J. R. ROGERS.

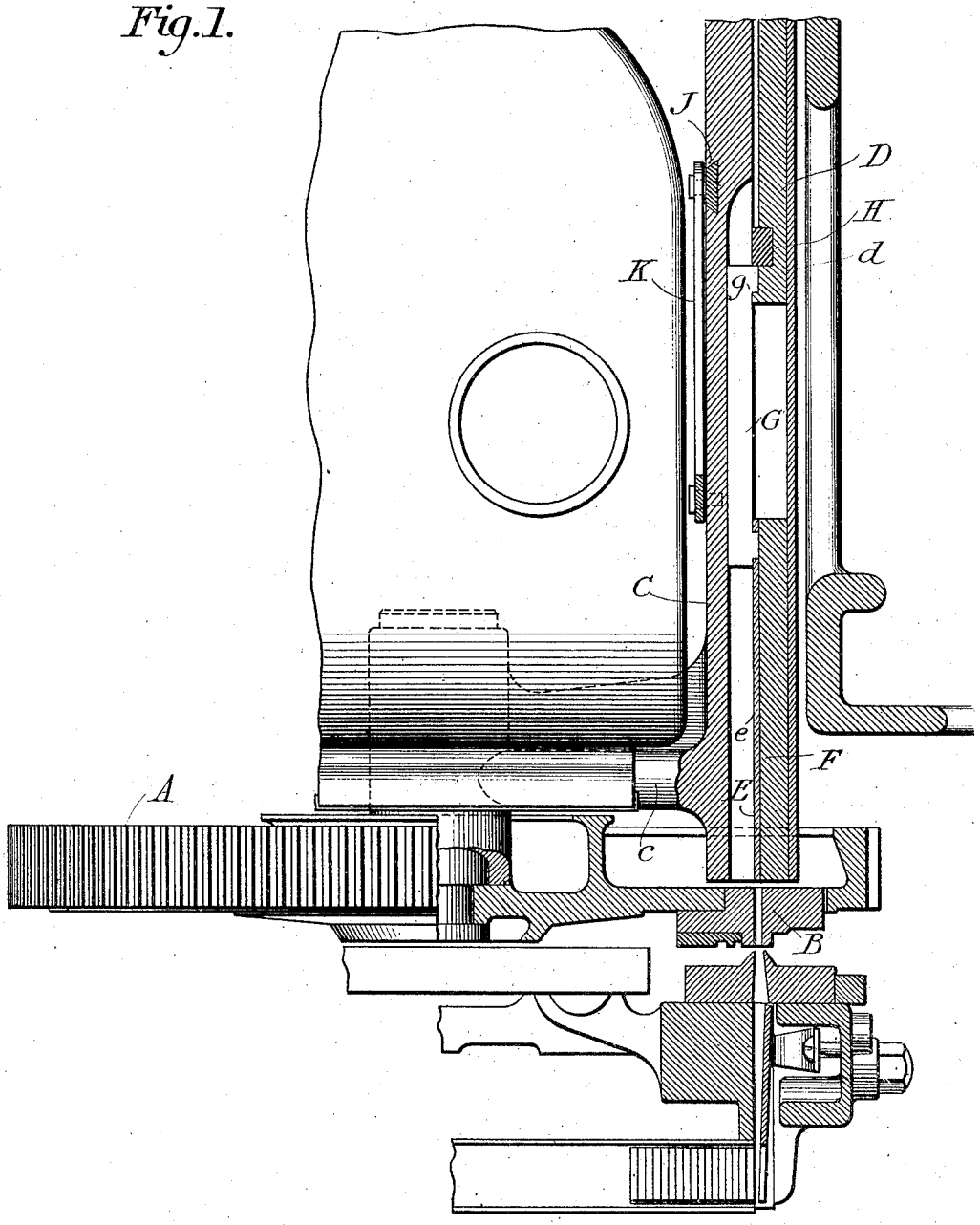
EJECTING DEVICE FOR LINE CASTING MACHINES, &c.

APPLICATION FILED FEB. 15, 1909.

967,976. Patented Aug. 23, 1910.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses

Raymond F. Barnes.

L. E. Thornicroft

Inventor

John R. Rogers

By O. T. Dodge

Attorney

J. R. ROGERS.

EJECTING DEVICE FOR LINE CASTING MACHINES, &c.

