

No. 713,703.

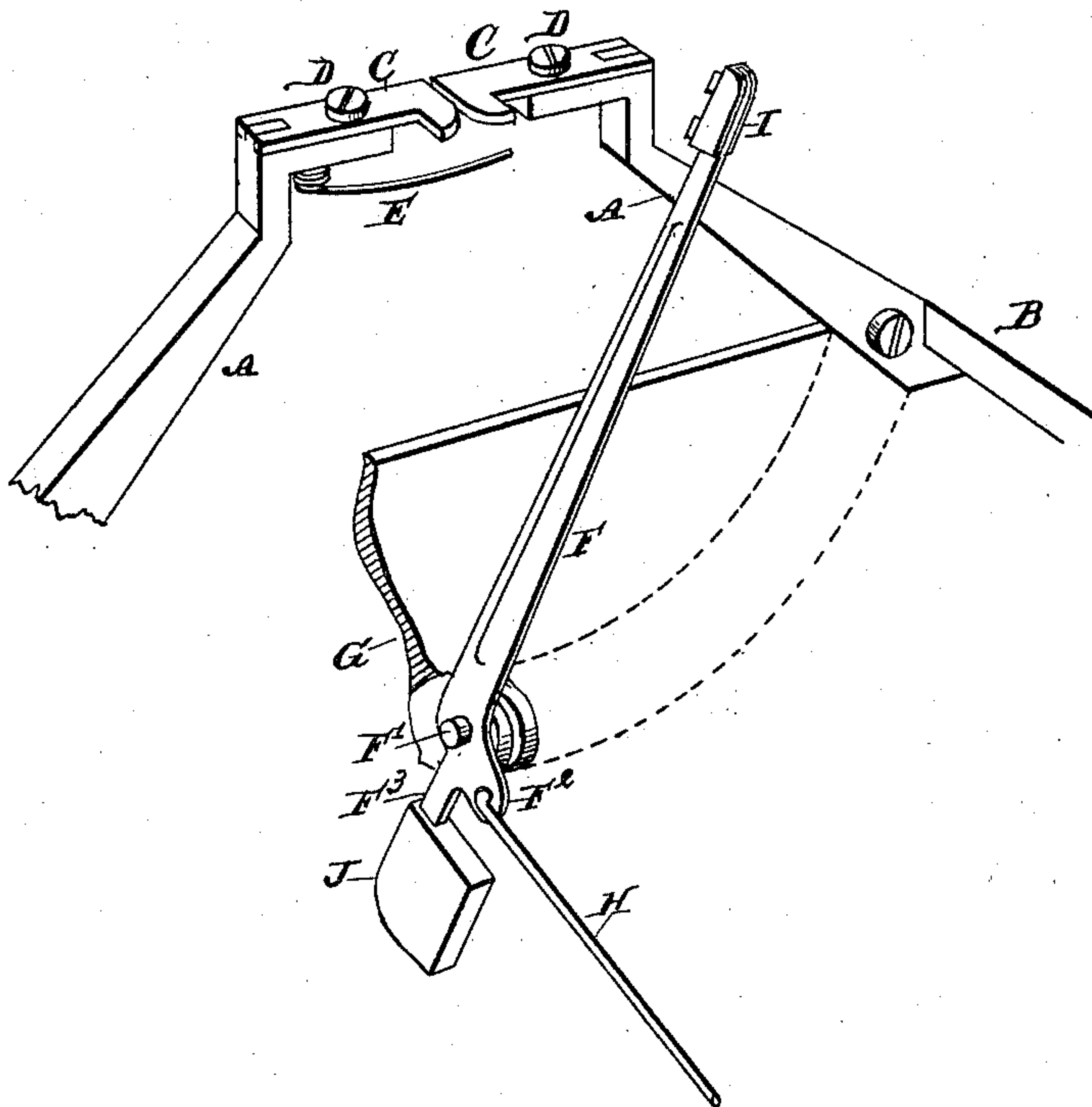
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G. H. SMITH.

TYPE BAR MECHANISM FOR TYPE WRITERS.

(Application filed Aug. 27, 1900.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

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TYPE-BAR MECHANISM FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 713,703, dated November 18, 1902.

Application filed August 27, 1900. Serial No. 28,143. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. SMITH, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Type-Bar Mechanism for Type-Writers; 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.

This invention relates more particularly to "front-strike" type-writers, in which the writing is exposed to the operator's view as fast as made; and the object of the invention is to improve the construction of the type-bar and related mechanism, so as to impart to it extreme lightness and rapidity of movement.

The nature of the invention will clearly appear from the description and claims following, reference being had to the accompanying drawing, forming a part of this specification.

In the drawing the invention is illustrated in a single figure in perspective.

