

F. C. LUCKE D'AIX.
 LINE CASTING MACHINE.
 APPLICATION FILED MAY 13, 1908.

972,591.

Patented Oct. 11, 1910.

2 SHEETS-SHEET 1.

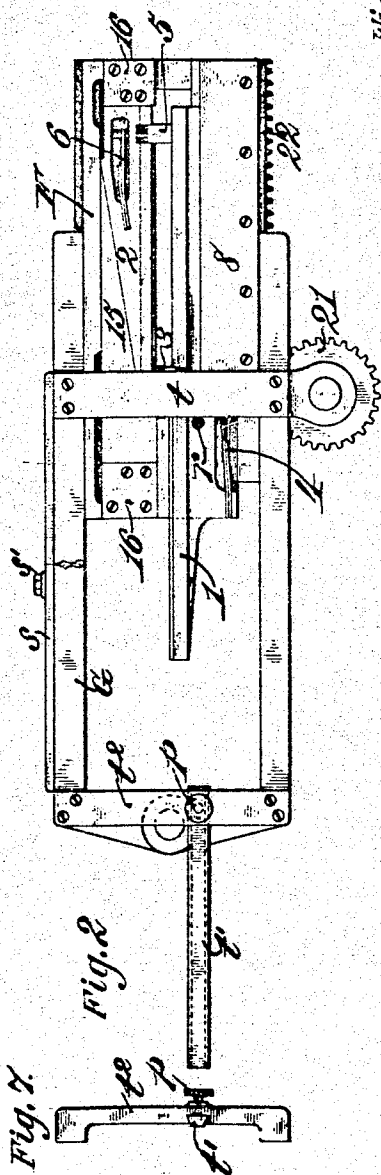


Fig. 2

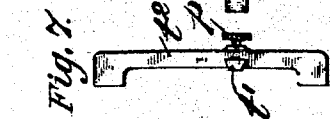


Fig. 1

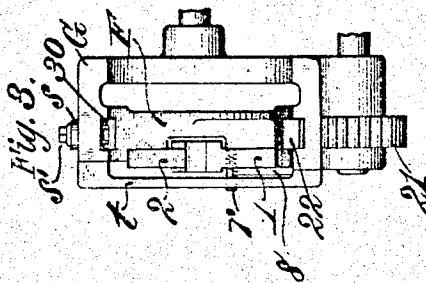


Fig. 3

Witnesses:
 John H. Lynch
 H. Lee Helms

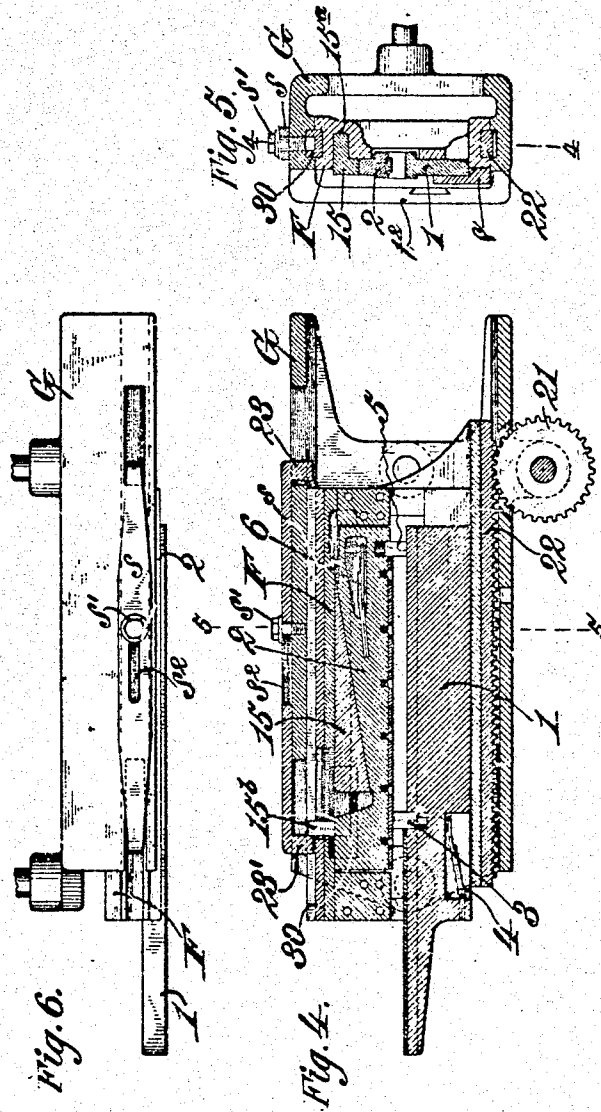
Inventor
 Fritz C. Lucke d'Aix.
 By Attorney
 Marcell Bailey

