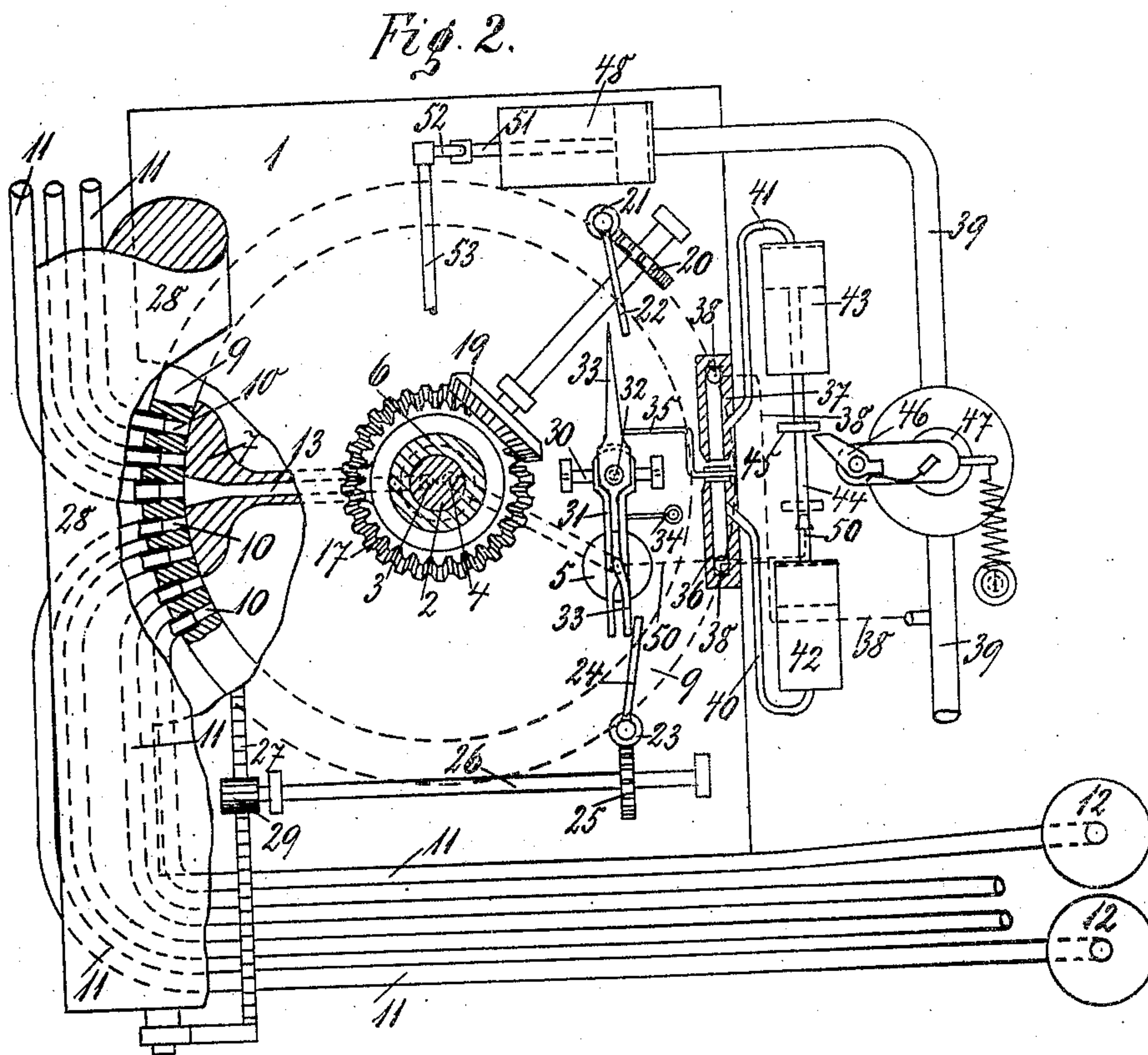
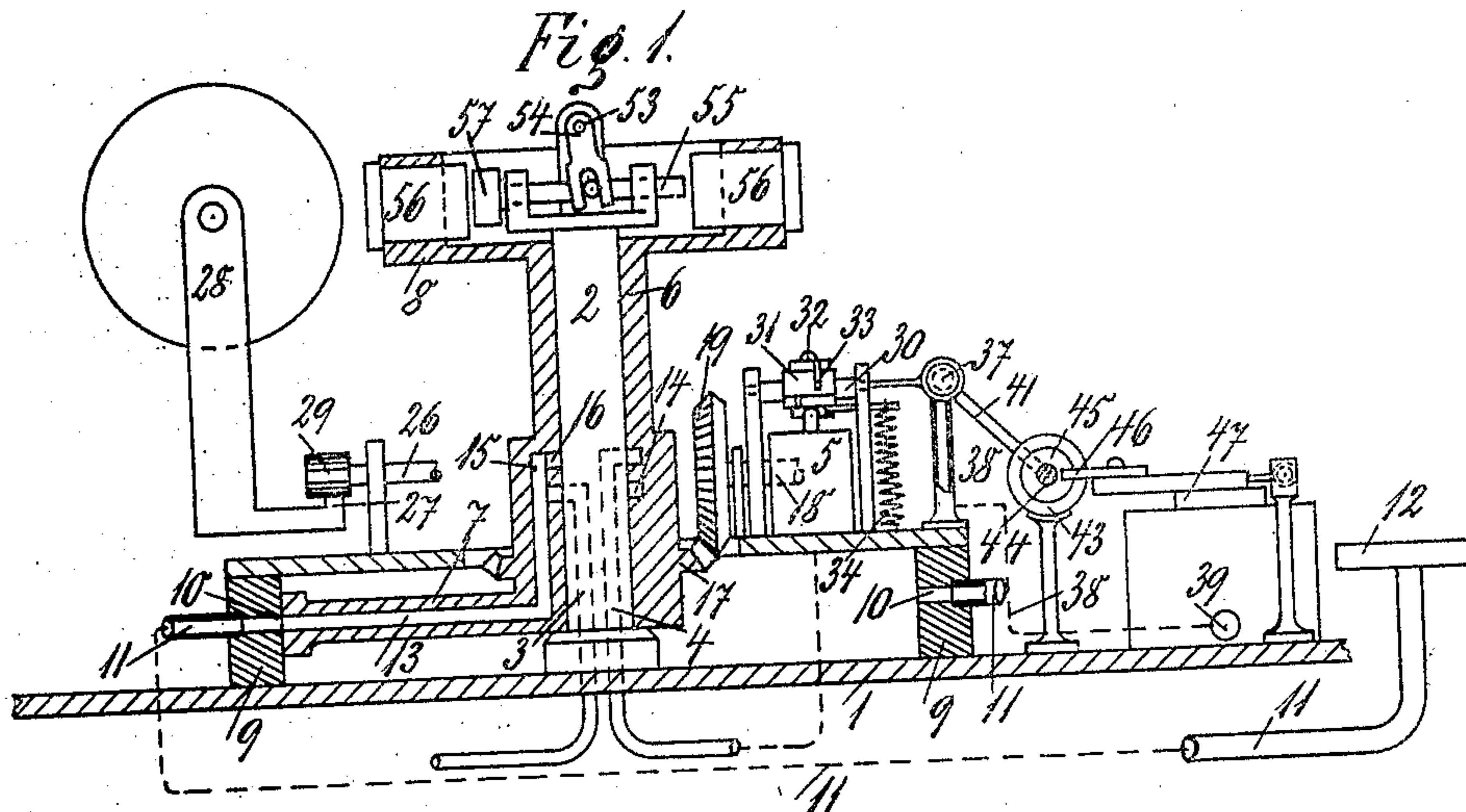


