

No. 635,286.

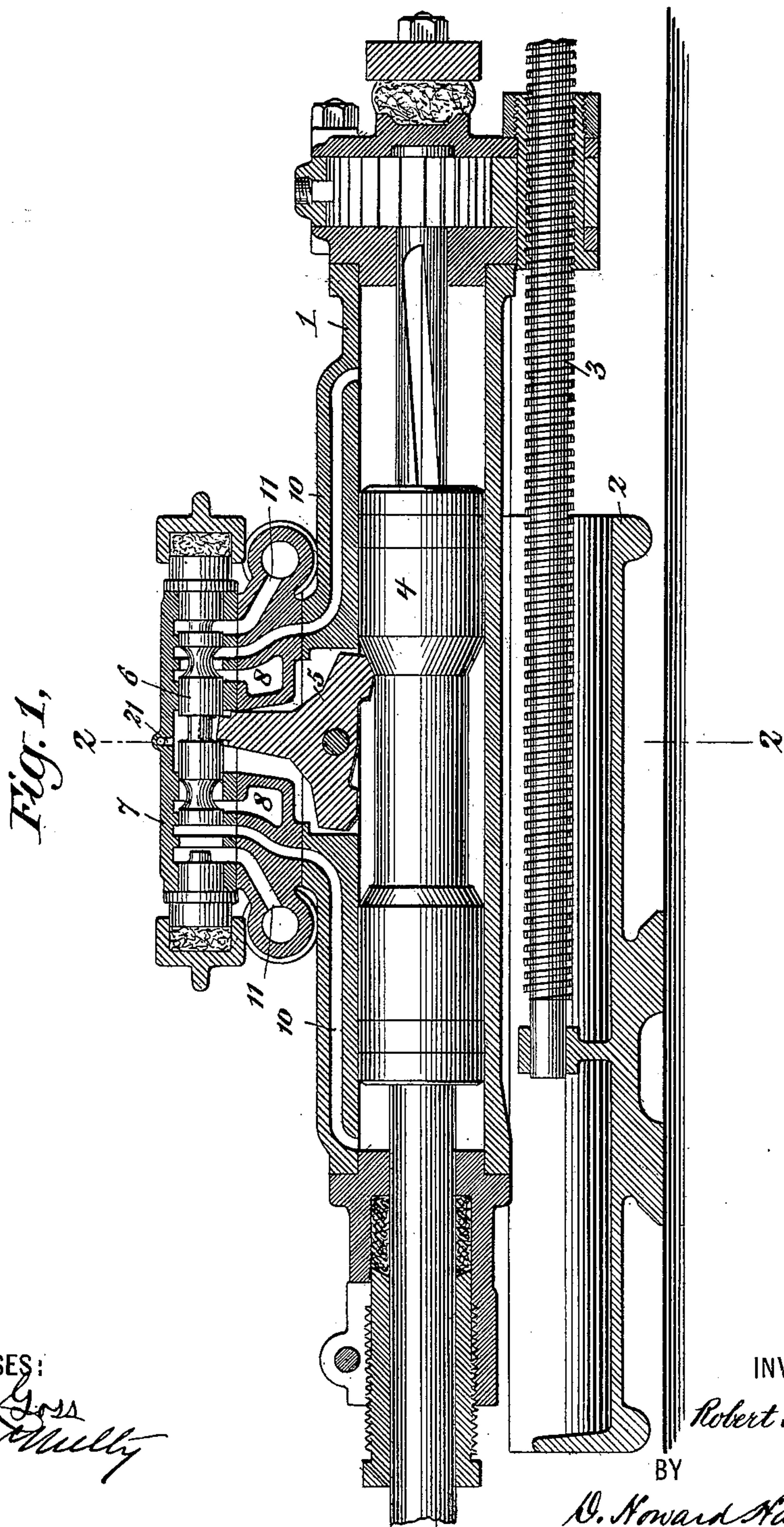
Patented Oct. 24, 1899.

