CHAPTER 8

Assembling Elevator

THE ASSEMBLING ELEVATOR or "assembler" serves the same purpose as the compositor's "stick" in hand composition. It is an open casting having rails upon which the lugs, or "ears" of the matrices rest, and below which the long wedges of the spacebands hang. It is actually made of two castings joined together only at their lower ends, which are low enough to allow the elevator to be raised about five inches to the delivery position without interfering with the bottom surface of the assembler slide whose path is between the two castings which form the assembling elevator.

This elevator is held in place on the face plate by two gibs, one on each side, and by the assembler roll bracket on the lower right-hand side. The main parts carried by the front casting *1*, Fig. 1-8, are the assembler gate *4;* the gate spring *5;* the short and long auxiliary or "duplex" rails *6* and *7* and their operating levers; the operating finger *8* screwed to the long rail; the front retaining pawl; the fiber buffer; and the front detaining plate.

The front retaining pawl is on the gate, which also has an em scale mounted on its front side for easy gauging of the line being set.

When pushed in, the short rail or shelf catches the ears of the descending matrices and supports them until they pass onto the long rail. Thus, the matrices are sustained at a higher level than in ordinary assembling. In the two small sectional views the matrices shown at *16* are in the raised, or italic, position; and the matrices shown at *17* are in the lower, or roman, position. The raised or italic position is also called the "auxiliary" position, and the lower or roman is also called the "regular" position.

The projection at the base on the left-hand end of the long rail holds the line of matrices during their transfer from the assembling elevator to the delivery channel. Care should be taken not to allow this projection to become bent.

The operating finger *8*, screwed on near the left-hand end of the long rail, contacts with the swinging aligning piece on the delivery channel front rail, and serves to raise the aligning piece so that matrices resting on the rail will have an open passageway into the delivery channel. When the long and short auxiliary rails have been withdrawn, so that all matrices of that line are assembled on the lower rails, this aligning piece is not lifted, but hangs so that its lower beveled surface serves to cam downward the lower lugs of such matrices which may have been lifted off the rails by bringing the assembling elevator with too much force against its upward stop, or for any other reason.

The main parts carried by the back casting *2*, are the slides, or bearings *3*, the latch *9;* the releasing pin *10;* the retaining pawl, back, *11;* the detaining plate, back, *13*, the back plate, *20*, as shown in Fig. 1-8; and the back rail buffer *12* and the matrix support rail *21*, shown in Fig. 2-8.

The matrix support rail *21*, has been added to the assembling elevator back plate as a further safeguard to prevent matrices from being lifted off the lower

rails in case the elevator is sent up with too much force. As the assembling elevator is raised, the support rail is pushed over the tops of the lower lugs of the matrices on the lower rail, by the flexible cam, *22*, which is fastened to the face plate frame. Because the cam is yielding, the lugs of matrices not fully seated on the lower rails will resist the inward movement of the support rail without being damaged. When the assembling elevator descends, the support rail, actuated by springs, is allowed by the cam to recede to its normal position.

The latch *9* on the back casting serves to hold the assembling elevator in its raised position in line with the delivery channel until freed by the line delivery slide to drop of its own weight after the slide has removed the line of matrices and spacebands from the assembling elevator.

The releasing pin *10* at the right on the back casting serves to release the line delivery slide when the assembling elevator is raised. This pin is adjusted for

