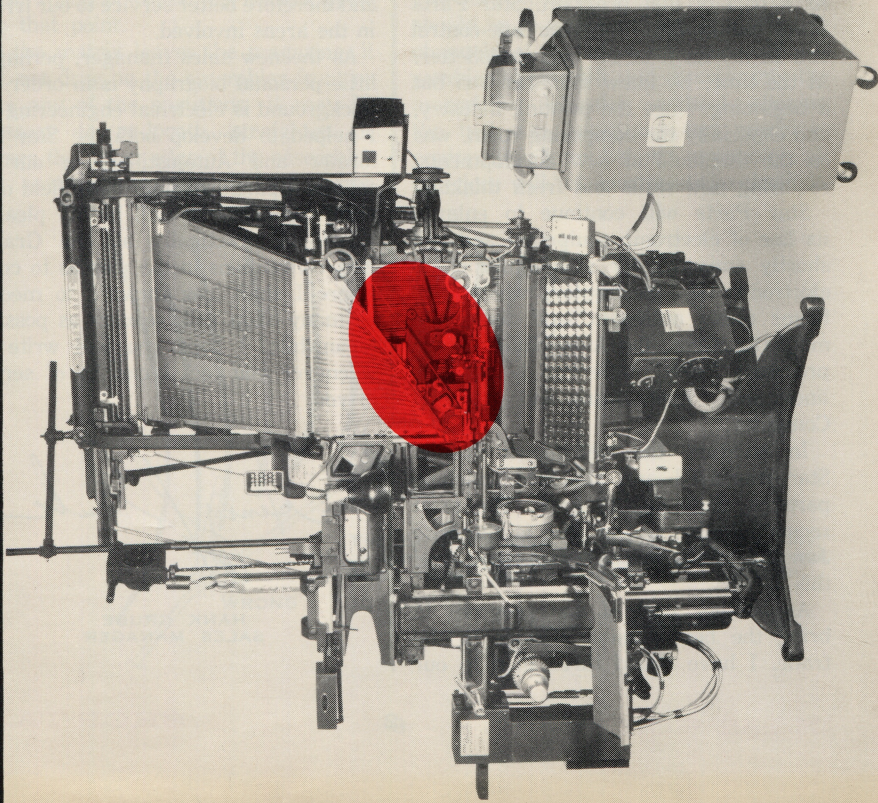


SHOP TALK

VOLUME 5 NO. 1

ATTENTION LINOTYPE MACHINIST



STAR PARTS CO. SOUTH HACKENSACK, N. J.
A DIVISION OF POWERS & EATON Industries, Inc.

SHOP TALK

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A WORD FROM THE SALES MANAGER

As you have probably read in trade publications, Quido Herman our former sales manager and Shop Talk editor has resigned to take up other responsibilities in the graphic arts industry. However, he will continue to write his informative articles on linecasting machine maintenance and they will be included in future issues of Shop Talk.

While Quido Herman was sales manager, Star Parts began a program of developing new tape control equipment. As a part of that program, Star Parts marketed the first electronic tape-control unit in the form of the Star AutoSetter. At the time, we knew that this was but a beginning, since the printing industry, and especially the composing room, was on the threshold of new developments, requiring new skills and fresh thinking.

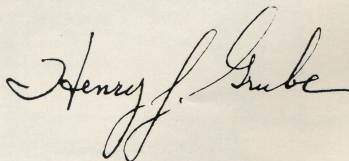
Star Parts will continue to enlarge its line of electronic equipment and will shortly announce the availability of an electronic tape perforator, which performs many automatic and semi-automatic functions, the Autojustifier which processes "idiot" tape into book-length lines, and a hyphenating and justifying Computer.

In addition, the well-known line of Star improved and standard machine parts is continuing to grow. The most recent addition to our line is the Vise Jaw Safety Kit, described on page 8 of this issue.

As another part of our program to bring the best possible service to the trade, I have added three men to our

sales force. Tom Moore, a veteran in the linecasting machine field, now covers northern Illinois. Thayne Mason, who formerly represented us in the Midwest, now makes Atlanta his headquarters to cover his new territory in Florida, Georgia and Alabama. Bill Lindsey, another experienced man, will travel out of Charlotte, to visit customers in North Carolina, South Carolina, Kentucky and Tennessee. The addition of these representatives will mean more frequent calls and therefore better service to our friends in the areas involved.

