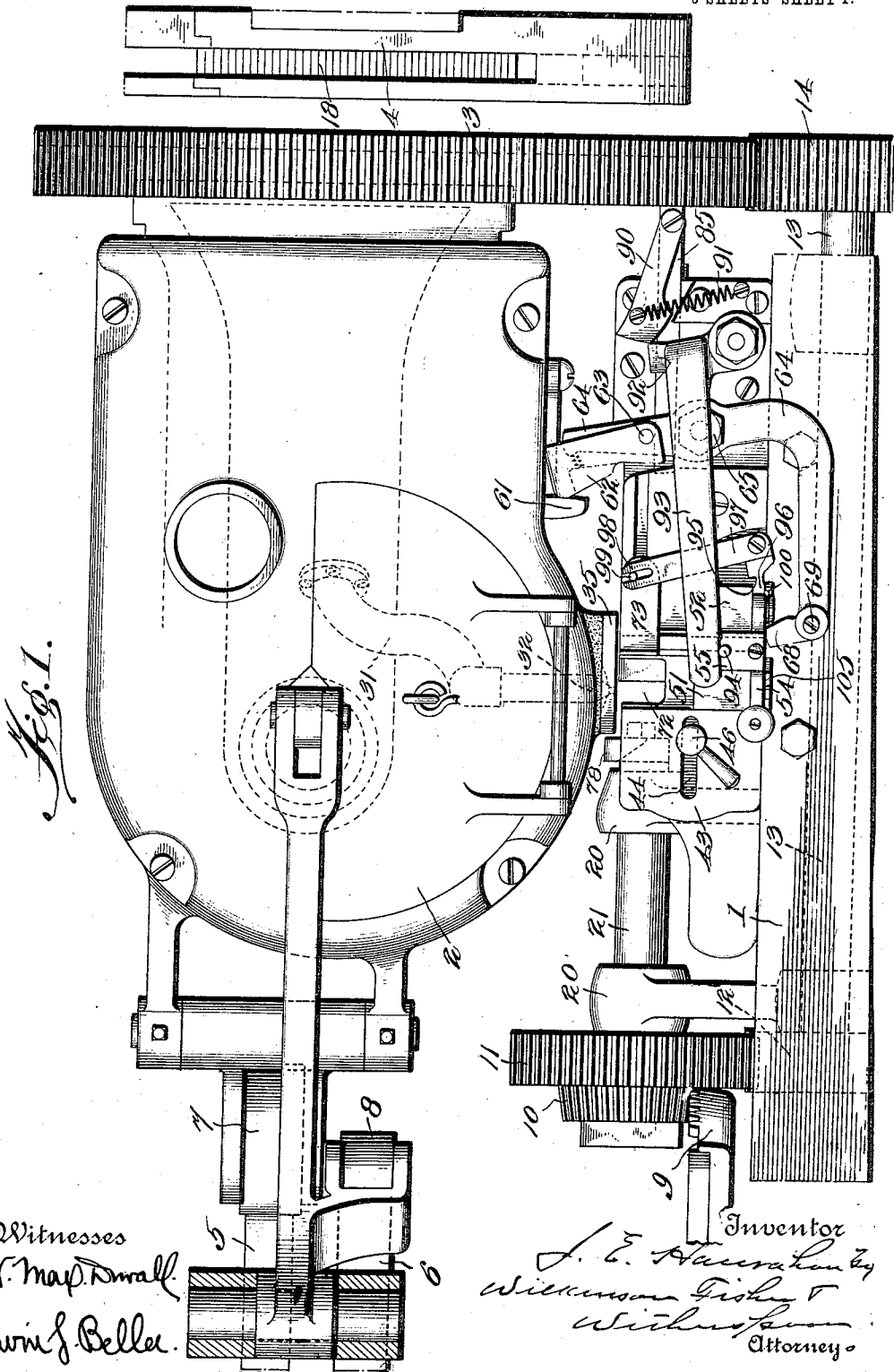


J. E. HANRAHAN.
 SINGLE TYPE CASTING ATTACHMENT FOR LINOTYPE MACHINES.
 APPLICATION FILED AUG. 31, 1910.

1,060,679.

Patented May 6, 1913.

5 SHEETS—SHEET 1.



Witnesses
 W. May D. Small.
 Edwin J. Belle.

