from the lower magazine, and the upper escapement rods *7* release matrices from the upper magazine. Matrices from both magazines drop on the matrix delivery belt *9* and are carried to the assembling elevator preparatory to casting. The selection of magazines, as previously described, is made entirely through a simple keyrod shifting mechanism placed conveniently above the keyboard.

Adjustment and Maintenance. The entire assembler entrance can be adjusted in relation to the magazines. Loosen screws *10* and *10'* in the left-hand escapement rod frame *8*, Fig. 15, and loosen screw *11*. In the right-hand escape-

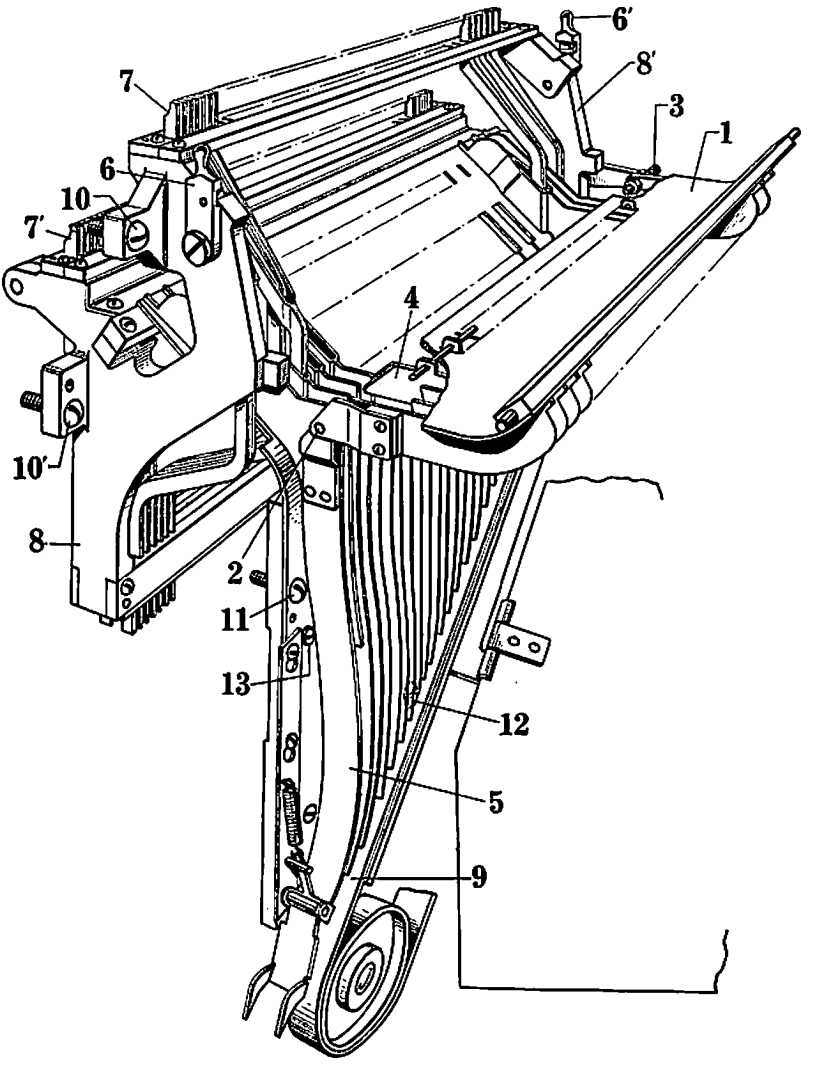


Fig. 15. The Mixer Assembler Entrance

ment rod frame *8'* there are two similar screws which also must be loosened. Remove screw *12* from the lower part of the frame. Under screw *12* there is an adjusting screw bushing which banks on the face plate frame casting. The assembler entrance can be adjusted in relation to the magazines by means of the bushing and screw *13*. Turn the bushing and screw *13* until the top edge of the upper assembler entrance is approximately 1/32" below the channels in the lower plate of the upper magazine. After the adjustment is obtained, tighten screws *10, 10'* and *11* and tighten the two screws in the right-hand escapement rod frame *8'*. Replace screw *12*. Once the upper assembler entrance is properly aligned with the upper magazine, the lower entrance will align automatically with the lower magazine, because both entrances are located in positive positions on a single frame.

The parts of the Intertype mixer assembler entrance, due to the simplicity of its construction, are instantly accessible for cleaning or repairing. Gum and dirt on the lower assembler entrance plate and guides should be removed occasionally with a swab soaked in high test gasoline. These parts can be reached simply by throwing back the two latches *6* and *6'* and swinging the upper assembler entrance away from the lower assembler entrance. The escapement rods also are accessible for cleaning by the same simple procedure.

Assembler Entrance Removal. To remove the single distributor assembler entrance, tilt back the magazines, disconnect the spaceband keyrod from the key lever, and remove the spaceband box. Throw off the matrix delivery belt. Turn out screws *1, 1'* and *2*, Fig. 14; screw *2* can be reached by passing a screw driver between the keyrods behind the assembler entrance plate. Lift off the entrance.

In the case of the mixer entrance, tilt back the magazines. Disconnect the lower magazine frame safety lever operating rod from the safety lever. Disconnect the spaceband keyrod from the spaceband key lever. Remove the spaceband box. Throw off the matrix delivery belt and disconnect the assembler slide lever spring. If the machine is equipped with side magazines, remove the matrix delivery guard and the side magazine assembler entrance cover. Remove screws *10* and *10'* from each of the escapement rod frames *8* and *8'*, Fig. 15, and remove screws *11* and *12*. Lift off the entrance.

To remove a mixer side magazine assembler entrance, throw off the matrix delivery belt, remove the matrix delivery guard, and take out the two large screws on each side of the entrance.

The Assembler

Matrices released from the magazine slide down the assembler entrance plate between guides to the rapidly moving matrix delivery belt, which carries them to the assembler proper. The matrices pass between a chute plate and a revolving star wheel, which conveys them into the assembling elevator in an upright position. The matrices are thus assembled in the assembling elevator with the spacebands, which have dropped through a chute directly above the star wheel.

The main parts of the assembler are the star wheel *1*, Fig. 16, and the assembler chute plate *2*, which is attached to a spring. The chute plate guides matrices to the star wheel, and as this wheel turns the matrix to an upright position the

prong points of the plate put enough pressure on the top of the matrix to help it assume this position. The assembler, shown in Fig. 16, is positive in action. When properly maintained, it assembles matrices and spacebands with great speed and accuracy. The shafts run in bronze bushings and some of the pinions are made of micarta.

The "oilite" bronze bearings now being applied to the assembler are clean and economical and require little maintenance. These bearings are made of a porous metal which absorbs and retains oil over long intervals. As the shafts of the assembler pulleys and pinions revolve, the oil in the bearings becomes warm and flows onto the shafts. In this respect, the assembler may be regarded as self-lubricating. Since there is never an excess amount of oil on the bearings, matrices and magazines stay clean for longer periods of time. Oilite bearings require a renewal of oil once every five or six months. Only the best grade of oil should be used, because the pores of the bearings will become clogged if an inferior grade is applied. Mobiloil 10-10W is most suitable for the purpose.

