

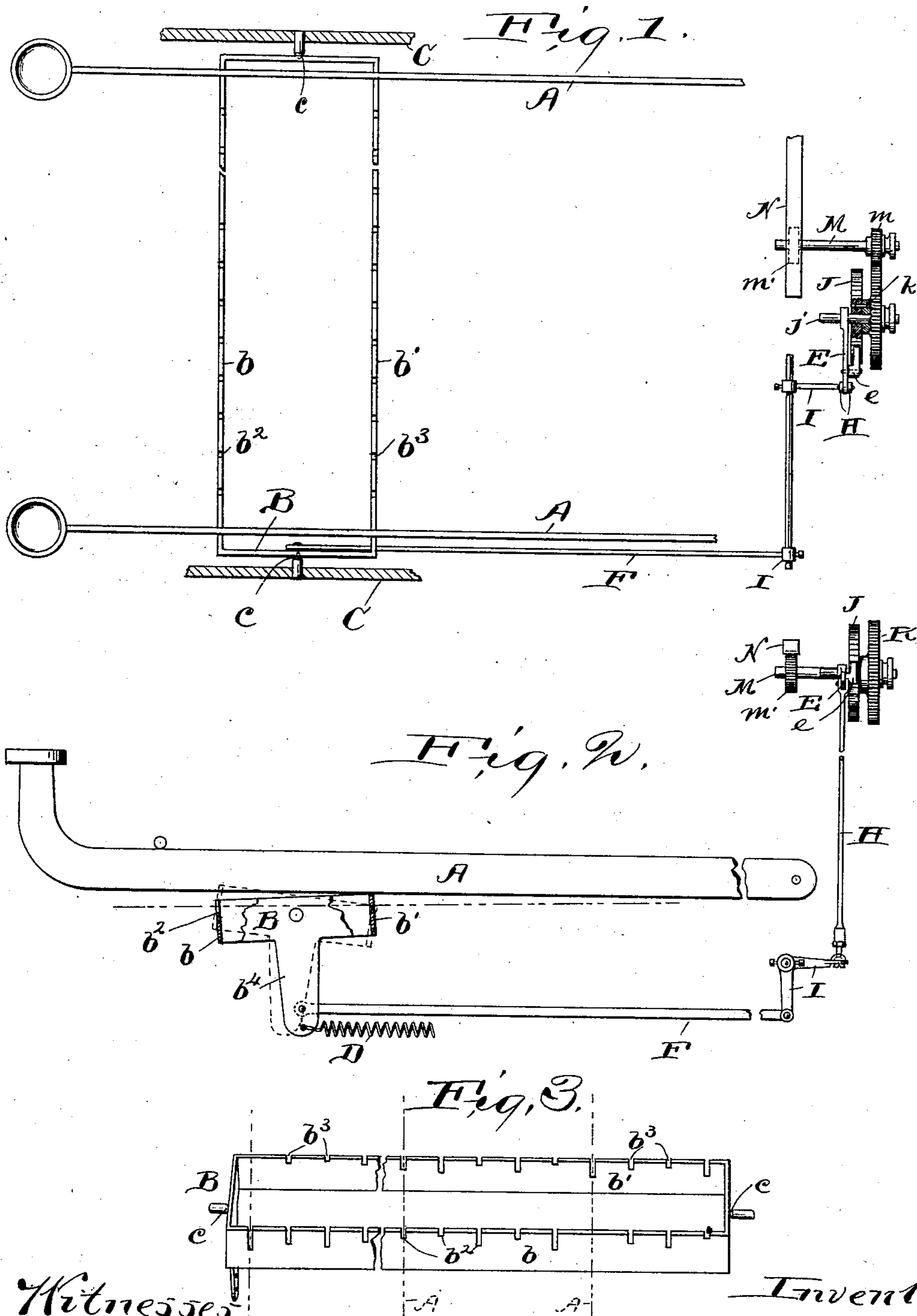
No. 606,814.

Patented July 5, 1898.

C. SEARS.  
KEY ACTUATED EQUALIZING BAR.

(Application filed Sept. 21, 1896.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CHARLES SEARS, OF CLEVELAND, OHIO.

## KEY-ACTUATED EQUALIZING-BAR.

SPECIFICATION forming part of Letters Patent No. 606,814, dated July 5, 1898.

Application filed September 21, 1896. Serial No. 606,597. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES SEARS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Key-Actuated Equalizing-Bars; and I do hereby 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.

The present invention is adapted for use in type-writing machines, matrix-making machines, and other analogous machines containing a plurality of operating-levers arranged side by side.

The object of the invention is to provide simple and effective mechanism whereby certain differentially-movable parts of the machine may be moved by any one of said levers exactly the intended distance—no more no less.

