(No Model.) 2 Sheets—Sheet 1.

C. SKATULLA.

LINOTYPE MACHINE.

No. 538,133. Patented Apr. 23, 1895.

Fig. 2.

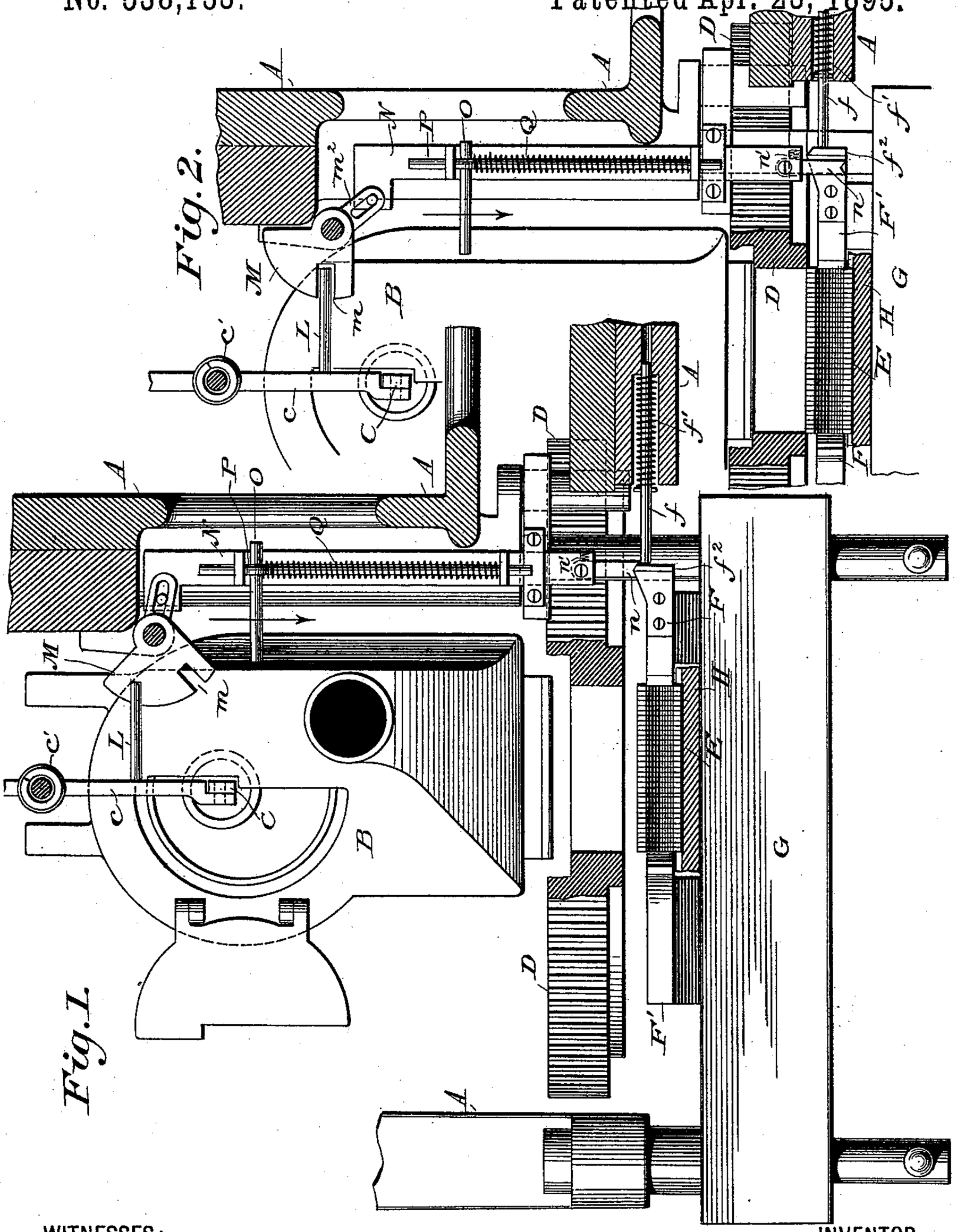

Fig. 1.

