

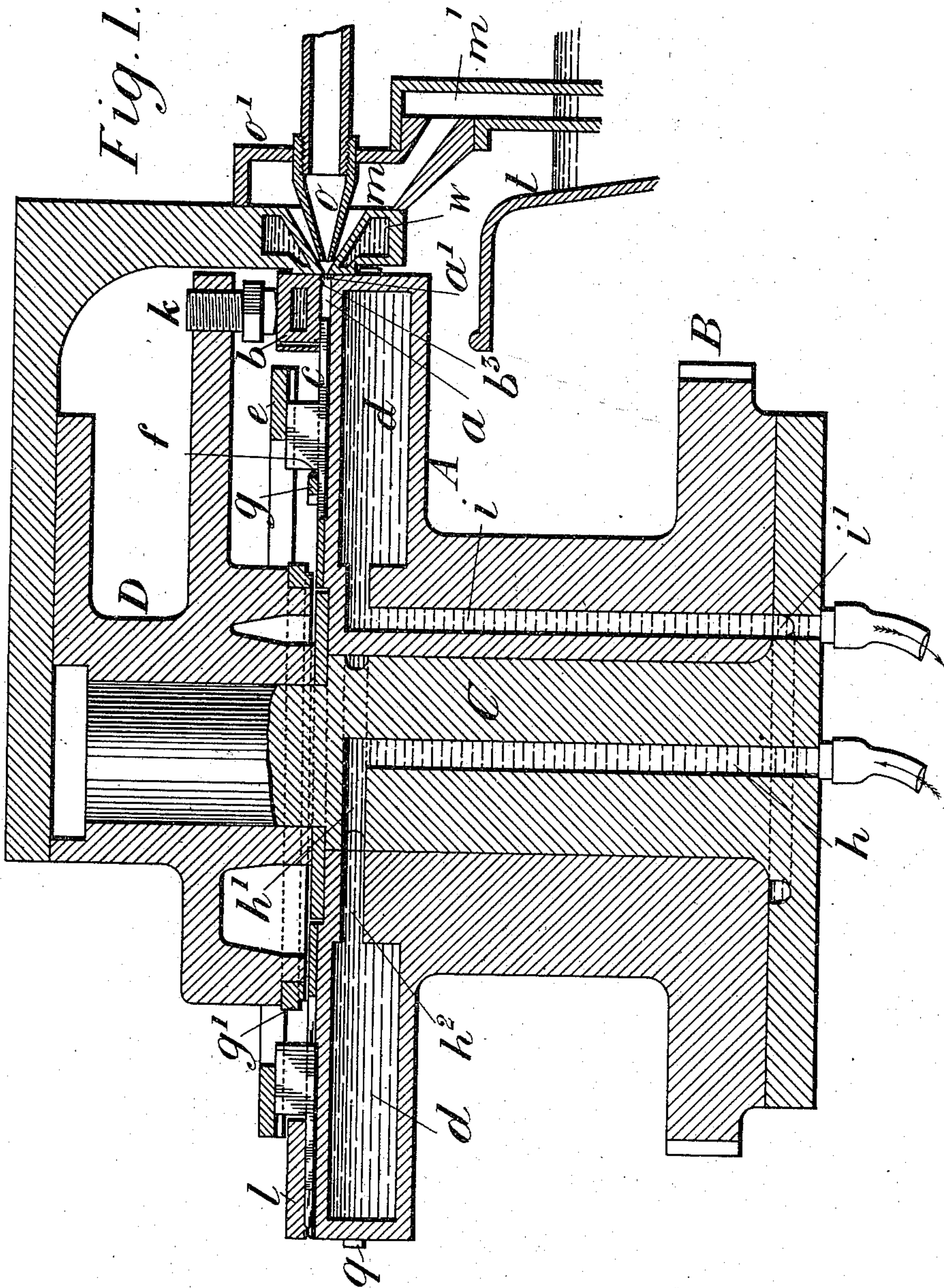
(No Model.)

4 Sheets—Sheet 1.

F. WICKS.  
TYPE MOLDING MACHINE.

No. 565,820.

Patented Aug. 11, 1896.



