

J. NADER.
BOTTLE FILLING MACHINE.
APPLICATION FILED APR. 8, 1909.

963,801.

Patented July 12, 1910.

4 SHEETS—SHEET 1.

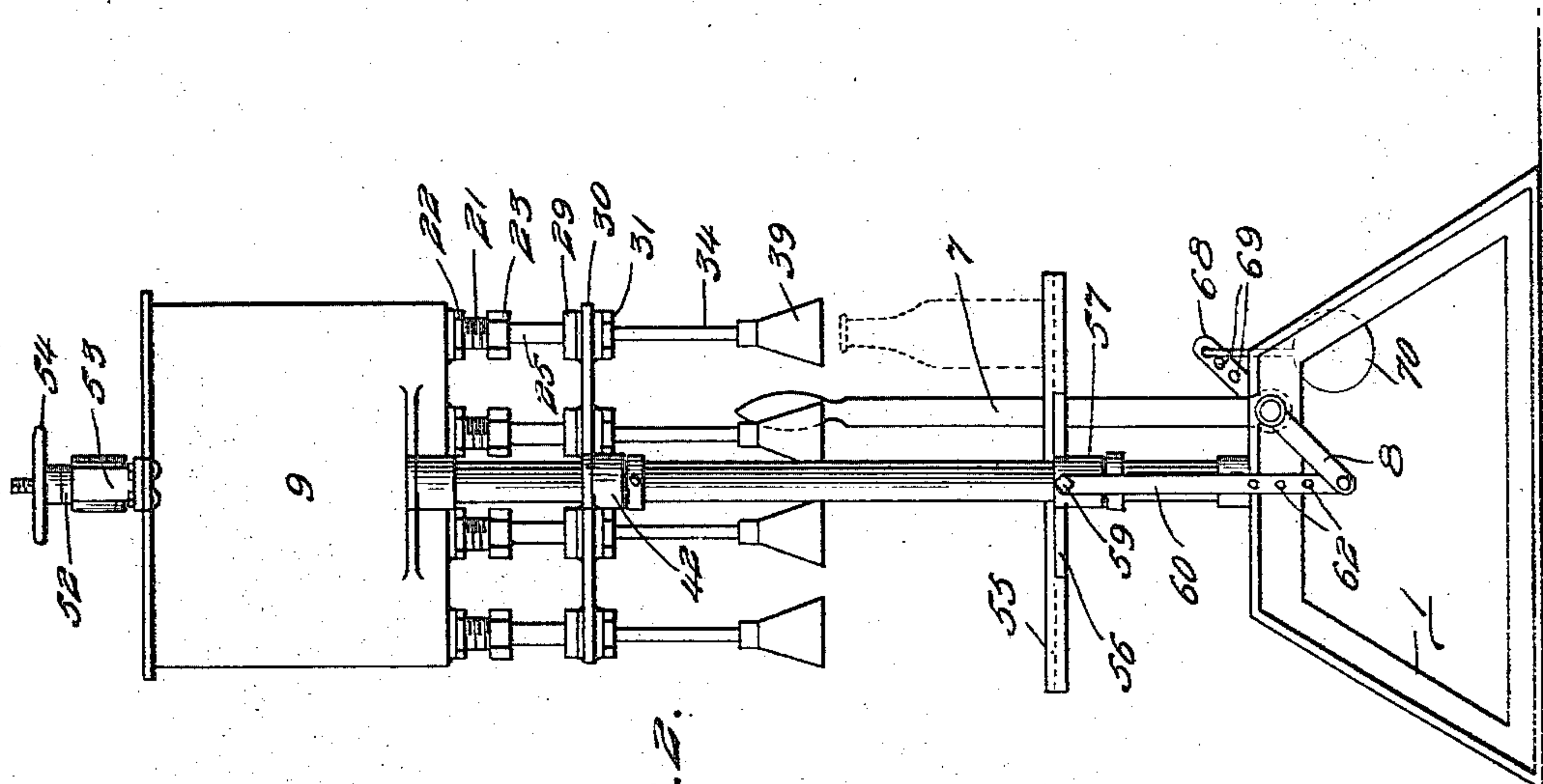


Fig. 2.

