(No Model.)

G. W. N. YOST.

TYPE WRITING MACHINE.

No. 450,805. Patented Apr. 21, 1891.

Fig. 1.

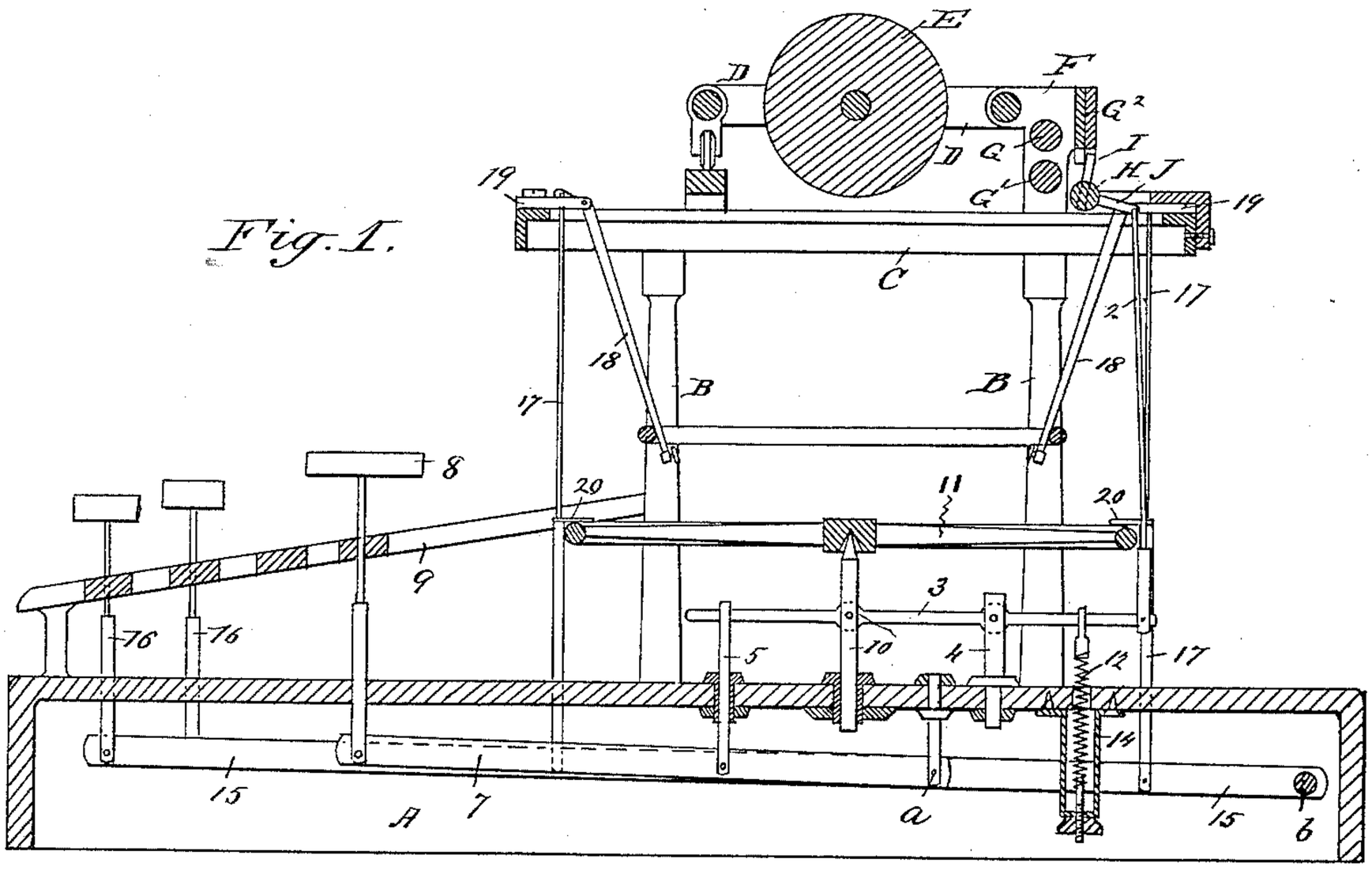
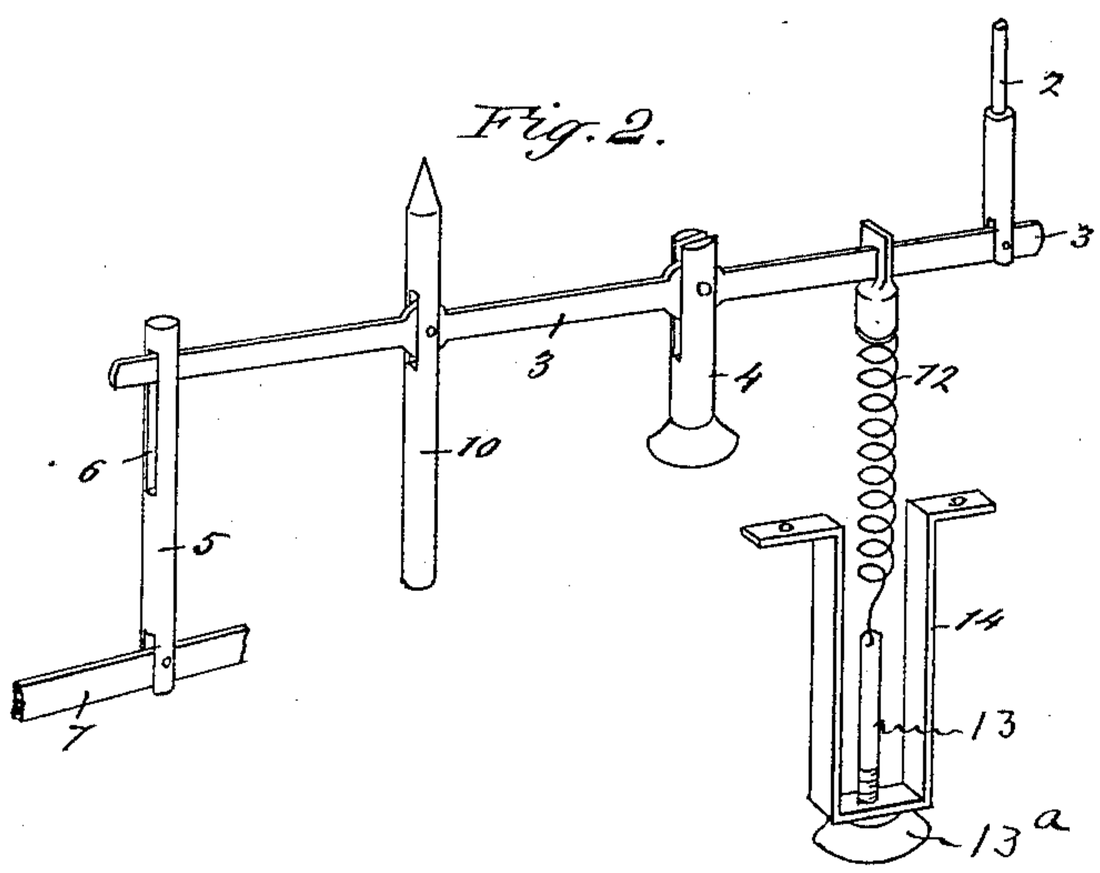