Adjustment of Chute Plate. The heel of the chute plate *2*, Fig. 16, should be set about 10 or 12 points away from the matrix delivery belt, and the prong points of the plate should align with the assembling elevator gate pawls. Loosen screws *4* and move bracket *3* to obtain this adjustment.

Star Wheel Tension. The tension of the star wheel friction spring should be

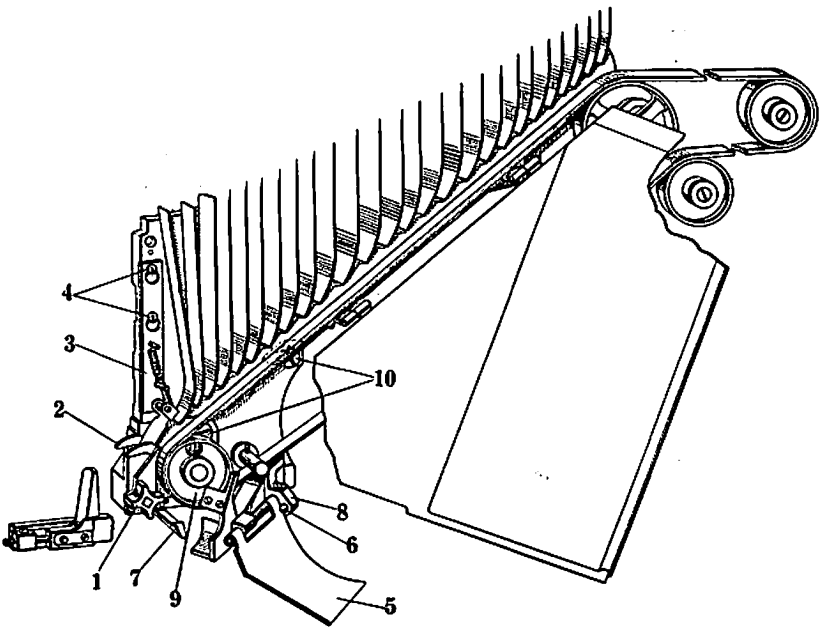


Fig. 16. The Intertype Positive Assembler. This view shows how to renew the assembler star *1*. Open the assembler cover *5* until detent *6* holds it down. Raise the assembling elevator slightly, depress cover *5* to release spring catch *7* and swing out the pivoted chute block *8*. The simple construction of this device makes it possible to keep star wheels in good condition at all times.

just strong enough to cause the star wheel to convey em quads into the assembling elevator without hesitancy. The tension of the spring is regulated by a knurled knob at the end of the star wheel shaft. The knob can be reached through the space above the assembling elevator. If the spring has lost its tension, apply a new one.

Assembler Removal and Maintenance. The assembler should be removed from the machine occasionally for cleaning. To remove the assembler, throw off the matrix delivery belt and the assembler driving belt. Turn out the set screw in the matrix delivery belt driving pulley *9*, Fig. 16, and remove the pulley. Remove screws *10* and lift off the assembler. Remove the pinions and shafts from the bushings. If the bearings need cleaning, use a dry cloth. The use of gasoline or any other solvent is *not* recommended. To oil the bearings, immerse the assembler plate and bearings in Mobiloil 10-10W for half an hour. This is the minimum time necessary for the bearings to absorb enough oil for a five or six-month period. To assemble the parts, reverse the order of removal.

Assembler Slide

As the matrices enter the assembling elevator, the revolving star wheel causes them to bear against the finger *1* of the assembler slide (Fig. 18). As each matrix settles down through action of the revolving star wheel, the slide moves a corresponding distance to the left. Spring *2* causes brake blocks *3* to bear against the assembler slide and hold it in each progressive position. When the line of matrices in the assembling elevator is raised to the delivery slide, a lug on the assembling elevator raises the end of the assembler slide brake operating lever *4* at *5*. This causes a roll on pin *6* to move the assembler slide brake *7* slightly, so that the tension of the brake blocks *3* is released from the slide. The assembler slide lever spring *8* then returns the slide to normal position against the stop *9*. When the assembling elevator is lowered, it banks on the assembler slide brake operating

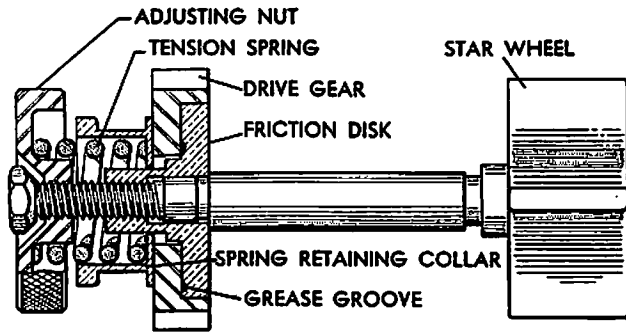


Fig. 17. Assembler Star Shaft Assembly. The star wheel turns with the shaft, on which is mounted a friction disk. The drive gear meshes with an intermediate gear and turns the shaft. The drive gear is not fast to the shaft; a tension spring between the adjusting nut and the gear urges the gear against the friction disk. If a line is overset the star wheel and the shaft will stop turning, but the tension spring will allow the gear to continue revolving with the other assembler pinions. When the obstructing matrix is removed from the assembling elevator, the star wheel and the shaft will turn again.

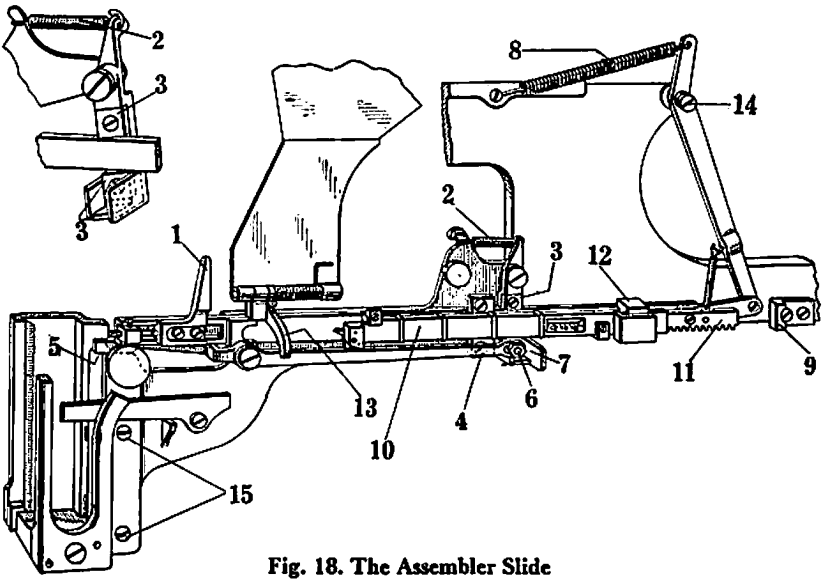


Fig. 18. The Assembler Slide

lever at *5*. The roll on pin *6* is raised off the beveled edge of the brake *7*, and spring *2* again causes the blocks 3 to bear against the assembler slide.

An adjusting block *10* is mounted on a rack and scale *11* as a means of adjusting the slide for the length of line desired. To change the measure of the line, depress detent *12* and move block *10* until the pointer in the little window of the block registers with the measure desired.

