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PATENTED JULY 9, 1907.

H. J. OTTO.

MECHANISM FOR RETURNING THE CARRIAGE OF A TYPE WRITING MACHINE.

APPLICATION FILED JULY 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

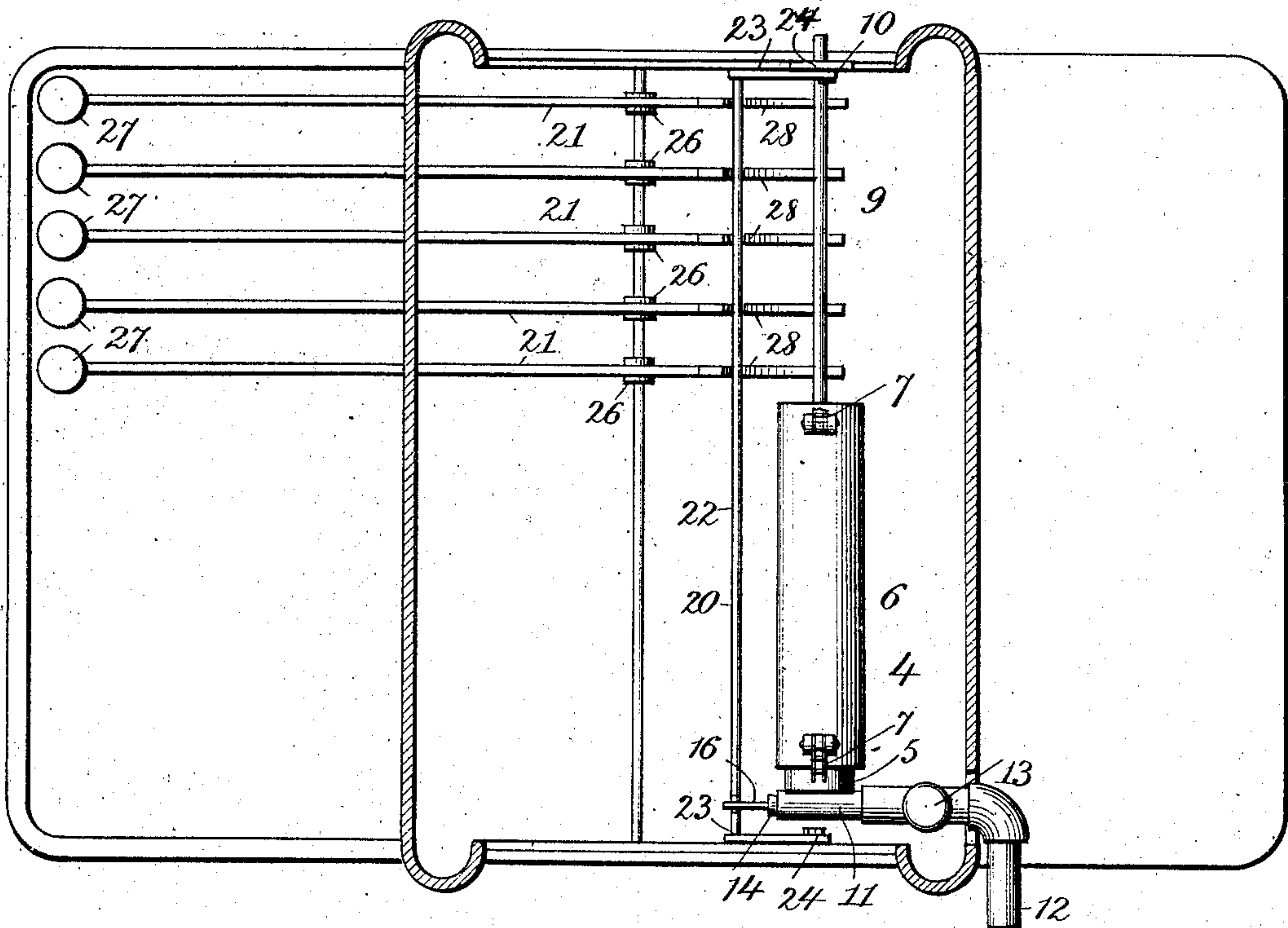
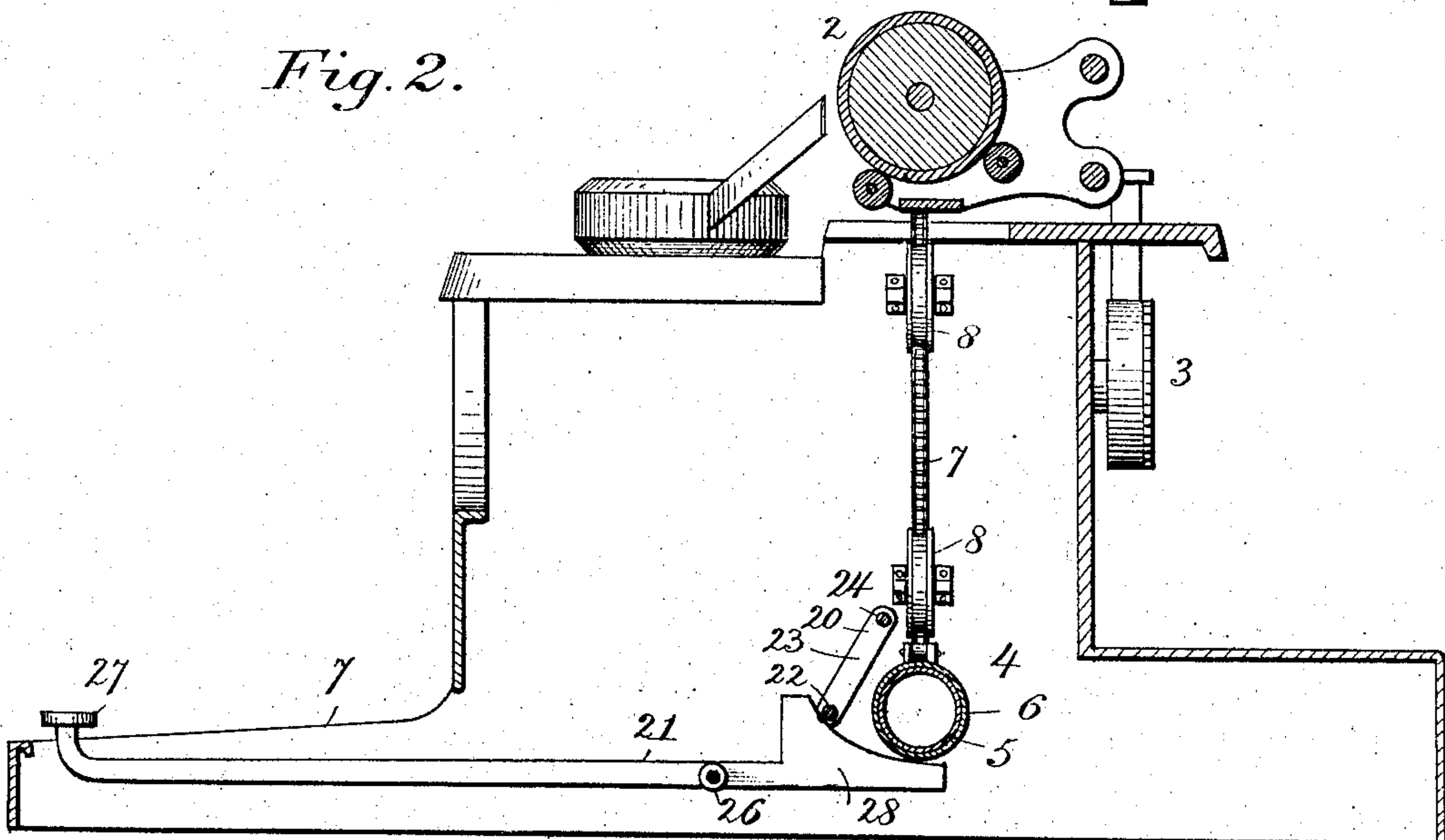


