(No Model.)

2 Sheets—Sheet 1.

H. W. MERRITT.

TYPE WRITING MACHINE.

No. 505,058. Patented Sept. 12, 1893.

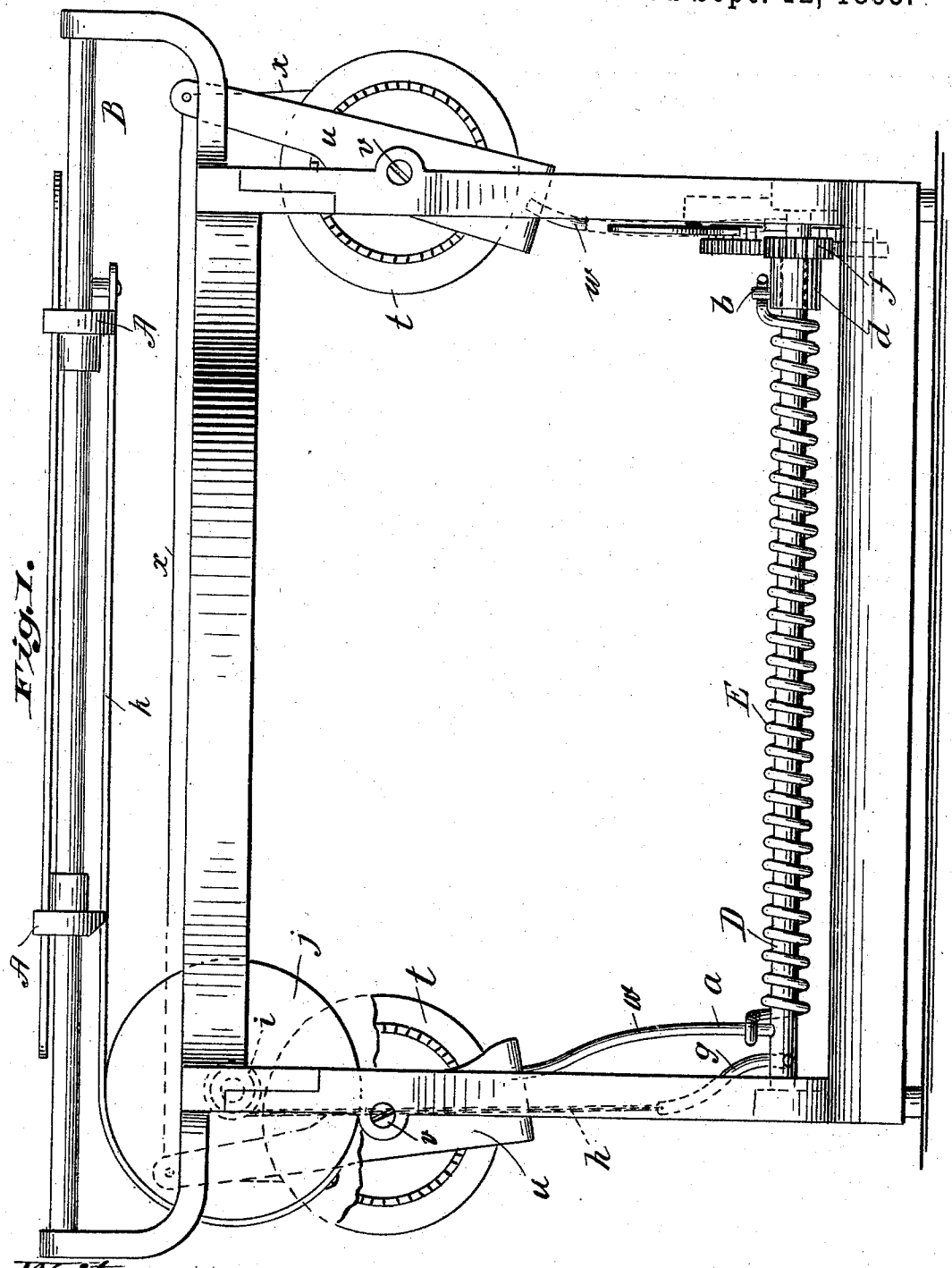

Fig. 1.