*Witnesses.*  
*Thos. A. Green*  
*Robert Emmett*

*Inventor.*  
*Frederick Wicks.*  
*By James L. Norris*  
*Atty.*



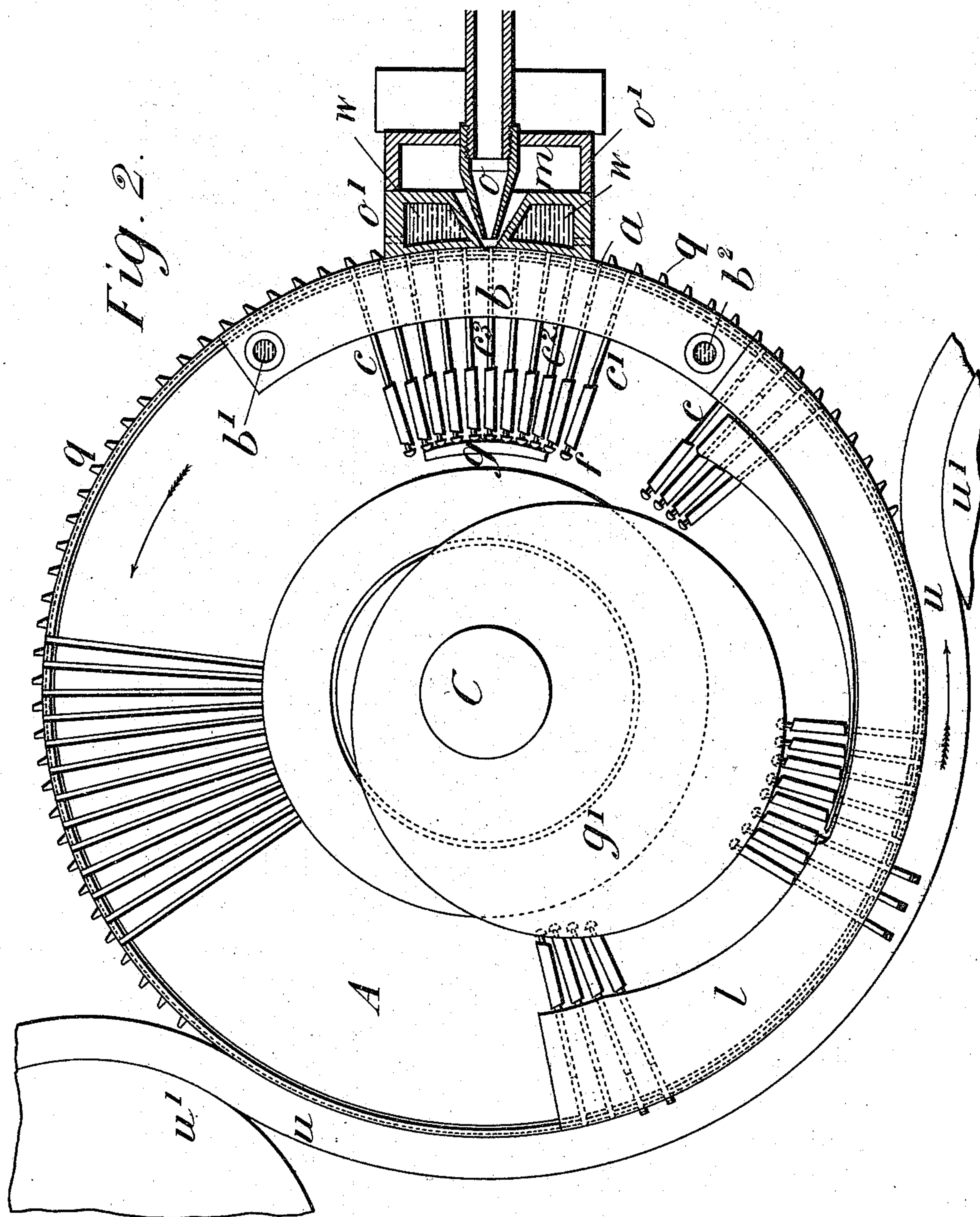
(No Model.)

4 Sheets—Sheet 2.

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Thos. A. Swan  
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(No Model.)

