W. F. HELMOND.

TYPEWRITING MACHINE.

APPLICATION FILED MAY 14, 1919.

1,401,103. Patented Dec. 20, 1921.

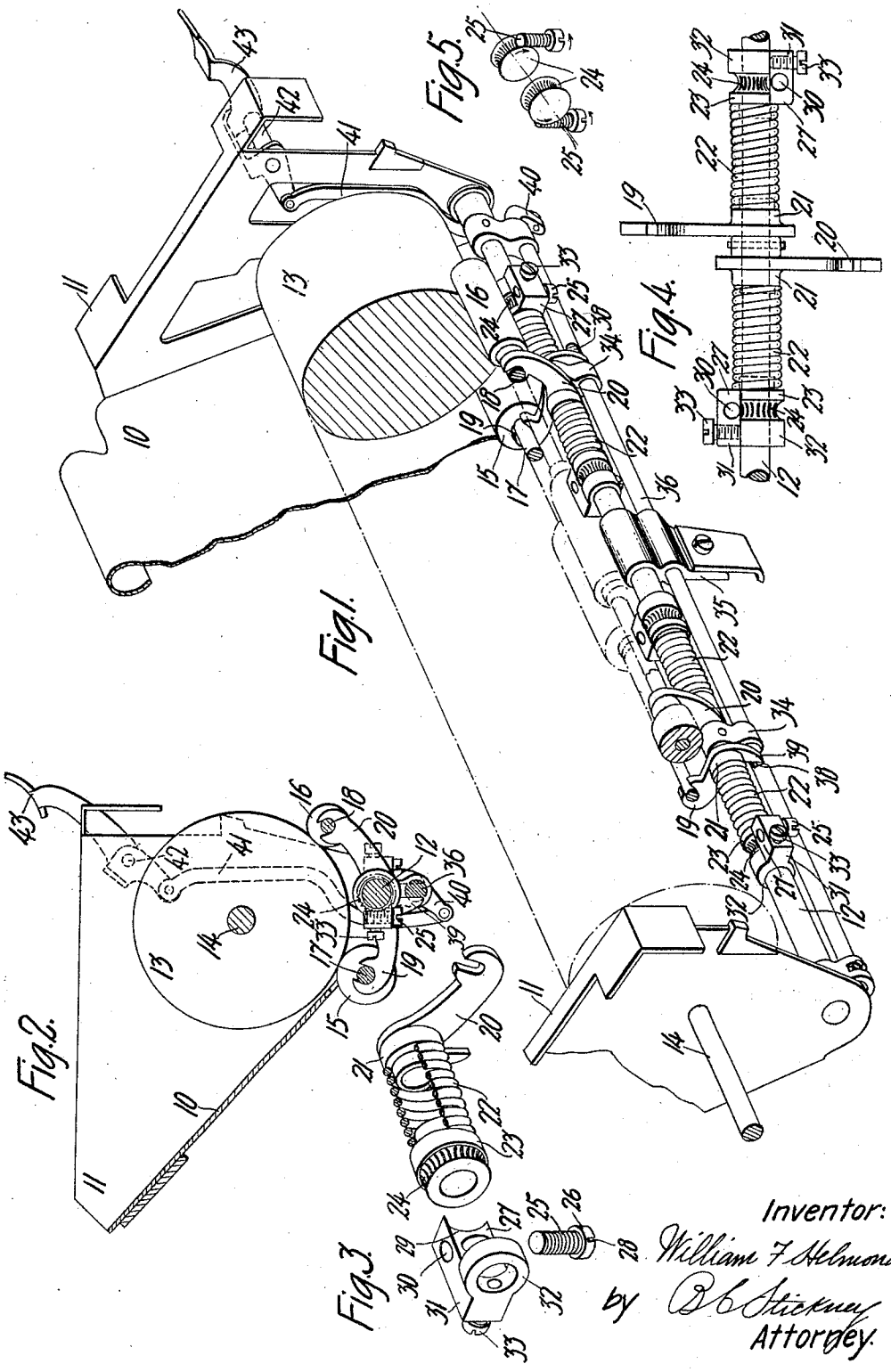


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Inventor:
William F. Helmond
by R. B. Stickney
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM F. HELMOND, OF HARTFORD, CONNECTICUT, ASSIGNOR TO UNDERWOOD TYPEWRITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

TYPEWRITING-MACHINE.

