

999,321.

Fig. 2.

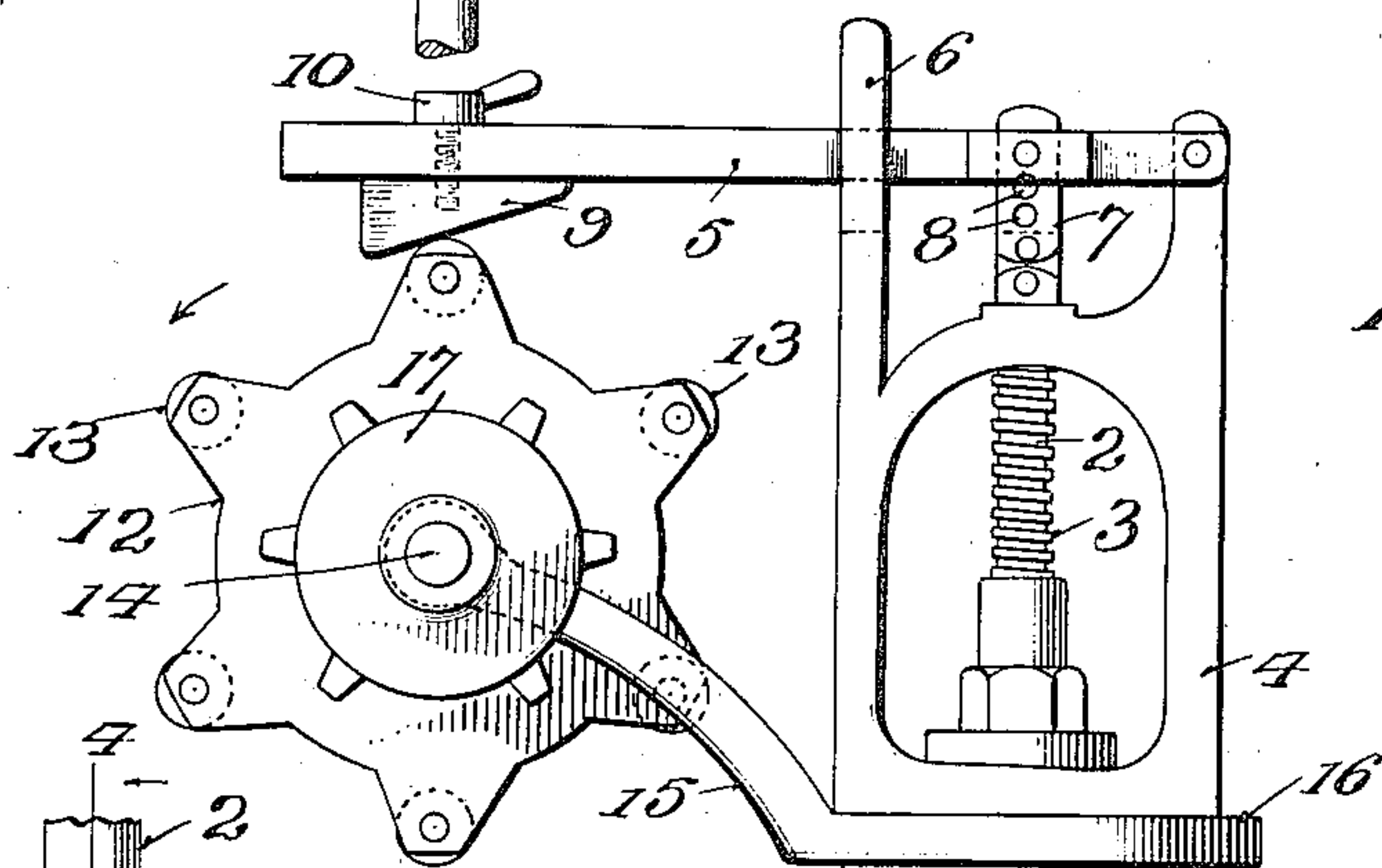
