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PATENTED JAN. 31, 1905.

W. J. CAMPBELL.
TYPE WRITING MACHINE.
APPLICATION FILED DEC. 29, 1903.

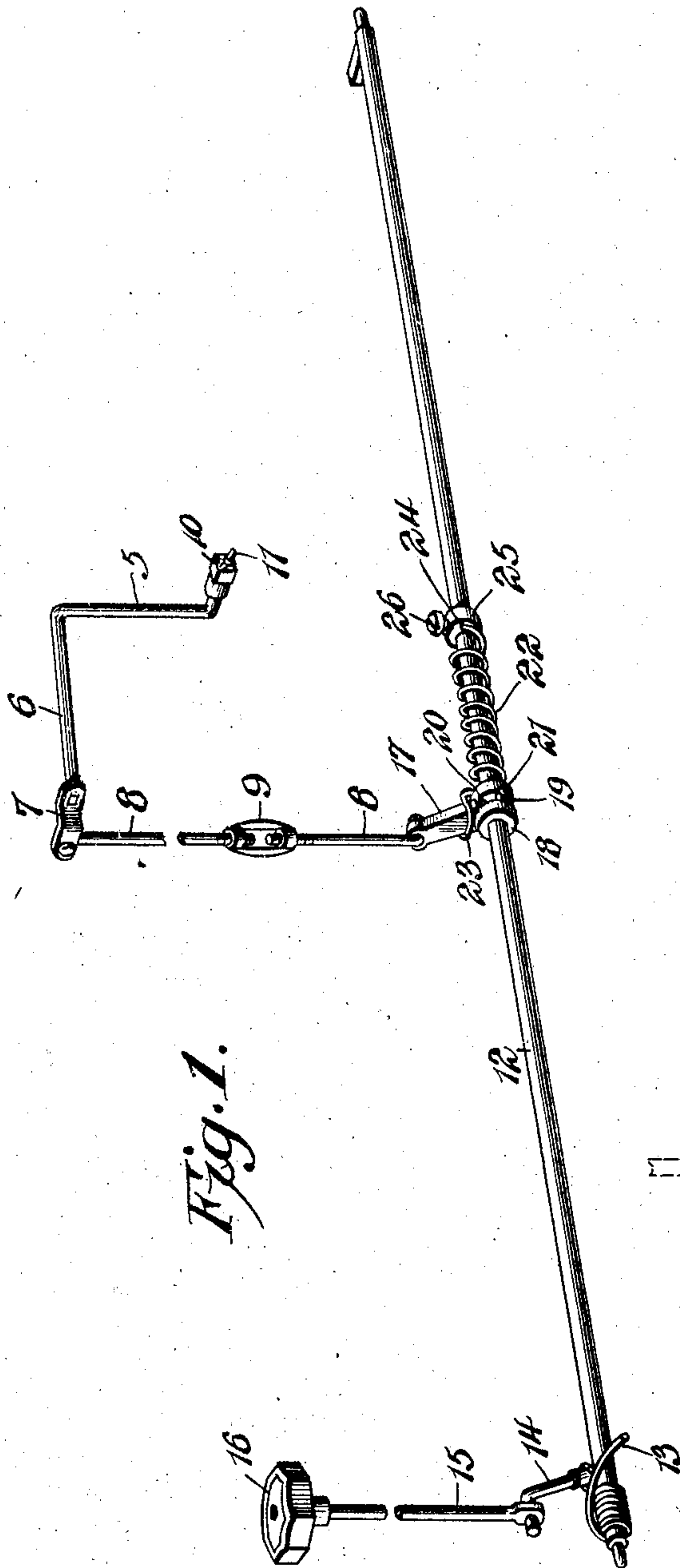


Fig. 1.

Fig. 3.

