(No Model.)

J. B. HAMMOND & C. O. AXELSON.

TYPE WRITING MACHINE.

No. 547,397. Patented Oct. 1, 1895.

Fig. 1.

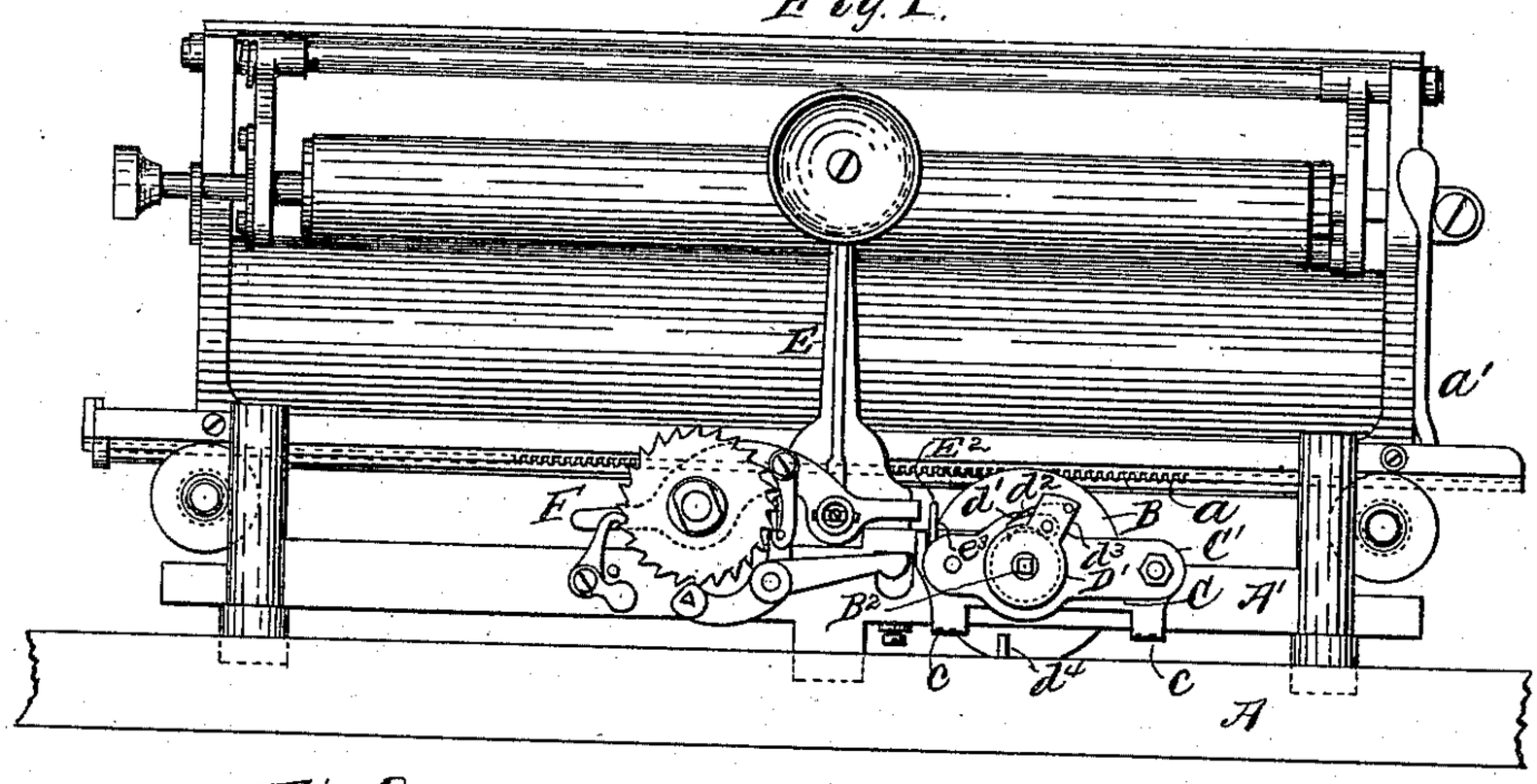


Fig. 2.

