

March 29, 1927.

1,622,291

H. PETERSEN
TYPOGRAPHICAL MACHINE

Filed March 21, 1924

4 Sheets-Sheet 1

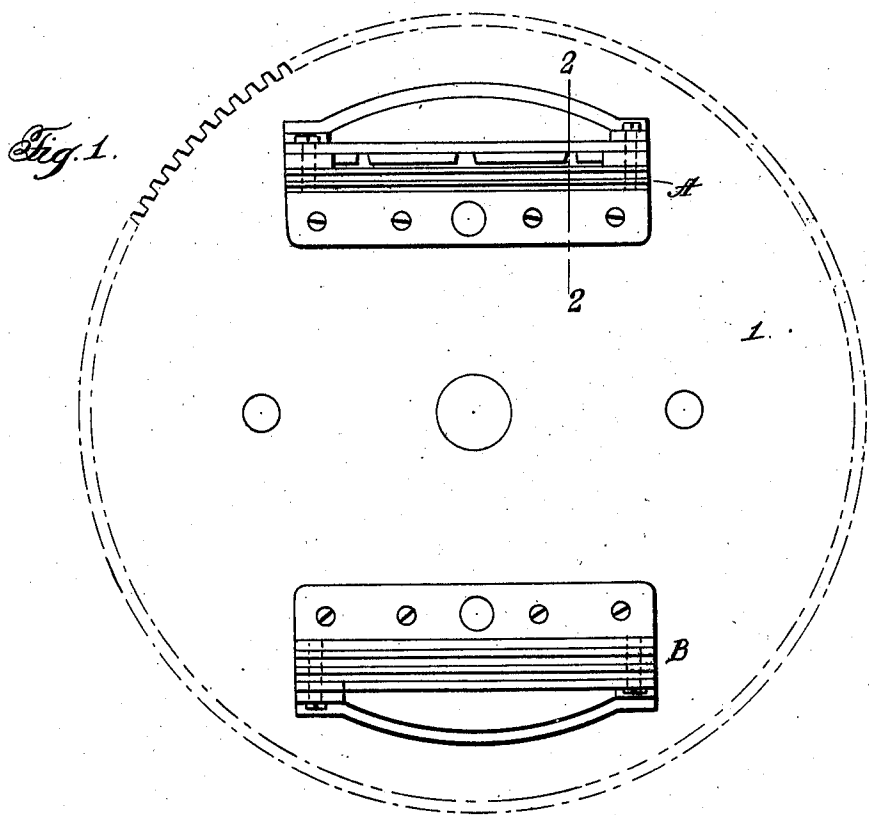


Fig. 2.

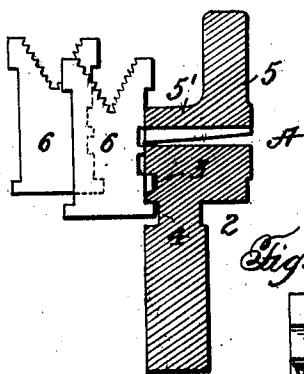


Fig. 3.

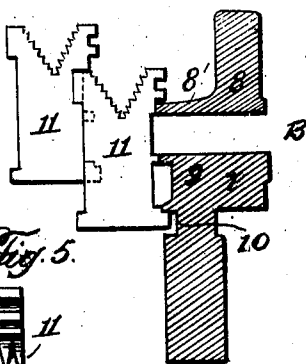


Fig. 4.



Fig. 5.



