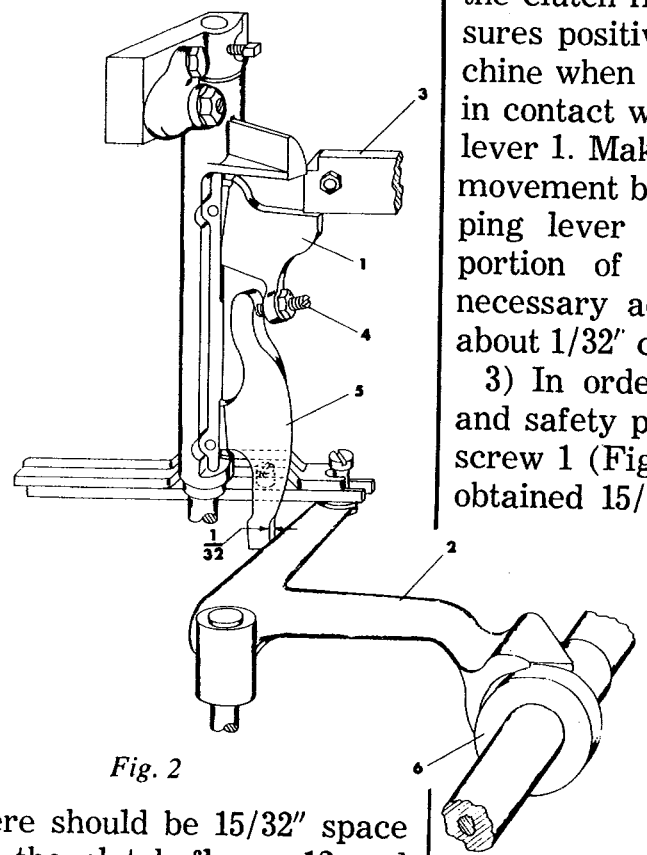

Fig. 2

out. There should be 15/32" space between the clutch flange 12 and the driving shaft bushing 8. This adjustment can be made in either of two ways. If you have the Star Adjustable Rod (C-244-A, S-28-A) you can turn it in or out by removing screw 1. If your machine has the conventional rod, then you must remove the assembled clutch, and shim out the leather shoes until you get the proper 15/32" clearance. (Note: 15/32" is very close to 34 points, so you can make a workable gauge with pieces of strip material or by combining 10 point and 24 point plugs.)

2) Referring to figure 2, the forked lever 2 is next to be adjusted. With the machine backed up slightly so the stopping pawl 3 is off the upper stopping lever 1, pull the starting handle out. Adjust screw 4 until you obtain approximately 1/32" clearance between the tip of the forked lever 2 and the clutch flange collar 6. This insures positive stopping of the machine when stopping pawl 3 comes in contact with the upper stopping lever 1. Make sure there is a little movement between the lower stopping lever 5 and the stud arm portion of the forked lever. If necessary adjust screw 4 to give about 1/32" clearance at this point.

3) In order to set the stopping and safety pawls correctly, adjust screw 1 (Figure 3) until you have obtained 15/16" between the back face of the pawl and the outer surface of the cam. The safety pawl is set in the same way.

