

(No Model.)

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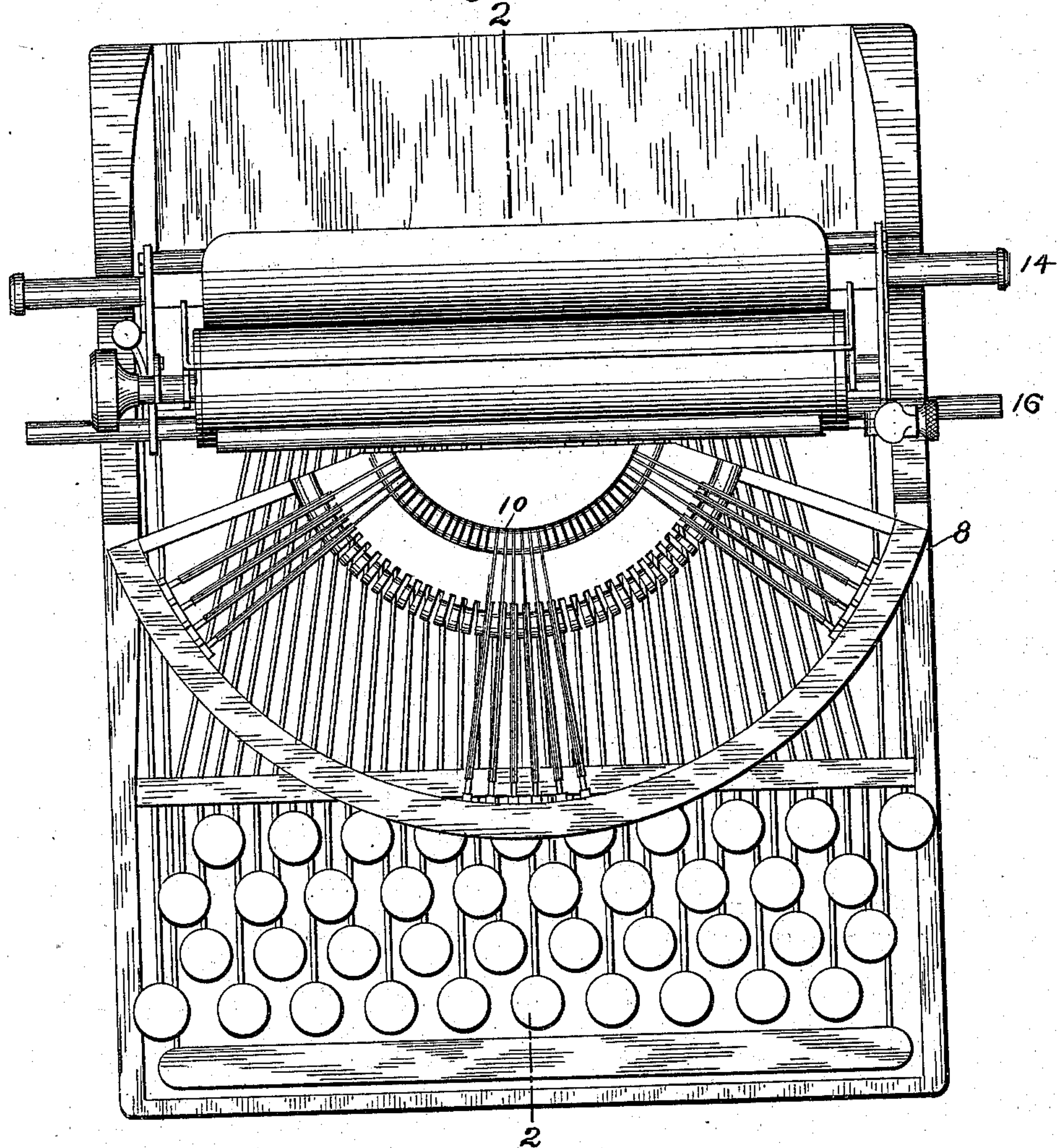
A. W. STEIGER.

