CHAPTER 5

Assembler Entrance

WHEN THE MATRICES are released from the magazine they slide over an inclined surface and then fall vertically. They are guided by the assembler entrance plate and a series of partitions and cover plates, so that they fall upon the moving assembler belt and are carried to the assembler which delivers them upright into the assembling elevator.

The assembler entrance plate on single distributor Linotypes, not designated as "Two-in-One" machines, is of very simple construction. There are actually two cast metal sections—the upper, or inclined section, and the lower, or vertical section. To these sections are fastened a series of partitions or guides registering at their tops with the right-hand sides of certain channels of the magazine, so that matrices from a number of channels can enter the space between two partitions. To make certain that matrices from channels adjacent to the partitions shall not possibly be retarded, the partitions are rounded at the top and beveled to a thin edge; and the bottoms of the magazine channels are always a little higher than the surface of the assembler entrance plate in front of them.

It is obvious that the space between any two consecutive partitions must be less than ¾″ so that a matrix cannot twist sufficiently to fall over on its side.

The simplest form of assembler entrance, or front, is used on Linotypes having a single distributor and all main magazines alike, whether for 90 characters or 72 characters, as against that used on "Two-in-One" and mixer models.

The simple form of assembler front is sufficiently well shown in Fig. 22-1.

When a single distributor Linotype is equipped with 72- and 90-channel magazines, it becomes a "Two-in-One" machine and, besides having other modifications described elsewhere in this book, it must also have two separate layouts of assembler entrance upper partitions, one for each kind of magazine.

This type of machine is equipped with a "revolving front" which is essentially a central solid portion with different layouts of short upper sectional partitions on either side. This "revolving front" is mounted in bearings so as to be capable of being revolved exactly 180 degrees by hand and locked automatically in either position depending upon whether it is to register with a 90- or 72-channel magazine. Figs. 15 and 18-4 are perspective sectional views through the magazines, etc., of such a machine.

To revolve the front in either direction, it is necessary to grasp a knurled knob which is attached to the shaft extending through the right-hand bearing and first release the lock by finger pressure upon the releasing device which is inside of the knob.

The multiple distributor Linotypes Models 29 and 30 are equipped with four main magazines, all of which may be alike, whether 90 channel or 72 channel, and matrices mixed out of any two adjacent magazines; or they may have two 90-channel and two 72-channel magazines alternated, when matrices out of either the two upper or two lower magazines may be mixed. Provided normal mixing is not required other combinations may be arranged.

These models are provided with an assembler front oscillating mechanism which swings the upper assembler fronts at the touch of a button located at the right of the keyboard. Matrices can thus be assembled rapidly in the same line from two different magazines.