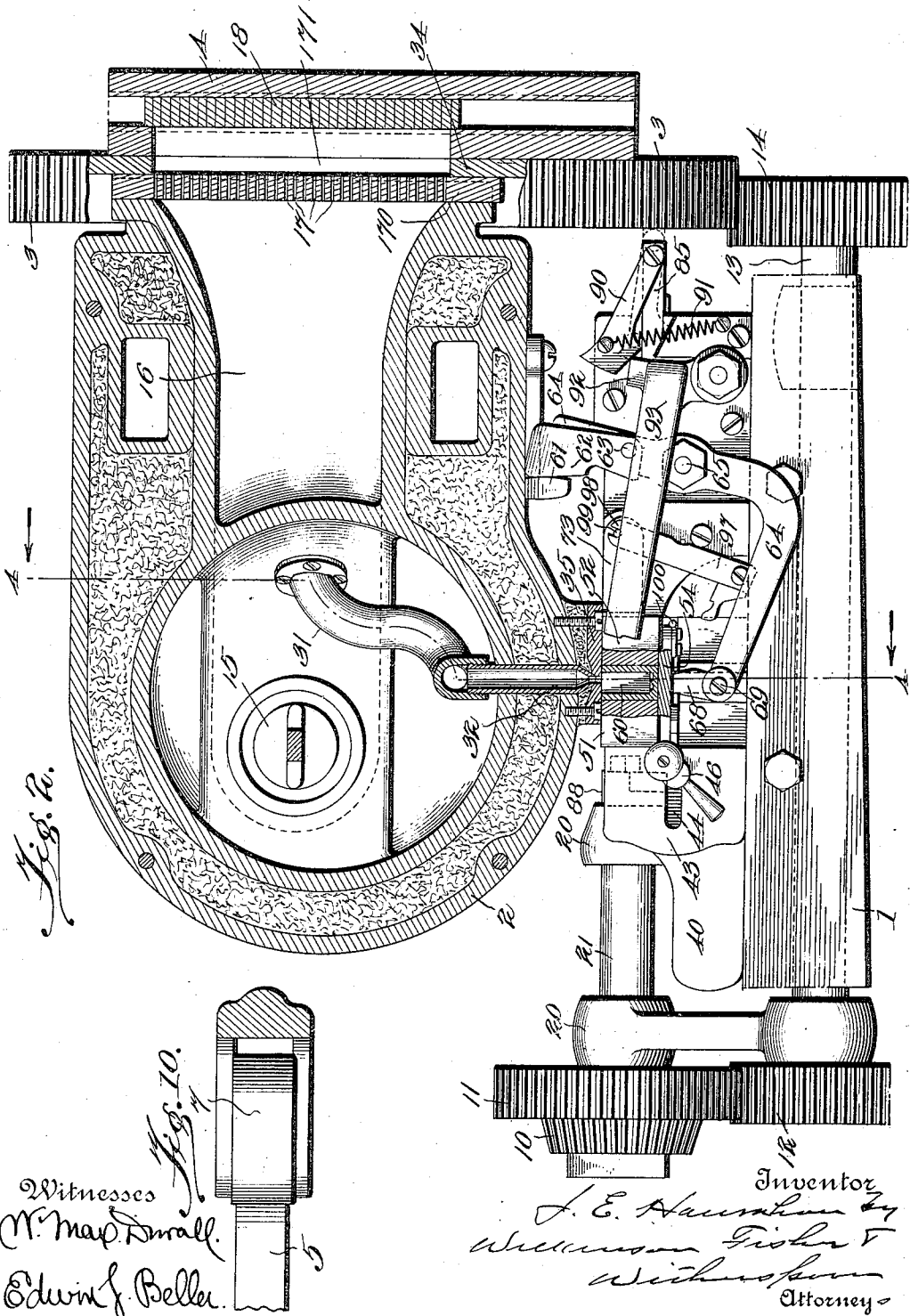
Inventor
 J. E. Hanrahan
 William Fisher &
 Witherspoon
 Attorneys

J. E. HANRAHAN.
 SINGLE TYPE CASTING ATTACHMENT FOR LINOTYPE MACHINES.
 APPLICATION FILED AUG. 31, 1910.

1,060,679.

Patented May 6, 1913.

5 SHEETS—SHEET 2.



Witnesses
 W. May Small.
 Edwin J. Beller.