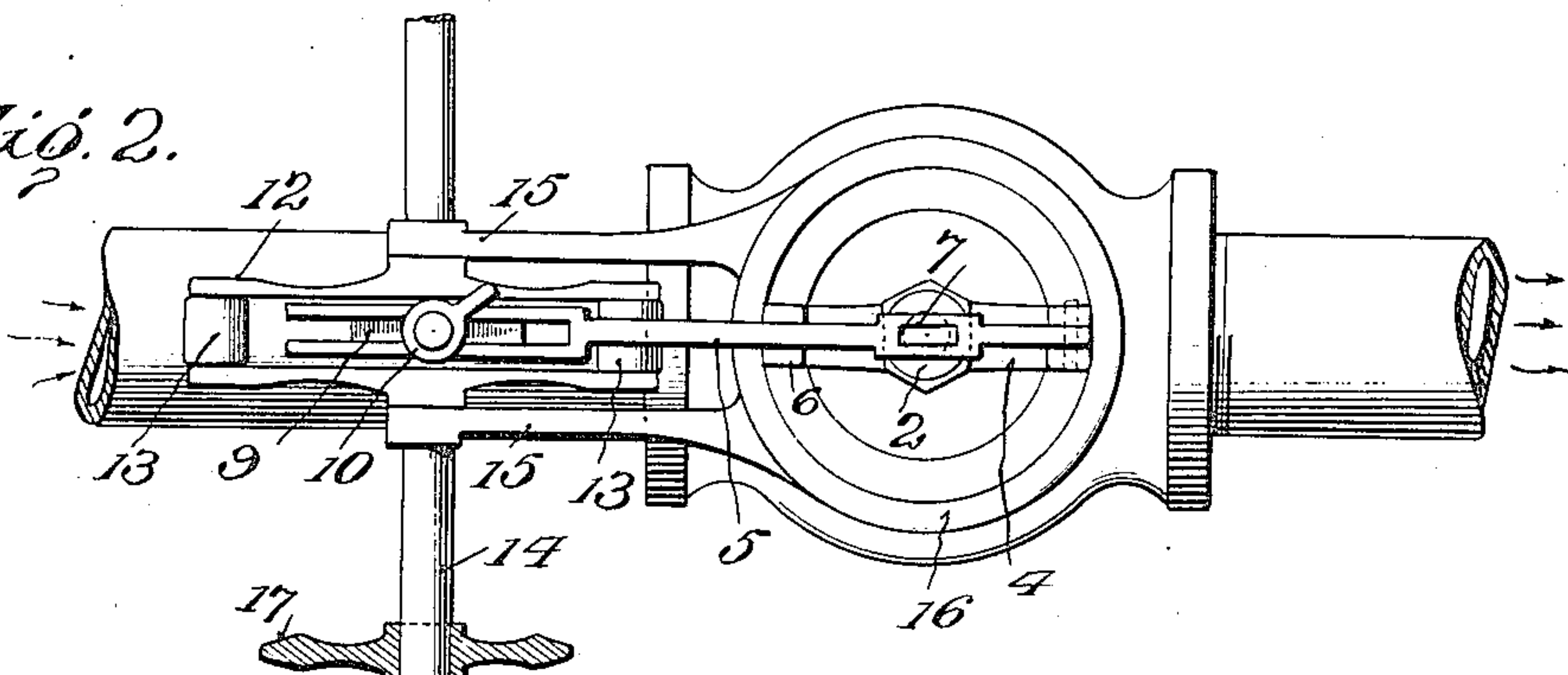