R. L. AMBROSE.
OILING DEVICE FOR ROCK DRILLS.

(Application filed Feb. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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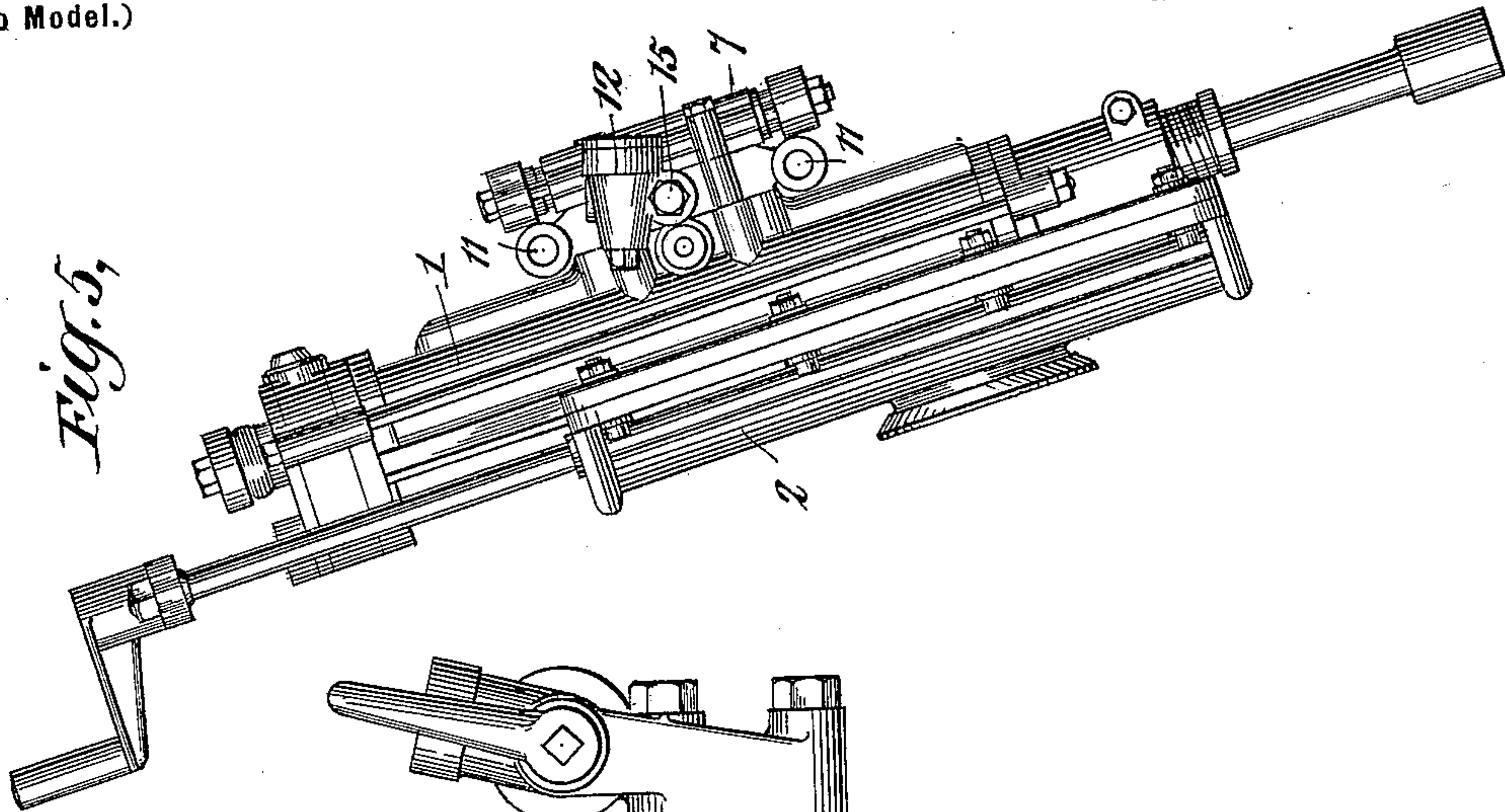