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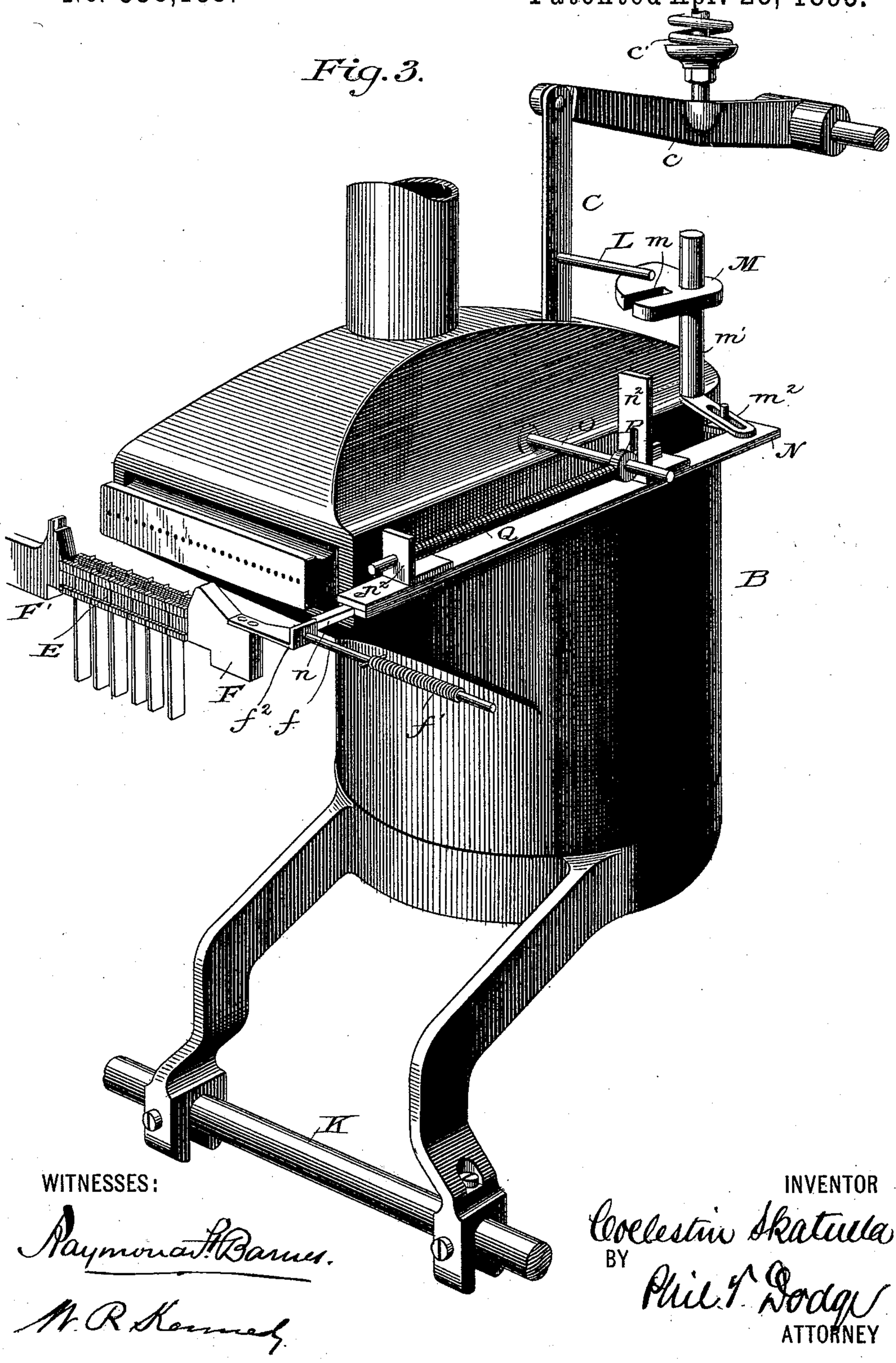
Fig. 3.



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UNITED STATES PATENT OFFICE.

COELESTIN SKATULLA, OF BROOKLYN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE MERGENTHALER LINOTYPE COMPANY, OF NEW YORK, N. Y.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,133, dated April 23, 1895.

Application filed May 2, 1893. Serial No. 472,811. (No model.)