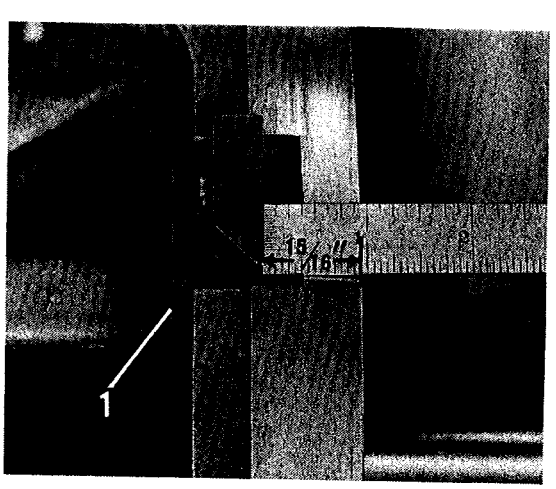

Fig. 3

4) Figure 4 shows the adjustment of the upper stopping lever

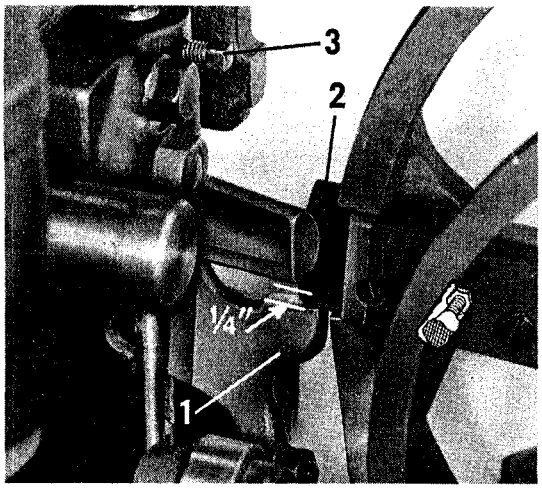

Fig. 4

1. This should be set so that stopping pawl 2 rests on the upper stopping lever 1, overlapping it by 1/4". To make this adjustment, loosen screw 3 while the stopping pawl is resting on the upper stopping lever. Then adjust lever 1 by moving it horizontally until the proper adjustment has been made. Then tighten screw 3. On Intertype machines, the adjustment is pinned at the factory and therefore does not require adjustment.

5) With the starting handle pulled all the way out, the vertical lever 1 in Figure 5 should push the stopping pawl 2 so that it will

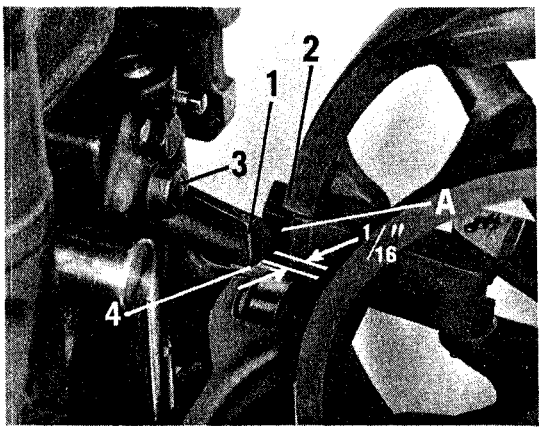

Fig. 5

clear upper stopping lever 4 by 1/16". This adjustment is obtained by turning screw 3 in or out as necessary, at the same time maintaining finger pressure on the lever toward the pawl. When the clutch handle is pushed in, vertical lever 1 should clear pawl 2 by 1/32" at point A. This adjustment is made by the screw located on the column of the machine, directly behind the vertical lever, and is not visible in Figure 5.

6) Adjustment of the eccentric stud 4, shown in Figure 6, is made with the starting handle pulled out and vertical lever 5 banking on

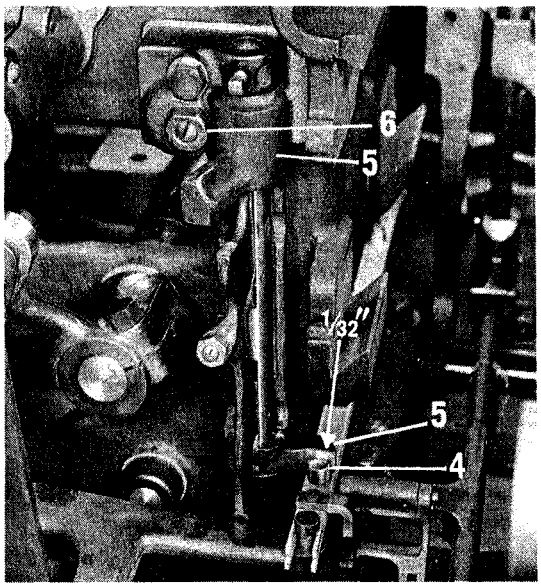

Fig. 6

adjusting screw 6. In this position there should be approximately 1/32" clearance between the stud 4 and the lower part of vertical lever 5. To make the adjustment, loosen the lock nut under eccentric stud 4 and turn the stud until the 1/32" clearance has been obtained.

