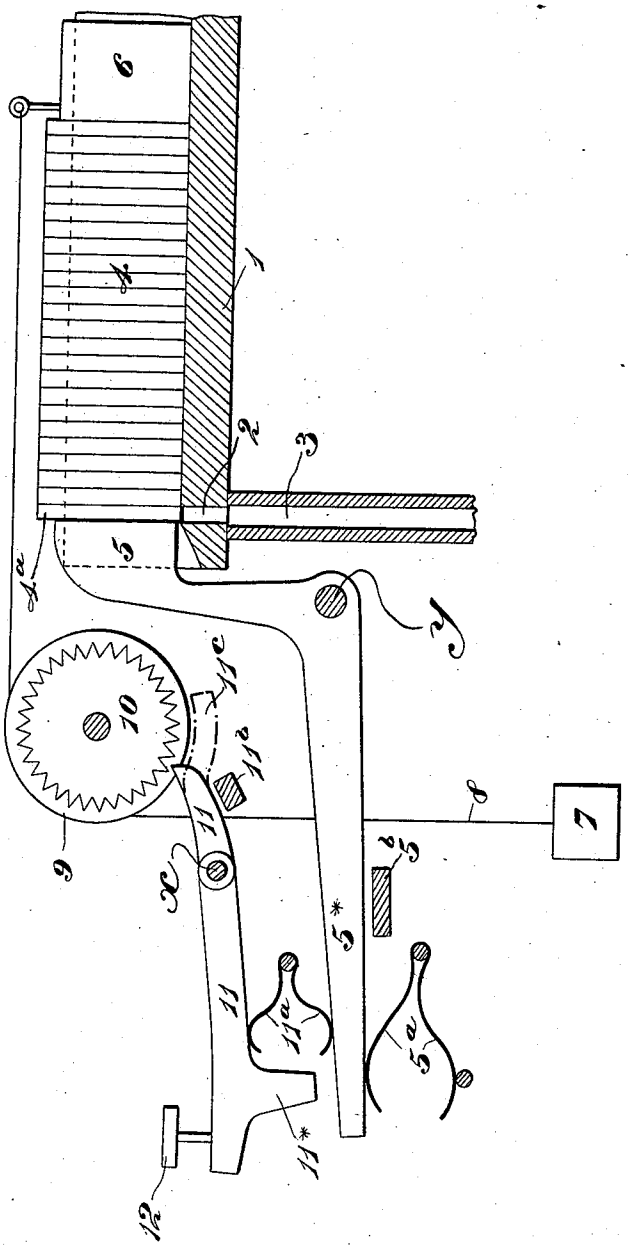
(No Model.)

S. H. & P. E. HODGKIN.

TYPE SETTING OR COMPOSING MACHINE.

No. 564,075. Patented July 14, 1896.



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UNITED STATES PATENT OFFICE.

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

TYPE SETTING OR COMPOSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 564,075, dated July 14, 1896.

Application filed September 5, 1895. Serial No. 561,556. (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. In such machines, however, precautions have to be taken to prevent the faces of the types from becoming damaged, and this invention has for its object, *inter alia*, to obviate this disadvantage.

For this purpose our invention consists in providing, 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, 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.

Our invention also consists in the various combinations and arrangements hereinafter more particularly described and claimed.

The accompanying drawing is a longitudinal sectional elevation illustrating, diagrammatically, an arrangement of type-setting apparatus according to this invention.

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.

5 is a movable stop 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 for this purpose in the drawing, the row of type is fed forward by a follower 6, connected to a weight 7, or it may be to a spring, by a cord 8, that passes two or three times around a pulley, 9 connected to a toothed wheel 10, in connection with which there is provided a lever 11, fulcrumed at x, one end of which terminates in proximity to the said toothed wheel and acts as a pawl thereto.

