

P. STAUCH.
MOTOR.

APPLICATION FILED JUNE 6, 1907.

912,914.

Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

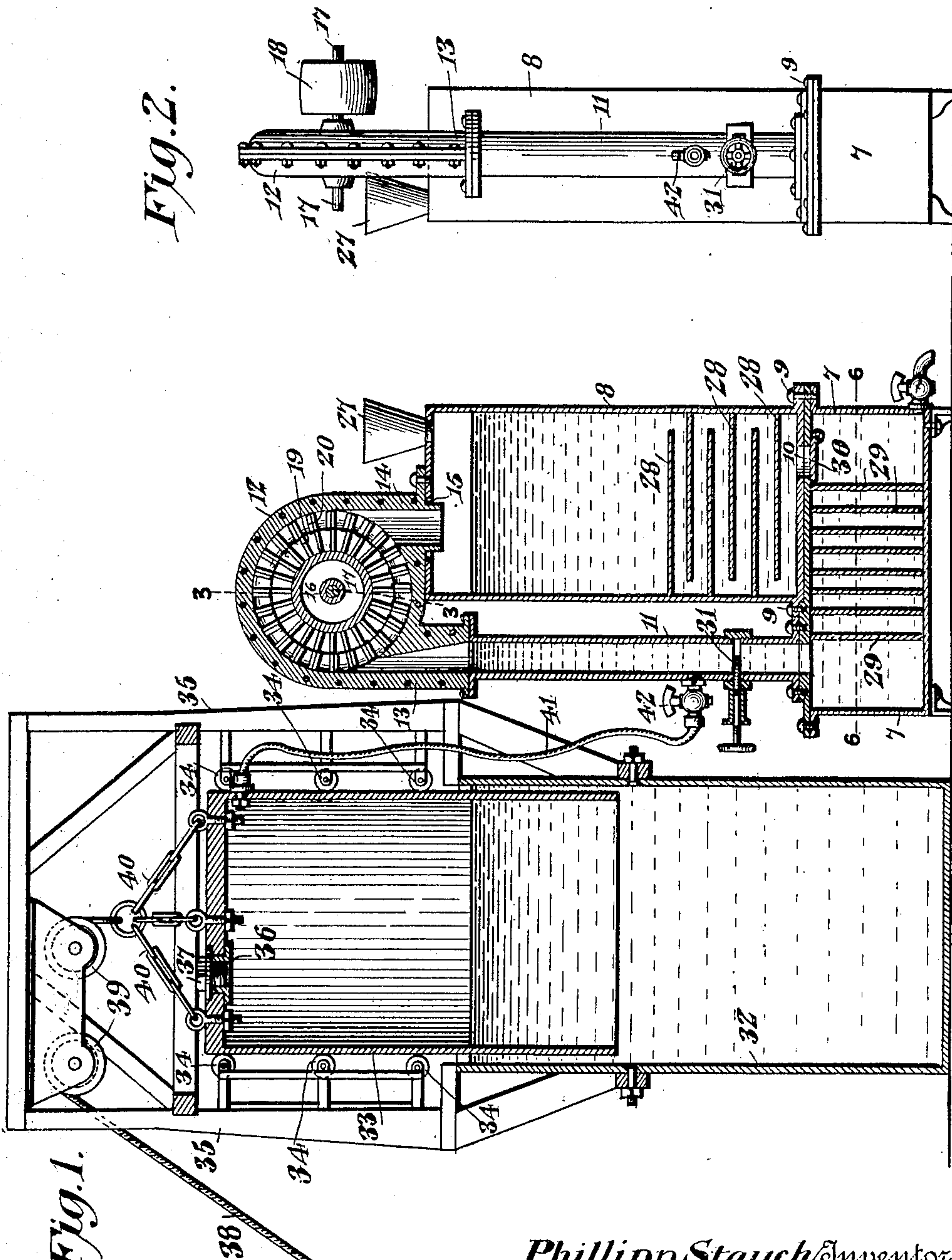


Fig. 1.
Witnesses
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2 SHEETS—SHEET 2.

Fig. 5.

