(No Model.) 3 Sheets—Sheet 1.

J. A. KAY.

MACHINERY FOR SETTING TYPE.

No. 492,164. Patented Feb. 21, 1893.

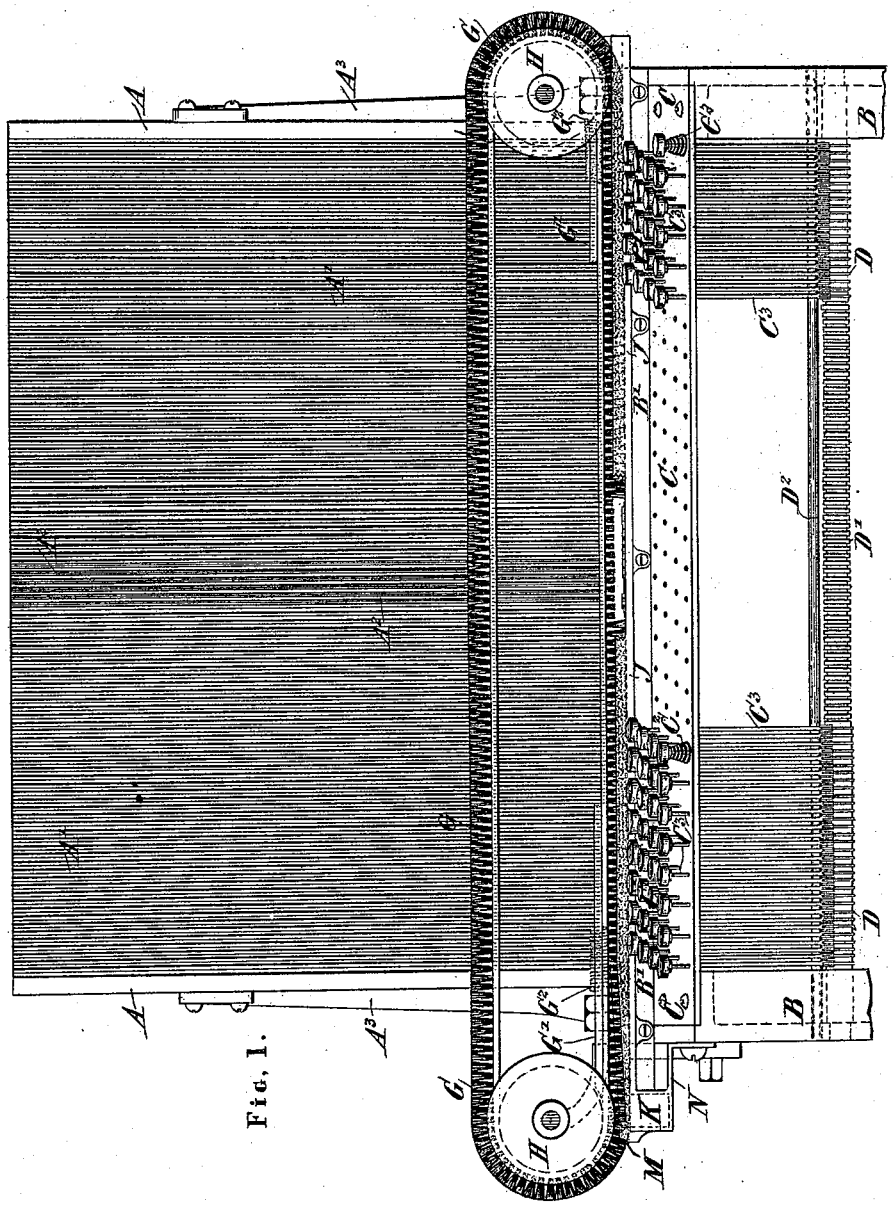

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

J. A. KAY.

MACHINERY FOR SETTING TYPE.

No. 492,164. Patented Feb. 21, 1893.

