

No. 859,575.

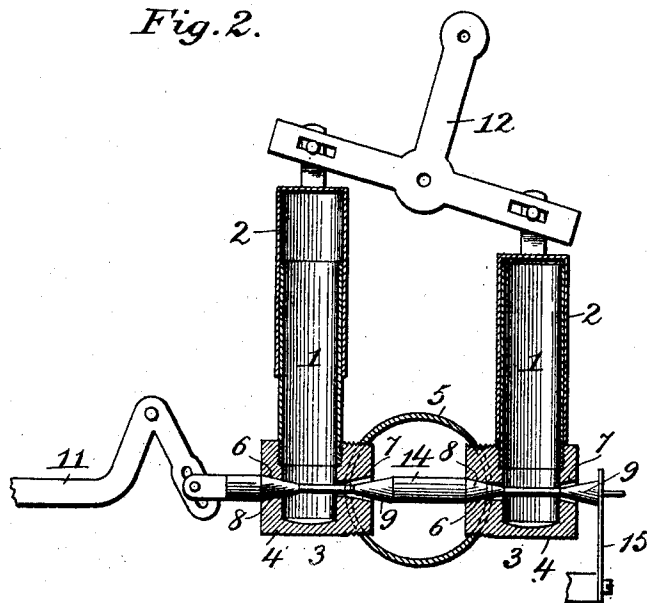
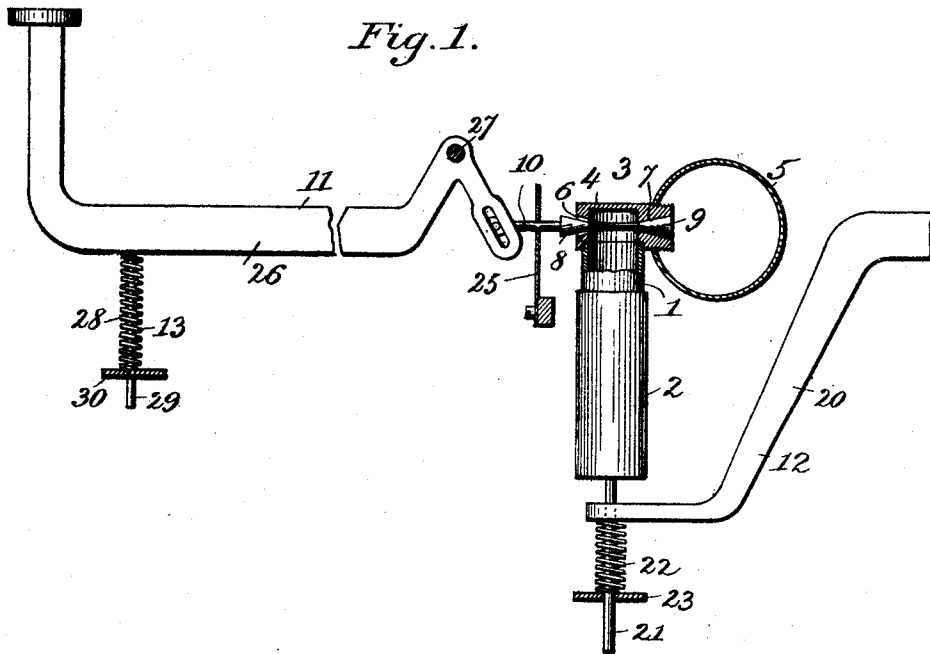
PATENTED JULY 9, 1907.

H. J. OTTO.

OPERATING MECHANISM FOR TYPE WRITING MACHINES.

APPLICATION FILED JULY 9, 1906.

2 SHEETS—SHEET 1.



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Fig. 3.