When these machines are equipped with all 90-channel or all 72-channel maga-

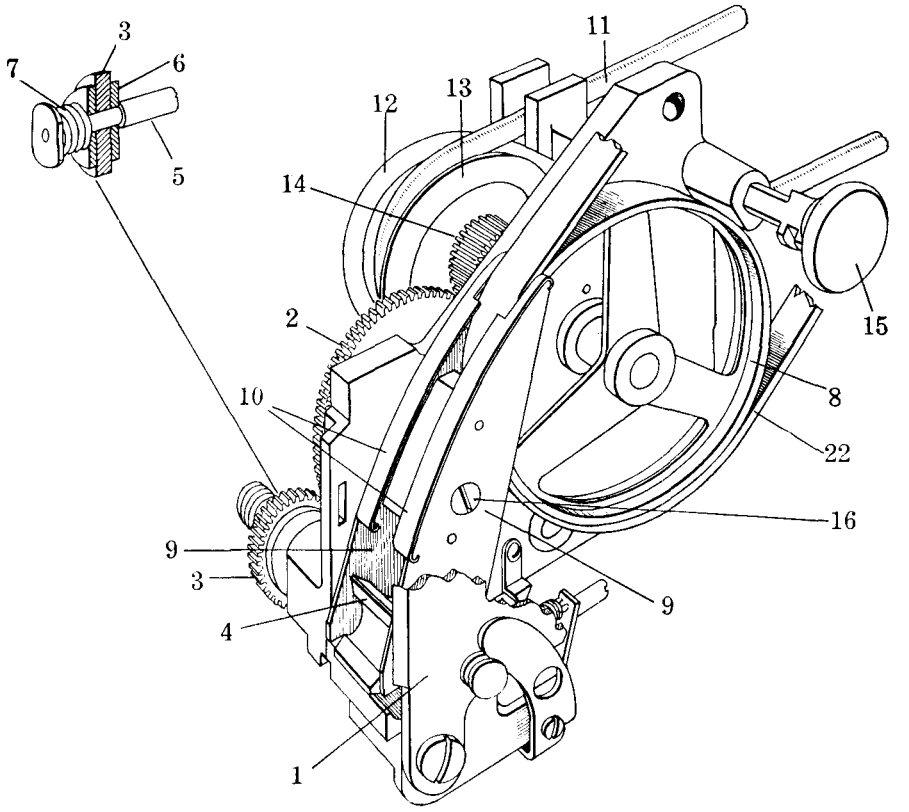

FIG. 1-5. View showing details of the assembler block. The driving pulley shaft has mounted on it at its rear end, an idler pulley *12* and the tight pulley *13*, and also the gear *14*. The belt *11* may be shifted from the loose to the tight pulley by pulling the knob *15* forward, and vice versa. *2* is an intermediate gear which drives the small gear *3* which is mounted on the shaft upon which the star wheel *4* is mounted. Gear *3* is not tight on the shaft *5*, but is held against a friction disk *6* by a spring *7*. The friction disk is fastened on the shaft *5*. If anything such as a clog of the matrices occurs which stops the action of the star wheel, the shaft *5* stops, while the gear *3* continues to revolve. The slipping action of the gear *3* against the friction disk *6* is to prevent breakage or bending of matrices in such cases. *8* is the large pulley which drives the assembler belt, indicated at *22*. *9-9* are the assembler chute rails. *10-10* are the spring rails which are fastened to the fixed rails *9-9*. These rails are of such a shape as to direct the matrix directly upon the star wheel. A broken section of the assembler cover is shown at *1*.

The front rail is easily detached, for quick change of the star wheel, by removing the screw *16*. The back rail and the block, which separates the rails, are both held permanently in place by another screw, back of the screw *16*.

zines, matrices from any two adjacent magazines may be assembled in a line and distributed; i.e., from magazines one and two, two and three, and three and four. (Magazines on a machine are numbered from top to bottom.)

Fig. 10-4 shows the upper, or oscillating, assembler entrance *64* in place to receive matrices from the upper of any of these combinations of magazines, and Fig. 11-4 shows the entrance in place to receive matrices from the lower of the combination of magazines in use. It is under the short partition sections which are stationary on the machine. It will be noted that the pivoting font guide holder *65* is not then in use, and that it can be swung by hand entirely out of the way for better vision of the front of the lower magazine then in use.

Assembler Belt, or Matrix Delivery Belt

The moving endless belt upon which the matrices fall is called the assembler belt. A portion of this belt, with a matrix thereon, is shown at *19* in Fig. 1-3, about to deliver a matrix, by momentum, through the chute where it is held down close to the assembler rails by the chute finger, which also serves to cause it to strike upon the star wheel at the proper angle; and, if the matrix is a heavy one, the chute finger also retards it sufficiently to prevent it from pounding the matrices already in the assembling elevator.

The assembler belt is driven by the rapidly revolving pulley *8* on the assembler block shown in Fig. 1-5, and the tension of the belt is adjusted by means of the idler pulley over which its upper or right-hand portion runs. (See Fig. 3-5.)

Assembler Block

This block carries the parts and mechanism as shown in Fig. 1-5. Motion is imparted to the assembler belt driving pulley and the star wheel by the continuously moving round belt which is driven by a pulley and miter bevel gearing from the intermediate shaft of the machine.

The chute finger mounted just above the rails on the assembler block is for the purpose explained under the heading of "Assembler Belt," and though there have been many and various forms of chute fingers employed by operators through the years, the preferred form is shown at *17* in Fig. 2-5.

