(No Model.)

F. A. YOUNG.

TYPE WRITING MACHINE.

No. 428,738. Patented May 27, 1890.

Fig. 1.

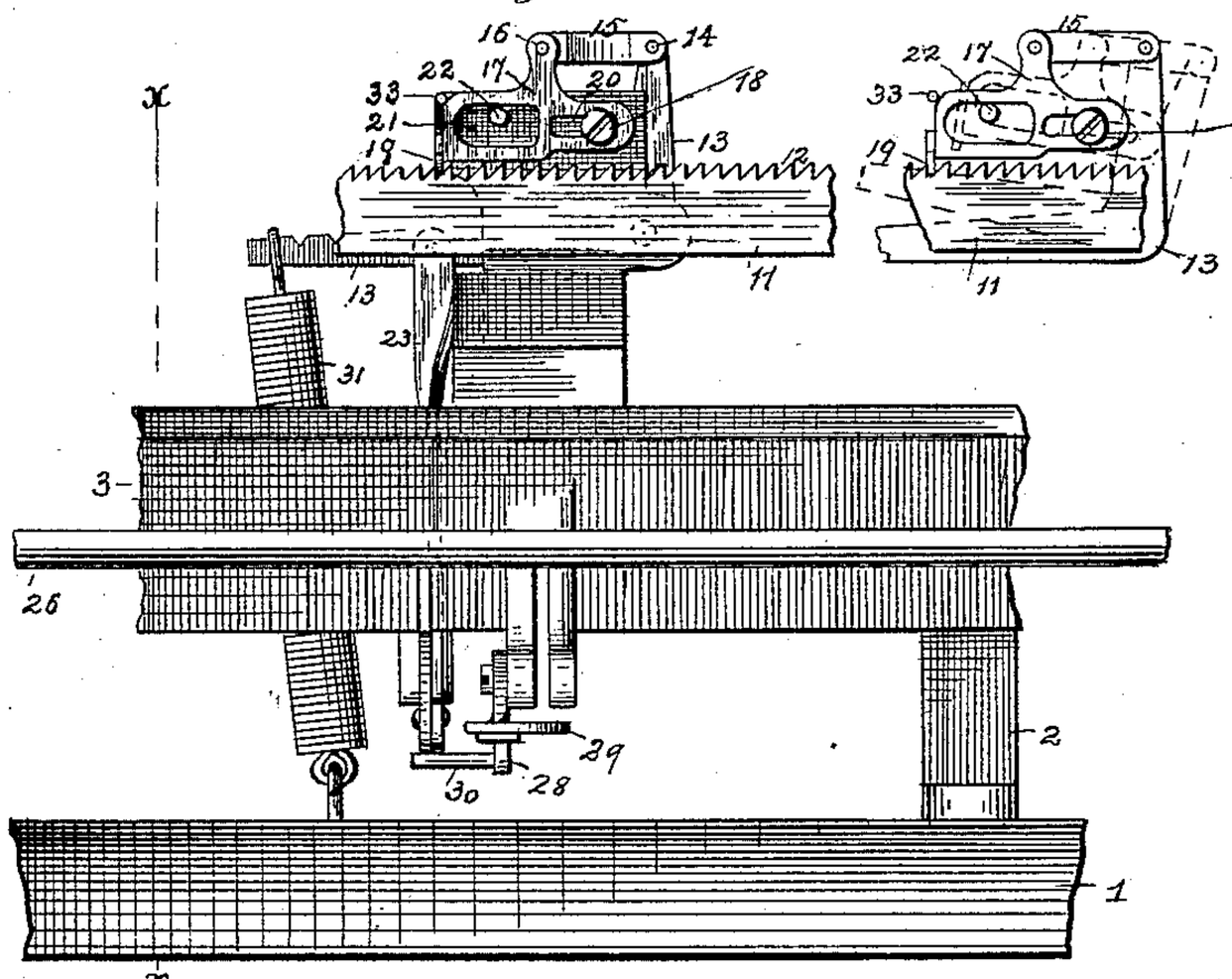


Fig. 4.

Fig. 2.

