

No. 640,274.

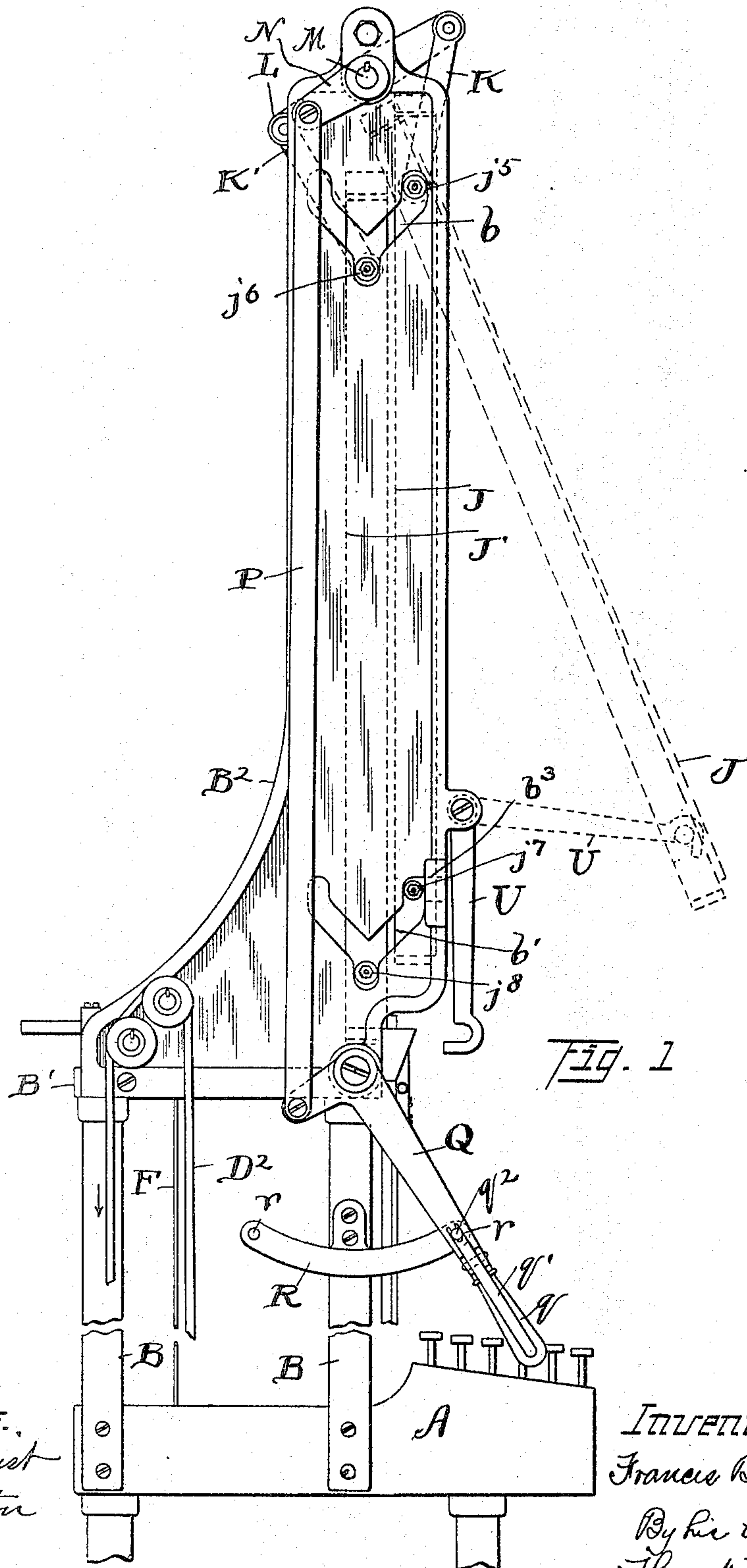
Patented Jan. 2, 1900.