Fig. 1.

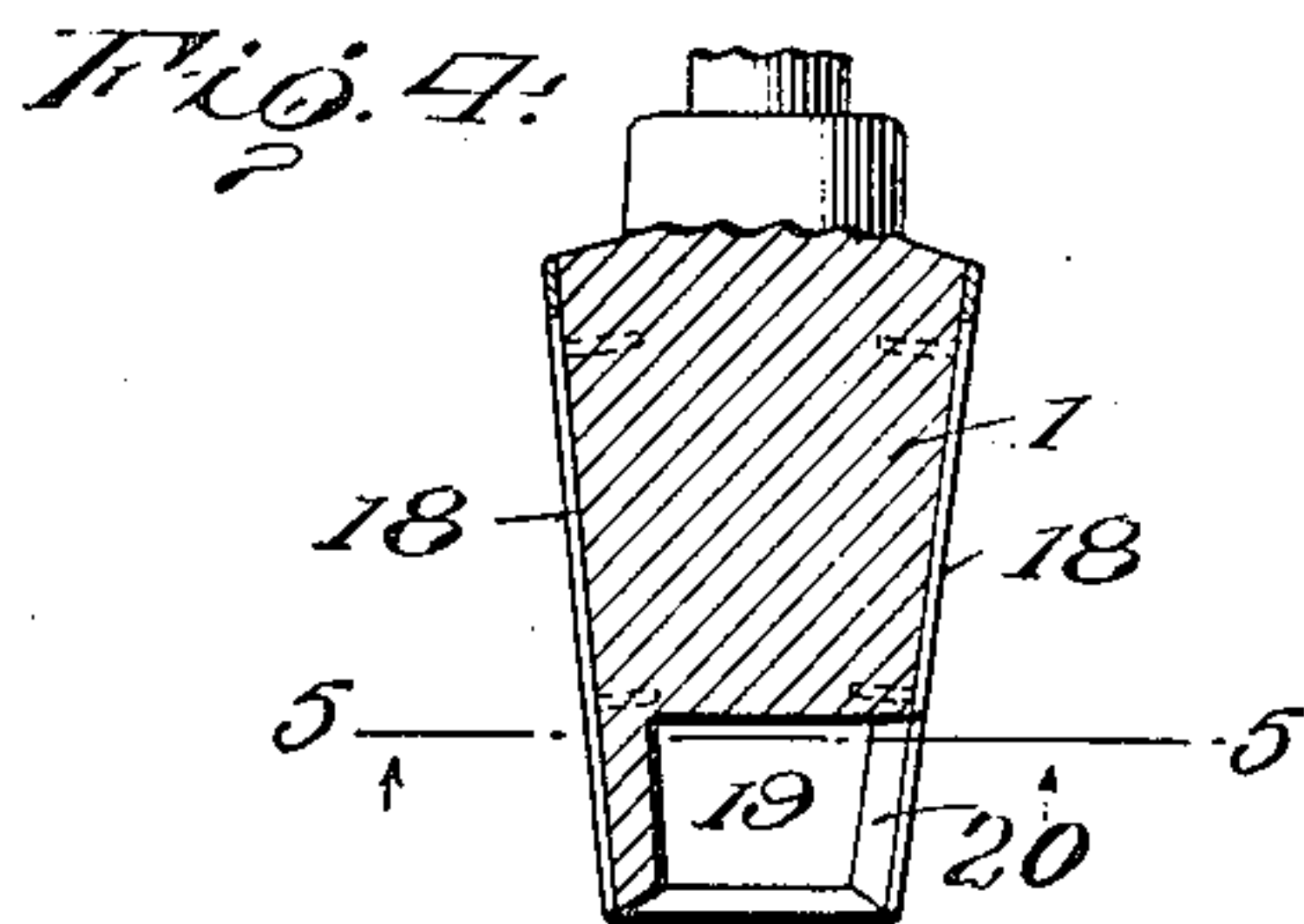