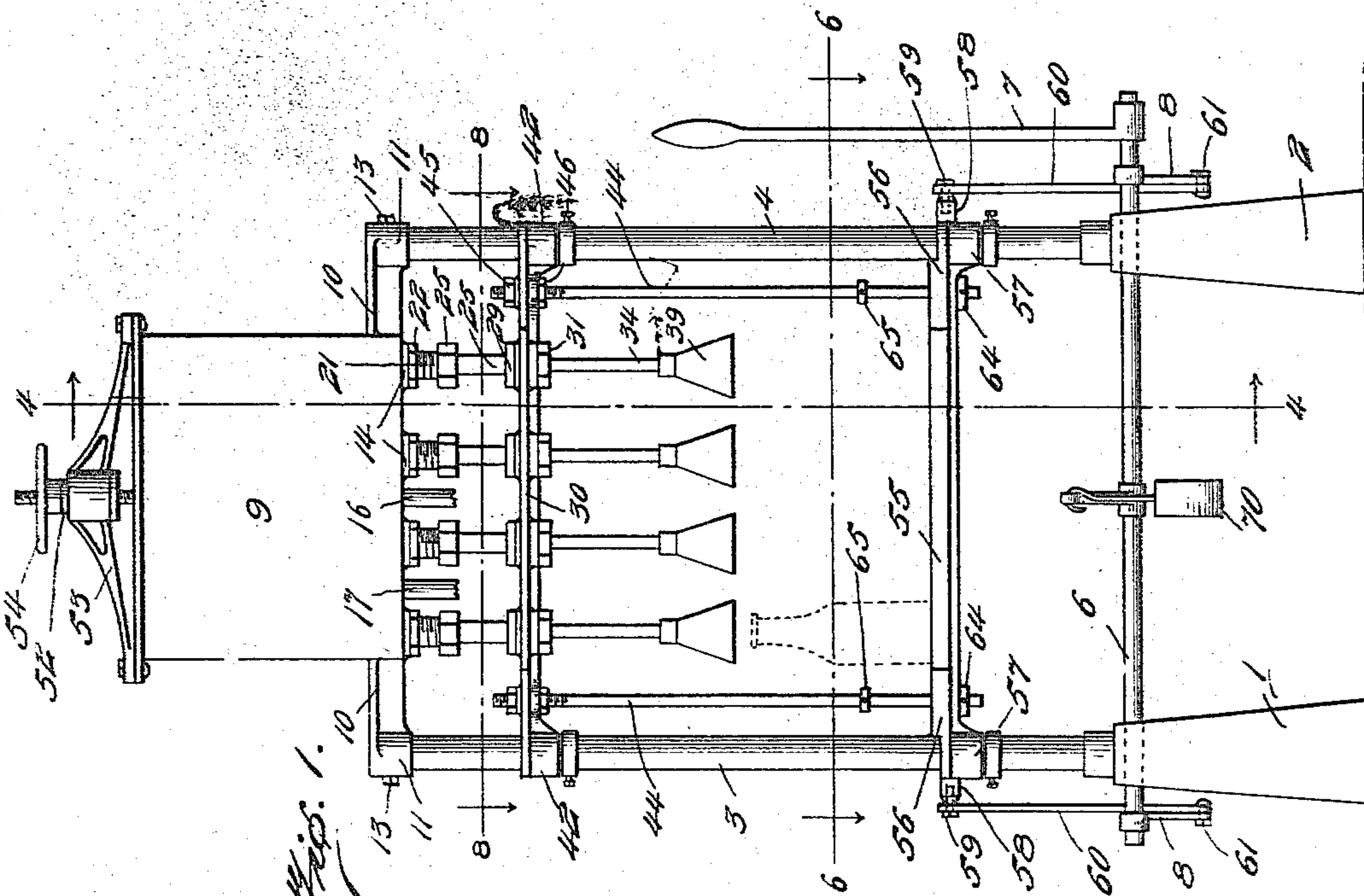


Fig. 1.

Witnesses
B. M. Offutt
C. E. Linton

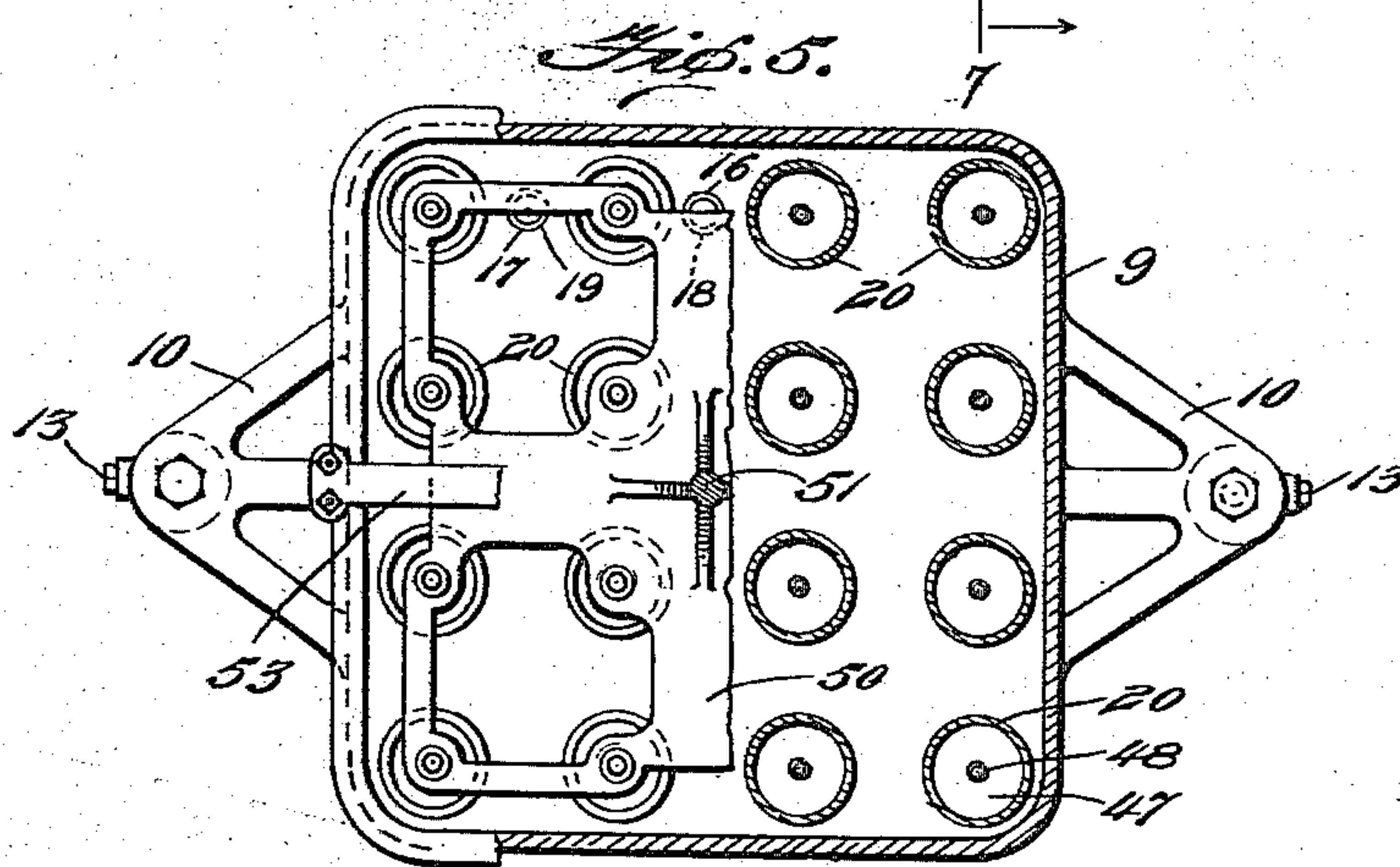
