

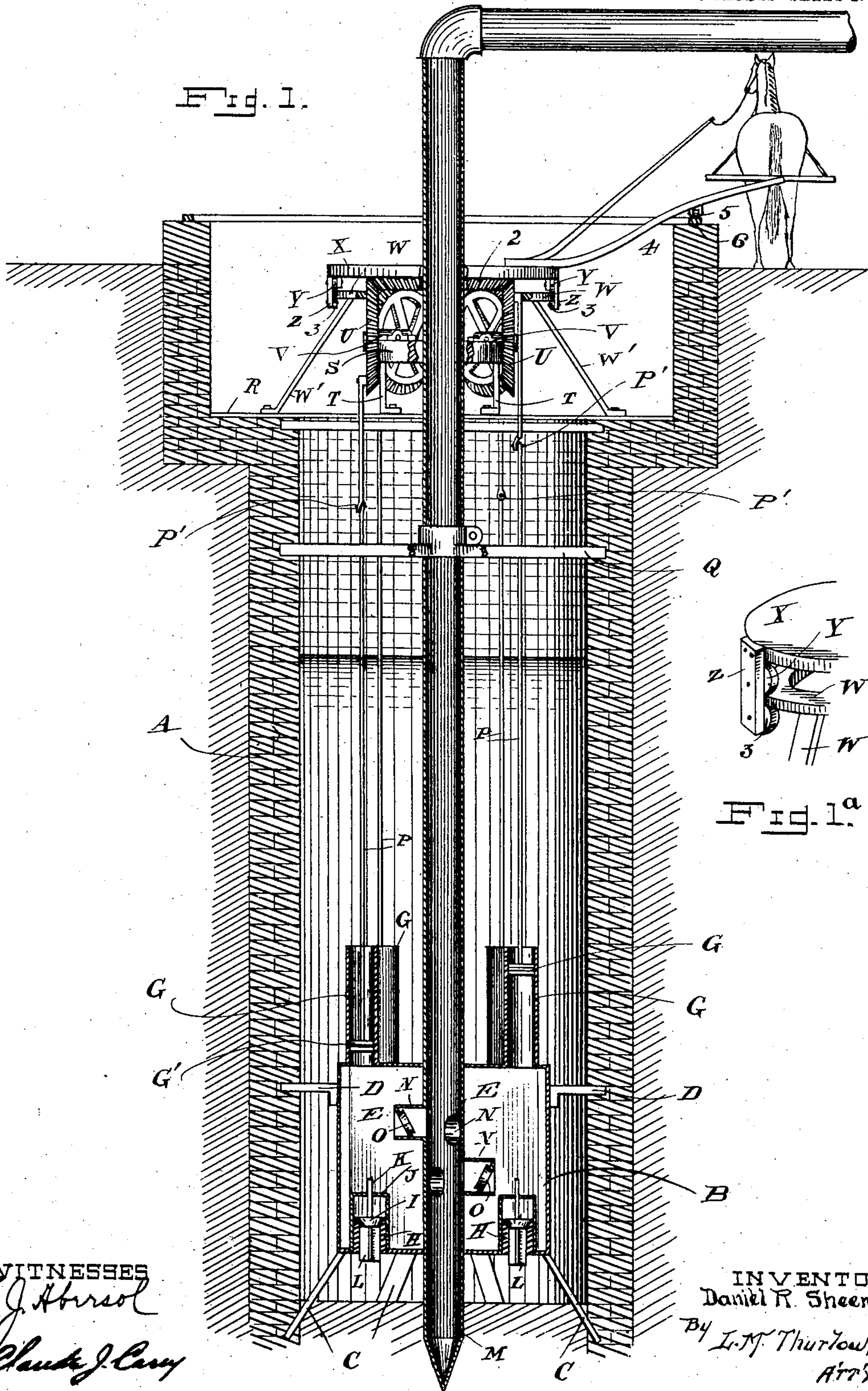
No. 771,839.