No. 818,200.

PATENTED APR. 17, 1906.

M. SOBLIK.
PNEUMATIC TYPE WRITER.
APPLICATION FILED NOV. 16, 1903.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

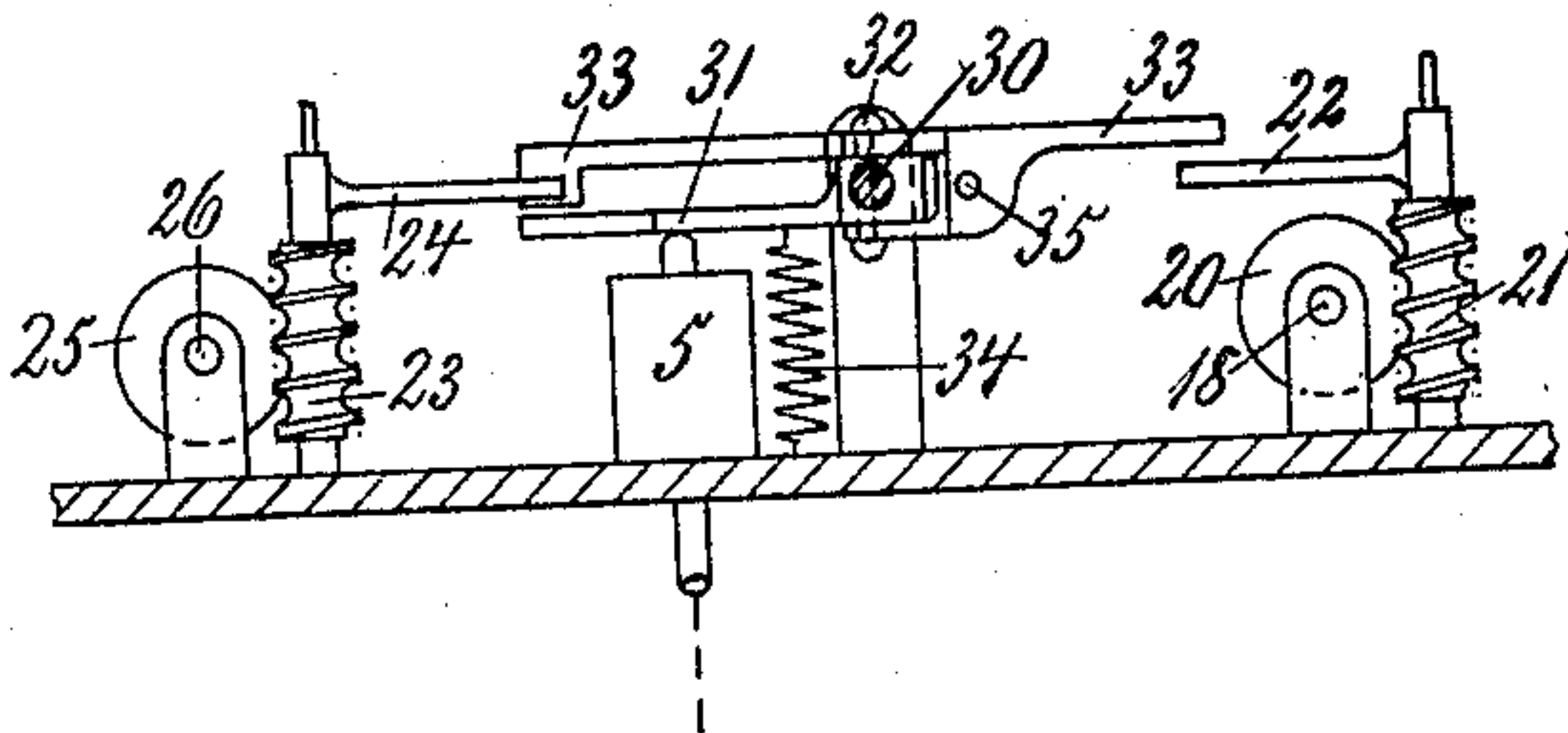


Fig. 4.