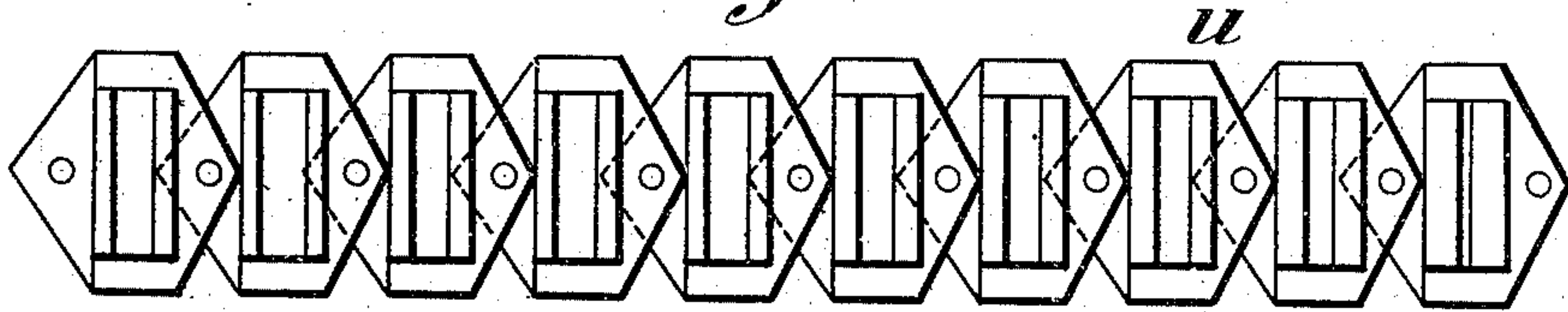
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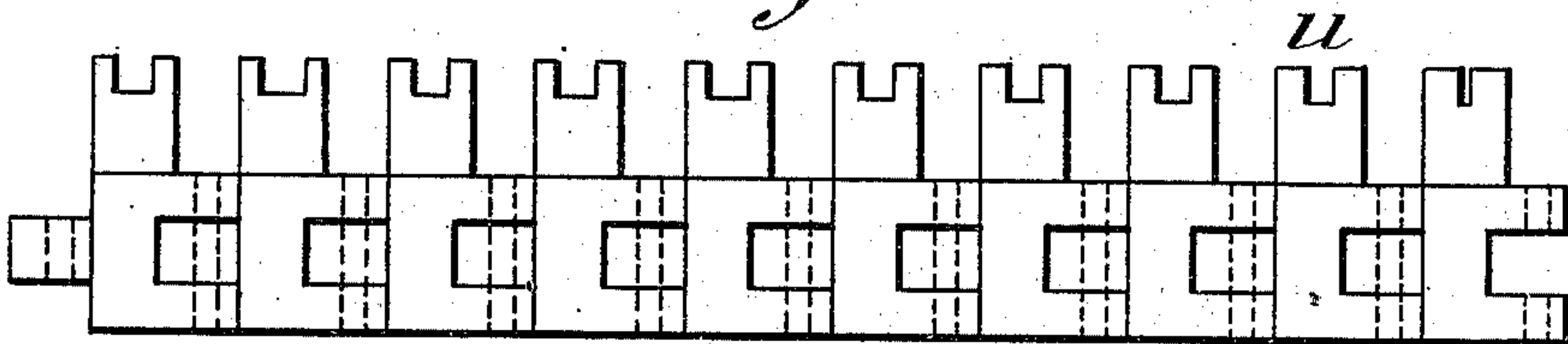
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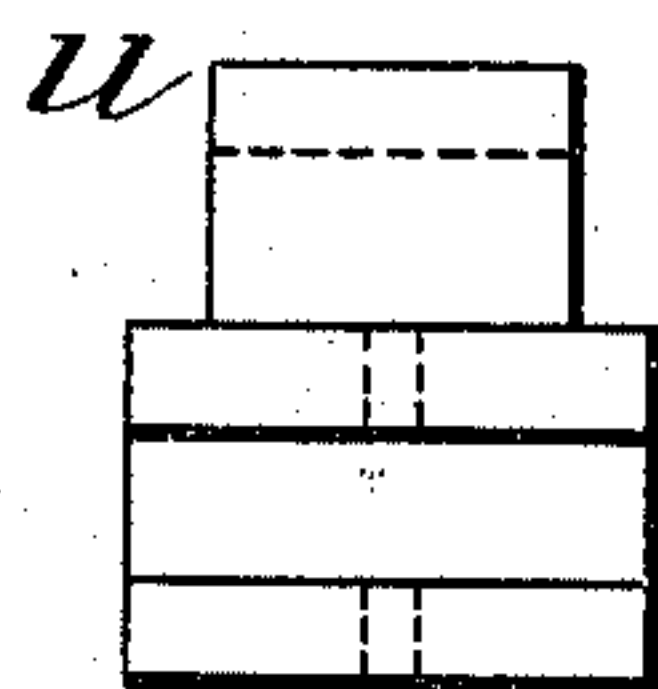
*Fig. 3.*