Fig. 3,

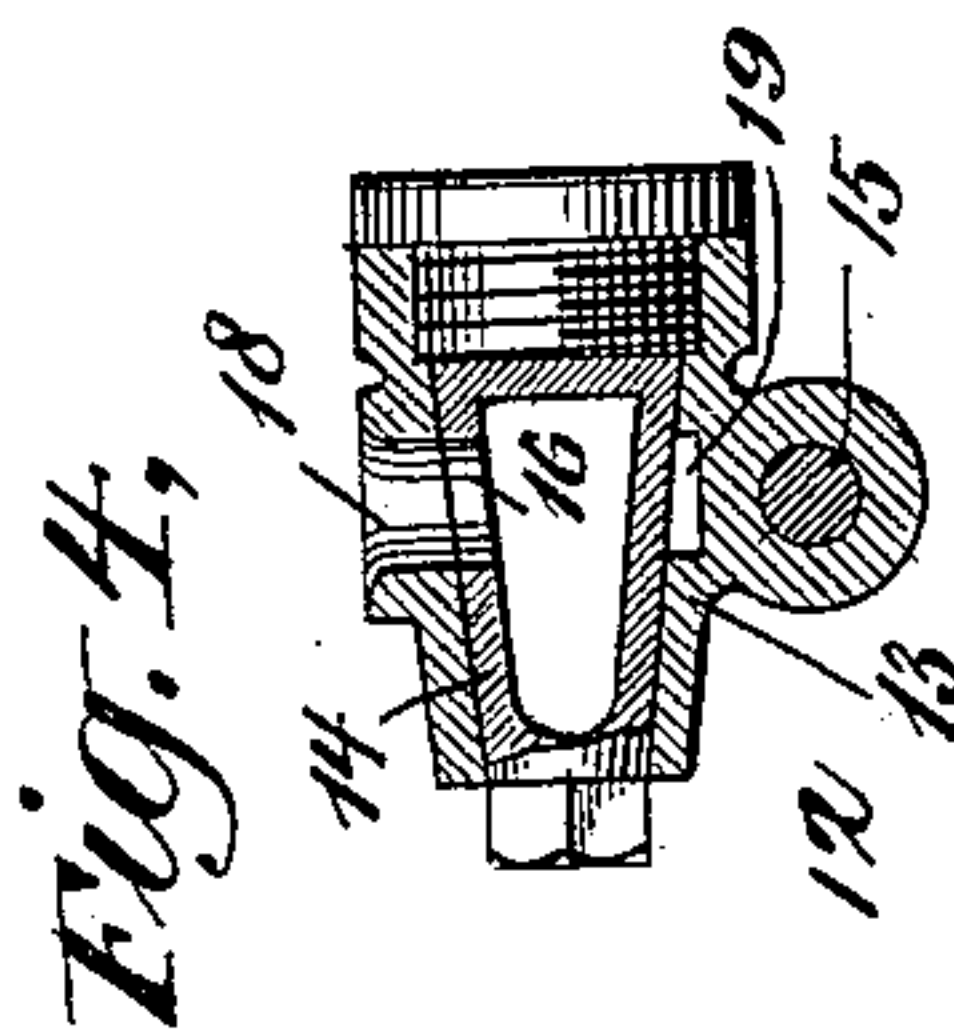