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4 Sheets-Sheet 2

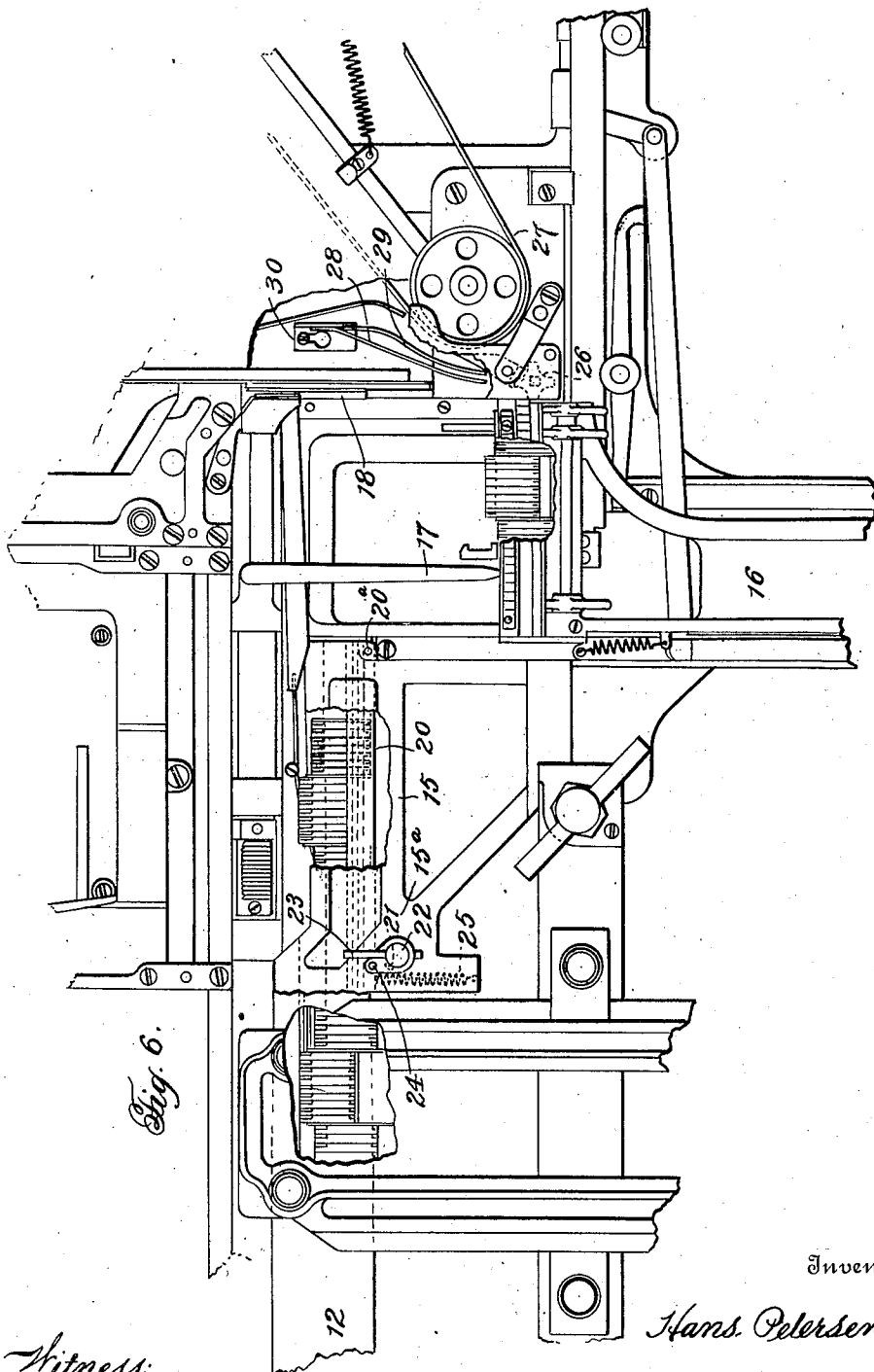


Fig. 6.