PATENTED OCT. 11, 1904.

D. R. SHEEN.
PUMPING APPARATUS.
APPLICATION FILED AUG. 4, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

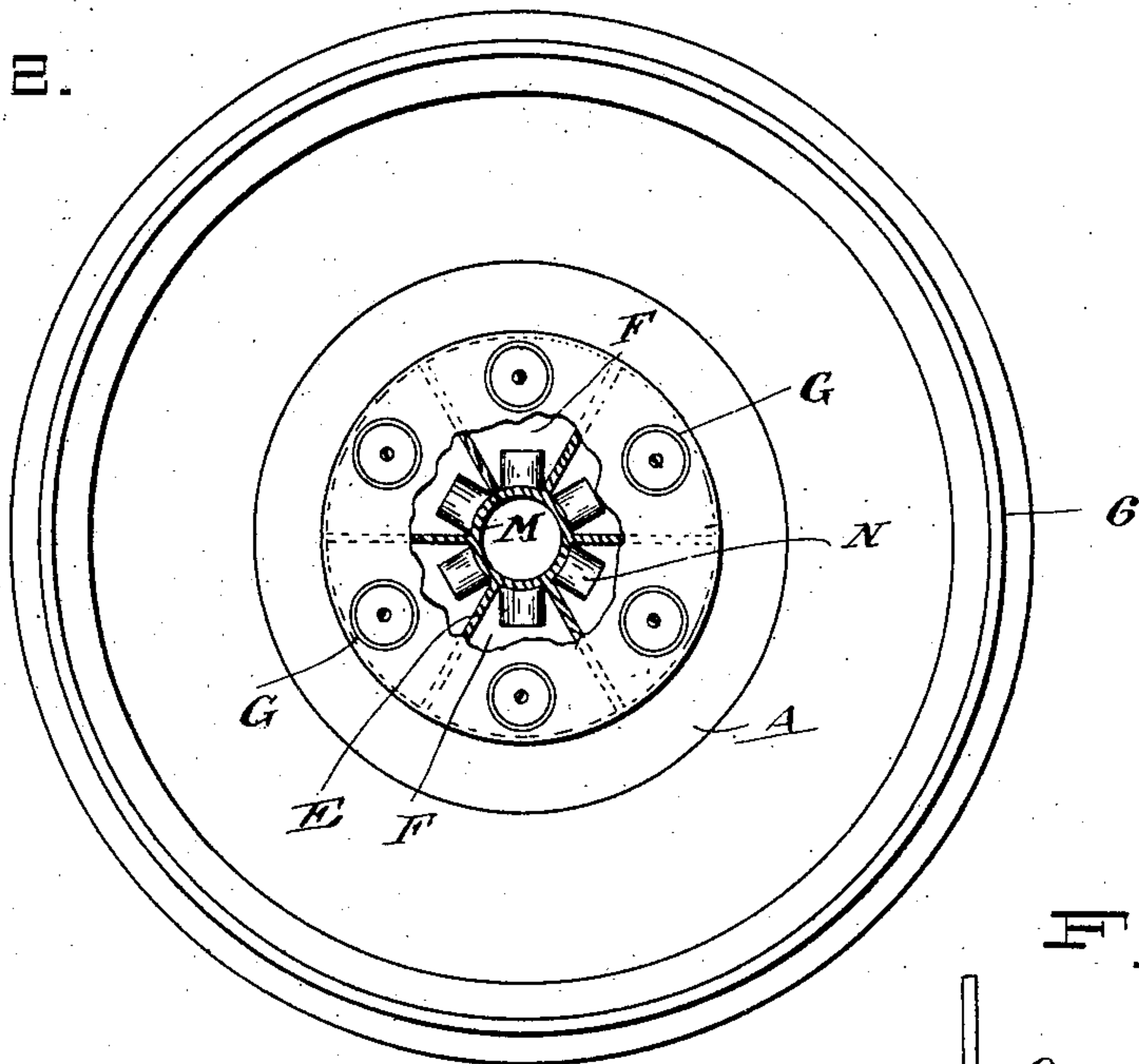


Fig. 3.

