

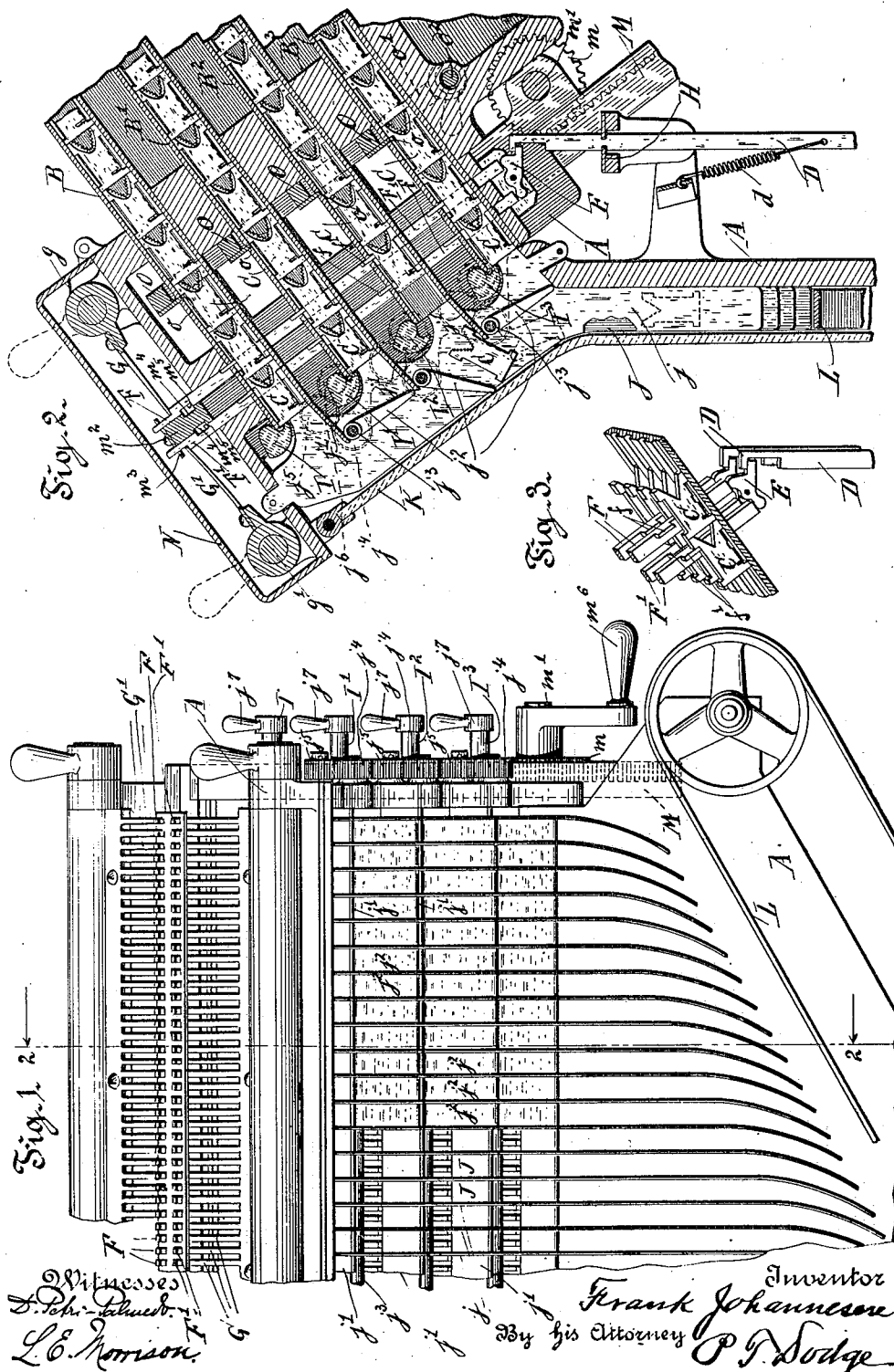
No. 831,003.

PATENTED SEPT. 11, 1906.

F. JOHANNESSEN.
LINOTYPE MACHINE.

APPLICATION FILED APR. 28, 1906.