APPLICATION FILED FEB. 15, 1909.

967,976. Patented Aug. 23, 1910.

3 SHEETS—SHEET 2.

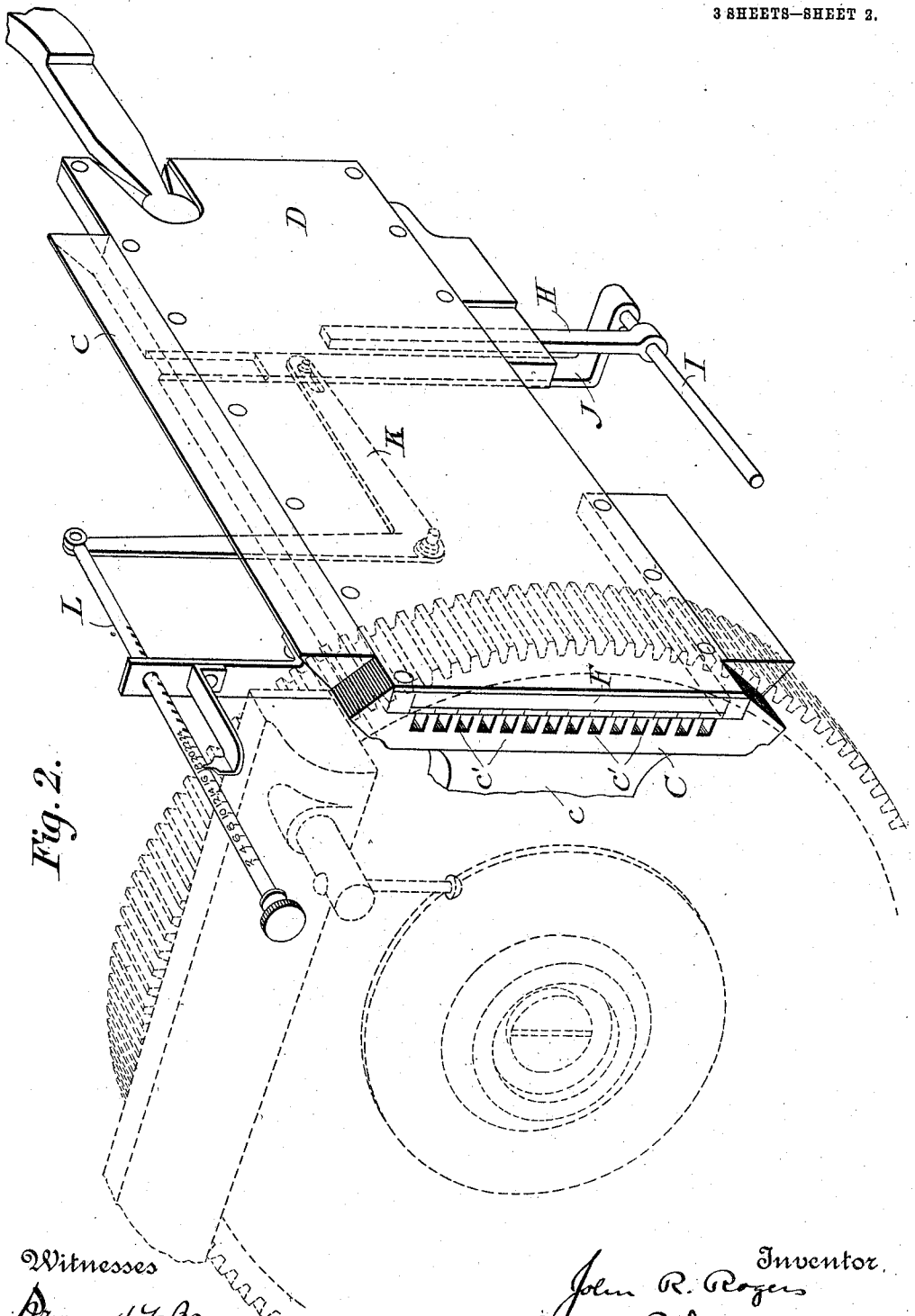


Fig. 2.

Witnesses

Raymond F. Barnes.

L. E. Harrison

Inventor

John R. Rogers

By O. T. Dodge

Attorney

J. R. ROGERS.

EJECTING DEVICE FOR LINE CASTING MACHINES, &c.