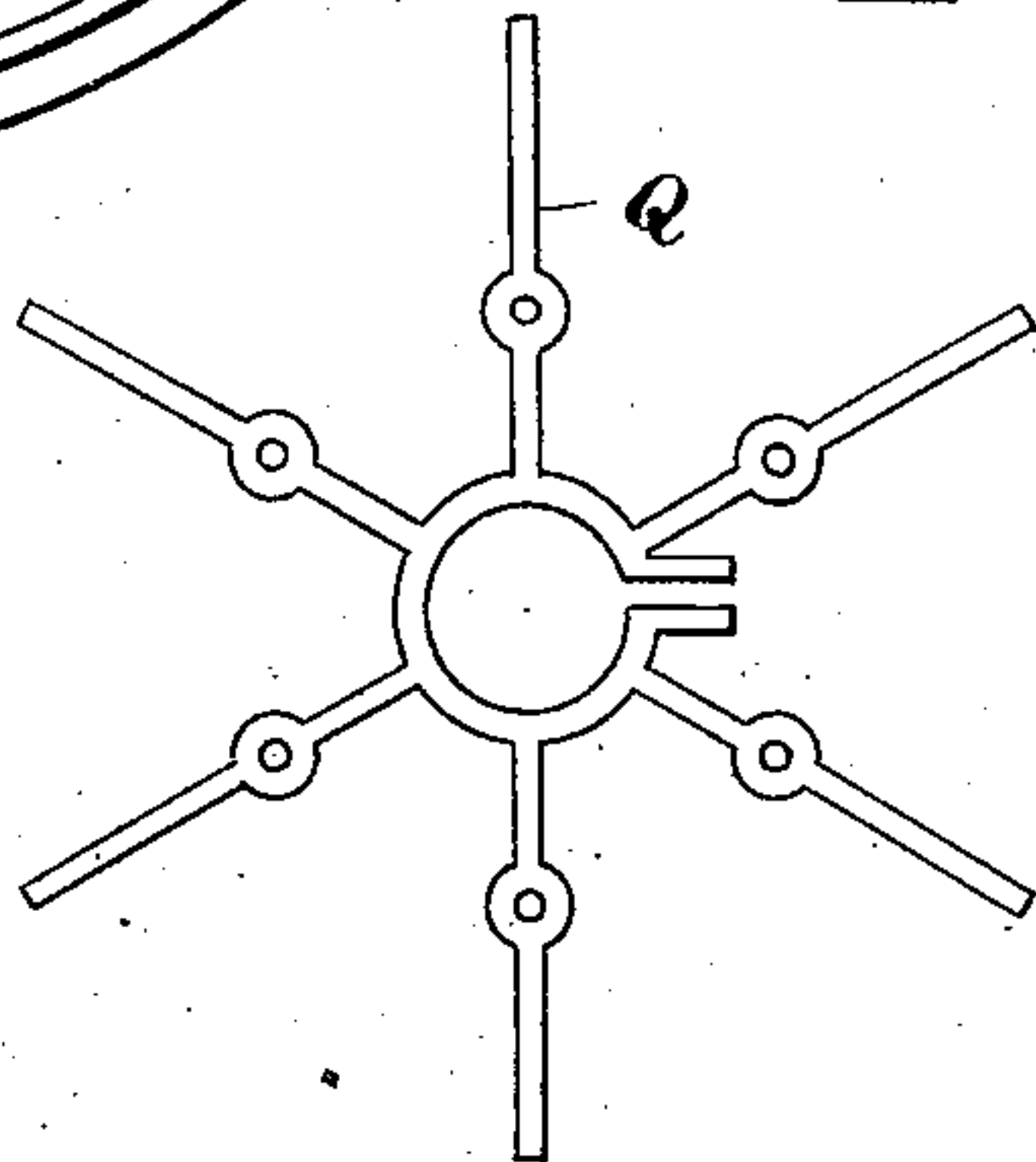


Fig. 4.