4 SHEETS—SHEET 1.



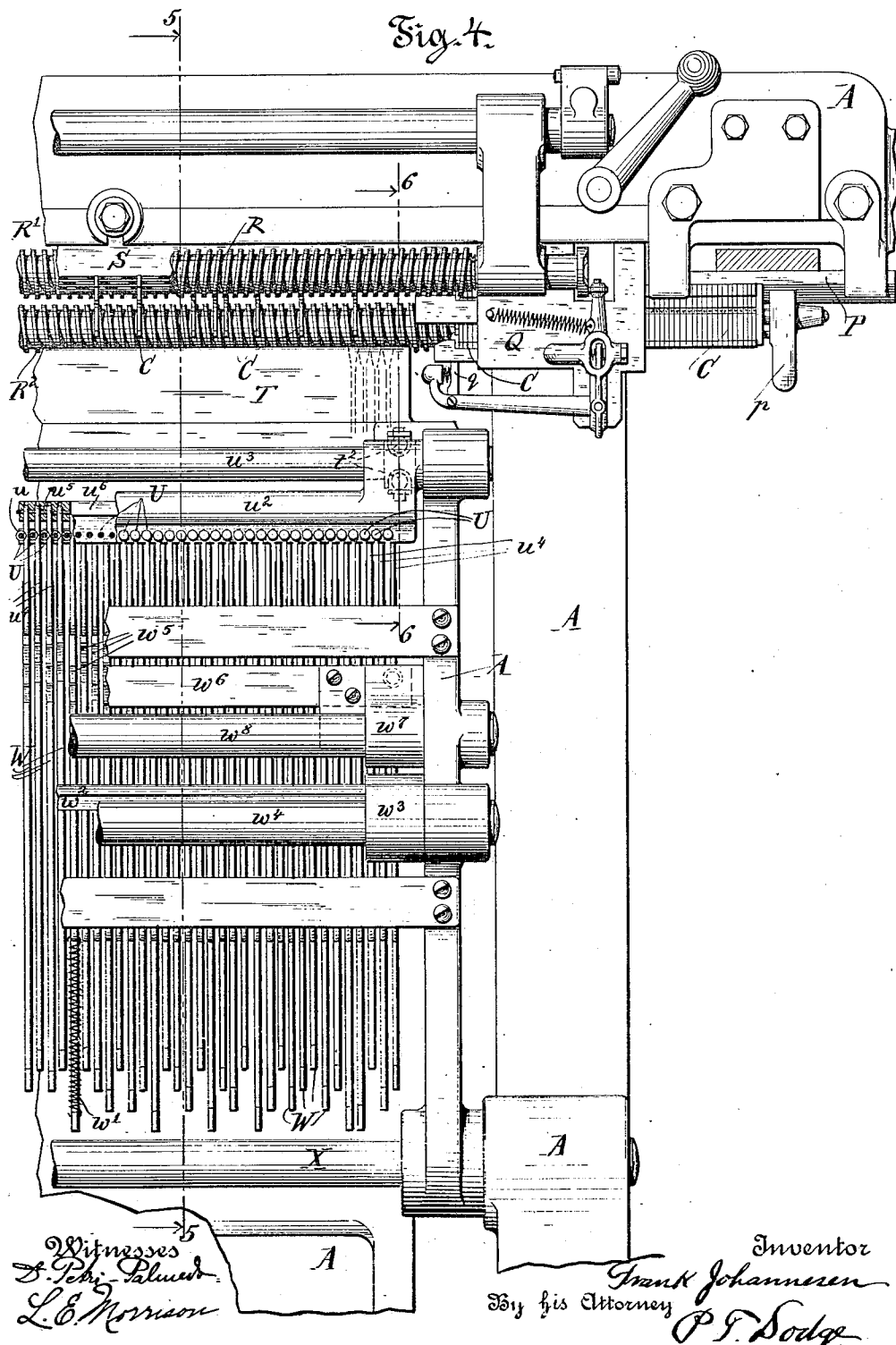
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4 SHEETS--SHEET 3.

Fig. 5.