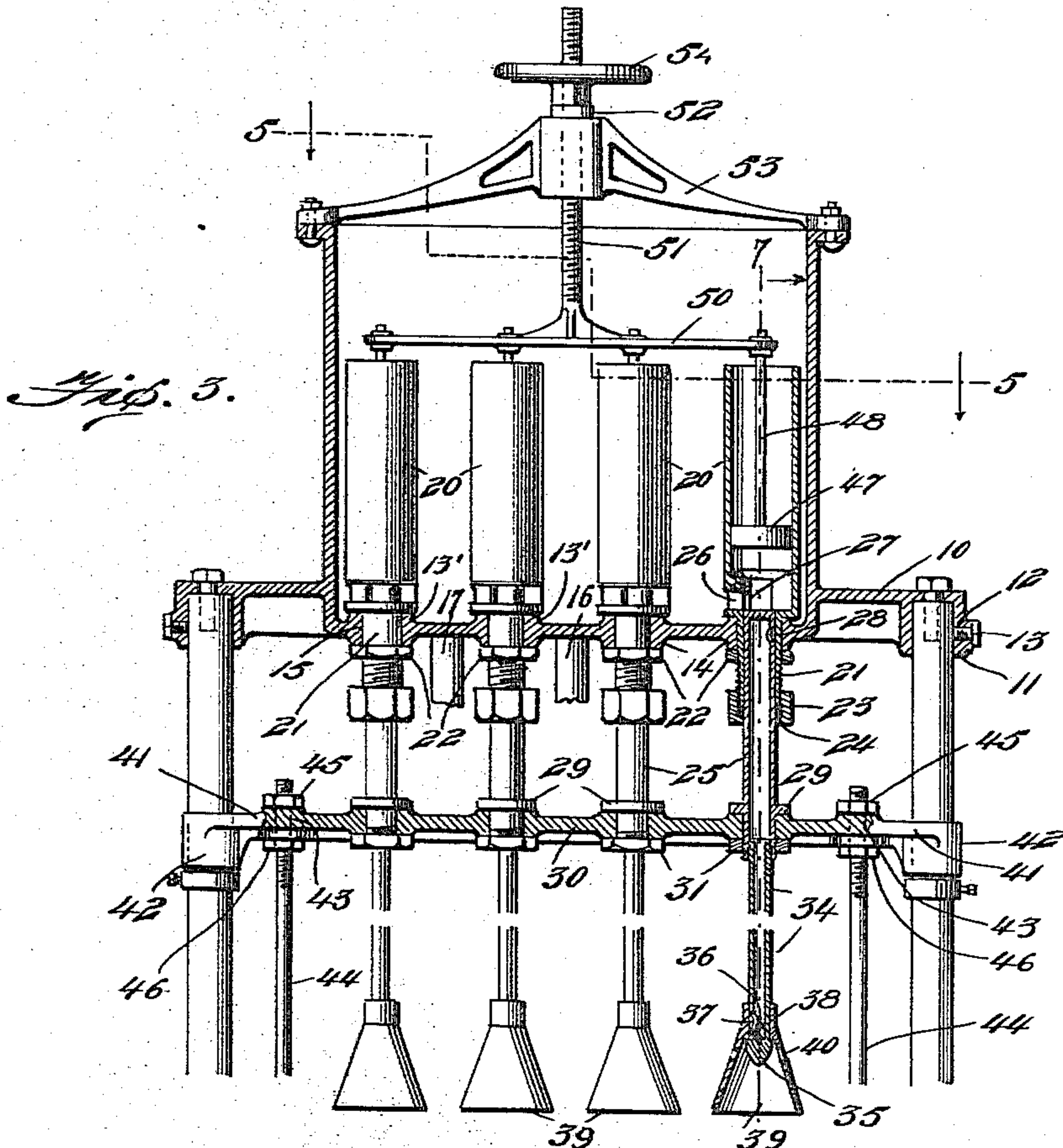
Inventor
Joseph Nader
By *A. B. Wilson & Co*
Attorneys