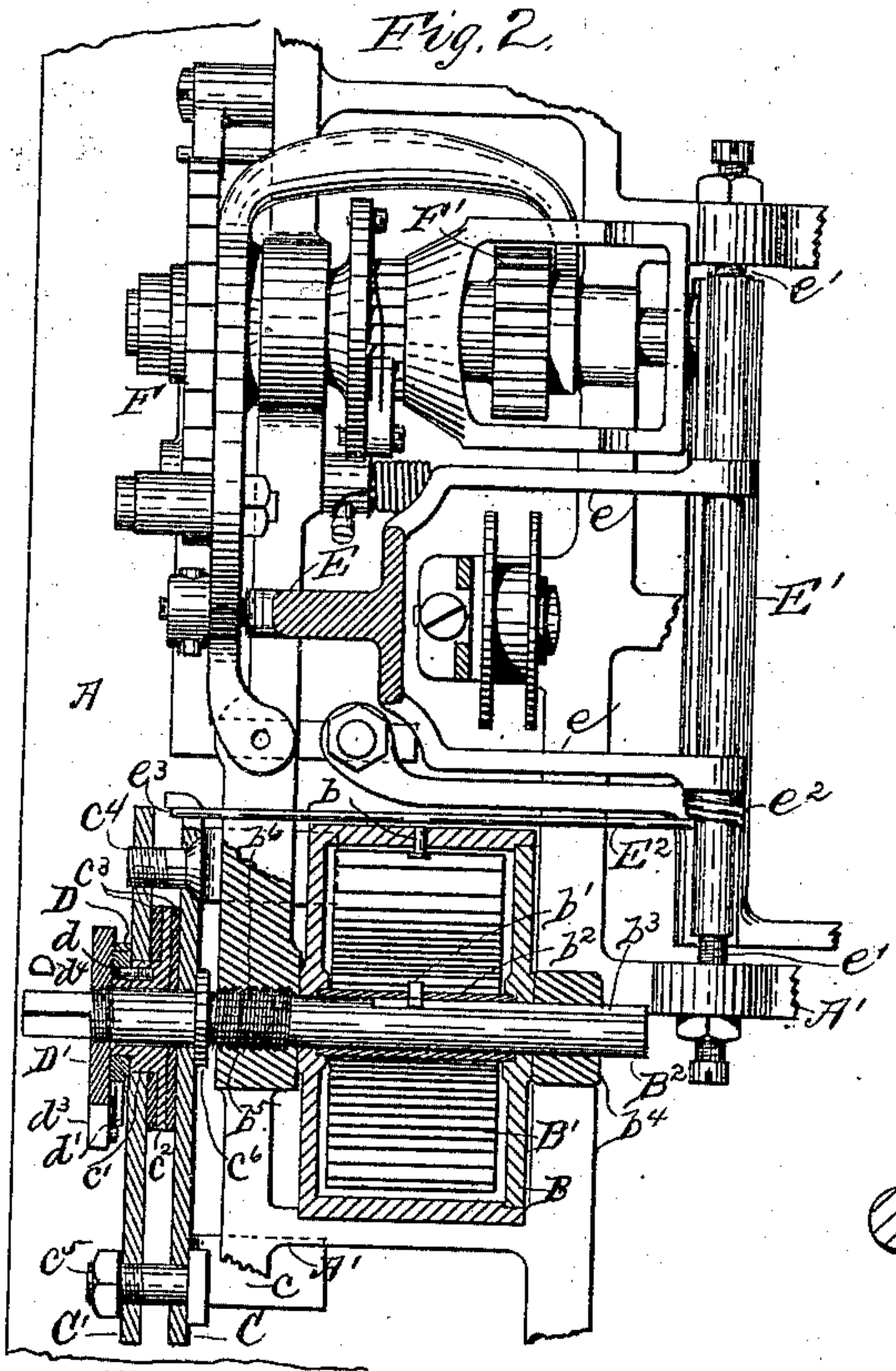


Fig. 3.