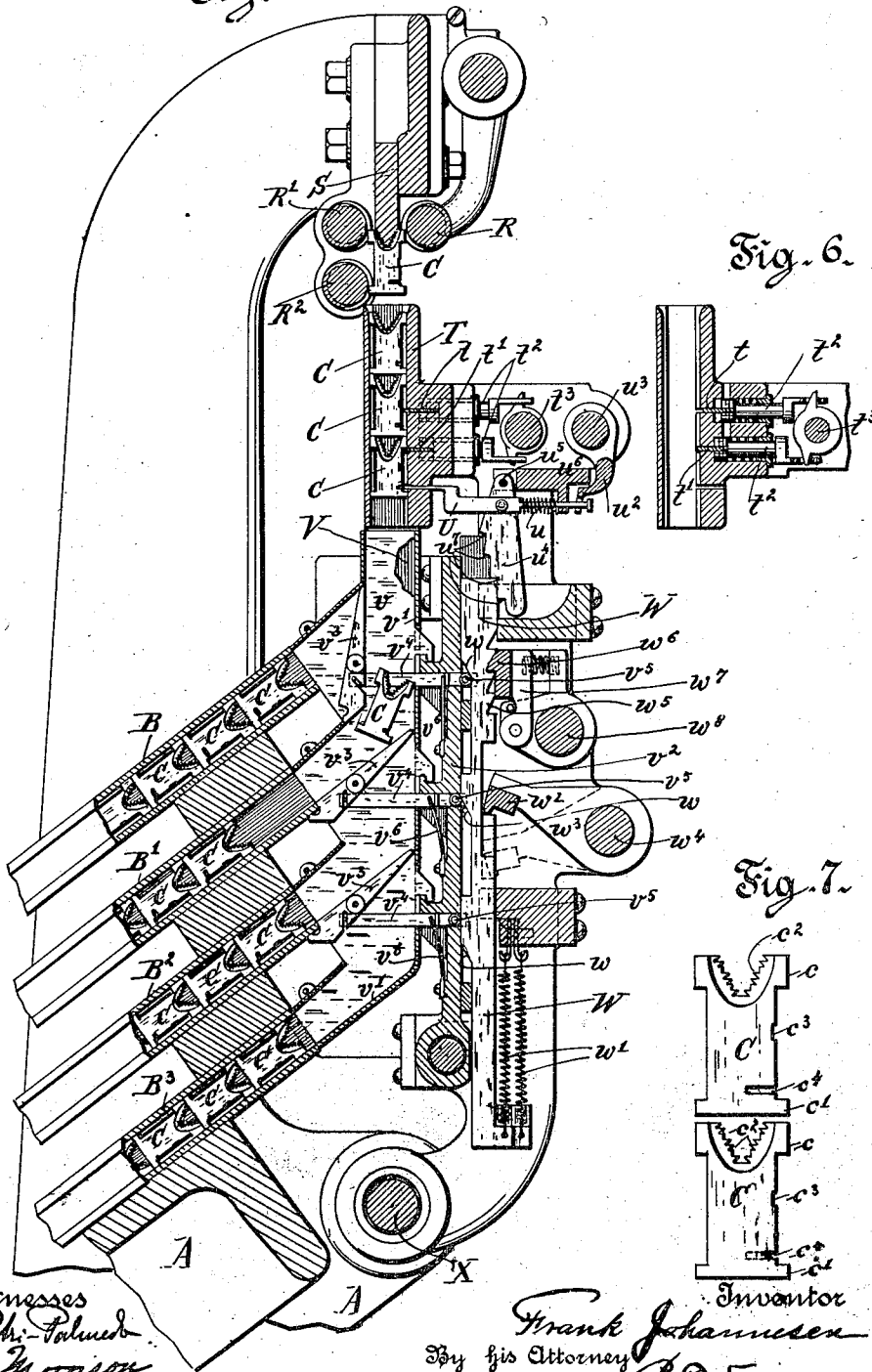


Fig. 6.

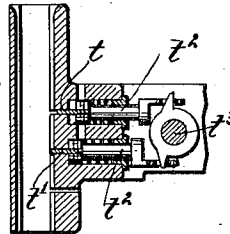
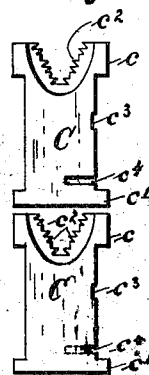


Fig. 7.



Inventor

Inventor
By his Attorney *Frank Johannesen*
P. D. Dodge

Witnesses
S. P. Palmer
L. C. Morrison

No. 831,003.

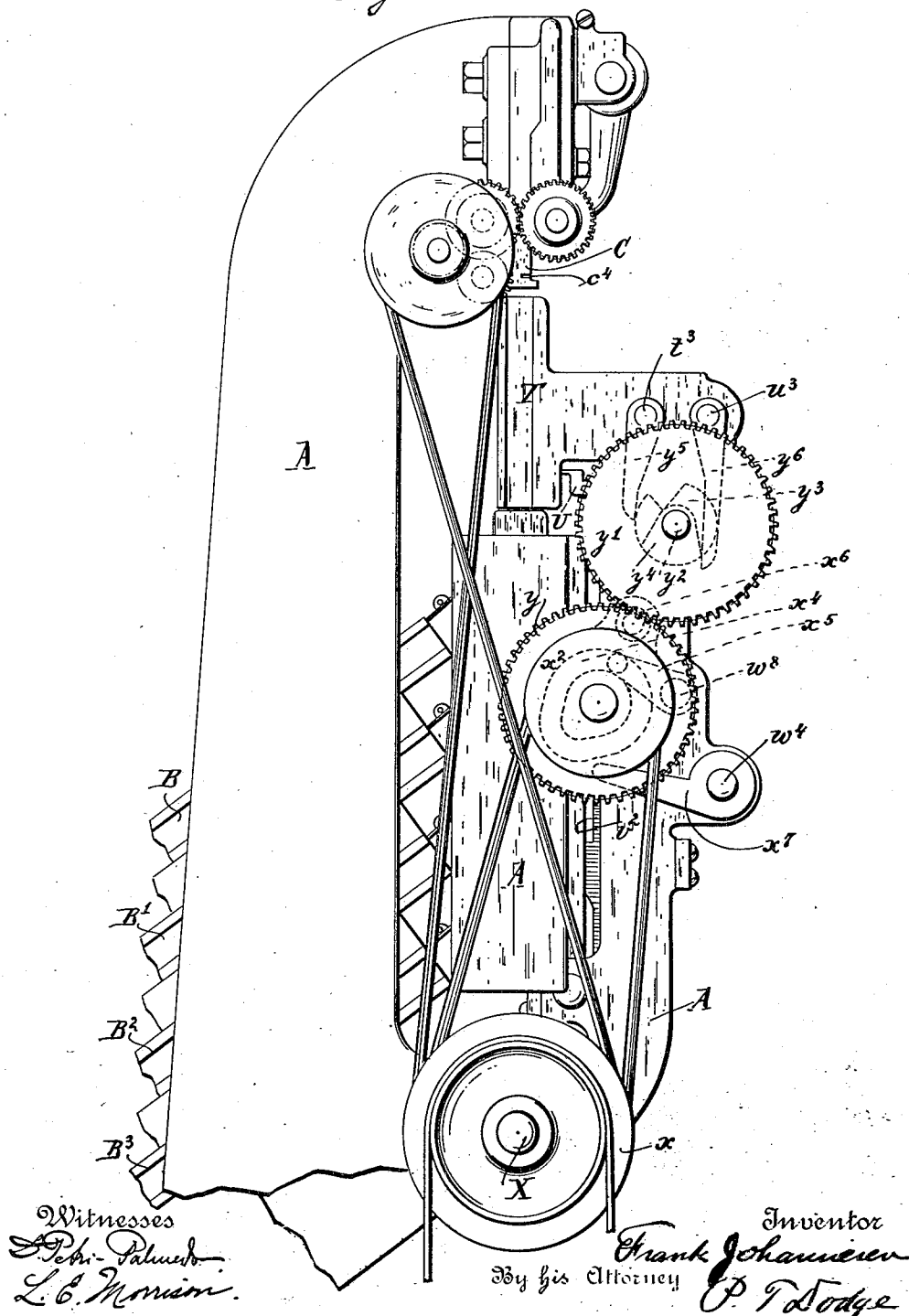
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4 SHEETS—SHEET 4

Fig. 8.