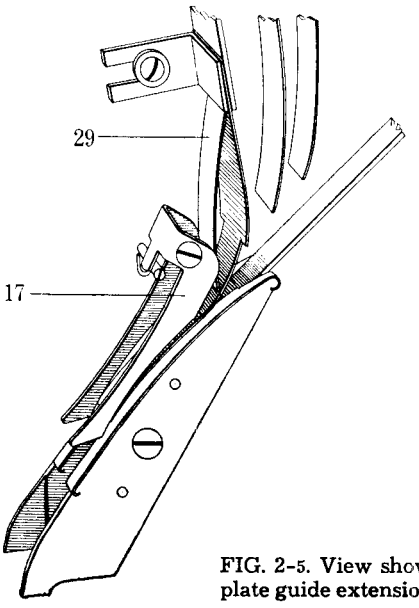

FIG. 2-5. View showing chute finger *17*, and assembler entrance plate guide extension *29*.

This chute finger guides matrices by the lugs instead of by the body, and is used together with the assembler entrance guide extensions. This combination automatically adapts itself to various thicknesses of matrices, eliminating the necessity of adjusting by hand. The finger should always be used in the upper position as shown in Fig. 2-5.

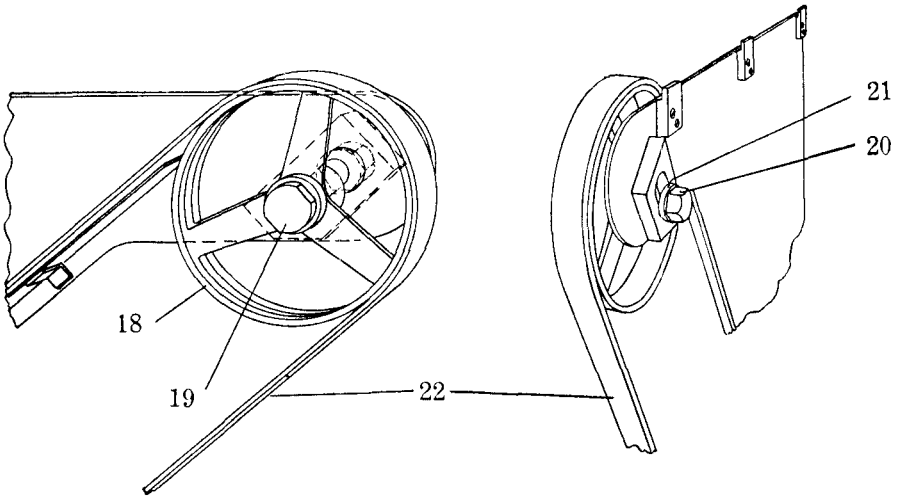

FIG. 3-5. View showing the idler pulley *18* for the matrix delivery belt. The shoulder stud *19* on which the pulley runs is mounted on the vertical portion of the assembler entrance plate, through a slot with sides parallel to the straight surface of the belt. It is held by the nut *20*, the washer *21* and the shoulder on the stud. To adjust the tension of the belt it is necessary only to loosen the nut *20*, slide the stud in the slot until the belt *22* is of proper tension, and then tighten the nut.

MAINTENANCE

It is at this section of the machine that most of the transpositions take place, but before explaining the causes, it should be made certain that the matrices have not been delayed in their travel up to this point.

The keyboard cams must function properly, the magazine and matrices be clean and the matrices have no burrs on their sides which might make them too broad to pass freely through the magazine channels.

The escapement verges and pawls must not be too badly worn, should be free from gum, and the escapement verge plunger should be straight and should not bind. The partitions or guides have been explained in this chapter, and if a matrix should strike against the partition at the top, the entire front may be moved either to right or left by loosening two screws at the right end of the upper inclined section of the assembler entrance, and two at the left, one of which holds the assembler entrance cover support. When making this adjustment, it is best to make a mark at the end, so that it can be moved back to its original position if the matrices should strike when using another magazine.

The revolving front which is used on the "Two-in-One" machines, is fastened to its shaft with a friction clamp, and if it has been forced out of position, it may be turned into place without loosening the clamp screw. If necessary to move to the right or left, two set screws at the right-hand end must be loosened.

