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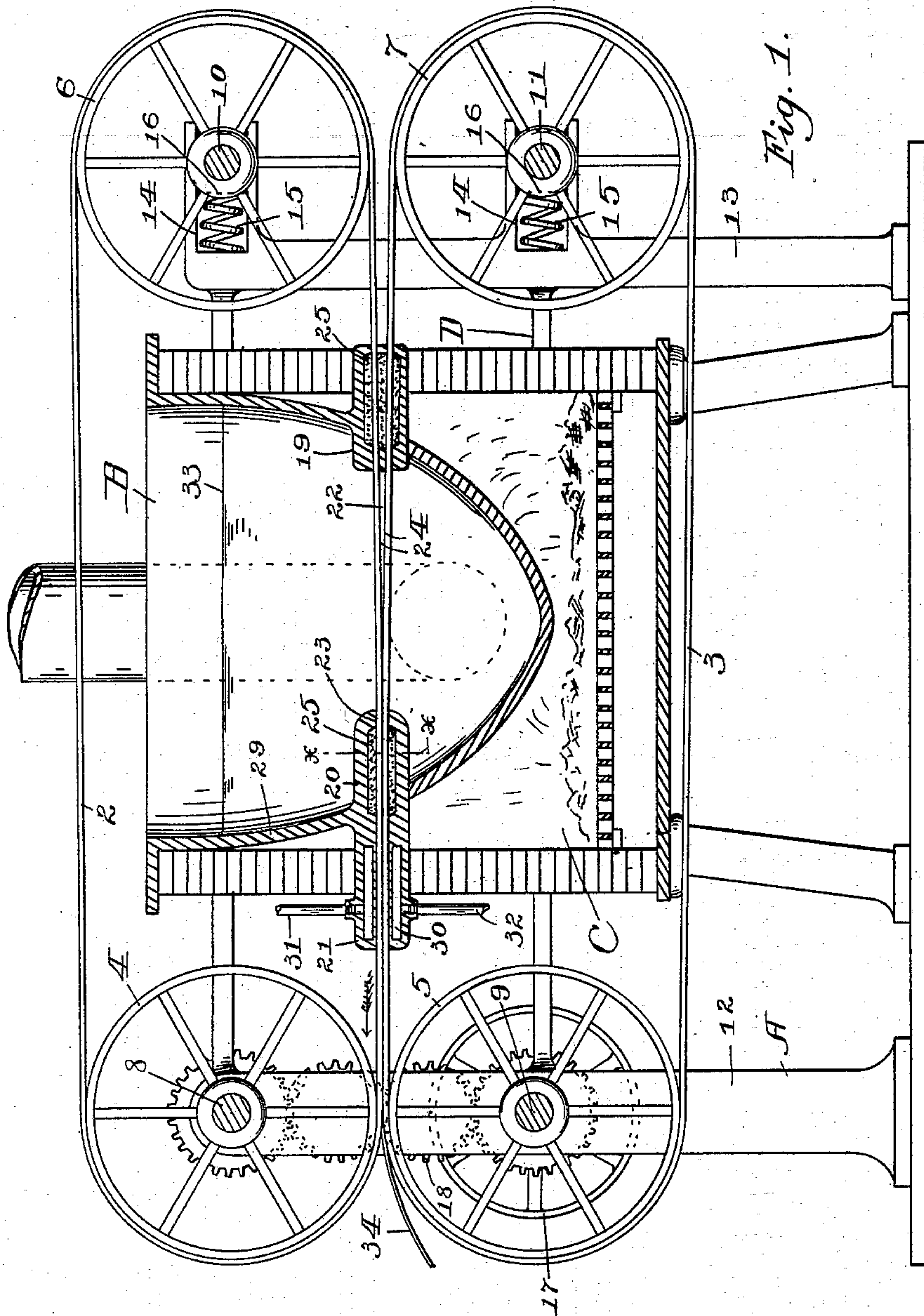
Patented June 19, 1900.

