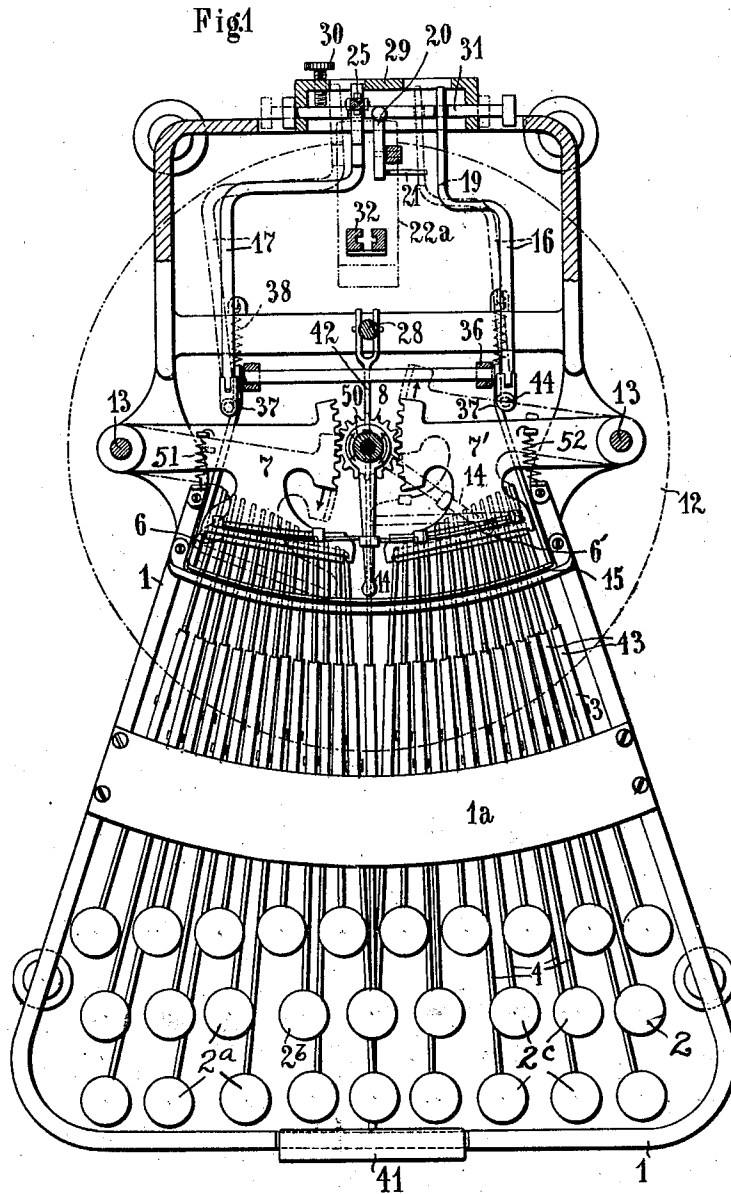


N. MOCK.
TYPE-SETTING MACHINE.
APPLICATION FILED JUNE 7, 1909

1,052,742.

Patented Feb. 11, 1913.