1,401,103. Specification of Letters Patent. Patented Dec. 20, 1921.

Application filed May 14, 1919. Serial No. 297,097.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Typewriting-Machines, of which the following is a specification.

This invention relates to the feed-roll mechanism for typewriting machines, and is herein disclosed as applied to the shift-frame of an Underwood standard machine.

It is essential that the feed-rolls press firmly against the platen, to cause work-sheets to be fed accurately; and the rolls must be resiliently mounted, so as to accommodate work-sheets of varying thicknesses, or many plies of work-sheets, and must also be easily cast off. At the same time, it is essential that the mechanism be compact and light, and it must work easily and positively.

With these objects in mind, I have utilized the usual feed-roll shafts and the swinging arms on which they are journaled, and have coiled springs around the main tie-rod of the shift-frame, on which the arms are mounted; and have provided tension-controlling means, compact in form and easily adjusted, to enable the springs to be tightened up to any desired extent, after the mechanism is assembled. Such a structure not only enables the assembling of the shift-frame to be economically accomplished, but also permits a casting off mechanism, substantially identical with the usual Underwood type, to be utilized.

As one of the important features of the invention I provide individual worm and screw-tensioning devices for each of the feed-roll springs, the parts of said devices being so positioned, relatively to each other, that the various worms and screws may be made in duplicate, yet each spring may be tensioned by a right-hand turn of its respective adjusting screw.

Other features and advantages will hereinafter appear.

In the accompanying drawings,

Figure 1 is a perspective view of an Underwood shift-frame, omitting many parts, and other parts being broken away.

Fig. 2 is a sectional side view of the same.

Fig. 3 is a dissected perspective view, showing the spring, the arm which it tensions, and the adjusting means.

Fig. 4 is a plan view of part of the shaft, showing two springs and the connections for each.

Fig. 5 is a dissected perspective of the spring-adjusting screws to show the relative direction of the screw threads.

In the usual Underwood typewriting machine, the carriage is provided with a shift frame, which includes a paper table 10, ends 11, and a bottom tie-rod 12, which connects the ends. The platen 13 is journaled by its axle 14 in the ends 11, and work-sheets passed around the platen over the paper table 10 are held up against the platen by rear feed-rolls 15 and front feed-rolls 16, which usually are loose upon the shafts 17 and 18, respectively, said shafts extending practically the length of the platen and being journaled upon oppositely extending arms 19 and 20, which, in turn, are journaled upon the tie rod 12. Each arm 19 and 20 is provided with a hub 21, which forms an enlarged journal for it upon the shaft or tie-rod 12. In order to hold the rolls 15 and 16 against the platen, there is fast to each hub 21 a spring 22 coiled around the shaft 12, and of heavy resilient wire, the other end of each spring being anchored in a ring 23, forming a worm hub, which is also journaled upon the tie-rod 12. In order to cause any spring 22 to swing its arm 19 or 20 toward the platen, the hub 23 is adapted to be rotated by its worm screw 24, and to effect this rotation, there is provided for each worm-screw 24 a screw 25 having an enlarged head 26, adapted to bear against the outside edge of a mount in the form of a block 27 fast to the tie-rod 12. Each screw 25 is provided with a screw-driver nick 28, by which the screw may be turned to tighten up its spring 22 to any desired extent.

Each block 27 comprises an arc-shaped face 29, which overlies the worm wheel 24 and the ring 23, and also an opening 30 in which the screw 25 can turn loosely, and also comprises an extension 31, which includes a ring 32 fitting closely upon the tie-rod 12, and adapted to be fixed in place upon the tie-rod by a set screw 33 threaded into the block, and adapted to bear against the tie-rod within the limits of the ring 32.