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4 SHEETS—SHEET 2.



Witnesses
B. M. Offutt
C. Leubke

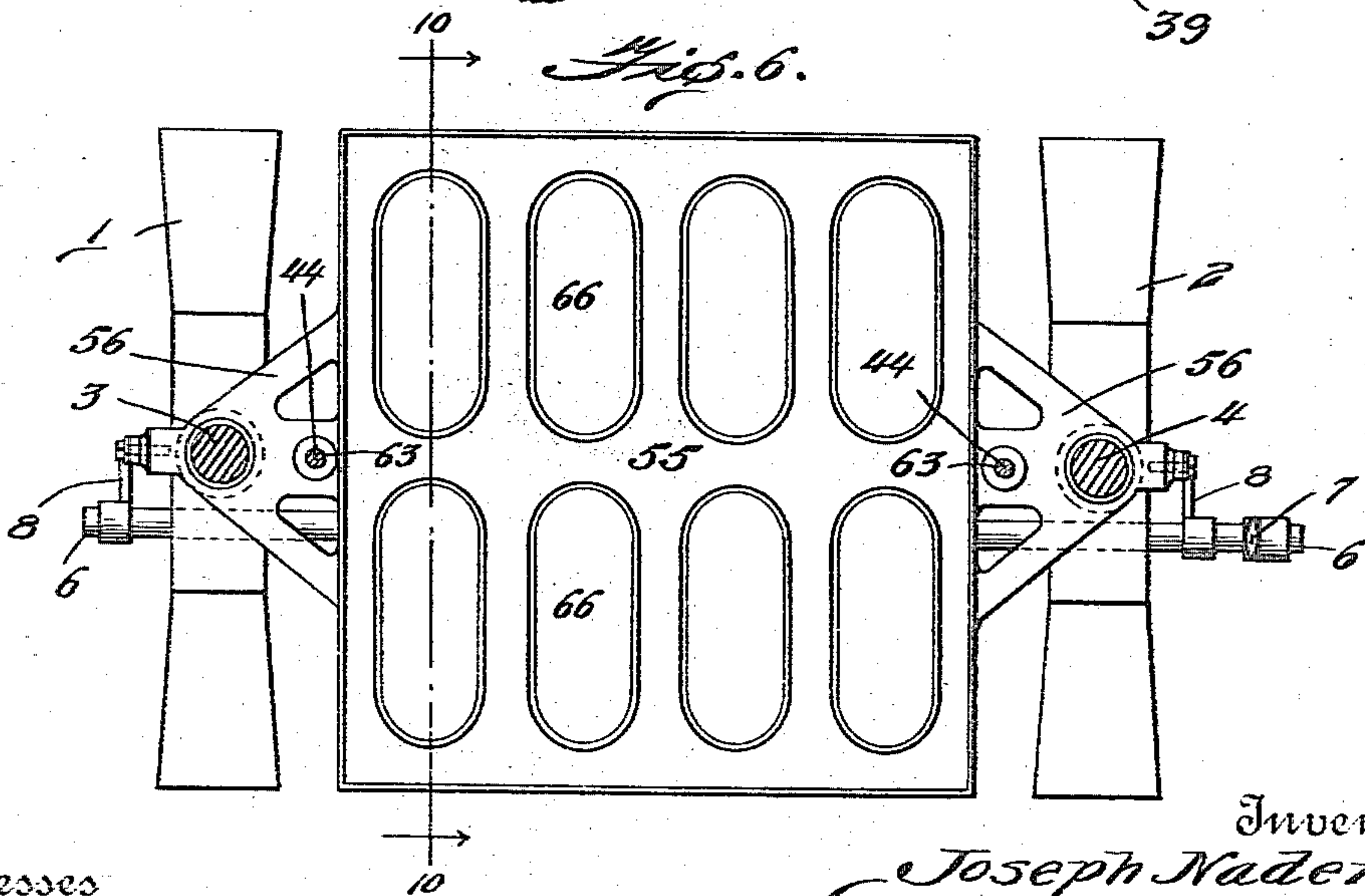
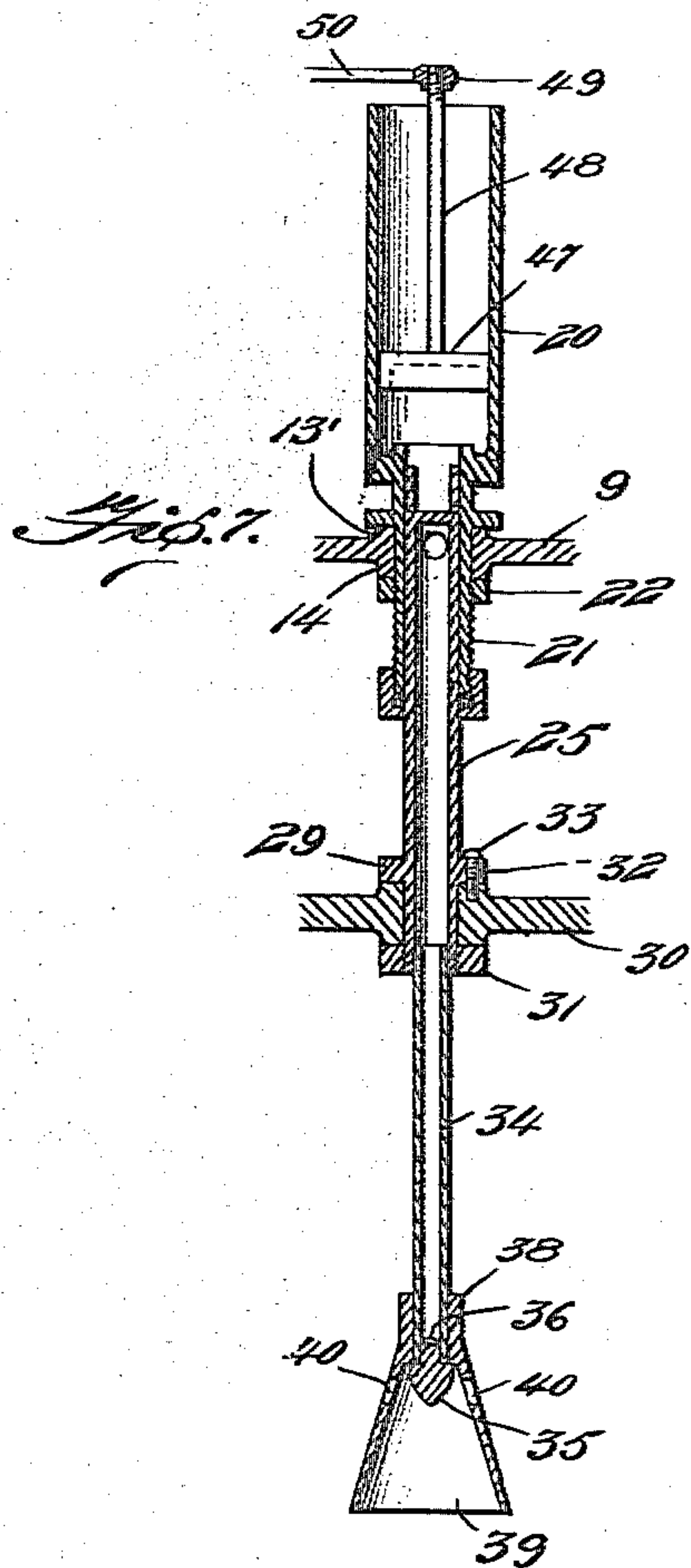
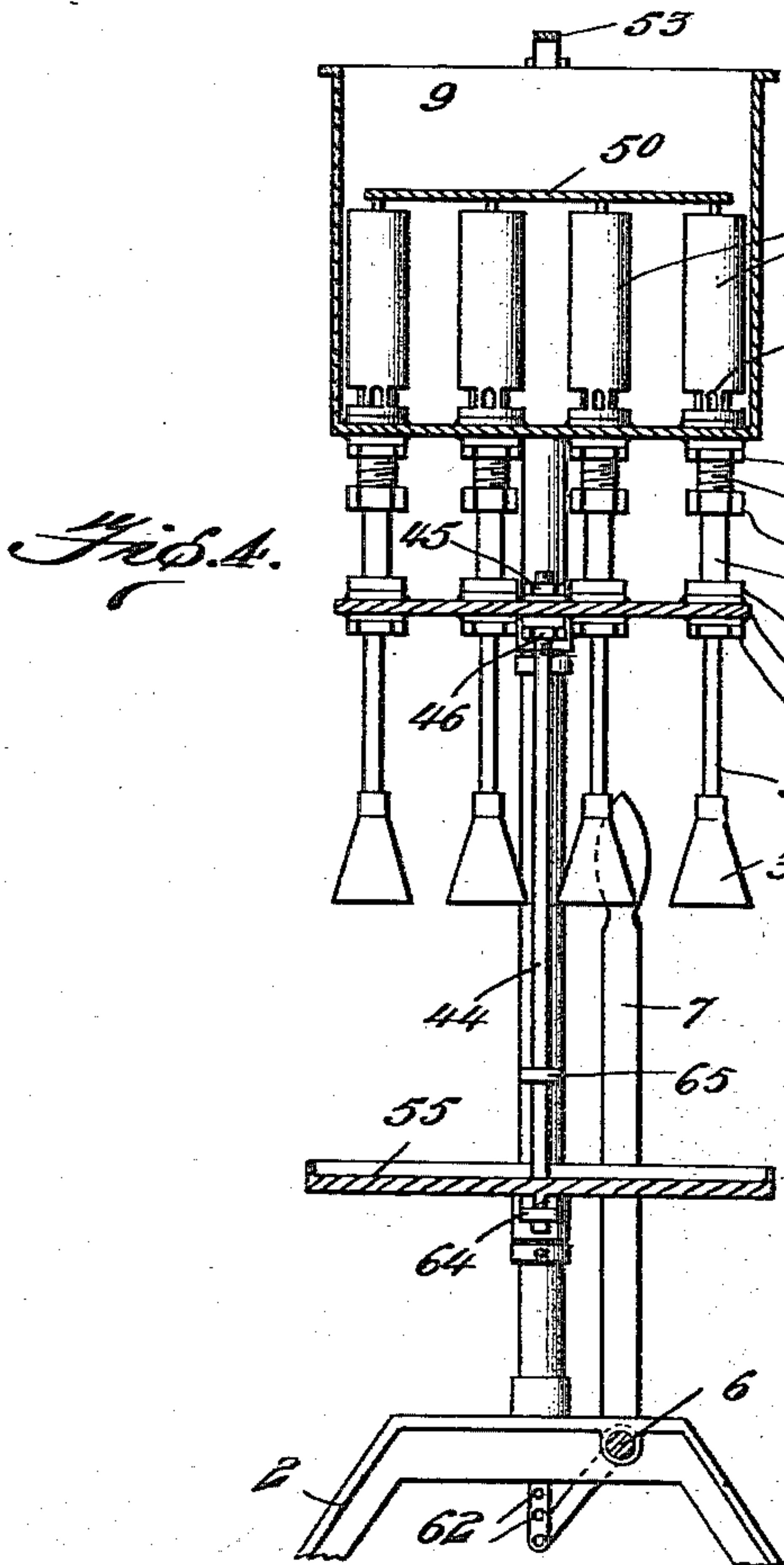
Inventor
Joseph Nader
By *A. B. Wilson & Co*
Attorneys