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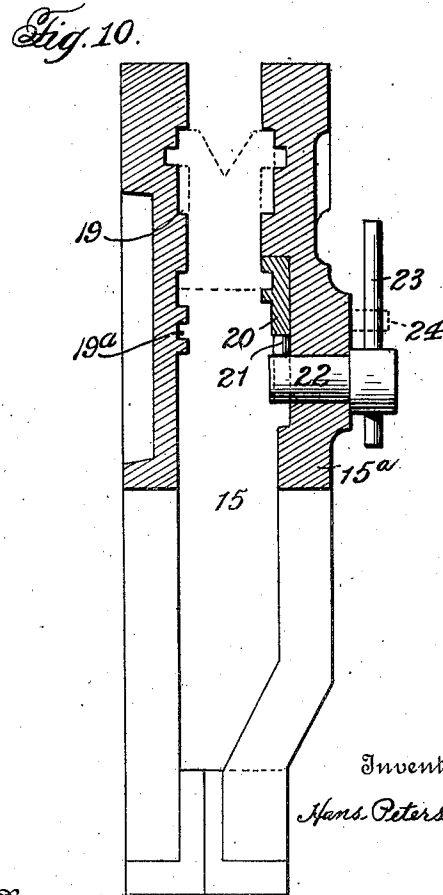
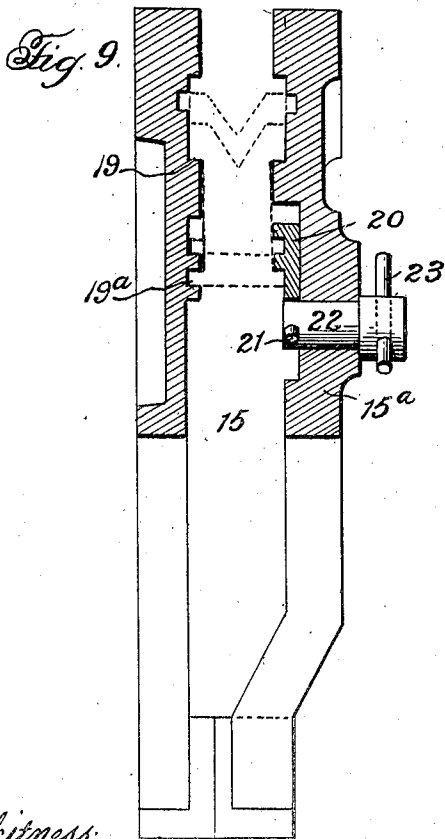
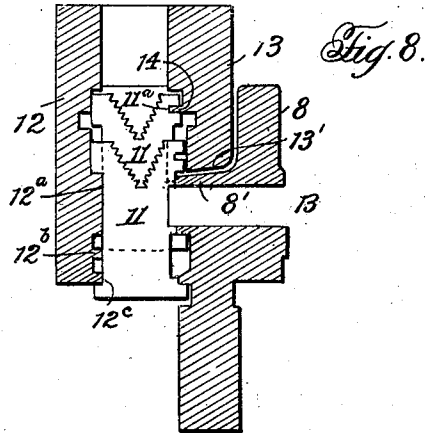
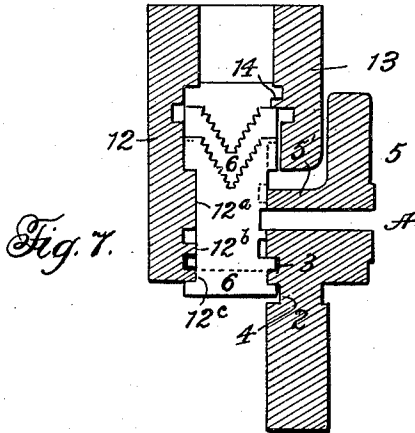
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4 Sheets-Sheet 3.



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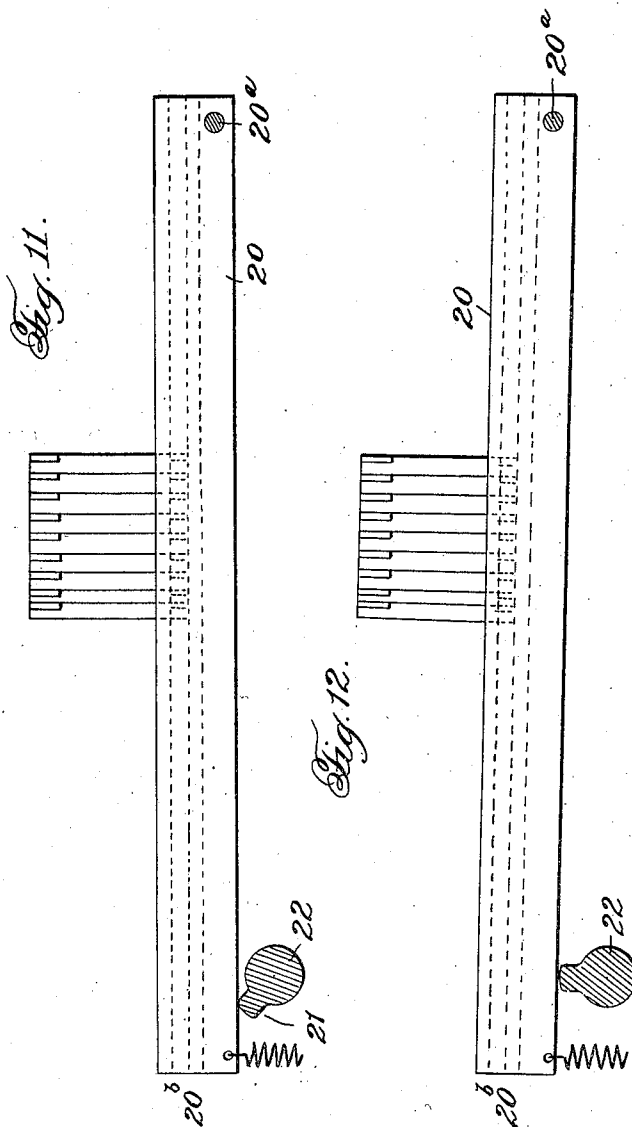
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TYPOGRAPHICAL MACHINE

Filed March 21, 1924

4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

HANS PETERSEN, OF DAVENPORT, IOWA; STELLA CHARLOTTE PETERSEN, EXECUTRIX OF SAID HANS PETERSEN, DECEASED, ASSIGNOR TO THE LINOGRAPH COMPANY, OF DAVENPORT, IOWA, A CORPORATION OF MAINE.