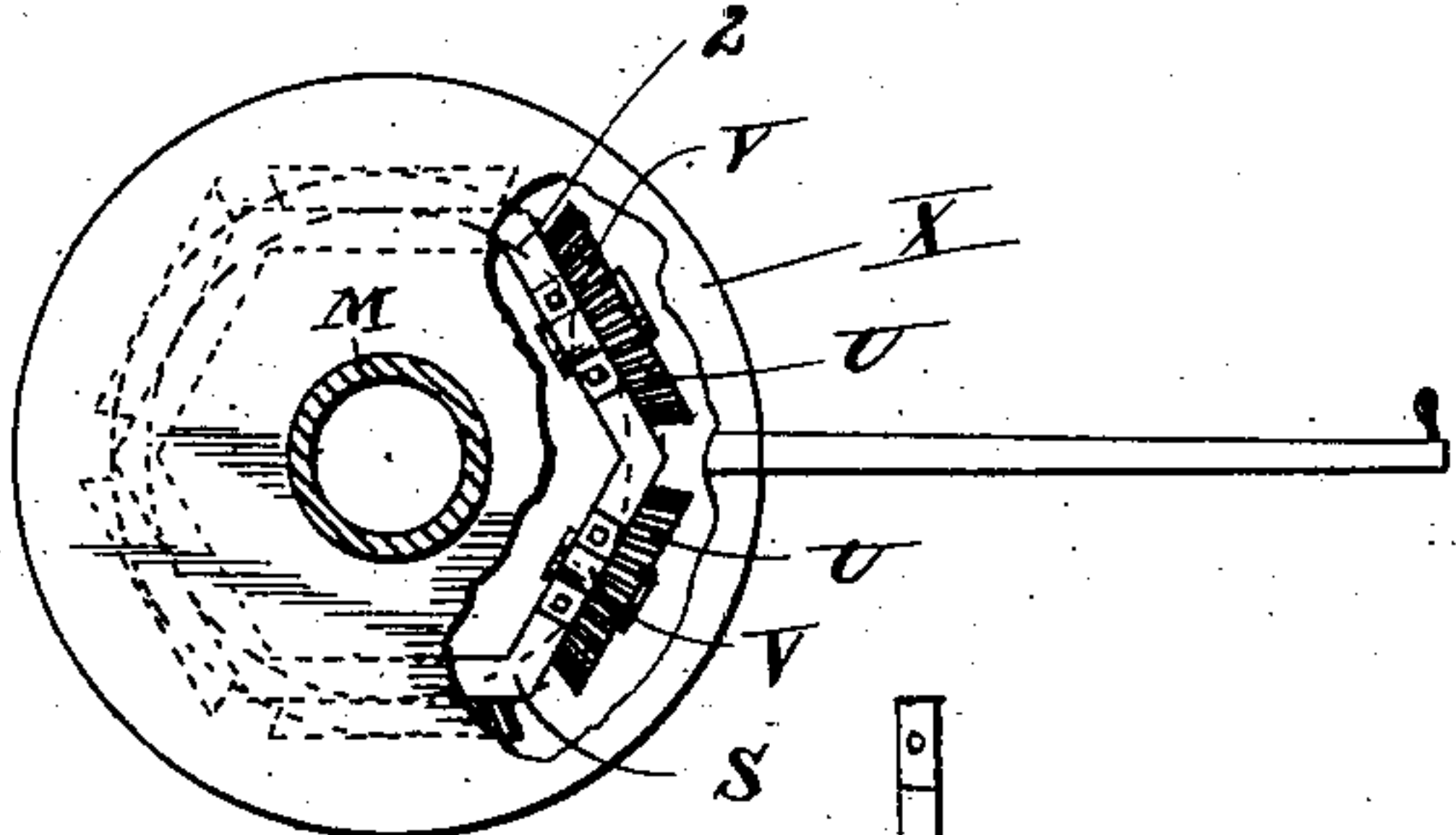