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4 SHEETS—SHEET 3.

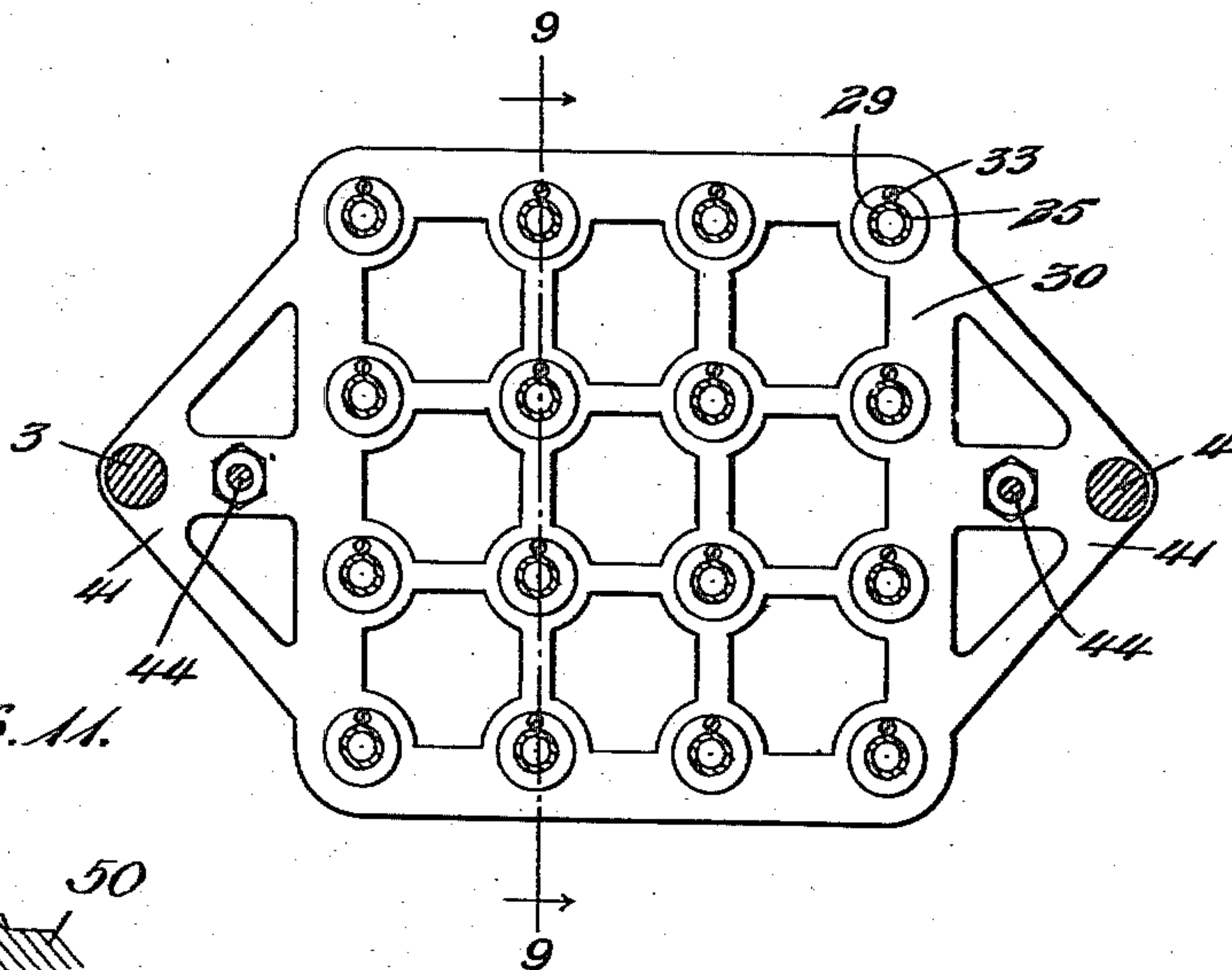


Witnesses
B. M. Offutt,
E. Allen

Inventor
Joseph Nader,
By *A. B. Wilson & Co.*
Attorneys

963,801.