UNITED STATES PATENT OFFICE.

FRANK JOHANNESSEN, OF ERIE, PENNSYLVANIA, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

LINOTYPE-MACHINE.

No. 831,003.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed April 28, 1906. Serial No. 314,128.

To all whom it may concern:

Be it known that I, FRANK JOHANNESSEN, of Erie, county of Erie, and State of Pennsylvania, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

My invention has reference to linotype-machines of the general organization represented in Letters Patent of the United States No. 436,532, wherein circulating matrices are released from a magazine in the order in which their characters are to appear in print and assembled in line, together with expanding spacers, the composed line transferred to the face of a mold, the mold filled with molten metal to form a slug or linotype against the matrices which produce the type characters thereon, and the matrices thereafter elevated and returned through a distributing mechanism to the magazine-channels from which they started.

The aim of my invention is to adapt a machine of this character to carry a number of fonts or sets of matrices, representing different sizes or styles of type, in such manner that any font may be brought into action at will, so that a line may be produced with faces represented by the matrices in any one magazine or by a combination of faces represented by the matrices in two or more magazines.

A further object of the invention is to provide for the distribution of the matrices from the composed lines to their appropriate magazines without interrupting the composition of succeeding lines, and this whether the composed lines require to be distributed to one or more of the magazines. To this end I employ a series of magazines, preferably superposed, in combination with movable means for directing the matrices from the respective magazines to a common assembling mechanism. I also employ means for preventing the discharge of matrices from any but the one magazine in use at the time, as well as means by which continuous closed channels or chutes are formed for the passage of the matrices from the mouth of the magazine in use at the time to the assembling mechanism. I furthermore employ a main distributor, by which the matrices of a line are first separated according to the letters of the alphabet and distributed into channels

of a common intermediate or auxiliary magazine and secondary or auxiliary distributing means by which the matrices are further separated into fonts and distributed into the channels of the various individual principal magazines, a continuous closed channel being preferably provided for each matrix from its channel of the auxiliary magazine to its appropriate channel in the individual magazine to which it belongs. I also employ for the purpose of effecting the separation into fonts matrices with distinguishing features to cooperate with the distributing means.

In the accompanying drawings I have represented my improvements as incorporated in a machine of the same general organization as the commercial Mergenthaler linotype-machine of the present day, and I have restricted the drawings to those parts of the machine which are necessary to an understanding of my improvements; but it is to be understood that the improvements may be employed in connection with any other suitable line-casting machine and that the details may be widely modified within the range of mechanical skill and without passing beyond the limits of my invention.

Referring to the drawings, Figure 1 is a front elevation of a portion of the assembling mechanism, showing the magazines and what is commonly called the "assembler-entrance," the escapements, and assembler-belt all located at the lower or discharge end of the magazines. Fig. 2 is a vertical section from front to rear of this portion of the machine on line 2 2, Fig. 1. Fig. 3 is a detail perspective view of two of the escapements. Fig. 4 is a rear elevation of the upper or receiving portion of the magazines, showing the distributing means. Fig. 5 is a vertical section from front to rear of this portion of the machine on line 5 5, Fig. 3. Fig. 6 is a detail section on line 6 6, Fig. 3. Fig. 7 is a view of two of the matrices employed in the machine. Fig. 8 is a side elevation of the distributing or top portion of the machine, illustrating the mechanical connections of the various moving parts of the distributing mechanism.

Referring to the drawings, A represents a rigid main frame, which may be of any form and construction adapted to sustain the various operative parts.

B B' B² B³ are inclined magazines super-

imposed and rigidly connected to each other and the main frame, each magazine consisting of a pair of plates channeled longitudinally and separated by distance-pieces and adapted to contain a font or set of matrices C.

D represents escapement-actuating slides connecting at their lower ends with the finger-key mechanism and engaging at their upper ends centrally-pivoted levers E, Figs. 2 and 3. The slides D are supported in the usual manner by stationary guides H, are depressed by corresponding finger-keys, and raised by means of springs *d* in the well-known manner. By the reciprocating motion of the slides D a rocking motion is imparted to the levers E.

F and F' are escapement-slides for releasing the matrices resting at their lower ends on the extremities of the centrally-pivoted levers E, passing through the series of magazines B B', B² B³, and acted upon at their upper ends by light springs G and G'. The rocking motion of one of the levers E causes a reciprocating motion of the slides F and F', the one being raised while the other is lowered. The slides F and F' pass through the magazines between the channels containing the matrices and are provided with side projections or lips *f* and *f'*, extending into the matrix-channels and the path of the matrices engaging the ears of the same, as shown particularly in Fig. 3. The reciprocating motion of the slides F and F' releases one matrix at a time. It will be observed that the two oppositely-moving escapement slides or bars of each pair coöperate in controlling the delivery of each matrix on which they act. It will also be observed that each pair of slides, extending through the series of magazines, controls the delivery of matrices from all the magazines.