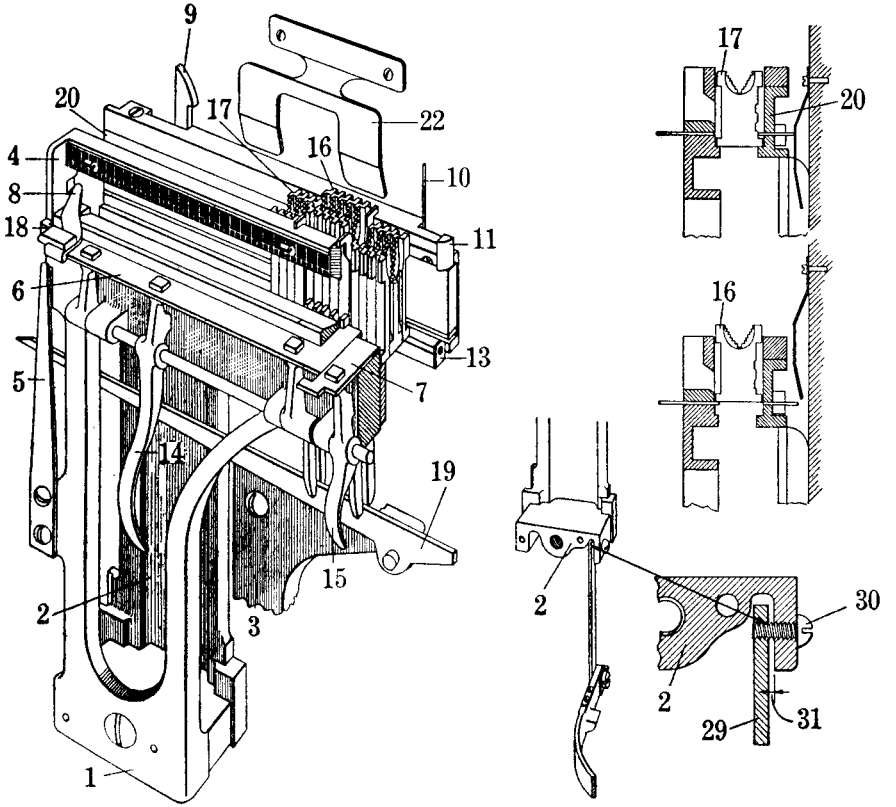

FIG. 1-8. View of assembling elevator, having a portion of it cut away so as to show the matrices at two different positions in the matter of alignment. The long auxiliary rail may be shifted in or out of use by the lever *14*, and the short rail, by the lever *15*. It will be noted that the short rail cannot be shifted into use without carrying the long rail in with it; but it can be withdrawn without moving the long rail, and can be shifted in or out as desired. Also, the long rail cannot be withdrawn without carrying the short rail out of action with it.

At the lower right is shown the clearance space *31*, when the link *29* is connected to the assembling elevator.

height by means of an adjusting screw directly under it in the back casting. It should be adjusted so that the line delivery slide is released just as the latch catches, and not sooner. If the releasing pin is adjusted too high, the line delivery slide will start too soon and may throw out part of the assembled line before the latch holds. Of course, if the releasing pin is adjusted too low, the line delivery slide may not start at all. The projection *18* at the left-hand end of the long auxiliary rail serves as an auxiliary line safety. It prevents the operator from raising the assembling elevator with matrices on the auxiliary rail at any time that the machine is set for casting display faces from display molds. This action is explained in Chapter 10 in more detail.

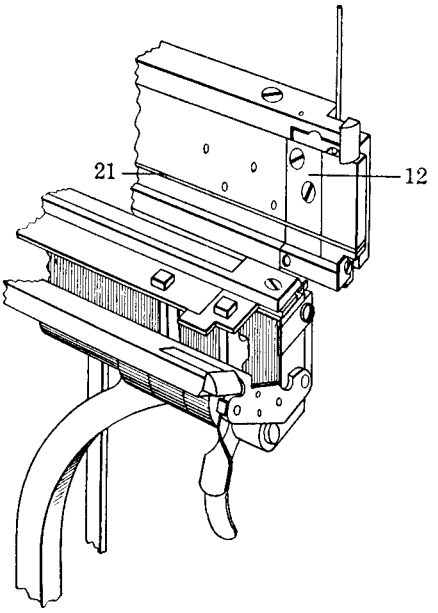

FIG. 2-8. The matrix support rail is shown at *21*. *12* is the back rail buffer.

The spaceband buffer shown at *19* in Fig. 1-8, serves not only to cushion the blow when a spaceband is dropped, but also to support the spacebands when the assembling elevator gate is opened.

Because of the open construction of the gate it is always possible to see what matrices and spacebands have been set; opening the gate allows matrices to be removed and others inserted by hand. It also allows hand spacing when necessary.

As the matrix is pushed by the star wheel between the two retaining pawls it is seated on the buffers and held at the bottom by two detaining plates. With these parts kept in good condition, the matrix will stand straight.

The retaining pawls are operated by light springs, and serve to prevent the matrices from falling backward against the assembler star wheel.

The buffers serve to take the impact of the matrices. This is particularly so in the case of the front rail buffer. The front rail buffer is generally made of fiber and is easily replaceable when worn.

The detaining plates serve to keep the bottom of a thin matrix from falling between the assembling elevator and the assembler. These also must be kept in good condition, and their holding screws tight.

Two-Letter Attachment

The two-letter matrices in general use require that the operator shall be able to use either character instantly. This requires assembling the matrices at two different levels in the assembling elevator.

The different levels are obtained by the use of two sliding shelves, or rails, a short rail and a long rail. These rails are so mounted that they can be slid into the assembling elevator or withdrawn from this inside position. In this way, they form a shiftable support on the front side of the assembling elevator channel. When these rails are thrown in, the matrices, instead of falling upon the regular fixed rails, fall upon the short shiftable rail, which brings the lower or auxiliary character upon the matrix in line with the upper character of the matrices, which

are assembled on the lower rail. The object of having two of these rails, one long and one short, is that if the operator, after assembling a word or phrase in the auxiliary position, wishes the succeeding matrices to be in the regular position, he can withdraw the short rail, leaving the long rail in place to sustain the matrices already assembled in the auxiliary position. Also, he can throw in both rails at any time in a line that may have been begun with the matrices assembled in the regular position. It is also possible for the operator to change a single matrix or a word by hand from the auxiliary to the regular position, or vice versa. These slidable rails are called "auxiliary rails" or "duplex rails."

MAINTENANCE

Removing the Assembling Elevator—It will be necessary to remove the assembling elevator from the machine when making certain repairs and there are two ways to accomplish its removal.