As the new sales manager, perhaps a little personal biography is in order. My background is electrical engineering and I helped to develop both the Star Perforator and Autojustifier, in our research department and under field operating conditions. It will be my pleasure to attend practically all the Graphic Arts conventions in the months to come, where I shall look forward to meeting as many Shop Talk readers as possible. Meanwhile, I hope you will write me whenever you feel I can be of service to you.



HANK GRUBE
SALES MANAGER

THE MATRIX CYCLE...HOW TO CHECK THE DANGER POINTS

BY GUIDO E. HERMAN

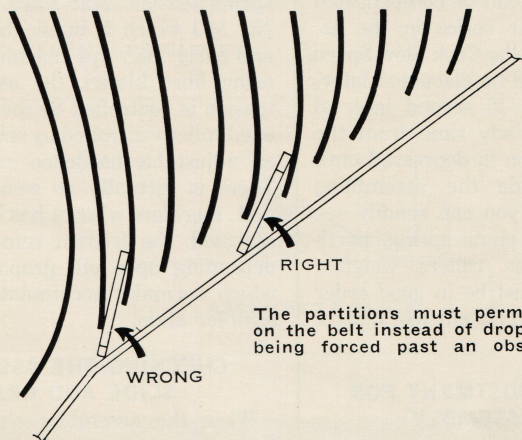
MATRIX ASSEMBLY

Because of the complexities of the mechanism required for the assembling of matrices in a line, especially in view of the increased speed resulting from tape operation, we believe articles describing the principles of operation and points to check, would be timely.

We are assuming, of course, the keyboard is clean, rubber rollers are of correct dimension and are not grooved, keyboard cams, weights, triggers, reeds, and escapements are in good condition. We will further assume that matrices and magazines are clean and in good condition. We shall discuss the control of matrices from the magazine until the line is ready to be elevated. Shop Talk Vol. 4 Nos. 1 and 2, cover the matrix cycle from that point.

As the matrix leaves the magazine, it must not drag on the assembler front or strike any of the partitions. It may be necessary to re-locate, straighten or sharpen the upper edge of the assembler front partitions to provide friction-free

travel of the matrix in the direction of the matrix delivery belt. As the matrix falls, it is guided by the assembler entrance partitions, is transferred to the matrix delivery belt from whence it is transferred to the assembling elevator. It is very important that the bottom portions of the assembler front partitions be bent in such a manner that there is no possibility of a matrix contacting two partitions and the belt at the same time. The partitions must be bent so they permit the mat to "lay" on the belt instead of drop on the belt and be forced past an obstructing partition. With the assembler front cover open, place a mat in each of the partitions, so the bottom of the mat contacts the belt. Move the belt slowly and determine that each partition is shaped in such fashion that there is no obstruction by the left hand partition. The third partition on Linotype machines, should be so positioned that the first five channels of matrices fall upon the assembler chute rails and directly into the assembling elevator without striking the belt. On Intertypes and machines equipped with the Sennett assembler, all matrices will, of course, strike the belt.



The partitions must permit the mat to "lay" on the belt instead of dropping on the belt and being forced past an obstructing partition.

ASSEMBLER SPEEDS

At this time it is well to stress the problem of matrix assembly, because of the speeds involved. If you will count the number of matrices and spacebands in an average line, and multiply this figure by the number of lines per minute your machine is operating, you will find that it will require from 9 to 12 characters per second in order to hang the elevator. This means, therefore, that the hesitation of 1/10 of a second will cause a transposition or possibly a pile-up of mats in the assembling elevator. While on the subject of speeds, we normally think of the matrix delivery belt as a means of transferring the mats into the assembling elevator, but the speed of the matrix delivery belt is of utmost importance. If a lower case "e" and an em dash are struck simultaneously, in theory, both mats should reach the star wheel at precisely the same time. Because the em dash must travel further than the lower case "e", the speed of the matrix delivery belt must be such that the velocity of the mat will be equal to the fall of the lower case "e" which is controlled only by gravity and is a fixed time interval. This means, therefore, that if a machine is speeded up it may require the use of a larger intermediate drive pulley to maintain proper matrix delivery belt travel. In any event, star wheel speeds and belt travel varies.