APPLICATION FILED FEB. 15, 1909.

967,976. Patented Aug. 23, 1910.

3 SHEETS—SHEET 3.

Fig. 4.

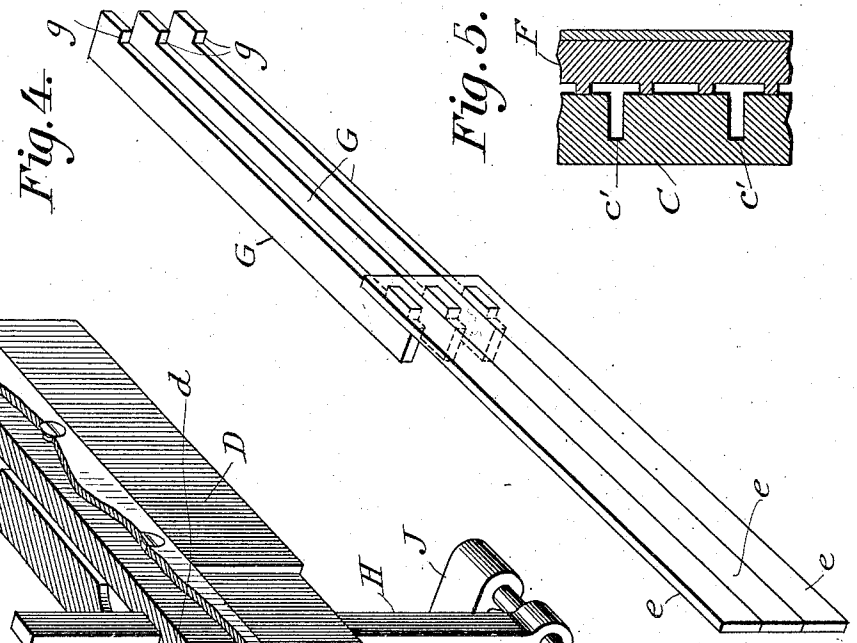


Fig. 5.

Fig. 3.

Witnesses

Raymond F. Barnes.

L. E. Morrison

Inventor

John R. Rogers

By O. F. Dodge

Attorney

UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

EJECTING DEVICE FOR LINE-CASTING MACHINES, &c.

967,976. Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed February 15, 1909. Serial No. 477,943.

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of the borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Ejecting Devices for Line-Casting Machines, &c., of which the following is a specification.

My invention relates to machines in which printing slugs or bars are cast in a slotted mold and delivered therefrom by an ejector blade advancing from the rear against the edge of the slug. In all these machines the molds are variable or adjustable in length, to produce slugs for printing columns or pages of different width.

The object of my invention is to provide a composite ejector with its parts so constructed and combined that its operative portion may be instantly varied in width to correspond with any change in the length of the mold slot. To this end I construct my ejector blade of a series of parallel longitudinal sections arranged edge to edge, and I provide in connection with their actuating slide, locking mechanism by which any desired number of sections or blades can be connected with the slide while the others are left free, so that they remain at rest or inactive. I provide in connection with the sectional ejector blade, means whereby its members are firmly supported and guided, throughout their length so that although thin and of narrow width they are prevented from buckling or bending under the thrusting strains to which they are subjected in action. I also provide means by which the sections may be instantly thrown into and out of action by the operator in front of the machine.

While I have shown my invention in the preferred form of arrangement—adapted for application to commercial Mergenthaler machines of the present day—it will be perceived by the skilled mechanic that the details of construction can be substantially modified without changing the mode of action; and it is to be understood that the ejector is applicable not only to Mergenthaler machines for casting continuous slugs, and for casting two or more short slugs at one time, but also to all other machines of the same general character.

I have limited the drawings herein to those parts immediately associated with my invention, and it is to be understood that the other parts of the machine may be constructed as shown in United States Letters Patent No. 436,532, or in any other suitable manner.

In the drawings: Figure 1 is a top plan view in section showing the mold carrying wheel, its supporting slide, and the attendant ejecting devices. Fig. 2 is a perspective view showing the rear portion of the mold-carrying slide and the ejector mechanism—the mold wheel and the forward end of the supporting slide being broken away to expose the other parts to view. Fig. 3 is a view of the same general character as Fig. 2, but with portions broken away to show the internal construction. Fig. 4 is a perspective view illustrating the sectional construction of the ejector. Fig. 5 is a front elevation of a portion of the front end of the mold slide showing another mode of construction.