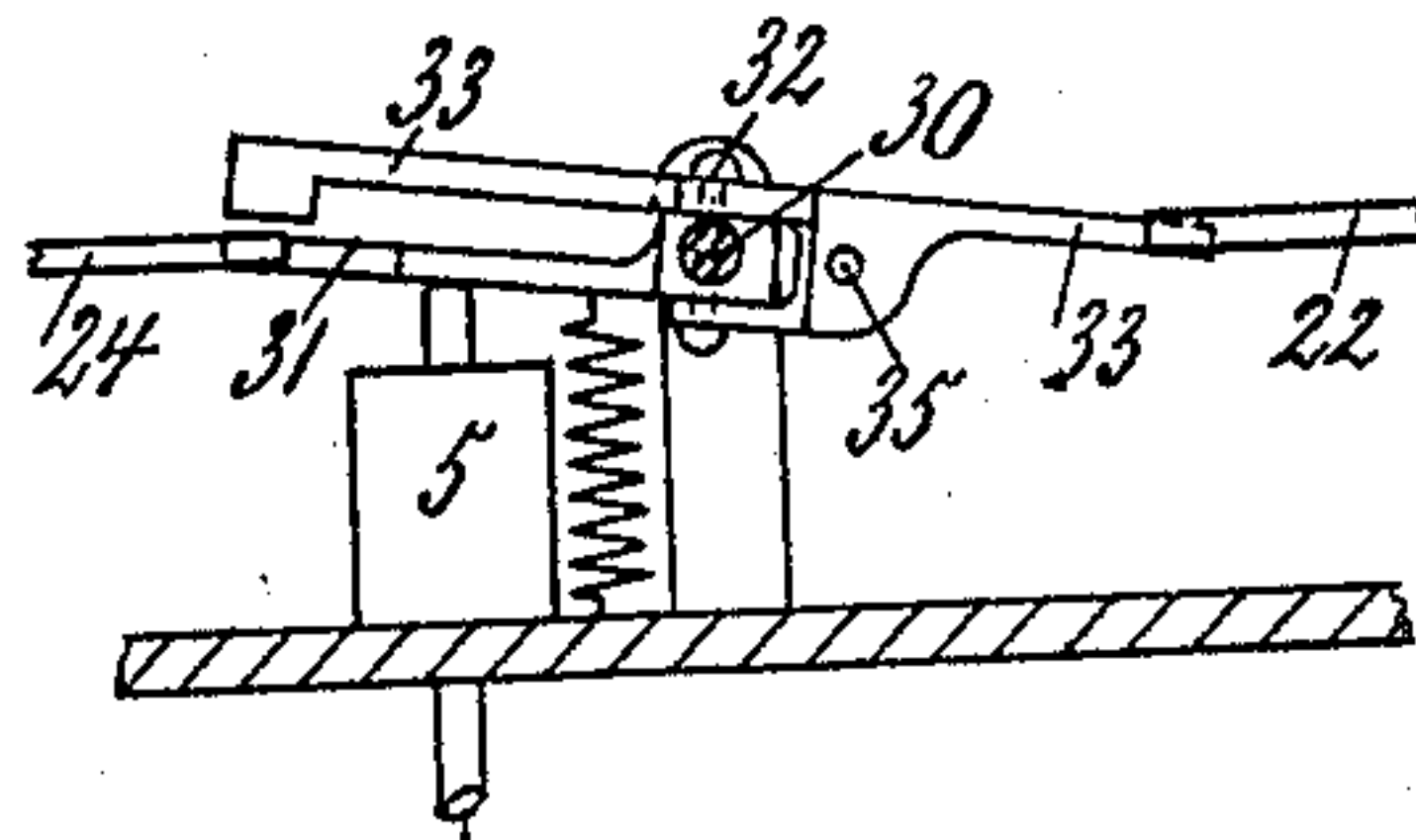


Fig. 5.