A tight line release lever *13* is provided to release the tension on the matrices in the case of an overset line. When the lever is raised the assembler slide moves slightly over the set measure, permitting the extra matrix to settle in the line. *The extra matrix should not be left in the line because it will be damaged by the right-hand vise jaw if the line is sent in to be cast.* The tight line release is provided *only* to make it easier to remove extra matrices from assembling elevator.

Adjustments and Maintenance. If the assembler slide fails to return to normal position when the assembling elevator is raised to the delivery slide, the operating pin *6*, Fig. 18, is probably out of adjustment. There should be a little play between the pin *6* and the brake *7* when the assembling elevator is raised slightly. Loosen the nut on the pin and adjust the pin sidewise until the play is obtained.

If the assembler slide chatters as the matrices are being assembled, the brake blocks *3*, Fig. 18, are probably worn, or spring *2* is weak in tension. The blocks can be reversed to furnish new gripping edges. The new edges may have to be fitted slightly if they bind too much on the slide. If spring *2* is weak in tension, apply a new one. Before making these changes, however, make sure that the assembling elevator is seating properly. If the elevator binds in its gibs, remove it from the machine and clean it thoroughly.

The assembler slide should be removed from the machine occasionally for

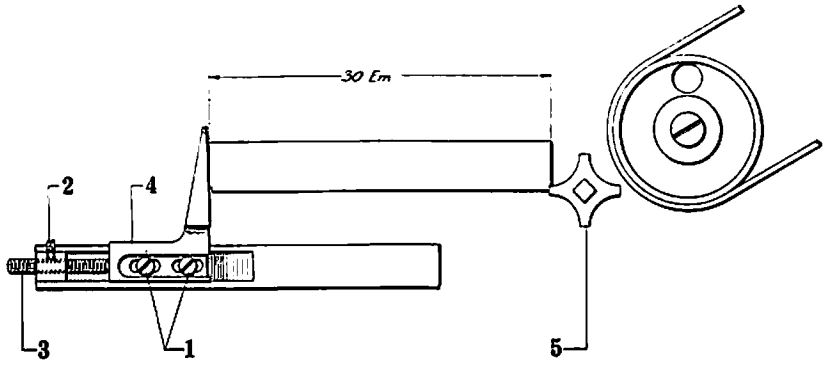


Fig. 19. Showing How to Set the Assembler Slide

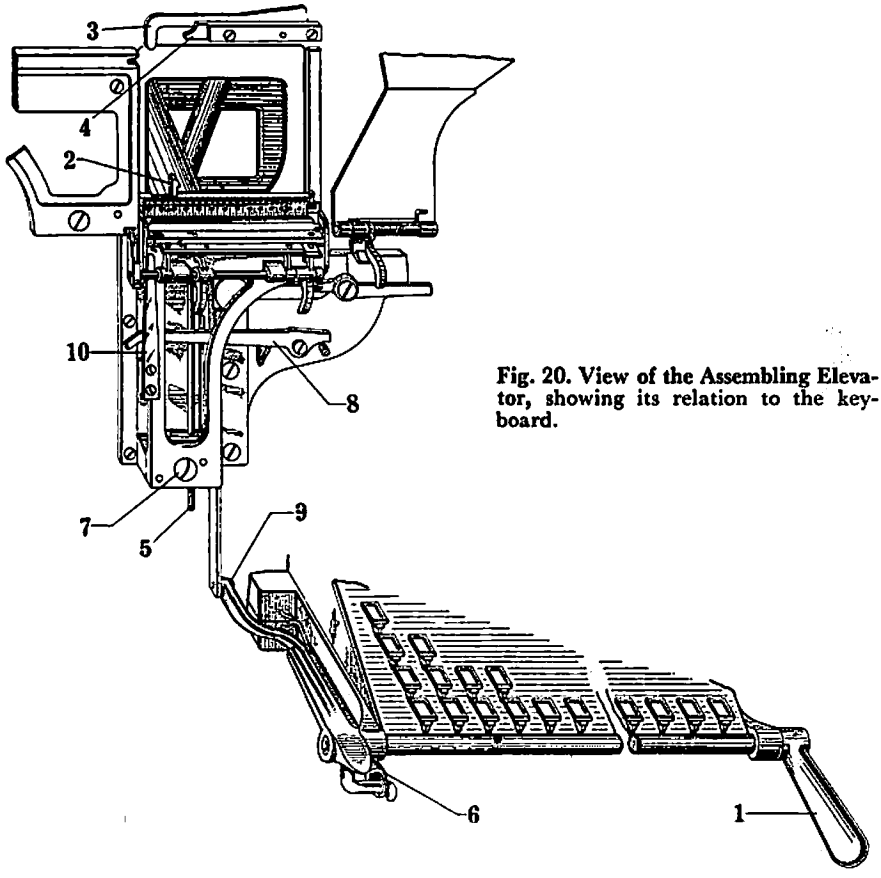


Fig. 20. View of the Assembling Elevator, showing its relation to the keyboard.

cleaning. Remove screws *14* and *15*, Fig. 18, and lift off the assembled mechanism. Clean all the rollers and gibs. Clean the assembler slide with gasoline, dry it and rub a small amount of graphite on the rails.

Setting Assembler Slide. The assembler slide should always be reset whenever a new star wheel is applied to the assembler. Move the assembler slide adjusting block until the pointer in the little window of the block registers with 30 ems. Place a 30 em slug between the finger *4* and star wheel *5* as indicated in Fig. 19. The slug should fit snugly between these two points. Loosen screws *1* and *2*, Fig. 19. Adjust screw *3* against which finger *4* banks until adjustment is correct.

Assembling Elevator

The assembling elevator serves two functions: it supports the line of matrices and spacebands while they are being assembled, and it raises the assembled line to the delivery slide when the operator depresses the assembling elevator lever handle *1*, Fig. 20. The line of matrices and spacebands is plainly visible to the operator and any changes in composition can be made before the line is sent in to be cast. If hand spacing is necessary in a line, it can be done easily while the matrices and spacebands rest in the assembling elevator. In this respect the assembling elevator may be said to serve the same purpose as the compositor's stick.

When the line of matrices and spacebands is raised in the assembling elevator to the delivery slide, latch *2*, Fig. 20, engages a lug on the stop bar *4* and trips

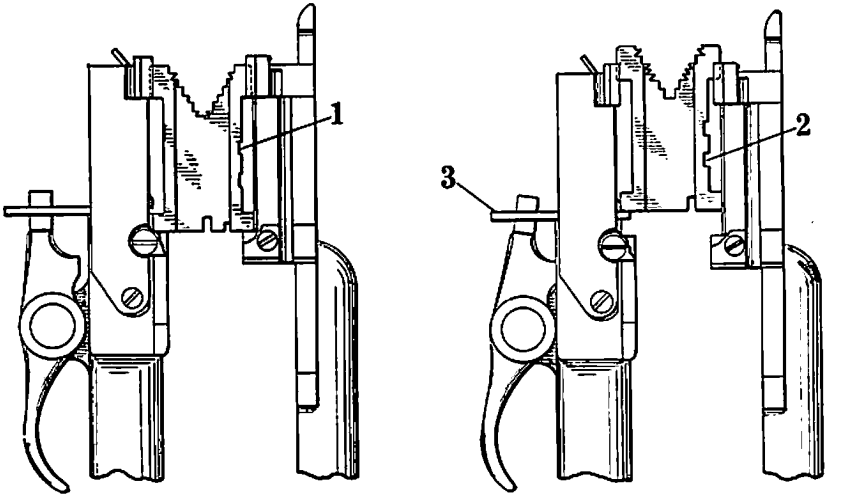


Fig. 21. End View of the Assembling Elevator, showing how matrices are assembled in upper and lower positions to cast different faces of type from one of the two matrix cells.