There being but one set of escapement-slides F and F' for all of the magazines B B' B² B³, each of the latter would deliver a matrix upon the actuation of one of the escapements. To prevent this, I provide in front of the mouths of the magazines rock-shafts I I' I² I³. The cross-section of these rock-shafts is such that in one position they will obstruct the passages of the matrices, as shown in Fig. 2, in the instance of rock-shafts I, I', and I², and in another position leave the passages free, as in the instance of rock-shaft I³.

J is a channel-plate to receive matrices from all the magazines and guide them downward toward the assembling devices. It is divided by vertical partitions *j* and has a glass cover K. L is a continually-moving assembler-belt, upon which the matrices fall and by which they are carried laterally to the assembling-elevator. These parts are well known in the art. The channels J are divided horizontally for a portion of their

width by plates *j'*, forming extensions of the lower plates of the magazines and overlying the rock-shafts I I', &c. To prevent the ears of the matrices from catching on the edges of the plates *j'* in their descent past them from an overlying magazine, I provide bridging pieces or flaps *j²*, one for each channel J and magazine except the top one. These flaps *j²* are mounted on rock-shafts *j³*, connected by pinions *j⁴*, *j⁵*, and *j⁶* with the corresponding rock-shafts I I', &c. The latter carry handles *j⁷*. Upon turning one of these handles not only the corresponding rock-shaft I is turned, but also the corresponding rock-shaft *j³*, geared thereto, thus opening or closing, respectively, the corresponding magazine and simultaneously opening or closing the gap between two adjacent plates *j'*. Thus, as shown in Fig. 2, the matrices of magazine B² are free upon being released by the escapements to move into the passages J, the obstructing part of the rock-shaft I² being turned upward and rock-shaft *j³* being turned so as to swing the flaps *j²* outward, while the other rock-shafts I I' I³ are obstructing the mouths of their respective magazines, and the flaps *j²* of the lowermost magazine B³ form smooth rear walls of the channel J in front of said magazine for the safe and unobstructed passage of matrices from magazine B².

The springs G and G' are preferably mounted on shafts *g* and *g'*, so that they may be turned up and out of the way when it is desired to remove the escapements F and F' from the machine for inspection or repair. To facilitate such removal of the escapements, I provide on each side of the magazines a sliding bar M, guided in the main frame and having racks in their lower ends, into which mesh pinions *m*, mounted on a shaft *m'*, journaled in the main frame. These sliding bars M are connected at the top by a cross-bar *m²*, carrying a guide-plate *m³* for the escapement-slides F and F' and provided with grooves *m⁴*. The escapement-bars F F' have notches *m⁵*, registering with grooves *m⁴* of the cross-bar *m²*. By inserting rectangular rods into the grooves *m⁴* and notches *m⁵* the cross-bar *m²* may be securely locked to all of the escapement-bars. The shaft *m'* has a crank *m⁶*, the turning of which raises or lowers through pinion *m* sliding bars M, its cross-bar *m²*, and all the escapement-bars F and F' locked thereto.

N is a cover protecting the escapement slides and springs from dust and possible injury.

O represents bars lying across the magazines and having lips *o* entering the same through their top plates. These bars O are all connected to two upright sliding bars *o'*, which are guided in the main frame and may be lowered by means of an eccentric shaft *o²*, journaled in the main frame. By lowering the bars O the lips *o* obstruct the passage of

the matrices and lock them in place when the escapement-slides are removed for any reason whatever.

After the matrices have been assembled either all from one of the various magazines or from two or all of them into a line the line is carried in front of the mold and justified. The slug is then cast and the line removed from the mold, the spacers are extracted, and the matrices elevated to the top of the machine in the well-known manner described in Patent No. 436,532, preparatory to distribution. As the machine contains in the respective magazines several distinct fonts or sets of matrices, it is necessary that they should be separated or distributed according to the font and also according to letter in order that they may be delivered each to its proper magazine and to the appropriate channel therein. To secure this result, I first separate or assort the matrices according to the characters therein, regardless of font, delivering all matrices of the same letter to the same point, and thereafter I separate each of these letter-groups according to font and conduct each matrix to the proper channel in its magazine. To this end all matrices in the machine containing a given letter or character are provided with the same combination of distributing-teeth; but matrices of different fonts are provided with font-distinguishing notches or equivalent distinguishing features common to all matrices of the same font, regardless of letter, as hereinafter more fully explained.

P, Fig. 4, is the matrix-carrying rail of the so-called "second" elevator, of usual construction.

p represents the usual pusher that transfers the matrices C to the distributor-box Q, whence the matrices are lifted one by one by the finger *q* between the distributor-screws R R' R², that guide them upon the toothed distributor-bar S, as in the ordinary Mergenthaler linotype-machine described in United States Letters Patent No. 436,532. The matrices are, however, not directly distributed into their proper magazines, but into an intermediate upright magazine T, Figs. 4 and 5, constructed in the same manner as the ordinary magazines with grooves for the matrices, but shorter. Each of these grooves or channels receives all the matrices in the machine containing a given character—for example, all the "A" matrices of the various fonts. In practice there will commonly be an accumulation of matrices in each groove belonging to one, two, or more fonts, but all containing the same character. At the back of this auxiliary magazine are mounted two blades *t* and *t'*, entering the magazine T through slots provided for the purpose. These blades engage the upper ears of the matrices and act as escapements. The blades

are fastened to spring-actuated plungers *t*², 65 connected to a rock-shaft *t*³ in such a manner that when one blade—for instance, *t*—is out of the path of the matrices, the other, *t'*, is in the path of the same, as shown particularly in Fig. 6. By rocking the shaft *t*³ one horizontal row of matrices C, accumulated in the magazine T, will be delivered therefrom at a time.