TYPOGRAPHICAL MACHINE.

Application filed March 21, 1924. Serial No. 700,921.

This invention relates to typographical machines, and more particularly to improved means providing for producing both large and small slugs in the same machine from matrices having plural characters that are of different size and in which the spacing of the base lines of the characters vary, one form of mechanism for this purpose being disclosed in my Patent No. 1,385,585.

Important novel characteristics of the present invention reside in the special mechanism provided for accomplishing the purposes referred to; to improved means for preventing the second level matrices from accidentally slipping off from their supporting rail in the elevator body and dropping into the first position; and also to the provision of an improved assembling chute spring, whereby the efficiency of the machine is materially increased.

The invention comprehends the use of two-letter matrices having the usual size characters up to that of 14 point font of type, and also two-letter matrices having characters larger in size than the usual size character on 14 point type, say for example 24 point height, a series of molds, one for each set of matrices, a carrier or elevator having stationary rails for carrying matrices at three levels, assembling mechanism for assembling matrices at two levels; and a line delivery channel having a movable rail member adapted to deliver matrices assembled on the second level, to the elevator jaw in either the second level or the third level thereof.

The invention with other objects and advantages thereof, and the particular construction, combinations, and arrangements of parts comprising the same, will be understood from the hereinafter contained detail description, when considered in connection with the accompanying drawings, forming part hereof, and illustrating one embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of a mold carrying wheel equipped with a pair of molds in accordance with the present invention.

Fig. 2 is a transverse section on the line 2-2 of Figure 1 through the upper mold of the wheel showing in side elevation at the

left of the mold structure, the matrices adapted to cooperate therewith.

Fig. 3 is a transverse section through the other mold of the wheel showing to one side thereof in side elevation, two-letter matrices having large size characters adapted to cooperate with the same.

Fig. 4 is a detail front elevation of one of the matrices illustrated Figure 2.

Fig. 5 is a detail front elevation of one of the larger matrices illustrated Figure 3.

Fig. 6 is a front elevation of an elevator body, a line delivery channel, and assembling mechanism constructed in accordance with the present invention.

Fig. 7 is a transverse section of the elevator body with matrices shown in the first and second levels.

Fig. 8 is a similar view of the elevator body with matrices shown in the first and third levels.

Fig. 9 is a transverse section on the line 9-9 of Figure 6, the adjustable rail of the line delivery channel being shown in normal position to carry the matrices assembled on the second level to the second level of the elevator body.

Fig. 10 is a transverse section on the line 10-10 of Figure 6, the adjustable rail of the line delivery channel being shown in position to carry matrices assembled on the second level to the third level in the elevator body.

Fig. 11 is a detail side elevation and part sectional view of the line delivery channel, the adjustable rail thereof being in normal position to deliver matrices to the second level in the elevator body.

Fig. 12 is a view similar to Figure 11, the movable rail of the line delivery channel being in position to deliver matrices to the third level of the elevator body.

While a specific embodiment of the invention is illustrated in the drawings, it will of course be understood that changes and variations in the particular construction shown, and the carrying out of the invention in other forms as will appeal to those skilled in the art and falling within the scope of the appended claims, may be practiced without departing from the spirit of the invention.

Referring in detail to the particular con-

struction illustrated in the drawings, 1 designates the mold wheel having a two-letter matrix mold A comprising a body part 2 provided with upper and lower alining grooves 3, 4, and a cap 5 having a forwardly projecting part 5', and 6 designates two-letter matrices, all the parts referred to being of the customary size and form as in the conventional line casting machine.

10 B designates another mold on the mold wheel 1 consisting of a body 7 and a cap 8. The cap 8 has a forwardly projecting portion 8', and the body 7 has upper and lower alignment grooves 9, 10, the upper alignment groove 10 of the mold B being of
15 greater height than that of the upper alignment groove 3 of the mold A. The mold B, which may be brought to casting position at will, is adapted to cooperate with two-letter
20 matrices 11, that bear characters of greater height and which are spaced a different distance apart, than the characters on the matrices 6 used with the mold A.