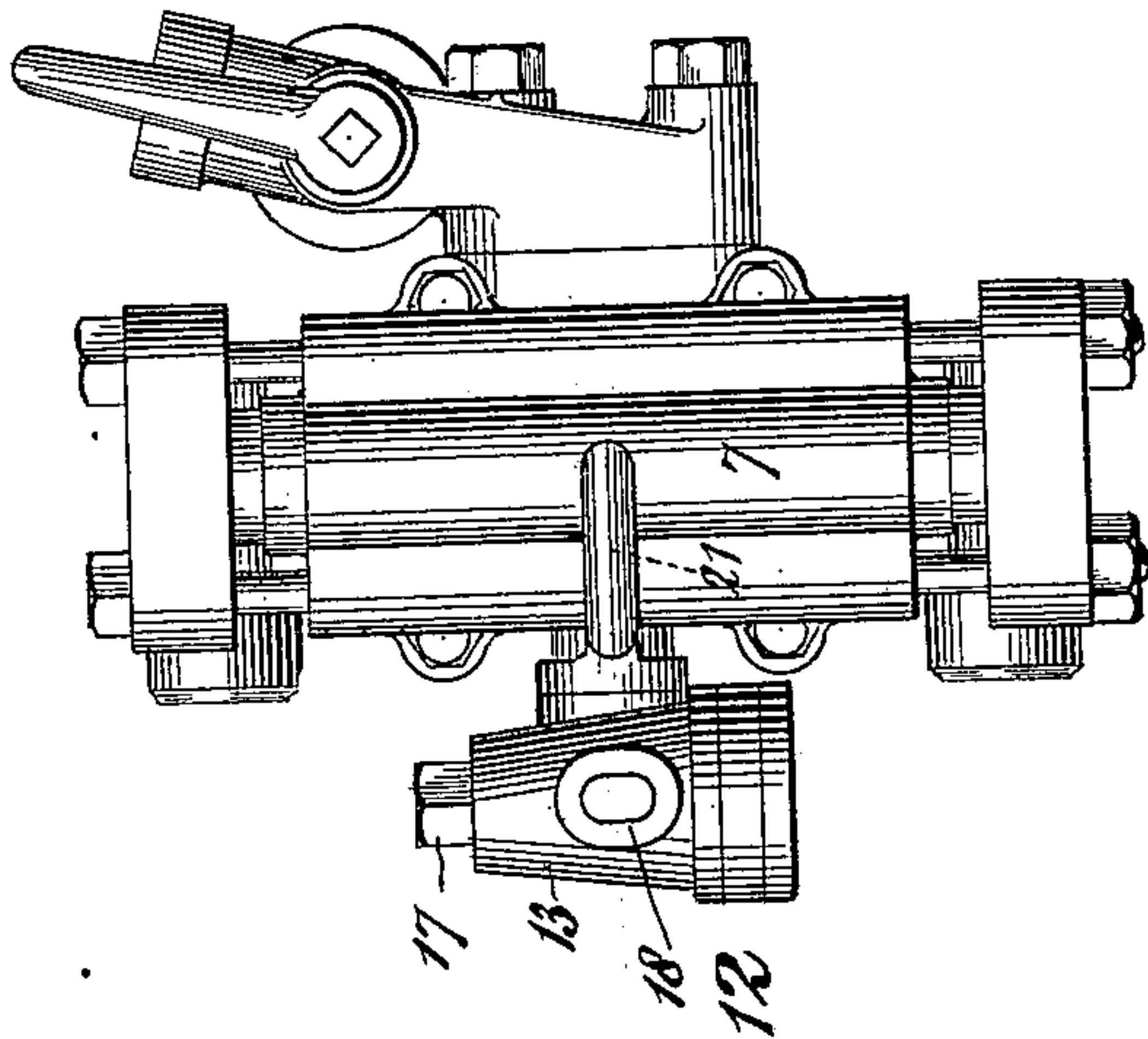
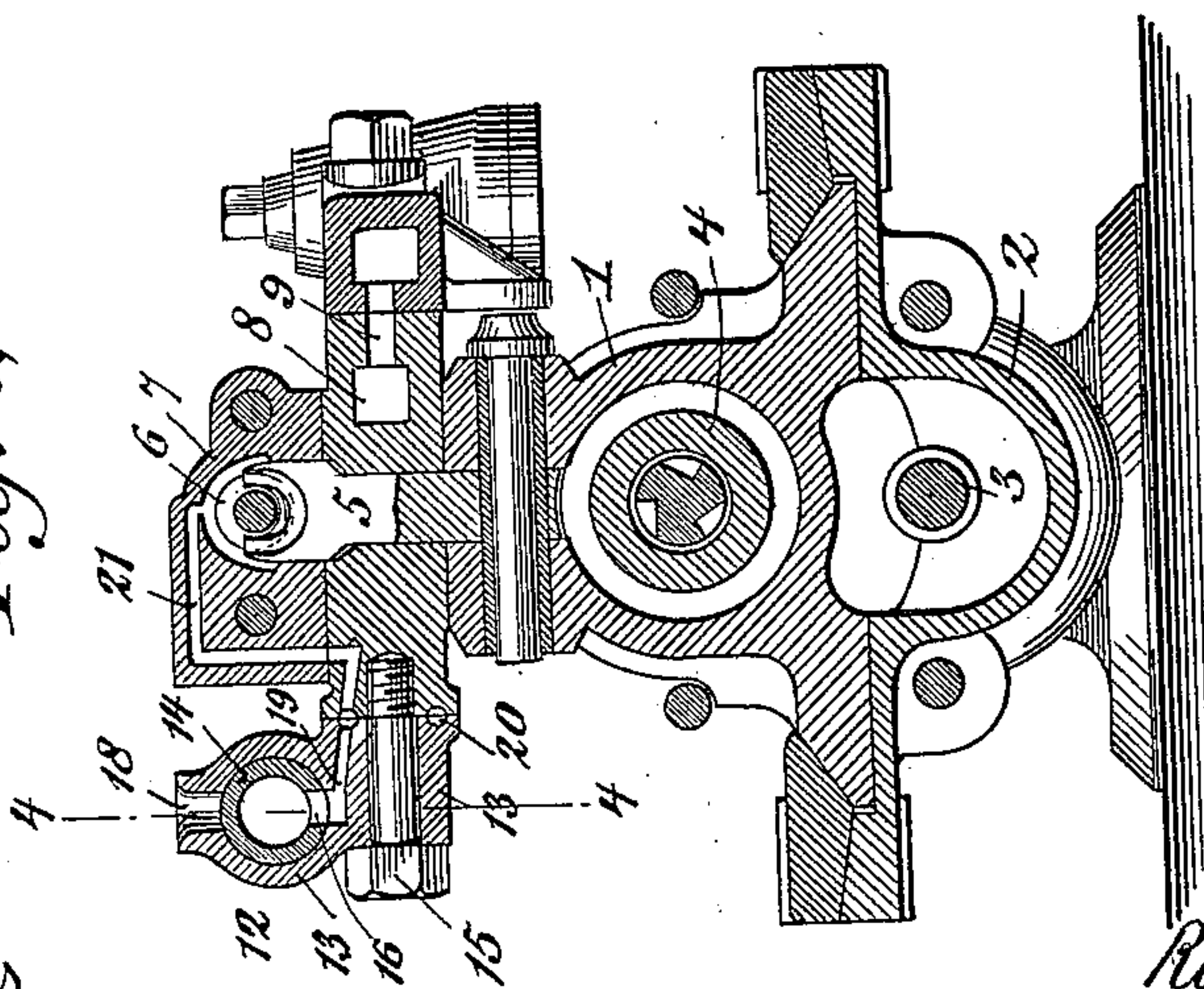