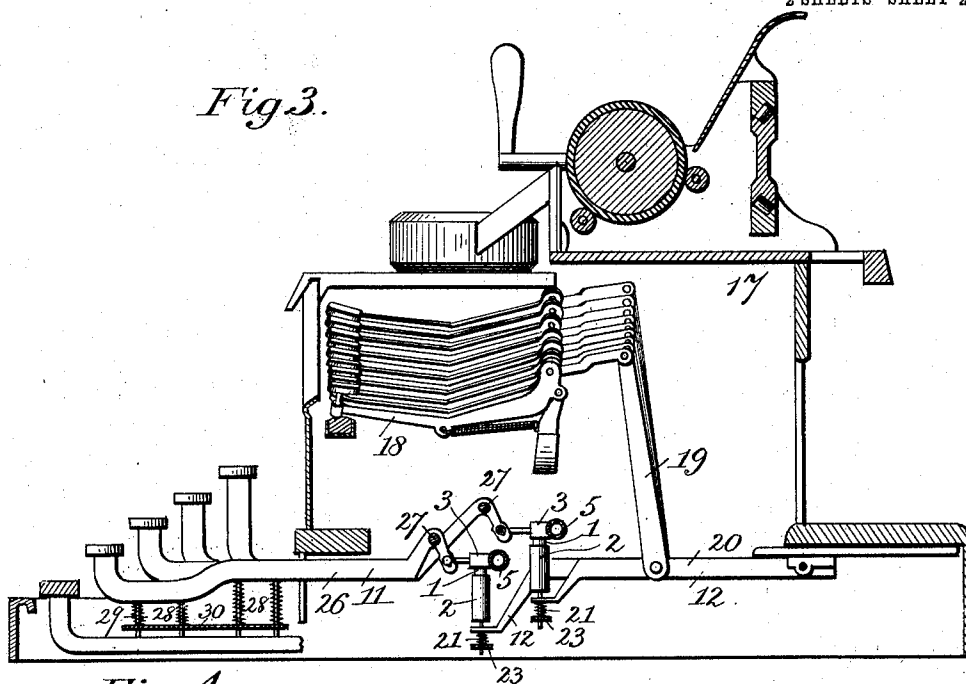
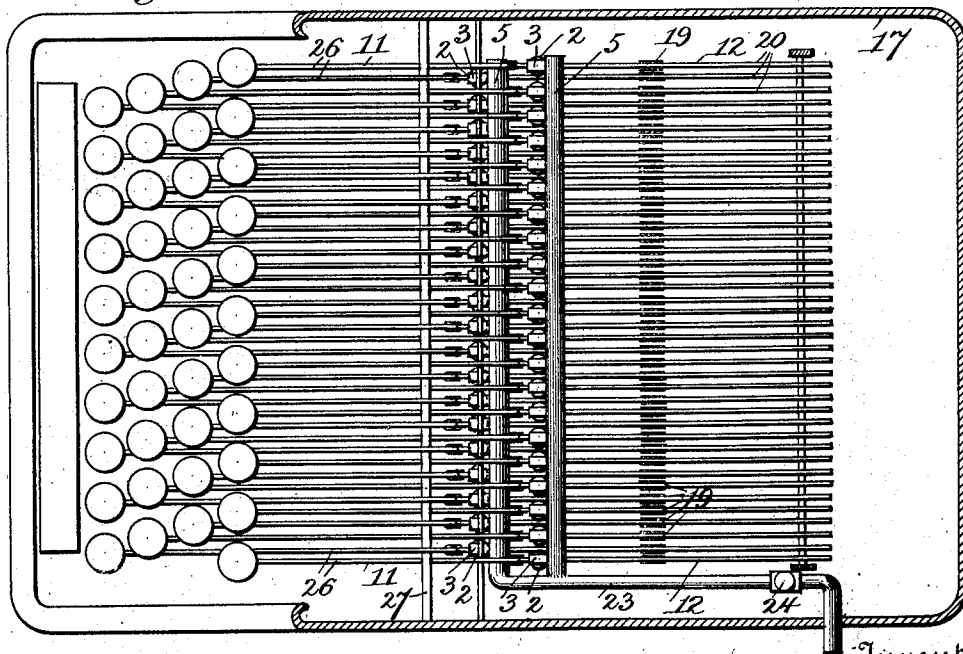


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY J. OTTO, OF PRINCETON, INDIANA.

OPERATING MECHANISM FOR TYPE-WRITING MACHINES.