LETTER SPACING MECHANISM FOR TYPE WRITERS.

No. 557,911.

Patented Apr. 7, 1896.

Fig. 1.



Attest:

Wm. W. Montgomery
J. H. Robinson

Inventor:

Andrew W. Steiger,
by Howe & Kellogg.
Attys:

(No Model.)

2 Sheets—Sheet 2.

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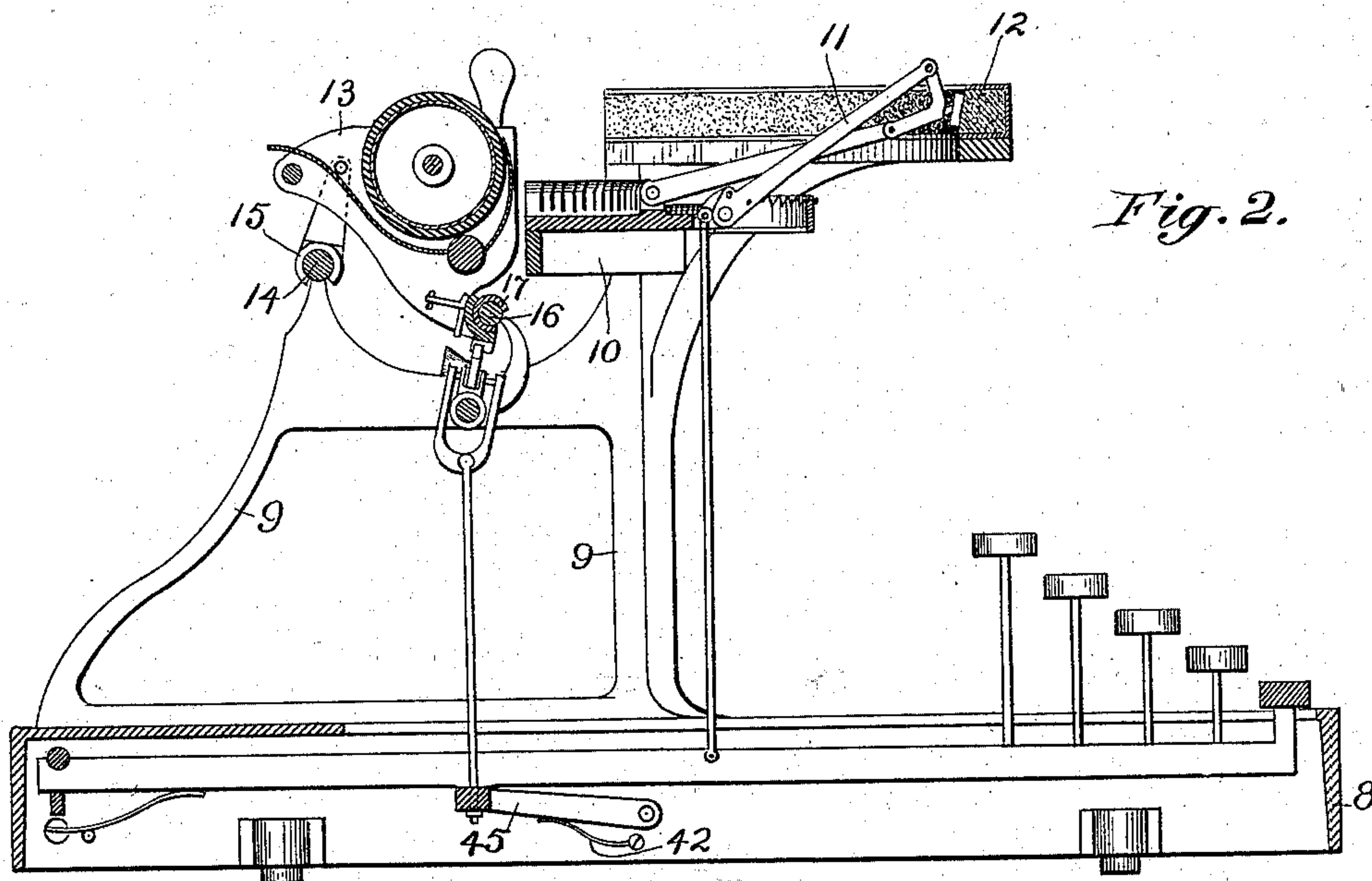


Fig. 2.