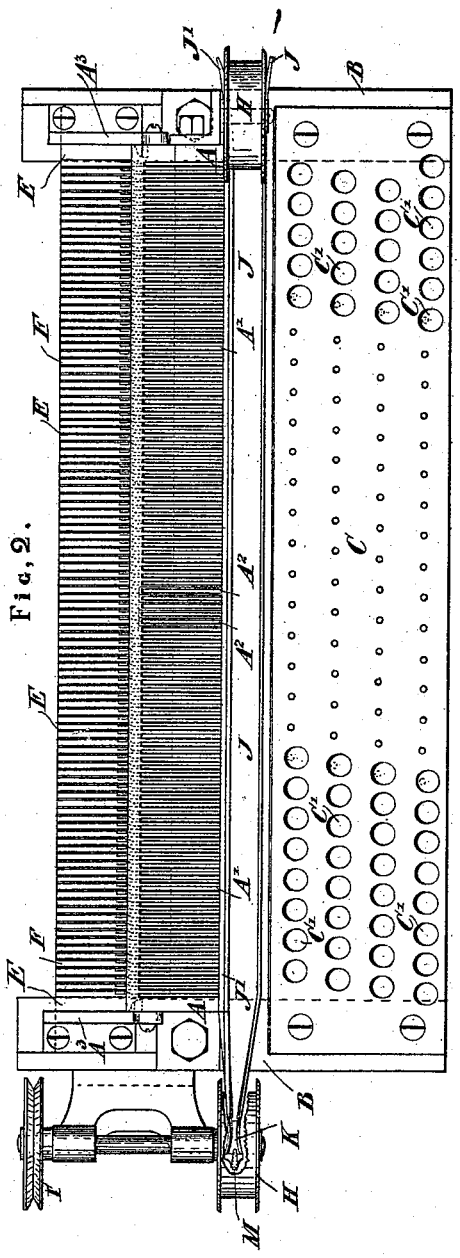

Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

J. A. KAY.

MACHINERY FOR SETTING TYPE.

No. 492,164. Patented Feb. 21, 1893.

Fig. 4.

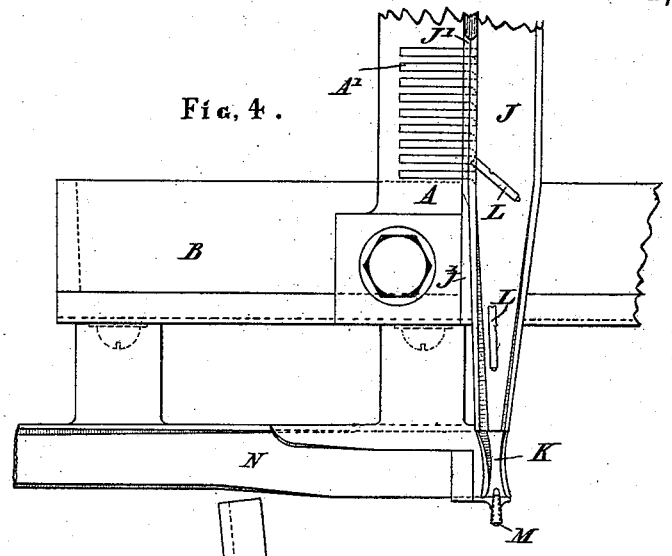


Fig. 5.

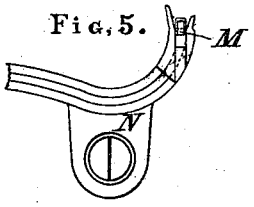


Fig. 6.