In view No. 1 the matrix is resting on the lower or normal rail, and will cast from the roman character *1* when it is sent in to the casting mechanism. The duplex rail in this case is not being used.

In view No. 2 the assembling elevator duplex rail *3* is in operative position. The matrix in this case will cast from the italic or bold face character *2* when it is sent in to the casting mechanism. Small capitals are also cast from this position of the matrix.

delivery pawl *3*. The latch holds the elevator in this position until the delivery slide short finger bar releases latch *2* from stop bar lug *4*, permitting the elevator to return to normal position. If the operator wishes to lower a line for correction, rod *5*, when pushed up, will release latch *2* from the stop bar lug *4*. The weight of the assembling elevator is counterbalanced by a spring *6*, which can be adjusted for more or less tension by means of screw hook to which it is attached.

Function of Duplex Rail. Most matrices from 5 point up to and including 14 point have two characters punched in their casting edges. This enables the operator to use italic or boldface characters in combination with roman characters of the same size. Two levels of rails are provided in the delivery channel, first elevator jaw and mold to support the matrices in either or both of the two positions. The assembling elevator also has two levels for the assembling of matrices, a fixed lower rail and a movable upper rail called the duplex rail. Matrices assembled on the lower or normal rail cast from the roman characters, and those assembled on the upper or duplex rail cast from the italic or bold characters, Fig. 21. The duplex rail consists of a long and a short rail. If the operator, after having assembled part of the line on the duplex rail, wishes the rest of the matrices to assemble on the lower rail, he can withdraw the short rail, leaving the long rail in place to support the matrices already in the upper position. The operator can change a matrix or a group of matrices by hand from one position to the other whenever he wishes.

Assembling Elevator Maintenance

The detaining plates *1* and *2*, Fig. 22, and pawls *5* and *6* hold the matrices in the assembling elevator as they are being assembled. Neither the plates nor the pawls are adjustable. When they become excessively worn, apply new ones. The pawls *5* and *6* are held in position by small springs. The tension of these springs should be just strong enough to hold the pawls against their stop pins.

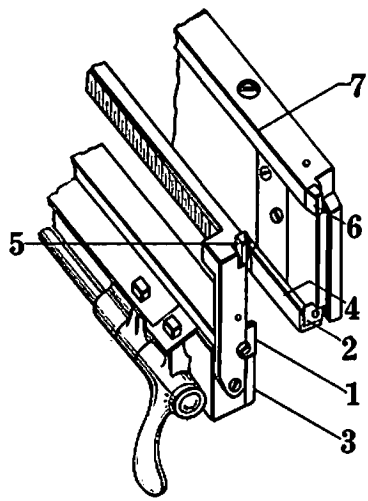


Fig. 22

The front and back rail buffers *3* and *4* are subject to severe usage. They are made of hardened steel to resist wear and need to be replaced only at long intervals. When the surfaces of the rail buffers wear 1/32″ or more, apply new ones. To replace the buffers, remove screw *7*, Fig. 20, and work the front plate gently from the dowels. At point *7*, Fig. 22, spacebands will eventually round off the top of the back plate rail to such an extent that they will fall down when the gate is opened. Replacement is the only remedy. The spaceband buffer finger *8*, Fig. 20, should also be replaced when it becomes excessively worn, because it likewise acts as a support for spacebands when they rest in assembling elevator.

The assembling elevator should be re-

moved from the machine occasionally for cleaning. Remove the assembler slide, disconnect the counterbalance spring *6*, Fig. 20, remove screw *9*, and slide the assembling elevator down out of its gibs. Remove dirt and gum from the parts with gasoline, giving particular attention to the duplex rail. Clean the gibs or slideways on the machine in which the assembling elevator fits. Dry all the parts thoroughly. Rub a small amount of dry graphite on gibs to insure easy action of the elevator. Apply a drop of clock oil to gate roller under spring *10*, Fig. 20.

Matrix Construction

Up to this point, general references have been made to the construction of the matrix in order to clarify the operation of the assembling mechanism. It is essential now to describe the matrix in detail so that the relation between the matrix and the other parts of the machine will be more easily understood. Details of matrix construction are shown in illustrations A to H, Fig. 23.

A. The matrix is rectangular in shape. It is 1¼″ long, ¾″ wide across the upper and lower lugs and 9/16″ wide across the body. The thickness of the matrix depends, of course, upon the width of the character to be punched in the casting edge. There is a V-shaped recess in the upper part of the matrix in which the combination teeth are cut. Four projecting lugs on the matrix support and guide it as it is carried through the machine. The two upper lugs and the lower front lug support the matrix in the delivery channel and the first-elevator jaw. The lower back lug under the matrix cell aligns the letter character with the

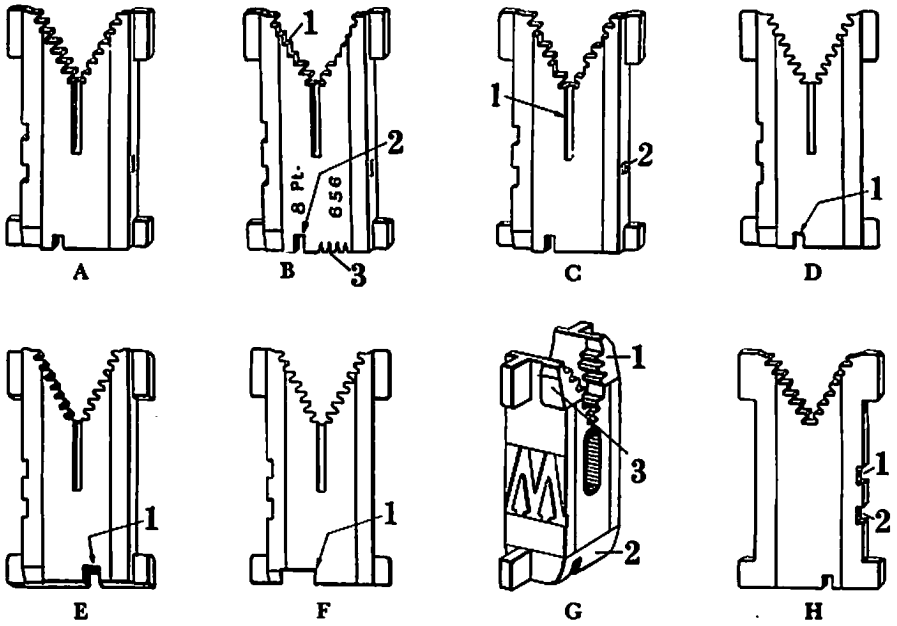


Fig. 23. Showing Details of Matrix Construction

mold just before the slug is cast. The central portion of the matrix body is slightly thinner than the outside body edges to insure a tight locking of the matrix line during justification.