3 SHEETS—SHEET 1.



Witnesses

L. Stern
D. Lang

Inventor

Nate Mock

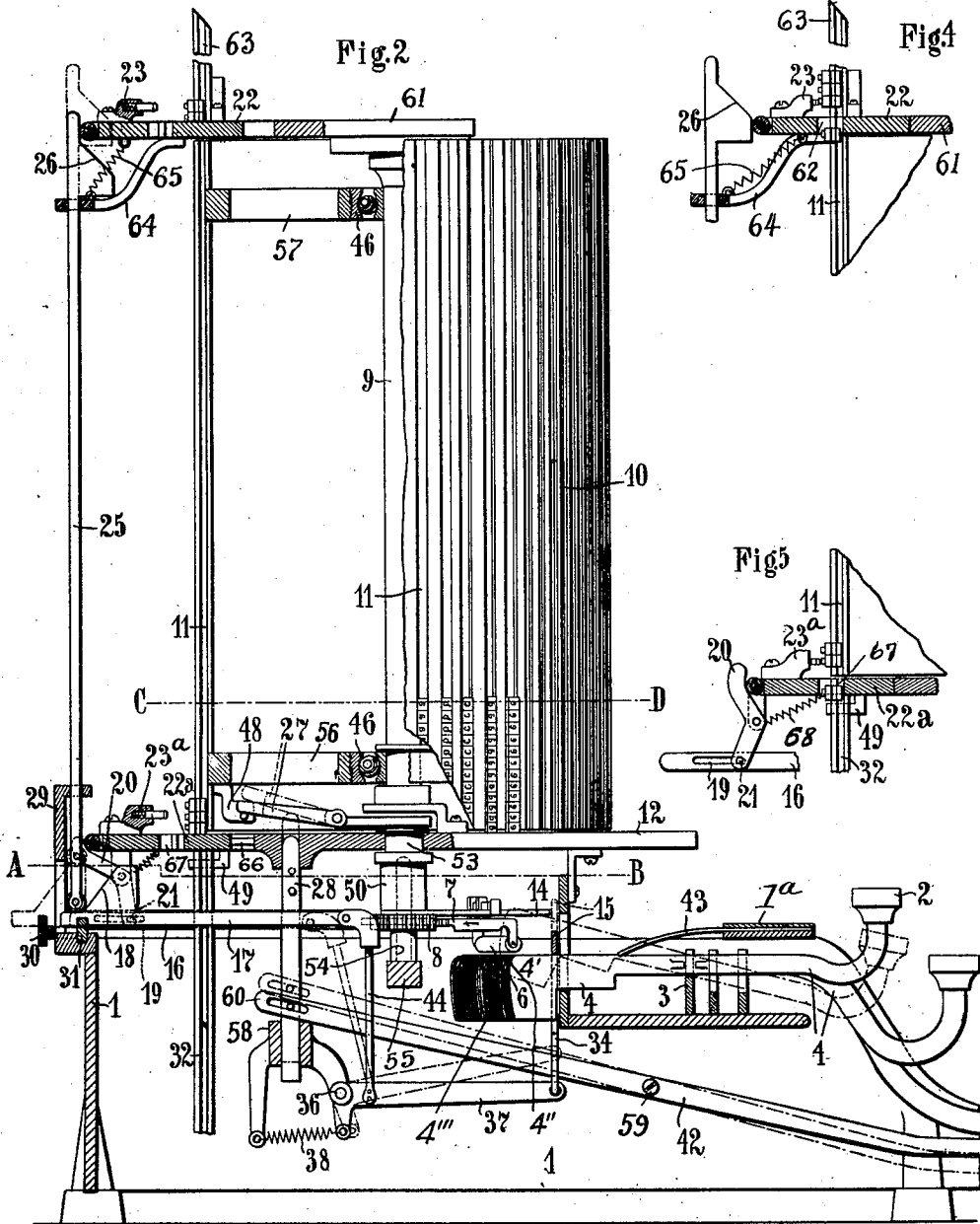
By *B. Singer* Attorney

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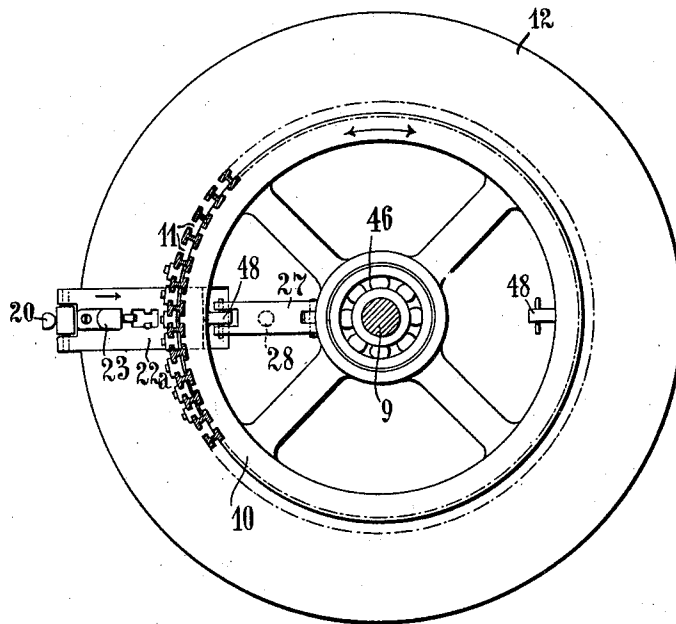
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3 SHEETS—SHEET 3.

Fig.3



Witnesses
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UNITED STATES PATENT OFFICE.

NATE MOCK, OF BERLIN, GERMANY.

TYPE-SETTING MACHINE.

1,052,742.

Specification of Letters Patent.

Patented Feb. 11, 1913.

Application filed June 7, 1909. Serial No. 500,595.

To all whom it may concern:

Be it known that I, NATE MOCK, a citizen of the United States of America, and residing at Kochstrasse 32, Berlin, Germany, have invented new and useful Improvements in Type-Setting Machines, of which the following is a specification.