Star wheel speeds can be compensated for by varying gear ratios in the assembler or by use of the Cook Slow Speed Assembler which will be discussed later. Bear in mind the 1/10 second interval of delay can occur any time from the instant the key button is depressed until the matrix is inside the assembling elevator paws, and you can readily see that the assembler, chute spring, partitions, keyboard cams, rollers, weights, and escapements must be in good order and properly adjusted for efficient matrix assembly.

THE BASIC ADJUSTMENT FOR MATRIX ASSEMBLY

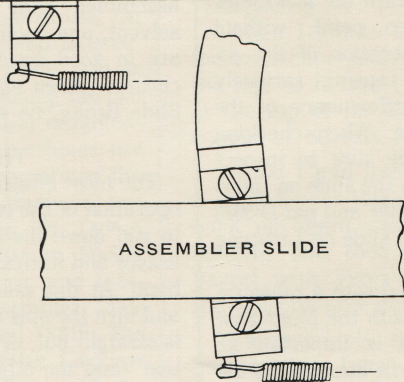
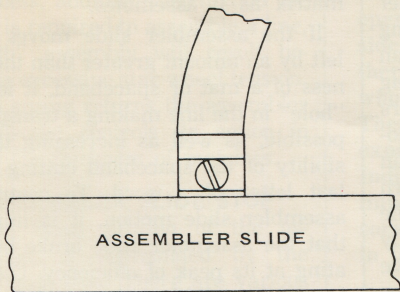
The tension of the star wheel is the

fundamental adjustment for good matrix assembly. This tension should be such that you can stop the star wheel with one finger, but yet must be strong enough to prevent the pile-up of mats when a full 30 em line of capitals is being assembled. For this reason, Star has developed the Adjustable Star Wheel Friction, Part No. M-7 for old style assemblers and M-7-SS for use on Linotypes with the slow speed assembler. New Linotype and Intertype machines are factory-equipped with an Adjustable Star Wheel Friction, and time spent in making this adjustment, as well as periodic checking for tension, is time well spent.

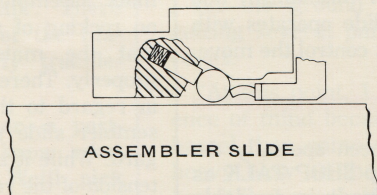
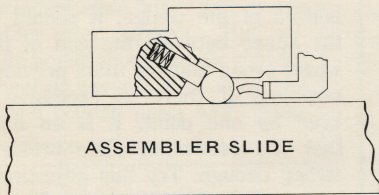
The next item in relation to the star wheel is the tension of the assembler slide brake. This is an area which is frequently overlooked. There are three types of assembler slide brakes. On Linotype machines the brake consists of an arm with two fibre (preferably) or steel blocks which maintain a drag on the assembler slide, the amount of drag varying with the tension of the spring on the lever. Intertype machines have two square fibre blocks which operate on the same principle, early machines using a spring tension similar to Linotype, while later machines have provision for adjustment by means of a small lever which operates against a spring, and a lock screw which maintains uniform spring tension. Star Parts supplies Part No. M-3 which is applicable to Linotype and early Intertype machines. Instead of using fibre blocks, the assembler slide tension is controlled by means of a hardened roller controlled by spring tension on an adjustable hardened incline support. There is virtually no wear on the Star unit, therefore when it has been correctly adjusted, the friction remains constant, depending upon oil, graphite, dirt, etc. which normally accumulates on any assembler slide.

CHECKING THE ASSEMBLER SLIDE AND BRAKE

When the assembler slide release is tripped to release the slide, it should



Linotype and
Intertype Style
Assembler
Slide Brake.



Star Parts
Assembler
Slide Brake
(M-3)

move the full 30 ems of travel with no bind or obstruction. On early Linotype and Intertype machines the assembler slide is returned by means of a spring and an arm, while on later Linotypes an adjustable assembler slide return spring is used. Star manufactures the Waters Return Spring, Part No. M-32 for Linotype machines, which provides for an adjustment of the tension on the return of the assembler slide. The purpose of the assembler slide return spring is exactly what the name implies. It must have sufficient tension to return the assembler slide from any given point, without hesitation. Excessive tension of the assembler slide return spring seriously interferes with the performance of the assembler slide brake. When checking the assembler slide be sure to inspect the rollers which guide the slide on Intertype machines, and roller and pin D-3073 and D-3074-A inside the slide on Linotype machines.