To all whom it may concern:

Be it known that I, COELESTIN SKATULLA, a citizen of Austria-Hungary, and a resident of the city of Brooklyn, State of New York, have invented certain new and useful Improvements in Linotype-Machines, of which the following is a specification.

In the Mergenthaler linotype and other machines of its class a slug or linotype is produced by delivering molten metal from a melting-pot, by means of a pump therein, into a mold, which is momentarily closed at the front by a series of metal matrices and spaces temporarily assembled in line against and across the face of the mold, so as to produce on the casting in relief, letters to print a line. In order to secure proper action of these machines it is necessary that the matrices shall be held firmly and closely against each other and against the face of the mold. This is accomplished by sustaining the line of matrices and spaces in a yoke or elevator and by confining the line endwise between two jaws which determine its length, the line being ordinarily justified or elongated to a predetermined length, after it is seated between the jaws, by means of adjustable or expansible spaces. If the matrix line as composed is shorter than the mold, or if the spacing devices fail to act properly or to a sufficient extent, or if for any other reason the matrices fail to be presented in close order against the mold, there is a liability of the molten metal flowing from the mold between them, and thus producing an imperfect linotype.

The object of my invention is to prevent this occurrence, and to this end I mount one of the matrix-confining jaws in such manner that it may yield under the pressure of the matrices, and combine with it a stop mechanism to prevent the action of the pump or other part of the pump mechanism. When the line of matrices is set or adjusted to its full length it carries the jaw backward to its normal position, and the stop device fails to act. If however, the line is for any reason shorter than it should be, the jaw, sliding endwise from its proper position, will act through intermediate devices to prevent the operation of the pump, and consequently the delivery of metal to the mold will be prevented.

It will be understood by skilled mechanics after reading this specification that my invention is susceptible of embodiment in many forms, mechanical equivalents, but I prefer to use substantially the construction herein shown.

Figure 1, is a top plan view of the casting mechanism of the ordinary Mergenthaler machine, such as represented in Letters Patent of the United States, dated September 16, 1890, No. 456,532, with my attachment applied thereto, the stop being in action to prevent casting. Fig. 2 is a plan view of the principal parts,—the mold being shown in horizontal section,—with the pump unlocked that it may operate to fill the mold. Fig. 3, is a perspective view of the same parts with the mold wheel omitted in order to expose other parts to view.

Referring to the drawings:—A, represents the frame of the machine; B, the melting pot, supplied with type metal and heated by a gas flame thereunder.

C, is the pump plunger or piston, working vertically in a cylinder in the pot and serving when depressed to drive the molten metal from the pot through its perforated mouth or spout into the slot or mold proper in the mold wheel D. The pump plunger C, is connected to an operating lever *c*, which is depressed by a spring *c'* and elevated at suitable intervals by cam connections or other devices.

E, represents the line of matrices supported in front of the mold and confined endwise by the two jaws F and F′, mounted in the face of the stationary vise frame G. The matrix line is suspended in a vertically-movable yoke or elevator H, by which it is lowered into a position between the jaws and in front of the mold. The melting pot is sustained by legs mounted on a horizontal shaft K, and is combined with operating devices by which it is caused to swing to and from the rear face of the mold, which latter is closed during the casting action by the mouth of the pot.

The foregoing parts, except in the points hereinafter mentioned, may all be constructed

and arranged as in the Mergenthaler patent above mentioned.

In applying my invention in the form shown the pump piston is provided with a projecting arm or pin L, and on the main frame there is supported a horizontally-swinging stop plate M, having a notch *m*, therein, so that when turned to present its slot beneath the pin, as shown in Fig. 2, the pump will be permitted to operate in the ordinary manner; but when turned to present the solid portion beneath the pin as shown in Figs. 1 and 3, it will prevent the pump plunger from descending, and thus prevent the casting action. The stop plate is mounted on a vertical shaft *m'*, seated in a suitable bearing in the main frame and provided at its lower end with an arm m^2, connected by a pivot to a horizontally-sliding bar N, which is extended forward through suitable guides to the front of the mold, where it is provided with a finger *n*, pivoted so as to have limited lateral motion, and pressed constantly to the left by a spring *n'*. The pot is provided with a laterally-extending stud O, projected through a rod P, which is arranged to slide forward and backward through guides n^2, on the bar N. A spiral spring Q, encircles this rod, and acting on the finger support, tends to push the bar end forward and thereby turn the stop plate M to an inactive position.