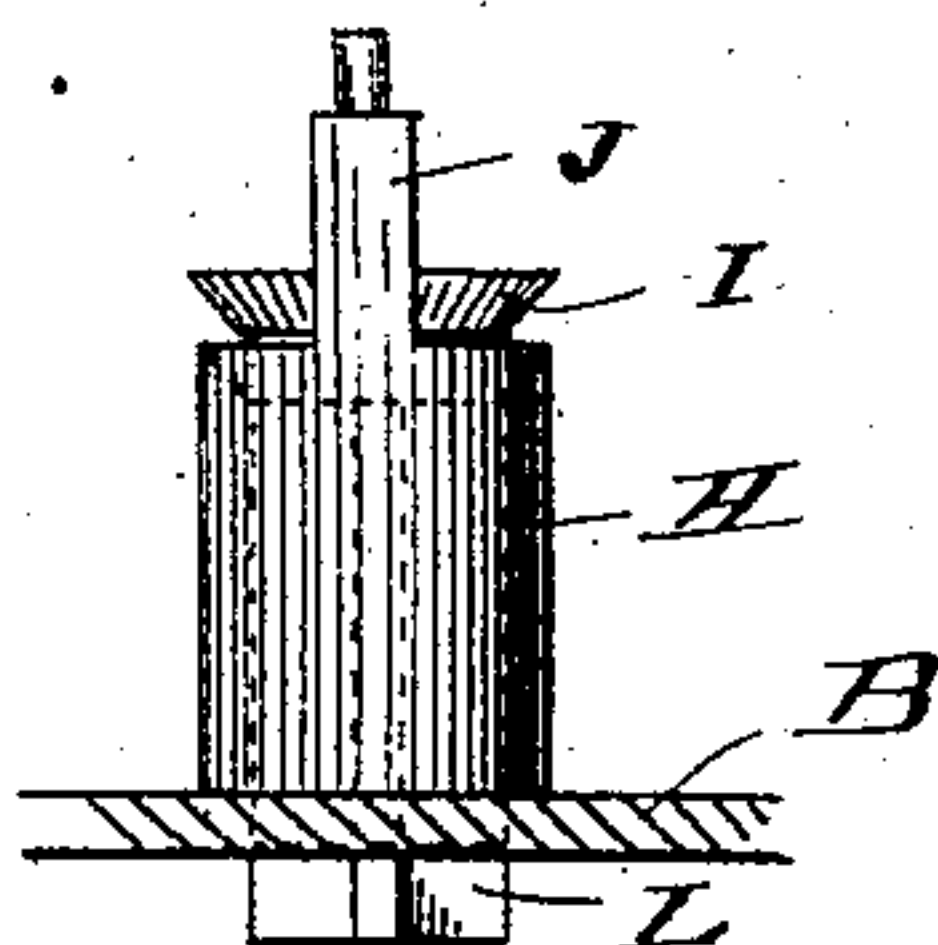