It will be seen that the parts are readily

assembled upon the tie-rod 12, properly spaced from each other by hangers 34 and 35, which support the usual casting-off shaft 36. Any tensioning of the springs may be done later with a screw-driver in a convenient position by turning the carriage upside down. The hanger 35 also serves as a support for the roll, not shown, which runs upon the usual shift rail. The casting-off shaft 36 may be of substantially the usual form, including flat portions 38 which are adapted to permit lugs 39, extending downwardly from the arms 19 and 20, to be swung inwardly by the springs 22 as the rolls are swung toward the platen. To enable the shaft 36 to be rotated and thereby cause the lugs 39 to be cammed outwardly so as to withdraw the feed-rolls from the platen against the tension of their springs 22, said shaft may be provided with the usual crank-arm 40, connected by the usual link 41 to the usual operating lever or finger-piece 43, mounted on the stub-shaft 42 near the top of the shift-frame.

In order to make the operation of the screws for tightening the springs seem natural, that is to say, to make them all turn to the right in the tightening operation, the screws which serve to tighten the springs for the forwardly-projecting arms 20 are so located as to engage their respective worm-wheels at the rear of the tie-rod 12, while the screws which serve to tighten the springs for the rearwardly-projecting arms 19 are so located as to engage their respective worm-wheels forwardly of said tie-rod 12. When so arranged, all the screws may have right-hand threads, and all of the screws and worm-wheels may be made in duplicate. It may also be observed that the screws 25 are all accessible by merely running the carriage out to one end or the other of its travel, thus rendering it unnecessary to remove the carriage from the typewriter frame when it is desired to adjust the springs.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination, with the letter-spacing carriage of a typewriter, having a platen and a platen-frame mounted therein, of a feed-roll-supporting bar mounted in said frame, forwardly and rearwardly-projecting feed-roll-supporting arms spaced along and journaled on said bar, front and rear feed-rolls supported by said arms, springs coiled about said bar, one for each arm, worm-wheels journaled on said bar, one for each spring, each spring being connected at one end to an arm and at its other end to a worm-wheel, a spring-adjusting screw in mesh with each worm-wheel, and a mount for each screw, said mounts being fixed to said bar, and said screws being journaled in said mounts, with their heads disposed downwardly, so as to be accessible from below on movement of said carriage to one end or the other of its range of travel.

2. The combination with a typewriter platen and the frame in which it is mounted, of a feed-roll-supporting bar mounted in said frame, forwardly and rearwardly-projecting feed-roll-supporting arms spaced along and journaled on said bar, front and rear feed-rolls supported by said arms, springs coiled about said bar, one for each arm, worm-wheels journaled on said bar, one for each spring, each spring being connected at one end to an arm and at its other end to a worm-wheel, a spring-adjusting screw in mesh with each worm-wheel, and a mount for each screw, the relative positions of said parts being such that the adjusting screw for a spring connected to a forwardly-projecting supporting arm may engage its worm-wheel at the rear of said supporting bar, and such that the screw for a spring connected to a rearwardly-projecting supporting arm may engage its worm-wheel forwardly of said supporting bar, whereby all spring-adjusting worm-wheels and screws may be made in duplicate, yet each of said screws may be turned in the same right-hand direction to increase the tension of the spring adjusted thereby.

3. The combination with a letter-spacing carriage, of a typewriter having a platen and a platen-frame mounted therein, a feed-roll-supporting bar mounted in said frame, forwardly and rearwardly projecting feed-roll-supporting arms spaced along and journaled on said bar, front and rear feed-rolls supported by said arms, springs coiled about said bar, one for each arm, each spring being connected at one end to the corresponding arm, and a spring-adjusting device associated with each spring, comprising a rotatable member connected with the spring at its other end and a screw, actuation of which will cause rotation of the rotatable member to adjust the tension of the spring, said screws being disposed with their heads extending downwardly so as to be accessible from below on movement of said carriage to one end or the other of its range of travel.

WILLIAM F. HELMOND.

Witnesses:
JOHN J. BASKERVILLE,
SHIRLEY E. GLEDHILL.