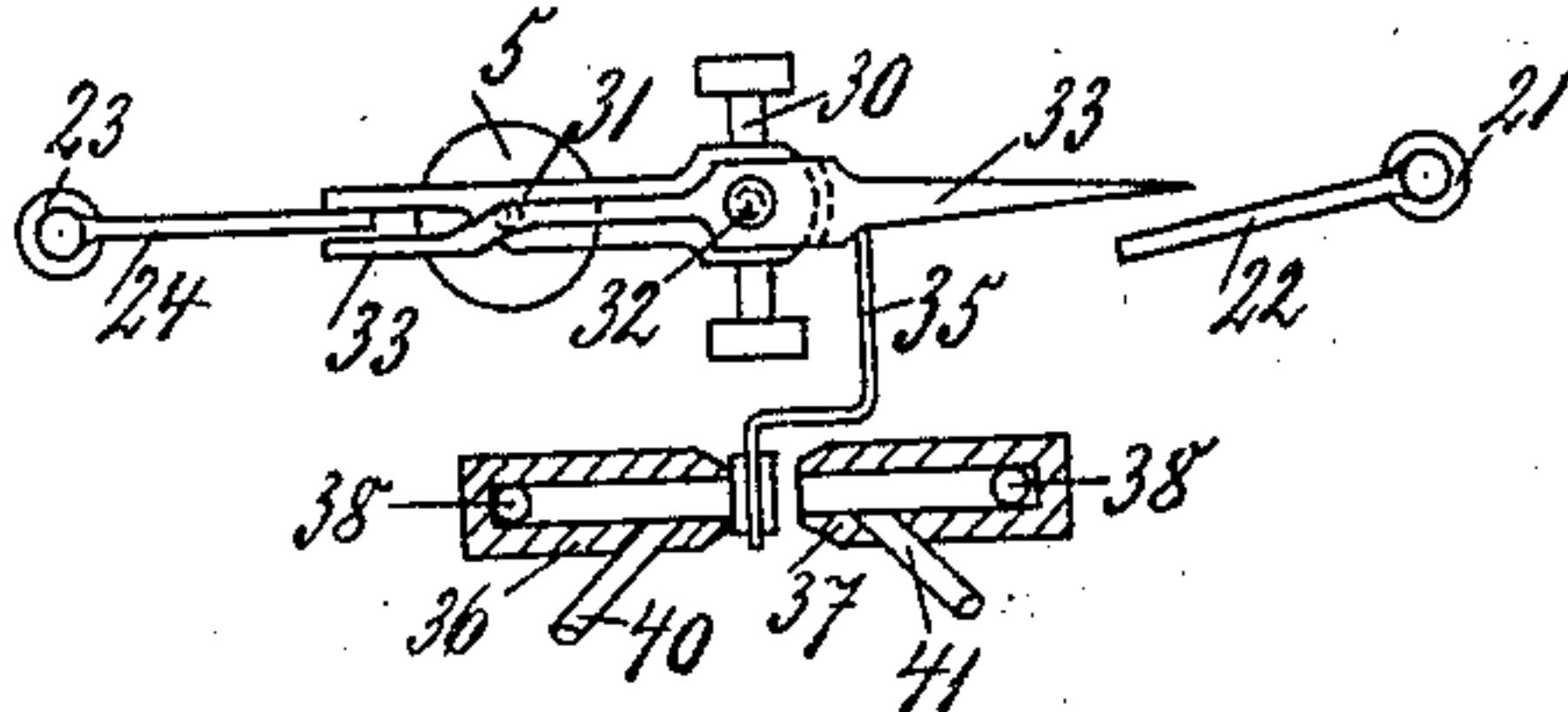


Fig. 8.

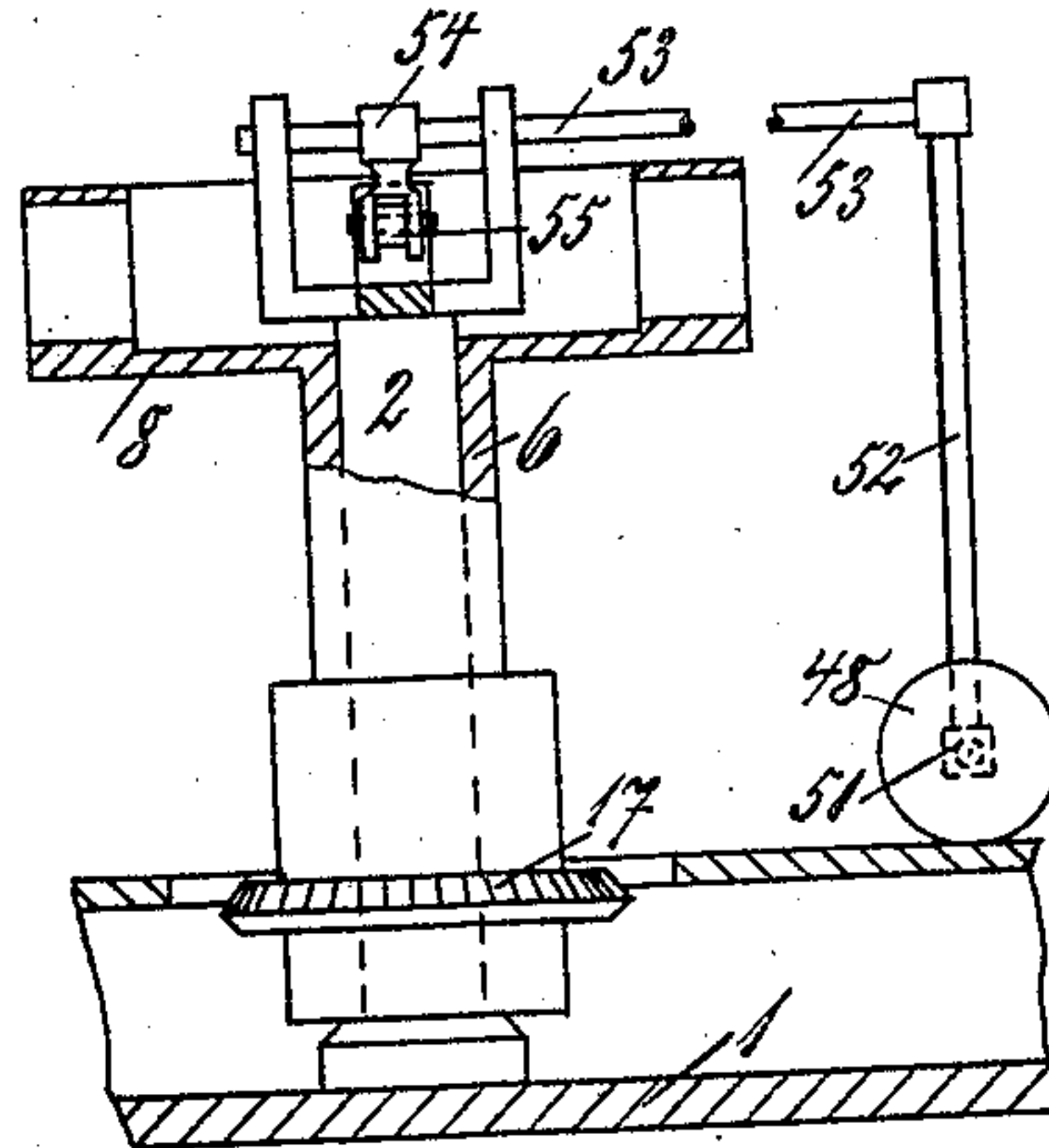


Fig. 6.