Fig. 2.



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GEORGE W. N. YOST, OF NEW YORK, N. Y., ASSIGNOR TO THE YOST WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 450,805, dated April 21, 1891.

Application filed March 31, 1888. Serial No. 269,065. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. N. YOST, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention relates to an improvement in the type-writing machine made the subject-matter of an application filed by myself and Charles E. Merritt May 16, 1887, No. 238,353, (see Patent No. 400,383, March 26, 1889,) and has for its main objects, first, to provide a simple and efficient space-key connection with the carriage-feed escapement devices, and, secondly, an improved construction and arrangement of universal bar-spring, whereby the said spring may be conveniently reached and operated for adjusting its tension; and to these ends my invention consists in the several features of construction and combinations or arrangements of parts hereinafter more fully described, and particularly pointed out in the appended claims.

In the drawings which accompany this specification and form a part thereof, Figure 1 is a vertical section of a portion of a type-writing machine embodying my several improvements, and Fig. 2 is a detail perspective view on an enlarged scale to better show the construction and relative arrangement of the parts to which my improvements have reference.

In both views the same part will be found designated by the same letter or numeral of reference.

A is the bed or base plate of the machine, upon which are secured posts or pillars B B, that support the usual type-ring or top plate C.

D is the paper-carriage, provided with a platen E and with a yoke F, that travels upon guide-rails G G′. To the rear side of the yoke is attached a double feed-rack G^2 of the well-known "Caligraph."

H is a rocker-shaft provided with a dog or pawl I and with an arm J, to the hind end of which is connected a link 2, that is attached at its lower end to the rear end of a lever 3, fulcrumed in a stand or bracket 4, secured to the bed-plate. The front end of said lever is coupled to a link or rod 5, provided at its upper end with an elongated slot 6, and pivoted at its lower end to the space-key lever 7, which is pivoted at *a* and which is provided with a finger-head 8 above the key-board frame 9. About midway of the standard 4 and the link or slotted coupling 5 is pivoted to the lever a spindle 10, formed with a conical journal at its upper end to receive a conical bearing in the hub of the universal bar 11, which in practice is made circular or like a wheel, as shown in the aforesaid patent, and about midway of the standard 4 and the link 2 is attached to the lever at one end a spiral or coiled spring 12, which passes through a perforation in the bed-plate and is connected at its other end to the upper extremity of a vertically-arranged screw 13, mounted in a bracket or housing 14, and provided at its lower end with an adjusting-nut 13^a.