4 SHEETS—SHEET 4.



Geo. M.

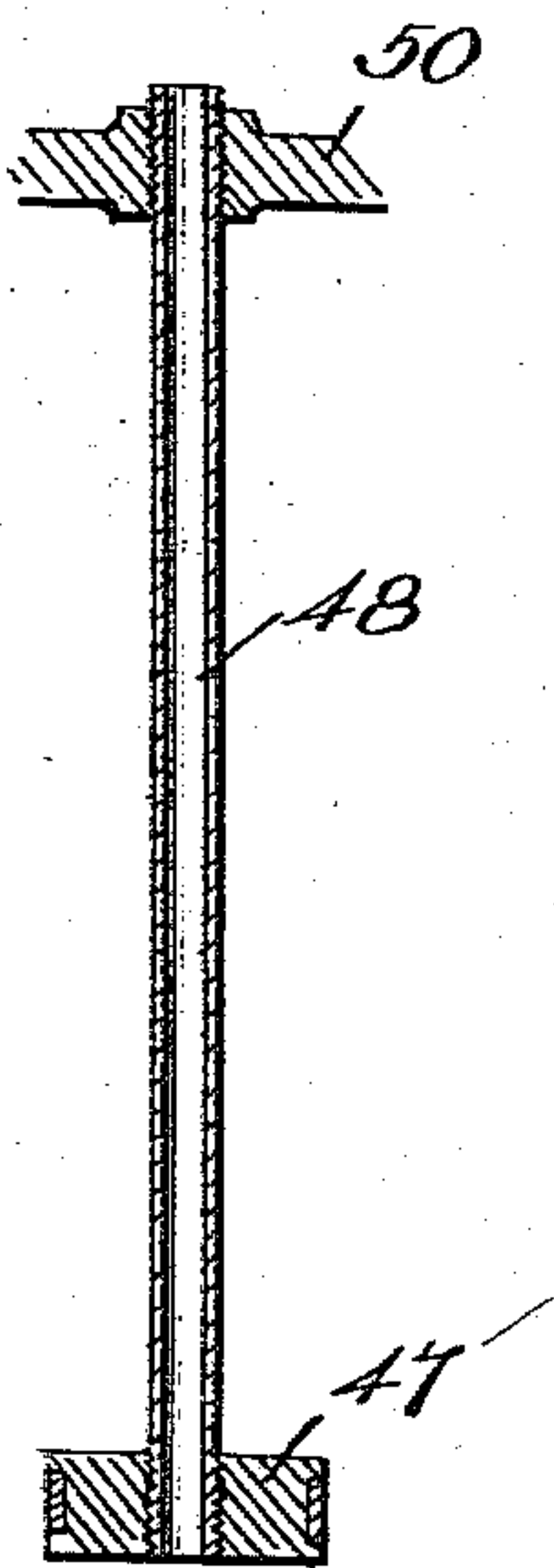


Fig. 9.

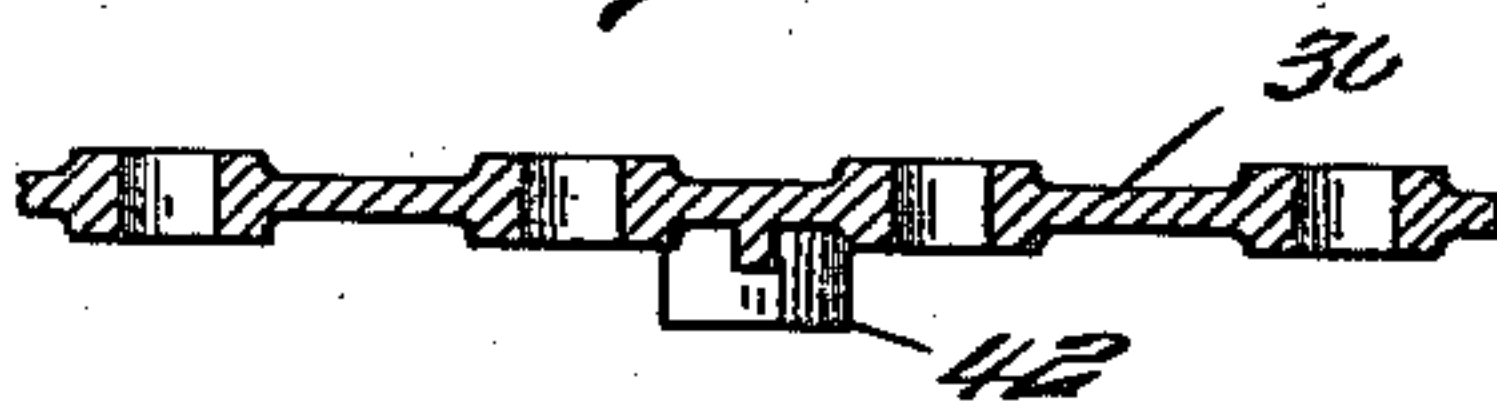
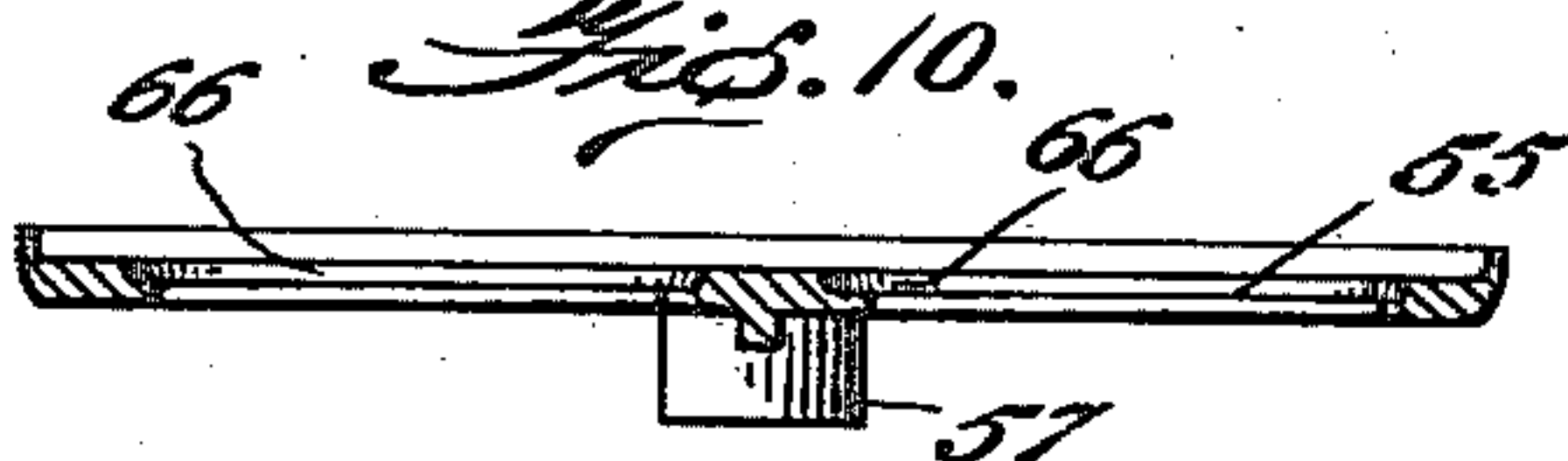