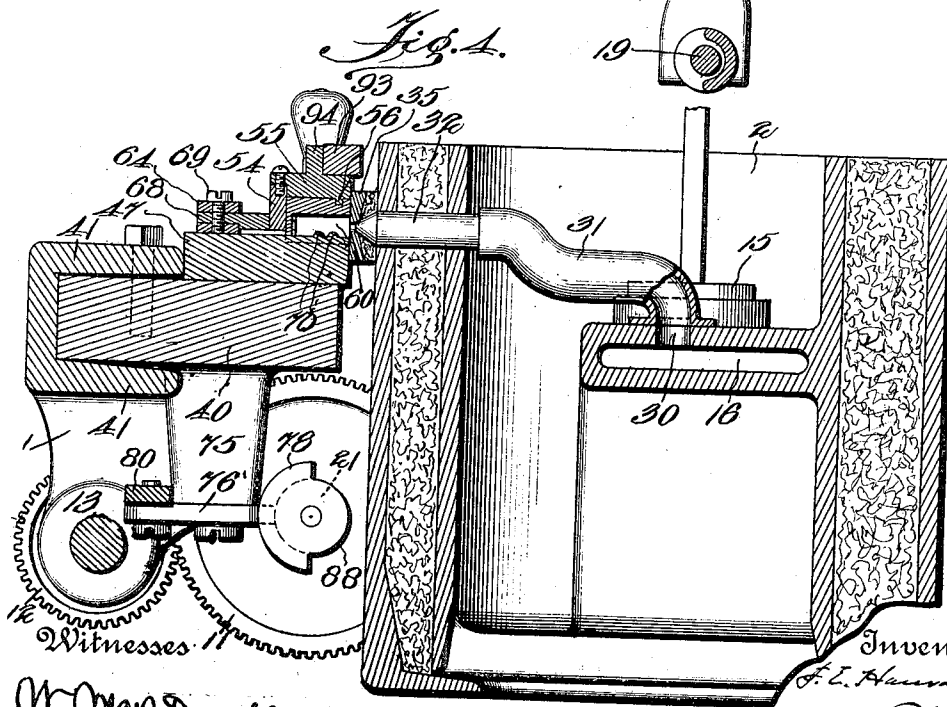
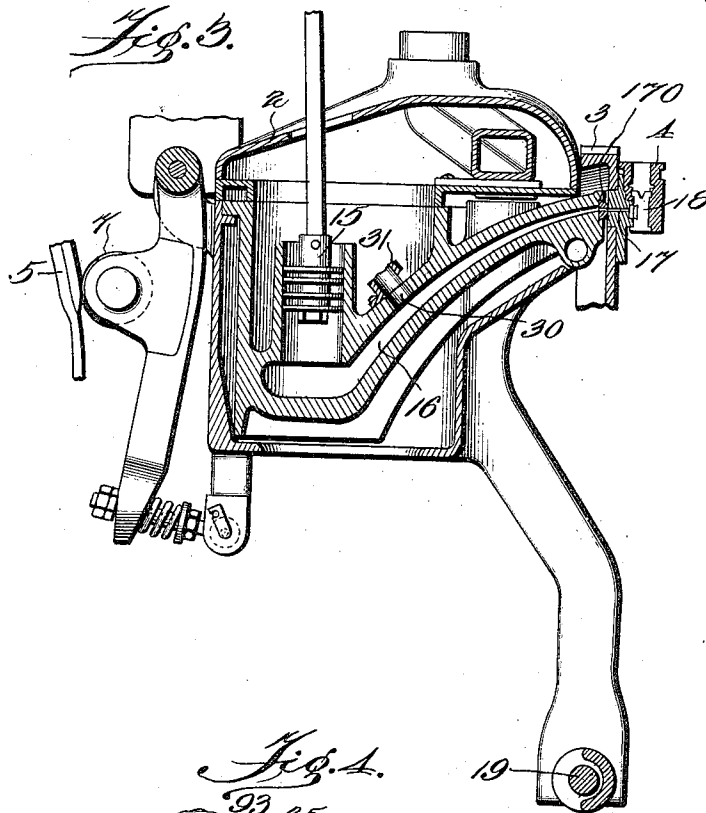
Inventor
 J. E. Hanrahan
 William Fisher &
 Witherspoon
 Attorneys

J. E. HANRAHAN.
SINGLE TYPE CASTING ATTACHMENT FOR LINOTYPE MACHINES.
APPLICATION FILED AUG. 31, 1910.

1,060,679.

Patented May 6, 1913.

5 SHEETS—SHEET 3.



Witnesses:
Mr. May Small
Edwin J. Beller

Inventor
F. E. Hanrahan
By Wickham Fisher
Wickham Fisher
Attorney

J. E. HANRAHAN.
SINGLE TYPE CASTING ATTACHMENT FOR LINOTYPE MACHINES.
APPLICATION FILED AUG. 31, 1910.

1,060,679.

Patented May 6, 1913.

5 SHEETS—SHEET 4.

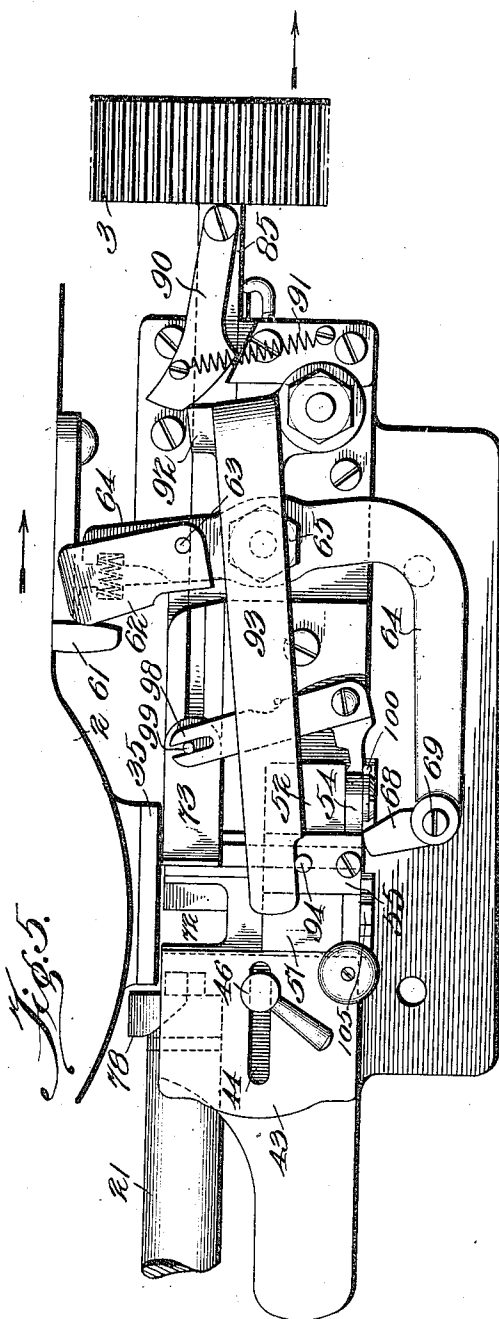


Fig. 5.