No. 859,575.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed July 9, 1906. Serial No. 325,335.

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
5 now and useful Improvements in Operating Mechanism for Type-Writing Machines; 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.

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

15 The object of the invention is to provide a simple and practical operating mechanism consisting of telescoping cylinders or tubes and a controlling valve, which may be used for various purposes, such, for instance, as operating the type levers of a typewriting
20 machine or the like, returning the paper or platen carriage of a typewriter from one end of the machine to the other, and shifting the cylindrical paper roller or platen on the typewriter carriage after each line has been written, said mechanism being controlled
25 by a key or keys upon the keyboard of the machine.

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

30 In the accompanying drawings, Figure 1 is a sectional view through the mechanism embodying my invention; Fig. 2 is a similar view through a slightly modified form of the invention; Fig. 3 is a vertical sectional view through a typewriter, showing the improved operating mechanism applied thereto for oper-
35 ating the type levers of the machine; and Fig. 4 is a horizontal sectional view.

The improved operating mechanism comprises a
40 stationary cylinder or tube 1 and a slidable cylinder or tube 2 which is adapted to telescope the cylinder or tube 1 and to be actuated thereon either by pressure or suction within the said cylinders or tubes, the pressure or suction being controlled by a valve device 3
45 comprising a casing 4 which is connected to a pipe or tube 5 and which contains oppositely disposed conical valve seats 6, 7 adapted to be alternately engaged by conical valves 8, 9 upon a stem 10 suitably guided and adapted to be actuated by a key lever or other
50 suitable element 11. The stationary cylinder or tube 1 may be connected directly to the valve casing, or indirectly through the means of a suitable conductor, so that the valve device 3 is adapted to alternately place the same in communication with the pipe 5 and with the atmosphere. The sliding cylinder or
55 tube 2 has its outer end closed and connected to a

lever or other movable element 12 which it is adapted to actuate.

When compressed air or other fluid under pressure is employed for operating the sliding cylinder 2, the pipe 5 is used as a supply pipe and the valve 8 may
60 be forced upon its seat by the pressure within said pipe or by a suitable actuating spring, so that communication between the pipe 5 and the cylinder 1 is normally cut off and communication between the latter and the atmosphere is established, owing to
65 the open position of the valve 9. When the key lever or element 11 is depressed, the valve stem 10 will be moved inwardly to cause the valve 9 to close upon its seat and the valve 8 to be raised from its
70 seat, so that the compressed air in the pipe 5 will enter the telescoping cylinders 1, 2 and move the latter outwardly to actuate the lever or element 12. The return movement of the cylinder 2 may be effected by gravity or by means of a suitable spring 13. When
75 it is desired to operate the cylinder 2 by suction instead of pressure, it will be understood that the normal position of the valve device 3 will be reversed, so that the normal position of the valve 8 will be open, and of the valve 9 closed.

In the form of the mechanism shown in Fig. 1, the
80 lever or element 12 is actuated in but one direction, but where it is desired to actuate said element in both directions, I preferably employ the construction shown in Fig. 2 in which the operating mechanism is duplicated. It will be seen that in this construction, two of
85 the valve casings 4 are secured at diametrically opposite points in the supply pipe 5, and the two valve stems are connected together as shown at 14, one end of said double valve stem being engaged by a spring 15 which
90 actuates it in one direction, and its opposite end by the lever or element 11 which actuates it in the opposite direction. The two sliding cylinders or tubes 2—2 are connected to the lever or element 12, which is here
95 shown in the form of a bell-crank. It will be noted that when the lever 11 is operated, the compressed air within the pipe 5 will enter through one of the valves into the cylinders upon one side and actuate the lever
100 12 in one direction, and that when the lever 11 is released, the valve will be shifted so that the compressed air will enter the cylinders upon the opposite side and move the lever 12 in the reverse direction.