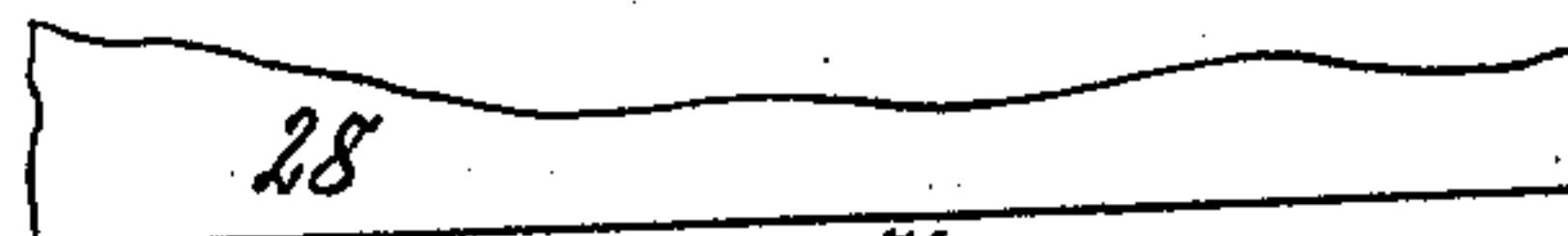
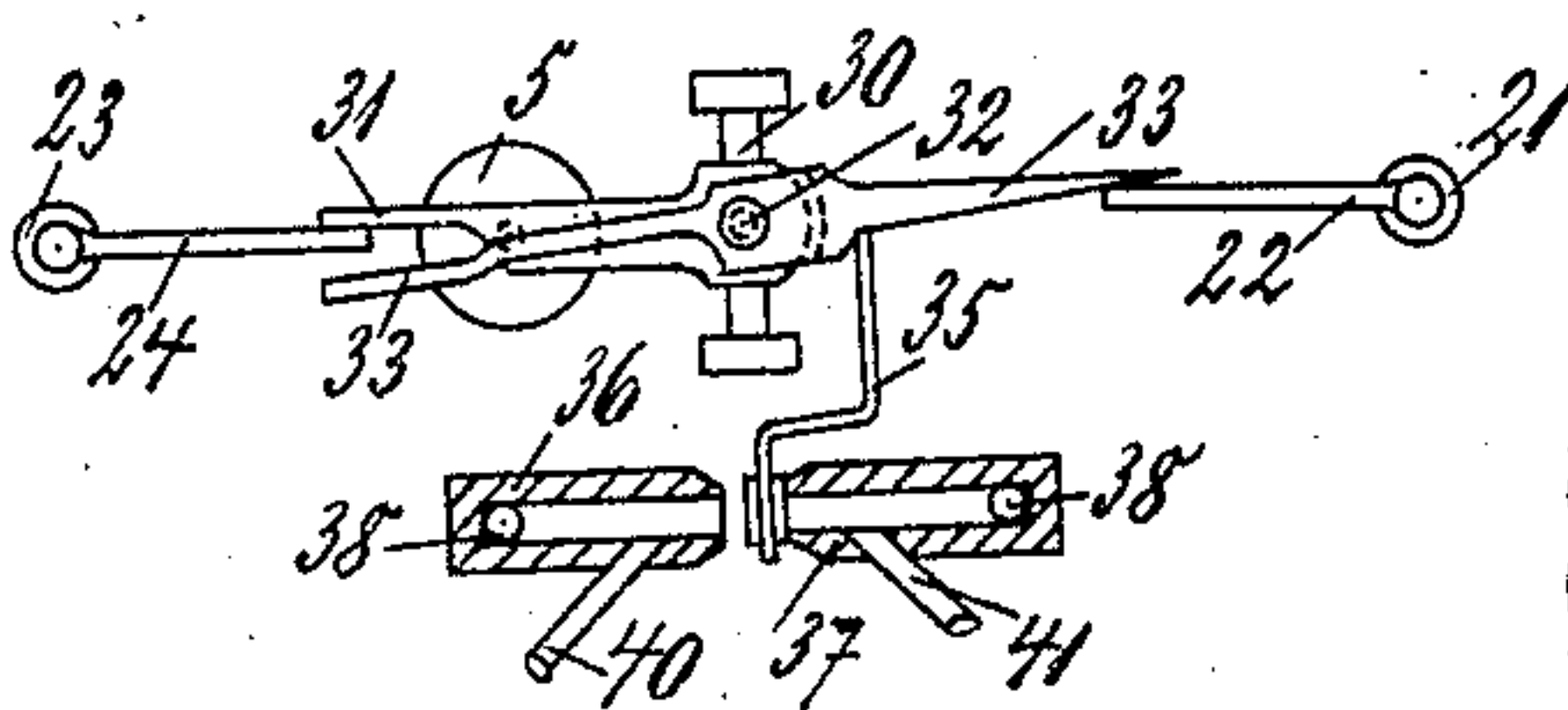


Fig. 7.