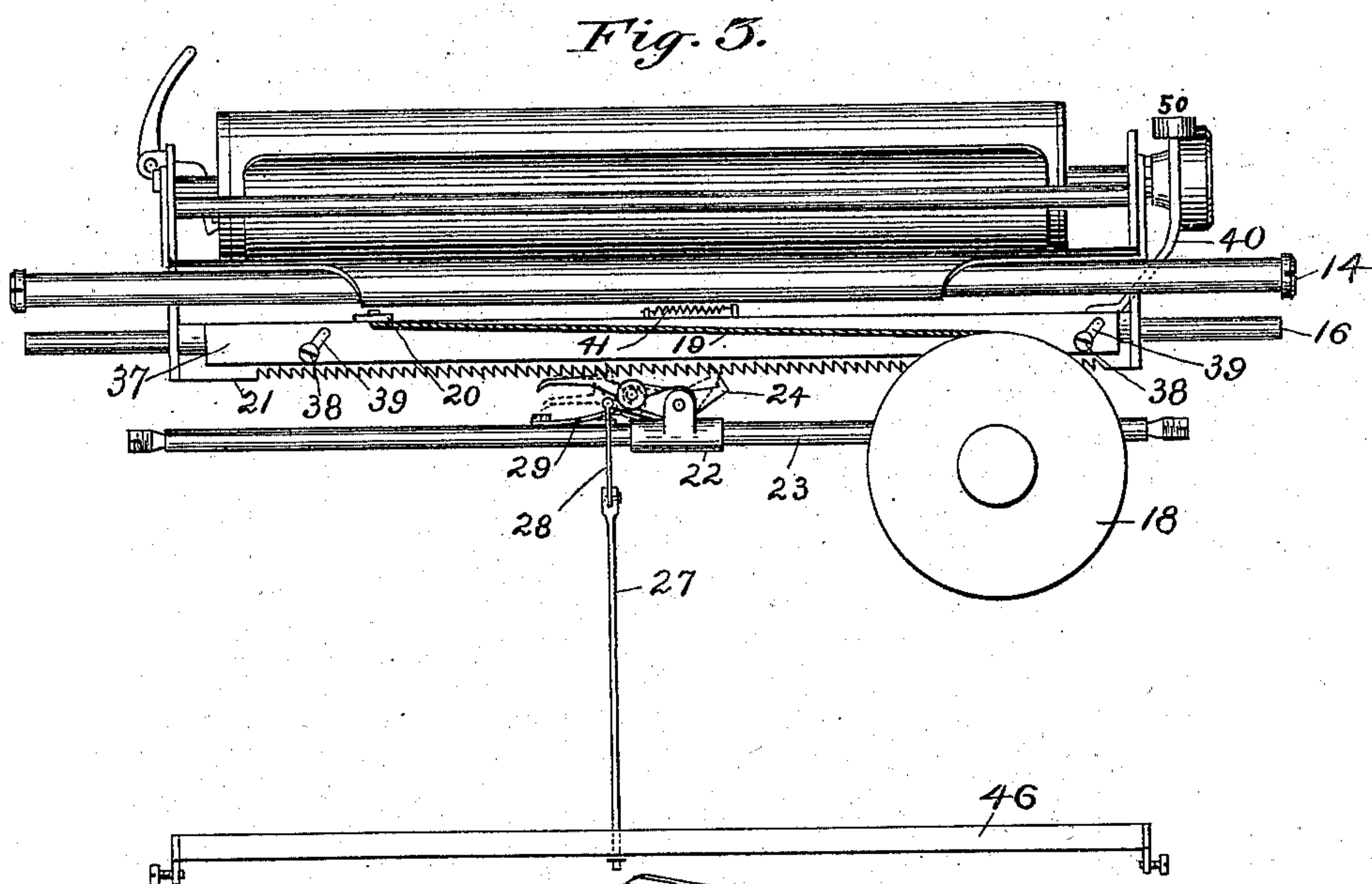


Fig. 5.