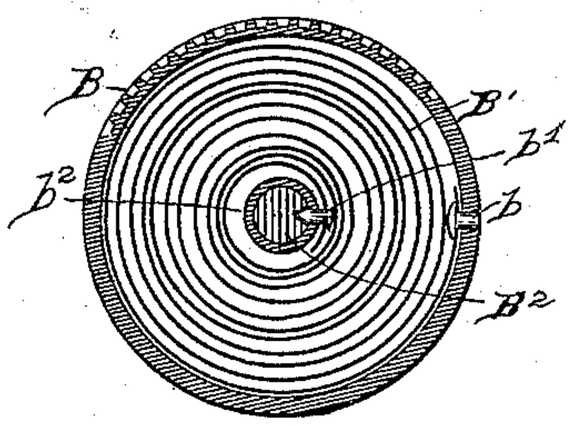
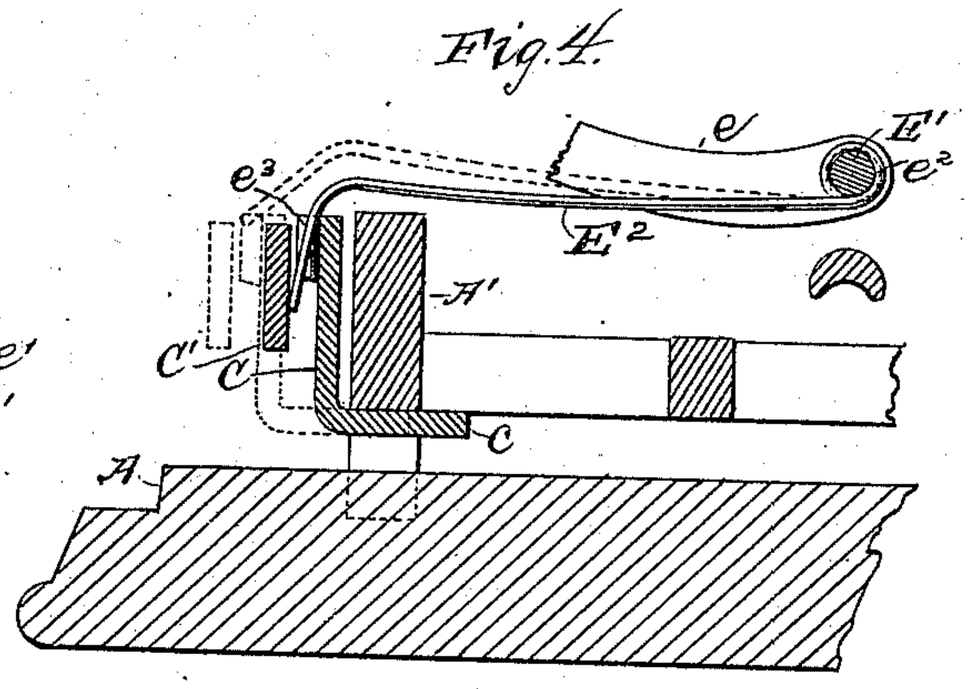


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES B. HAMMOND AND CARL O. AXELSON, OF NEW YORK, N. Y.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,397, dated October 1, 1895.

Application filed August 17, 1892. Serial No. 443,306. (No model.)

To all whom it may concern:

Be it known that we, JAMES B. HAMMOND and CARL O. AXELSON, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a specification.

This invention relates more particularly to attachments for a type-writing machine for regulating the tension of the carriage-motor, and when this motor is the prime cause of the hammer-stroke action it is evidently desirable that an increase of power should be given to the blow of the printing-hammer by the same movement by which the prime-motor is increased.

The object of the invention is, then, by a simple operation to increase or diminish the strength or tension of the carriage-motor spring and at the same time regulate the hammer tension. Thus it is obvious that an operator can easily adjust the tension for manifolding, vary the strength of impression, or compensate for a too feeble or too strong a ribbon.