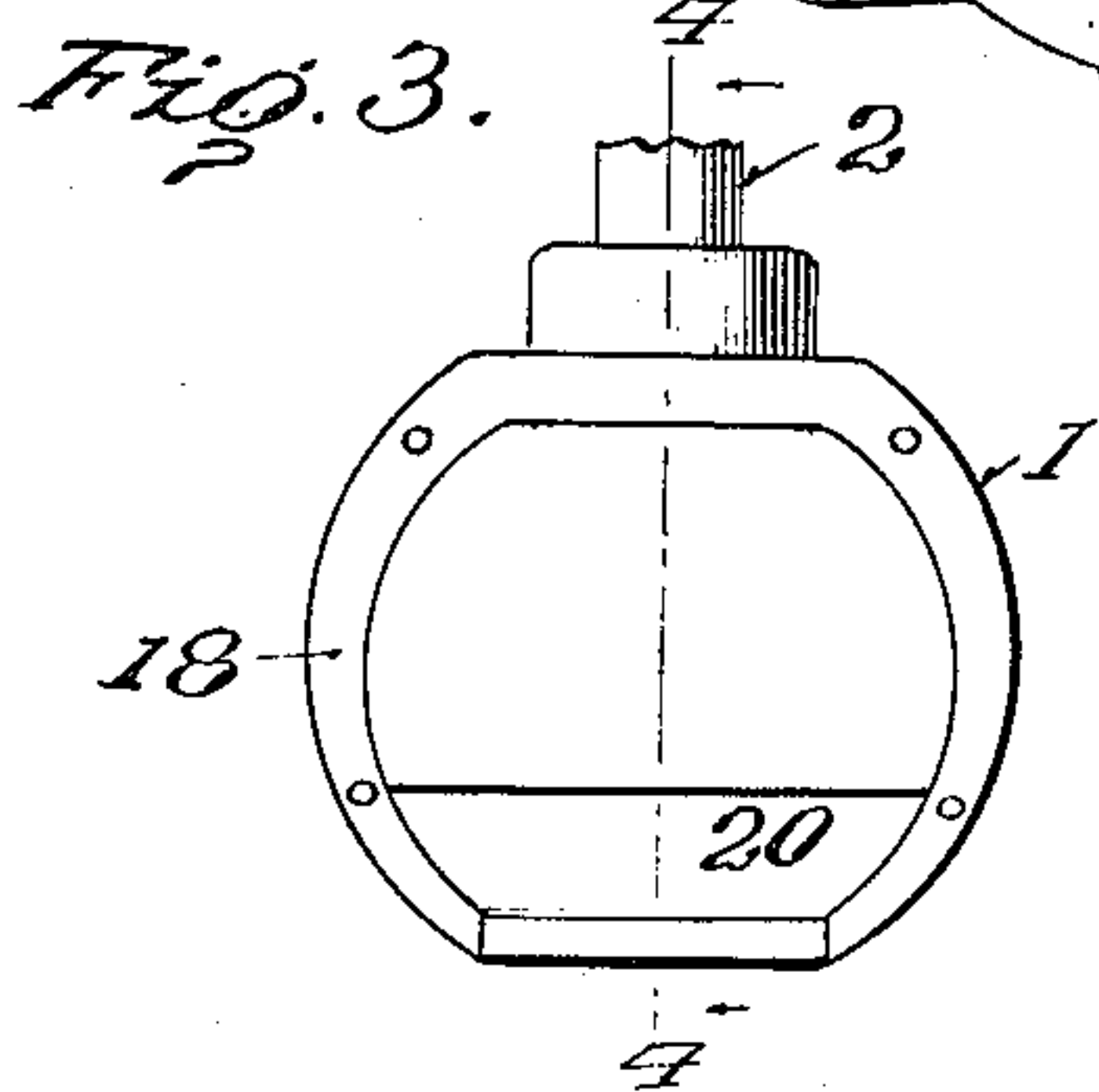