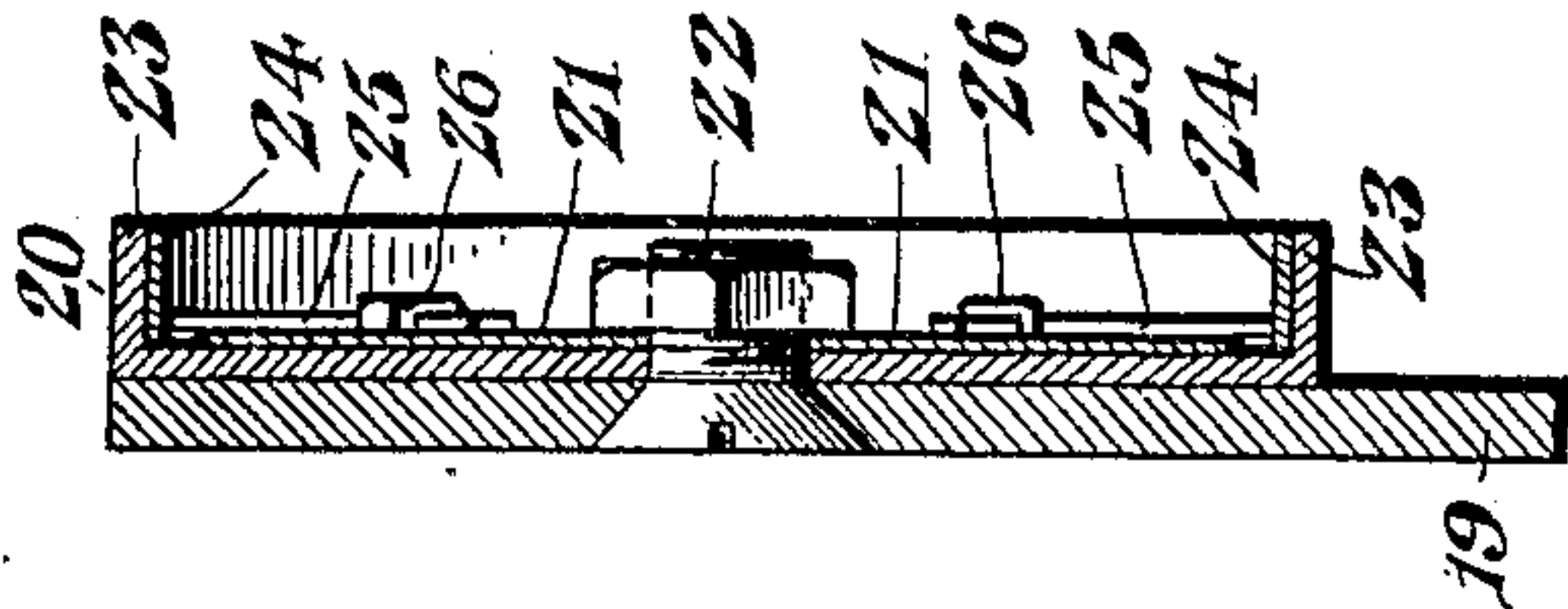


Fig. 4.