The invention can be attached to any Hammond type-writer by simply tapping the rear spindle-bearing in the bed-plate.

We will describe a type-writing machine embodying our improvement, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is a rear elevation of a type-writing machine with certain parts omitted to more clearly show our improvement. Fig. 2 is a horizontal section through the axis of the spring-barrel on an enlarged scale. Fig. 3 is a sectional detail. Fig. 4 shows the hammer-spring.

Referring by letter to the drawings, A designates the base of the machine, having the bed-frame A′ supported thereon.

B designates a spring-barrel loosely mounted on a spindle B^2, and having a toothed periphery engaging with the rack-bar a, attached to the paper-carriage a', which is moved in one direction by the expansion of a motor-spring B′ within the barrel B, the said spring being retracted or wound by a return movement of the carriage a' in the usual manner. The spring B′ at its outer end is secured to the inner side of the barrel B, as at b, and the inner end has a loose engagement with the spring-spindle B^2, so that said spindle may have a longitudinal movement relatively to the spring. As here shown the inner end of the spring B′ engages with a pin b', which is attached to a sleeve b^2, surrounding the spindle B^2 within the barrel B. The pin b' extends through the sleeve b^2 into a longitudinal channel b^3 in the spindle B^2. By this construction it will be seen that the sleeve and pin may be rotated with the spindle to adjust the tension of the spring, and at the same time the spindle will be free to move longitudinally relatively to the sleeve and spring. At one side of the barrel B the spindle B^2 has a bearing b^4 in the bed-frame A′, and at the other side of the barrel it has a bearing b^5 in the bed-frame. One of these bearings, as here shown the bearing b^5, is provided internally with a screw-thread, and the spindle is provided with a screw-thread b^6, engaging the screw-thread of the bearing. Obviously when the spindle is rotated to adjust the spring tension the threaded portions will impart a longitudinal movement to the spindle.

We provide means for holding the spindle B^2 as adjusted, here shown as consisting of friction-plates C C′, which are loosely mounted on the spindle B^2 and are movable toward and from the bed-frame A′ by the longitudinal movement of the spindle B^2. The plate C is mounted directly on the spindle B^2, abutting against an annular shoulder c^6, attached to the spindle, and has its lateral extensions or arms provided with hooked plates c, which extend underneath the bed-frame A′ and prevent the rotation of the plates. The plate C′ is loosely mounted on a sleeve c', which is loosely mounted on the spindle B^2, and has its inner end provided with an annular flange c^2, having a friction-bearing between leather, rubber, or similar washers c^3, secured to the inner surfaces of the plates C C′. The plates C C′ are connected together by means of a screw c^4 and a screw-bolt c^5, and by manipulating the screw-bolt c^5 the frictional bearing of the plates may be adjusted. The sleeve c' at the outer side of the plate C′ is provided with a ratchet-wheel D. This ratchet-wheel may be secured to the sleeve by means of a screw d. A plate D′ is secured to the spindle B^2 at the outer side of the ratchet-wheel D in

any desired manner, but preferably by means of a left-hand thread, as shown, so that the tension of the spring will have a tendency to tighten rather than loosen the plate. The plate D′ has a dog d' pivoted to it and held in contact with the ratchet-wheel by means of a spring d^2, secured at one end to said plate and bearing at the other end upon the dog. The object of employing the dog and ratchet is to relieve the spindle while winding from the influence of the friction-plates.

The spring B′ is adjusted to a normal tension when the machine is set up in the factory; but an operator can adjust the tension to any desired degree above the normal by rotating the spindle B^2 to the right by means of a a key engaging with its angular outer end. It is desirable, however, to limit the degree of tension to which the spring may be subjected. We therefore provide a stop, here shown as an arm d^3 on the plate D′, which will contact with a pin d^4 on the base A, when the spindle shall have been rotated sufficiently to the right to bring the arm d^3 in line with the pin d^4. Of course it is understood that when the spindle is rotated to the right it has an outward longitudinal movement and carries with it the plate D′ and the friction devices. It is evident that the annular shoulder c^6 coming in contact with the bed-frame will operate as a stop to prevent a too extended movement of the spindle to the left or to reduce the spring tension below the normal.