Fig. 2.



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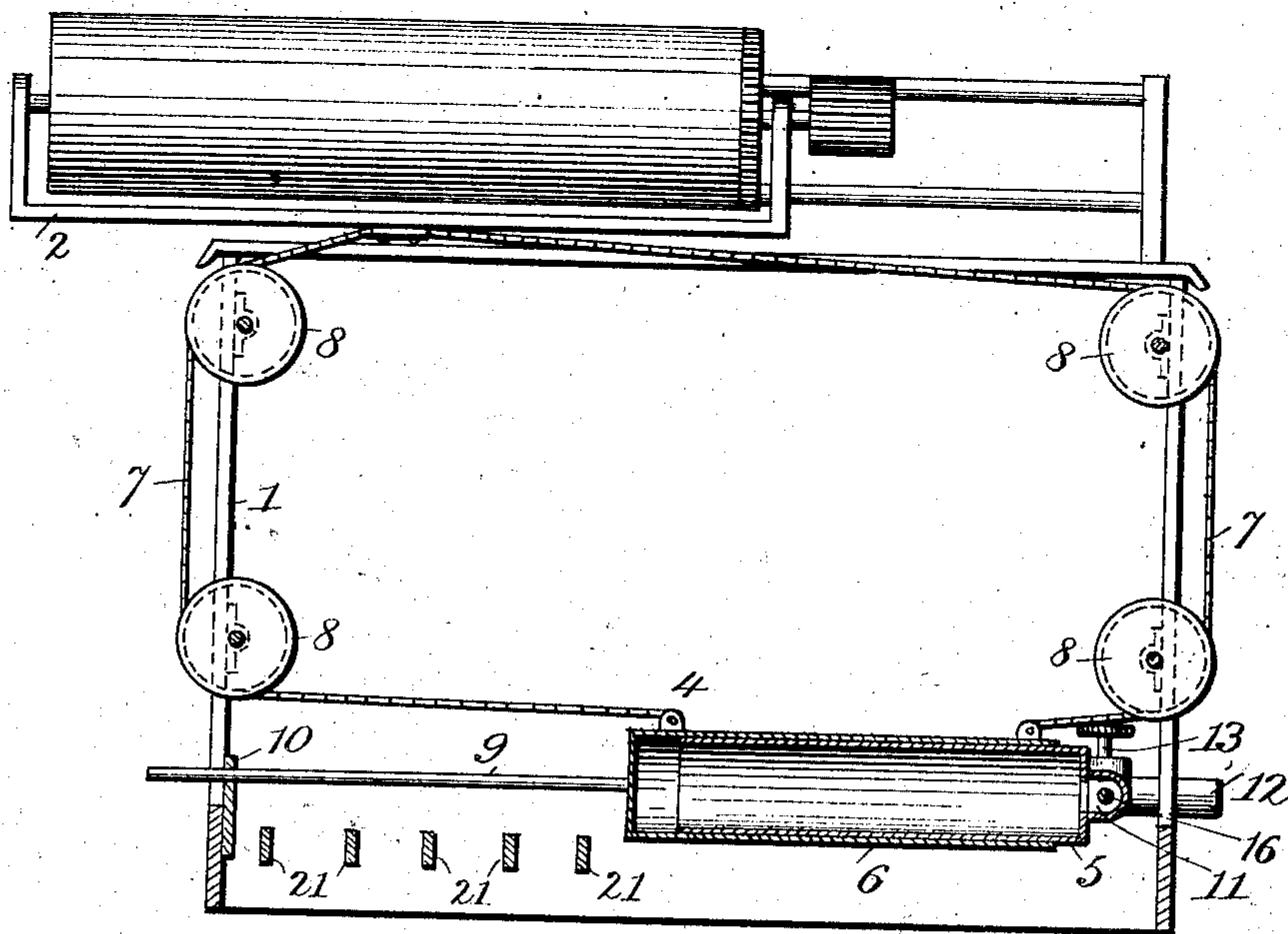
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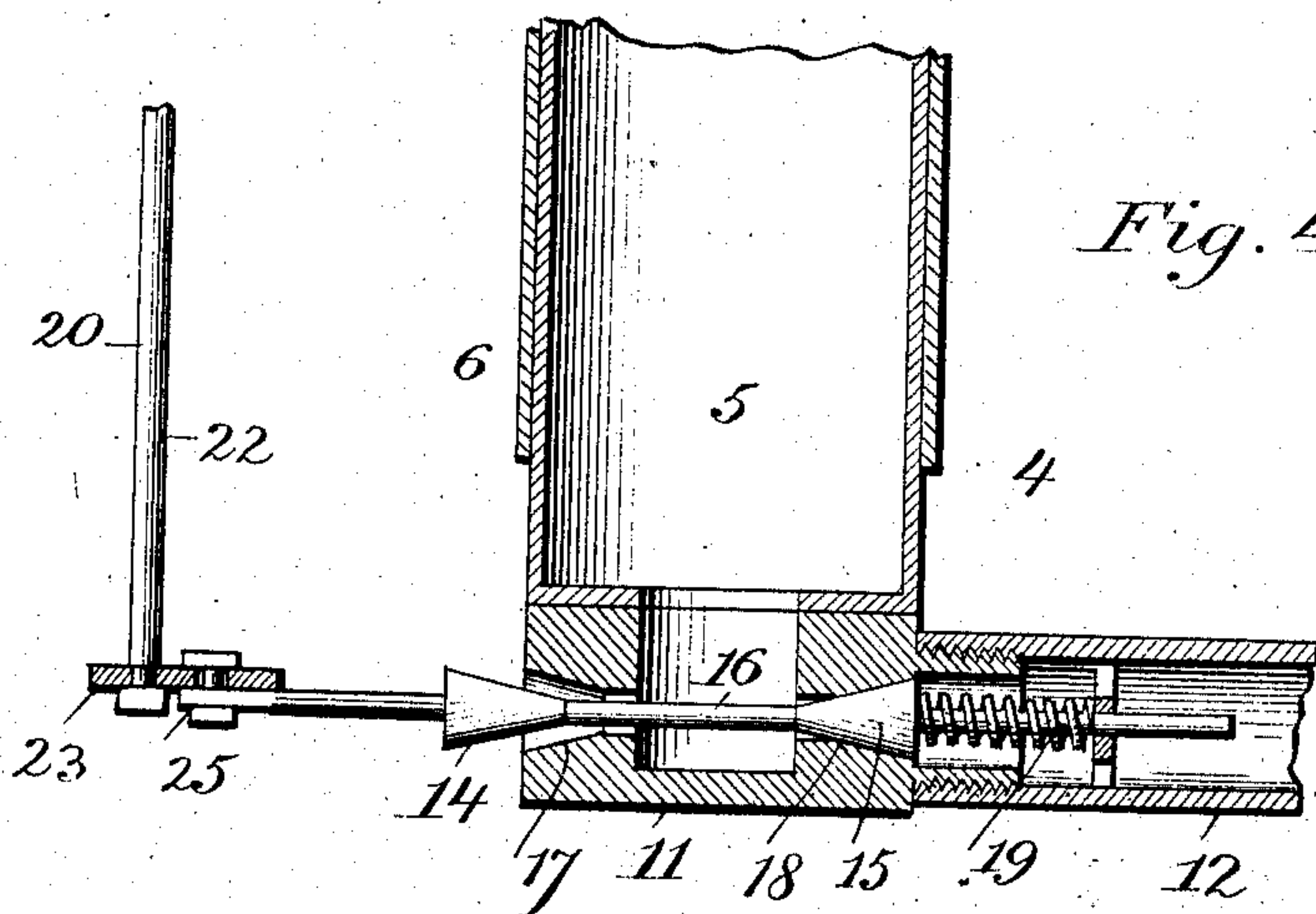
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2 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE

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## MECHANISM FOR RETURNING THE CARRIAGE OF A TYPE-WRITING MACHINE.

No. 859,576.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed July 9, 1906. Serial No. 325,336.

To all whom it may concern:

Be it known that I, HENRY J. OTTO, a citizen of the United States, residing at Princeton, in the county of Gibson and State of Indiana, have invented certain new and useful Improvements in Mechanisms for Returning the Carriage of a Type-Writing Machine; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in typewriters, linotype machines and the like, and more particularly to means for operating the carriages of such machines by a fluid under pressure or by suction.

One object of the present invention is to provide a simple and practical operating mechanism for returning the carriage of a typewriter or the like, with little or no shock or jar.

Another object of the invention is to provide a returning mechanism of this character which may be controlled from the keyboard of the machine and by means of which the carriage may be stopped at any desired point in its return movement.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings,—Figure 1 is a horizontal sectional view through a typewriting machine, showing the application of the invention thereto; Figs. 2 and 3 are vertical transverse and longitudinal sectional views through the same, and Fig. 4 is a detail sectional view through the operating mechanism.

Referring to the drawings by numeral, 1 denotes the frame of a typewriter and 2 its reciprocal carriage which is moved in one direction in the usual manner by a coil spring 3 and in the opposite direction by my improved mechanism 4. The latter comprises a relatively stationary cylinder 5 and a sliding cylinder 6 which telescopes the cylinder 5 and is actuated by either pressure or suction within said cylinders. The cylinders 5, 6 are disposed horizontally in the lower rear portion of the typewriter and are of such length that the stroke of the sliding cylinder 6 is equal to the extreme required movement of the carriage to which it is connected by chains 7 passed over guide wheels 8, or by any other suitable connections. The sliding cylinder 6 is guided by a rod 9 projecting concentrically from its closed end and slidable in a guide 10 upon the frame 1. The stationary cylinder 5 is suitably mounted within the frame 1 and has its closed end connected to a valve casing 11, which is in turn connected to a pipe 12 containing a regulating and cut-off valve 13. The casing 11 contains a valve device