Type-setting machines are already known in which the frame containing the grooves for the different type is formed into a horizontal drum turned by means of a hand-lever in such way that any particular groove in the machine frame is made to form a continuation of the corresponding groove in the setting frame, whereupon a slide is operated which pushes the type out of the groove of the machine frame into that of the setting frame.

The subject matter of the present invention is a machine with a drum or magazine or slide for setting up type in its desired form and for subsequently taking the same down and distributing it back into the grooves of the magazine or machine frame, the machine being characterized in its essence by the feature that the adjustment of the machine frame or magazine is effected by pressing down a key, the type being transferred from the one groove to the other in a vertical frame by its own weight.

The machine frame or magazine, which is formed of a vertical drum or slide, adjusts itself in such way to the stationary setting frame when the key is pressed down that the desired groove in the machine frame or magazine forms a continuation of the corresponding groove in the setting frame.

A further modification of the invention can consist in the magazine being made a fixture and in the setting frame being made to move into the position for transfer. The different forms of type such as small and large letters, figures and signs, are held in corresponding groups of grooves adjacent to each other. Seeing certain letters in the magazine are used up more rapidly than others, the parts of the magazine can be made interchangeable on the slide or drum so that an empty groove, as for instance, the one filled with the letter *a*, can be exchanged for a full one.

The accompanying drawing is based on a method of construction in which the grooved frame for the type forms the shell of the drum which adjusts itself between the grooves of a fixed frame each time a key is

depressed. The grooves of the machine and setting frames are closed against each other by slides which, at the end of the movement of the key, are automatically opened so as to allow the transfer of the type next to the opening.

Seeing that the same machine is to be used both for setting and distributing the type, the setting frame is locked over or under the magazine drum, as the case may be and two slides are then necessary, a lower slide for effecting the setting operation and an upper slide for distributing the type back into the magazine grooves.

Figure 1 is a horizontal section through the machine on line A—B of Fig. 2; Fig. 2 is a vertical section, and Fig. 3 is a horizontal section on line C—D of Fig. 2. Fig. 4 shows the upper slide for removing the type from the setting frame and distributing it into the grooves of the rotary magazine. Fig. 5 is the lower slide.

On the frame 1 of the machine there is mounted two banks of key levers designated at 2 and 2', each of the keys of these banks being designated by 2" and 2". The bars 4 of these keys are pivotally mounted at 3, see Fig. 2, in the usual way, and the inner ends of the bars 4 are curved downwardly from their upper portions toward their lower portions. The innermost bars 4 of the two banks are the shorter the inner ends of the bars gradually increase in length from the innermost bars to the outermost bars of said banks. The purpose of this gradually increasing length of the bars 4 is to impart a greater or less degree of movement to the type frame dependent upon the key depressed. A comb-like spring 43 has yielding portions engaging the bars 4 to return the same to the normal position shown in full lines in Fig. 2, the dotted lines showing the raised or operating position of one bar. Segments 7 and 7' are pivotally mounted at 13, on the frame of the machine, and each is preferably provided with a roller, 6 and 6', adapted to be engaged by the keys of the respective banks adjacent to which said rollers are located. Springs 51 and 52 normally act to return and maintain the segments 7 and 7' in the full-line position shown in Fig. 1. It will be noted by reference to Fig. 2, that the bars 4 have cam-like actuating ends 4' with curved upper portion 4'' which terminate in curved end portions 4''' both of which engage the

rollers 6 or 6', in accordance with the bar that is depressed, so that during the entire actuating movement of the bars, at least one portion of the cam-like end is in engagement with its respective roller. By reference to Fig. 1 it will be seen that a line intersecting the end of the bars of one bank will be at an angle to the axis of the roller, for instance 6, and this arrangement, in connection with the gradually increasing length of the bars from the innermost to the outermost bar, facilitates the differential or different extent of movement imparted to the magazine when the bars of different length are depressed. The teeth of the segments 7 and 7' mesh with a gear wheel 8 rigidly secured to a sleeve 50. The sleeve 50 is rotatively mounted at 53 in the frame plate 12 and is supported on a spindle 54, projecting upwardly from a frame member 55. When one of the keys of one bank is depressed its corresponding segment will be operated to rotate the gear wheel in one direction, and, when one of the keys of the other bank is depressed it will engage its corresponding segment to rotate a gear wheel 8 in a direction opposite to the direction of rotation first imparted thereto, as will be clearly apparent by reference to Fig. 1.

Reference will next be made to the operative connection whereby rotative movement of the gear wheel 8 and sleeve 50 is imparted to the type frame.