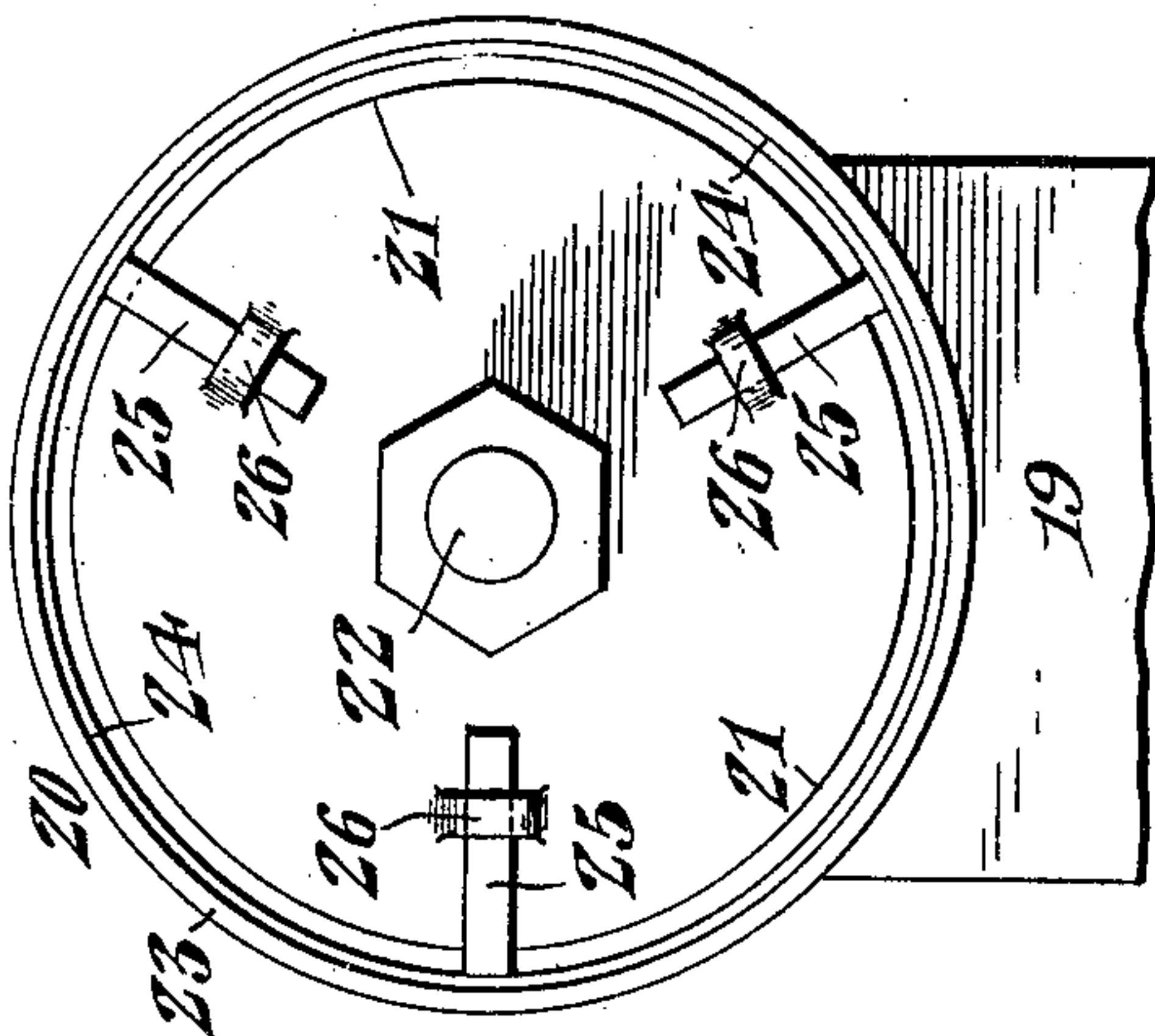


Fig. 6.