The matrices C (see Fig. 7) are of the form used in the ordinary Mergenthaler linotype-machine, with ears *c* and *c'*, teeth *c*² for effecting distribution according to letter, and intaglio characters *c*³, but have in addition each a notch *c*⁴, varying in depth according to fonts.

Through the rear plate and into the interior of magazine T enters pawls U, one for each matrix-channel, registering with and entering the notches *c*⁴ of the lowermost matrices, as shown in Fig. 5, while suspended on the blade *t'*. The pawls U are continually urged in one direction by springs *u*, tending to push them into the magazine and into the notches *c*⁴ of the matrices and intermittently in the other direction by a rocking plate *u*² on a shaft *u*³, tending to withdraw them from the magazine T. Each of the pawls U is connected by a pin to a swinging lever *u*⁴, pivoted at *u*⁵ to a stationary plate or support *u*⁶, forming part of the stationary framework of the magazine T. Each of the pivoted levers *u*⁴ has formed on its front edge steps *u*⁷. According to the depth of the notch *c*⁴ in the matrix the pawl U will enter the magazine more or less, giving to the stepped pivoted lever *u*⁴ various positions.

Underneath the auxiliary magazine T a series of channels or throats V is formed by means of vertical partition-plates *v* and a back plate *v'*, all fastened to a stationary frame *v*². Through these channels or throats V the matrices are guided from the auxiliary magazine into the main magazines B B' B² B³ over bridges or switches *v*³, of which there is one for each matrix-channel of each magazine except the lowermost one. These bridges or switches are pivotally mounted between the partition-plates *v* of the throats V and connected by pins to horizontally-sliding links *v*⁴, guided in the back plate *v'* and the frame *v*². On their rear free ends the links *v*⁴ carry antifriction-rollers *v*⁵, arranged to ride upon inclined surfaces *w* of vertically-reciprocating slides W, the function of which will be explained presently. Proper contact of the rollers *v*⁵ with the inclined surfaces *w* is assured by springs *v*⁶, acting on the horizontal links *v*⁴. The tendency of these springs is to pull the links backward and in turn swing the switches or bridges *v*³ into a position such as those belonging to magazines B' B² B³ are shown to occupy in Fig. 5. In this position of the switches *v*³ they form continuations of the bottom plates of their respective

magazines, at the same time partitioning off the portions of the channels V below. In this position of the switches v^3 their respective links v^4 rest with their rollers v^5 against the narrow portions of the upright slides W. When pushed forward, the links v^4 cause the switches v^3 to swing up into a position such as that belonging to magazine B is shown to occupy in Fig. 5. From the figures it will be clear that by the position of the various flaps a continuous passage-way to the matrices is formed from the channels of the auxiliary magazine T to those of the magazine B', the entrance to the top magazine B above being closed, as well as that to the magazine B' below. It will be clear also that by proper changes of the relative position of the switches v^3 any one of the main magazines may so be connected by closed channels with the auxiliary magazine T to the exclusion of the others. This is effected automatically by means of the vertical slides W in conjunction with the stepped pivoted levers w^4 . The slides W are constantly urged upward by springs w' , attached to the bottom ends of the stationary frame, respectively, but are held down in their lowermost position by a cam-plate w^2 , engaging in a recess of W and attached to arms w^3 of a rock-shaft w^4 until such time as they are required to take different positions. It is to be noted that although the action of the switches v^3 is controlled or determined by the individual matrices their movements are effected by power-driven connections. This insures speedy and certain action of the switches in advance of the arrival of the matrices. The slides W are provided also on their rear edges with ratchet-teeth w^5 , in number equal to the number of magazines and the number of steps in the pivoted levers w^4 . The ratchet-teeth w^5 are engaged by a pawl-plate w^6 , carried on spring-actuated arms w^7 of a rock-shaft w^8 .

The various parts being described, the action of the mechanism is as follows: Matrix C having arrived in front of the pawl U and being held there by the escapement-blade t' for the time being, shaft u^3 is rocked, releasing pawl U, leaving it free to follow the tendency of its spring u to enter the notch c^4 of the matrix, as shown in Fig. 5. According to the depth of the notch c^4 , pivoted lever u^4 will swing forward more or less. In the figures it is shown to have swung so far as to bring the second-lowest step into line with the top edge of the vertical slide W. This accomplished, the shafts w^4 and w^8 are rocked upward and outward, respectively, leaving the slide W free to ascend as far as it may under the influence of its spring w' . It is stopped in its upward motion by the step u^7 of the lever u^4 , presented in its path. The shaft w^8 is then rocked back, causing the pawl-plate w^6 to engage the proper ratchet-teeth