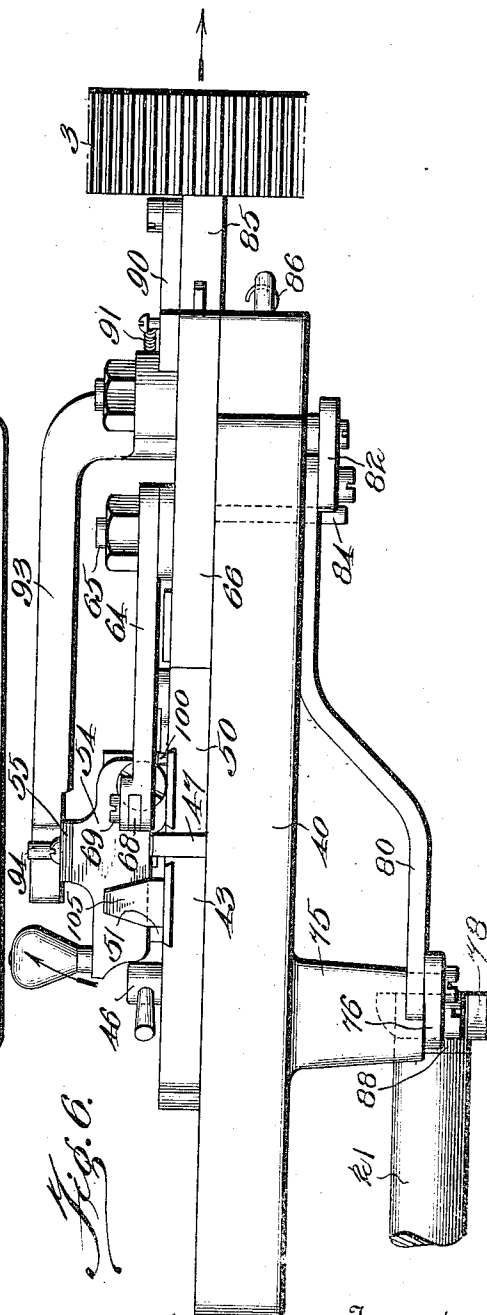


Fig. 6.