Fig. 2,



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UNITED STATES PATENT OFFICE.

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OILING DEVICE FOR ROCK-DRILLS.

SPECIFICATION forming part of Letters Patent No. 635,286, dated October 24, 1899.

Application filed February 16, 1899. Serial No. 705,619. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. AMBROSE, a citizen of the United States, and a resident of North Tarrytown, county of Westchester, State of New York, have invented certain new and useful Improvements in Oiling Devices for Rock-Drills, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to oiling devices which are adapted to be used in connection with a rock-drill to effectively oil the working parts of same in any position in which the rock-drill may be set.

My invention consists of an oil casing or reservoir which is so mounted upon the drill that it may be adjusted according to the angle at which the drill is set and when so adjusted be in communication with the parts to be lubricated.

My invention further consists in constructing the oiling device so that it may be readily and easily filled without removal and which when filled and adjusted for performing its function will be closed to the atmosphere in order to exclude dust.

My invention also consists of the provision of such oil-channels and the distribution of oil in such a manner that the oil shall pass to all the working parts of the drill—such as the piston, the rocker, and the valve—before same can escape.

The object of my invention is to perfect the oiling means used in connection with rock-drills to cause a complete and more thorough circulation of the oil and to prevent the waste of oil from such oiling means, so that the oiling may be more constant and economical.

My invention further consists of certain details of construction and combination of parts, which shall hereinafter be more fully set forth.

I will now proceed to describe an oiling device embodying my invention and will then point out the novel features in the claims.

Referring to the drawings, Figure 1 is a central longitudinal section of a rock-drill with which my oiling device may be employed and showing the connection of the oil-channel with the interior of the valve-chamber. Fig. 2 is a vertical transverse section of the same, showing a section of an oil-reservoir embodying

my improvement in connection therewith, the plane of the section being taken on the line 2 2 of Fig. 1. Fig. 3 is a top view of the oiling device and a portion of the rock-drill. Fig. 4 is a detail section of my improved oiling device, the plane of section being taken on the line 4 4 of Fig. 2. Fig. 5 is a view illustrating the practical application of my device when used in connection with a drill set for drilling downwardly.

Similar reference characters designate corresponding parts in all the figures.

Reference character 1 designates the cylinder, and 2 the shell, upon which the cylinder is mounted and upon which it slides.

3 is a feed-screw.