On machines equipped with a measure control, such as used with the Mohr Saw and Star Quadder, it is important to check the indicating arm attached to the assembler slide to be sure that the roller contacts the scale bar during the full 30 ems of travel. The scale bar must be absolutely parallel with the assembler slide to prevent any bind of the assembler slide within its guides. It is possible to bend these parts through accident or the careless use of the tight-line release.

ASSEMBLER SLIDE TENSION

To this point we have determined the correct friction of the star wheel and assembler slide return mechanism and established that the slide operates with no bind. Next, we must control the move-

A handy binder has been specially designed to help you keep SHOP TALK as a permanent reference. It is available from Star Parts, Co., South Hackensack, New Jersey, at 20 cents.

ment of the assembler slide in direct proportion to the thickness of each matrix as it assembles.

If the assembler slide moves to the left by an amount greater than the thickness of a mat or spaceband, it leaves a "hole" in the line making a transposition possible, as well as increasing the possibility of the spaceband cutting off the last letter of a word. To control this assembler slide motion, it is important that the assembler slide brake be operating at its peak of efficiency. Clean the assembler slide with a high grade solvent, and be sure that the fibre blocks are in good condition with fairly sharp corners. When using the Star Assembler Slide Brake, be sure it is clean.

THE TEST

The most effective way of checking the operation of the assembler slide brake is to run down the first row of lower case letters and immediately strike the spaceband. At this point, stop the star wheel and turn the star wheel so that one prong is straight out, or at the "9 o'clock position" and the other is straight up. Next, very carefully, open the assembling elevator gate and raise the spaceband slowly by hand. When the spaceband reaches its maximum thickness on the bottom of the wedge, it should just fill the space between the end of the star wheel prong and the mats previously assembled. If there is excessive space, even by one point, it is an indication that the assembler slide brake is not strong enough. Try this adjustment several times and get it correct. The purpose of this adjustment is to be sure that all mats assemble vertically and there is no rocking of spacebands and mats so that the mats and bands assemble properly. There has been some confusion in regard to the adjustment of the assembler slide return spring in this regard. While it is true that increasing the tension of the return spring will, to some extent, prevent the overthrow of matrices and spacebands, the proper place for adjustment is in the tension of the assembler slide brake rather than the re-

turn spring. If the brake is loose and the adjustment on the return spring is tightened to excess, additional friction on the star wheel is required to assemble a line, and "rough" assembly will result because of the excessive star wheel tension. The return spring returns the assembler slide—the brake controls its action in relation to the thickness of matrices.

THE ASSEMBLER SLIDE STOP

The right hand position of the assembler slide is determined by the assembler slide stop. There are various types of assembler slide stops in use. On Linotype machines a solid stop is used, which acts as a locating point, and is adjustable by means of loosening the two screws, locating the stop, and retightening the screws. Intertype machines use a similar device which incorporates the use of a buffer. Star manufactures two assembler slide stops, Part No. D-54-A for use with the Waters Return Spring or the adjustable type return, and D-54-AA for use with the Assembler Slide Lever and Spring D-809 and D-810. The Star Assembler Slide Stops for Linotype incorporate the use of buffers and are adjustable. The proper adjustment is correct when a new star wheel is used, and the assembler slide return is set so that the assembler slide finger just clears the assembler star prongs. The assembler slide finger should never contact the star wheel or excessive wear on the star wheel and related parts will result.

(CONTINUED IN NEXT ISSUE)

What adjustments of the linecasting machine would you like discussed in future editions of Shop Talk? There are probably some parts of the machine that are particularly troublesome in your shop.

Drop a line to the editor—a postcard will do—and let us know what will help you the most. We'll pick the most popular subjects and include them in future editions.

We are fortunate that composing room operation and maintenance are not considered hazardous occupations. However, there are those employed in other industries who face daily risks of a known nature. There are also dangers lurking in unexpected places. Take the case of the West Indian bricklayer, who cleaned up some minor damage after a storm. He reported some unusual consequences to his employer in the following letter.