F. C. LUCKE D'AIX.
LINE CASTING MACHINE.
APPLICATION FILED MAY 13, 1908.

972,591.

Patented Oct. 11, 1910

2 SHEETS—SHEET 2.



Witnesses:
John H. Lynch.
H. Lee Helms

Inventor
Fritz C. Lucke d'Aix.
By his Attorney
Marcellus Bailey

UNITED STATES PATENT OFFICE.

FRITZ C. LUCKE D'AIX, OF NEW YORK, N. Y.

LINE-CASTING MACHINE.

972,591.

Specification of Letters Patent.

Patented Oct. 11, 1910.

Application filed May 13, 1908. Serial No. 432,605.

To all whom it may concern:

Be it known that I, FRITZ C. LUCKE D'AIX, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Line-Casting Machines, of which the following is a specification.

These improvements in line casting machines have to do with the mold in which the slug or line is cast—said mold being a traveling mold, which moves from casting to ejecting position and return, as usual in machines of this class; and they relate more particularly to a traveling mold of this character which is variable as to the length and width of its mold space and is combined with suitable means for automatically closing the mold to one length and width or another as required, and also with means for automatically opening the mold in both directions during its travel. A mold of this general character is not here broadly claimed, inasmuch as I have made it the subject of my patent for improvements in line casting machines, No. 944,981 of December 28, 1909. In the mold of my said patent the closing of the mold to predetermined length and width, takes place through the agency of spring actuated means which automatically operate as soon as the mold, on its return movement from ejecting to casting position, quits the devices by which it is opened in both directions. In my present application, in lieu of said spring actuated means, I employ stops which operate not only automatically but positively to close the mold to predetermined length and width—this action taking place near the close of the return movement of the mold from ejecting to casting position; and these stops I unite with independent adjusting means whereby the stops may be set to close the mold automatically and positively to varying lengths and widths as required. In this way the action of the parts of the mold is rendered more certain and accurate, and I am enabled to dispense entirely with spring actuated mold closing devices—a point of some practical importance, inasmuch as the heat due to the casting operation is apt to have an injurious influence on the springs used for this purpose.

In the accompanying drawing to which I shall now refer for a better understanding of my improvements—Figure 1 is a front elevation of a mold embodying my improve-

ments, with the mold in casting position. Fig. 2 is a like view of the same when in ejecting position. Fig. 3 is an end elevation of the same—looking at the right hand end of the mold, Fig. 1. Fig. 4 is a longitudinal vertical section of the same on line 4—4, Fig. 5. Fig. 5 is a transverse vertical section of the same on line 5—5, Fig. 4. Fig. 6 is a plan view of the mold. Fig. 7 is a side elevation of the bar which carries the setting or closing rod by which the length of the slot or mold space is determined.

In the drawings—G is the carrier frame.

F is the slide mounted in the carrier frame and adapted to slide therein for the purpose of conveying the mold from casting to ejecting position and return.

The mold consists of the bottom and top jaws 1, 2, mounted in the slide, and the spring-impelled spring yielding side pieces 3 and 5 housed in and interposed between the jaws. These pieces, which form the side walls of the mold, are housed, the one, 3, in the lower jaw, and the other, 5, in the upper jaw. They are spring pressed by springs 4 and 6, each toward the face of the opposite jaw, and they form tight fitting side walls which are self adjusting to variations in distance between the top and bottom jaws. The upper jaw is capable of vertical movement to and from the lower jaw in order to vary the width of the mold space, and is pressed upward by the side pieces 3 and 5, which tend to open the mold. The jaw moves between guide plates 16 in the slide—there being a tongue and groove or equivalent connection between the plates and the jaw whereby the latter, as it moves up and down, is held in its proper relations to the lower jaw.