4 is a reciprocating piston, 5 the rocker, operated by the piston, and 6 the valve, which controls the admission and exhaust of the motive fluid to and from the cylinder and which is moved through its engagement with the rocker. The said valve 6 is mounted and adapted to reciprocate in the valve casing or chamber 7.

8 are the inlet-ports, communicating with the common inlet-channel 9.

10 10 are the admission-ports, and 11 11 the exhaust-ports.

Referring now more particularly to Figs. 2, 3, and 4, reference-numeral 12 designates the reservoir or oil-casing of my improved oiling device. The said oil-casing consists of an outer shell 13 and a plug 14, fitted to rotate therein, and is pivoted or swivelly mounted on the side of the rock-drill by means of a bolt 15, which bolt passes freely through a hole provided in the outer shell 13 and is threaded into the rock-drill proper, as shown in the drawings. The said plug is preferably tapered and is provided with an orifice 16, which communicates with the interior core thereof. 17 is a square end with which the said plug is provided and upon which a wrench may be fitted to turn same. 18 is a filling-hole in the outer shell 13, and when the plug is turned around in the casing one-half a revolution from the position in which it is shown in the drawings the opening 15 in the plug will register with said filling-hole 18. While in this position the interior core of the plug may be filled with oil or other lubricating ma-

terial. When filled, the plug will be rotated until it is again in the position shown in the drawings, in which position the hole registers with a channel 19. 20 is a circular channel arranged between the casing and the rock-drill. One end of the said channel 19 connects therewith, and 21 is a channel which leads from said circular channel to the interior of the valve-chamber of the rock-drill.

It will be seen that no matter at what angle the drill is placed (see, for example, Fig. 5) the oil-reservoir may be turned so as to be in a vertical position. By reason of the circular channel 20 the oil will at all times be free to flow, irrespective of the angle at which the drill is set or the relative angle of the oil-casing with the rock-drill. The distribution of the oil will be as follows: After leaving the channel 21 the oil will enter the valve-chamber at about its center. It will then lubricate the central portion of the slide-valve. The said oil will then drop into the central drill-chamber and lubricate the sides of the rocker. From thence it will flow into the cylinder and lubricate the piston. In order to pass out to the atmosphere, it must pass the piston, pass along the admission-ports into the valve-chamber again, where it will lubricate the rest of the valve, and from thence pass out through the exhaust-ports. Before a particle of the oil can escape it must have passed through the entire path as just described. The oil is thus fully and economically used, none being allowed to go to waste until it has performed its full function. By such means not only are all the parts kept freely and well oiled, but a great saving of oil is effected. It is immaterial at what angle the drill be set, the oiling device will always be adapted for use, and the constant and even distribution of oil will effect a great saving of the mechanism.

What I claim is—

1. In a rock-drill the combination with a cylinder, a piston, a valve-chamber and a valve arranged to reciprocate therein and con-

trol the admission and exhaust of the motive fluid to and from the said cylinder, of an oiling device, pivoted or swivelly mounted upon the side of said rock-drill so that it may be set at any angle relatively thereto, and an oil-channel leading to the interior of the valve-chamber and communicating with the oiling device, at any angle the said oiling device may be set relatively to the rock-drill.

2. In a rock-drill the combination with a cylinder, a piston, a valve-chamber and a valve arranged to reciprocate therein and control the admission and exhaust of the motive fluid to and from the said cylinder, of an oil-reservoir pivoted or swivelly mounted upon the side of said rock-drill, a circular channel between said oil-reservoir and said rock-drill, an oil-channel leading from the said oil-reservoir to the said circular channel and another oil-channel leading from the said circular channel to the interior of the valve-chamber substantially as specified.

3. The combination with a rock-drill comprising a cylinder, a piston, a valve-chamber and a valve arranged to reciprocate therein and control the admission and exhaust of the motive fluid to and from the said cylinder, of a casing pivoted or swivelly mounted upon the side of said rock-drill, said casing being provided with a filling-hole at the top, a circular channel arranged between said casing and said rock-drill, a hollow plug rotatably mounted in said casing, said plug provided with an orifice adapted to register with said filling-hole when said plug is turned in one direction, a channel connecting with said circular orifice, and with the interior of said plug, when said plug is turned in the opposite direction, and a channel leading from the said circular channel to the interior of the valve-chamber, substantially as specified.

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Witnesses:

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