C. P. BABCOCK.  
MACHINE FOR CASTING PRINTERS' LEADS.

(Application filed June 6, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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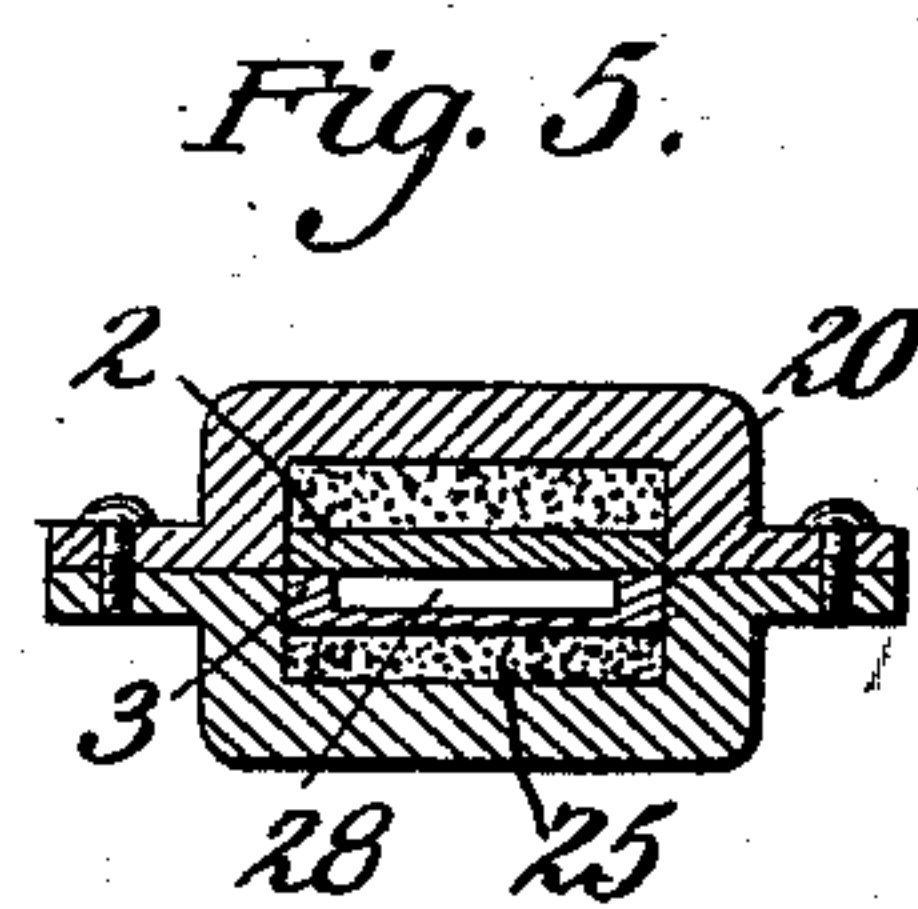
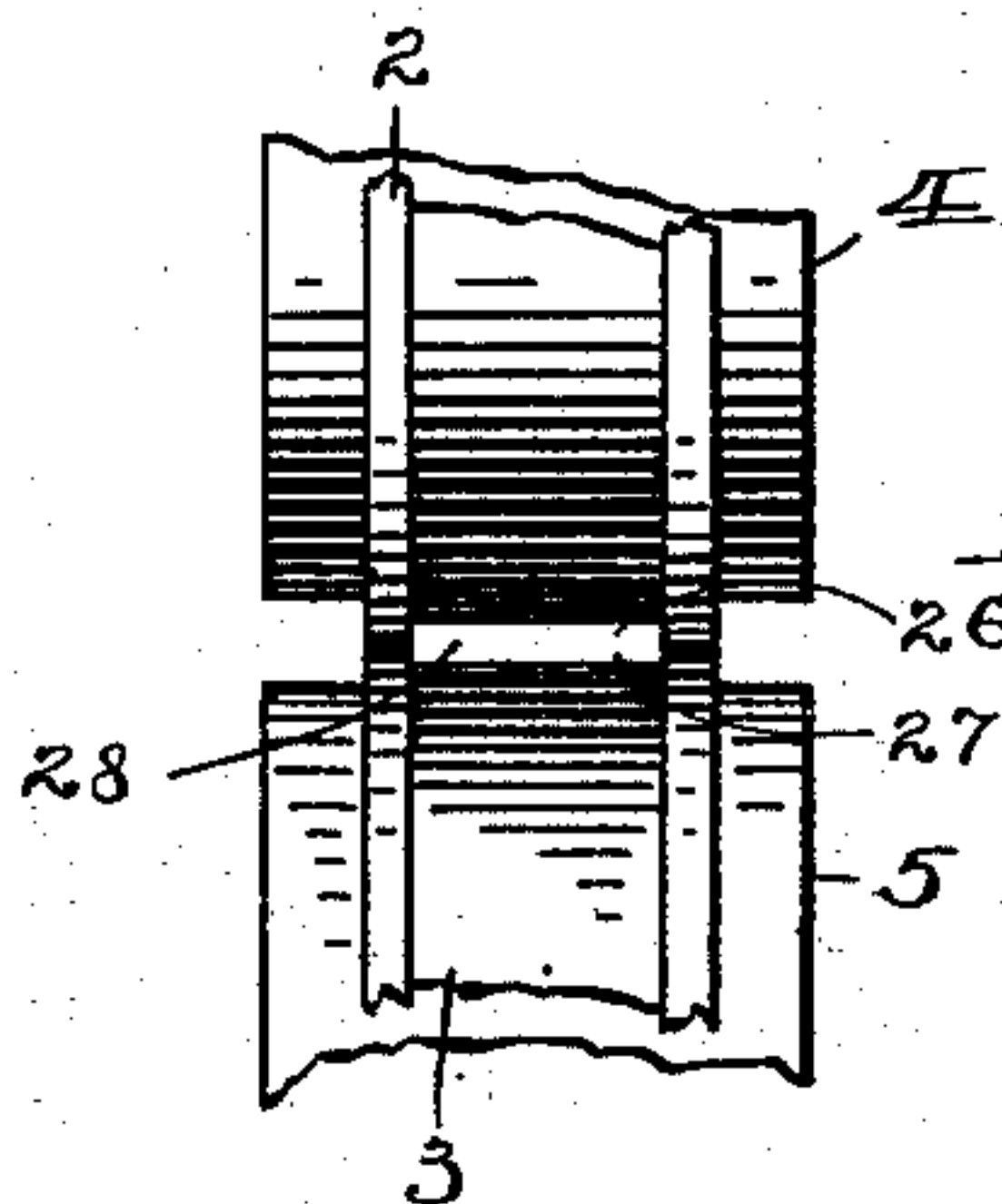
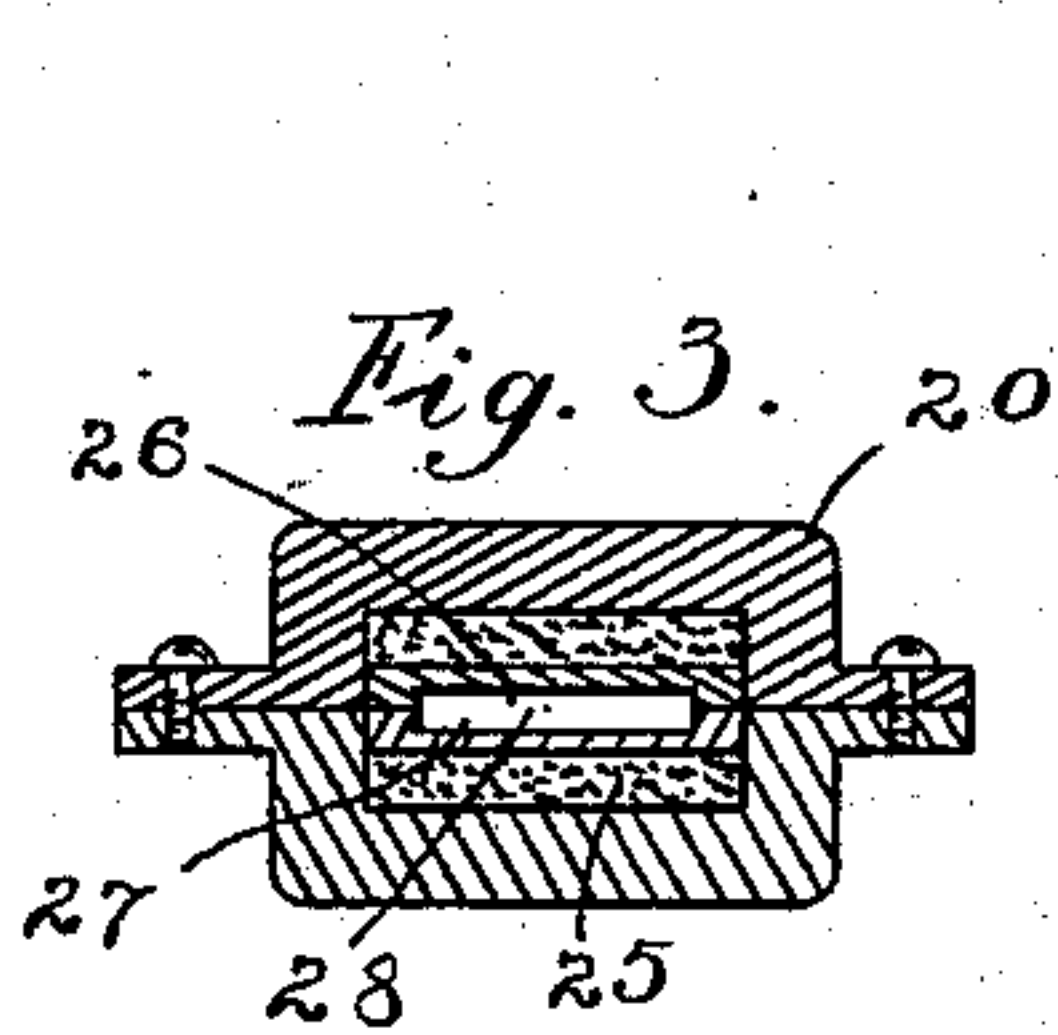