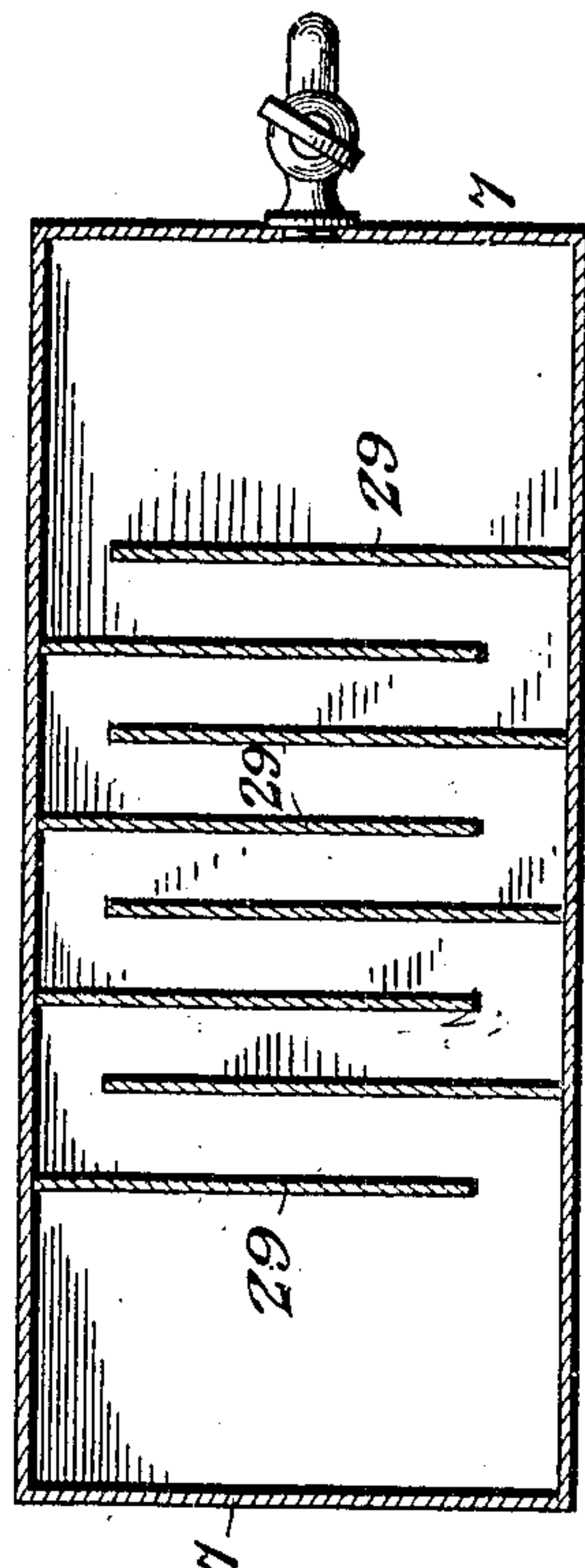
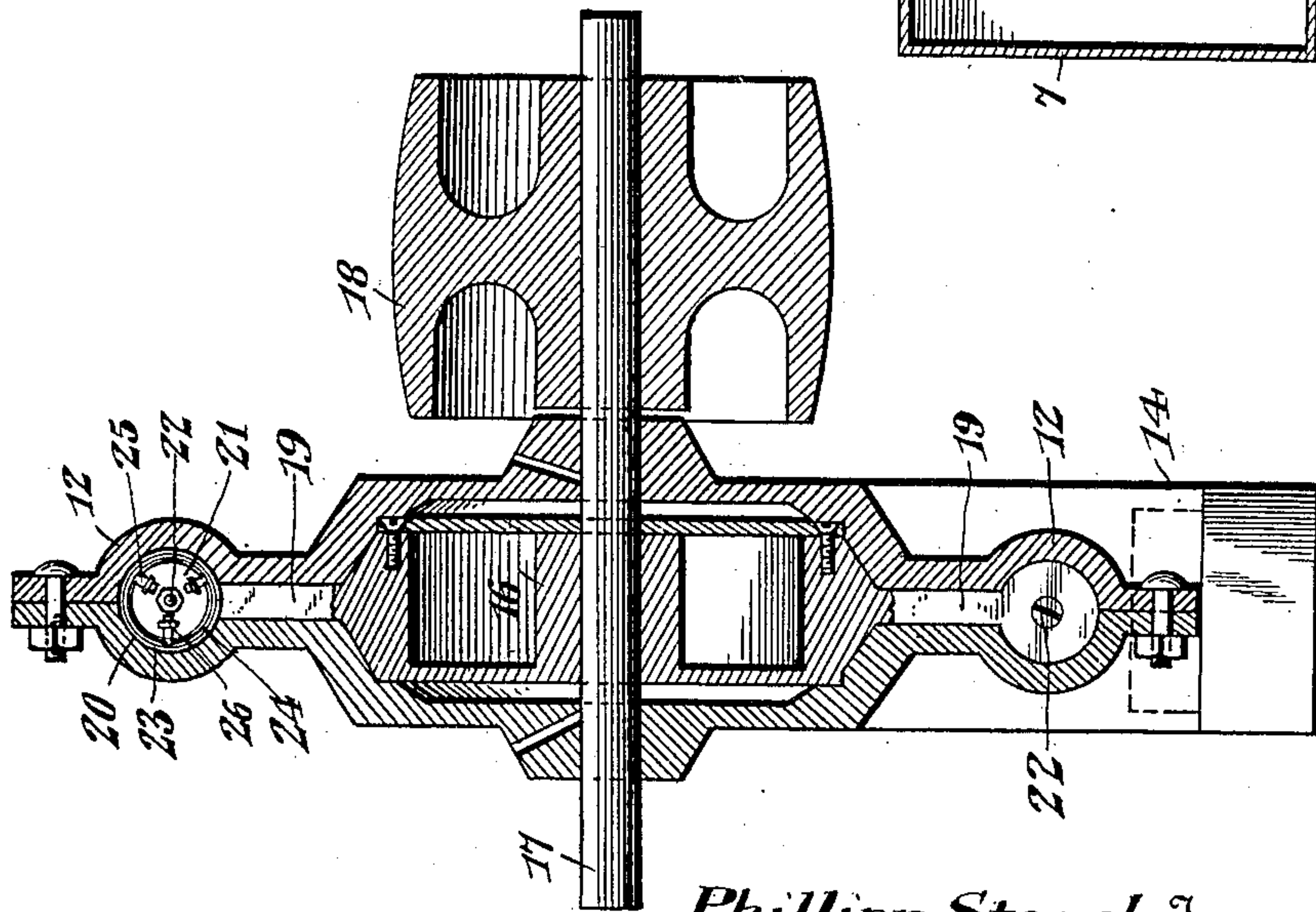