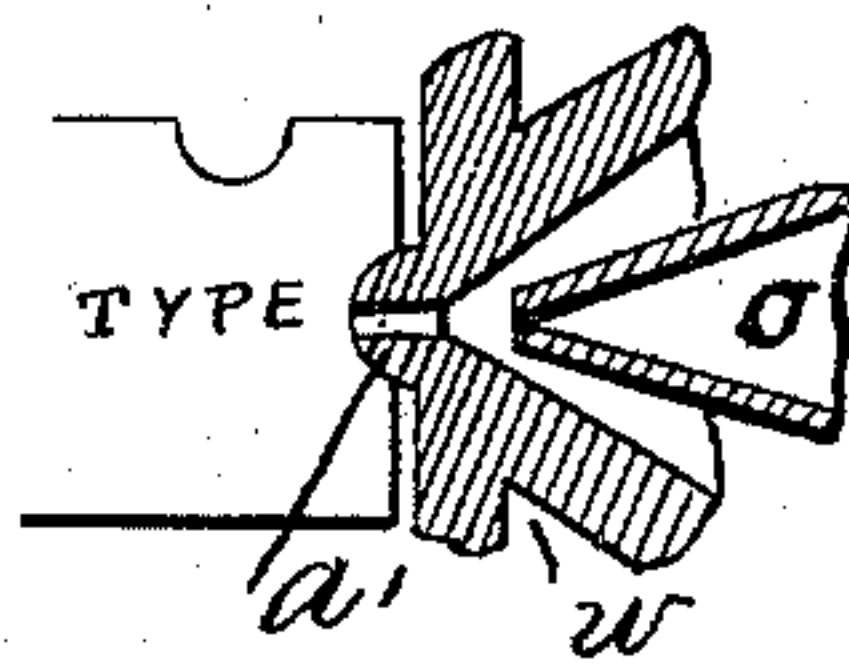
*Fig. 4.*



*Fig. 5.*



*Fig. 8.*



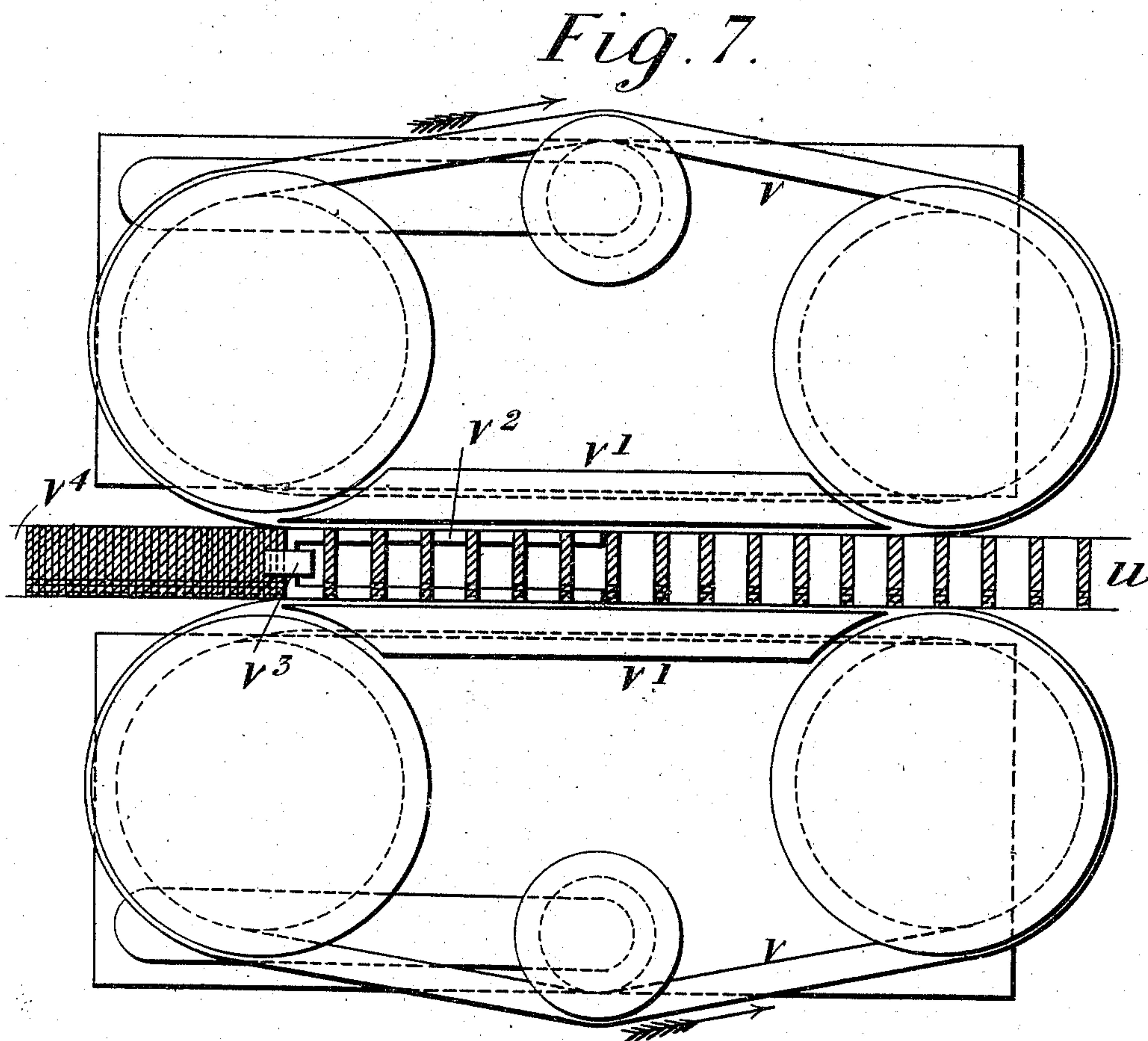