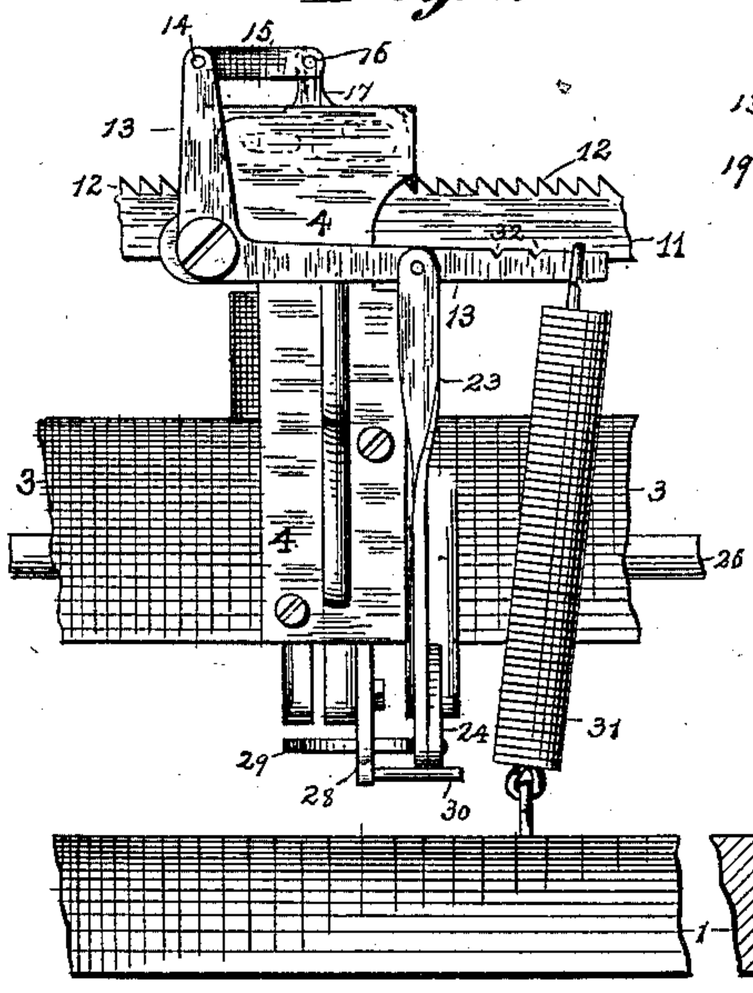
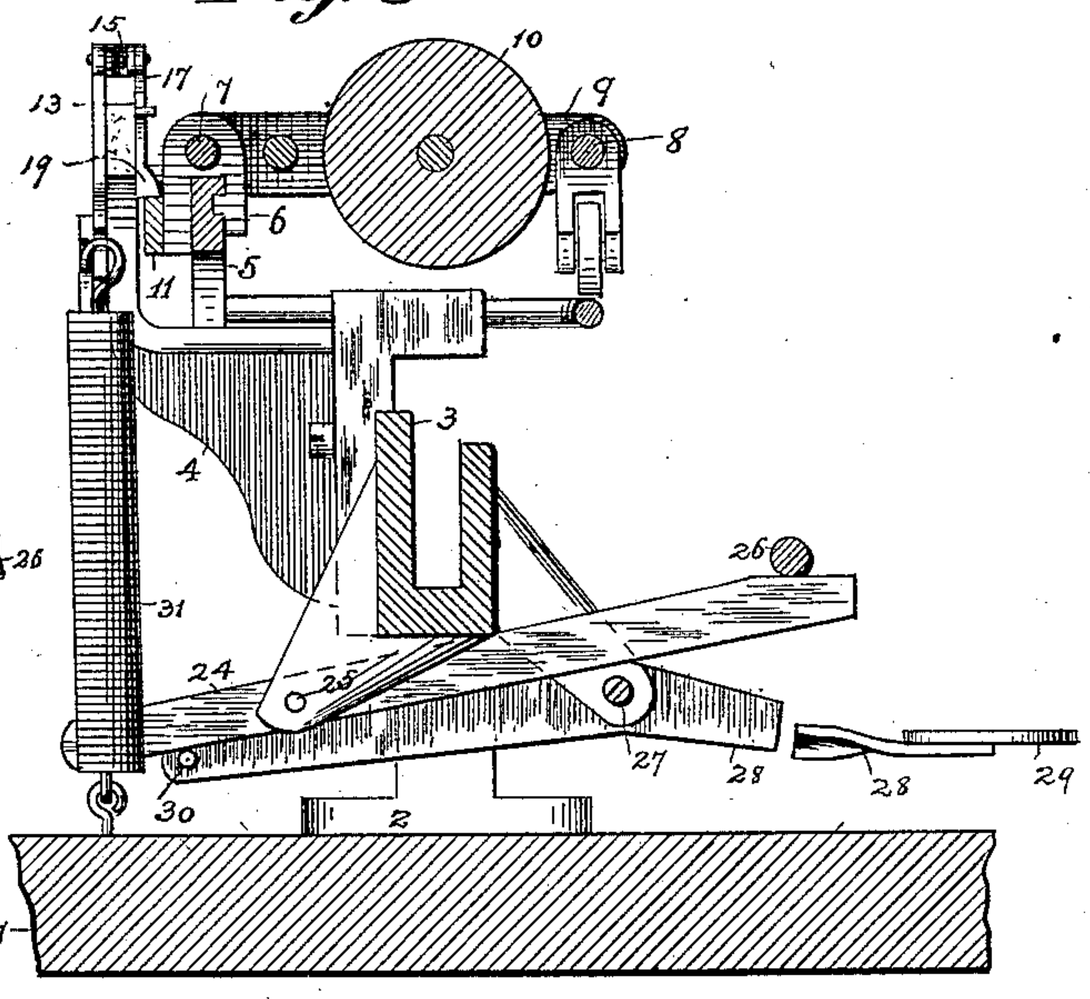