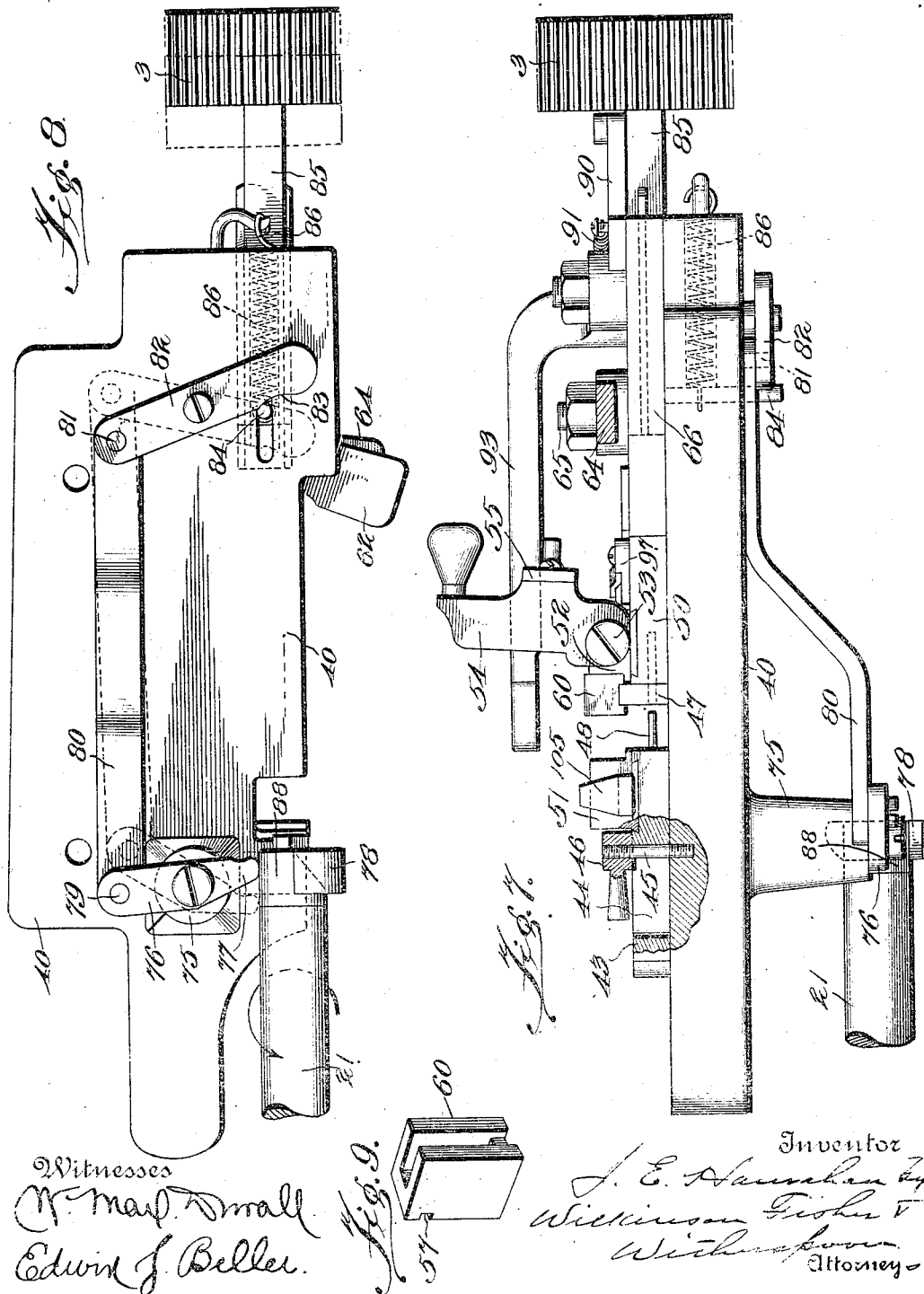
Witnesses
W. May Dmell
Edwin J. Bellei

Inventor
J. E. Hanrahan by
Wilkinson Fisher &
Witherspoon
Attorneys

J. E. HANRAHAN.
SINGLE TYPE CASTING ATTACHMENT FOR LINOTYPE MACHINES.
APPLICATION FILED AUG. 31, 1910.

1,060,679.

Patented May 6, 1913
5 SHEETS—SHEET 5.



UNITED STATES PATENT OFFICE.

JOHN EDWARD HANRAHAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CHESAPEAKE ADDRESSING COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

SINGLE-TYPE-CASTING ATTACHMENT FOR LINOTYPE-MACHINES.

1,060,679.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed August 31, 1910. Serial No. 579,825.

To all whom it may concern:

Be it known that I, JOHN E. HANRAHAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
5 invented certain new and useful Improvements in Single-Type-Casting Attachments for Linotype-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as
10 will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an attachment for linotype machines which will enable the operator to cast lines of type and single
15 type simultaneously, and has for its object to produce an attachment of this character which will be comparatively simple in construction, certain in action, and inexpensive to manufacture.

20 To these ends, the invention consists in the novel details of construction and combinations of parts, more fully hereinafter disclosed and particularly pointed out in the claims.

25 Referring to the accompanying drawings forming a part of this specification, in which like numerals refer to like parts in all the views:—Figure 1 is a plan view, partly in section, of a melting pot and pot operating
30 mechanism, showing mounted on the frame of an ordinary linotype attachment for casting single type. This view also shows the rotating mechanism for the linotype mold wheel; and both casting mechanisms being
35 shown in positions of rest; Fig. 2 is a sectional view showing a linotype mold wheel and matrix elevator in casting position, as well as the single type casting attachment, partly in section and in position to receive
40 molten metal; the melting pot being shown in position to deliver the metal simultaneously to both the linotype and single type molds; Fig. 3, is a vertical section of the well known melting pot showing the tilting
45 mechanism and the relative position of the linotype mold wheel and the delivery from the pot while casting a line of type. This figure also shows the metal carrying channel which is added to the pot for the single
50 type mold; Fig. 4, is a sectional view on the line 4—4 of Fig. 2, looking in the direction of the arrows, showing the metal carrying pipe for the single type mold; said mold and adjacent parts being shown in the mold-

ing or casting position. In this view is
55 also shown the mechanism for operating the mold returning and type delivery mechanism; Fig. 5, is a top plan view of the single type casting attachment, showing all the parts in the position of rest, or non-
60 casting position; Fig. 6, is a side elevational view of the parts shown in Fig. 5, the main frame of the linotype machine being omitted; Fig. 7, is a side elevational view, partly in section, showing the single type
65 mold retaining latch in its unlocked position and a member of the mold carriage shifted to a position for substituting a different mold and face bar or tongue; Fig. 8, is a bottom plan view of the parts shown
70 in Fig. 7, showing the mechanism for returning the mold retaining and type delivery mechanism, during the time of the casting operation. The full lines show the position of the retaining lever when at rest
75 and the dotted lines show the position of said lever when the cast is being made. The linotype mold wheel is also shown in two positions, the full lines illustrating the position while molding and the dotted lines
80 the position of said wheel when at rest; Fig. 9, is a perspective view of a single type matrix mold; and, Fig. 10, is a detail view of the pot tilting cam and roller.