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Inventor:
Henry W. Merritt.
per Chapin & Co. Attys.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

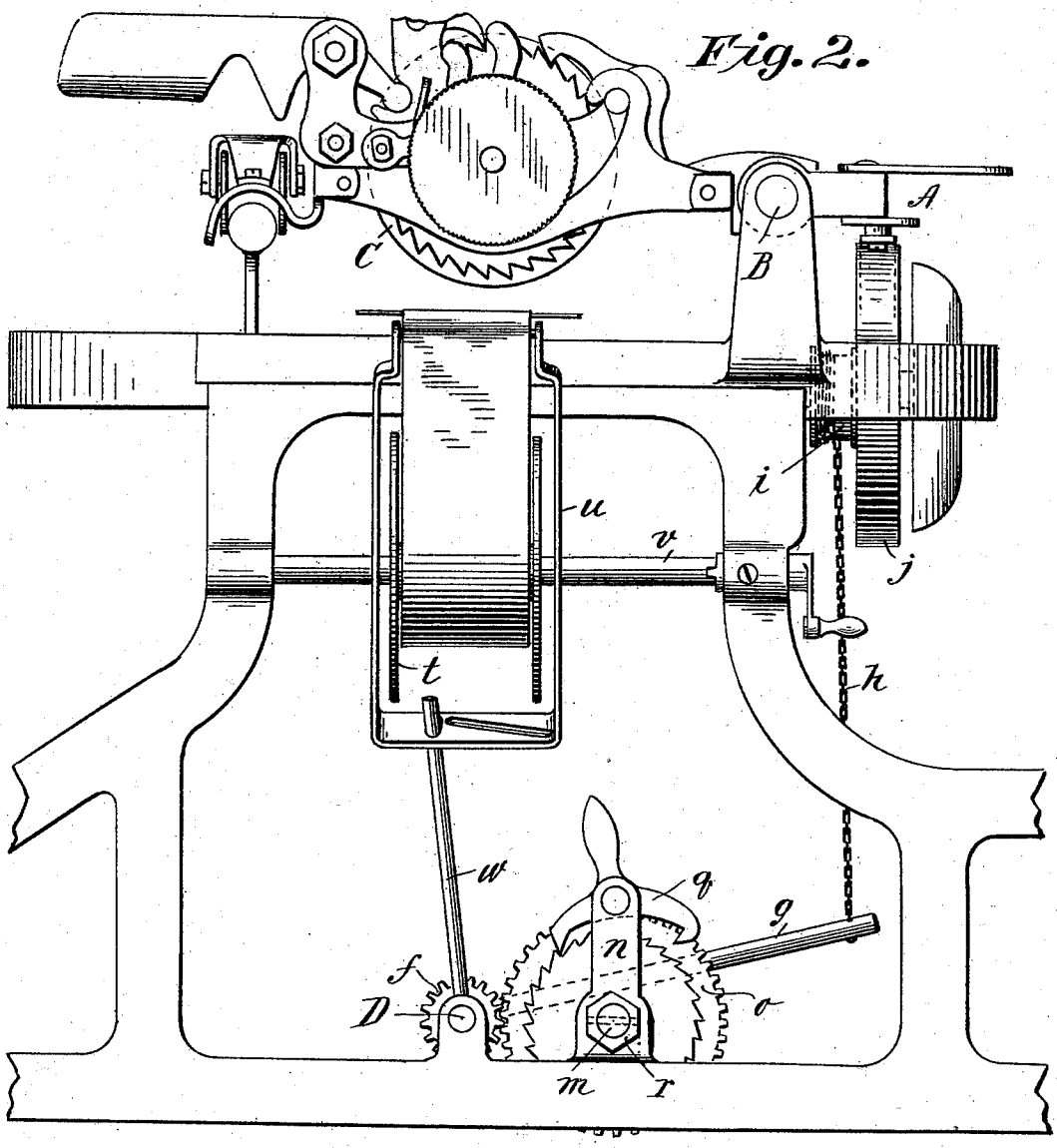
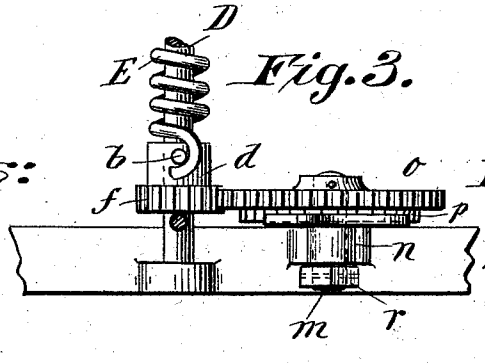


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY W. MERRITT, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE MERRITT MANUFACTURING COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 505,058, dated September 12, 1893.