As will be seen by reference to the drawings, the type frame 10 comprises a rotatable member on the periphery of which is provided a plurality of I-shaped members between which is formed the guide to receive the type. The outer flanges of the I-shaped members, designated at 11, engage the grooves of the type and form guides for the same. The type frame 10 includes spiders 56 and 57 which are rotatively mounted on a stationary shaft 9. Ball bearings 46 are provided to facilitate rotary movement of the frame about the shaft 9. On the spider 56 brackets 48, one adjacent each type groove, are provided and the same are provided with pins projecting laterally therefrom as will be seen by reference to Fig. 3. To simplify the view only two brackets have been shown in Fig. 3.

The operative connection between the sleeve 50 and gear wheel 8, and the type frame 10, includes these brackets and a lever 27 which is pivotally mounted on the sleeve 50, as will be clearly seen by reference to Fig. 2. The outer end of the lever 27 is forked or bifurcated so as to span the bracket 48 and rest upon the pins thereof, as indicated in a full line position, thereby providing a connection between the frame 10 and sleeve 50 so that the former can be rotated upon rotation of the latter.

From the foregoing it will be clear that upon depression of any one of the keys of the two banks the frame 10 will be rotated throughout a portion of a revolution dependent upon the key depressed and motion will be imparted from the key depressed through its respective segment to the gear 8 and sleeve 50, and through the lever 27 to the bracket 48.

The drum is provided with special guides or grooves for capitals, regular letters or small type, numerals, etc., and it is the purpose of the invention to adjust the frame by hand to such a position as will bring the frame into such connection with the keys that the range of movement imparted thereby will rotate the drum or frame 10 sufficient distance to bring the desired kind of type into a position to be distributed or filled in. If the frame is to be loaded or filled then the type are filled in at the tops of the grooves and if the operator is setting then the type is discharged from the bottoms of the grooves. After the frame has been adjusted by hand to bring a certain number of grooves containing a certain kind of type within the range of movement of the keys, then, the lever 27 is coupled with one of the brackets 48 and thereafter the several keys are depressed in accordance with the character of type desired to be set. If, for instance, the operator desires to use type of a certain character for a certain time and then thereafter desires to use type of another character, the frame or drum 10 is disconnected from operation by the keys and is operated by hand to obtain the required adjustment of the several compartments of type and thereafter is again operated by keys.

A coupling and uncoupling mechanism is provided for this purpose which includes, in the form shown, a vertically reciprocable spindle 28 adapted to engage the lever 27 and connected for operation by a key lever 42. The key lever 42 is provided with a finger bar 41 as will be clearly seen by reference to Fig. 1. The upper end of the spindle 28 projects through and has a bearing in the frame plate 12, as will be seen by reference to Fig. 2, and the lower end of the spindle is provided with a bearing 58. The lever 42 is pivotally mounted at 59 and is slotted at 60 to engage a pin on the spindle 28, as will be clearly seen by reference to Fig. 2.

When the outer end of the key 42 has been depressed the inner slotted end 60 will be raised into the dotted line position thereby elevating the spindle 28 and lifting the lever 27 out of engagement with the bracket 48. The drum 10 is now free to be adjusted until the compartments containing the desired type have been adjusted with respect to a setting or intake position and thereafter

the lever 42 is released and dropped to the full line position thereby coupling the arm 27 with the desired bracket 48. The drum is then in connection with the sleeve 50 to be operated by the key levers 2 and 2^a.

It will be readily understood that a certain number of grooves in the type frame will be utilized for capitals and if these grooves are disposed in one part of the frame it may be desirable to rotate the frame in one direction whereas if they are in another part of the frame they may be nearer to the setting point by rotating the frame in another direction. This accounts for the means for rotating the frame in opposite directions.

I will next describe devices for controlling the loading of the type into the frame and the setting of the type from the frame.

A frame member 61 is mounted on shaft 9 and is provided with a guide way in which a filling or loading slide 22 is slidably mounted. The slide 22 is provided with an opening 62 shaped in accordance with the form of the type to permit passage thereof through the opening 62 into one of the guides 11 of the type frame 10. A filling guide 63 is located above the slide 22 and is arranged to receive type the passage of which is controlled by the slide 22 into the frame 10. A bearing 64 has connected thereto a spring 65 which is also connected to the slide 22 to normally hold the same in the outward position shown in Fig. 2 to prevent passage of the type. A cam 26 slidably mounted in the bearing 64, engages a roller on the outer end of the slide 22 to normally force the slide into the position shown in Fig. 4 to permit passage of the type into the frame 10. The slide 22 is provided with a member 23 having a yielding stop thereon to engage the next lowermost type in the guide 63 so as to prevent passage of more than one type at a time. The engagement of this yielding stop is shown in Fig. 4. The cam 26 is provided with a rod 25 having a bearing 29 and provided with a roller on its lower end. The roller on the lower end of the part 25 lies in the path of a cam 18 formed on a reciprocating rod 17.