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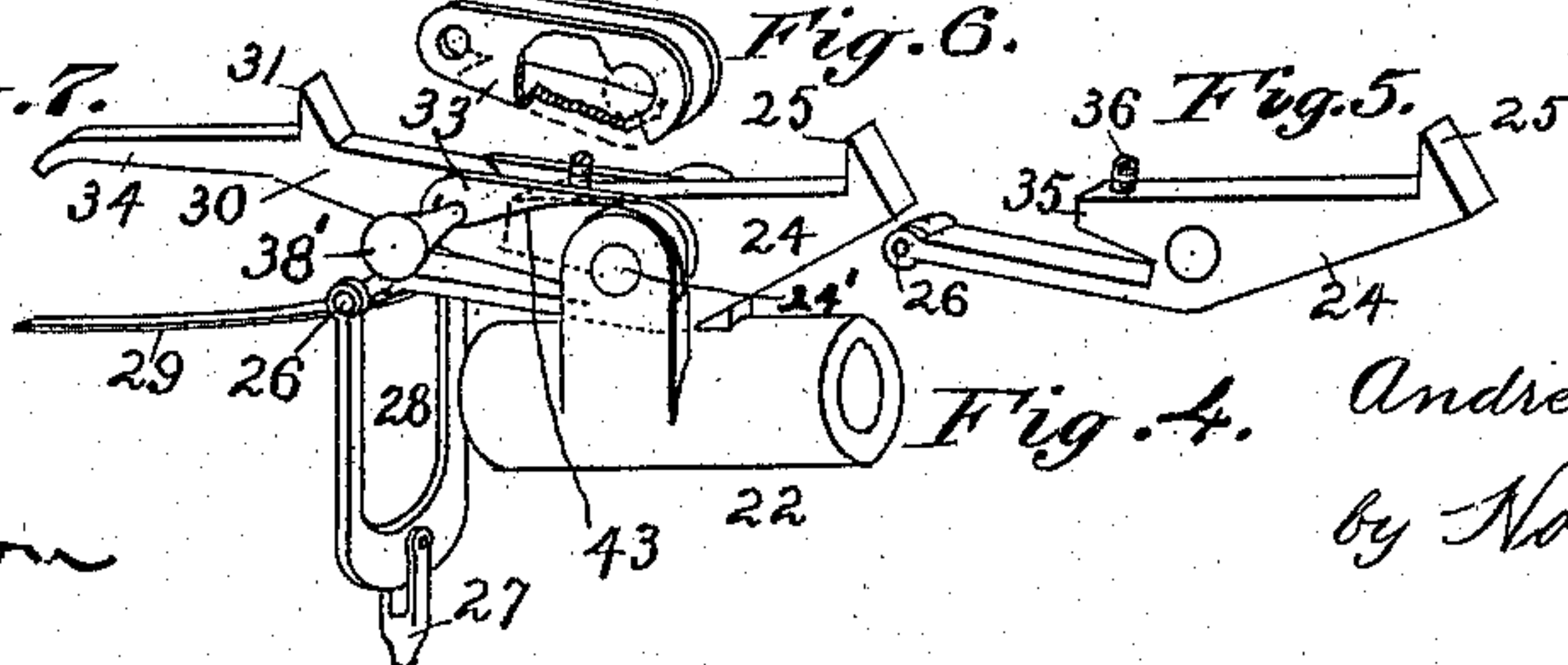


Fig. 6.