F. B. CONVERSE, JR.
TYPE SETTING MACHINE.

(Application filed Mar. 11, 1899.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.
E. B. Gilchrist
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Inventor.
Francis B. Converse, Jr.
By his Attorneys,
Sherrin & Bates

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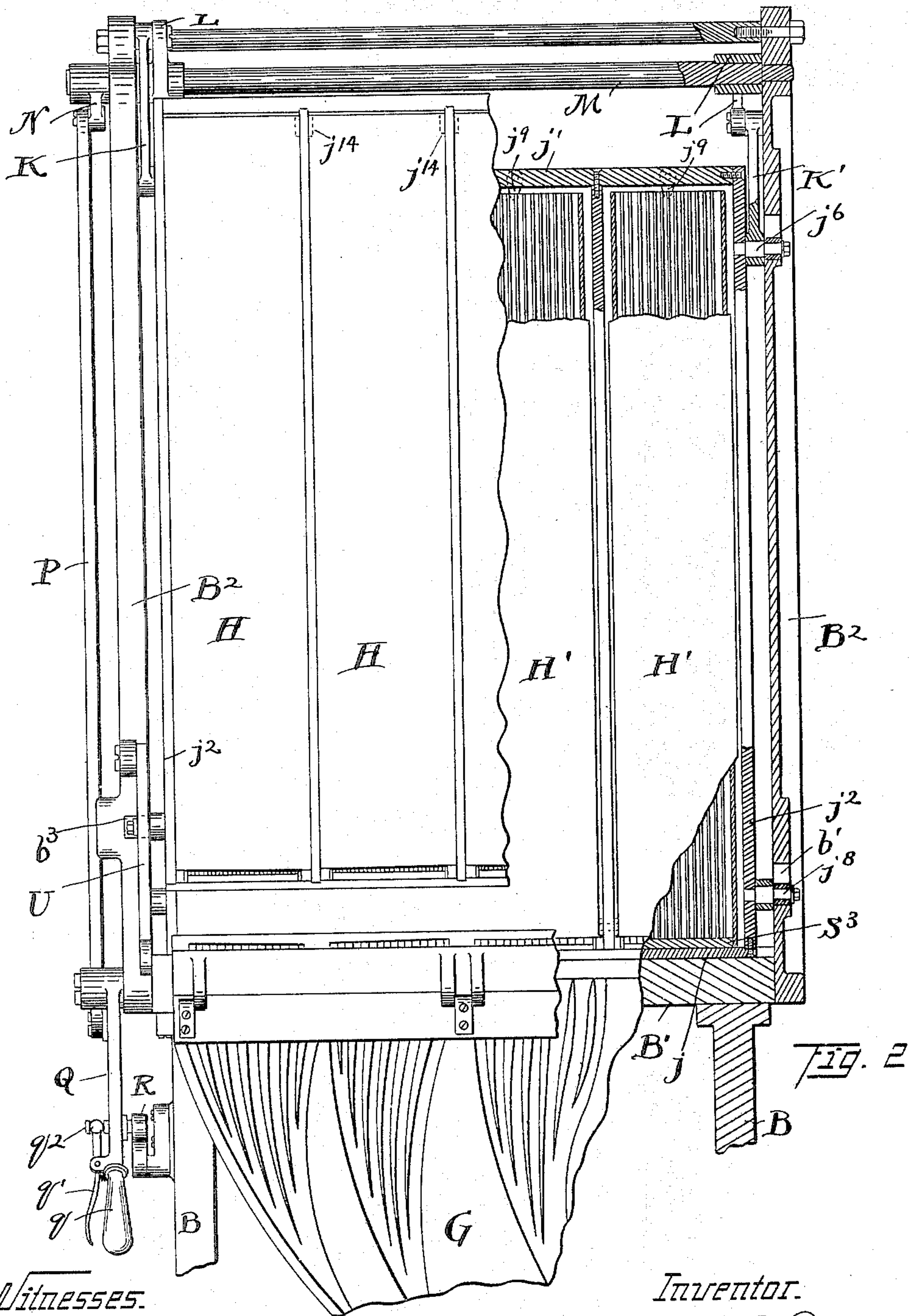
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UNITED STATES PATENT OFFICE.