For controlling the setting of the type a plate 12 is provided with an open guide way 66 in which a setting slide 22^a is movably mounted. The slide 22^a is provided with an opening 67 shaped to conform to the shape of the type and to permit passage of the set type from the frame 10 to a receiver 32, which latter is mounted upon a bracket 49 depending from the plate 12. A spring 68 normally holds the slide 22^a in the position shown in Fig. 2 and a bell crank lever 20 is provided for moving the slide 22^a into the position shown in Fig. 5 to effect setting of the type. If desired a roller may

be provided on the outer end of the slide 22^a for engagement by the lever 20. A member 23^a is provided with a yielding stop to engage the next lowermost type and prevent setting of more than one type at a time.

I will next describe the mechanism whereby the cam-like elements 26 and 20 are actuated upon depression of the keys 2 or 2^a.

A bar 15 spans or bridges the banks of keys 2 and 2^a and is located adjacent the inner ends thereof. When one of the keys is depressed the inner end of such key raises the bar 15 as shown in dotted lines in Fig. 2. The bar 15 is connected by links 34 with bell-crank levers 37 which are pivoted at 36 to the frame member 58. Springs 38, one of which is shown, are connected with the levers 37 to normally hold the same in the full line position shown in Fig. 2. Rigidly mounted upon the levers 37 are rods 44 one of which is connected with the bar 17 and one of which is connected with a bar 16. The bar 17, with its cam 18, is for the purpose of operating the rod 25 and may be held in the path thereof by a switch device which, as shown, comprises a bar 31 provided with a groove in which the bar 17 is adapted to slide. The bar 31 is also provided with a groove in which the free end of the bar 16 is adapted to slide. The bar 16 is provided with a slot 19 adapted for engagement with a pin 21 on the bell crank lever 20. The grooves in the bar 31 are so disposed as to bring either one of the bars 16 or 17 into an operative position when the bar 31 is in one of its extreme positions. As illustrated in Fig. 1, the bar 31 is in a right hand position with the bars 17 and cam 18 in the path of the roller on the rod 25. The bar 16 is out of engagement with the pin 21 and therefore cannot operate the slide 22^a, for setting of the type, whereas the bar 17 can operate the slide 22 for loading the type. Means such as a set screw 30 may be provided for locking the bar 31 in either of its extreme positions. When the bar 31 is moved to the left as shown in dotted lines in Fig. 1, then the bar 16 is moved into the dotted line position with its slot 19 engaging the pin 21 so as to operate the lever 20 and the slide 22^a. The bar 17 is moved into the dotted line position so that its cam 18 is out of the path of the roller on the rod 25.

From the foregoing description it is believed that the construction and operation of the device of my invention will be fully understood.

I claim:

1. In a machine for setting and distributing type the combination with a vertically disposed rotatable magazine provided with a plurality of type holding grooved elements, grooved members arranged to deliver and receive type to and from said magazine element, upper and lower sliding devices con-

trolling entrance to and delivery from said magazine elements, a plurality of key levers, means operated upon movement of any one of said key levers for bringing selected magazine elements into line with said grooved members, devices operated upon movement of any one of said key levers for actuating said upper and lower sliding devices, and a switch member for rendering said upper or lower sliding device inoperative.

2. In a machine for setting or distributing type the combination with a vertically disposed rotatable magazine provided with a plurality of type holding grooved elements, a grooved setting member, a plurality of key levers, means operated upon depression of one of said levers for rotating said magazine to bring one of the elements thereof into line with the groove of said setting member, a slide between the magazine elements and the groove of said setting member provided with an opening corresponding to the cross-section of the type, and means actuated on depression of a key lever for bringing said slide opening in full

registry with said grooves prior to full depression of such lever.

3. In a machine for setting type, the combination with a vertically disposed rotatable magazine provided with a plurality of type holding elements, a grooved setting member, a plurality of key levers, means operated upon depression of any one of said key levers for rotating said magazine to bring one of the elements thereof into line with the grooves of said setting member, a slide type releasing device between the magazine elements and the groove of said setting member, means actuated on depression of a key lever for bringing said slide into a releasing position, and a device on said slide for engaging the next lowermost type prior to the attainment of a full release position by said slide.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

NATE MOCK.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.