Fig. 5.



WITNESSES

E. J. H. H. H.
Claude J. H. H.

Fig. 6.

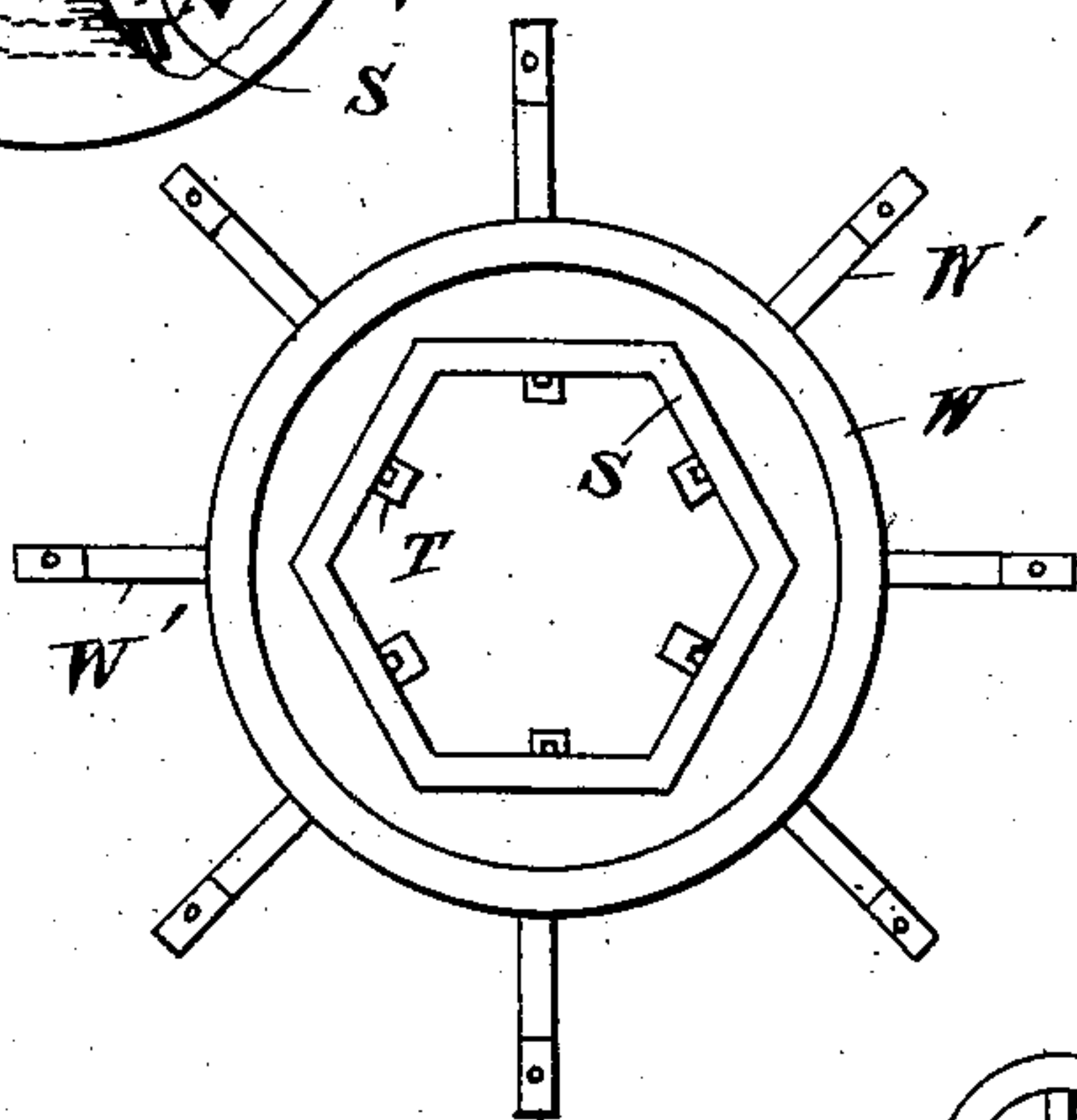
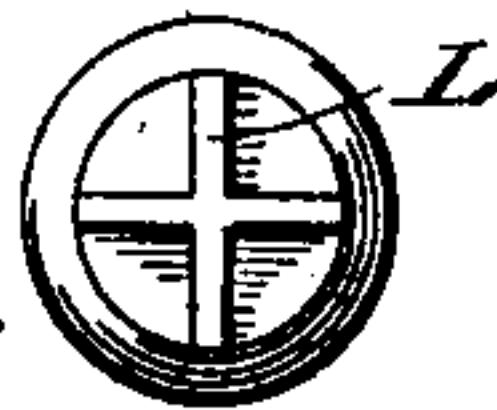


Fig. 7.