FRANCIS B. CONVERSE, JR., OF LOUISVILLE, KENTUCKY.

TYPE-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 640,274, dated January 2, 1900.

Application filed March 11, 1899. Serial No. 708,645. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. CONVERSE, Jr., a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Improvement in Type-Setting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The object of the invention is to increase the capacity of type-setting machines, allowing the setting of two fonts of type, as Roman and Italic or Roman and head-letter, without materially increasing the size of the machine
15 or number of parts of the keyboard or ejecting mechanism.

The invention consists, broadly, of a plurality of type-cases and mechanism for ejecting type from either of them combined with
20 mechanism for replacing one case by another.

More specifically, the invention consists of two banks of type-cases suitably supported by the arms of pivoted levers, whereby one balances the other, and mechanism such that
25 when the bank of cases in use is moved away from the operative position the other bank is by the same movement brought into this position.

The invention may also be summarized as
30 consisting of the combinations of parts herein-after specified and definitely enumerated in the claims.

In the drawings, Figure 1 is a side elevation of a type-setting machine embodying my invention, the supporting parts and race-plate being broken off. Fig. 2 is a front elevation of the portion of the setter above the keyboard, the front right-hand cases being broken away and the rear cases being partly in section on a central vertical transverse plane indicated by the line 2 in Fig. 3. Fig. 3 is a vertical section from front to rear through the machine; and Fig. 4 is a horizontal section on the line 4 4 of Fig. 3 looking down-
40 ward, the ejector-bars at the right-hand end being partially broken away to show the toothed roller beneath.

The same letters of reference designate the same part in each figure.

50 Referring to the parts by letters, A represents a suitable keyboard, from the frame

of which rise standards B. These standards carry the horizontal frame B', to which are attached the vertical standards B², the latter carrying frames which support the type-cases. 55

The type are ejected from the type-cases which are in operative position by ejector-bars C, which are thrown into action when the finger-keys are depressed. This is accomplished by a pair of grooved rollers D and D', 60 which are continuously revolved by the belt D² in the direction shown by the arrow and by a system of bell-crank levers E, located one beneath each ejector-bar and connected by wires F with the finger-keys. When a 65 finger-key is depressed, the wire F is drawn down, the bell-crank lever E raises the ejector-bar into engagement with the roller D, and the latter forces the ejector-bar forward, ejecting the lowest type in the case (designated T 70 in Fig. 3) from the case onto a ledge g, from which it drops by gravity, foot foremost, into a suitable channel in the race-plate G. As soon as this ejection is completed a notch c 75 on the under side of the ejector-bar comes over the bell-crank lever E, and at the same time a notch c' comes under the roller D, and the ejector-bar being thus freed from that roller drops by gravity into engagement with the roller D', which withdraws it until the 80 notch c comes over that roller. Each depression of a finger-key therefore causes an ejector-bar to advance and shove the lowest type from the case in front of it and then return to its initial position. This much of the construction is old, and no claim is made on it herein. 85

The cases containing the type are arranged in two sets H and H'. In the form shown in the drawings each set consists of four cases 90 and each case has twenty-three channels. Either set is adapted to be substituted for the other, whereby with one keyboard two fonts of type may be set. This operation will now be described. 95

Each of the sets of cases H and H' is supported in a frame J and J'. Each of these frames consists of a bottom bar j, a top bar j', side bars j², and intermediate vertical bars j³, the front frame having a back plate j⁴. These 100 frames which contain the cases have extended from their sides near their upper ends the

