D. S. KENNEDY.

LINE CASTING MACHINE.

APPLICATION FILED APR. 30, 1908.

905,541. Patented Dec. 1, 1908.

Fig. 1.

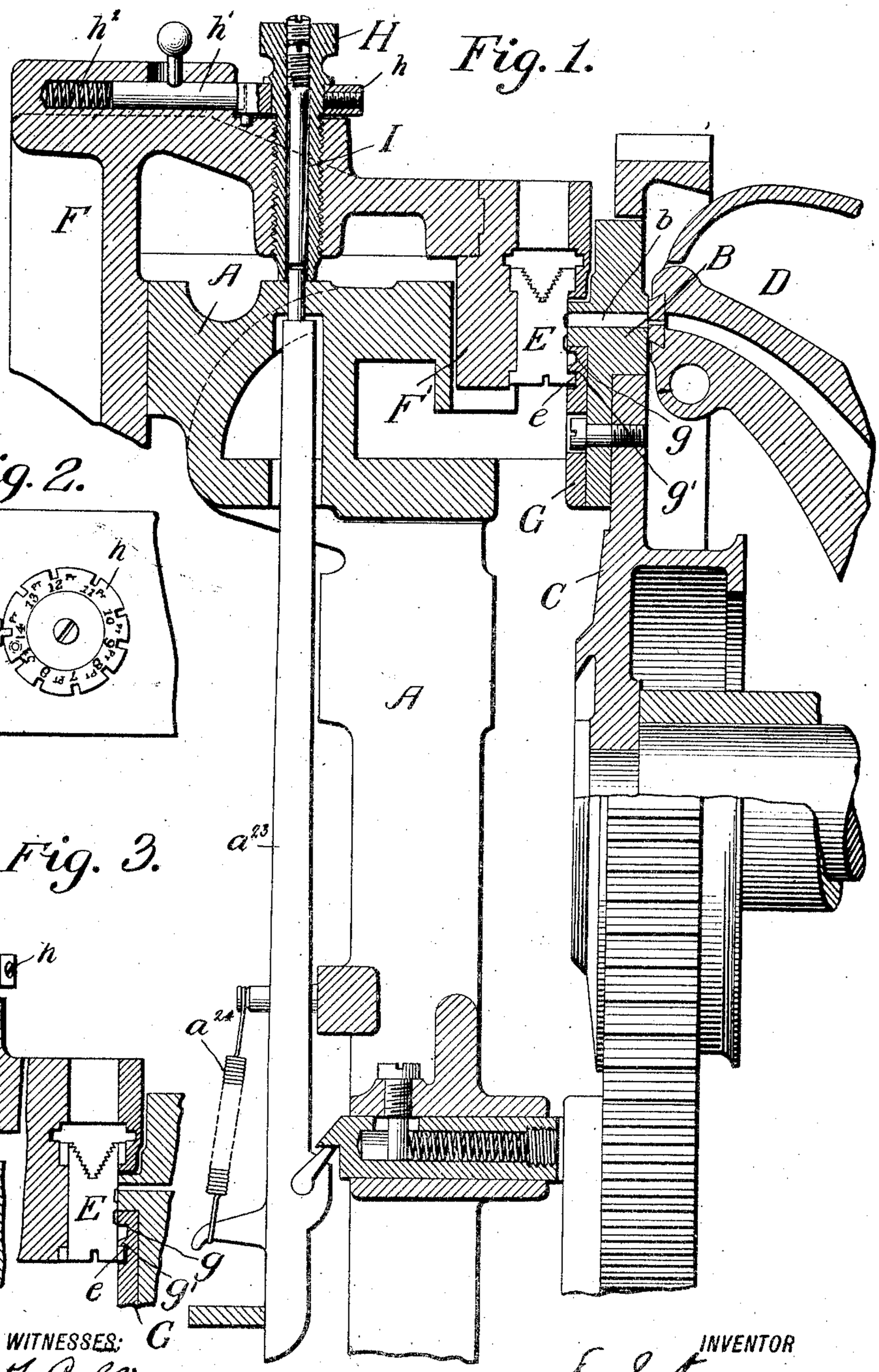

Fig. 2.

Fig. 3.

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LINE-CASTING MACHINE.