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK A. YOUNG, OF CHICOPEE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MERRITT MANUFACTURING COMPANY, OF SPRINGFIELD, MASSACHUSETTS.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,738, dated May 27, 1890.

Application filed December 28, 1888. Serial No. 294,854. (No model.) Patented in England April 5, 1889, No. 5,860; in France April 16, 1889, No. 197,529; in Belgium April 16, 1889, No. 85,850, and in Spain June 3, 1889, No. 9,490.

To all whom it may concern:

Be it known that I, FRANK A. YOUNG, a citizen of the United States, and a resident of Chicopee, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

The following Letters Patent have been granted in foreign countries: in Great Britain April 5, 1889, No. 5,860; in France April 16, 1889, No. 197,529; in Belgium April 16, 1889, No. 85,850, and in Spain June 3, 1889, No. 9,490.

My invention relates particularly to the paper-carriage-feeding mechanism of type-writing machines; and it consists in the features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of a portion of a type-writing machine embodying my improvements. Fig. 2 is a rear elevation of the same. Fig. 3 is a vertical section taken at the line *x x* of Fig. 1, with the paper-platen added; and Fig. 4 is a detail view to illustrate the action of the feed-dog.

In the several views the same part will be found designated by the same numeral of reference.

My invention is illustrated in connection with a machine devised by Mortimer G. Merritt, (to which it has been applied in practice,) but may, of course, be employed in machines otherwise constructed.

1 designates the base or bed of the machine, to which are connected standards 2, which support the type-carrier guide 3.

To suitable brackets or supports 4 is attached the rear carriage guide-rail 5, which is slotted in front to receive a stud projecting from the carriage-yokes 6, secured to the hind carriage-rod 7, the front carriage-rod being designated by the numeral 8 and the side or end rods by 9.

10 designates the usual platen, of cylindrical form.

To the carriage-yokes is secured a bar 11, provided with teeth 12, forming a rack, and to the rear side of the bracket or support 4 is pivoted at 12′ a bent or bell-crank lever 13, to the upwardly-extending arm of which is pivoted at 14 one end of an obliquely-arranged connecting-link 15, whose opposite end is pivoted at 16 to the upper end of a vibratory dog holder or carrier 17, which is supported or pivoted at 18 to the front side of the bracket 4.

19 designates the feed-dog, which is preferably made integral with its carrier 17. Said dog is arranged to project below the carrier and to engage with the teeth 12 of the bar or rack. The carrier is slotted out, as seen at 20 and 21, the slot 20 embracing the pin or pivot 18, which is screwed into the bracket 4, which contains also a forwardly-projecting pin or stud 22, that is arranged within the wider slot 21 of the dog carrier or frame.