"Respected Sir:

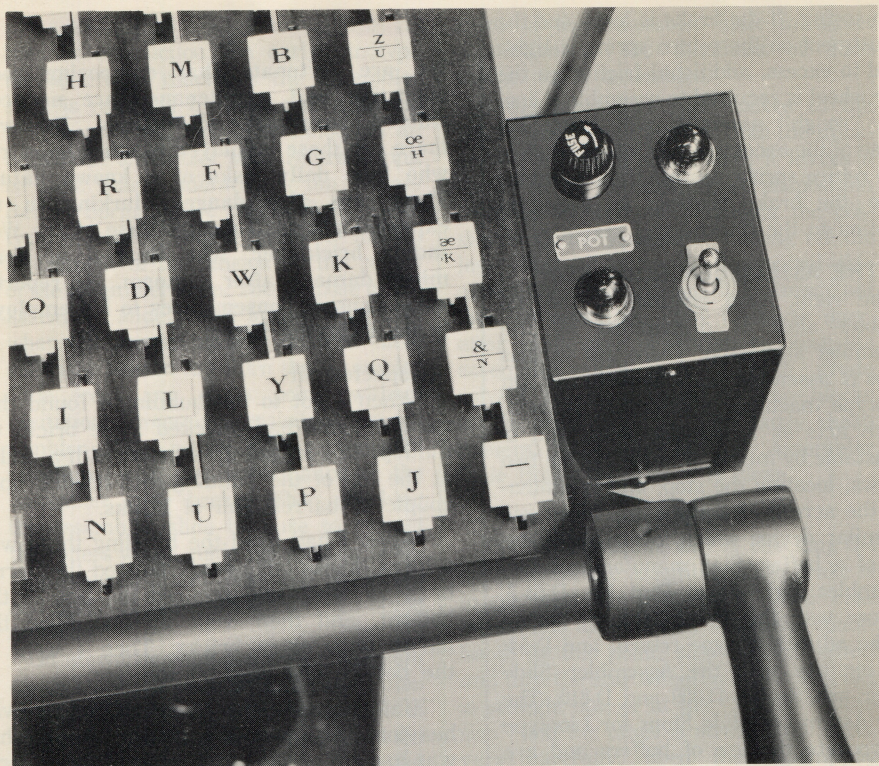
"When I got to the building I found that the hurricane had knocked some bricks off the top, so I rigged up a beam with a pulley at the top of the building and hoisted up a couple of barrels full of bricks.

When I had fixed the building there was a lot of bricks left over. I hoisted the barrel back up again and secured the line at the bottom, and then went up and filled the barrel with extra bricks. Then I went to the bottom and cast off the line.

"Unfortunately the barrel of bricks was heavier than I was and, before I knew what was happening the barrel started down, jerking me off the ground. I decided to hang on and half way up, I met the barrel coming down and received a severe blow on the shoulder. I then continued to the top, banging my head against the beam and getting my fingers jammed in the pulley.

"When the barrel hit the ground it burst the bottom, allowing all the bricks to spill out. I was now heavier than the barrel and so started down again at high speed. Half way down I met the barrel coming up, and received severe injuries to my shins. When I hit the ground I landed on the bricks getting several painful cuts from the sharp edges.

"At this point, I must have lost my presence of mind because I let go the line. The barrel then came down, giving me another heavy blow on the head and putting me in hospital. I respectfully request sick leave."



New Star Safety Kit Prevents Squirts

The Electro-Pump Stop Safety, which has been standard Vise Jaw equipment on Star Quadders for 15 years, is now available in kit form for application to all non-quadding linecasting machines. While it is useful in any type of composition, the vise jaw safety has particular application on tape operated machines. Squirts caused by perforating errors, incorrectly positioned tape, or failure of matrices to drop, are all eliminated by the new safety kit.

The Star Vise Jaw Safety prevents casting of loose lines by stopping the descent of the pot pump plunger, unless the line is full to within .004" to .006". A loose line will fail to contact a special

button in the left hand vise jaw, thus preventing casting. When the line is fully justified, spaceband drive will depress the button, open the pot pump safety, and allow the line to cast.

The Star Vise Jaw Safety Kit includes a control box, vise jaws with safety button, junction box, attaching brackets and connecting cables. The control box, located beside the keyboard has an "on-off" switch which allows a manual operator to kill an unwanted line by throwing the switch to "off" prior to casting.

Since it is required, a Mohr Measure Control Kit is included, at no extra cost, for machines not having this type of vise jaw control.