consisting of two cone-valves 14, 15 mounted upon a sliding stem 16 and adapted to alternately engage valve seats 17, 18 arranged in the casing 11, as clearly shown in Fig. 4. A spring 19 forces the valve stem 16 in one direction so as to hold the valve 15 normally on its seat 18 to close communication between the pipe 12 and the interior of the casing 11, and to hold the valve 14 away from its seat 17 to open communication between the cylinders 5, 6 and the atmosphere. This is the preferred arrangement of the valves when compressed air or other fluid under pressure is used for actuating the cylinder 6; but when the latter is operated by suction, the normal positions of the valves are reversed.

It will be seen that when the valve stem 16 is forced inwardly, the valve 14 will close upon its seat 17 and the valve 15 will open to permit the compressed air in the supply pipe 12 to enter the cylinders 5, 6 and force the latter outwardly upon the former, and thereby return the carriage 2.

It will be understood that the cylinder 6 is moved in the opposite direction or closed upon the cylinder 5 by the outward movement of the carriage under the action of its actuating spring 3, the usual check device controlling the action of said spring.

The valve stem 16 is actuated by a swinging frame 20, which is in turn actuated by a plurality of key levers 21 arranged upon the keyboard of the typewriter, said key levers being adapted to both actuate the valve device and to limit the movement of the cylinder 6, and hence the return of the carriage 2, as presently explained. The frame 20 is disposed transversely and consists of a rod 22 connecting the free ends of two arms 23, which have their opposite ends pivotally mounted at 24 upon the frame of the machine. The valve stem 16 has its forwardly projecting outer end loosely connected to one of the arms 23, as shown at 25. Each of the key levers 21 is pivoted at 26 and has upon its front end a finger piece or key 27 containing a number or other symbol to indicate the point at which the carriage will stop in its return movement. The inner or rear ends of the levers 21 are formed with enlarged curved portions 28, which are adapted to engage the rod 22 and to swing into the path of the sliding cylinder 6 when their keys 27 are depressed. Any number of the keys 21 may be employed, so that the carriage may be stopped in its return movement to allow any margin at the left of the sheet of paper on the platen of the carriage. It will thus be seen that by simply depressing one of the keys 27 the carriage will be quickly and silently returned without the necessity of lifting and sliding it by hand.

From the foregoing description taken in connection with the accompanying drawings, the construction, op-



eration and advantages of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters-Patent is:—

1. In a typewriting machine the combination with its frame and its reciprocal carriage, of fluid operated means for returning said carriage, and key levers for variably limiting the return movement of the carriage and for controlling of said fluid supply.

2. In a typewriting machine or the like, the combination with its frame and its reciprocal carriage, of fluid operated means for returning said carriage, an operating element for said fluid operated means, and a plurality of devices for variably limiting the return movement of the carriage and each controlling said fluid supply.

3. In a typewriting machine or the like, the combination with its frame and its reciprocal carriage, of a relatively stationary element, a hollow element telescopically engaged with said stationary element and connected to said carriage, means for actuating said carriage in one direction, means for controlling the admission and exhaust of a fluid to and from said hollow element, a swinging operating device for actuating said fluid controlling means,

and a key lever for actuating said swinging device and moving into the path of the hollow element for limiting the movement of said hollow element.

4. In a typewriting machine or the like, the combination with its frame and its reciprocal carriage, of a relatively stationary element, a hollow element telescopically engaged with said stationary element and connected to said carriage, means for actuating said carriage in one direction, a valve device for controlling the admission and exhaust of a fluid to and from said hollow element, a swinging frame for actuating said valve device, and a plurality of key levers for actuating said swinging frame and variably limiting the movement of said hollow element, substantially as described.

5. In a typewriting machine, the combination with its frame and its reciprocal carriage, of a relatively stationary element, a hollow element telescopically engaged with said stationary element and connected to said carriage, means for controlling the admission and exhaust of a fluid to and from said hollow element, a swinging operating device for actuating said fluid controlling means and a key lever for actuating said swinging device having a cam member for engaging said device and moving it into the path of said hollow member to limit the movement of said hollow element.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY J. OTTO.

Witnesses:

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ROBERT C. BALTZELL.