It is well known that the linotype machines now in use are adapted to produce
85 slugs of type metal on one edge of which is cast various type characters composed into words; and that said slugs may be arranged side by side to form columns of read-
90 ing matter, such as is used in the printing of books and newspapers. It is also well known that in all printing offices where linotype machines are used for setting the
95 solid reading-matter, it is necessary to carry large supplies of single or individual type, which are used in combination with linotype slugs for the production of display advertisements. This class of type is usually
100 purchased from the type founder and being easily mutilated or worn out is a source of much expense and annoyance to the printer. The present invention, however, provides an attachment to the ordinary linotype machines, whereby single type of any
105 desired size or style can be cast simultaneously with the slugs and without any substantial changes or alterations of the mech-

anism of the linotype machine, or without interruption to the composing feature of the said machine. This is accomplished by attaching to the frame of the linotype a single type mold or matrix combined with mechanism adapted to so position said mold as to cause it to receive a charge of molten metal from the pot simultaneously with the metal that is injected into the linotype mold; and to deliver a single type simultaneously with a linotype slug, all of which will now be fully disclosed.

In order that the exact invention may be more clearly understood, certain of the parts pertaining to the linotype machines in general use will be briefly described and then a detailed disclosure of the attachment constituting the invention will be had.

It is well known that the commercial linotype machines are provided with a frame piece 1, located on one side of the melting pot 2, and with a mold wheel 3 extending in a plane substantially at right angles to the frame piece 1. In said machines, 4 represents the matrix elevator, 5 the cam for rocking the melting pot 2, 6 the pump cam, 7 the pot roller engaging the pot rocking cam, 8 the pump arm roller engaging the pump cam, 9 the interrupted gear, 10, 11, and 12, gear wheels, 13 a shaft rotated by said wheels, and 14 a gear for rotating the mold wheel 3.

15 represents the pump piston for forcing metal through the channel 16, through metal mouth piece 170 having the ports 17, into the slit 171 carried by the wheel 3, and against the linotype matrices 18.

19 represents the pivot on which the pot 2 is mounted, and around which it is swung by the cam 5 and roller 7.

20 represents bearings carried by the frame 1 for supporting the shaft 21 carrying the gear 11.

As is well known, in the ordinary operation of the linotype machine the wheel 3 moves toward the right, as seen in Fig. 1, and against the matrix elevator 4, as shown in Figs. 2 and 3. The pot 2 then moves toward the wheel 3 and forms a tight joint between the said metal mouth 170 and the part 34 surrounding said slit 171 carried by said wheel, as best shown in Figs. 2 and 3. The parts are so timed that the slit 171 is brought into register with the ports 17 through the partial revolution of the wheel 3 at the proper time to receive the charge of metal which is forced through passage 16 by the piston 15 and through said ports 17, slit 171 and against the matrices 18.

As above intimated, the mechanism so far disclosed is or may be of any suitable and well known character.

In order that the operator may mold lines of type and single type simultaneously, the passage 16 is perforated as at 30, and a pipe

31 joins said perforation with a nozzle 32 adapted to deliver molten metal through the side of the pot 2, and at a point located about 90° from the end of the passage 16. A plate 35 or other suitable means may be provided in order to supply a tight joint between the parts of the attachment and the nozzle 32.

The attachment proper for molding single type comprises a bed plate 40 supported between the jaws 41 of the channel frame 1, and mounted on this plate 40 is the sliding holding plate 43 having a slot 44, through which passes the pin 45, carrying the locking device 46, securing said plate 43 in its adjusted position.

60 represents a matrix or mold for casting single type, which is slidingly mounted on a rib 47, and 48 represents a pin carried by the sliding plate 43, adapted to pass through said rib and secure the same to an abutting plate 50 carried by and preferably rigid with the bed plate 40.

Each of the plates 43 and 50 are provided with channel ways in which slide the member 51 having the holding lug 105, and the member 52 of the type mold carriage. To the member 52 is pivoted as at 53 the locking dog or latch 54. This latch, see Figs. 4 to 7, fits between the member 51 and lug 105, and is provided with an extension 55 which passes over the mold 60. Said extension is further provided with a locking rib 56, which enters a slot 57, Fig. 9, in said mold, as shown.

From the structure so far disclosed, it is evident that as the well known mechanism of the linotype machine causes the wheel 3 to partially rotate to bring its slit 171 into register with the ports 17 of the channel 16, the piston 15 will force metal simultaneously to the matrices 18 and to the single type mold 60, provided, of course, the nozzle 32 and the mold 60 are in the position shown in Figs. 2 and 4.

It is further evident that when different width molds 60 corresponding to different width type are to be employed, the clamp 54 may be disengaged and the plate 43 slid back while a new mold 60 and if desired another sized rib 17 is being placed in position. Then the carriage member 51 may be brought into contact with the new mold and securely locked by turning the nut 46. Before the type is cast, however, the parts must be brought into the casting position, and in order to automatically accomplish this, a lug 61 on the pot 2 is provided, which when the pot moves to its casting position, strikes against a dog 62 pivoted at 63 on one end of the lever 64, pivoted at 65 to the face plate 66, rigid with the bed plate 40. The lever 64 at its other end carries a toe 68 pivoted to said lever at 69 which toe is adapted to contact with the latch 54

and when the lever is turned to slide the carriage members 51 and 52, as well as the mold member 60, up against the face plate 35 and into the position shown in Fig. 2.