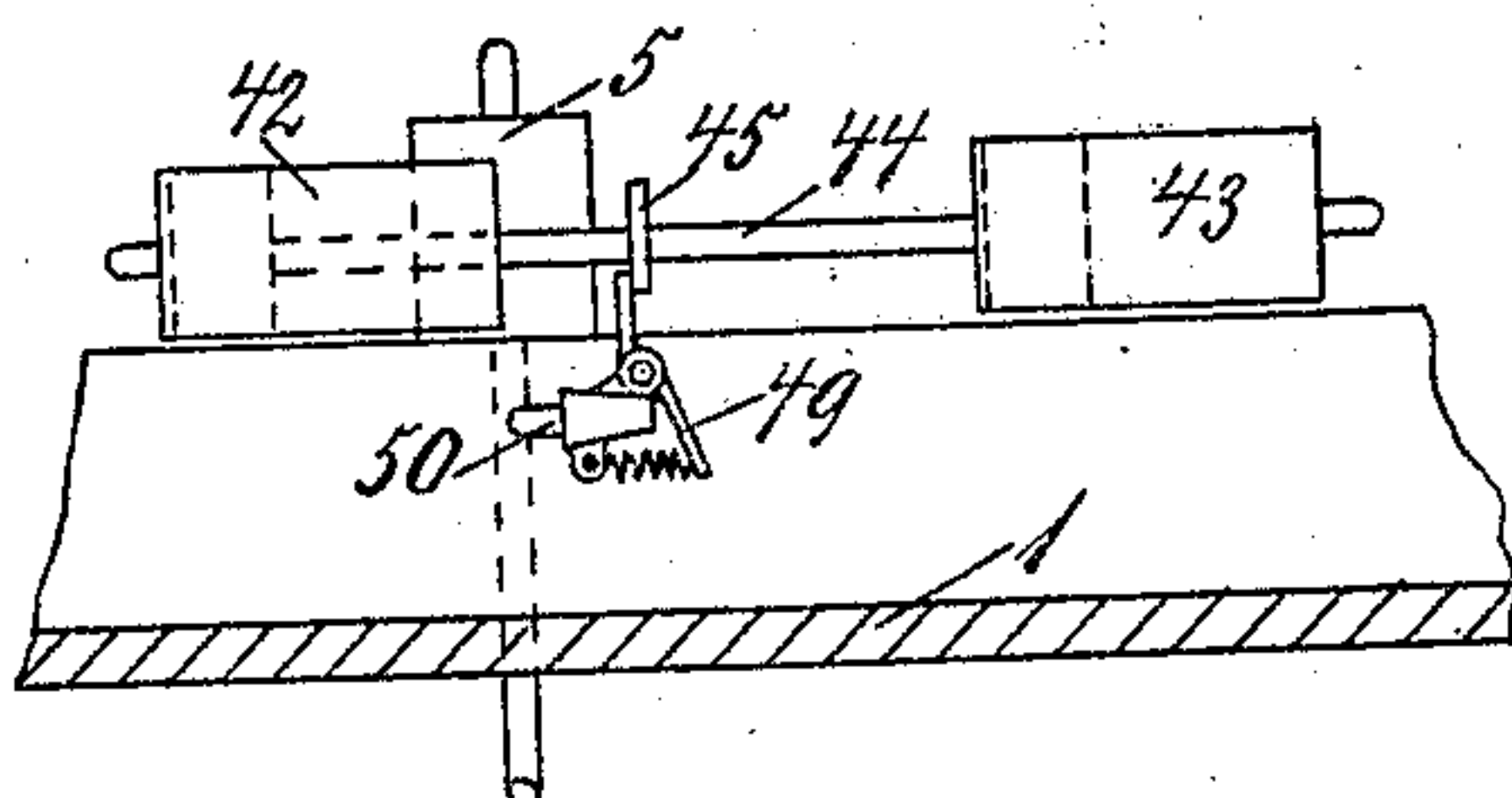
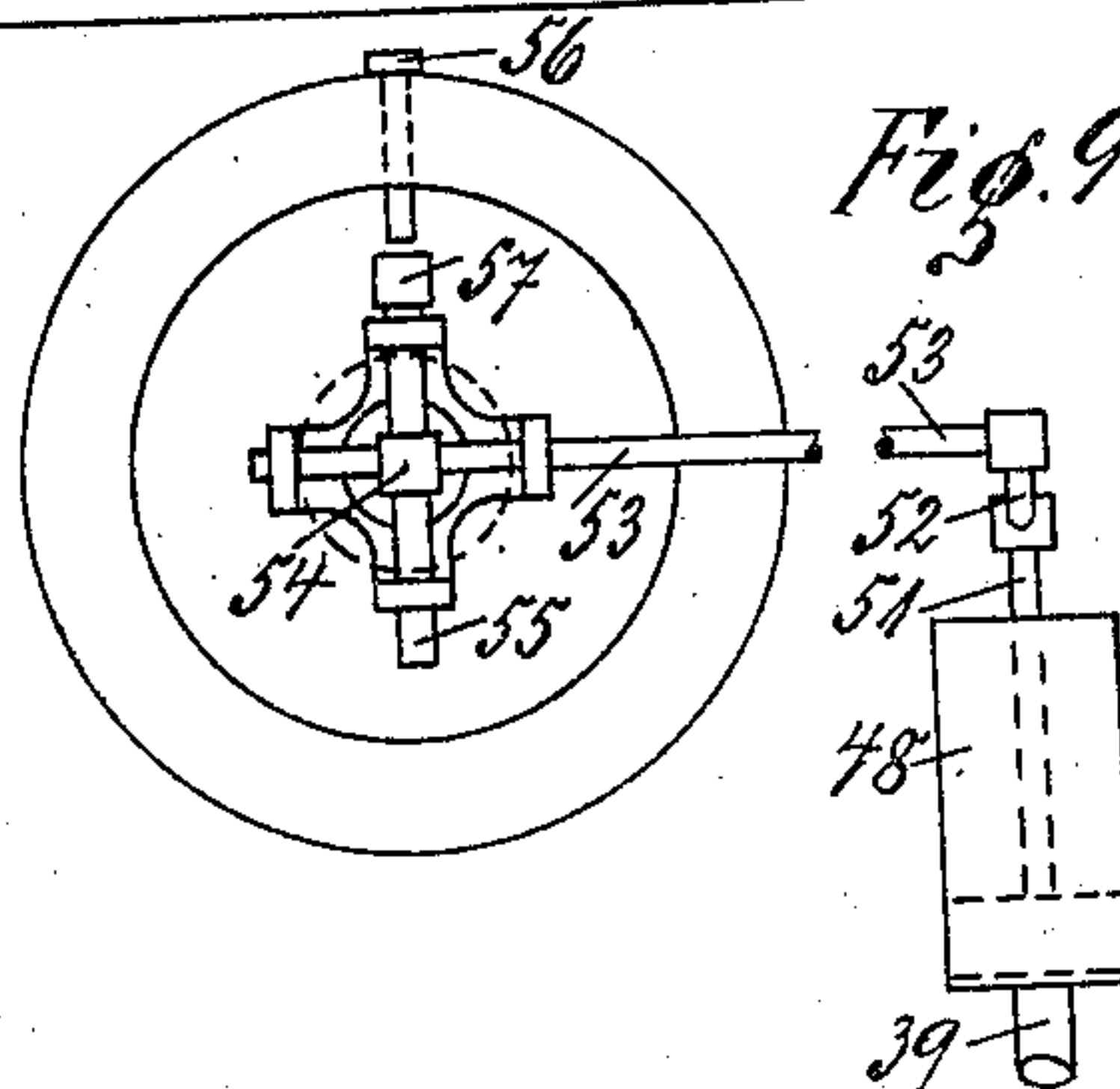