Fig. 3.



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UNITED STATES PATENT OFFICE.

PHILLIPP STAUCH, OF CHICAGO, ILLINOIS.

MOTOR.

No. 912,914.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed June 6, 1907. Serial No. 377,661.

To all whom it may concern:

Be it known that I, PHILLIPP STAUCH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Motor, of which the following is a specification.

This invention relates to motors operated by motive fluid under pressure or by motive fluid and hydraulic power combined.

The principal object is to provide a novel, simple and effective apparatus, which can be readily installed, is capable of having a comparatively great amount of power stored therein, is economical to operate, and can be readily regulated and controlled.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a vertical sectional view through the motor. Fig. 2 is an end elevation of a portion of the same. Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 1. Fig. 4 is a detail view on an enlarged scale of one of the piston blades. Fig. 5 is a vertical sectional view therethrough. Fig. 6 is a horizontal sectional view on the line 6—6 of Fig. 1.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment disclosed, a liquid holding reservoir is employed comprising a horizontal section 7 on which is supported a vertical section 8, these sections being bolted or otherwise secured together, as shown at 9. The bottom of the section 8 rests directly on the top of the section 7, and a port 10, formed therethrough, constitutes the means of communication between the sections. The horizontal section 7 projects beyond one side of the vertical section 8, and has secured thereto, a vertical stand pipe 11 that is disposed alongside the vertical section 8.

A motor casing 12 is located over the reservoir, and an upstanding nozzle 13 forming a part of the same, has its lower end secured to the upper end of the stand pipe 11, while a depending exhaust or discharge 14 communicates with the top of the vertical section 8 of the reservoir, said depending exhaust extending through an opening 15 in the top of the vertical section 8, and being of less diameter than said opening so as to provide a vent in the reservoir. A rotary

piston member 16 is journaled in the casing 12, and is preferably mounted on a suitable driving shaft 17, from which power may be transmitted by any suitable means, as for instance, a pulley 18. The piston member is provided with a plurality of radial arms 19 carrying blades in the form of cups which are shown in detail in Figs. 4 and 5, and are designated 20. These cups are located directly against the arms, and are preferably of flexible material, such as leather or the like. Their shape is retained by metallic disks 21 held in place by the bolts 22 which secure the blades to the arms. The annular flanges or rims 23 of said cups or blades are reinforced by metallic flanges 24 located inside the same and having inwardly extending fingers 25 that are engaged in keepers 26 formed in the disks 21.

A suitable supply funnel 27 is mounted on the top of the vertical section 8 of the reservoir, and this section is furthermore provided in its lower portion with spaced horizontal overlapping baffle plates 28. Vertical overlapping baffle plates 29 are located in the horizontal section 7. The port 10 between the two sections is preferably controlled by a downwardly opening check valve 30. This valve, however, is not essential, and may be dispensed with. Another valve 31 preferably in the form of a gate is located in the stand pipe 11.