The clamping jaw F is mounted to slide endwise slightly inward beyond its operative position, and is pressed constantly endwise by a sliding pin *f* encircled by a spiral spring *f'*, seated in any stationary part of the machine. At the outer end of the jaw there is an extended and upturned finger f^2.

The action of the parts is as follows: Whenever the line of matrices is properly seated between the jaws and is of proper length it pushes back the jaw F to the position shown in Fig. 2, in which position the finger f^2, is carried beyond the path of the finger *n* on the sliding bar. Under this arrangement, the pot, in swinging forward to the mold acts through the spring Q, to move the slide N forward, thereby setting the stop plate in its inactive position, and allowing the pump to work and all parts of the machine to operate as usual in producing the cast. If however, the matrix line is for any reason, shorter than it should be, or if it fails to be presented properly between the jaws, the jaw F will be held endwise by the spring in such position that when the pot swings forward the finger f^2 on the jaw will stand in the path of and arrest the advance of the finger *n* and slide N, thus holding the latter backward as shown in Figs. 1 and 3, keeping the stop plate in position to prevent the action of the pump. The spring Q being interposed between the pin on the pot and the slide, allows the pot to swing forward, although the advance of the slide is prevented.

It will be remembered that the finger *n* is free to swing under pressure to the right a limited distance. This lateral motion of the finger, which is notched in the front end to receive the beveled edge of the finger f^2, is allowed, in order that the parts may be certain to engage. The lateral motion of finger *n* allows it to seat itself squarely and firmly against the finger f^2, although the initial engagement between these parts may be very slight. Were it not for this lateral motion, there would be danger of finger *n* engaging very slightly on the edge of the finger f^2, and of its slipping past the same and failing to act. The inward motion of the jaw F is very limited, so that it will in no case pass to the left of the finger *n*.

My invention consists broadly in combining with a suitable jaw or clamping device movable under the influence of the matrix line, devices for preventing the casting action of the machine; and it is obvious that these stop devices may be used as shown in connection with the pump, or with the driving clutches, or other controlling parts of the machine. It is also obvious that the form of stop device and intermediate action may be modified at will, provided a mode of action essentially such as herein described is retained, and that any yielding device actuated by the matrices will be the mechanical equivalent of the yielding jaw.

I am aware that automatic stops have heretofore been used in connection with the pump of linotype machines, being operated in one case by devices for placing the matrices in position and in another by a device which lifts the justifying wedges through the line, the wedges serving to limit the motion of the device so that when the wedges are lifted beyond the pre-determined limit the stop will be thrown into action. I believe myself to be the first, however, to control the casting mechanism by a jaw or other movable part, acted upon by the elongating line of matrices so that the matrices are made the means of determining whether the machine shall cast or not.

Having thus described my invention, what I claim is—

1. In a linotype machine, a device to stop the casting mechanism independently of the other parts of the machine combined with and controlled by a movable matrix-confining jaw.

2. In a linotype machine the combination of the pump and a device to control the action of the pump located at the end of the matrix line and operated by the expansion of the line.

3. In a linotype machine, the combination of the movable jaw or clamping device actuated by the matrix line, the movable pot, its pump, the stop device for the pump, yielding connections through which the jaw acts to control the stop device.

4. In a linotype machine the combination of a movable melting pot, its pump, the stop device for the pump, the sliding plate to actuate the same, a device attached to and moving with the pump and yielding connections be-

tween the last named parts, and a matrix-confining jaw co-operating with the foregoing parts substantially as described and shown.

5. In combination with a sliding jaw, a swinging pot, its pump, the swinging stop for said pump, the slide N co-operating with the jaw, the spring to advance the said slide and a connection between the pot and spring.

6. In the linotype machine and in combination with a yielding jaw, a stop device having a laterally yielding finger to engage said jaw substantially as described and shown.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 19th day of April, 1893.

COELESTIN SKATULLA.

Witnesses:

THOS. KILVERT,

PHIL. T. DODGE.