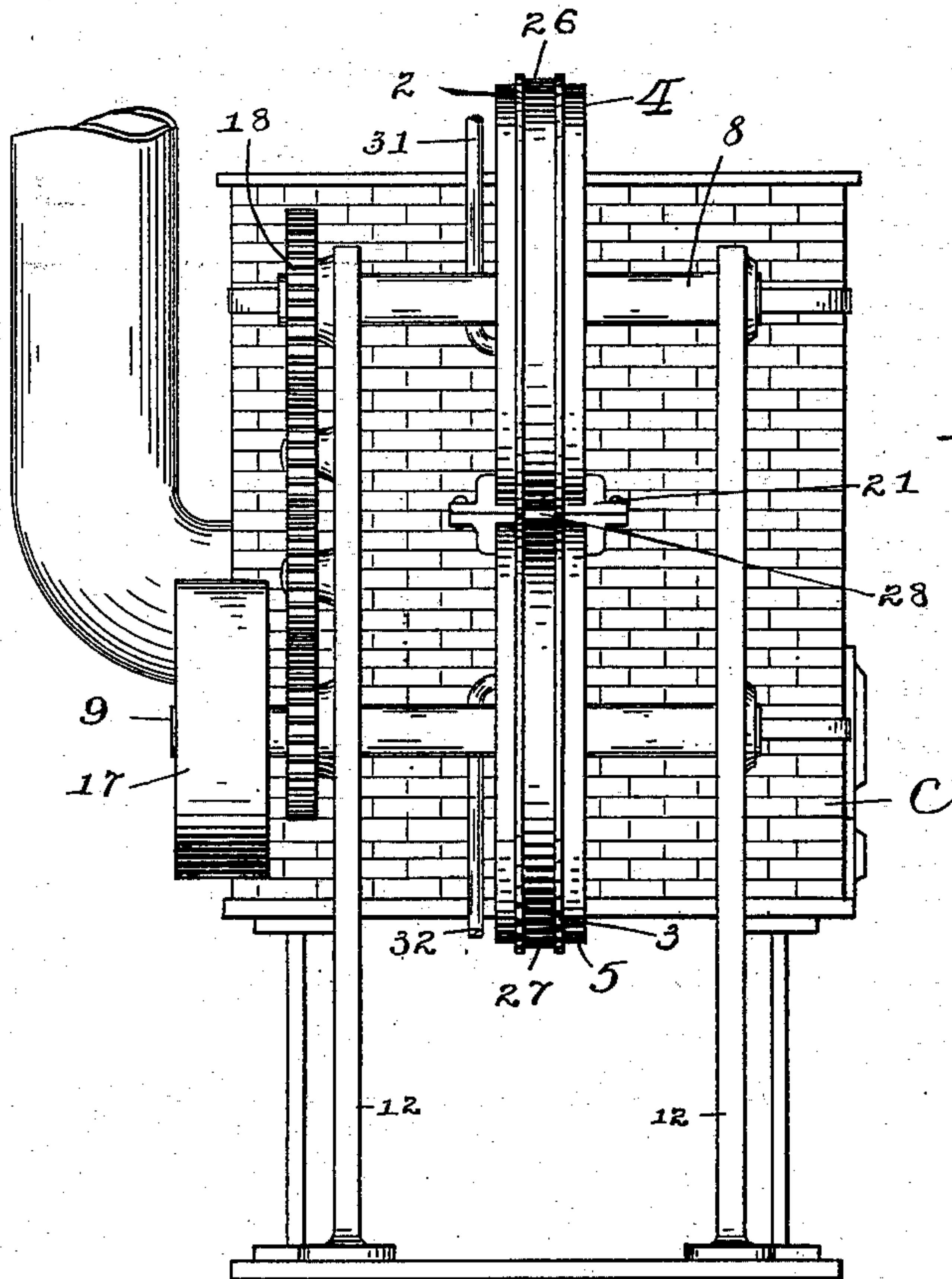
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# UNITED STATES PATENT OFFICE.