studs j^5 and j^6 . Pivotaly surrounding these studs are the links K and K', which are pivoted at their upper ends to the levers or walking-beams L. These walking-beams are
 5 keyed to a shaft M, which is journaled in the standards B². The studs j^5 j^6 project beyond the links and carry rollers j^{15} , which stand in a suitable guideway, preferably the slot b in the standard B². This slot is preferably
 10 formed in the Y shape shown in the drawings and so proportioned that when one stud is at the upper end of one of the branches the other stud must be at the lower end of the junction. Near the lower end of the frames
 15 similar slots b' are formed in the standards B², and into these slots take studs j^7 j^8 on the sides, respectively, of the frames J and J'. From the construction described it follows that if the shaft M be turned on its axis one
 20 frame will be drawn upward and the other allowed to descend, the full movement putting the upper frame into the position just occupied by the lower. In Fig. 3 the rear frame is shown with its cases in active posi-
 25 tion. If now the shaft M is turned in the right-hand direction, these cases are drawn upward and rearward and the front cases moved downward and rearward and the latter come at the end of the movement into the ex-
 30 act position occupied by the rear cases in the drawings.

The lateral distance between the centers of the upper ends of the Y-slots and the junction portion thereof is such that when either
 35 set of cases is in position the front of the rear frame is substantially in contact with the rear of the front frame. When the parts are changing position, however, there is a larger lateral component to the movement of the
 40 links connected with the lower frame, and thus at the beginning of the movement that frame draws away from the upper, and the parts are out of contact. After the middle of the movement has been passed the frames
 45 approach and come into contact at the completion of the movement. Thus there is no sliding friction of one frame on the other during the movement, though they are in contact at either end thereof.

50 The weight of the frames and cases in each of the banks being the same and each set of cases containing generally an average amount of type, the cases approximately balance each other, whereby no great force is required to
 55 turn the shaft M. This shaft is turned, preferably, through the following mechanism: On the end of the shaft is a rocker-arm N, which is connected by a link P with the bell-crank lever Q, pivoted at the side of the frame and
 60 having a handle q within convenient reach of the operator. On the side of this handle is a latch-lever q' , which carries a pin q^2 under spring-pressure and adapted to pass at either extreme position into a hole r in the
 65 arc-shaped bar R, secured to a standard B. Thus when the operator wishes to change the

font of type he simply grasps the handle q , and with it the latch-lever q' , and moves the same to the other position.

The type-cases each consist of the back 70 plate s , the sidestrips s' , the separating-strips s^2 , and the bottom s^3 . The rear cases are put into the frame H' from the rear of the machine, the groove s^4 on the under surface of the bottom registering with the rib on the up- 75 per surface of the cross-bar j' of the frame and the front edges of the sides s' and strips s^2 engaging with the cover-plate j^{12} , secured to the vertical bars of the frame by the ears j^{13} and the cases being held at their upper 80 ends by the buttons j^9 . The front surface of plate j^{12} bears against the back plate j^4 of the front frame. The front cases are put into their frame from the front side. For the convenient accomplishment of this I provide a 85 pair of loosely-depending hooks U at the sides of the machine. When the front frame is elevated and its lower end swung forward, as may easily be done by hand, the studs j^7 pass out of the grooves b^2 by reason of the open- 90 ing b^3 and engage with the rear edge of these hooks, and a continuance of the movement elevates the hooks until their ends hook over the studs, and thus hold the frame in the position shown in dotted lines in Fig. 1. In 95 this position if the operator's fingers are inserted through an opening j^{10} through the lower end of the back plate j^4 the lower end of the type-case may be raised out of the frame, the front plate j^{11} (which is pivoted to 100 the frame by the ears j^{14}) simply swinging forward to allow it. Thereupon the type-case may be drawn out of the frame diagonally downward in a direction approximately parallel with the position of the case. 105

Having described my invention, I claim—

1. In a type-setting machine, two type-cases, mechanism for moving one of said cases relatively to the other to permit a common ejector to eject type from either case, in 110 combination with such ejector, substantially as described.

2. The combination of two type-cases, mechanism for raising one and lowering the other to bring either into active position, and 115 a common ejector adapted to eject type from the case in active position, substantially as described.

3. The combination of two type-cases, mechanism for raising one and lowering the 120 other to bring either into active position and the other out of the way, a common ejector adapted to eject type from the case in active position, and a common raceway into which such ejected type pass immediately upon 125 ejection, substantially as described.