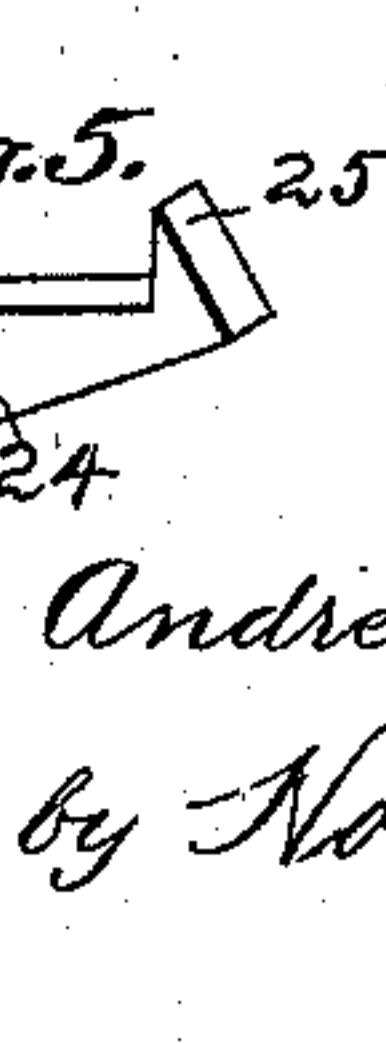


Fig. 7.

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UNITED STATES PATENT OFFICE.

ANDREW W. STEIGER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE JACKSON TYPEWRITER COMPANY, OF BOSTON, MASSACHUSETTS.

LETTER-SPACING MECHANISM FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 557,911, dated April 7, 1896.

Application filed July 31, 1895. Serial No. 557,678. (No model.)

To all whom it may concern:

Be it known that I, ANDREW W. STEIGER, a citizen of the United States, residing in Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Letter-Spacing Mechanism for Type-Writers, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to a letter-spacing device for type-writing machines.

It consists, as hereinafter fully described, in certain devices whereby a spring-actuated paper-carriage may be fed along under a printing-point with a step-by-step motion, the object being to obtain a speedy action of the feed mechanism and to prevent the wearing out of the working faces of the feed-dogs.

In the accompanying drawings, Figure 1 is a general plan view of a writing-machine embodying my invention, a portion of the type-bars being omitted. Fig. 2 is a central vertical section through the machine on line 2 2 of Fig. 1. Fig. 3 is a detached view of the paper-carriage with its driving and letter-spacing mechanism, the view being taken from the rear of the machine. Fig. 4 is an enlarged detached view of the spacing mechanism; and Figs. 5, 6, and 7 are detached views of the several parts of the spacing mechanism.

In the machine I have used to illustrate my invention, 8 is the base or frame of the machine, with upright supports or brackets 9 9, to which is attached the type-basket 10, carrying the type-bars 11 and the inking-pad 12. On these supports 9 9 is also mounted the paper-carriage 13 by means of the back rail 14, made fast to the frame, and on which is the sliding yoke 15, and a shift-rail 16, on which the carriage slides by means of a short yoke 17.

The longitudinal movement of the carriage is derived from the spring-actuated drum 18, connected by a cord 19, one end of which is attached to the carriage at 20 and the other end passes over and is attached to the driving-drum 18. The movement of the carriage by the driving-drum is regulated to give the required step-by-step movement as the type are impressed upon its surface by means of

a toothed rack 21, attached to the carriage in a direction parallel with its movement and of a length equal to the line required to be written and notched to correspond with the spacing of the letters desired.

The feed-dogs operating in connection with the rack for controlling the movement of the carriage comprise a simple dog and a toggle-dog, said dogs coacting to alternately engage and release the rack.