The upper jaw is depressed against the lifting tendency of the side pieces 3, 5, by a wedge-like presser 15 of T cross section, its upper and horizontal limb fitting in a horizontal guide groove 15^a in the slide, wherein it can move longitudinally. The vertical limb of the presser is wedge shaped, its inclined bottom edge bearing upon a correspondingly inclined surface on the top of the upper jaw. When the wedge is moved to the right it will close the jaw 2 against the stress of the spring pressed side pieces 3, 5; when it is moved to the left it will permit the upper jaw to rise.

The lower jaw 1 rests upon the bottom of the slide F and is supported thereon be-

tween the back of the slide and the front plate 8 which forms a guideway in which the jaw 1 is capable of lengthwise movement. This movement of the lower jaw will, according to its direction, cause the side piece 3 which it carries to approach or recede from its fellow side piece 5 carried by the upper jaw, thus varying the length of the mold space as desired.

The slide F is held and guided in its movements in the carrier frame G, by a longitudinal rib 30 on its top, which enters a corresponding groove in the carrier frame; and by a rib 22 on its bottom, which enters a corresponding guide groove in the bottom of the carrier frame. Rib 22 is formed as a rack to engage a pinion 21 mounted in the carrier frame, thus providing means by which the slide may be moved at proper intervals from casting to ejecting position and return.

The parts thus far described are the same in construction and action as those identified by corresponding reference characters in my aforesaid Patent No. 944,981.

In order to open and close the mold, I provide the wedge 15, with an upwardly projecting finger 15^b and I locate in the path of movement of that finger two stops 23, 23' against which alternately the finger brings up as the mold moves back and forth between casting and ejecting position.

The finger 15^b corresponds to the like designated part in my aforesaid Patent No. 944,981. It extends up from the wedge through a slot in the slide F and projects into a longitudinal channel formed in the top of the rib 30.

The stop 23, corresponds in purpose and function to the like designated part in my said Patent No. 944,981. As the mold moves to the right from the position shown in Fig. 4 to ejecting position, the stop 23 meets the finger 15^b, and thus arrests the wedge 15, slightly before the mold reaches ejecting position, in this way relieving the upper jaw of wedge pressure, and permitting it to rise or open sufficiently to relieve the slug of pressure.

In order to again close the mold the stop 23' is so located that on the return of the mold from ejecting to casting position it meets the finger 15^b, and thus arrests the wedge 15 slightly before the mold reaches casting position; and as the wedge is thus held stationary while the mold still continues to move to the left, the result is that the wedge positively forces down and closes the upper jaw to its original position.

The extent to which the upper jaw is depressed is determined by the position of the stop 23' relatively to the finger 15^b, and therefore by making this stop 23' adjustable so that it will meet the finger 15^b sooner or later during the return movement of the

mold from ejecting to casting position, the width of the mold slot or space can be varied as desired. Obviously such adjustment can be provided for in many ways. I prefer for this purpose to form both stops 23, 23' on, or fix them to, a bar *a*, at a distance apart from each other slightly less than the length of traverse of the slide, the bar being adjustably secured to the top of the carrier frame G by thumb screw or bolt *s'* which passes into the top of the frame through longitudinal slot *s*² in the bar. The stops project down through slots in the carrier frame into the path of movement of the finger 15^b. By adjusting the bar lengthwise of the frame G the position of the closing stop 23' can be varied at will to determine the width of the mold space. At the same time, inasmuch as the distance between the two stops 23, 23' is invariable, it follows that no matter what may be the width of the slot, the opening movement of the mold will always be the same.