4. In a type-setting machine, a pair of frames adapted to carry type-cases, each of said frames adapted to occupy two positions one of which is common to the two frames, 130 means for guiding said frames, and mechanism for simultaneously moving the frames

relative to each other to cause one to move out of the common position and the other to move into it, substantially as described.

5 In a type-setting machine, in combination, a pair of type-cases, one in front of the other, having a common active position into which either may be brought, means for moving either case into active position, and means for ejecting a type from the case which
10 is in active position in the direction of a line from front to back of that case, substantially as described.

6. In a type-setting machine, a pair of type-cases, one in front of the other, an opening
15 in the front and an opening in the back of said cases, an ejector adapted to enter one of said openings of that case which is in active position and shove a type therein out of the other opening, mechanism for moving one
20 case from the active position and for bringing the other case into the active position, substantially as described.

7. The combination of two type-cases, mechanism for raising one and lowering the
25 other to bring either into active position, there being means whereby said cases are counterbalanced during such movement, substantially as described.

8. The combination of two banks of type-cases, mechanism for simultaneously elevating either and lowering the other so as to change the case which is in active position, with means whereby such cases counterbalance each other during such transition, sub-
30 stantially as described.

9. The combination of two banks of type-cases suitably supported by the arms of pivoted levers whereby one balances the other, and mechanism for elevating either and lower-
40 ing the other so as to change the case which is in active position, substantially as described.

10. In a type-setting machine, in combination, a pair of frames one in front of the other, and one higher than the other, whereby one
45 does not obstruct ejection from near the end of the other, there being a common position in which either of said frames may stand, mechanism for moving the lower frame upward and laterally away from the common po-
50 sition, and mechanism for moving the upper frame downward and laterally toward the common position, substantially as described.

11. The combination with mechanism for ejecting type from cases, of a pair of frames
55 adapted to contain type-cases, a pair of walking-beams, a shaft to which said beams are secured, and links connecting the forward ends of said beams with one frame and links connecting the rear ends with the other frame,

and means for guiding said frames whereby 60 the turning of said shaft causes one frame to replace the other, substantially as described.

12. The combination of a pair of type-cases, one in front of the other, studs carried at the sides of said cases, diagonal guideways in
65 which said studs take, said guideways extending to the front and to the rear of the active position of the case, and means for shifting said cases, said guideways and studs guiding either case into the position which was
70 occupied by the other, and means for ejecting type from either case when it is brought into the common position, substantially as described.

13. In a type-setting machine, in combination, the vertical standard B^2 , the Y-shaped slots b and b' therein, the frames J and J' having studs projecting into said slots, said frames being adapted to carry type-cases, and means
75 for moving said frames whereby either comes into the position occupied by the other, substantially as described.

14. In a type-setting machine, in combination, the standards B^2 , the shaft M journaled therein, an operating-lever, suitable connections between said lever and the shaft where-
85 by the movement of the lever turns the shaft on its axis, a pair of type-cases, connecting mechanism between the shaft and the cases whereby the turning of the shaft withdraws
90 one case from the position it occupied and brings the other case into that position, substantially as described.

15. A type-setting machine, in combination, the standard B^2 , the walking-beams L supported thereby, the frames J and J' , the links
95 K and K' connecting said walking-beams with said frames, slots in the standards into which take studs on the frames whereby each frame is guided into two terminal positions, one of
100 the positions being common to the two frames whereby the movement of said walking-beams brings either frame into the position which the other occupied, substantially as described.

16. In a type-setting machine, in combination, a pivoted frame adapted to carry type-cases separable therefrom, a pivoted hook U depending by the side of the frame, a stud projecting from said side and when the frame is swung on the pivot adapted to engage with
110 said hook and elevate it until the hook hooks over the stud, substantially as described.

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

FRANCIS B. CONVERSE, JR.

Witnesses:

E. B. GILCHRIST,
ALBERT H. BATES.