Fig. 10.



B. M. Offutt, Jr.
Collector

Joseph Nader,

By

By *A. Rivison* &c

Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH NADER, OF WAUKESHA, WISCONSIN.

BOTTLE-FILLING MACHINE.

963,801.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed April 8, 1909. Serial No. 488,660.

To all whom it may concern:

Be it known that I, JOSEPH NADER, a citizen of the United States, residing at Waukesha, in the county of Waukesha and State of Wisconsin, have invented certain new and useful Improvements in Bottle-Filling 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.

My invention relates to bottle filling machines which are used to insert syrup of all kinds, which are used in the manufacture of soft drinks, such as ginger ale, root beer, etc.

The object of the invention is to provide and place a machine of this character within the reach of all by constructing a machine in such a manner that its parts are few and inexpensive to make, and by providing a machine which may be readily and efficiently operated.

A further object of the invention is the provision of means whereby the liquid is measured in desired quantities and automatically fed to the bottles as they rise to receive the discharge spouts.

A further object of the invention is the provision of means to guide the bottles to the discharge spouts, and to automatically release and to automatically open the discharge spouts to the bottles after performing the guiding function.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation, Fig. 2 is a side elevation, Fig. 3 is an enlarged longitudinal section of the upper part of the machine, Fig. 4 is a transverse vertical section on the line 4—4 of Fig. 1, Fig. 5 is a section on the line 5—5 of Fig. 3, Fig. 6 is a transverse section on the line 6—6 of Fig. 1, Fig. 7 is a vertical transverse section on the line 7—7 of Fig. 3, Fig. 8 is a horizontal section on the line 8—8 of Fig. 1, Fig. 9 is a transverse section on the line 9—9 of Fig. 8, and Fig. 10 is a transverse section on the line 10—10 of Fig. 6. Fig. 11 is a detail vertical section of one of the plungers on an enlarged scale.

Referring more especially to the drawings,

1 and 2 represent base pieces from which the standards 3 and 4 project. These bases are braced in any suitable manner (not shown), and have journaled in their upper portions the operating shaft 6, to which is pivotally attached the hand lever 7 and the cranks 8. As these parts relate to the operation of the device they will be described more minutely hereinafter.

Mounted rigidly upon the top of the standards is a tank 9, which is cast as a whole with outwardly projecting arms 10, which are provided with standard receiving sockets 11, and suitable set screw openings 12, in which set screws 13, are mounted to engage the standard and hold the device rigidly in position. This tank is provided with a plurality of inwardly raised bosses 13' and depending bosses 14, and through both of them is formed the attaching neck apertures 15. The tank is also provided with suitable apertures 16 and 17, to which the inlet and outlet pipes 18 and 19 are attached. Suitably mounted within the tank are a plurality of piston cylinders 20, each having a depending attaching neck 21, which passes through the openings 15 and is provided with a locking nut 22, to clamp the cylinder to the casing. The outer end of this neck 21 is provided with a nut 23, which holds suitable packing 24 around the valve tube 25, which slides therein. This valve tube extends up in the casing some little distance and normally rests immediately below an inlet port 26, formed therein, which permits when in register with a similar opening 27 in the valve tube, the fluid to pass into the measuring cylinder 20. Below the aperture 27 and on the opposite side of the valve tube 25 I provide another aperture 28, for the outlet of the fluid from the casing 20 to the valve tube. The lower end of this tube is provided with an annular collar 29, which is adapted to rest upon the top of the valve tube supporting plate 30, and be clamped thereto by a locking nut 31, which engages underneath the plate upon the threaded end of the tube 25. In order to prevent turning of each tube I preferably aperture the collar 29, as at 32, and pass a screw 33, therethrough into the plate. The interior of the end of the tube opposite the jam nut 31 is threaded to receive a discharge tube 34, which is of somewhat smaller diameter and is provided at its lower end with a guiding head 35, seated in

the end and beveled upon its upper side as at 36, to direct the fluid to the outlet opening 37, formed upon the side and covered by the collar 38, carried upon the upper end of the guiding funnel 39. These funnels are formed so as to guide the discharge tubes 34 into the bottle neck and are apertured at 40, to permit the escape of air.