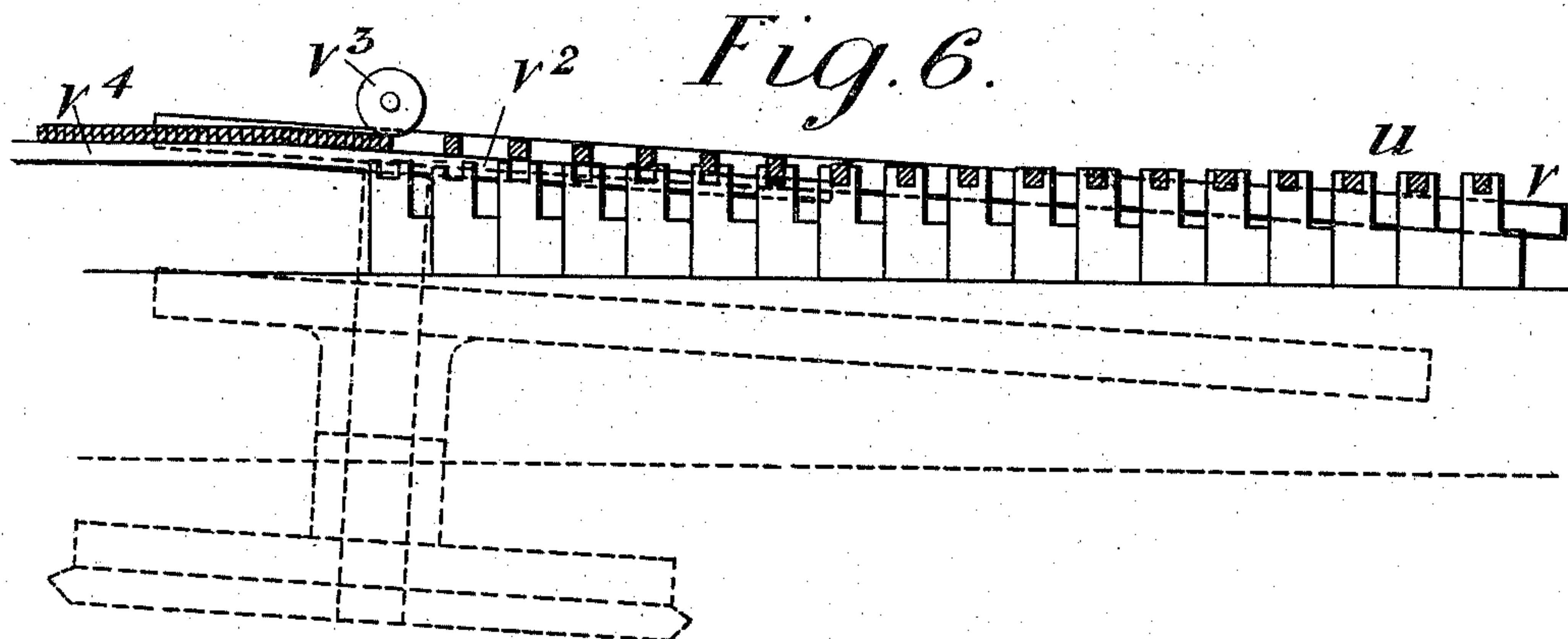
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F. WICKS.  
TYPE MOLDING MACHINE.