INVENTOR
Daniel R. Sheen.
By I. M. Thurlow,
ATTY.

UNITED STATES PATENT OFFICE.

DANIEL R. SHEEN, OF PEORIA, ILLINOIS.

PUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 771,839, dated October 11, 1904.

Application filed August 4, 1902. Serial No. 118,315. (No model.)

To all whom it may concern:

Be it known that I, DANIEL R. SHEEN, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Pumping Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention pertains to a pump for irrigating and other kindred purposes.

The object of the invention is to provide a pump of peculiar form for elevating a large and continuous stream of water from wells of any depth.

A further object is to provide a pump of large capacity for use in irrigating arid lands which can be operated by horse-power.

A still further and important object of my present invention is to produce a pump of large capacity which will throw a continuous stream of water under pressure for use in case of fire.

In the country, where no fire protection is afforded, as in the city, and in countries where the land is almost useless by reason of lack of water an arrangement such as I describe is of great value.

In the accompanying drawings, Figure 1 is a sectional elevation of my improved pumping apparatus shown in connection with a well. Fig. 1^a is a perspective view of a portion of the arrangement shown in Fig. 1. Fig. 2 is a plan view of the apparatus with the operating device removed, the top of the reservoir being broken away. Fig. 3 is a plan view of a spider for use in guiding piston-rods. Fig. 4 is a plan view of a master-wheel with a portion broken away to show construction beneath. Fig. 5 is a plan view of a track and support for a series of gear-wheels, both of which are removed from the apparatus. Fig. 6 is an elevation of a valve device. Fig. 7 is a bottom view of the valve shown in Fig. 6.

A represents the wall of the well. B is a reservoir of cylindrical form closed at both ends, as shown. Said reservoir is provided with suitable legs C or other means of sup-

port at the bottom, which are anchored in the walls of the well in any good manner, while braces D near the top further act to keep the device firmly in place.

As shown in Fig. 2, I provide a series of vertical partitions E for the reservoir, which divide it into chambers F, as shown, each being separate from its neighbors. A cylinder G is mounted upon each chamber thus formed and opens thereinto, as shown in Fig. 1, while in the bottom of each of said chambers is a valve consisting of the cylindrical seat H, opening through the bottom of the reservoir. The seat is conical in form and receives the valve I of the same conical form. A yoke J on the portion H serves as a guide for the stem K of the valve I, as will be understood, and a winged guide L beneath said valve moves within the cylindrical seat and also acts as a guide for the valve. Within the reservoir at the center is a pipe or tube M, which may be driven into the sand at the bottom of the well, its top arising above the surface of the ground for communicating with a reservoir or other device to be supplied with water. Since said tube descends through the center of the reservoir, it follows that it will cut into the several compartments F formed by the partitions E. Now a short pipe N opens from said center tube M into each of the compartments, and each contains a gravity-valve O, opening inward toward said central tube and closing when moving outward on its pivot. The pipe or tube M may be formed with the reservoir B or be separate therefrom and provided with the needed packing and the like to make perfect joints at all places, although, of course, the former method is the best. Each of the cylinders G before mentioned is open at the top, and a piston G' is adapted to move therein, the same being carried on a piston-rod P, which arises to near the top of the well, as shown. The upper ends of said rods are guided in the arm of a spider Q, clamped about the pipe M, Fig. 1, a plan view of such spider being shown in Fig. 3.