Referring to the drawings, A represents the vertical mold disk or wheel having the usual slotted mold, B, secured thereon. This mold may be of the construction shown in Letters Patent of the United States No. 620,804, or of any other construction which will admit of its slot or cell being changed in length at will, various constructions to this end being well known in the art.

C is a horizontal reciprocating slide mounted in the frame of the machine and having at the forward end a transverse arm, *c*, to which the mold wheel, A, is journaled as usual—the movement of the slide being for the purpose of advancing the mold against the matrix line and retracting it, together with the contained slug, therefrom, subsequent to the casting action.

D is the ejector slide carried by, and arranged to reciprocate horizontally on, the mold slide, C, as usual, for the purpose of actuating the ejector. Ordinarily the ejector consists of a single blade secured to the forward end of the slide D and arranged to be projected forward by the latter through the mold to drive the slug therefrom.

E represents the ejector proper. Instead of being made in a single piece or blade as heretofore, I construct it of a series of parallel blades, sections, or fingers, *e*, each having a vertical width of two ems, more or less. These ejector sections are arranged

one above another, and if the machine is adapted to cast a single, continuous slug, the blades have their edges arranged in contact, as shown in Figs. 2 and 4; whereby they are adapted to sustain and guide one another. The entire ejector, that is to say the series of blades or sections, is guided between the vertical face of the mold slide, C, on one side, and the vertical plate F, secured to the mold slide, on the opposite side of the ejector. As clearly shown in the several figures, each of the ejector sections or fingers, *e*, is supported and guided on both sides from one end to the other. In practice the blades are commonly made very thin, in order that they may enter a mold producing thin slugs, or slugs with thin bodies. These slugs frequently offer substantial resistance to the advance of the ejector blades, and as heretofore supported and guided the thin blades were liable to bend or buckle midway of their length. The present construction admits of very thin blades being used, and gives them such firm support from their rear end to the point where they enter the mold, that there is no possibility of their being sprung or bent.

The several sections of the ejector are free to slide forward and backward independently, so that any desired number of them may be brought into action jointly to form an ejector of a vertical width corresponding to the length of the slug which is being at the time cast in the machine, while the other sections are permitted to remain inactive, in the inner or backward position.

The ejector sections, *e*, are each actuated by a horizontal slide, G. These slides—one connected to each section at the forward end—are mounted in grooves, *c'*, formed on the mold slide C. It is to be noted that the intermediate slides G which connect the ejector blades *e* with the main actuating slide C are of less width vertically than the blades, and also that these slides G lie horizontally to one side of the blades and the slide D. This construction admits of each blade *e* bearing throughout its length on one side against the fixed plate C and on the opposite side against the fixed plate F. In this manner the blades *e* are supported and guided throughout their length, so that it is impossible for them to bend or spring horizontally in either direction. In practice the slot in the mold is frequently very thin or narrow, for the production of leads, rules and thin slugs, and the ejector blade must be equally thin. When the plates are supported as above described, they may be made of the requisite thinness without danger of their being sprung or bent out of shape if, as often happens, the slug offers substantial resistance. The essence of the invention in this regard lies in giving support to the blades on both sides at points between their ends, preferably throughout the whole or the greater part of their length.

In order that any required number of the sections *e*, may be coupled to the actuating slide D while the other sections remain free, I mount on the ejector slide D a vertically sliding bar H, having its lower end arranged to travel forward and backward on a rod I, attached to a vertical slide J, the latter being mounted in the mold slide C and connected by an elbow lever, K, mounted on said slide and actuated by a rod L extending forward, through a suitable guide arm, to the front of the machine. The slide H is arranged to rise and fall behind the slides G, attached to the ejector sections. It may be moved upward and downward by means of the rod L to such position that it will act behind and drive forward any desired number of sections without affecting the others—which will remain at rest. The retraction of the operative sections is affected by means of shoulders, *g*, on the rear ends of the slides G, engaging behind the vertical shoulder *d* on the ejector slide, D. The rod L is preferably provided as shown with a series of graduations representing ems or points, to be read in connection with a pointer *l*, so that an operator desiring to adjust the ejector for a mold of a given length has only to move the rod L until the corresponding number thereon registers with the pointer.