B. The combination teeth *1* are cut in the V-shaped recess in the upper part of the matrix. Intertype matrices have wide combination teeth which insure maximum durability, smooth transfer and faultless distribution. The teeth support the matrices on the second elevator bar, the distributor box bar and the distributor bar. Each letter has a combination of teeth which differs from that of other letters. When a matrix reaches a point on the distributor bar directly above its channel in the magazine, there is a gap in the teeth of the bar which corresponds with the combination of teeth on the matrix. This permits the matrix to drop off the bar into an entrance leading to the proper magazine channel.

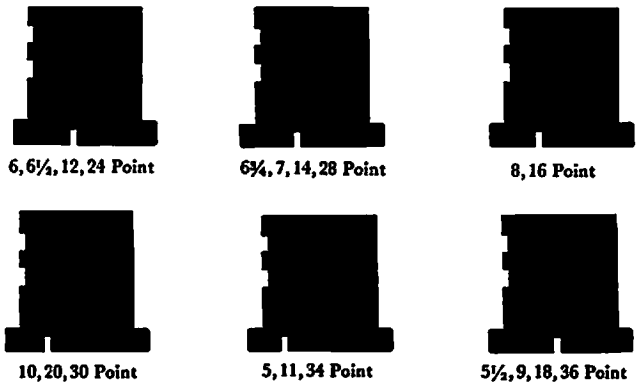


Fig. 24. Showing the Location of Intertype Font Slots

The point size and font number of each matrix is stamped on the matrix body. A different number is assigned to each individual type face, making it possible to identify the face of any matrix. The font slot *2* identifies the point size of the matrix and the face lines *3* identify the type family. The font slot and face lines combined identify the font to which the matrix belongs.

C. The distributor box bar point slot *1* is cut in one side of the matrix to a depth within 1/32″ of the other side. Thus, the slot creates a uniform thickness on one side of all matrices. The slot registers with the distributor box bar point as the matrix is being lifted into the distributor screws, thus making it impossible for more than one matrix to be lifted at a time.

This illustration also shows a reference character *2* on the matrix. When the line of matrices is assembled in the assembling elevator, the reference characters are plainly visible to the operator.

D. A font distinguisher slot *1* is cut in the base of matrices intended to run in single distributor machines. The location of the slot depends upon the point size of the matrix. The slot registers with the font distinguisher indicator finger as the matrices are moved into the distributor box. If a matrix carrying a slot other

than the one in use is present in a line, the finger will prevent the matrix from entering the distributor box.

In Fig. 24 are shown six matrix silhouettes, each of which has an accurately located font slot in the base. The point size of any matrix can be determined readily by placing the matrix over the silhouettes successively, casting side to the left, until the font slot coincides with a slot in one of the silhouettes. Although a single font slot is used for three or more point sizes, the sizes are so far apart that the correct one can be determined easily by the size of the matrix character.

E. A mixer selector notch *1* is cut in the base of matrices intended to run in Intertype mixer machines. These notches register with font selector feelers in the selector mechanism. The position of the notch in relation to the feelers determines automatically the magazine to which the matrix will be delivered.

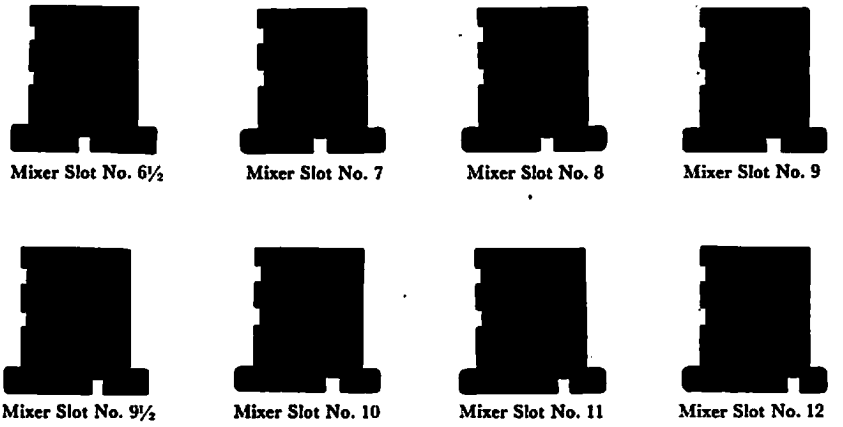


Fig. 25. Showing the Location of Intertype Mixer Notches

In Fig. 25 is shown the location of Intertype mixer notches. The mixer notch number of any matrix can be determined by placing the matrix over the silhouettes successively until the notch on the matrix corresponds with a notch on one of the drawings. Although eight different notches are shown, it is the usual practice to use notches No. 8 and No. 11—No. 8 for all upper magazine fonts and No. 11 for all lower magazine fonts, both main and side magazines. When necessary, however, any other pair of notches can be used if they are at least two numbers apart, such as 7 and 9, 10 and 12, etc. The font slot cut in matrices for single distributor machines should not be confused with the mixer notches. Font slots have nothing to do with the separation of matrices on mixer machines.

F. A universal font slot *1* is cut when requested in the base of matrices intended to run in side magazines on single distributor machines. This makes it possible to use matrices from the side magazines in combination with matrices from any of the main magazines.

G. The lugs of this matrix are back-milled, that is, they are set back slightly from the edge of the matrix body. The purpose in back-milling the lugs of wide

matrices is to permit part of the extra thickness of the matrix to overhang each side of the magazine channel instead of only one side, as is usually the case.

Some thick-bodied matrices are beveled at the top and bottom, as indicated at *1* and *2*. The lower bevel *2* provides clearance between the matrix and the channel entrance partition as the matrix drops off the distributor bar. The upper bevel *1* insures clearance during distribution. If the thick matrix is followed by another matrix on the distributor bar, the upper bevel will permit the thick matrix to drop into the channel entrance without coming into contact with the following matrix. This bevel is made possible by Intertype wide combination teeth.

Matrices .300″ thick or over are provided with a shoulder *3*, which extends out from the matrix body. This shoulder furnishes a positive bearing for the matrices in the first-elevator jaw and insures a smooth transfer to the second elevator.

H. This illustration shows a two-letter matrix of the 5 to 14 point series. Two letters are punched in the casting edge of this type of matrix. The letter *1* is punched in the normal position and the letter *2* is punched in the auxiliary position. The letter punched in position *1* is usually the roman or light-face letter and the letter punched in position *2* is usually the italic or bold-face letter. Matrices can be used in both the normal and auxiliary position in the same line.