CHARLES P. BABCOCK, OF MINNEAPOLIS, MINNESOTA.

## MACHINE FOR CASTING PRINTERS' LEADS.

SPECIFICATION forming part of Letters Patent No. 651,961, dated June 19, 1900.

Application filed June 6, 1899. Serial No. 719,528. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES P. BABCOCK, a citizen of the United States of America, and a resident of Minneapolis, Minnesota, have invented certain new and useful Improvements in Machines for Casting Printers' Leads, of which the following is a specification.

My invention relates to improvements in machines for casting printers' leads.

10 The object of my invention is to provide means whereby a continuous strip or ribbon of lead or other materials which fuse at a relatively-low temperature may be cast.

15 The machine consists, primarily, of endless belts moving through the molten metal, their adjacent faces being formed with longitudinal grooves converging to mold the metal and discharge the solidified product from the machine.

20 In the following description it will be seen that in the construction shown both of the belts are provided with longitudinal grooves; but it is obvious to those skilled in the art that an operative device may be constructed 25 either with one or both of the belts grooved for forming the matrix, as shown in Figures 5 and 3, without departing from the principles which I have applied.

30 In the accompanying drawings, forming part of this specification, Fig. 1 is a central longitudinal cross-section of the lead-casting machine. Fig. 2 is an end view of the machine. Fig. 3 is a cross-section of the stuffing-box through which the belts pass, 35 taken on the line X X of Fig. 1. Fig. 4 is a detail view of the belts and their respective pulleys; and Fig. 5 is a cross-sectional view of the stuffing-box, taken on the line X X of Fig. 1, showing a modified construction of 40 belts, in which one of the belts has a plain surface and the other belt a grooved surface for forming the mold.

45 In the drawings let A represent my improved machine for casting printers' leads, B the crucible, and C the furnace. To cast the metal contained in the crucible, I provide endless steel belts or bands 2 and 3, which pass, respectively, over and under the furnace, through the crucible, and around the 50 pulleys 4 and 5 and 6 and 7, which are mounted upon the shafts 8 and 9 and 10 and 11. These shafts are journaled upon the stand-

ards 12 and 13 of the frame D. The standards 13 are formed with the slots 14, in which are mounted the expansion-springs 15 and 55 the journal sliding blocks 16. The springs are adapted to distend the belts 2 and 3. The belts converge into the crucible and operate at a similar speed in the direction of the arrow. The pulleys are propelled by the 60 driver 17, mounted on the shaft 9, and the train of gearing 18, connecting the shaft 8. The crucible is provided with stuffing-boxes 19 and 20 and the water-jacket 21. The belts slide through the box 19 in spread position, 65 thereby forming the ingate or opening 22, and converge toward the opening 23 in the box 20, where the adjacent faces 24 of the belts are in contact until they reach the pulleys 4 and 5. The boxes are provided with packing 70 25 to prevent the crucible leaking. The adjacent faces of the belts are provided with corresponding grooves 26 and 27, which when in juxtaposition form the mold 28, in which 75 the metal is cast. The metal enters the mold through the ingate 22. The belts after traveling through the box 19 and crucible pass through the water-jacket 21, which is formed as an integral part of the frame 29 of the crucible and provided with the chamber 30, 80 which surrounds the belts. Cold water is circulated through the chamber by means of the intake and outtake pipes 31 and 32, whereby the molten metal contained in the mold is cooled and solidified when the machine is in 85 operation.