No. 565,820.

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Witnesses.  
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# UNITED STATES PATENT OFFICE.

FREDERICK WICKS, OF LONDON, ENGLAND.

## TYPE-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,820, dated August 11, 1896.

Application filed February 25, 1895. Serial No. 539,666. (No model.) Patented in England March 9, 1894, No. 4,986; in France February 15, 1895, No. 245,158; in Belgium February 16, 1895, No. 114,143, and in Canada March 28, 1895, No. 48,542.

*To all whom it may concern:*

Be it known that I, FREDERICK WICKS, a citizen of England, residing at No. 1 Cheyne Gardens, Chelsea, in the county of London, England, have invented certain new and useful Improvements in Type-Molding Machines, (for which I have obtained Letters Patent in Great Britain, dated March 9, 1894, No. 4,986; in France, dated February 15, 1895, No. 245,158; in Belgium, dated February 16, 1895, No. 114,143, and in Canada, dated March 28, 1895, No. 48,542,) of which the following is a specification.

This invention relates to a machine for casting types in molds which are arranged radially in a horizontal wheel and have matrix-pistons caused to slide to and fro in them. At a certain point in the revolution of the wheel the successive molds, having their matrix-pistons then retracted, receive jets of molten metal, and after the types thus molded are carried around in the wheel for some distance they are extruded by the advance of the matrix-pistons and received in grooves of a traveling chain.

Type-casting machines operating in this manner are already known, but they have certain imperfections which it is the object of my present invention to correct, thus rendering the machine more durable and efficient and simplifying the operations required for casting a finished type, as I shall describe, referring to the accompanying drawings.

Figure 1 is a vertical section, and Fig. 2 is a plan, of the molding-wheel. Fig. 3 is a plan, and Fig. 4 is a side elevation, of the chain which conveys away the types. Fig. 5 is an end view of one of its links. Fig. 6 is a side view, and Fig. 7 is a plan, of the apparatus for discharging the types from the chain; and Fig. 8 is a detail sectional view to more clearly show the projecting bead on the shield that admits the nozzle by which the molten metal is injected into the type-molds to form type.

$a$  is the mold, formed in a groove of the wheel  $A$ , which by a pawl acting on ratchet-teeth on the flange of its boss at  $B$  is caused to revolve step by step in the direction of the arrow on the stationary axis  $C$ , on which is fixed the cover  $D$ .

$b$  is the cover of the mold, which I make hollow, so that it is cooled by water circulating through it from an inlet  $b'$  to an outlet  $b^2$ , Fig. 2.

$c$  is the matrix-piston, the rear end of which I provide with an adjusting-screw  $f$ , abutting, when the piston is retracted, against the stationary cam  $g$ , the depth of the mold  $a$  being thus accurately adjusted to form a type of proper height.

$e$  is the guide-ring, having grooves in which the matrix-pistons slide to and fro.