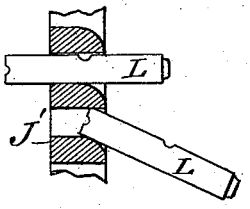
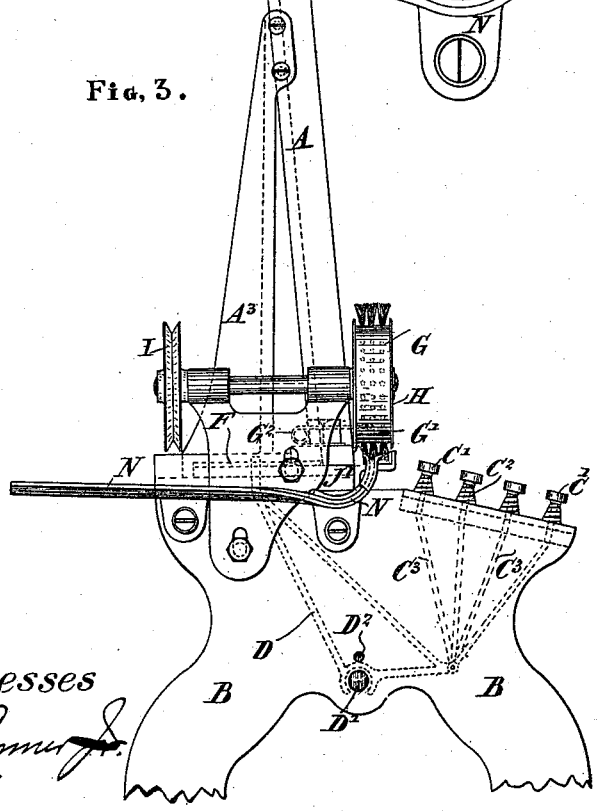


Fig. 3.



Witnesses

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E. R. Conner

Inventor

Joshua A. Kay

By Geo. P. Whittemore

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UNITED STATES PATENT OFFICE.

JOSHUA ALEXANDER KAY, OF BALWYN, VICTORIA, ASSIGNOR OF ONE-HALF TO ROBERT ALEXANDER VAUGHAN RAE, OF SAME PLACE.

MACHINERY FOR SETTING TYPE.

SPECIFICATION forming part of Letters Patent No. 492,164, dated February 21, 1893.

Application filed March 24, 1892. Serial No. 426,318. (No model.)

To all whom it may concern:

Be it known that I, JOSHUA ALEXANDER KAY, a subject of Her Majesty the Queen of Great Britain and Ireland, residing at Crofthead Villa, Balwyn, in the county of Bourke, Colony of Victoria, have invented certain new and useful Improvements in Machinery for Setting Type; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to machinery for setting type in line ready for justification, and may be described as follows;—A cabinet or type case having either fixed or interchangeable channels or tubes for containing the type in sorts, is mounted on a suitable stand. In front of the cabinet and attached to the stand at each end is a key board through which the key rods descend so as to connect with bell crank levers supported on a pivot bar underneath the cabinet and kept apart by being made to oscillate in a transverse groove cut in said pivot bar. The crank levers extend upward behind the cabinet and engage with pushers or type ejectors which operate against the bottom type in the channels whenever the keys are pressed. A helical spring under each key returns them to their normal position. The pushers or type ejectors are sustained by a slotted plate which is attached to the stand behind the cabinet. In each slot a pusher or type ejector is made to slide by the action of the bell crank the top end of which passes through an oblong hole in the plate and fits into a recess made in the pusher. A bearing rod may be placed above the pivot bar in such a manner as to prevent the bell crank levers from rising while under operation. The object in having the bell crank levers fitted upon the pivot bar in saddle fashion is to allow of their speedy removal should necessity require it. In front of the cabinet and attached to the stretcher is a race on to which the type is ejected by the pushers—the outer edge of the race is furnished with a guard flange the inner surface of which may be lined with rubber. On the inner side of the race next the cabinet is a strip of metal having a gothic shaped upper edge and with notches cut out along its under edge opposite to each channel or tube in the cabinet such notches being of a depth to correspond with the side thickness of each individual type the left hand corner of each notch is rounded off at the delivery side to enable the type while being ejected to turn in the race end on. To effect this a band brush or other suitable equivalent carried on pulleys travels in front of the cabinet the lower portion of the brush bearing on and sweeping the race taking hold of whatever type is in process of ejectment guiding it round in the direction in which the brush is traveling and carrying the type to the extreme end of the race. The race after passing the end of cabinet gradually tapers until it narrows down to little more than the width of a type. The brushs here concentrated and rendered stiff by the gradual narrowing of the race flanges, so that the type when brought to the extreme end is over a slot or throat and against an end buffer down said slot the type is pressed sufficiently to be out of the way of the succeeding type which is dealt with in like manner and so on as quickly as they can possibly be ejected. The throat after extending downward little more than the thickness of the race-plate takes the form of a quadrant terminating in a shelf or stick with an upward twist in it. Upon this shelf or justifying stick the ejected type are gradually collected. To insure the band brush or other equivalent always bearing flat upon the race a bearing bar or other suitable device may be attached in such position as to keep the brush always in contact with the race during its forward movement, a dummy band may also be employed as an inner lining to protect the band brush. The type characters while in the cabinet lie with their sides horizontal but while passing down the throat on to the shelf or stick they are brought in line with their sides in a vertical position ready for justification.