This improved operating mechanism may be adapted for various uses upon typewriters, linotype machines and the like, and in Figs. 3 and 4 of the drawings it is
105 shown applied to a typewriter of well known form, for operating the type bar levers of the same. One of the operating devices or mechanisms is interposed between each of the type bar levers and its key lever on the keyboard, and they are arranged preferably in one or more
110 transverse rows in the lower central portion of the frame

17, as shown in Fig. 4. The usual type bar key levers 18 of the machine are connected, by links or other suitable connections 19, to key levers 20, which in the ordinary typewriters are the key levers, but which are here 5 shown as having their forward ends bent downwardly and apertured to receive guide pins 21 carried by the sliding cylinders 2 of the operating mechanisms. Coil springs 22 surround the stems 21 between the levers 20 and a suitable support 23, and serve to return the levers 10 and the cylinders 2 to their normal positions. The cylinders 1, 2 are disposed vertically, and the former are directly connected to the valve casings 4 of the valve devices 3 which are secured to transversely extending supply pipes 5. Each of the latter has one of its ends 15 closed and its other end connected to a pipe 23 leading from a suitable source of supply and controlled by a cut-off and regulating valve 24. The stems 10 of the valve devices 3 project forwardly through and slide in a suitable guide 25, and are loosely connected to key 20 levers 26 which form the keyboard of the typewriter. These levers are pivoted at 27 and are elevated by coil springs 28 which surround guide stems 29 depending from them and sliding in openings in a guide 30.

It will be seen that when any one of the key levers 26 25 is depressed, it will actuate the valves of one of the devices 3 and thereby admit compressed air into one of the pairs of cylinders 1, 2 to cause the latter to actuate one of the levers 20, which in turn actuates the type bar lever 18 to which it is connected. It will be seen 30 that this mechanism will cause the type bar lever 18 to be quickly actuated and the stroke or movement of the lever 26 need be but very slight.

While I have shown and described but one way in which my improved operating mechanism may be employed, 35 it will be understood that I do not wish to be limited to this use nor to the manner in which it is effected.

It will be understood that various changes in the form, proportion and arrangement of parts may be made 4 within the scope of the appended claims.

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

1. In a mechanism of the character described, the combination with an actuating and an actuated element, of 45 a stationary cylinder, a sliding cylinder telescopically

engaged with said stationary cylinder for operating said actuated element, a supply pipe, a connection between said supply pipe and said stationary cylinder having communication with said parts and with the atmosphere, and a valve device in said connection for controlling communication 50 between said supply pipe and said stationary cylinder and between said stationary cylinder and the atmosphere, said valve device being actuated by said actuating element.

2. In a mechanism of the character described, the combination with an actuating and an actuated element, of a stationary cylinder, a sliding cylinder telescopically engaged with said stationary cylinder for operating said actuated element, a supply pipe, a connection between said supply pipe and said stationary cylinder provided with oppositely disposed conical valve seats and a double cone valve to coact with said seats, said valve being actuated by said actuating element. 60

3. In a mechanism of the character described, the combination with an actuating and an actuated element, of a supply pipe, a stationary cylinder connected thereto, a sliding cylinder telescoping said stationary cylinder and connected to said actuated element, a spring for moving said sliding cylinder in one direction, and a valve device in the connection between said supply pipe and stationary cylinder for controlling communication between said parts 70 and between said stationary cylinder and the atmosphere, said valve device being actuated by said actuating element.

4. In a mechanism of the character described, the combination with an actuating and an actuated element, of a supply pipe, a stationary cylinder connected thereto, a sliding cylinder telescoping said stationary cylinder and connected to said actuated element, a spring for moving said sliding cylinder in one direction, a valve device in the connection between said supply pipe and said stationary cylinder for controlling communication between said parts and between said stationary cylinder and the atmosphere, and a spring for actuating said valve device in one direction, said valve device being actuated in the 85 opposite direction by said actuating element.

5. In a typewriting machine, the combination of a stationary cylinder, a valve casing communicating therewith and having oppositely-disposed, conical valve seats, a fluid supply pipe connected with said casing, outwardly-opening conical valves mounted in said casing on a common stem, an actuating lever connected with said valve, and an actuated element connected with said valves. 90

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

HENRY J. OTTO.

Witnesses:

WILLIAM M. RITCHIE,
ROBERT C. BALTZELL.