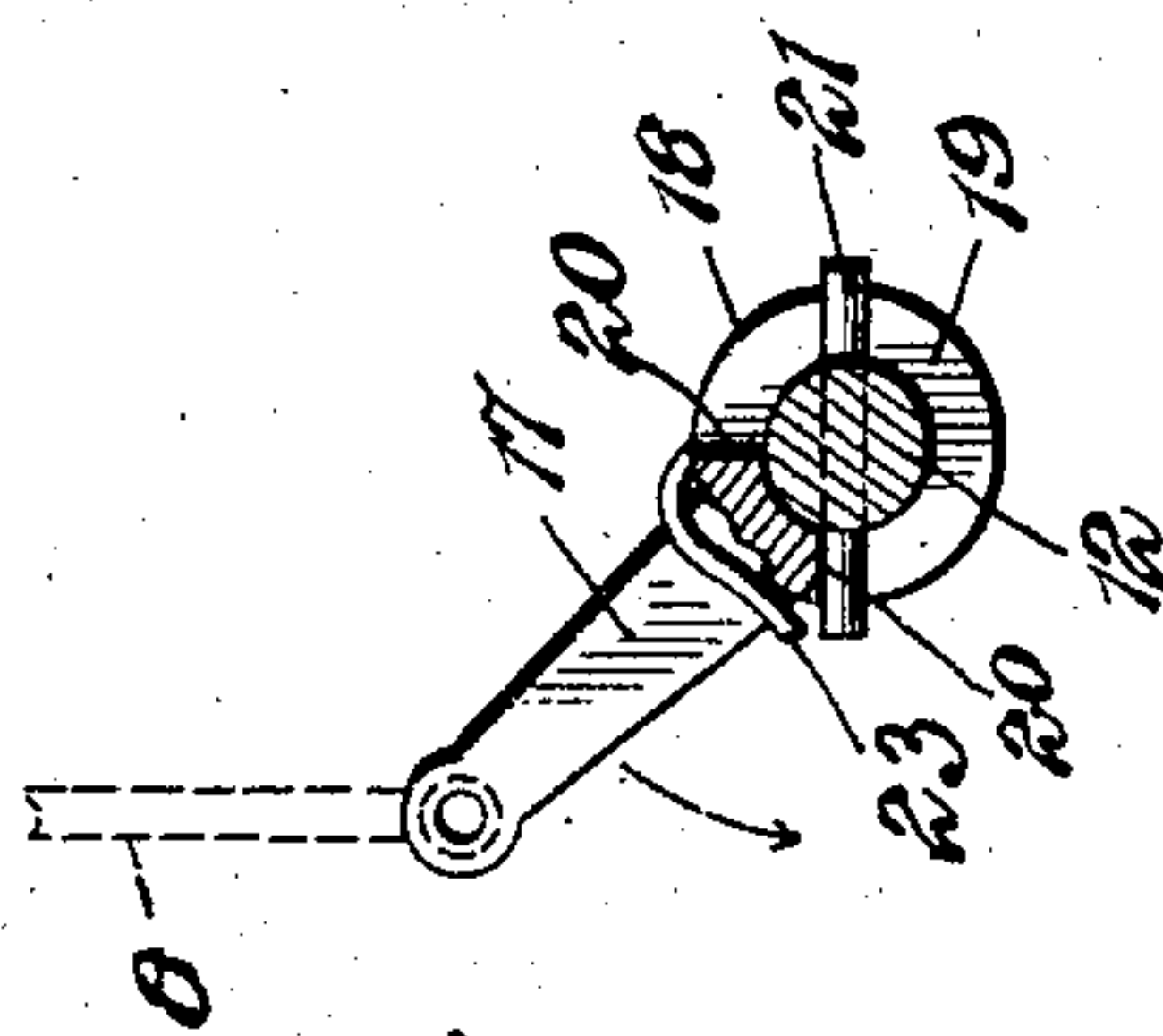
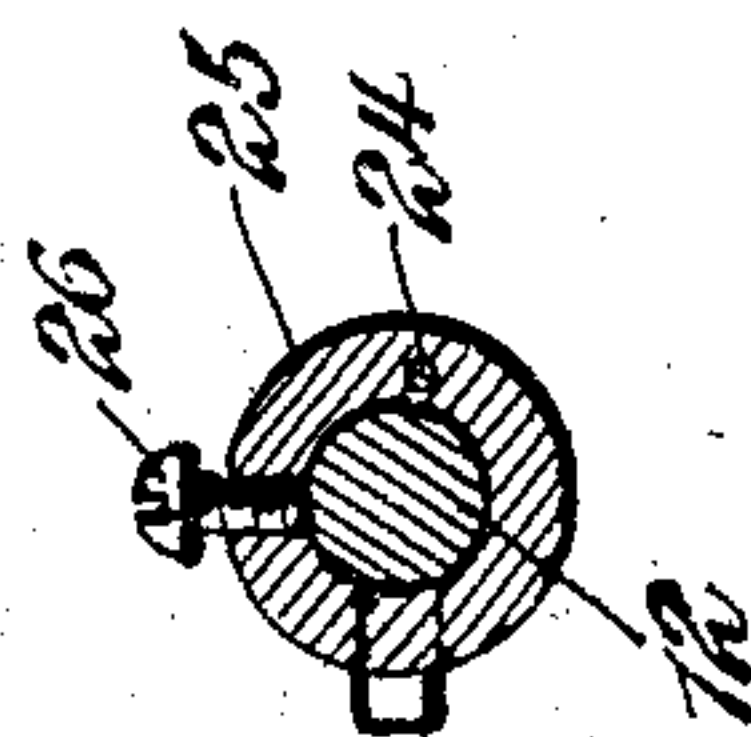