Fig. 4.

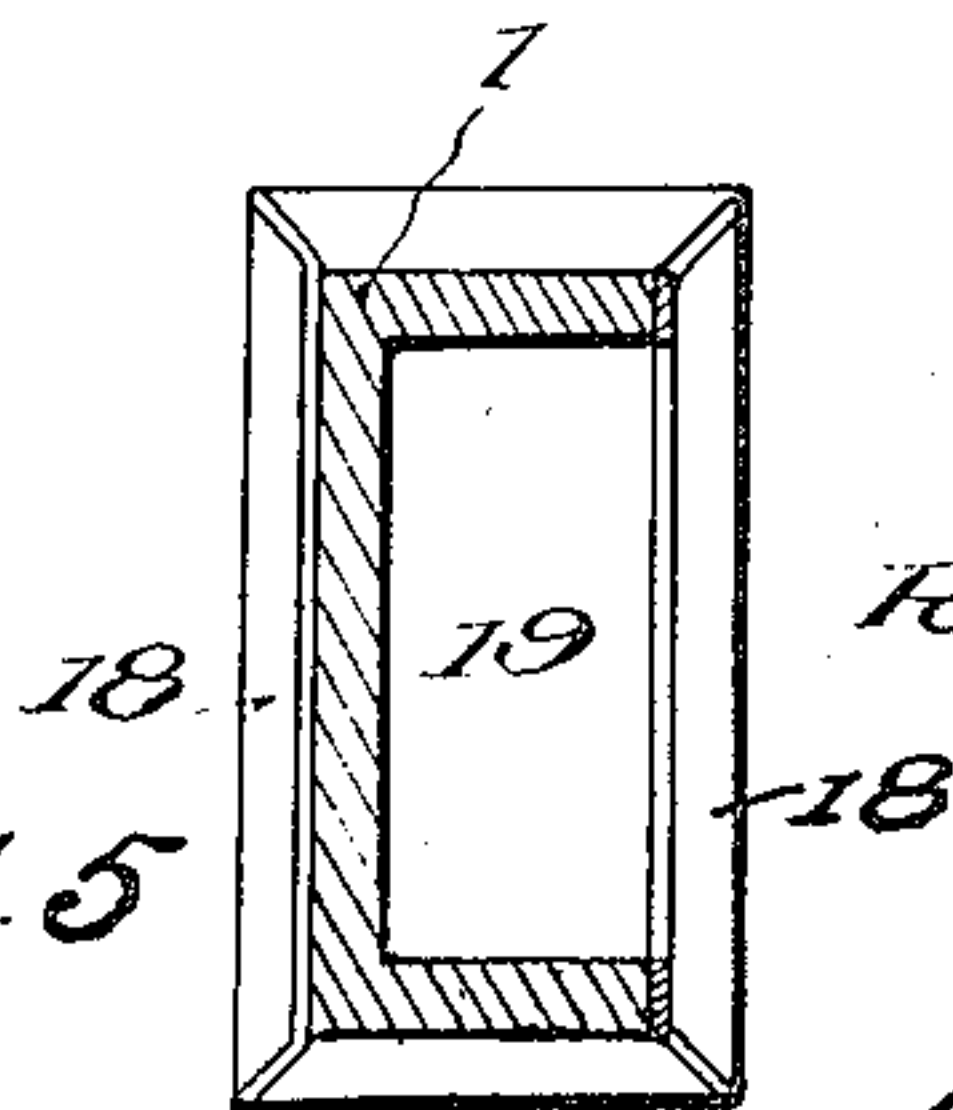


Fig. 5

Halgeott Murray.
Francis P. Morgan.

Ralph W. E. Leach

Attorney

UNITED STATES PATENT OFFICE.

RALPH W. E. LEACH, OF CASTALIA, OHIO.

FEEDER FOR SLURRY, WOOD-PULP, &c.

999,321.

Specification of Letters Patent.

Patented Aug. 1, 1911.

Application filed December 21, 1909. Serial No. 534,337.