The outward and inward movement of the friction-plates serves to adjust the stroke of the printing-hammer E for the purpose of manifolding. The releasing, stop, and return mechanism for the hammer need not be described herein excepting that the releasing and returning mechanism F is operated from the barrel B by means of the rack a engaging with a gear-wheel F′ of the said mechanism. The hammer E has forwardly-extending arms e, attached to a rock-shaft E′, which has pivot-bearings e', adjustably engaging with the bed-frame A′. A spring E^2 serves to rock the shaft E to impart the stroke motion to the hammer E. This spring E^2 is secured at one end to the rock-shaft and is coiled around the same, as shown at e^2. From the rock-shaft the spring extends rearward and has a downwardly-turned end e^3, engaging over the outer surface of the plate C, as plainly shown in Fig. 4.

By an outward movement of the plate C, as before described, the downwardly-turned end e^3 of the spring E^2 will move slightly upward with a cam-like motion and at the same time the tension of the spring will be increased on the rock-shaft E′, so that the rock-shaft will have a quicker and stronger motion imparted to it and thus increase the stroke of the hammer.

Having described our invention, what we claim is—

1. In a typewriting machine, the combination with a carriage and a motor spring for moving the same forward, of a normally stationary but adjustable spindle to which one end of said spring is connected, so that its tension may be varied, as desired, and friction plates connected to said spindle and serving to hold the latter in any desired position of adjustment.

2. In combination with the movable carriage having a rack bar, of a spring barrel engaging with the rack a rotary and longitudinally movable spindle upon which the barrel is mounted and a spring within the barrel having a loose engagement at one end with the spindle, substantially as specified.

3. In a type writing machine the combination with the movable carriage, having a rack, of the barrel engaging with the rack, the spring within the barrel, a rotary and longitudinally movable spindle supporting the barrel and to which the spring has a sliding connection, a threaded portion on said shaft engaging in a threaded bearing and friction plates for holding the spindle as adjusted, substantially as specified.

4. In a type writing machine the combination with a movable carriage, having a rack, of a barrel engaging with the rack, a spring within the barrel, a rotary and longitudinally movable spindle and a stop for limiting the movements of said spindle, substantially as specified.

5. In a type writing machine, the combination with the movable carriage, of a spring and spring barrel for imparting a movement to said carriage, a rotary and longitudinally movable spindle for the spring, friction plates loosely mounted on the spindle and a dog and ratchet wheel connection between the spindle and friction plates, substantially as specified.

6. In a type writing machine the combination with the carriage, of a spring and spring barrel for imparting a movement to the same, a rotary and longitudinally movable spindle having a longitudinal groove, a pin extending from the inner end of the spring into the groove, and a friction device for holding the spindle as adjusted, substantially as specified.

7. In a type writing machine the combination with the carriage, the motor and the spindle, of the friction plates on the spindle and means for adjusting the friction, substantially as specified.

8. In a type writing machine the combination with a carriage, a motor and the rotary and longitudinally movable spindle for the motor, of the friction device, consisting of the plates loosely mounted on the spindle, a sleeve loosely mounted on the spindle and having a flange extended between the plates, a ratchet wheel secured to the sleeve, a plate attached to the spindle and a dog pivoted to said plate and engaging with the ratchet wheel, substantially as specified.

9. In a type writing machine the combination with a carriage, of a motor therefor, a printing hammer, a spring for causing the stroke of said hammer, and means for chang-

ing the power of the motor and also regulating the hammer blow, substantially as specified.

10. In a type writing machine the combination with the carriage, the motor spring, the rotary and longitudinally movable spindle for the spring, friction devices on said spindle, a printing hammer and a spring for impelling the hammer, engaging at one end with said friction devices whereby a longitudinal movement of the spindle will adjust the tension of the hammer spring, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

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C. O. AXELSON. [L. S.]

Witnesses:
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