The invention is especially suitable for exactly imparting to the carriage different movements corresponding with the width of the several characters; and the invention as illustrated is embodied as a part of the differential carriage-feeding mechanism. I do not, however, intend to limit the invention to this particular use, because it is likewise adapted for use as a part of the mechanism whereby the similar movements of the operating-levers are transformed into different movements of any other part—as, for example, a type-wheel.

When a type-writing or analogous machine is being operated rapidly, the operating-levers are moved by quick and strong blows. The result often is that the mechanism operated by said levers acquires a momentum which carries it beyond the point to which it is intended to be moved. This destroys the accuracy of the work which the differential movement is intended to produce. The more slowly the levers are moved the less liability is there that this result will follow. My invention prevents this excessive and objectionable movement of the mechanism operated by said levers.

The invention consists in the construction and combination of parts hereinafter de-

scribed, and pointed out definitely in the claim.

In the drawings, Figure 1 is a plan view of carriage-feeding mechanism embodying my invention. Fig. 2 is a side elevation of the same mechanism, and Fig. 3 is a perspective view of the rocking frame.

Referring to the parts by letters, A A represent operating-levers—in the present case the key-levers of a type-writer—the upward movement of which is stopped by a bar M or other suitable device.

B represents a rectangular frame having two transverse bars  $b$   $b'$ , which lie beneath all of the said key-levers. This frame is pivoted at its sides to the frame C of the machine by suitable means—as, for example, conical pivots  $c$ . The bar  $b'$  is notched in its upper edge beneath the levers A, the depth of said notches being inversely proportionate to the desired downward movement of said bar which will result from the operation of the corresponding levers. Beneath that lever whose movement should be accompanied by the greatest movement of the carriage, for example, there may be no notch; but beneath all of the other levers there are notches  $b^3$  of different depth, as described. The construction and mode of operation of a single notched bar, substantially as described, are well understood in this art, and so also are equivalent constructions wherein either the levers or the bar have at their contacting-points stubs of different lengths. The other bar  $b'$  is likewise notched, but its corresponding notches  $b^2$  are complementary to the notches  $b^3$ —that is, the sum of the depth of each notch in one bar and its corresponding notch in the other bar is a constant—and they are so constructed that when a lever A reaches the end of its downward movement, in which movement it engages with the notched bar  $b'$  and rocks the frame B, the bottom of the corresponding notch  $b^2$  engages with the part of the said lever in front of the pivots  $c$ , and thereby stops the movement of said frame B. This prevents the momentum of the frame due to the force of the blow upon the levers from carrying said frame beyond the point to which it will be positively moved by said lever. This bar  $b$  also stops the downward movement of the

lever, and thus they mutually coact, each exactly limiting the movement of the other.

In the embodiment of the invention shown a lever-arm  $b^1$  is rigid with the frame B. To  
 5 it is attached a spring D, which acts to hold the bar  $b'$  against the levers A and to lift said levers. A link F connects this lever-arm with the vertical arm of a pivoted bell-crank lever I. A link H, which is connected at its  
 10 lower end by a universal joint with the horizontal arm of said bell-crank lever, is connected at its upper end to an arm E, which is loosely hung on the shaft  $j$ , on which the ratchet-wheel J is loosely mounted. A pawl  
 15  $e$  on its arm engages with the ratchet J. A gear K, which is mounted on the same shaft with said ratchet J, is connected therewith by a pin  $k$ . A pinion  $m$ , secured upon a shaft M, meshes with gear K. A second pinion  $m'$   
 20 on shaft M meshes with a rack N, which is a part of the carriage of the machine.

The different movements of the frame B are transmitted through the described mechanism to the pawl-carrying arm E, result-  
 25 ing in proportionate movements of said arm, and these movements result in proportionate movements of the ratchet, which are in turn transmitted through the mechanism shown to the carriage.

Although the bars  $b b'$  are shown, described, 30 and claimed as having notches, while the contacting surfaces of the levers are all in the same plane, it is clear that it is the varying elevations of the contacting surfaces on the bars and levers that is essential to the de- 35 scribed operation, and it is well understood that the same result may be attained by forming the bars or the levers with stubs of various lengths at the contacting-points.

The claim, although it specifies bars with 40 notches, is intended to embrace the equivalent constructions mentioned.

Having described my invention, I claim—

In a type-writer or analogous machine, the combination of a pivoted frame having two 45 notched bars on opposite sides of the pivot, the notches in one bar being complementary to the notches in the other bar, with a plurality of operating-levers extended across said bars and adapted to engage with them, sub- 50 stantially as and for the purpose specified.

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

CHARLES SEARS.

Witnesses:

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 E. B. GILCHRIST.