Associated with the above described mechanism is motive fluid supplying means. In the present embodiment, this means consists of a liquid containing tank 32, within which operates a vertically movable air bell 33 having its lower portion submerged in the liquid in the tank 32. The bell is suitably guided in its vertical movement by rollers 34 journaled in a frame 35. A vent 36 is formed in the top of the bell, and is closed by a suitable removable plug 37. Any suitable means may be employed for raising the bell. In the present embodiment, a cable 38 is shown as passing over pulleys or sheaves 39 and is connected by chains 40 with the top of the bell. A flexible supply conduit 41 communicates with the upper portion of the bell and is connected to the said pipe 11 above the gate valve 31. A controlling valve 42 is located in this pipe.

In the operation of the apparatus, if the motor is to be actuated by combined air and water or liquid, the liquid is supplied to the reservoir 7—8 by being poured through the

funnel 27. The valve 31 is opened. The air bell 33, which is preferably of considerable weight, is elevated, and is then released so that it can gravitate. If now the valve 42 is opened, air under pressure from the bell will enter the stand pipe 11, and rising there-through will inject the water into the motor casing 12 and against the blades. It will be understood that the bore of the nozzle may be of any suitable diameter but preferably the blades are of substantially the diameter of its discharge end. The water and air thus projected against the blades will effect the rotation of the piston member, and the exhaust will take place through the discharge 14. The water or liquid will gravitate into the tank, while the air will find a free escape through the port 15. The baffle plates 28 and 29 serve to eliminate back pressure while permitting the necessary circulation of the liquid, this back pressure moreover being further prohibited by the check valve 30, if one is employed. The apparatus is capable of operation, however, without using the liquid, in which case, the valve 31 is closed. Consequently as soon as the liquid in the stand pipe 11 above said pipe has been expelled therefrom, it will be evident that the piston member will be rotated solely by the impact of air thereagainst.

It will be evident that any number of air bells may be employed as desired, and furthermore it will be evident that the particular shape of these bells is not important, and they may be round, as shown, or angular.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art, without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In a motor of the character described, the combination with a liquid holding reservoir, of a motor casing having an inlet and an outlet connected to different portions of the reservoir, a rotary piston located in the casing, means for projecting the liquid in the reservoir through the inlet and against the piston, and baffle plates located in the reservoir between the inlet and outlet to provide a tortuous passageway therethrough for the liquid and prevent back pressure of the same in the outlet of the motor casing.

2. In a motor of the character set forth, the combination with a liquid holding reser-

voir, of a motor casing having an inlet and an outlet connected to different portions of the reservoir, a rotary piston operating in the casing, means for projecting the liquid in the reservoir through the inlet and against the piston, and sets of vertical and horizontal baffle plates located in the reservoir between the inlet and outlet to provide a tortuous passageway therethrough for the liquid.

3. In a motor of the character set forth, the combination with a liquid holding reservoir, of a motor casing having a lower inlet and an outlet connected to different portions of the reservoir, a piston operating in the casing, means for projecting the liquid in the reservoir through the inlet and against the piston, sets of angularly disposed baffle plates located in the reservoir between the inlet and outlet, said reservoir having a passageway between the sets, and an automatic valve controlling the passageway.

4. In a motor of the character described, the combination with a reservoir comprising a vertical section and a horizontal section located below the vertical section and in communication therewith, horizontal overlapping baffle plates located in the vertical section of the reservoir, vertical baffle plates located in the horizontal section of the reservoir, a motor casing, a nozzle connected to the motor casing, a discharge from said motor casing communicating with the upper end of the vertical section of the reservoir, a stand pipe connected to the horizontal section of the reservoir and to the nozzle, and means for introducing motive fluid under pressure into the pipe.

5. In a motor of the character described, the combination with a liquid holding reservoir comprising a vertical section and a horizontal section supporting said vertical section, baffle plates located in both sections, a stand pipe connected at its lower end to the horizontal section and disposed alongside the vertical section, a motor casing having an inlet nozzle and a discharge, the latter communicating with the upper end of the vertical section, a vertically movable motive fluid holding bell, means for raising the same, a pipe connecting the bell and the stand pipe, means for controlling the passage of motive fluid through the connecting pipe, a valve located in the stand pipe between the motive fluid pipe and the horizontal section, and a rotary motor journaled in the motor casing.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PHILLIPP STAUCH.

Witnesses:

FRED E. GATTERDAM,
WM. EULBERG.