(No Model.)

S. H. & P. E. HODGKIN.

TYPE SETTING MACHINE.

No. 564,076. Patented July 14, 1896.

Fig. 1.

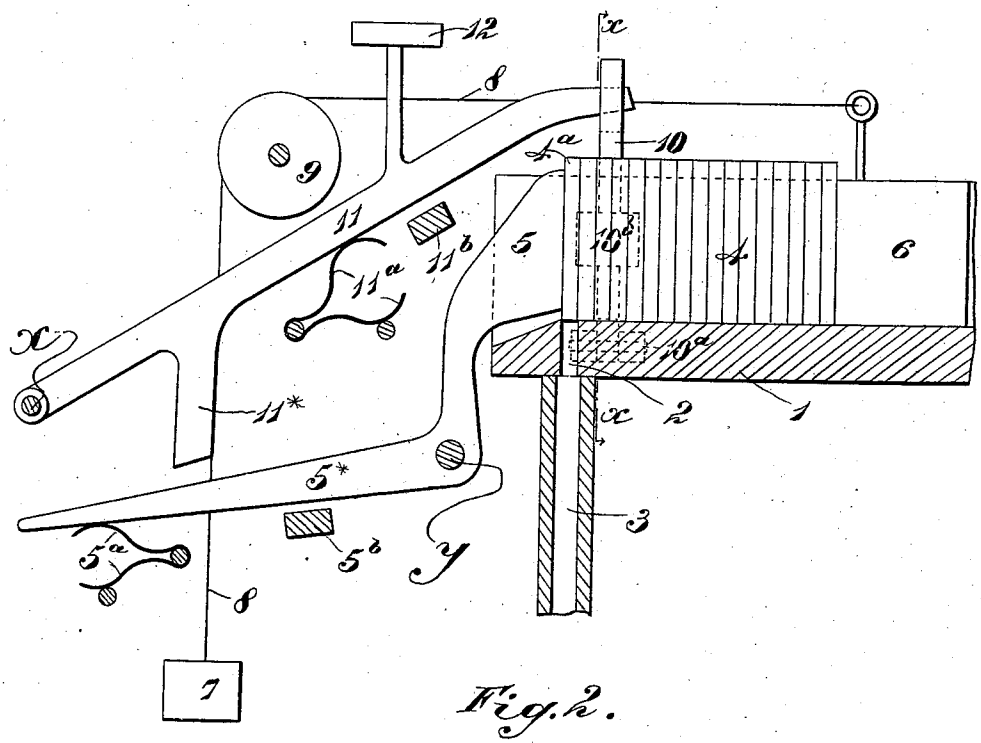
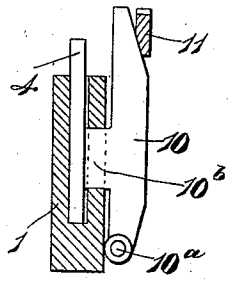


Fig. 2.



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UNITED STATES PATENT OFFICE.

STANLEY HOWARD HODGKIN AND PHILIP ELIOT HODGKIN, OF LONDON, ENGLAND.

TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 564,076, dated July 14, 1896.

Application filed September 5, 1895. Serial No. 561,557. (No model.)

To all whom it may concern:

Be it known that we, STANLEY HOWARD HODGKIN and PHILIP ELIOT HODGKIN, subjects of the Queen of Great Britain and Ireland, residing at Richmond, London, in the county of Surrey, England, have invented Improvements in Type Setting or Composing Machines, of which the following is a specification.

This invention has reference to type setting or composing machines of the kind in which the type characters are arranged in rows in troughs, and the end type of each row is caused, at the required times and by suitable key-operated mechanism, to pass downward through a slot or opening in the floor of the front end of its trough into a channel through which it passes by gravity to a packing device and thence to a composing stick or receptacle. In such machines it has heretofore been proposed to detach the end type by a pusher that acts upon one end of the type and at the same time forces the other types backward in order to relieve the end one from pressure. To obviate liability of the faces of the type being damaged by the pusher and to relieve the end type of pressure preparatory to allowing it to move from the trough, we have described in the specification of another application for United States Patent of even date herewith the use, in connection with each of a series of type-troughs of the kind referred to and feeding mechanism adapted to feed a row of types along the same, of a movable stop arranged at the front end of the type-trough and against which the row of type is normally forced, and key-actuated mechanism capable when operated of suspending the action of said feeding mechanism on the foremost end type of the row and of then moving the said stop away from said end type, so as to relieve the same of front pressure and allow it to fall by gravity through the discharge-opening in the floor of the trough.