A dog-bracket is suitably supported adjacent to the rack on the carriage. The dog-bracket 22 herein shown is preferably mounted on a rod 23, supported in the brackets 9 and extending from end to end of the machine. A simple dog 24, constituting a lever of the first order, is supported on a pivot 24' in the bracket 22. The body of this dog has a tooth 25, and its tail is recessed and provided with a lug 35 near its pivot, said lug having an adjusting-screw 36.

The toggle-dog comprises two members 30 and 33, connected at their meeting ends by a toggle-joint 38'. The outer end of the member 33 is pivoted in the bracket 22, preferably on the same pivot with the simple dog 24. This member is composed of two sides, which embrace a part of the dog 24, and a bottom extending under the lug 35 of the dog 24. (See Figs. 4 and 6.) The member 30 is provided with a tooth 31, and beyond said tooth with an extension 34. A spring 29 on the rod 23 bears at its free end against the tail of the dog 24 and tends to hold the tooth 25 thereof normally out of engagement with the rack 21, and a spring 43, attached to the sleeve 22, engages at its free end the toggle-pivot 38' of the toggle-dog and normally holds the toggle members thereof in alinement, in which position the tooth 31 is in engagement with the said rack.

The means for actuating the dogs, when constructed as herein shown, comprises a connecting-rod 27, connected at its upper end, preferably through the medium of a split link 28, with the tail of the simple dog 24 and at its lower end with a universal bar 46. The bar 46 extends from end to end of the machine immediately below the key-levers in position to be actuated for operating the feed-dogs on the depression of either of

said levers. This universal bar 46 is preferably mounted on arms 45, pivoted to the ends of the machine, springs 42 being disposed thereunder for holding the bar in normal position.

The operation will now be stated. When the parts are in normal position, the tooth 31 of the toggle-dog is in engagement with the rack 21 of the carriage, and by reason of the pull of the spring-drum 18 the dog forms a rigid detent to hold the carriage from moving, as shown in full lines in Fig. 3. On the depression of any one of the key-levers, whether connected with a character-key or with the spacing-key, the universal bar 46, and with it the connecting-rod 27, is drawn down, whereby the tail of the dog 24 is depressed and its tooth 25 elevated into engagement with the carriage-rack in position to hold the carriage back. This depression of the tail of the dog causes the lug 35 or its set-screw 36 to engage the bottom of the member 33 of the toggle-dog, whereby the toggle is broken, or, in other words, the members are swung out of alinement. This swinging of the member 30 of the toggle-dog carries the extension 34 thereof into contact with the rack-bar, and said extension acts as a lever to assist in causing the tooth 31 of the member 30 to be drawn out of the notch of the rack-bar, and this end of the toggle-dog will then drop down free from the carriage-rack, as shown in dotted lines in Fig. 3, and the carriage will then be held by the tooth 25 on the simple dog 24, which was rocked into contact with the said rack on the depression of the rod 27, as aforesaid. As soon as the depressed key is released the universal bar 46 is permitted to rise, and the springs 29 and 43, supplemented by the tension of the carriage, tend to restore the dogs to normal position, the tooth 25 of the simple dog 24 being disengaged from the rack. This movement of the simple dog 24 allows the toggle-dog to rise under the influence of the spring 43 and also allows the rack under the carriage tension to move a distance of one notch, and then the toggle members come into alinement and the tooth 31 reengages the rack.

During the movement of the dogs into and out of the rack the full force of the drawing-spring of the carriage is divided between the feed-dogs, and as the movement of the dogs is a rocking movement there is comparatively little wear on the faces of the dogs.

To provide a release-key by means of which the carriage may be moved back and forth independently of the dogs, a straight bar 37 is mounted on the rack by means of screws 38 in the rack passing through diagonal slots 39 in the bar, said bar being provided with an arm 40, extending through the end of the carriage and up into a convenient position. This arm is provided with a finger-button 50, by which it may be depressed. A spring 41 is attached at one end to the bar 37 and at the

other end to the rack 21 and tends to hold said bar normally out of action. The pivotal stud 38' on the toggle-dog is extended to a position to be engaged and depressed by the release-bar 37 when the latter is lowered.