In operation crude metal is placed in the crucible and reduced to a molten state by means of the furnace C. The belts are operated at a constant speed in the direction 90 as indicated by the arrow. The molten metal enters the mold 28 through the ingate 22, is carried by the belts through the water-jacket, where it solidifies, and the product 34 is 95 ejected from the machine.

It is obvious that the crucible must be kept filled with the molten metal at a suitable height, (indicated by the line 33,) the belts operated at a suitable speed, and the water-jacket supplied with a suitable circulation of 100 cold water to accomplish the desired result.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—



1. A machine for casting metal strips, consisting of a crucible, means for heating the same, a sectional mold, composed of a pair of metallic belts, having a continuous mold-groove in their adjoining faces and so combined as to be separated within the crucible and brought together before leaving the same, and means for automatically moving said belts through said crucible, for the purposes specified.

2. A lead-casting machine, consisting of a crucible, means for heating the same, a water-jacket adjoining said crucible, a mold formed by grooved belts in juxtaposition, and means by which said belts are automatically passed through said crucible and water-jacket, separated while within said crucible and brought together before leaving the same, substantially as described.

3. A machine for casting metal into strips, consisting of a crucible, means for heating the same, a water-jacket, positioned adjacent to said crucible, and a mold composed of grooved metallic belts in juxtaposition, having means by which said belts are automatically moved through the crucible and water-jacket successively, separated while within said crucible and brought together before leaving it so as to form a matrix within the crucible, for the purposes specified.

4. A mold formed by two metallic belts, supported and driven each by independent pulleys, said belts being grooved, the grooved surfaces registering to form a matrix, and the crucible through which the belts travel automatically, with means for heating the same, for separating the belts within the crucible and bringing them together before leaving it, for the purposes specified.

5. The combination with a crucible having means for heating the same, of metallic belts having continuous longitudinal mold-grooves in their adjoining faces, suitable belt-guides and means for propelling said belts through the crucible; said guides being constructed and arranged so as to separate the belts within the crucible, and bring their grooved adjoining faces together to register before leaving, substantially as set forth.

6. The combination with a crucible and water-jacket, positioned adjacent thereto, of a matrix, formed by two endless belts converging within the crucible; said belts passing through said water-jacket and having a continuous mold-groove in their adjoining faces, with means for moving said belts and heating said crucible, all for the purposes specified.

7. The combination with the frame A, of the crucible B, the furnace C, the grooved belts 2 and 3 forming the mold 28, having the

ingate 24, the packing-boxes 19 and 20, through which the belts pass and by which respectively the belts are separated when entering the crucible and brought together before leaving the same, the water-jacket 21, surrounding a portion of the mold and adjacent to the crucible, suitable means for heating the crucible and driving means and tension means for operating said belts, as shown, and for the purposes specified.

8. The combination with the crucible B, and means for heating the same, of the grooved belts 2 and 3 forming the mold, slots in the crucible by which the belts are separated when entering and brought together before leaving the crucible, the belt-pulleys 4 and 5 and 6 and 7 upon which the belts are carried, driving means for the belts, and the water-jacket 21, surrounding a portion of the belts and placed adjoining the crucible, as shown, and for the purposes specified.

9. A mold formed by two metallic belts, supported and driven each by independent pulleys, one of said belts being grooved, the adjoining surfaces of said belts registering to form a matrix, and a crucible, adapted by means of slots, to receive said belts in their travel and to separate the belts when entering and bring them together before leaving the crucible, and means for heating the crucible, for the purposes specified.

10. A crucible with means for heating the same, in combination with a mold formed by two grooved metallic belts, supported and driven each by independent pulleys; said crucible having suitable guide-openings, through which the belts pass and by which they are separated within the crucible and their grooved faces brought together so as to form a matrix before leaving the same, and the cooler surrounding said matrix and adjoining said crucible; for the purpose of casting molten metal into continuous strips.

11. A mold, formed by two metallic belts, supported and driven each by independent pulleys, both of said belts being grooved, the adjoining surfaces of said belts registering to form a matrix, a crucible adapted by means of slots to receive said belts in their travel, and to separate the belts when entering and bring them together before leaving the crucible, and means for heating the crucible, for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 11th day of May, 1899.

CHAS. P. BABCOCK.

Witnesses:

H. L. HASEY,  
E. A. HOUGH.