When the slot is provided with a mold having two or more cells or slots, for casting two or more short slugs at one time, the ejector sections instead of being in contact at their edges will be separated to correspond with the position of the mold cells or slots, and in such case the plate F will have guiding grooves thereon to receive the ejector sections, as shown in Fig. 5.

It is manifest that in place of the bar H and slides G any other appropriate means may be used for connecting the ejector sections with the actuating slide.

It will be understood that both the ejector slide and the mold slide may be operated by the usual mechanism or by any other suitable means.

The sections, *e*, of the ejector are preferably connected to the slides G by providing them with holes to receive the tongues, *g*, projecting laterally from the sides as shown in Fig. 4.

It will be observed that the ejector sections or fingers, *e*, may be disconnected at will from the slides G, and fingers of other widths applied thereto, corresponding with the cells or openings in the mold which may be used. This construction admits of the fingers *e* being changed in number and size, and of their being spaced apart any required distance, in order that they may be used with the cellular molds commonly em-

ployed for casting a series of logotypes, quads, or the like. It is to be observed that in my construction each of the ejector fingers or sections *e* is separately and independently supported, and separately operated, by a guided support, G.

Having described my invention, what I claim is:

1. In an ejector mechanism, a series of ejector fingers, *e*, in combination with guides, C and F, between which the blades are supported throughout their length, blade actuating slides, G, of a width less than the blades, and means for operating one or more of the slides G at will; whereby the ejector is adapted for change in width at will; and its fingers supported in such manner that they are prevented from bending.

2. In a line casting machine, a series of reciprocating ejector fingers or sections, *e*, and a main slide for actuating the fingers, a series of intermediate connecting slides, G, of less vertical width than the ejectors, a grooved plate, C, sustaining the slides G and bearing against the ejector fingers, a stationary guide, F, bearing against the ejector fingers on the opposite side, and means for connecting one or more of the slides G with the main slide D at will.

3. In combination with the ejector sections, *e*, slides G, the actuating slide D, the vertical connecting slide, H, the lever K for adjusting the same, and an actuating handle extending from said lever to the front of the machine.

4. In combination, an ejector comprising a series of parallel fingers or sections, means for actuating the series, means for connecting any desired number of the sections at will with the actuating means, and an indicator coöperating with the connecting means; whereby the attendant is enabled to adjust the ejector instantly for delivering slugs of any given length.

5. In a line casting machine an ejector comprising a series of sections or fingers *e*, means for guiding the same on both sides, throughout their length, slides G and guides therefor, an actuating slide D, and means for connecting the last named slide with one or more of the slides G at will.

6. In a line casting machine, the combination of a plurality of slides G, means for reciprocating said slides, ejector blades *e*, connected to the respective slides, and supporting guides located on opposite sides of the ejectors and extending substantially their entire length.

7. In an ejector mechanism, the combination of an ejector finger *e*, an actuating slide G therefor, a slotted guide for the slide G, and guides lying against both sides of the finger *e* for substantially its entire length.

8. In an ejector mechanism, a series of ejector fingers or sections *e*, and means for guiding and supporting the same on both sides throughout their length; a corresponding series of slides, G, with distinct means for guiding the same; and means for operating any number of the slides G in unison.

9. In a line casting machine, the combination of the mold wheel A, the mold B thereon, the mold supporting slide C, the series of ejector sections, the series of slides, G, connected thereto, a slide, D, adapted to actuate the last named slides, and adjustable means for connecting the slide D with any desired number of the ejector slides G.

10. An ejector mechanism for a line casting machine, comprising an actuating slide, a series of ejector fingers lying edge to edge, intermediate slides connecting the ejector fingers with the actuating slide, intermediate slides connecting the main slide and the ejector fingers and lying to one side of the same, and two fixed guides lying against opposite sides of the ejector fingers, one of said guides grooved to receive the intermediate slides, as described and shown.

In testimony whereof I hereunto set my hand this fifteenth day of January, 1909, in the presence of two attesting witnesses.

JOHN R. ROGERS.

Witnesses:
ROBERT G. CLARK,
LUCY E. SMITH.