Application filed September 26, 1892. Serial No. 446,885. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. MERRITT, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention, in the class of typewriting machines, particularly relates to improvements in the mechanism for propelling the carriage, on which the platen is mounted, for the letter spacing as the escapement for the carriage is let off under the usual operations of the machine therefor.

The purpose of the invention is to insure a spring motive device which is capable of giving letter space movements to the platen carriage which are practically as quick and forcible when the carriage is at or toward the end of the line as when it commences to make its run, and which spring device does not resist the return movement of the carriage with a rapidly increasing force as has been found the case in many of the propelling devices for the carriage in which are comprised volute or clock springs which impart much greater impelling force to the carriage at the commencement of the line of printing than at the completion.

Another object of the invention is to render the mechanism for the aforesaid purpose, (and which further embodies capabilities for securing any normal degree of force upon the spring, and also for decreasing such degree of force, as desired according to various circumstances and requirements) very simple, practicable, and cheap of construction, and easy of manipulation or adjustment; and another object of the invention is to attain an improved device for effecting the crosswise movement of the ribbon relative to its longitudinal feed.

To these ends the invention consists in the constructions and combinations of parts, all substantially as will hereinafter more fully appear and be set forth in the claims.

Reference is to be had to the accompanying drawings, in which illustration of the manner of carrying out this invention is given, Figure 1 being a front elevation of the frame of a typewriting machine with the mechanisms constituting this invention applied thereon, nearly all of the other mechanisms of the machine, such as the keys, type-bars, &c., being removed. Fig. 2 is a side elevation of the parts shown in Fig. 1, the platen carriage in this view appearing somewhat more fully. Fig. 3 is a plan view of parts seen in the preceding views and which will be hereinafter more fully referred to.

Similar letters of reference indicate corresponding parts in all of the views.

In the drawings A represents a sliding part which may be regarded as a part of the carriage on which the platen, C, is mounted, said part having the endwise sliding movements along the support-rail, B, as usual in the most common class of type-writing machines.

D represents a shaft which is mounted horizontally parallel to the run of the carriage and of course at right angles to the length of the key-levers in suitable bearing lugs near the bottom of the machine and which is surrounded by a spiral spring, E; one end of this spring is connected to said shaft, D, (or an extension thereof, as constituted by the arm, *a*,) while the other end of the spring has a connection with the stud, *b*, which is to be regarded as a part of the sleeve, *d*, and which sleeve is loosely mounted upon the shaft.

Suitable detent devices are provided with relation to this sleeve so that after its rotation the proper degree of winding of the spring has been insured for generating the sufficient torsional reaction on the shaft, the sleeve may be confined against movement, the same serving as an element of resistance to the spring, and the spring, therefore, in its reaction will then exert a tendency for rotational movement of said shaft, D. There is a medium of connection between said shaft, D, and the platen carriage whereby the rotational movements of the shaft, D, imparted by said spring, as aforesaid, shall impart a forward movement of the carriage in one direction and in such steps or extents as will be permitted by the operation of the usual

escapement mechanism which is understood as applied upon or relative to said carriage, the reverse movements of the carriage being against the force of the spring, and, as shown, this medium of connection consists in an arm, *g*, radially and rearwardly extended from the shaft, D, a chain, *h*, or flexible connection having an engagement by its one end with said arm, *g*, the drum or barrel, *i*, around which the other extremity of said flexible connection has a winding engagement, the enlarged disk or rim, *j*, which is as one with said drum, *i*, and the strap, *k*, which has a winding engagement by its one end portion around said disk, the other end of this strap being secured to the aforesaid part, A, which is movable as one with the platen carriage.