The valve plate 30 is constructed in a similar manner to the tank 9, in that it has a pair of arms 41, projecting outwardly therefrom and provided with depending bearing members 42, which slidably receive the standards 3 and 4. In line with these standard bearing members I provide a pair of apertures 43, one in each arm so as to receive the operating rods 44. These rods are rigidly held within the valve plate by clamping nuts 45 and 46. The operation of the rods 44 will be described hereinafter.

Each piston cylinder 20 is provided with a piston 47, whose rod 48, is hollow, to permit air to escape and extends upwardly through an aperture 49, formed in a supporting plate 50. A suitable float valve might be arranged in the tubes 48 to prevent liquid from entering the same, but this has been found unnecessary as the tubes have an extremely small aperture and the amount of liquid therein is almost negligible. This supporting plate is carried upon a depending rod 51, which is passed through a bushed opening 52, formed in the yoke member 53, which extends over the top of the tank. The upper end of the rod 51 is threaded to receive the hand wheel 54, so that the plate 50 may be adjusted up and down in the yoke member as is desired, and thereby operate the pistons to determine the quantity of the charge admitted to the cylinders.

Slidably mounted upon the standards 3 and 4 below the valve plate 30 is the bottle supporting table 55, constructed in a similar manner to the tank and to the valve plate, in that it has a pair of arms 56, extending outwardly from the body of the table and provided with bushed standard receiving sockets or apertures 57, through which the standards pass. Outside of these sockets the arms are provided with pin receiving lugs 58, which receive the pins 59, of the connecting links 60. These links 60 are connected to the crank arm 8 by a pivotal pin 61, and at its opposite end to the pin 59. In order to make the device adjustable so as to raise the bottle supporting plate different distances I provide a plurality of apertures 62, in the link so that the adjustment may be attached. Alining with the apertures 43 in the plate 30 are a pair of bushed openings 63, formed in the plate 55 so as to permit the rods 44 to work up and down therein for a predetermined distance. This movement of the plate allows the bottles to become centered in the funnels 39

and to push them off their seats so that the port 37 is opened before the valve plate is moved.

Secured upon the rods 44 above and below the table 55 are a pair of adjustable collars 64 and 65, the former of which limits the downward movement of the table 55, and the latter of which being engaged by the table raises the rods 44 and consequently the plate 30, and all of the valve tubes 25 so that the inlet port 26 is closed from the tank into the piston cylinders, and the outlet port 28 is opened to the piston chambers. The liquid flows out through the opening into the bottles. When the valve tubes are again lowered and the ports 26 and 27 are co-incident the liquid again flows into the cylinders until they are filled up to the pistons, the air going out through the aperture therein shown in Fig. 11. The valve tubes are forced down to their seats by reason of the table platform engaging one of the collars which surrounds the operating rod 44.

The bottle plate is provided with a plurality of apertures 66, which are adapted to reduce the weight, and the edge of the table is slightly upturned so as to prevent the possible slipping of the bottle crate (not shown).

Secured to the shaft 6 intermediate the standard is a lever 68, having a plurality of apertures 69, in one of which is secured the hook of the inertia weight 70, which assists in overcoming the inertia of the bottle table and the bottles thereon.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation 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 this invention as defined in the appended claims.

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

1. In a bottle filling machine, the combination with a supply tank, of a plurality of valve feeding tubes depending therefrom and connected therewith, means connecting all of said valve tubes, means for supporting a plurality of bottles, means for elevating said bottle supporting means, and means controlled in the movement thereof for raising said valve tube connecting means and putting the valves in feeding position.

2. In a bottle filling machine, the combination with a supply tank, of a plurality of valve tubes depending therefrom and connected therewith, a valve plate connecting all of said valve tubes, means for supporting a plurality of bottles, means for elevating said

bottle supporting means, and rods carried by said valve connecting plate adapted to be operated after a predetermined elevation of the bottle supporting means whereby the valves
5 are placed in feeding position.

3. In a bottle filling machine, the combination with a supply tank, of a plurality of valve feeding tubes depending therefrom and connected therewith, a plate connecting
10 all of said valve tubes, a pair of rods rigidly depending therefrom, a bottle supporting table, collars on said rods for causing the downward movement of said plate, means for raising said table, and auxiliary collars
15 adapted to be engaged by said table to raise the valve supporting plate and put the valves in feeding position.

4. In a bottle filling machine, the combination with a supply tank, of a plurality of
20 feeding tubes connected thereto, apertured discharge extensions connected to said tubes, bottle guiding means carried by the discharge extensions for closing the apertures in the extension, and means for elevating the
25 bottles to be filled thereby operating the guiding means to uncover the feeding aperture in the discharge extensions.

5. In a bottle filling machine, the combination with a supply tank, of a plurality of
30 reciprocally mounted valve tubes depending therefrom, apertured discharge extensions rigidly connected to said tubes, bottle guiding funnels loosely mounted upon the ends of the discharge extensions for closing the
35 apertures in the extensions, and means to elevate the bottles to be filled and through the bottles operate said funnels to raise them from the feeding apertures in the discharge extensions.

6. In a bottle filling machine, the combination with a supply tank, of a plurality of
40 measuring cylinders mounted therein, pistons in said cylinders, means for adjusting said pistons to determine the charge admitted to the cylinders, an apertured bottle
45 feeding tube adapted to reciprocate within each of said cylinders, means to operate said feeding tube to close the inlet port to said cylinders from the supply tank and to open
50 the aperture therein for discharging the liquid, and means to close the discharge end of the tube until engaged by the bottle to be filled.

7. In a bottle filling machine, the combination with a supply tank, of a plurality of
55 measuring cylinders mounted therein, each cylinder being provided with an inlet port, pistons in said cylinders, a yoke carried by the top of said measuring tank, a hand operated device carried by said yoke, a plate
60 attached to all of the pistons, means connected to the plate and to the hand operated device for raising and lowering said pistons, and apertured bottle feeding tube for each
65 of said cylinders, means to raise said tube within the cylinders whereby the inlet port may be closed and its feeding aperture opened, and means to close the discharge end
70 of said tubes until engaged by the bottles to be filled.

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

JOSEPH NADER.

Witnesses:

WM. H. HARDY, Jr.,
HENRY F. STICK.