Under the molds and pistons there is in the wheel a large cavity  $d$ , through which water circulates for cooling. The water is caused to flow up through a passage  $h$ , bored up the stationary shaft and out to a circular groove  $h'$ , sunk in the shaft, from which groove it passes by a hole or several holes  $h^2$  into the cavity  $d$ . From  $d$  the water returns by a hole  $i$ , bored in the revolving sleeve to a groove  $i'$ , formed in the stationary base, and thence away to a suitable outlet. By means of a screw  $k$  the mold-cover  $b$  is pressed down to close contact with the face of the mold-wheel. On the under face of the cover  $b$  there is a projecting bead  $b^3$ , which forms the nick in the cast type. The upper surface of the wheel has a circular groove corresponding with the bead  $b^3$ . When several nicks are required in the type, there are several beads  $b^3$  on  $b$  and corresponding grooves in the upper face of the wheel.

The stationary shield  $o'$ , which admits the nozzle  $o$ , has a projecting bead  $a'$  (best seen in Fig. 8) to form the notch or groove in the heel of the type, and the wheel has a corresponding groove in its periphery. Through the bead  $a'$  is bored the hole by which the molten metal is injected from the nozzle  $o$  into the type-mold  $a$ . Around this hole there is a space  $w$  for circulation of cooling water.  $q$  are the cogs or teeth on the wheel for engaging with the chain  $u$ , which carries away the extruded types. The surplus metal ejected from the nozzle  $o$  finds its way through the space  $m$  in the shield to a duct  $m'$ , extending down into the molten metal in the melting-pot  $t$ , thus sealing the interior of the shield  $m$  against access of air, which other-



wise would oxidize the metal. For more effectually preventing oxidation the space *m* may be kept charged with a gas that does not oxidize. Various positions of the matrix-pistons as the molding-wheel revolves are indicated in Fig. 2.

At *c'* the piston has in front of it more than the depth for a type. At *c<sup>2</sup>* it is being advanced by the cam *g*, acting on the adjusting-screw *f*. At *c<sup>3</sup>* it is in the position to form the mold of the right depth. At part of the circumference the types are extruded by a stationary eccentric *g'*, acting on the broad ends of the matrix-pistons *c* and are received in the chain *u*. The molds in this part of their course move under a cover *l*. The chain *u* is guided by pulleys *u'* to a place where the types can be conveniently discharged from it, in which place it is guided for some distance in a straight course, as shown in Fig. 7.

On each side of the chain *u* in the straight part of its course I provide a thick, flexible, and elastic band *v* of rectangular section, which is pressed by guides *v'* against the ends of the types projecting beyond the grooves of the chain. The bands *v*, as shown in Fig. 6, travel in a plane inclined to the plane of the chain, and as they hold the types between them they gradually raise the types out of the grooves of the chain and deliver them onto a pair of inclined prongs *v<sup>2</sup>*, one on each side of the chain, whence they are pushed under a roller *v<sup>3</sup>* onto a galley *v<sup>4</sup>*.

Having thus described the nature of my said invention and the best means I know for carrying the same into practical effect, I claim—

1. The combination in a type-casting machine, of a horizontally-revolving wheel having type-forming molds and constructed with an internal, cool-fluid-circulating chamber, a stationary mold-cover arranged over the

wheel, having an internal, cool-fluid-circulating chamber and provided with projecting nick-forming beads to form nicks in the types, a shield arranged in juxtaposition to the wheel and mold-cover, constructed to communicate with the molds to deliver the type-metal therinto and provided with a notch-forming bead to form notches in the feet of the type, a nozzle extending into said shield for delivering the molten metal therethrough into the molds, and a melting-pot arranged below the shield and provided with a surplus-metal duct extending from the shield down into the molten metal in the melting-pot, substantially as described.

2. The combination in a type-casting machine, of a horizontally-revolving wheel having type-forming molds, a mold-cover arranged over the wheel, a shield arranged in juxtaposition to the wheel and mold-cover and constructed to communicate with the molds to deliver the type-metal therinto, a nozzle extending into the shield for delivering the molten metal therethrough into the molds, and a melting-pot arranged below the shield and provided with a duct *m'* extending from the said shield down into the molten metal in the melting-pot, substantially as described.

3. In a type-molding machine, the combination of a horizontally-revolving wheel provided with type-molds, the chain *u* for conveying the types, the inclined bands *v*, the guides *v'*, the fork *v<sup>2</sup>*, and the galley *v<sup>4</sup>*, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of February, A. D. 1895.

FREDERICK WICKS.

Witnesses:

OLIVER IMRAY,  
JNO. P. M. MILLARD.