w^5 of the slide W, holding the same in position against displacement during the actions that follow. This stage of the action of the mechanism is illustrated in Fig. 5, and the result accomplished thus far is that the slide W has risen to such an extent that roller v^5 of the uppermost link v^4 has passed from the higher to the lower level of the inclined surface w , while the rollers of the other links are still on the higher levels. This causes the switches v^3 to take the position shown in Fig. 5 and the formation of the passage-way, as previously described, to one magazine only. Immediately after the flaps have been set for the reception of the matrix into its proper magazine pawl U is withdrawn by rocking the shaft u^3 backward. The flaps are not affected by this, although the stepped lever u^4 is also withdrawn from the top of the slide W, because the latter is still held in position by the pawl-plate w^6 . Next the rock-shaft t^3 is rocked and the escapement-blade t' caused to recede and the blade t to advance, whereupon the matrix C drops from the auxiliary magazine T into the channel V, and thence passes into magazine B', while the next following matrix is held in suspension by the escapement-blade t until the shaft t^3 is rocked back again, which occurs immediately afterward when this matrix assumes the position of its predecessor. Next the rock-shaft w^4 is rocked back again, depressing the slide W to its extreme lower position, whereby all the switches v^3 are swung down, all the anti-friction-rollers v^5 riding on the high levels of the slide. The cycle is now repeated by the rocking of shaft u^3 and the advance of pawl U for the next matrix, &c.

It will be understood that although in describing the action of the distributing mechanism only one slide W, only one pawl U, &c., has been named all the slides W and all the pawls U, as well as their contiguous parts, perform like motions simultaneously; also, that the lowest matrix in one channel of the auxiliary magazine may be of a different font from that in the next channel and of a different font again from that in the third, &c., so that the three corresponding pawls U will advance different distances and cause through the intermediate mechanism a different disposition of the switches v^3 in the different channels V. It will be further understood that in case any one channel of the auxiliary magazine is empty the action of the rock-shaft w^4 will have no effect on the particular slide W belonging to that channel, being held in its lowermost position by its stepped lever u^4 , and consequently the corresponding switches v^3 will remain at rest until the channel receives a matrix. Since at all times there will be a number of empty channels in the auxiliary magazine, the fact that only those mechanisms belonging to channels

having matrices in them are operative at the time reduces the number of moving parts to a minimum.

The various rock-shafts t^3 , v^3 , w^4 , and w^8 receive their motion from a shaft X, Figs. 4, 5, and 8, that also supplies power to the distributor-screws. From a pulley x power is transmitted by a belt x' to a pulley x^2 , mounted on a stud x^3 . Integral with the pulley x^3 is a cam x^4 , acting on an arm x^5 , carried on rock-shaft w^8 . The cam x^4 carries a roller x^6 , that acts at the proper moment on an arm x^7 , carried on rock-shaft w^4 . Integral with pulley x^2 is a pinion y , meshing with another pinion y' on a stud y^2 . Integral with the latter pinion y' are cams y^3 and y^4 , acting on arms y^5 and y^6 , carried on rock-shafts t^3 and w^3 , respectively.

All the matrix-fonts used in the machine will contain usually the same letters and other characters; but the characters of one font will differ in size or style from those of the other fonts. All matrices containing the same character will have the same arrangement of distributing-teeth and will be delivered regardless of font from the distributor-bar S at the same point and into one channel in the supplemental magazine T. Consequently the magazine T will hold momentarily for further distribution letters of different fonts assorted according to their characters, all "A's" in one channel, all "B's" in another, &c.

The slides or blades t t' serve merely as escapements to detain the assorted matrices momentarily until each one causes the setting of the devices which control its course into the proper magazine. It is to be noted that the devices which control the final course of the individual matrices is power-driven and positive in action. The action is dependent on the form of the matrices—that is to say, on the depth of their notches c^4 .

It will be observed that the auxiliary magazine T and the parts below it present continuous vertical intermediate channels or passages through which the matrices separated by the first distributor S are conducted to corresponding channels in the main magazines, all matrices containing the same character descending through the same channel. It will also be seen that the pivoted members v^3 are, in effect, switches or guides to deflect the matrices from their vertical course sooner or later, according to font, that they may enter one magazine or another.

I believe the present mechanism to be the first in which two or more fonts are first separated according to letter and power-driven devices thereafter caused to determine the course of each matrix to one magazine or another according to font.

I am aware that several fonts of matrices in a machine have been combined with means

for separating them according to font and with a series of distributing mechanisms each adapted to distribute the matrices of one font according to letter; but the arrangement herein shown and claimed is advantageous, in that it enables a single distributor to first separate all the matrices according to letter, after which these letter groups may be separated according to font by very simple mechanism.

Having described my invention, what I claim is—

1. In a linotype-machine, plural-channeled magazines in combination with sliding cooperating escapement-bars arranged in pairs and each extended through all the magazines.

2. In a linotype-machine, parallel magazines containing matrix-guiding channels, in combination with cooperating escapement-bars arranged in pairs and extended through all the magazines, and means for reciprocating the bars of each pair in reverse directions.

3. In combination, plural parallel magazines, reversely-reciprocating cooperating escapement-bars arranged in pairs and extended through all the magazines, and means controllable at will for holding back the matrices of all but one magazine, whereby one series of escapements is enabled to deliver matrices to any one of the magazines as demanded.

4. In combination, plural magazines, escapement-slides passing through the series of magazines and means for withdrawing the slides in series from the magazines.

5. In combination with a series of escapement-slides, the bar m^2 adapted for connection with the series of slides and mechanism for lifting said bar to withdraw the slides from the magazines.