No. 905,541. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed April 30, 1908. Serial No. 430,080.

To all whom it may concern:

Be it known that I, DAVID S. KENNEDY, of borough of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Line-Casting Machines, of which the following is a specification.

This invention has reference to line-casting machines of the general character represented in Letters Patent of the United States #436,532, wherein circulating matrices are composed in lines and presented to the face of a mold in which a slug or printing bar is cast against them, after which they are returned through a distributing mechanism to the magazine from which they started.

My improvement has reference to means for insuring the proper presentation and alinement of the matrices in front of the mold to determine the location of the characters on the edge of the slug, and also in this connection, to means for preventing the starting of the machine unless the matrices are in the proper position.

In this machine, the composed line of matrices and wedge spacers or justifiers, commonly known as "the line", is transferred horizontally to a vertically movable support, commonly known as the first elevator. This elevator lowers the line to a position in front of the horizontal slotted mold, which advances facewise against the edges of the matrices, after which the elevator is urged upward in order to insure vertical alinement of the matrices by causing the ears at their lower ends to rise beneath a horizontal shoulder or keeper on the mold. In the commercial use of these machines, it is a common practice to substitute for one set of matrices another set having characters of a different size, and also a common practice to adjust the mold so as to vary the thickness of the slug therein. The location of the characters crosswise of the slug is determined by the relation which the matrices bear to the mold. It is therefore necessary to control with precision the descent of the line-supporting elevator, and in some cases to vertically adjust the alining matrice shoulder on the mold, or replace it by a shoulder in a different position. All machines of this class are provided with an automatic device actuated by the descending elevator to control the driving clutch so that if the elevator fails to lower the matrix line to the predetermined level, the driving clutch will be prevented from starting the casting mechanism.

My invention includes adjustable means for arresting the descent of the elevator and the matrix line in definite or predetermined positions, and also means connected therewith for determining the action of the clutch-controlling devices, which latter are in themselves of the form shown in U. S. Patent #436,532.

The accompanying drawings are restricted to those parts of an ordinary commercial Mergenthaler machine which are immediately associated with my invention, and it is to be understood that as to all other parts, the machine may be of the ordinary or any other suitable construction.

Figure 1 is a vertical cross-section through the mold, the mouth of the melting pot, the first elevator, and the clutch-controlling devices, together with the adjacent parts, my improved devices being applied thereto. Fig. 2 is a top plan view. Fig. 3 is a view similar to Fig. 1, the mold being, however, provided with a different keeper or shoulder-plate to aline the matrices in a different relation to the mold.

Referring to the drawings, A represents the stationary portion of the main-frame commonly known as the vise-frame.

B is the slotted mold shown in the horizontal or casting position.

C is a vertical disk or wheel in which the mold is secured. It is commonly known as the mold-disk and is mounted to rotate intermittingly and also to move horizontally forward and backward in order to carry the mold facewise to and from the matrices.

D is the mouth of the melting pot movable to and from the rear face of the mold and adapted to deliver molten metal thereto.

E are the matrices arranged in line side by side and presenting the characters or matrices proper in one edge opposite the mold-slot *b*.

F is the vertically movable first elevator in which the line of matrices is suspended. The elevator receives the line at a level higher than that shown in the drawing, after which it descends and lowers the line to the casting level in front of the mold, which is at such time retracted in order to prevent conflict with the shoulders *e* at the lower

ends of the matrices. After the matrices have reached the casting level, the mold advances toward them.

To the face of the mold, there is rigidly secured a so-called keeper-plate G, having on its face one or more horizontal shoulders g g', to engage over the lower ears of the matrices and effect their accurate alinement when the elevator F is urged upward, as it is after the advance of the mold.

In the present instance, I have shown each matrix as provided with two independently usable characters, one above the other. Each matrix will be set into the line at a higher or lower level according as one character or the other is to be presented to the mold, and the matrix ears e will engage under one or the other of the shoulders g, g', according to the height of the matrix in the line. This is well understood in the art and requires no further explanation.

So far as described, the parts may all be of the ordinary construction and have the ordinary mode of action.