The first method is to disconnect the link from the assembling elevator lever, then remove the delivery channel by taking out the two screws which hold it, and remove the left-hand gib.

The other way is to disconnect the link as above, remove the assembler slide, also assembler slide brake operating lever, and the roll bracket. This will allow the elevator to be dropped down.

While it may take a little longer to remove the second way, it will be found when replacing that the elevator will fit exactly as before, because the gibs have not been disturbed from their original position.

Adjusting the Releasing Pin—If necessary to adjust the releasing pin *10*, Fig. 1-8, it is done with the screw underneath, previously mentioned in this chapter, and to see this screw, it is best to remove the front plate *1* from the elevator.

To adjust properly, start with the pin too low to trip the delivery slide, then raise the elevator until the back rail banks against the stop. Hold in that position and turn up on screw until the delivery slide starts across. With the adjustment made in this manner the latch *9* will be in the proper position to hold the line when transferring. The releasing pin must be straight so that it will come in the center of the starting pin of the delivery slide; otherwise it might not hold the pawl out to clear the second notch when the delivery slide goes across.

Replacing the Matrix Buffer—On the right-hand end, on the inside of the front plate *1*, there is a fiber matrix buffer which should be replaced quite frequently. If allowed to wear too much, the matrices will strike the back rail buffer, which is made of steel and will result in damage to the inside lugs.

When replacing the front buffer it is sometimes necessary to file the face of the fiber at its lower end so that spacebands will pass freely as they are assembled. Also see that the outer edge of the fiber does not interfere with the front end of the assembler block when the elevator is lowered.

Adjusting the Operating Finger—On the left-hand end of the duplex rail is the operating finger *8*, Fig. 1-8, which moves the aligning piece *19*, Fig. 9-9. See that the point of the finger comes under the projection of the aligning piece on the delivery channel when the duplex rail is pushed in, and it must raise the aligning piece exactly the right height to allow the matrices in the raised position to transfer smoothly. The finger may be bent to bring it to the right position. The distance between the points may be changed by loosening the screw in the operating finger and swinging it to the right or left.

Previously in this chapter there is mention of a matrix support rail *21*, Fig. 2-8,

which is standard equipment on all new machines. It prevents the matrices from jarring upward if the assembling elevator is raised with too much force. Where this safety is not used, the lower right side of the aligning piece should be kept smooth, so that if some of the matrices are slightly raised when the line is going across, they will ride down into place.

Adjusting the Assembling Elevator Gate—When the machine is new, the distance between the gate and the back rail is right, and a matrix will go between them with a sliding fit; but when the machine has been used for some time the gate and stop pin will gradually wear and allow the gate to go too far in and bind the matrices on the side when the line is being assembled.

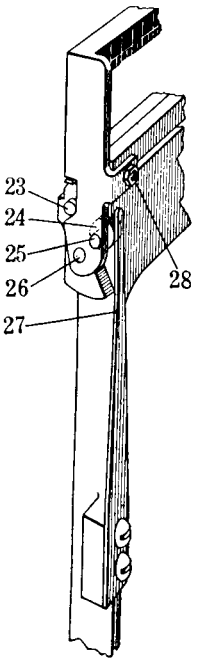

FIG. 3-8.

Fig. 3-8 shows the stop pin *23* against which the gate rests, and if either or both of these points is peened out it will usually correct the trouble, unless other parts are worn.

On the later model machines there will be found a set screw *28* at each end of the gate which may be adjusted to give the right clearance.

At the left-hand end of the gate there is a roll *24* which moves on a pin *25*, and the spring *27* presses against the roll to keep the gate closed.

The pin in the roll should be changed occasionally, for if worn too much, the gate will not close against the stop pin. There is very little wear on the roll, as it is hardened.

When the ends of the rod *26*, on which the gate fulcrums, show wear, the rod should be replaced before the holes in the gate become oblong. This rod is fastened with a set screw underneath the right-hand end.

When replacing the lower retaining pawl *13*, Fig. 1-8, the screw should force it tight against the upper edge. This will prevent the screw from working loose. The upper retaining pawls *11*, seldom need attention.

Adjusting the Assembling Elevator Lever Link—When replacing the assembling elevator link allow the clearance shown at *31*, Fig. 1-8, between the link *29* and the side of the casting of the elevator. The screw *30* runs through a thread in the casting and the hole in the link *29* is also threaded. When connecting, allow the screw to go about one thread beyond the elevator casting before it enters the link. This distance can best be seen if the front plate of the elevator is removed when the link is connected at the top. On later models, the link *29* is held on the outside of the casting with a shoulder screw.

The weight of the assembling elevator is counterbalanced by a spring which is fastened at the right of the keyboard. One end is connected to the assembling elevator elevating handle, and the other end is fastened to an adjustable hook on the keyboard frame.

Oiling the Assembling Elevator—A slight amount of oil may be used occasionally on the rod *26* at the end of the gate, also on the roll pin *25*.

Do not use oil where the elevator slides in the gibs. These parts should be wiped clean frequently, using a dry rag placed on the end of a screwdriver.