In addition to being perforated for the passage of the spring 12, the bed-plate is provided with holes for the passage and reciprocation of the link 5 and the spindle 10, all as clearly illustrated.

The bracket or housing 14 is preferably made of a U shape and secured to the under side of the bed-plate by screws.

15 15 represent key-levers pivoted at *b* at the rear of the machine and provided at their front ends with finger-keys 16 16.

17 17 represent connecting-rods attached at their lower ends to the key-levers 15 15 and at their upper ends to the type-bars 18 18, which are journaled in hangers 19 19, secured to the top plate of the machine.

The connecting-rods 17 are provided with lugs or fingers 20, which co-operate with the circular universal bar in the manner described in the application above referred to.

The operation of the space-key mechanism is as follows: On depressing the head 8 the lever 7 is vibrated downwardly from the center *a*, and through the medium of the coupling 5 the lever 3 is rocked in the standard 4 against the tension of the spring 12, causing the link 2 to be elevated and the dog I to be vibrated forwardly from one of the racks G^2 to the other of said racks. Immediately the dog is freed from the rearmost rack a spring (not shown) propels said rack forward, as in

the "Caligraph" before mentioned. On releasing the pressure on the space-key the spring 12 contracts and returns all the parts to their first positions. As the dog I is vibrated rearwardly, the carriage under the influence of the driving mechanism is moved one tooth to the left.

For the sake of clearness the driving mechanism and some of the essential parts of a type-writing machine are omitted from the drawings; but those skilled in the art will readily understand from the foregoing description and from the other application before referred to the construction and mode of operation of a machine embodying my improvements.

The operation of the machine during the act of printing is as follows: Pressure being applied to the finger character-key 16, the lever 15 is depressed, the connecting-rod 17 pulled down, and the type-bar elevated to make its impression upon the paper around the under side of the platen. During the descent of the connecting-rod the lug or finger 20 vibrates the circular universal bar, (which acts as a lever,) and through the spindle 10, which is thereby depressed, the lever 3 is rocked, the coiled spring expanded, the link 2 elevated, and the dog I vibrated, as previously explained. On removing the pressure of the finger from the key 16 the resiliency of the spring will operate to return all the parts to their normal positions. During the descent of the front arm of the lever 3 (when vibrated by the character finger-key 16) the space-key 8 remains stationary by reason of the presence of the slot 6 in the coupling 5, which prevents the said arm of the lever from reciprocating the said coupling, and hence, also, the lever 7 and the space-key. This construction provides for an easier key-action and avoids the constant bobbing up and down of the space-key head during the use of the character-keys in printing, which is a great annoyance.

I have found in practice that the construction and arrangement of the spring and its appendages in this machine are vastly superior to the same in the machine shown in the joint application above alluded to, for the reason that the thumb-nut may be most conveniently got at and the tension of the spring regulated with the greatest facility. In the other machine the tension-regulator can be reached only by a long tool and after removal of some of the parts of the machine.

Instead of the duplex feed-racks G^2, the carriage may be provided with some other escapement means, as the "Remington," or that shown in another application by me, and other modifications in construction may be made without departing from the spirit of my invention.

In lieu of key-levers 7 and 15, other connections between the space-key and the character-keys may be employed—such, for instance, as shown in the Letters Patent granted to me March 26, 1889, No. 400,384.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination, with a carriage provided with a feed-rack, substantially as described, of a vibratory dog or pawl, a vertical connecting-link 2, adapted to actuate the same, a horizontally-arranged lever 3, the rear arm of which is attached to the connecting-link, a vertical rod 5, connected to the front arm of said lever, a space-key, and a longitudinal connection between the space-key and the rod 5, as set forth.

2. In a type-writing machine, the combination, with the carriage provided with a feed-rack, substantially as described, of the circular universal bar, the connecting-rods having lugs or fingers, the spindle, the lever 3, the link 2, the vibratory dog, a returning-spring, the slotted coupling 5, the space and character keys, and connections between the latter and the coupling and connecting rods.

3. In a type-writing machine, the combination, with the carriage provided with a feed-rack, substantially as described, of the circular universal bar, the connecting-rods having lugs or fingers, means for actuating the same, the spindle, the lever 3, the link 2, the vibratory dog, the coiled spring extending through the bed-plate, the bracket or housing depending below the bed-plate, and means, substantially as described, for adjusting the tension of said spring.

4. In a type-writing machine, the combination, with the paper-carriage provided with a feed-rack, substantially as described, of a circular universal bar, means for actuating the same, a horizontally-arranged lever 3, a spindle connected thereto, a vertical coupling 2, connected to one end of said lever, a vibratory dog, a vertical rod 5, connected to the other end of said lever, a key-lever, and a space-key, as set forth.

Signed at New York city, in the county of New York and State of New York, this 30th day of March, A. D. 1888.

G. W. N. YOST.

Witnesses:
GEORGE FENN,
JACOB FELBEL.