Intertype Standardized Matrix Alignment

The six matrices shown in Fig. 26 illustrate the standardized system of matrix alignment used in the manufacture of Intertype matrices. This system is based upon the alignment established for matrices in the 5 to 14 point two-letter series. A 14 point matrix in this series is shown in Fig. IV. The position of the two characters on the matrix is confined between constant line *A-A* and line *C-C* in the regular position and between constant line *D-D* and line *B-B* in the auxiliary

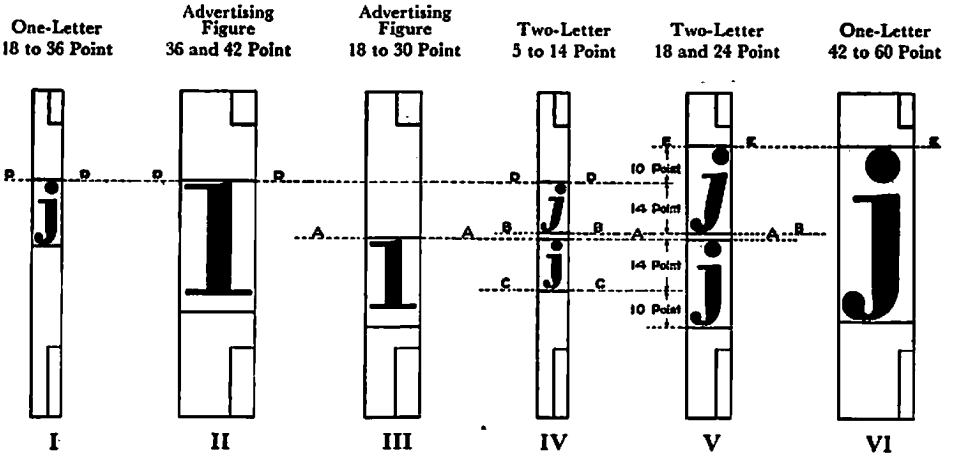


Fig. 26. The Intertype Standardized Matrix Alignment System

position. Constant lines *A-A* and *D-D* correspond with the constant line of the mold body. Extending from the constant line *A-A* to line *B-B* is a partition or web, which serves as a banking point for the matrix against the mold. The two letters are punched on either side of the web. The normal or light-face letter extends from line *A-A* to line *C-C*, a distance of 14 points; the auxiliary or bold-face letter extends from line *D-D* to line *B-B*, a distance of 14 points. The constant lines *A-A* and *D-D* and the extreme alignments *C-C* and *B-B* of the 14 point characters constitute the basis of the Intertype alignment system. In reading the following description, it should be borne in mind that lines *A-A* and *D-D are basic or constant lines.* These lines represent the edge of the mold body with respect to the upper lugs on the matrices as shown in Fig. 26. Lines *B-B* and *C-C* are variable lines, representing the edge of the mold cap with respect to the upper lugs on the matrices.

Advertising figures from 18 to 30 point, Fig. III, are punched in normal position. The top alignment of this type of figure is based on the constant line *A-A* of the 5 to 14 point two-letter matrix. The figure extends from line *A-A* a distance of 18 to 30 points, depending upon the point size of the figure. Consequently, advertising figures from 18 to 30 point have the same top alignment as letters in the normal position of 5 to 14 point matrices.

Advertising figures in the 36 and 42 point sizes, Fig. II, are punched in head-letter position. The top alignment of these figures is based on the constant line *D-D* of the auxiliary position of 5 to 14 point matrices. The figure extends from line *D-D* a distance of 36 or 42 points. Therefore, 36 and 42 point advertising figures have the same top alignment as letters in the auxiliary position of 5 to 14 point matrices.

The top alignment of one-letter matrices from 18 to 36 point, Fig. I, is also based on the constant line *D-D* of the auxiliary position of 5 to 14 point matrices. The character extends from line *D-D* a distance of 18 to 36 points, depending upon the point size of the character.

The alignment for two-letter 18 and 24 point matrices, Fig. V, is likewise based upon the alignment established for matrices in the 5 to 14 point series. The normal or light-face character extends from line *A-A* a distance of 18 or 24 points. In the case of the 24 point size, this represents an increase of exactly ten points over line *C-C* (the bottom of a 14 point slug). The auxiliary or bold-face character extends from line *B-B* a distance of 24 points to constant line *E-E*, which represents an increase of exactly ten points over line *D-D*. The minimum web or land between line *A-A* and line *B-B* of the two-letter 24 point characters is no smaller than that of any other two-letter matrix.

The 18 and 24 point two-letter matrix is a recent development. It makes available two 18 or 24 point faces on a single matrix, thus increasing the matrix capacity of the machine and reducing the investment in magazine equipment. The matrices are assembled on the normal rail in the assembling elevator and the position of first-elevator alignment stop bar determines which face will be cast.

The top alignment of one-letter matrices in sizes from 42 to 60 point is based on the constant line *E-E*. The character extends from the line *E-E* a distance of

42 to 60 points. Consequently, the top alignment of the 24 point auxiliary characters in the two-letter series is the same as that of 42 to 60 point one-letter characters.

The Intertype matrix alignment system guarantees matrices of full point size, faces of correct design and matrices of sound mechanical construction.

Use of First-Elevator Alignment Stop Bar

A new style first-elevator alignment stop bar indicator plate *4*, Fig. 27, is mounted on the front plate of the delivery channel. Three numbers stamped on the indicator plate correspond with the three positions of the stop bar: normal, headletter and high alignment. The pointer *5* on the stop bar *6* registers with the

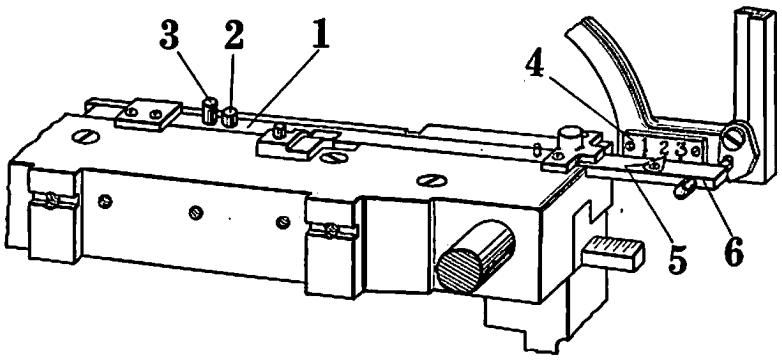


Fig. 27. New Style First-Elevator Alignment Stop Bar

three numbers on the indicator plate and indicates plainly the position of the stop bar. When the stop bar is placed in position 1 on indicator plate, the first elevator banks on the stop bar at point *1* and is held in normal alignment position with respect to the mold. When the bar is placed in position 2 on indicator plate, stop *2* is positioned under the first-elevator slide upper adjusting screw. This stop holds the line of matrices in the first-elevator jaw in the position corresponding to line *D-D*, Fig. 26. All matrices from 5 to 36 point can be cast in auxiliary position when the stop bar is in position 2 on indicator plate. Similarly, when the stop bar is placed in position 3 on indicator plate, stop *3* is positioned under the screw in the first-elevator head and holds the line of matrices in the first-elevator jaw in a position corresponding to line *E-E*, Fig. 26. In this position, all matrices in the auxiliary position of the 18 and 24 point two-letter series and the 42 to 60 point one-letter series will cast.

The first-elevator alignment stop bar is used extensively in connection with one-letter and two-letter matrices in sizes 5 to 60 point punched in the auxiliary position as well as the high alignment position. The matrices in this case are assembled on the normal or lower rail and are presented to the auxiliary alignment groove in the mold body by alignment stops *2* and *3*, which hold the first

elevator and the line of matrices in the proper position with respect to the mold cavity. Below is given a list of the six basic types of matrices shown in Fig. 26 with the position of the alignment stop bar in each case:

5 to 14 point	Two-Letter Matrices	Position 1, regular Position 2, auxiliary
18 and 24 point	Two-Letter Matrices	Position 1, regular Position 3, auxiliary
18 to 36 point	One-Letter Matrices	Position 2
42 to 60 point	One-Letter Matrices	Position 3
18 to 30 point	Advertising Figures	Position 1
36 and 42 point	Advertising Figures	Position 2

Intertype Standardized Mold System

The Intertype mold system is based upon the principle of universal standardized parts. The exclusive features of Intertype mold construction makes it possible to use most Intertype mold caps with either one of *two basic mold bodies,* the standard alignment mold body and the .140" high alignment mold body. The standard alignment mold body (U-61) can be used with a wide variety of mold caps to produce slugs ranging from 5 to 36 points in body thickness. The .140" high alignment mold body (U-1645) can be used with mold caps to produce slugs from 18 to 48 points in body thickness. This includes the mold caps for 18 and 24 point two-letter matrices. These exclusive features of Intertype mold design provide a standardized mold system which makes possible a universal range of work with a minimum amount of equipment.