After the type is cast in the manner above described, it will of course, be attached to the nozzle 32 by a small neck of metal, and it will be further held by the ribs 70, Fig. 4, carried by the rib or slide 47 on which the mold 60 is mounted. When, however, the pot 2 moves to the left, as seen in Fig. 2, said neck of metal will be broken and the cast type held only by the ribs 70, from which it is discharged by the pusher 73 in the manner now to be described.

The bed plate 40 carries the depending lug 75, to which is pivoted the lever 76 having the toe 77, controlled by a cam 78 carried by the shaft 21. To the lever 76 is pivoted at 79 the link 80 and at 81 the lever 82, having the cut-away place 83 against which takes the pin 84, carried by the slide 85 controlled by the spring 86.

When the wheel 3 had turned a quarter revolution, to bring its slit 171 into its casting position, the cam 78 had turned the lever 76 on its pivot and brought said lever, link 80, and the lever 82, into their dotted line positions, shown in Fig. 8, which, of course, placed the spring 86 under tension. After the casting operation, as is well known, the pot 2 first moves back and the wheel 3 follows it and also turns three quarters of a revolution. During this latter revolution of the wheel 3, the cam 78 turns and brings its open space 88 opposite the toe 77, but at this period the wheel 3 will be in the dotted line position shown in Fig. 8 and contacting with the slide 85. The spring 86, will, therefore, be still held under tension and the toe 77 will still remain in its dotted line position. As is well known, the next move of the wheel 3 will be toward the right, as seen in Fig. 8, or into the full line position shown in said figure. This latter movement releases the spring and permits the pin 84 to move the levers 76 and 82, as well as the link 80, into their full line positions.

The slide 85 carries on its upper side a dog 90, Fig. 2, and when the full line positions of the levers in Fig. 8 are reached, said dog is pulled by its spring 91 into its dotted line position, Fig. 2, behind the short arm 92 of the bell crank lever 93. In this position of the dog the long arm of said lever 93 extends over the mold carriage while in its casting position, and contacts with a pin 94 carried by the extension 55 of the latch 54. The last movement of the wheel 3 is, as is well known, toward the left, as seen in Fig. 1, and this movement gives the dog 90 a sharp thrust and rocks the bell crank lever 93 into the position shown in said Fig. 1. This movement in turn causes the type carriage and type mold to move

away from the cast type, which is still held by the ribs 70, and into the positions shown in said Fig. 1. As the type carriage comes back, however, the edge 95 Fig. 1 of the carriage member 52, contacts with the short arm 96 of the bell crank 97, and causes its slotted end 98 through the pin connection 99 to slide the pusher bar 73 to force the cast type off of said ribs 70, and to drop said type into the delivery opening 72. The parts are now again in their normal position of rest, and when the pot 2 again moves toward the right as seen in Fig. 1, before beginning another casting operation, the pin 100 on the member 52 will co-act with the bell crank 97 to restore the pusher 73 to its normal position.

From the foregoing it will be clear that this attachment to a well known linotype machine in which the casting pot is provided with the pipe 31, nozzle 32, or their equivalents, for delivering to the single type mold the metal for casting the single type enables the operator to cast a single type in the same time and by the same movements that are required to cast a line of type, and that therefore after the cost of the attachment is deducted the cost of said single type will be practically nothing, for the metal employed therein can be used over and over again. It therefore follows that this attachment provides an inexpensive means for always furnishing a supply of type of any desired style to the users of linotype machines.

It is obvious that those skilled in the art may vary the details of construction as well as the arrangement of parts without departing from the spirit of the invention, and therefore it is to be distinctly understood that the invention is not limited to such features except as may be required by the claims.

What I claim is:—

1. In a linotype machine, the combination or means comprising a pot for casting a line of type; and means for simultaneously casting from the said pot a single type, substantially as described.

2. In a linotype machine, the combination of a metal pot; means coacting therewith for casting a line of type; and additional means also coacting with said pot and said first mentioned means for simultaneously casting a single type, substantially as described.

3. In a linotype machine, the combination of a metal pot; means to move the same; means coacting with said pot for casting a line of type; a mold for casting a single type; and connections between said pot and said mold for moving the latter by the motions of said pot, substantially as described.

4. In a linotype machine the combination of a metal pot; means to move the same;

means coacting with said pot for casting a line of type; a mold for casting a single type; connections between said pot and said mold for moving the latter by the motions of said pot; and connections between said mold and said line of type casting means causing said single type to be cast simultaneously with said line of type, substantially as described.

5. In a linotype machine, the combination of a metal pot; means coacting therewith for casting a line of type; and additional means comprising a reciprocating mold also coacting with said pot and said first mentioned means for simultaneously casting a single type, substantially as described.

6. In a linotype machine, the combination of means for casting a line of type comprising a melting pot; and means for simultaneously casting other type from the same pot comprising a reciprocating removable mold, substantially as described.

7. In a linotype machine, the combination of a metal pot a mold for casting a line of type from said pot; a mold for casting simultaneously type independent of said line of type from said pot; and connections between said pot and mold adapted to move said mold toward said pot, substantially as described.