In the drawing, A A designate a pair of diagonal arms springing from the frame B of the machine, only a fragment of which is shown, as it is not essential to a proper understanding of this invention. To the upper part of these arms are attached the type-bar guides C by suitable screws D. Below one of these guides is secured a spring E, the free end of which extends across the path of the type-bar F, which is mounted in a crown-bearing G, secured to the main frame.

The type-bar is preferably made of comparatively thin sheet-steel and provided with a suitable pivot or stud F' between its ends to engage said bar. To the short arm F² of the type-bar is attached a link H, which in turn is connected to suitable key-operating mechanism. (Not shown.) To the upper end of the type-bar is attached the type I in the usual way. At the opposite side of the pivot the type-bar has an extension F³, and to this is attached a counterweight J in any suitable way.

When the type-bar is at rest, the weight J, which is on the opposite side of the pivot of

the type-bar, substantially counterbalances the gravity of the latter and tends to cause it to rise and move rearwardly toward the printing-point, and in consequence of this disposition of the weight J it requires less force to lift the type-bar to print, and the fingers of the operators are thereby greatly relieved of work which they would otherwise have to perform. The short operating-arm F² of the type-bar is at an angle to the body of the type-bar and at an angle to the weight and its support or extension F³.

The type-bar is mounted to print when in a vertical position and is supposed to swing downwardly through an arc of about ninety degrees. Evidently in the case of any type-bar mounted in this way there is considerable inertia to overcome, owing to the weight of the type-bar and its terminal type. At the same time the ordinary type-bar when mounted in this way does not from the nature of things retreat so quickly from the printing-point as does the style of type-bar hung to print on the bottom side of the platen, not having the advantage of its own gravity to aid in this operation. Consequently it becomes necessary to provide for the recoil of the type-bar by means of a spring tending to force the type-bar backwardly and downwardly. In the forward movement of the type-bar the tension of this spring (not shown) is of course added to the gravity of the type-bar itself, and thus the freedom of the forward movement of the type-bar is "doubly obstructed," so to speak. To compensate for this inherent objection in this style of type-bar mounting, I have provided for balancing the type-bar itself by means of the counterpoise J, above mentioned. In this way the operator has practically nothing but the tension of the spring (not shown) to reckon with in throwing the type forward, and the action of the type-bar and correspondingly the keys of the type-writer are thus very greatly relieved. In practice it has been demonstrated that a type-bar of this class provided with this counterbalance has all of the softness of touch and smartness and elasticity in action that is commonly supposed to pertain alone to the depending style of type-bars.

To give still greater smartness to the recoil of the type-bar, a spring E is interposed between the type-bar and the platen. (Not shown.) This spring intercepts the type-bar 5 but a short distance from the end of it as struck and is not sufficient to impede the forward movement of the type-bar which has received such an impetus from the finger of the operator that its own momentum carries 10 it to the printing-point despite the slight outward pressure of the spring. As soon as the printing has been accomplished, however, the tension of the spring is exerted instantly and the type-bar is forcibly thrown back from 15 the platen and begins its descent to normal position.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

20 1. In a front-strike type-writing machine wherein the type-bars have an upwardly and rearwardly swinging movement, the combination with the type-bar, of a counterbalancing-weight arranged at the rear end of the 25 type-bar and operating against the gravity of the type-bar so as to produce a lifting effect on the latter in the direction of the printing-point; whereby the touch is relieved, substantially, of the resistance of the weight of 30 the type-bar in the printing movement of the latter.

2. In a front-strike type-writing machine, wherein the type-bars have an upwardly and rearwardly swinging movement, a pivoted 35 type-bar having an extension at the rear of the pivot and provided with a weight and an operating-arm arranged at an angle to the

body of the type-bar and to said weight-bearing extension.

3. In a front-strike type-writing machine, 40 the combination with upwardly and rearwardly swinging radially-arranged type-bars adapted to strike at a common center, a guide arranged in proximity to said common center for directing all of the types thereto, and a 45 spring arranged adjacent to said type-guide and having the portion thereof, which is adapted to be struck by the type-bars, arranged transversely of the guide-opening in the type-guide and said spring being adapted 50 to be acted upon by all of said type-bars at near the end of their printing movements and adapted by its recoil to throw said type-bars away from the platen after the printing has been effected and the type-operating means 55 relieved of pressure.

4. In a front-strike type-writing machine, the combination with the upwardly and rearwardly swinging type-bars provided with counterbalancing-weights tending to lift said 60 type-bars toward the printing-point, of a center guide common to all of said type-bars, and a spring arranged at said center guide tending to throw said type-bars away from the printing-point and the center guide after the 65 type impressions have been made and the type-bar-operating means relieved of pressure.

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

GEORGE H. SMITH.

Witnesses:

J. F. GROAT,
J. M. ST. JOHN.