It will be understood that this dog mechanism may be used on any machine having a carriage provided with a rack.

I claim as my invention—

1. In a type-writing machine, the combination of a paper-carriage, a carriage-pulling mechanism for moving the carriage when released, a toothed rack mounted on the paper-carriage, a carriage-controlling device comprising a toggle-dog normally engaging said rack, a pivoted simple dog, means for swinging the simple dog into engagement with said rack and simultaneously bending the toggle-dog to disengage its tooth from the rack, and means for releasing the simple dog and restoring the toggle-dog to a straight position whereby the carriage is permitted to move under the action of its pulling mechanism until the rack is reengaged by the tooth of the toggle-dog.

2. In a type-writing machine, the combination of a paper-carriage, a carriage-pulling mechanism for moving the carriage when released, a toothed rack mounted on the paper-carriage, a carriage-controlling device comprising a toggle-dog normally engaging said rack and provided with an extension beyond its tooth adapted for contact with said rack, a pivoted simple dog, means for swinging the simple dog into engagement with said rack and simultaneously bending the toggle-dog to throw its extension into contact with said rack to disengage the tooth therefrom, and means for releasing the simple dog and restoring the toggle-dog to a straight position, whereby the carriage is permitted to move under the action of its pulling mechanism until the rack is reengaged by the tooth of the toggle-dog.

3. In a type-writer, the combination of a paper-carriage, a carriage-pulling mechanism, for moving the carriage when released, a toothed rack mounted on said carriage, a carriage-controlling device comprising a toggle-dog normally engaging said rack and a pivoted simple dog provided with a projection for engaging the toggle-dog, means for swinging the simple dog to cause the bending of the toggle-dog to disengage its tooth from the rack and cause the engagement of the tooth of the simple dog, and means for releasing the simple dog and restoring the toggle-dog to a straight position whereby the carriage is permitted to move under the action of its pulling mechanism until the rack is reengaged by the tooth of the toggle-dog.

4. In a type-writing machine, the combination of a paper-carriage, a carriage-pulling mechanism for moving the carriage when released, a toothed rack mounted on the paper-carriage, a carriage-controlling device comprising a toggle-dog normally engaging said

rack, and a pivoted simple dog provided with a projection adapted to engage one member of the toggle-dog for bending the latter, a universal bar, a connecting device between said
5 universal bar and said simple dog, and key-levers for actuating said universal bar.

5. In a type-writing machine, the combination of a bar supporting a bracket 22, a rocking dog 24 pivoted on said bracket, and provided at one end with a tooth 25 under the
10 rack-bar and at the other end with a projection acted upon by a spring to maintain said tooth away from the rack-bar, a connection between said projection and a pivoted bar extending under and acted upon by the key-
15 levers whereby the depression of a key will cause the tooth on the rocking dog to enter the rack-bar, a projection 35 on said dog, a dog composed of two parts 30 and 33 pivoted
20 together to form a toggle, the part 30 having a projecting arm 34 extending under the rack-

bar, and a tooth 31 normally in engagement with the rack-bar, the part 33 pivoted at one end to the part 30 and at the other end to the bracket 22 on the same pivot with the dog 24, 25 and composed of two sides which embrace a part of the dog 24, and a bottom extending under the lug 35 on the dog 24, whereby when said lug is depressed the toggle will be broken and the tooth 31 will be withdrawn from the
30 rack-bar thereby permitting it to move when the tooth 25 is withdrawn in the return action of the key-lever, and a spring 43 acting to restore the toggle and maintain the tooth 31 in the rack-bar. 35

In testimony whereof I have hereunto subscribed my name this 18th day of July, A. D. 1895.

ANDREW W. STEIGER.

Witnesses:

CHAS. A. KELLOGG,
CHAS. F. HOWE.