Referring particularly to Figures 7 and 8
25 of the drawings, 12 and 13 designate respectively the front and back elevator jaws of the elevator or matrix carrier, the front jaw 12, in accordance with the present invention, being grooved, as shown, to provide station-
30 ary rails 12^a, 12^b, 12^c, to support matrices in three levels. In Figure 7 smaller size matrices 6 are shown supported in the first and second levels, an upper ear of the matrix 6 in the lower level engaging the rail 12^a,
35 and a lower ear of the matrix 6 in the second level resting upon the rail 12^c. In Figure 8 two of the larger size matrices 11 are shown supported in the first and third levels, an
40 upper ear of the matrix in the lower level resting upon the rail 12^a, and a lower ear of the matrix 11 in the third level resting upon the rail 12^b. The construction of the back elevator jaw 13 is changed as shown
45 from the ordinary construction, the usual alignment rail being omitted and the lower end 13' of the jaw terminating on the plane of the bottom face of the upper lugs of the matrices when supported in the lower level,
50 provision thus being made for the adjustment of the mold cap vertically a greater distance away from the mold body 7 and the opening of the mold to a greater extent. For this purpose the forwardly projecting
55 portion 8' of the cap 8 is also reduced in size to the minimum practical thickness.

For the purpose of preventing matrices in the second level in the elevator body or matrix carrier from slipping off from the supporting rail 12^b to the lower level, the
60 carrier is provided with a guard rail adapted to extend above and adjacent the tops of matrices when supported in the second level. In the particular construction shown, a single stationary rail 14 is provided for this
65 purpose on the back elevator jaw 13, the

larger matrices 11 when this form of guard rail is employed, being provided with notches or recesses 11^a in their upper ears (see Figure 5) to accommodate the guard rail 14 when said larger matrices 11 are sup-
70 ported in the third level.

The molds A and B, the essential parts of both of which, as shown, are of standard construction, are adapted to cooperate
75 with the elevator jaws 12, 13 in the usual manner, the forwardly extending portion 5', and 8' of the respective molds extending beneath the lower end of the back elevator jaws 13 in the casting operation.

In Figure 2 of the drawings, the mold A
80 is shown open to its fullest extent of 14 points which is the maximum size of the character and slug now cast with the standard typographical machine from the normal alignment level of the standard matrix.
85 When it is desired to make a cast from the matrices 11 carrying the larger characters, the mold wheel 1 is given a half turn and the mold B is brought into casting position. As the line of matrices is advanced to cast-
90 ing position, they are first permitted to descend to a point a little below the final casting position. The mold is then brought forward and engages the lower lugs of the matrices, the line of matrices being then raised
95 by a flexible pressure mechanism (not shown) to a contact with the lower edge of the alignment groove 10. In the case of the sets of matrices 11 carrying in their auxil-
100 iary position the larger characters, the flexible pressure mechanism would result in the line of matrices being raised a greater distance until they contact with the lower edge of the alignment groove in the mold, thus
105 exposing the character to the mold slot at a different level than is the case when the matrices 6 are presented to the mold A.

Referring particularly to Figures 6 and 9 to 12 of the drawings, 15 designates the line delivery channel and 16 is an assembler ele-
110 vator of conventional form by which the line after composition is raised to the delivery point, and is transferred by the line delivery fingers 17, 18, to the left through the line delivery channel 15. The line delivery channel 15 has an upper rail 19 to
115 deliver matrices on the first level to the elevator jaws 12, 13, said upper rail being engaged by the upper ears of the matrices, the lower ears of the matrices in this position
120 engaging in the lower groove 19^a as illustrated Figure 9 of the drawings. 20 designates the movable rail of the line delivery channel adapted to deliver matrices that are
125 assembled on the second level, into the elevator jaws 12, 13 on either the second level or third level thereof. The rail 20 is pivotally mounted at its entrance end 20^a so
130 that the rail may be moved to bring its groove at its delivery end 20^b into align-