Now our present invention relates to a further construction of apparatus of the kind referred to wherein each row of types is forced by a follower or by its own weight against a movable stop at the end of the trough, as before, but a holding device adapted to be operated mechanically, electrically, or otherwise is provided for engaging one or more types behind the foremost end type, so as to hold stationary the succeeding types while the end type is being released from the front by moving the stop away therefrom, thus permitting the end type to fall by gravity or otherwise, as before.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation illustrating, diagrammatically, an arrangement of type-setting apparatus according to this invention; and Fig. 2 is a section thereof on the line $x\,x$ of Fig. 1.

1 is a type-trough having in the floor thereof at the front end a slot or opening 2, located above a channel 3, through which the foremost end type, for the time being, of a row of type 4 can, when relieved of pressure, pass by gravity to a packing device of any suitable construction and thence to a composing stick or receptacle, as well understood.

5 is a movable stop in the form of a bell-crank lever (with fulcrum at y) arranged at the front end of the type-trough 1, and against which the row of type 4 is pressed by suitable feeding mechanism. In the arrangement shown the feeding mechanism comprises a follower 6, connected to a weight 7, or it may be to a spring, by a cord 8, that passes over a pulley 9.

The holding device for engaging types behind the foremost end one is, in the example shown, made in the form of a flap or lever 10, hinged or pivoted at 10^a and provided on its inner side with an extension 10^b, passing through the adjacent side of the trough 1. The upper end of the flap is beveled on one side and is arranged in the path of an extension of the lever 11, (fulcrumed at x,) the arrangement being such that when this lever is depressed by the key 12, carried thereby, the said lever extension will first act upon and press the flap laterally, so that the extension 10^b thereof will be caused to hold some of the type 4 in rear of the end one 4^a, after which an extension $11^\times$ of the under side of the lever 11 will act upon the arm $5^\times$ of the bell-crank lever constituting the stop and move such stop away from the end type 4^a. On releasing the key 12 the movable stop will return to its original position, and the lateral pressure of the holding device 10 will be removed,

thus leaving the row of type free to be again moved forward up to the stop 5 by the feeding mechanism in readiness for the release of the now foremost type.

What we claim is—

1. In a type setting or composing machine, the combination of a type-trough having a discharge-opening in its lower side near one end, a stop adapted to abut against and be withdrawn from the side of the foremost type in said trough, a holding device adapted to engage and hold stationary one or more types behind the foremost type, and mechanism for actuating said holding device and movable stop in succession, substantially as herein described for the purpose specified.

2. In a type setting or composing machine, the combination of a type-trough, having a discharge-opening at right angles to its length, feeding mechanism whereby a row of type can be fed forward along said trough, a stop adapted to abut against and be withdrawn from the side of the foremost type, a holding device adapted to engage and hold stationary one or more types behind said foremost type, and key-actuated mechanism capable when operated of bringing said holding device into the engaging position and of moving said stop away from the foremost type, substantially as herein described for the purpose specified.

3. In a type setting or composing machine, the combination with a type-trough having a discharge-opening in its lower side at one end, of a stop located at the front end of said trough and adapted to move to and from the end of said trough in the direction of the length thereof, a follower, mechanism adapted to force said follower against the rearmost type in said trough and the foremost type against said stop, a holding device adapted to engage and hold stationary one or more types behind the foremost end type, and mechanism controlled by a key whereby said holding device can be brought into its operative position and the stop be moved away from the end type, substantially as herein described for the purpose specified.

4. In a type setting or composing machine, a horizontal type-trough having a discharge-opening in its lower side at one end, a movable stop located in proximity to said opening, and against which the foremost type in said trough normally bears, a type-follower, a weight or spring, a flexible connector between said follower and weight or spring, a pulley round which said flexible connector passes, a holding device adapted to engage and hold stationary one or more type in said trough behind the foremost one, and a key for operating said holding device and movable stop in succession substantially as herein described.

5. In a type setting or composing machine, the combination of a type-trough having a discharge-opening at its front end, a spring-lever arranged to form a movable stop in proximity to said discharge-opening, feeding mechanism adapted to force a row of type along said trough and against said stop, a pivoted holding device having an extension arranged to pass through a lateral opening in said trough and to engage and hold stationary one or more types behind the foremost end one, and a key-operated lever adapted to first engage and partly turn said pivoted holding device into its type-engaging position and then to move the first-mentioned lever away from the foremost type in said trough, substantially as herein described for the purpose specified.

6. In a type setting or composing machine, the combination of a type-trough 1 having a discharge-opening 2, a bell-crank lever 5, $5^{\times}$ arranged to form a movable end stop to said trough, a follower 6 and means for forcing the same endwise against a row of type in said trough, a pivoted holding device 10 having a lateral extension 10^{b} adapted to extend through one side of said trough, and a key-actuated lever 11 having extensions that are adapted, when depressed, to directly and successively actuate said holding device and bell-crank lever, substantially as described for the purpose specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

STANLEY HOWARD HODGKIN.
PHILIP ELIOT HODGKIN.

Witnesses:
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