To the longer horizontally-arranged arm of the bent lever is attached one end of a connecting-rod 23, whose lower end is connected to the rear end of a lever 24, which is fulcrumed at 25 in the frame-work of the machine and extended forward beneath the universal bar 26. Fulcrumed at 27 in the frame-work is another lever 28, whose front end is provided with a finger-piece or head 29, and whose rear end is provided with a pin or projection 30, which rests against the under side of the lever 24. A coiled spring 31 is connected at one end to the base or frame-work and at its other end to the horizontal arm of the bent lever, which is notched, as shown at 32, at different points, in order that the tension of the feed may be increased or decreased at pleasure. Said coiled spring is employed to return the parts to first position to drive the carriage and to normally hold the feed-dog in engagement with the rack.

The operation of the contrivance will be understood to be as follows: Either the lever 24, which is connected to the universal bar, or the lever 28, which is the space-key for spacing between words, &c., as usual, is adapted to actuate the feed mechanism. If the lever 24 be depressed by the universal

bar at its front end, the elevation of its rear end will raise the connecting-rod 23, which will vibrate the bent lever 13 against the tension of the spring 31. As the vertical arm of the bent lever swings to the right the dog-carrier and dog are moved in the same direction by means of the connecting-link 15, and the carrier or frame is caused to turn and back about the screw-pin 18, as indicated by the dotted lines at Fig. 4, thus lifting the dog 19 from the rack and moving it back opposite the next succeeding notch therein. As soon as the pressure is removed from the lever 24 the spring 31 returns it and all the moving parts to their first position, and at the same time the carriage is fed to the left one notch or letter-space. During the return movement of the bent lever the dog engages with the rack again, and as its carrier is slid forward under the influence of the spring 31 the rack and the carriage of which it forms a part are caused to move to the left the distance of one letter-space. If the space-key 28 be depressed at its outer end, the pin 30 will lift the rear end of the lever 24 and actuate the feeding devices in the manner above explained. The space-key remains stationary when the feed is being effected by the universal bar through the lever 24.

As shown and described in the Merritt application filed of even date herewith, the universal bar extends across the machine at the front and is depressed to effect the feed of the carriage by the hand-lever connected to the type-carrier every time an impression is made in order to provide the proper spacing between the letters of a word. In the normal position of the dog-carrier the right-hand end and lower side of the slot 20 rest against the fulcrum and guide-pin 18, and the left-hand upper corner of the carrier bears against a projection or pin 33, which serves as a stop to the forward movement of the carrier, while the upper side of the slot 21 rests upon the pin 22, the feed-dog 19 being engaged with the rack, all as shown. As the vertical arm of the bent lever and the link 15 start to the right the dog-carrier is rocked about the pivot 18 sufficiently to lift the dog from the rack without dragging on the tooth immediately in its rear, (thus avoiding undue wear,) and while the dog is elevated it is slid or carried to the right the distance of one tooth, as seen at Fig. 4. When the dog has been carried to this position, the left-hand end of the slot 20 has been brought to bear against the pin 18, and the lower side of the slot 21 has been raised to touch the pin 22. As soon as the vertical arm of the bent lever starts to the left the dog drops behind the succeeding tooth, and as the carrier moves to the left by the action of the spring 31 the dog pushes the rack and the carriage in the same direction until the stop 33 has been reached or until the right-hand end of the slot 21 has come in contact with the pin 18. The pin 22 serves to limit the raising of the dog, and operates also, in conjunction with its slot and the pin 18 and its slot, to guide the carrier and cause it and the dog to move in a right line while the paper-carriage is being fed.

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

1. In a type-writing machine, the combination, with a paper-carriage and a feed-rack, of a dog and a dog-carrier constructed and arranged to turn and lift the dog from one notch of the rack and to slide and carry the dog back to the succeeding notch thereof and enable it to drive the paper-carriage a letter-space distance on the return of the dog-carrier to its first position, substantially as set forth.

2. In a type-writing machine, the combination, with a paper-carriage having a rack, of a dog and a dog-carrier constructed and arranged both to turn and slide, and means, substantially as described, for actuating said dog-carrier.

3 In a type-writing machine, the combination, with a paper-carriage having a rack, of a dog-carrier having slots, as 20 and 21, pins, as 18 and 22, a bell-crank connected to the dog-carrier, and an operating-key connected to the bell-crank.

Signed at Springfield, in the county of Hampden and State of Massachusetts, this 13th day of December, A. D. 1888.

FRANK A. YOUNG.

Witnesses:
J. G. DUNNING,
C. A. BRIGHAM.