Fig. 9.



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UNITED STATES PATENT OFFICE.

MAXIMILIAN SOBLIK, OF DÜSSELDORF, GERMANY.

PNEUMATIC TYPE-WRITER.

No. 818,200.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed November 16, 1903. Serial No. 181,292.

To all whom it may concern:

Be it known that I, MAXIMILIAN SOBLIK, a subject of the King of Prussia, German Emperor, residing at Düsseldorf, Germany, have invented certain new and useful Improvements in Pneumatic Type-Writers, of which the following is a specification.

This invention relates to pneumatic type-writers; and the object of the same is to provide for means to stop the type-wheel before the type will strike and to move the paper-carriage after the type has been printed.

Hitherto pneumatic type-writers have been known having an intermittent rotating type-wheel and causing the paper-carriage to be moved at the same time while the type was caused to strike against the paper. Such type-writer is described, for instance, in the United States Patent No. 676,590. To get a perfectly neat print with this kind of arrangement the movement of the piston-rod of type-wheel and the traveling of the paper-carriage ought to be perfectly alike; but as in fact this will not be the case the impressions made by the type will not appear to be clean and neat.

Now the object of this invention is to provide for means that the type will not be worked upon before the type-wheel has been brought to a stop and the paper-carriage will not be caused to travel before the type has struck against the paper, thus producing a neat and clean print. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section through the machine. Fig. 2 is a top view, some parts being shown in a horizontal section. Fig. 3 shows the mechanism to put in operation the type, and Fig. 4 shows the same while in operation. Figs. 5 and 6 show the top views of Figs. 3 and 4. Fig. 7 represents the gearing mechanism, and Figs. 8 and 9 represent the striking arrangement of the types in different views.

Similar numerals refer to similar parts throughout the several views.

To the base-plate 1 is fixed a vertical axle 2, having two longitudinal canals 3 and 4, the one of which, 3, leads to an air-compressor, (not shown in the accompanying drawings,) while the canal 4 is connected with the cylinder 5. Perfectly air-tight attached to the axle 2 is a casing 6, having an arm 7 at its lower end, while the top 8 is formed to be used as a type-carrier. The front part of the arm 7 is fitted air-tight against the inside of

an annular ring 9, that is arranged upon the base-plate 1 concentrically to the axle 2. The ring 9 is provided with radial holes 10, the number of which corresponds with the numbers of keys of the machine, each hole to have a separate pipe 11 leading to the mouth of the perforated key 12. The arm 7 has an air-passage 13, the outer end of which is opposite the holes 10 of the ring 9, while the upper right part leads to the annular slot 14 of the casing 6. The upper end 15 of the air-passage is connected to another annular slot 16 of the casing 6, which slot 16 is permanently in connection with the passage 4, that leads to the high-pressure cylinder.

The casing 6 carries a bevel-gear 17, that meshes the gear 19, fixed to the axle 18, which axle also carries a screw-wheel 20, engaging the worm-wheel 21, to which is attached the rod 22. Another worm-wheel 23, having a rod 24, engages a screw-wheel 25, carried by an axle 26. This axle 26 may be rotated by the rack 27 of the paper-carriage 28, passing the gear 29, fixed to the axle 26. Between the two worm-wheels 21 and 23 and within the reach of the rods 22 and 24 is arranged a double lever, consisting of the one-armed lever 31, movable around the horizontal axle 30, and of a double-armed lever 33, movably attached thereto upon a vertical pin 32. The lever 31 rests upon the piston-rod of the air-cylinder 5 and is held there by means of a spring 34. The lever 33 carries a flap 35, that may be moved between the two nozzles 36 and 37, which nozzles are joined by means of a pipe 38 to the conduit 39, communicating with a receptacle containing compressed air, (not shown,) and by means of the pipes 40 and 41 to the cylinders 42 and 43. These air-cylinders 42 and 43 have a common piston-rod 44, having a ring 45 to strike against a pawl 46, attached to the plug of the stop-cock 47, arranged in the compressed-air conduit 39, that leads to the cylinder by means of which the types are moved. When being moved, the ring 45 will strike, too, against an upper shoulder of a swinging disk 49, that is arranged opposite the mouth of the outlet 50 of the conduit that connects the canal 4 with the air-cylinder 5. By a connecting-rod 52 the piston-rod 51 of the cylinder 48 is coupled to the shaft 53. A forked lever 54 is keyed to the shaft 53 and notches the slide 55 of the hammer 57, which will cause the types to be struck against the paper.