Intertype mold caps are classified by letters which indicate the casting range of each type of cap. There are two kinds of mold caps of the recessed construction, the recessed mold cap and the triangular shelf mold cap. When the letter assigned to a cap of the recessed construction is given, therefore, it should be remembered that the letter refers to both the recessed and triangular shelf type of cap. Below is given a list of Intertype mold caps with a description of the range and work for which each cap is manufactured.

Caps for Use with the Standard Alignment Mold Body (U-61)

U-329 Mold cap for solid slugs from 5 to 14 point, using 5 to 14 point liners.

A Recessed 4 points, for 10 to 14 point slugs, using 6 to 10 point liners.

B Recessed 6 points, for 12 to 18 point slugs, using 6 to 12 point liners.

C Recessed 12 points, for 18 to 24 point slugs, using 6 to 12 point liners.

D Recessed 18 points, for 24 to 30 point slugs, using 6 to 12 point liners.

E Recessed 24 points, for 30 to 36 point slugs, using 6 to 12 point liners.

N Recessed 3 points, for 8 to 14 point slugs, using 5 to 11 point liners.

P Adjustable triangular shelf, recessed 30 points. This cap can be used on the standard alignment mold body (U-61) with 6 point liners for 36 point slugs. The cap is intended primarily for display work, however, and is used chiefly with the .140" high alignment mold body for 36 to 42 point slugs.

Advertising Figure Mold Caps

In addition to the mold caps described above, the following advertising figure caps are also used with the standard alignment mold body (U-61):

U-329 The lip on this cap is 9 points thick. While the cap used chiefly for casting 5 to 14 point slugs, a maximum overhang of 8 points can be cast on each size of slug.

F For advertising figures up to 30 point, two-line work. For 24 point advertising figures, three-line work of 6 point. This cap allows a maximum overhang of 12 points. Maximum liners 12 point.

G For advertising figures up to 30 point, two-line work of 10 and 12 point. This cap is recessed 4 points, allows a maximum overhang of 12 points and is used with liners of 6 to 8 point. Maximum liners 8 point.

H For advertising figures up to 30 point. For 18 point advertising figures, two lines of 8 point. For 24 and 30 point advertising figures, three lines of 8 point. This cap allows a maximum overhang of 16 points. Maximum liners 8 point.

I For 36 point advertising figures, three-line work of 10 point. For 42 point advertising figures, three-line work of 12 point. This cap allows a maximum overhang of 24 points and is used with matrices in the auxiliary position. Maximum liners 12 point.

J For 42 point advertising figures, two-line work of 18 point. This cap is recessed 6 points, allows a maximum overhang of 18 points and uses 12 point liners. For use with matrices in the auxiliary position only. Maximum liners 12 point.

M For advertising figures up to 24 point. For 18 point advertising figures, two lines of 8 point. For 24 point advertising figures, two lines of 10 point and three lines of 6 or 7 point. This cap allows a maximum overhang of 14 points. Maximum liners 10 point.

Caps for Use with the .140″ High Alignment Mold Body (U-1645)

L Recessed 34 points, for 40 to 46 point slugs, using 6 to 12 point liners. This cap can be used also with the .168″ high alignment mold body to cast 40 to 48 point slugs, using 6 to 14 point liners.

P Adjustable triangular shelf, recessed 30 points. This cap will cast 36 to 42 point slugs, using 6 to 12 point liners.

Q Adjustable triangular shelf, recessed 36 points. This cap will cast 42 to 48 point slugs, using 6 to 12 point liners.

In addition to the caps described above, the caps for the new 18 and 24 point two-letter matrices are also used with the .140″ high alignment mold body.

Mold cap U-3947. Adjustable triangular shelf cap for 18 point two-letter matrices. This cap is recessed 12 points and is used only with 6 point liners.

Mold cap U-3949. Adjustable triangular shelf cap for 24 point two-letter matrices. This cap is recessed 18 points and is used only with 6 point liners.

Mold cap U-3951. Adjustable triangular shelf cap for 18 and 24 point two-letter matrices. This cap is recessed 12 points. It will cast 18 point slugs when using 6 point liners and 24 point slugs when using 12 point liners. The cap is used only with 6 and 12 point liners.

Mold cap K is a special cap. It is recessed 24 points plus .050″, used with 30 to 36 point high cap accented matrices and 6 to 12 point liners. This cap is used with the .050″ high alignment mold body (U-1404).

Mold Bodies for High Cap Accented Matrices

U-2332 .012″ high alignment, for normal high cap accents up to 14 point.
U-1101 .020″ high alignment, for high cap accents, 5 to 14 point.
U-2349 .028″ high alignment, for normal high cap accents, 18 to 36 point.
U-1404 .050″ high alignment, for high cap accents, 18 to 36 point.
U-2063 .168″ high alignment, for normal high cap accents, 42 to 60 point.
U-4194 .168″ upper groove and .028″ lower groove, for 18 and 24 point two-letter matrices with normal high cap accents.

Use of Liners with Recessed Mold Caps

The exclusive features of Intertype mold design permit the interchangeable use of standard liners in both the universal adjustable mold and the recessed type of mold. Mold liners from 5 to 12 point are used with recessed caps to produce slugs up to 48 point, depending upon the depth of the recess in the caps. Usually, liners from 6 to 12 point will cover the casting range of most Intertype mold caps of the recessed type. The casting range of each Intertype cap is very plainly stamped on the cap. To determine the proper size of liners to use in order to obtain a slug of a desired thickness, subtract the number of points recess in the cap from the point size of the slug desired. For instance, mold cap A is recessed 4 points and has a casting range of 10 to 14 point. If a 10 point slug is desired, subtract 4 (the depth of the recess in the cap) from 10 (the point size of the slug to be cast) which is 6, the point size of the liners to be used with recessed cap A to cast 10 point slugs. This rule holds true for all Intertype recessed mold caps. Below is given an example showing how the complete casting range of an Intertype recessed mold cap is covered by liners from 6 to 12 point:

Headletter Mold U-341E will cast slugs from 30 to 36 points in thickness. The recess in the mold cap (U-329E) is 24 points. The following liners should be used to obtain slugs of the sizes listed:

For 30 point slug use 6 point liners
For 31 point slug use 7 point liners
For 32 point slug use 8 point liners
For 33 point slug use 9 point liners
For 34 point slug use 10 point liners
For 35 point slug use 11 point liners
For 36 point slug use 12 point liners

Note that in each of the above cases, the recess in the cap (24 points) is subtracted from the point size of the slug to obtain the size of the liners to be used.