It will be observed that I enlarge the top of the well structure, and upon the floor of the enlarged portion is laid a floor R, and upon this is erected a frame S, supported by legs

T. Said frame is shown in plan in Fig. 5 and also in Fig. 4. Having shown six cylinders G, the same number of piston-rods are necessary, and in consequence the frame S is constructed with six sides, each of which carries a gear-wheel U by means of bearings V upon the top. A piston-rod P is connected to a wrist-pin on each gear-wheel, said rod being jointed at P', so as to permit the lower portions to rise and fall in a perfectly vertical line, while the upper jointed portion, which forms a pitman, may move with the said wheel. I erect a second frame W above the frame S, and this is in the form of a track, which is supported by legs W', secured to the floor, as shown. Said track supports a master-wheel X by means of rollers Y on depending lugs Z, which are cast with said master-wheel or secured thereto, as shown in Fig. 1^a. This master-wheel consists of a platform which carries on its under side a cogged rim 2, which engages the gears U. The lugs Z, which carry the rollers Y, also have rollers 3 which bear up against the under side of the track W, and the two series of rollers serve to keep the master-wheel in a perfectly horizontal position and always in engagement with the gears. An arm 4 is secured to the master-wheel and extends over the wall of the well and has a roller at 5, which bears upon a track 6 on the top of said wall. To the outer end of such arm is hitched a horse, which when moving in a circle around the well imparts a revoluble movement to the master-wheel and drives the gears, which in turn cause the piston-rods to move up and down and operate the pistons within the cylinders G. The arrangement of the valves within the reservoir B is such that when the said pistons rise the valves I are raised by suction, and the valves in the pipes N are drawn tightly shut by the same action. This operation fills the compartments with water. Then by the downward movement of the pistons the said valves I are forced shut and the valves in the pipes N are opened to admit the water to the central pipe M. It will be seen that a continued movement of the pistons will fill the said central pipe and force the water up to the point of delivery. The positions of the pistons within the cylinders G may be such that as one of such pistons nears its limit of stroke another may begin to operate, so that the pressure is made constant. This adjustment can be made at the master-wheel, where the gears U may be set at the desired position to accomplish the end just described.

Evidently the reservoir B may be of any desired size and the compartments F of any number; but as a matter of course the number of cylinders G and their pistons, as well as the number of gears U for operating them, will correspond.

It is not my intention to confine myself to the exact structure described and shown, as I may modify the device in many ways and still gain the desired results. The main object is to provide a pumping apparatus for deep or shallow well use that will be of value for irrigating purposes, besides putting it to uses of equal importance. In place of using the horse threshing-engines may be readily accommodated, so that the value of such an arrangement is at once realized.

As before stated, the top of the well is enlarged below the surface of the ground, and this forms a chamber in which the operating or driving gear may be located and concealed from view, especially if the said chamber is covered by suitable means, such as a roof. By so constructing and arranging the pumping apparatus the landscape is not marred by a building such as would be required to house the machinery if placed on top of the ground, and, furthermore, the machinery can be placed nearer the reservoir B by this means, and thus the piston-rods do not have to be as long as would otherwise be the case. This reduces the expense of manufacture and maintenance. I am aware that several pumps of this nature exist; but mine is of different structure from any of these and is combined with a chamber below the surface of the ground, and the differences will be pointed out in the accompanying claim.

I claim—

In a pumping apparatus, the well, the enlarged recess at the top, the same being located below the surface of the ground as shown, the reservoir B located in the bottom of the well and therein supported, a pipe M centrally located in the well and said reservoir, the inlet-pipes N from the reservoir into the said pipe M, the valves O in said pipes N adapted to open inward, inlet-valves I in the bottom of the reservoir through which the water is drawn into the reservoir, means for securing the reservoir firmly in place within the well, the cylinders G vertically placed on top of the reservoir and outside thereof, pistons G' within the cylinders, a platform R placed on the floor of the recess and covering the well, the frame S, T and W' located on the platform and surrounding the pipe M, the gear-wheels U journaled on the frame, rods connected to the pistons and the wheels as set forth, the horizontally-positioned wheel 2 meshing with the wheels U and the arm 4 for revolving the said wheel 2 all being arranged as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

DANIEL R. SHEEN.

Witnesses:

FRANK T. MILLER,
L. M. THURLOW.