My first improvement relates to the means for controlling the descent of the elevator F and the contained matrix line. For this purpose, I mount in the top of the elevator F a vertical tubular screw H having its lower end in position to contact with the top of the frame A and thereby limit the descent of the elevator. In order to permit the speedy and accurate adjustment of this stop-screw H, I provide it with a flange h notched in the periphery to admit a horizontal locking bolt h' mounted in the elevator and urged forward by a spring h^2. The notches in the flange h will be so disposed as to permit the setting of the screw and the stoppoge of the elevator in the exact positions required. Ordinarily the screw is made of such pitch and the notches so located that the turning of the screw from one notch to another will vary the height of the matrices one point—a point being the printer's unit of measure. It will be observed that by means of this screw the vertical position of the matrices may be accurately controlled in relation to the alining shoulders and the slot of the mold, so that the matrices will form the characters in the required positions on the edge of the slug. It is to be noted that by means of the screw and devices for locking the same in definite positions, the attendant is enabled to accurately predetermine the position of the matrices in relation to the mold, and thereby the position of characters, of any given size, on a slug of any given thickness. No mechanism heretofore known in the art answers this purpose.

When a change is required in the location of given characters crosswise of the slug, or when the thickness of the slug produced or the character of the matrices employed require, the keeper-plate G secured to the mold by screws or otherwise, may be removed and replaced by a keeper having shoulders at a different height, as shown for example in Fig. 3. When this change is made, the screw H has to be correspondingly adjusted and the level of the elevator F controlled so that the ears of the contained matrices will pass closely under the shoulder or shoulders of the keeper.

In place of the movable or interchangeable keepers, a keeper adjustable vertically on the mold may be employed, both forms of keeper being well known in the art.

Reference has already been made to the fact that the clutch mechanism for driving the casting mechanism is controlled by the descent of the elevator F, and to this end the vertically sliding bar a^{23} is extended at its upper end through the top of the main-frame in position to be depressed by a screw I threaded into the tubular screw H so that it may be adjusted vertically in relation thereto. The adjustment should be such that when the stop-screw H encounters the top of the frame, the screw I will hold the bar a^{23} down to the proper level to permit the action of the casting mechanism. This bar a^{23} is urged constantly upward by a spring a^{24}. These parts correspond to the parts indicated by the same letters in U. S. Patent No. 436,532, and the bar a^{23} operates to control the driving clutch through devices the same, or substantially the same, as those described in the patent, so that further description of these parts is unnecessary.

The essence of the present invention lies in controlling the bar a^{23} by a part carried in or forming a portion of a vertically adjustable member which controls the descent of the elevator F.

Of course it will be understood that the screw I, seated within the screw H, is in effect a part thereof, and that the vertical adjustment of the screw H to control the operative height of the matrix line effects the corresponding adjustment of the part for actuating the bar a^{23}. The adjustment of the screw I within the outer screw is necessary only when assembling the parts or to compensate for wear.

Having thus described my invention, I claim and desire to secure by Letters Patent,—

1. In a machine of the class described, the combination of a mold, a vertically movable elevator for presenting the matrix line in casting relation to the mold, means for controlling the clutch which drives the casting mechanism, and a device carried by and vertically adjustable in the elevator, said device acting directly on the clutch-controlling means and also acting to limit the descent of the elevator.

2. In a machine of the class described, the matrix-supporting elevator F, a clutch-con-

trolling member a^{23}, and adjustable means for determining the height of the elevator, said means adapted also to directly actuate the bar a^{23}.

3. In a machine of the class described, the combination of the main-frame, the matrix-supporting elevator F, a stop-screw for the elevator, means for controlling the screw to set the elevator at predetermined heights, and means for locking the screw in predetermined positions.

4. In combination with the main-frame, the elevator F, the screw H provided with a graduated flange, and a locking device to engage the same in definite positions.

5. In combination with the frame A, the elevator F, and the clutch-controlling rod a^{23}, the tubular screw H to control the height of the elevator, and means carried by the screw and adjustable in relation thereto to actuate the bar a^{23}.

6. In combination with the frame A, elevator F, and rod a^{23}, the tubular screw H to limit the height of the elevator, and a secondary screw I mounted therein to actuate the bar a^{23}.

In testimony whereof I hereunto set my hand this twenty seventh day of April, 1908 in the presence of two attesting witnesses.

DAVID S. KENNEDY.

Witnesses:
JOHN R. ROGERS,
JESSIE L. SMITH.