The stop device which has been mentioned as provided in combination with the sleeve, *d*, has also combined therewith means for securing the rotation of the sleeve to effect in any degree required under varying circumstances as they may arise, the winding and torsional reaction of the spring, E, and the unwinding thereof. This device as shown consists of the pinion, *f*, affixed to the sleeve, a stud, *m*, mounted in a suitable bearing lug, *n*, therefor, a gear-wheel, *o*, and ratchet-wheel, *p*, fixed to said shaft, and a two-armed pawl or escapement, *q*, pivoted to said lug and having the well known escapement action relative to the said ratchet-wheel. The end of the stud, *m*, is provided with a polygonal part, *r*, pinned thereto whereby a wrench may be applied for effecting the turning of the stud and gear and the rotation of the sleeve in the proper direction for winding up the spring. It is understood that with the spring once wound in the proper degree no change of the relation of the parts last described is to be had unless the more or less active forward movement of the carriage is required, and if required to be more active the spring is wound harder by the turning of the stud, *m*, and if required to be less active the spring may be partially unwound by permitting the sleeve to have a rotational movement as impelled by the reaction of the spring until the same shall have become properly loosened. This latter effect is derived by the manipulation of the said escapement, *q*, and of course the spring, E, may be entirely run down if the sleeve, *d*, is permitted to have the sufficient rotational movement which condition is desirable when the machine is to be taken apart for repairs or other purpose. The ribbon rolls, *t*, are embraced by the yoke or carriers, *u*, which are movable fore-and-aft of the machine along shafts, *v v*, that have their lengths at right angles to the run of the ribbon, *x*, and to the aforesaid shaft, D. The shaft, D, has the arms, *w*, *w*, which swing in fore-and-aft planes, each of which directly engages one of the said yokes or carriers so that as the spring, E, effects the rotational movement of the shaft, D, to propel the platen carriage it also insures simultaneously a step by step movement crosswise of each of the ribbon rolls for the well known advantageous purpose of bringing practically all parts of the ribbon to the impact point under the platen of the type-bars.

I claim—

1. In a typewriting machine, the combination with the carriage and a ribbon-roll and a yoke or carrier therefor, both of which are supported for fore-and-aft bodily movements which are at right angles to the travel of the carriage, of a shaft, D, which runs crosswise of the machine, that is, parallel with the travel of the carriage, and which has an arm to swing in a fore-and-aft plane corresponding to the bodily movement of the yoke-and-roll, and which arm is directly engaged with the yoke, and a spring coiled about said shaft for imparting the rotational movement thereto, substantially as described.

2. In a typewriting machine, the combination with a shaft mounted for a rotational movement and having an arm extended radially therefrom, and a spiral spring applied to said shaft for exerting a torsional reaction thereon, of the carriage the drum, *i*, and disk, *j*, the strap, *k*, connected to said carriage and having a winding engagement with the disk, and the flexible connection secured to said arm and having a winding engagement with said barrel, substantially as and for the purpose set forth.

3. In a typewriting machine the combination with the shaft, D, of the sleeve, *d*, loosely mounted thereon, the spiral spring coiled around said shaft and having one end in engagement therewith and the other in engagement with said sleeve, a gear wheel having a connection with said sleeve, a ratchet-wheel movable as one therewith, an escapement for the ratchet-wheel, the platen carriage and a medium of connection between said shaft and carriage, substantially as described.

4. In a typewriting machine in combination, the shaft, D, the sleeve, *d*, loosely mounted thereon, the spiral spring coiled around said shaft one end being in engagement therewith and the other in engagement with the sleeve, the stud mounted for rotation, and having fixed thereon a gear-wheel which has a gear engagement with said sleeve, and a ratchet-wheel, said stud being formed with a polygonal part, as *r*, the escapement, *q*, the platen carriage and means of connection between it and said shaft, substantially as and for the purposes set forth.

5. In a typewriting machine, the combination with a shaft mounted crosswise of the machine for a rotational movement, and a spring applied to said shaft for imparting a rotational movement thereto, of the platen carriage, and the ribbon-roll-carrier movable transversely of the run of the ribbon, that is,

at right angles to the length of the shaft, and a medium of connection between the said shaft and the carriage whereby the movement imparted to the shaft by the spring will insure the endwise movement of the carriage, and an arm on said shaft, which directly engages the ribbon-roll-carrier whereby the reaction of the same spring will also insure the crosswise movement of the carrier, substantially as described.

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Witnesses:
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