When the machine is in use, the type-

wheel and the arm 7, attached to it, receive
 an intermittent rotation by a mechanism
 similar to that described in the United States
 Patent No. 676,590. Thereby the com-
 5 pressed air from the air-tank will pass
 through the canal 3, the slot 14, the bore 13
 of the arm 7, the hole 10 just opposite there-
 to, and through the corresponding pipe 11 to
 the key 12. When the key 12 is closed by
 10 putting a finger on top of it, the air-pressure
 in the corresponding pipe will increase as
 soon as the air-passage 13 of the arm 7
 passes the hole 10 of the ring 9. This in-
 15 creased pressure will be carried through the
 branch pipe 15, the annular slot 16, the canal
 4, and the connection-pipe of the same to the
 air-cylinder 5. Hereby the piston of the cyl-
 20 inder 5 will be raised, and with it the levers
 31 33, resting upon the piston-rod, Fig. 4. In
 this position the lever 33 will no longer stop
 the rod 24, while the other end of the lever
 will now arrest the rod 22, that was liable to
 rotate until then. At the same time the rod
 24 will strike against the lever 31 and will
 25 thus be stopped for a certain time; but inas-
 much as the type-wheel continues its rota-
 tion the rod 22 of the worm-wheel 21 will
 move the lever 33, Fig. 6, until its flap-valve
 35 strikes against the nozzle 37. Thus a
 30 further rotation of the lever 33 is prevented,
 and with it the type-wheel is stopped. By
 closing the nozzle 37 there will be an in-
 creased air-pressure within the nozzle, be-
 cause some more compressed air will enter
 35 by the way of the pipe 39. This compressed
 air will now pass through the pipe 41 into the
 cylinder 43, the piston of which is driven
 ahead, and will cause the ring 45 to open the
 air-conduit 39 by turning around the plug of
 40 the cock 47. The compressed air may now
 enter the cylinder 48. It will act upon the
 piston of the same, whereby the hammer 57
 is pushed forward and against the type in
 front of it, thus producing a print of the lat-
 45 ter. In the meanwhile the piston of the cyl-
 inder 43 has finished its stroke, and the ring
 45, striking against the upper shoulder of the
 movable disk 49, will open the outlet 50,
 whereby the compressed air from the air-cyl-
 50 inder 5 may escape and cause the piston-rod
 to be lowered, together with the lever resting
 upon it. The downward motion will be ac-
 celerated by means of the spiral spring 34,
 acting upon the levers 31 33. When the le-
 55 vers 31 33 return to their original position,
 Fig. 3, the lever 31 will release the rod 24,
 thus allowing the paper-carriage to be

shipped forward until the rod 24 is locked
 again by the lever 33. In the meanwhile
 the lever 33 releases the rod 22, thus allowing
 the type-wheel to rotate. As soon as the
 rod 24 works against the lever 33 the latter is
 moved back from the position shown in Fig.
 6 into that as shown in Fig. 5. At the same
 time the flap 35 closes the nozzle 36 and re-
 65 leases the nozzle 37. Now an increase of the
 pressure will take place within the cylinder
 42, the piston of which will be driven ahead,
 and thus the swinging disk 49 and the plug of
 the stop-cock 47 will all have their original
 position. Now all parts of the machine have
 returned to their original position, and by
 pressing another key the mechanism may be
 put in operation again.

What I claim is—

1. In a pneumatic type-writer, the combi-
 nation of a perforated key with a pressure-
 cylinder controlled thereby, an inclosed pis-
 ton, a lever actuated by the piston, a rotata-
 ble type-carrier, a type-striking mechanism,
 and a paper-carriage controlled by the lever,
 substantially as specified.

2. In a pneumatic type-writer, the combi-
 nation of a perforated key with a pressure-
 cylinder controlled thereby, an inclosed pis-
 ton, a lever actuated by the piston, a rotata-
 ble arm adapted to be engaged by the lever,
 and a rotatable type-carrier adapted to be
 arrested by the arm, substantially as speci-
 85 fied.

3. In a pneumatic type-writer, the combi-
 nation of a perforated key with a pressure-
 cylinder controlled thereby, an inclosed pis-
 ton, a lever actuated by the piston, a valve
 connected to the lever, a cylinder controlled
 by the valve, an inclosed piston, a cock act-
 95 uated by the piston, a type-hammer, and
 pneumatic means controlled by the cock
 for operating said hammer, substantially as
 specified.

4. In a pneumatic type-writer, the combi-
 nation of a perforated key with a pressure-
 cylinder controlled thereby, an inclosed pis-
 ton, a pair of levers actuated by the piston, a
 rotatable arm adapted to be engaged by the
 levers, and a paper-carriage actuating said
 arm, substantially as specified.

Signed at Düsseldorf, in Germany, this 4th
 day of November, A. D. 1903.

MAXIMILIAN SOBLIK.

Witnesses:

ADOLF ECKERT,
 WILLIAM ESSENWEIN.