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

WALTER JEROME CAMPBELL, OF NASHVILLE, TENNESSEE, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SMITH PREMIER TYPE-WRITER COMPANY, OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 781,130, dated January 31, 1905.

Application filed December 29, 1903. Serial No. 187,081.

To all whom it may concern:

Be it known that I, WALTER JEROME CAMPBELL, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented a new and useful Type-Writing Machine, of which the following is a specification.

It is a well-known fact that an ordinary operator upon a type-writing machine strikes all the keys with substantially the same force, the result being that the type of the smaller characters—such as periods, commas, and the like—often puncture the paper, indent and in time destroy the surface of the platen, and become flattened and deranged by the repeated heavy impacts.

One of the principal objects of the present invention is to provide means which will to a very great extent eliminate this objectionable action and the disastrous results caused by careless or inexperienced operators. Moreover, the preferred form of structure is such that it does not materially alter the general make-up of the machine and may easily be applied to those already built and in use. It has been found that another advantage flows from the novel combination hereinafter described and claimed, in that a lighter touch is obtained, so that the structure may be found useful in connection with all the keys and is therefore not to be limited to employment only with those which affect the paper and the platen; nor is the invention limited to the exact details of construction shown and described, as an inspection of the claims hereto appended will clearly indicate that many modifications may be made without departing from the spirit or scope of the said invention.

In the embodiment illustrated, Figure 1 is a perspective view of a type-operating mechanism of a well-known machine. Fig. 2 is a cross-sectional view of the same through the crank-arm and rock-shaft. Fig. 3 is a similar sectional view taken through the adjusting-collar.

Similar reference-numerals indicate corre-

sponding parts in all the figures of the drawings.

In the embodiment illustrated a type-bar 5 is shown, which is carried upon the pivotal bearing 6, having at the end which is opposite the bar 5 an arm 7. To this arm is pivoted the usual connecting-rod 8, having an intermediate turnbuckle 9. The type-bar 5 carries at its free end the usual type-head 10, having on its operative face a suitable type 11. The operating mechanism for the type-bar includes a rock-shaft 12, yieldingly held in a predetermined position by a suitable spring 13 and carrying contiguous to its front end a finger 14, to which the stem 15 of the key 16 is attached. So far as thus described the mechanism is well known in the art.

A crank arm 17 has at one end an enlarged hub 18, which is loosely journaled on the shaft 12. The free end of this crank-arm is connected to the lower end of the rod 8. The hub 18 is provided with an annular slot 19, the ends 20 of which are located on opposite sides of the arm 17. A stop-pin 21 passes through the rock-shaft 12 and has its ends located in the slot 19, said ends thus being located in the path of movement of the end walls 20 of the slot and constituting means for limiting the free movement of the hub upon the shaft. A spring 22 is coiled upon the rock-shaft 12 at one side of the crank-arm 17, and one end of this spring is suitably connected to the crank-arm, preferably by being bent about the same, as shown at 23. The other end of the spring passes through an opening 24, formed in a collar 25, that is fitted upon the shaft 12 and is capable of revolution thereupon, said collar being ordinarily held against relative movement with respect to the shaft by means of a set-screw 26, which is threaded through the collar and bears against the shaft, as shown in Fig. 3.