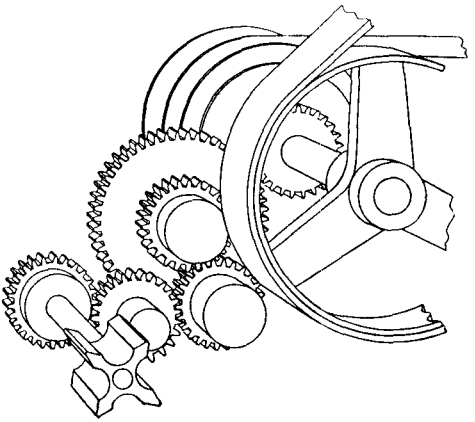

FIG. 4-5. Perspective diagrammatic view showing the gearing on the back of the assembler block, for slow motion star wheel.

See that the assembler chute rail spring *10* shown in Fig. 1-5, is down tight against the rail *9*. The top part of the rail spring is cut away to clear the assembler belt, and then the spring widens out and the projection covers the belt, and at this point see that the ends are as close as possible to the belt without causing it to bind. This will prevent thin matrices from being caught. If the rail springs are replaced they should be soldered at the ends.

If the star wheel *4*, Fig. 1-5, becomes worn so that the ears of the matrices are not carried well inside the pawls of the assembling elevator it should be changed. Star wheels are inexpensive, so it is better to change them often rather than adjust the stop screw on the assembler slide to avoid "oversetting."

In Fig. 1-5 there is shown a small gear *3* which is held to the star wheel shaft with a brass friction disk and a strong friction spring *7*, and if either of these should become too badly worn, there would not be sufficient pull on the star wheel to move the assembler slide evenly. This condition can be overcome by replacing or stretching the spring.

The adjustment for the matrix delivery belt *22* is clearly shown in Fig. 3-5, by which the shaft of the pulley may be moved in the slot to get the correct adjust-

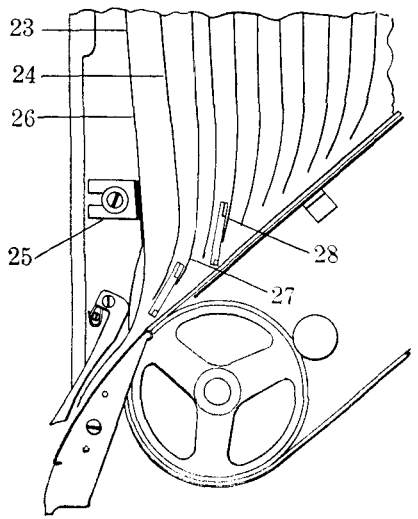

FIG. 5-5. The outside partition *23* should be adjusted to make the distance quite narrow between it and the second partition *24*. If the space is too wide, the matrix has a tendency to jump from side to side, and its motion is retarded. The adjustment is made with the screw *25*, and after it is tightened, the lower end of the partition may be too close, and if so, bend it to the right at *26*, which will throw the bottom to the left. The matrix shown at *27* is dropping upon the delivery belt in correct position; the position of the matrix shown at *28* is incorrect.

ment. The belt should not be so tight as to interfere with the free running of the assembler or the idler pulley.

The assembler driving belt *11,* Fig. 1-5, should be tight enough to run the assembler evenly, as a jumpy movement of the assembler will cause transpositions and thereby decrease production.

It is usually found that most of the transpositions take place when the matrices are used from the first few channels of the magazine, and it is important that the shape of the partitions at the lower end be correct. The bottom ends of the first three partitions should be well curved to the left so that when the matrix strikes the assembler belt it will do so at the correct angle. (See Fig. 5-5.)

The adjustment of the chute spring is an important factor in assembling matrices without transpositions, and as the old ones are of various types, they must be adjusted so as not to retard the matrices as they enter the assembling elevator.

The chute spring used on all new model machines needs very little adjustment for various thicknesses of matrices, as the lugs, instead of the main body of the matrix, come in contact with the chute spring. (See Fig. 2-5.)

Lubrication—Use oil sparingly in each of the oil holes showing at the back of the assembler belt pulley. There is an oil hole for the star wheel shaft which can be reached when the assembling elevator is raised to expose it. Be careful not to use too much oil here as it might get on the matrices. The friction spring at the back end of the star wheel shaft needs some lubrication as well as the loose pulley at the end of the driving shaft.