Referring to the accompanying drawings Figure 1 is a front elevation with a part of the race flange cut away to show the type openings. Fig. 2 is a plan and Fig. 3 an end

elevation of Fig. 1. Fig. 4 is an enlarged plan of a portion of the cabinet, mouth of race and justifying stick. Fig. 5 enlarged front elevation of the mouth and quadrant of justifying shelf or stick. Fig. 6 is a detail section on an enlarged scale showing the rounded corners of the notches in the delivery mouth piece.

A is the cabinet or type case. A′ the channels. A^2 the interchangeable tubes or channels. A^3 end brackets to steady and support the cabinet. B the stand. B′ the stretcher on which the cabinet or type case is fixed. C the key board. C′ the keys. C^2 springs, C^3 connecting rods. D bell crank levers. D′ pivot bar. L^2 guard rod. E pusher plate. F pushers or type ejectors. G the band brush. G′ bearing bar. G^2 spring. H the carrying pulleys. I the driving pulley. J the race. J′ the type channel mouth piece. K throat or mouth of justifying-stick. L the type. M the buffer. N the justifying stick.

The mode of operation is as follows;—Upon the band being placed on pulley I and set in motion the band brush G may be caused to travel at the rate of two hundred and seventy feet per minute or thereabout. The operator then presses as rapidly as he chooses whichever keys represent the letters of the word or words required to be set up, then as quickly as the characters are ejected they are taken hold of by the brush G turned longitudinally, owing to the peculiar formation of the delivery mouth piece J′ carried along to the end of race J where each in turn is stopped by the rubber buffer M, a small tongue which projects over the buffer prevents the type from rising up and passing over the end while the tapering flanges at this part of the race narrowing to little more than the width of a type at the center of the throat prevents them (the type) from turning over on their edges and are in a position to be easily pushed down by the stiffened condition of the brush consequent upon being pressed together by the gradually tapering flanges. It will be obvious that the type having passed down the throat while on its side will emerge from the quadrant on its edge in perfect order for justifying.

The light nature of the bell crank levers D and the relative position of the conical springs C^2 combine to make the manipulation of the keys an act of extraordinary ease, while the action of the band brush is so swift and positive that no operator can possibly overtake its capabilities.

A type setting machine embodying my improvements may either be worked in combination with an automatic distributer or without, in the latter case the type would require to be recast each time used and supplied in interchangeable tubes or channels. I prefer the latter.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In machinery for setting type, the combination with a plurality of type ejectors, of a race for receiving the ejected type, and an endless band brush traveling over said race for conveying the type to the end thereof, substantially as described.

2. A type setting machine comprising a band brush G, a race J and a throat K at the end of said race, substantially as described.

3. A type setting machine comprising a race having edge flanges and a band brush traveling between said flanges substantially as described.

4. A type setting machine comprising the combination with a race having flanges narrowing at one end to a throat, of a band brush traveling between said flanges, whereby the type are pushed down into said throat by the resiliency of the bristles composing the brush, substantially as described.

5. In a type setting machine comprising a race, a band brush traveling along said race, and a plurality of type ejectors arranged to eject the type transversely to the line of motion of the brush, substantially as described.

6. The combination with a plurality of type ejectors of a strip containing notches each having one corner rounded off, a race to receive the type, and means for conveying the type to the end of the race, substantially as described.

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

JOSHUA ALEXANDER KAY.

Witnesses:
ROBERT BODYCOMB, Jr.,
BEDLINGTON BODYCOMB.