Equipment for Special Composition

Intertype matrices include a large assortment of special characters used in various kinds of composition, also a variety of rules, braces, fractions, grocery ad logotypes, ornaments, borders, tariff characters, etc., and language faces of many

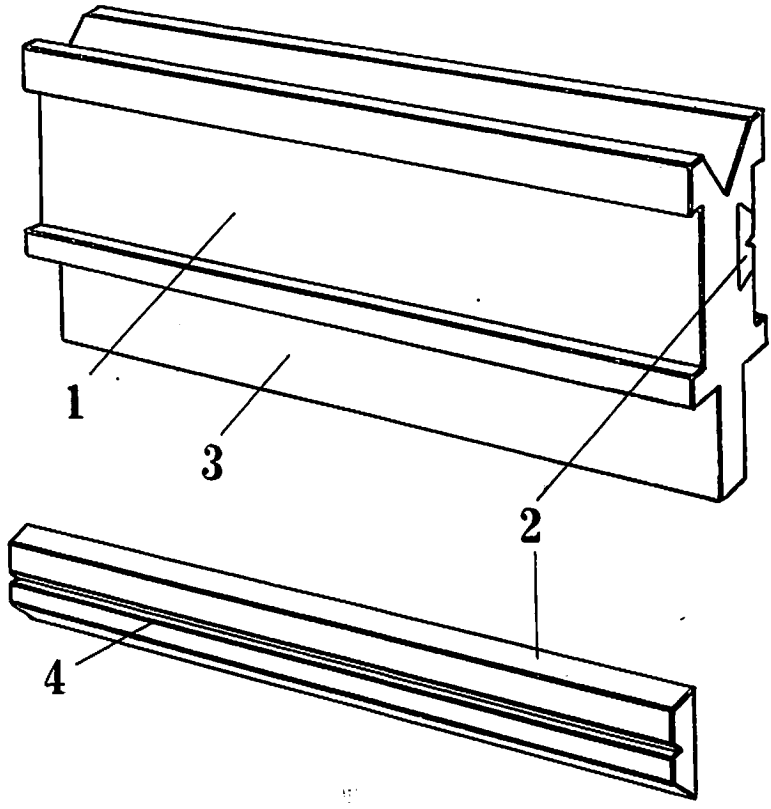


Fig. 28. View of a Matrix Slide Block and Matrix Slide. This equipment is used for casting rules and ornamental borders.

kinds. In addition to this special matrix equipment, a wide variety of matrix slides, hair spaces, spacebands and other equipment designed to facilitate intricate composition are carried in stock.

Border Matrices and Slides. One and two-letter border matrices are exactly similar to ordinary one and two-letter matrices and are assembled in lines in the usual way. No extra equipment of any kind is required. By combining matrices of different designs, an almost unlimited variety of borders can be produced. Border matrices usually run pi but special combination teeth can be cut in the matrices so that they will run in the magazine. This, however, is rarely necessary but will be done when requested by the customer.

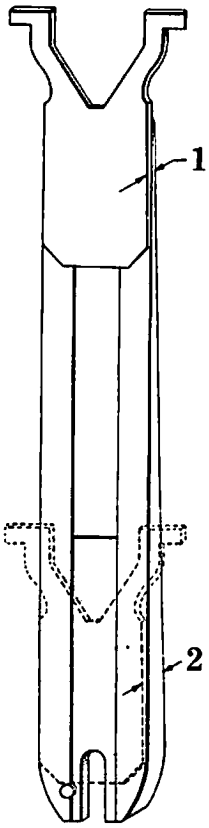
Matrix slides are strips of brass with rules or designs punched throughout their length. They are held in place before the mold by a matrix slide block. The block is shaped similar to a line of matrices and it slides into the first-elevator jaw in the same way. The block has a slot for holding the matrix slides, which are interchangeable, so that one block can be used for any number of slides, each

slide bearing a different design. Slides and slide blocks can be supplied in any length desired, up to and including 42 ems.

All Intertype slides and slide blocks can be used interchangeably with slides and blocks of other manufacture. The standard slide and slide block are 30 ems long. All rules cast near the constant or smooth side of the slug unless otherwise specified.

Use of Matrix Slide Blocks. Place the matrix slide block in the first-elevator jaw with the right end of the block just inside the first-elevator jaw matrix detents. Set the vise jaws for the length of the block and move the left-hand vise jaw all the way to the left. Lock the spaceband lever pawl latch and place the first-elevator slide recasting block in operative position. Any desired number of slugs can then be cast by holding out the starting and stopping lever.

A matrix slide block and slide are shown in Fig. 28. The matrix slide *2* is inserted in a slot in the front of the matrix slide block *1*. The rule or pattern is punched in the slide at *4*. The projecting lug *3* at the base of the slide block renders the pump stop inoperative, permitting the plunger to cast. The length of the slug upon which the border is cast can equal or exceed the length of the block, but the length of the slug should never be shorter than the block.



Hair Spaces. In certain types of composition, it is necessary or desirable to hand space the lines, that is, to insert hair spaces of special thickness between the word groups and/or characters in addition to the spacebands. Hand spacing is necessary also when the spacebands contained in a line do not have sufficient expansive power to justify the line before the cast. Brass hair spaces are furnished in twelve thicknesses: .007″, .010″, .012″, .014″, .016″, .017″, .018″, .019″, .020″, .021″, .022″ and .023″. Steel hair spaces are made in sizes: .0035″, .007″, .014″ and .022″. Hair spaces differ from the regular thin spaces included with fonts, the smallest size of which is .0277″.

Thicknesses of Spacebands. Seven thicknesses of spacebands are made, ranging from the extra thin type (T-668) to the extra thick (T-656). The various types of spacebands are listed below with a minimum and maximum measurement in each case. The minimum measurement *1*, Fig. 29, represents the thickness of the spaceband with the sleeve at

Fig. 29. Showing the Expansive Power of a Spaceband. The difference between minimum measurement *1* and maximum measurement *2* represents the complete expansive range of the spaceband.

T- 668	Extra thin	minimum .028″	maximum .092″
T-1768	Extra thin	minimum .030″	maximum .0835″
T- 401	Thin	minimum .032″	maximum .096″
T-3711	Ideal thin	minimum .032″	maximum .1175″
T-2932	Ideal	minimum .037″	maximum .1225″
T- 400	Thick	minimum .0375″	maximum .1015″
T- 656	Extra thick	minimum .048″	maximum .144″

the top of the wedge. The maximum measurement 2 represents the thickness of the spaceband with the sleeve at the bottom of the wedge. The difference between the minimum and maximum measurement represents the complete expansive range of the spaceband.

In general extra thin spacebands should be used for small type composition, thin spacebands for sizes above 10 point, and thick spacebands for headletter composition. For display composition extra thick or "jumbo" spacebands are widely used. The extra thick spaceband has an expansive range of .0855″, or slightly more than 6 points. A special spaceband (T-2990) is manufactured for use with the stick attachment. This spaceband has a minimum measurement of .070″ and a maximum measurement of .164″. The complete expansive range of the spaceband is .094″, or slightly less than 7 points.

Where miscellaneous sizes of type are set on one machine many printers use only the thin or extra thin spaceband, and add a regular thin space or more between words when setting large faces. Extra thin spacebands were used in the composition of this book.