It is believed that the operation of the device will be clearly apparent. Through the medium of the loose crank-arm 17 and spring 22 a yielding connection is interposed between

the key and type-head, and, while the type will be elevated with sufficient force to strike the paper upon the platen and make an impression when the key is suitably depressed, if an abnormal degree of force is exerted upon the key the spring will yield sufficiently to absorb the same, thereby causing the type-arm to always swing with substantially the same force. The amount of this force may be varied as desired by adjusting the collar 25 upon the shaft, and this is considered to be an important feature of the invention, as the tension of the spring may be changed as desired and with ease. It will also be observed that after the type is in engagement with the platen the key can still be forced downwardly without exerting any strain upon the connections between the shaft and the type-bar, for the reason that the spring will still yield. On the other hand, the yielding movement is limited by the portion of the stop-pin 21 that projects beneath the arm, as shown in Fig. 2, so that the return of the type-bar is made positive, and should the bar become stuck it can, if desired, be forced upwardly through the same medium, the opposite ends of said pin being moved into engagement with the end walls of the slot to force the crank-arm downwardly.

It will thus be seen that this simple structure can be made to obviate the objections noted in the preliminary portion of the specification, as the type can be made to strike the paper on the platen with sufficient force to obtain a suitable impression without puncturing the paper and without regard to the strength of the blow imparted to the key. It will also be evident that this yielding connection relieves the fingers of the shock ordinarily imparted to them in starting the keys in their downward movements and by the striking of the type against the platen. Moreover, the structure affects only the connection between the link 8 and the rock-shaft, and said connection may be readily applied to machines already built.

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

1. In a type-writing machine, the combination with a movable type-head, of actuating means therefor including a rock-shaft, a crank-arm capable of relative movement with respect to the shaft, a longitudinally-unyielding connection between the crank-arm and head, and a yielding connection between the shaft and crank-arm.

2. In a type-writing machine, the combination with a movable type-head, of means for operating the head including a rock-shaft, and a connection between the rock-shaft and type-head including a crank-arm loosely mounted on the rock-shaft, and a yielding connection between the crank-arm and shaft.

3. In a type-writing machine, the combination with a movable type-head, of means for operating the head including a rock-shaft, and a connection between the rock-shaft and type-head including a crank-arm loosely mounted on the rock-shaft, and a spring coiled upon the shaft, one end of said spring being attached to the arm, the other end being connected to the shaft.

4. In a type-writing machine, the combination with a pivoted type-bar, of operating mechanism therefor including a rock-shaft, a crank-arm loosely journaled on the rock-shaft, a yielding connection between the crank-arm and shaft, and a rod connecting the crank-arm and type-bar.

5. In a type-writing machine, the combination with a movable type-head, of means for operating the head including a rock-shaft, and a longitudinally-unyielding connection between the rock-shaft and type-head including a crank-arm, and a yielding connection between the crank-arm and shaft.

6. In a type-writing machine, the combination with a movable type-head, of a rock-shaft, a crank-arm having a connection with the type-head, a yielding connection between the shaft and the crank-arm, and a stop for limiting the yielding movement of the connection.

7. In a type-writing machine, the combination with a movable type-head, of a rock-shaft, a crank-arm loosely journaled on the shaft and having a connection with the type-head, a spring connection between the shaft and crank-arm, and a stop carried by the shaft and located in the path of movement of a portion of the crank-arm.

8. In a type-writing machine, the combination with a pivoted type-bar, of a rock-shaft, a crank-arm having a hub loosely mounted on the shaft, a link connection between the type-bar and crank-arm, a spring connection between the crank-arm and rock-shaft, said hub of the crank-arm having a slot, and a stop-pin carried by the rock-shaft and projecting into the slot of the hub.

9. In a type-writing machine, the combination with a movable type-head, of a rock-shaft, a device movably mounted on the rock-shaft and having a longitudinally-unyielding connection with the head, and a yielding connection between the shaft and device.

10. In a type-writing machine, the combination with a pivoted type-bar, of a rock-shaft, a crank-arm, a rod connecting the type-bar and crank-arm, a spring coiled upon the rock-shaft and connected with the crank-arm, and means for varying the tension of the spring.

11. In a type-writing machine, the combination with a pivoted type-bar, of a rock-shaft, a crank-arm loosely journaled on the rock-shaft and having a connection with the type-bar, a

spring coiled upon the rock-shaft and having
a connection at one end with the crank-arm,
a collar mounted upon the rock-shaft and hav-
ing a connection with the other end of the
5 spring, and a set-screw for holding the collar
against movement and in position upon the
rock-shaft.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

WALTER JEROME CAMPBELL.

Witnesses:

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M. E. HILL.