7) To complete the adjustment of the clutch, set adjusting bushing 3 (Figure 1). This should be turned in until there is no hesitation in the machine when the pot locks up or when the slug is ejected from the mold. This adjustment sets the tension on the

compression spring and should not be turned in any more than is necessary for smooth operation.

After you have made the adjustments in steps 1 through 7, and you find there are still minor difficulties, here are a few additional points to check.

A) The main drive belt, if you have a V Belt Motor, may be slipping. There are adjustments on all V-Belt Drives to take up excessive slack in the belt.

B) Frozen rollers or rollers with flat spots can cause the machine to hesitate. Check the rollers on the vise closing lever, justification lever, pot plunger lever and the pot compression lever.

C) If the clutch is properly adjusted and the machine still hesitates at ejection, this can be due to a variety of causes, such as dirty molds, poor pot lock up, metal build up on the back of the mold or other difficulties preventing smooth slug ejection.

D) Finally, the machine in general and particularly the moving parts in the heavy driving section should be kept well lubricated for a smooth machine cycle.

THE COMPUTER IN THE COMPOSING ROOM *Continued*

though it performs these functions at very high speeds, the computer is an additional step and an expensive piece of equipment in the production of a line of type. Where then do its advantages lie?

The perforation of justified tape in the plant without a computer is far more complex than it may first appear. The perforator operator's job involves considerably more than reading copy and punching this word-by-word into usable tape. Most lines require the operator to perform the following functions:

1. Read copy
2. Punch tape
3. Check indicators at about 80% completion of line, in order to:
4. End line on full word, or:
5. End line by hyphenating last word. If hyphenation required,
6. Decide on proper hyphenation and punch "hyphen".
7. Punch "return" & "elevate".

The operator obviously must begin the line-ending decision at Step 3. The more experienced the operator the more quickly the decision is made. However, all operators perforate tape in comparatively short bursts, that is 30 to 33 characters at a time for each line, and then sequence begins again.

Other non-productive operations are required for tight lines or lines which need additional spacing in order to justify.

It is apparent from the above that the perforation of justified tape involves many functions which do not result in the production of type.

Preparation of unjustified tape, for computer input, requires only the reading of copy and punching of tape. It is not necessary to watch line length indicators, nor to make line-ending decisions. Hyphenation, resetting of tight lines and respacing of loose lines are all eliminated when unjustified tape is punched.

To be continued

New Anodized Starlite Magazines

Matrices love the new Starlite all-aluminum magazine, because they slide down the channels with the greatest of ease. Made of tempered, jet-plane aluminum for long wear, the lower plate is specially anodized to reduce matrix friction to an absolute minimum.

In addition to providing a smooth matrix track, the anodizing process closes the pores of the lower aluminum plate so that dust cannot stick, and gumminess is removed with only an occasional brushing. Anodizing has the same effect on aluminum as Teflon* does on cookware.

Reduced sliding friction and cleaner matrix channels make Starlite the ideal magazine for both high speed and manual operation. Instant matrix release is essential for smooth error-free assembly.

The new Star magazine is truly light weight. The Starlite magazine for Intertypes (with escapement attached) checks in at 21½ lbs. compared to the regular 32 lb. weight of other aluminum magazines. For Linotypes, the Starlite magazine has a similar weight advantage. It tips the scales at 19 lbs. 8 ozs.—a good 40 ozs. lighter than other aluminum magazines, and an amazing 23½ lbs. lighter than aluminum-brass magazines. For Intertypes the Starlite magazine (T-4370) fits Models A, B, C, F, G, V and Monarch. The new magazine for Linotypes (I-3882) fits Models 5, 8, 14, 18, 19, 25, 26, 29, 30, 31, 32, Comet and Elektron. Both are in stock, ready for prompt shipment.

*REGISTERED DUPONT TRADEMARK

Linecasting STAR ★ PARTS Automation

STAR PARTS Co.

SOUTH HACKENSACK, NEW JERSEY

A DIVISION OF POWERS & EATON Industries, Inc.

CHICAGO • DENVER • KANSAS CITY, MO. • LOS ANGELES • MINNEAPOLIS • MONTREAL