The arrangement is such that when the corresponding type-key 12 is operated the said lever will first engage with and partly turn the toothed wheel 10 and cord-pulley 9 in a backward direction, so as to relieve the follower 6 and row of type 4 of the pressure due to the weight 7, (or spring,) and in its further progress will actuate the movable stop 5, which will be then moved away from the end type 4^a, so as to leave this type perfectly free to fall. This type may be allowed to fall by the action of gravity alone, or it may be assisted by a pusher. On the key 12 being released, the movable stop 5 will return to its original position, whereupon the toothed wheel 10 will be released and thus allow the feeding mechanism to again move the row of type forward and bring the next foremost type against the movable stop 5 in readiness to be released the next time the key 12 is operated.

The key 12 may, as shown, be carried by the outer end of the lever 11, which may be provided with a tappet or extension $11^\times$, arranged to act, when sufficiently depressed, directly upon an extension $5^\times$ of the movable stop, which may, as shown, be in the form of a bell-crank lever, (fulcrumed at y,) though it may be of any other convenient form.

5^a and 11^a are springs for returning the mov-

able stop 5 and lever 11 to their original positions when the key 12 is released.

5^b and 11^b are fixed stops for $5^\times$ and 11, respectively.

In a modified arrangement of the above we replace the toothed wheel 10 and pawl by a holding device adapted to be actuated from the key 12, either mechanically or otherwise, and to then hold the aforesaid cord-pulley stationary while the movable stop is being operated. For this purpose the inner end of the lever 11 may, as shown in dotted lines in Fig. 1, be provided with an elastic or yielding pad or extension 11^c, which is so arranged that when the said lever is depressed by the key 12 it will first act against and hold the cord-pulley 9 stationary while the movable stop 5 is being operated by the further downward movement of the said lever.

What we claim is—

1. In a type setting or composing machine, a type-trough provided with a discharge-aperture at right angles to its length, a stop adapted to abut against and be withdrawn from the side of the foremost type and against which stop said foremost type is normally pressed, means adapted to arrest forward movement of said row of type and means to then move said stop away from the foremost type, substantially as herein described for the purpose specified.

2. In a type setting or composing machine, the combination of a type-trough arranged horizontally or approximately so and having a discharge-opening in the lower side thereof a stop adapted to abut against and be withdrawn from the side of the foremost type, feeding mechanism whereby a row of type can be fed forward along said trough toward said discharge-aperture and the foremost type pressed against said movable stop, and key-actuated mechanism capable when operated of suspending the action of said feeding mechanism and of then moving the stop away from the foremost type, substantially as herein described.

3. In a type setting or composing machine, the combination with a type-trough having a discharge-opening at its forward end, of a movable stop located at the front end of said trough, a follower, feeding mechanism adapted to force said follower against the rearmost type in said trough and the foremost type against said stop, and mechanism adapted when operated in one direction to hold said feeding mechanism out of action and to then move said stop from the said foremost type and allow the same to fall by gravity through said discharge-opening, substantially as described.

4. In a type setting or composing machine, the combination with a type-trough having a discharge-opening at its forward end, and an operating-key, of a type-follower for moving a row of type along said trough, a weight or spring, a flexible connector between said follower and weight or spring, a pulley around which said flexible connector passes, and means adapted to be operated by said key and to hold said pulley at the required times against the action of said weight or spring, 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, a follower arranged to force a row of type in said trough against said stop, a weight or spring connected by a flexible connector to said follower, a pulley around which said flexible connector is wound, and a key-operated lever adapted when operated in one direction to first engage said wheel and relieve said follower of the action of said weight or spring, and then to move the first-mentioned lever away from the foremost type in said trough, substantially as described for the purpose specified.

6. 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, a follower arranged to force a row of type in said trough against said stop, a weight or spring connected by a flexible connector to said follower, a pulley around which said flexible connector is passed, a toothed wheel fixed to said pulley, and a key-operated lever adapted when operated in one direction to first engage said toothed wheel and partly turn it and said pulley in a direction to relieve said follower of the action of said weight or spring, and then to move the first-mentioned lever away from the foremost type in said trough, 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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