6. In a linotype-machine, plural inclined magazines overlying one another and escapements to release the matrices therefrom, in combination with a channel-plate arranged to receive matrices from all the magazines, and intermediate movable flaps to cover the ends of the inoperative magazines and assist in guiding the matrices past the same to the channel-plate.

7. In a linotype-machine, plural inclined magazines and escapements to release matrices therefrom, in combination with a channel-plate arranged to receive matrices from all the magazines, and intermediate hinged flaps j^2 .

8. In a linotype-machine, a series of superposed inclined magazines, a channel-plate arranged to receive matrices therefrom, in combination with rock-shafts I^3 to retain matrices in the inoperative magazines, and hinged flaps j^2 to aid in guiding the released matrices.

9. In a linotype-machine, a series of paral-

- lel magazines, a stop device for each magazine distinct from the escapement mechanism to hold the matrices therein, and means for operating said stop devices in series.
- 5 10. In a linotype-machine, plural magazines, escapement devices to control the delivery of matrices therefrom, and an independent mechanism adapted to lock the matrices in all the magazines by a single action.
- 10 11. In a linotype-machine, a series of magazines, a series of matrix-holding devices O, one for each magazine, connections between said stop devices, and means for operating them in unison.
- 15 12. In a linotype-machine, two inclined magazines, one overlying the other; a channel-plate J arranged to receive matrices from both magazines, and an intermediate movable plate j^2 .
- 20 13. In a linotype-machine, a series of inclined superposed magazines, a channel-plate J common to the series, a swinging plate j^2 movable to and from the ends of the magazines.
- 25 14. In a linotype-machine, a series of magazines, each adapted to carry a font or set of matrices, corresponding fonts of matrices differing in form as between the different fonts, a primary distributor acting on all the matrices to separate them according to letter regardless of font, and a secondary power-driven mechanism for distributing the assorted matrices according to font.
- 30 15. In a linotype-machine, a series of magazines, a like number of matrix-fonts, those of each font having a distinguishing form, a preliminary distributing mechanism for separating all the matrices into groups according to letter regardless of font, and a secondary distributing mechanism embracing power-driven switches controlled in their action by the matrices presented thereto.
- 35 16. In a linotype-machine, a mechanism for distributing variant fonts of matrices, a preliminary distributor to separate the matrices according to letter, an auxiliary magazine to receive the matrices therefrom, means for releasing the matrices at intervals from the auxiliary magazine, switches controlling the course of the matrices from the auxiliary magazine to the respective magazines, and switch-governing devices controlled by the individual matrices, whereby matrices of the same letter but different fonts are enabled to
- 50 17. In a mechanism for distributing two or more fonts of matrices, a distributor which delivers all matrices of the same letter, regardless of font, at the same point, a channeled auxiliary magazine arranged to receive all matrices of the same letter in the same channel, means for releasing matrices one at a time from the magazine-channels, channels each leading from the auxiliary magazine to two or more main magazines, and means controlled by the individual matrices to direct them to the appropriate magazines.
- 65 18. In a linotype-machine, the combination of two similar channeled main magazines, an auxiliary channeled magazine, channels each leading from the channels of the auxiliary magazine to corresponding channels of both main magazine escapement devices releasing matrices one at a time from the channels of the auxiliary magazine, and means controlled by the individual matrices to control their course to one main magazine or the other.
- 70 19. In a linotype-machine, the combination of two similar channeled magazines, two fonts of matrices differing in form, matrix-guides, each communicating with corresponding channels of both magazines, a switch in each channel to direct the matrices to one magazine or the other, power-driven devices to actuate said switches, and means controlled by the matrices to determine the action of the switches.
- 75 20. In combination, magazines B and B', two fonts of matrices dissimilar in form, a distributor S for separating the matrices according to letter, an auxiliary magazine T to receive the matrices from said distributor, escapements to retain the matrices in the auxiliary distributor and release one of each letter at a time, and means controlled by the individual matrices to determine their course to the respective magazines.
- 80 21. In combination, the distributor S, auxiliary magazine T, escapements t, t' , feelers U, and switches controlled by the feelers to determine the course of the individual matrices.
- 85 22. In combination with magazines B, B', inlet-switches v^3 , their actuating-slides v^4 , the slide W adapted to actuate slides v^4 individually, and means controlled by the matrices to govern the movement of slide W.
- 90 23. The switches v^3 , slide W, and intermediate connections, in combination with springs w' , depressor-arm w^3 , rocking bar w^6 , stepped bar w^4 , feeler U and means for delivering the matrices successively to the feeler.
- 95 24. A series of magazines each adapted to carry a font or set of matrices, corresponding fonts of matrices in which all the matrices containing the same character are provided with like distributing features regardless of font, and matrices of different fonts provided with font-distinguishing notches, in combination with a primary distributing mechanism delivering all matrices of the same character to one point regardless of font, and a secondary distributor for separating the groups from the first distributor according to font, for delivery to the respective magazines.
- 100 105 110 115 120 125

25. In a linotype-machine, the combination of a series of magazines and corresponding sets of matrices, means for distributing the composed lines of matrices according to letter and accumulating matrices of the same letter regardless of font, and means for distributing the matrices in said groups according to font.

In testimony whereof I hereunto set my hand, this 23d day of April, 1906, in the presence of two attesting witnesses.

FRANK JOHANNESSEN.

Witnesses:

HERMAN GERECKE,
THOS. E. CUNNINGHAM.