8. In a linotype machine, the combination of a metal pot a mold for casting a line of type from said pot; a mold for casting simultaneously other type from said pot; connections between said pot and mold adapted to move said mold toward said pot; and additional means independent of said pot for moving said mold away from said pot, substantially as described.

9. In a linotype machine, the combination of a pivoted metal pot; means for oscillating the same on its pivot; a mold for casting a line of type from said pot and detachable means carried by the frame of said machine adapted to cast other type from said pot after each alternate movement of said pot, substantially as described.

10. In a linotype machine, the combination of a pivoted metal pot; means for oscillating the same on its pivot; means for casting a line of type from said pot, detachable means comprising a single type mold carried by the frame of said machine adapted to cast single type from said pot after each alternate movement of said pot; and connections between said pot and said mold for moving said mold toward said pot, substantially as described.

11. In a linotype machine, the combination of an oscillating metal pot; a laterally moving mold wheel; a single type mold; connections between said pot and mold for moving the latter in one direction; and connections between said wheel and mold for

moving said mold in an opposite direction, substantially as described.

12. In a linotype machine, the combination of an oscillating metal pot; a laterally moving mold wheel; a single type mold; connections between said pot and mold for moving the latter in one direction; connections between said wheel and mold for moving said mold in an opposite direction; and automatic means for discharging said single type after it is cast, substantially as described.

13. In an attachment for linotype machines, the combination of means for casting a line of type a detachable single type mold associated with said means; a carriage adapted to reciprocate said mold; means for reciprocating said carriage; and means for securing said attachment as a whole to the frame of a linotype machine, substantially as described.

14. In an attachment for linotype machines, the combination of a detachable single type mold; a carriage adapted to reciprocate said mold; a latch for holding said carriage and mold together; means for reciprocating said carriage; and means for detachably securing said attachment as a whole to the frame of a linotype machine, substantially as described.

15. In an attachment for linotype machines, the combination of a detachable single type mold; a carriage comprising two sliding members adapted to reciprocate said mold; means permitting one of said members to be moved in a direction at right angles to their normal path; a latch for holding said carriage and mold together; means for reciprocating said carriage; and means for detachably securing said attachment as a whole to the frame of a linotype machine, substantially as described.

16. In an attachment for linotype machines, the combination of a reciprocating single type mold; means for reciprocating said mold comprising a plurality of levers; a spring controlled dog for actuating one of said levers, and means associated with said mold for casting a line of type, substantially as described.

17. In an attachment for linotype machines, the combination of a reciprocating single type mold; means for reciprocating said mold comprising a carriage, a latch coacting with said carriage, and a plurality of levers for actuating said carriage; a spring controlled dog for actuating one of said levers; and a lever controlled means for discharging the single type after they are cast, substantially as described.

18. In a linotype machine, the combination of an oscillating metal pot; an intermittently rotating and laterally movable mold wheel; means for casting a line of type from said pot; an attachment comprising a

single type mold; connections between said pot and mold for moving the mold in one direction; and connections between said wheel and mold for moving said mold in an opposite direction, substantially as described.

19. In a linotype machine, the combination of an oscillating metal pot; an intermittently rotating and laterally movable mold wheel; means for casting a line of type from said pot; an attachment adapted to cast single type simultaneously with said line of type and comprising a single type mold; connections between said pot and mold for moving the mold in one direction; connections between said wheel and mold for moving said mold in an opposite direction; and means for detachably securing said attachment as a whole to a portion of the linotype machine, substantially as described.

20. In a linotype machine, the combination of an oscillating metal pot; means comprising a passage for casting a line of type from said pot; and means comprising a pipe leading to said passage for casting a single type from said pot simultaneously with said line of type, substantially as described.

21. In a linotype machine, the combination of a laterally moving type wheel; an oscillating metal pot; means comprising a passage for casting a line of type from said pot and through said wheel; a reciprocating single type mold; connections between said pot and mold; connections between said wheel and mold; and means comprising a nozzle and a pipe leading to said passage for casting a single type from said pot simultaneously with said line of type, substantially as described.

22. In a linotype machine, the combina-

tion of an oscillating metal pot provided with two ports located at an angle to each other; means coacting with one port adapted to cast a line of type; and means coacting with the other port adapted to simultaneously cast a single type, substantially as described.

23. In a linotype machine, the combination of an oscillating metal pot provided with two ports located at an angle to each other; means coacting with one port adapted to cast a line of type; and means constituting a detachable attachment to the machine and provided with an interchangeable single type mold coacting with the other port adapted to simultaneously cast a single type, substantially as described.

24. In a linotype machine the combination of a melting pot provided with two orifices; means for casting a line of type through one orifice; and means for simultaneously casting a single type through the other orifice, substantially as described.

25. In a linotype machine the combination of a melting pot having a plurality of independent type casting orifices; means for ejecting molten metal through each of said orifices; a mold capable of casting a line of type fitting one of said orifices; and a mold capable of simultaneously casting other type fitting the other orifice, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN EDWARD HANRAHAN.

Witnesses:

JOHN W. HEWES,
M. E. WILLINER.