ment with either the second or third levels of the elevator jaws 12, 13, the entrance end 20^a of the said rail remaining substantially stationary to receive the matrices assembled on the second level. In Figures 9 and 11 of the drawings, the movable rail 20 is shown in normal position with its delivery end in alignment with the second level of the elevator jaws to deliver matrices to the second level. In Figures 10 and 12 of the drawings, the movable rail 20 is shown with its free delivery end 20^b raised to a position with its groove in alignment with the groove of the third level of the elevator jaws. Any suitable means may be employed for adjusting and holding the movable rail 20 in its different positions. The means for this purpose illustrated in the drawings takes the form of a cam 21 fixed on a shaft 22 mounted for rotation in one side wall 15^a of the line delivery channel 15, said shaft 22 extending to the outer side of the channel, as shown, and being provided with a handle 23. 24 designates a projection on the outer face of the side wall 15^a of the channel which is adapted to engage the handle 23 and limit the extent of rotation of the shaft, the shaft being adapted to be rotated through part of a revolution to actuate the cam sufficiently to raise the delivery end of the movable rail 20 from its normal lower position to a position in alignment with the third level of the elevator jaws. 25 designates a spring to assist in holding the movable rail 20 in its adjusted positions, one end of said spring being secured to the outer free end of the rail, and the other end of the spring being secured, as shown, to a part of the machine frame.

When it is desired to cast a line from the matrices 6 having the characters of smaller size, with the matrices mixed on two levels, the movable rail 20 of the line delivery channel 15 is arranged or allowed to remain in its normal lower position in alignment with the second level of the elevator jaws 12, 13, the line being transferred from the assembler elevator 16, by the line delivery fingers 17, 18, to the left through the line delivery channel to the elevator jaws 12, 13, and presented to the mold A, as indicated in Figure 6 of the drawings, in the well known manner.

In making a cast from a line of the matrices 11 bearing the larger sized characters, and mixed on two levels, the movable rail 20 of the line delivery channel 15 is adjusted through the medium of the cam 21 to bring its delivery end 20^b into alignment with the third level of the elevator jaws 12, 13, the matrices, in this instance, that are assembled on the second level being delivered to the third level of the elevator jaws, and presented to the mold B, as illustrated Figure 8 of the drawings.

26 and 27 designate respectively the usual star wheel and belt for feeding the matrices to the assembler 16. For cooperation with these parts in the feeding of matrices of varying sizes and weights, I provide a chute spring comprising a pair of leaves or members 28 and 29, said spring members being secured at one end to a bracket 30 on the frame of the machine, and said members extending, as shown, in spaced relation with their lower portions curved and extending adjacent the lower turn of the belt 27 above the entrance of the star wheel 26. The resiliency of the spring members 28 and 29, and the spacing of the same is such that in the feeding of small matrices the spring member 28, acting alone, will provide the required narrow channel and properly deflect the matrices to the entrance of the star wheel without choking. In the feeding of the larger matrices, the spring members 28 and 29 act together, the spring member 28 being forced back a greater distance, engaging and being supported and assisted in the deflecting and feeding operation by the spring 29.

What I claim is:

1. Assembling mechanism for assembling matrices at two levels and a carrier for casting at three levels in combination with a line delivering channel adapted to deliver matrices assembled in the second level to the carrier in either the second or third levels of the carrier.
2. Assembling mechanism for assembling matrices at two levels, an elevator jaw having stationary rails for carrying matrices at three levels, and a line delivery channel adapted to deliver matrices assembled on the second level to the elevator jaw in either the second level or third level.
3. Assembling mechanism for assembling matrices at two levels, an elevator jaw having stationary rails for carrying matrices at three levels, and a line delivery channel adapted to deliver matrices assembled on the second level to the elevator jaw in either the second level or third level, said line delivery channel having an adjustable rail member for supporting matrices assembled on the second level.
4. Assembling mechanism for assembling matrices at two levels, an elevator jaw having stationary rails for carrying matrices at three levels, a line delivery channel adapted to deliver matrices assembled on the second level to the elevator jaw in either the second level or third level, said line delivery channel having an adjustable rail member for supporting the matrices assembled on the second level, said adjustable rail member being pivotally mounted for movement of its delivery end into alignment with either the second or third levels of the elevator jaw, and adjusting means for said rail.

5. In a typographical machine, an elevator jaw adapted to carry matrices at three levels, said elevator jaw being provided with a guard rail extending above and adjacent the top of matrices carried on the jaw in the second level.
6. In a typographical machine, an elevator jaw adapted to carry matrices at three levels, said elevator jaw being provided with a guard rail extending above and adjacent the top of a matrix when carried in the second level, in combination with matrices adapted to be supported in the third level and each having a recess therein to accommodate said guard rail.

In testimony whereof I affix my signature.

HANS PETERSEN.