To open and close the mold lengthwise, and to vary the length of the slot, I use a similar system of stops in connection with the lower jaw, with the difference, however, that in this case the two stops are not connected so as to be adjustable together, but the closing stop is adjustable independently of the opening stop, which indeed may be, and preferably is, a fixed stationary stop, by the action of which the mold space is opened always to its maximum length, whatever may be the position of the closing stop. Manifestly the structural details of devices for this purpose may widely vary. Under the arrangement shown in the drawing, the stationary opening stop is formed by the vertical bar *t* which is secured to the top and bottom rails of the carrier frame G and extends in front, and crosswise, of the mold. The closing stop consists of a horizontal rod *t'*, parallel with the face of the mold and mounted in a vertical bar *t*², which, like the vertical bar *t*, is secured to the top and bottom rails of the carrier frame G. The end of closing stop rod *t'*, and the vertical opening bar *t*, are in the path of movement of a finger or other projection *r* on the lower jaw 1.

In order to adjust the stop bar *t'* so that it shall meet the finger *r* sooner or later during the return movement of the mold from ejecting to casting position, the stop bar fits in a horizontal undercut guide groove on the inner face of the arm *t*² wherein it can move lengthwise; and it is held in adjusted position by a set or clamp screw *p*, as shown more clearly in Fig. 7. Thus by varying the position of the closing stop *t'*, the length of the mold slot or space can be varied at pleasure. But whatever the length of the mold slot when closed, it will always be opened by the stationary stop *t* to the same extent—that is, to the maximum length.

I may connect the two stops t, t' for the lengthwise opening and closing, just as the two stops 23, 23', for the widthwise opening and closing are connected; or I may make the two stops 23, 23' separate, and with separate provisions for adjustment.

It is not important that the widthwise opening stop 23 be adjustable, any more than in the case of the lengthwise opening stop t . But it is essential that the closing stop 23' should be both longitudinally adjustable and combined with means for holding it rigidly and unyieldingly in its adjusted position. The capacity for lengthwise adjustment is essential because thereby the width of the slot is determined; and the stop in whatever position it may be set must be rigid and unyielding, because it cannot otherwise insure the accuracy of closing which is indispensable to good work. The arrangement, however, which on the whole I prefer is illustrated in the drawing. Obviously these and other structural details of the mold can be widely varied by the skilled mechanic without departure from the spirit of my invention. I therefore do not limit myself to the particular details of construction herein shown and described in illustration of my invention: But

What I claim and desire to secure by Letters Patent is as follows:

1. A linotype mold mounted to reciprocate bodily and comprising, in combination, a lower jaw, a rising and falling upper jaw, intermediate yielding members to close the ends of the mold space, a wedge for adjusting the upper jaw, and stops for automatically and positively moving the wedge in relation to the other parts as the mold moves to and fro.

2. A linotype mold mounted to reciprocate bodily and comprising in combination, a lower jaw, a rising and falling upper jaw, intermediate yielding members to close the ends of the mold space, a wedge for adjust-

ing the upper jaw, stops 23, 23' for automatically and positively moving the wedge in relation to the other parts as the mold moves to and fro, and means for adjusting said stops.

3. The reciprocating linotype mold including the wedge to vary the width of the mold space in combination with a front stop to move the wedge in a direction to permit the mold to open, a rear stop longitudinally adjustable to move the wedge in a direction and to an extent to close the mold to any predetermined width, and means for holding the rear stop rigidly in adjusted position.

4. A longitudinally reciprocating linotype mold having one member movable longitudinally in relation to the others for the purpose of changing the length of the mold space in combination with stops for automatically and positively opening and closing the mold to one length or another during its movement to and fro.

5. A longitudinally reciprocating linotype mold having one member movable longitudinally in relation to the others for the purpose of changing the length of the mold space, in combination with a fixed stop for automatically opening the mold to maximum length, and an adjustable stop for automatically closing the mold to one length or another as desired.

6. In a line casting machine, a traveling mold variable as to the length and width of the mold space in combination with adjustable means for automatically and positively closing the mold to one length and width or another as required, and means for automatically opening the mold in both directions during its travel.

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

FRITZ C. LUCKE D'AIX.

Witnesses:

SAMUEL AMES,
ANNE M. O'ROURKE.