To all whom it may concern:

Be it known that I, RALPH W. E. LEACH, of Castalia, in the county of Erie and State of Ohio, have invented certain new and useful Improvements in Feeders for Slurry, Wood-Pulp, &c.; and I do hereby 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 ap-
10 pertains to make and use the same.

The primary object of this invention is to provide simple and highly efficient means for insuring the periodic supply, in prede-
15 termined quantities, of dense fluids, such as slurry or wood pulp in feeding kilns or digesters.

A further object is to insure the positive seating and unseating of the feed controller and the retention of the same in its opened
20 position for such time as may be necessary to allow the desired discharge. And a further object is to prevent the accumulation in the feeder of any semi-fluid substance.

The invention will be hereinafter fully set
25 forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a face view of the controlling valve.
30 Fig. 4 is a vertical section on line 4-4, Fig. 3. Fig. 5 is a transverse section on line 5-5, Fig. 4.

Referring to the drawings, 1 designates a valve which is preferably of the gate type, and provided with an upwardly extending
35 stem 2 which is encircled by a spring 3 which in the present instance is designed to normally hold the valve to its seat. On the valve casing is a yoke 4 through an opening in which the valve stem is passed.
40

5 is a lever fulcrumed at one end in an upward projection of yoke 4 and is guided by a second projection 6 formed with a slot through which the lever is passed. The lat-
45 ter is adjustably connected to the upper end of the valve stem by a link 7 having a series of openings 8 through any one of which the pivot pin may be passed. By adjusting this connection the throw of the valve may be
50 regulated. On its free end the lever carries a wedge 9 which is adjustably connected by a screw 10 passed through a longitudinal slot in the lever.

12 designates a wheel which is shown as of
55 sprocket formation with a series of rollers 13 mounted in the several peripheral projec-

tions. Each of these rollers is designed to successively engage the wedge 9 and move the valve controlling lever in one direction to effect the movement of the valve in oppo-
60 sition to its retaining spring. In the present instance such movement effects the unseating of the valve, but if the spring were employed to normally hold the valve open the parts would be so arranged that the
65 action of the roller-carrying wheel on the lever would effect the closing of the valve. According to the means shown, the valve will be held open as long as a roller remains in engagement with the inclined surface of
70 the wedge. The degree to which the valve is opened depends upon the position of the wedge on the lever, or this may be controlled by adjusting the connection of link 7. The roller-carrying wheel is mounted on a shaft
75 14 which is shown as journaled in two arms 15 projecting from a suitable support which may be in the form of a ring 16 held in place by yoke 4. On this shaft is a sprocket wheel
80 17 which is designed to be engaged by a sprocket chain (not shown) leading from any suitable operating agency.

In practice, the valve casing is connected at one end to the supply tank or reservoir containing slurry, wood pulp or the like, and
85 the other end is connected to the kiln or digester as the case may be. A uniform supply of the dense liquid or semi-liquid material is insured by the positive opening and closing of the valve. According to the
90 means shown the latter is normally held to its seat by the spring, and is periodically opened to the desired extent by the engagement of the roller-carrying wheel with the wedge of the lever. This wedge may be
95 readily adjusted to increase or decrease the travel of the valve, but the same result may be secured by changing the point of connection between the valve stem and the lever.

To prevent slurry or other semi-fluid sub-
100 stances from accumulating in the valve and interfering with its operation, I secure bearing plates 18 to the edges of the two faces of the valve disk and form a chamber 19 extending through the bottom of the disk, and
105 an opening 20 through the side of the disk facing the discharge side of the valve. The disk is tapered toward the bottom so as to force any solid matter to one side in closing the valve, and any material beneath the lat-
110 ter will be crowded into the chamber 19 and out through opening 20.

I have shown and described the preferred form of embodiment of my invention, but changes may be made without departing from the scope thereof.

5 I claim as my invention:—

1. A feeder for slurry, wood pulp and other semi-fluid material, comprising, in combination, a valve, a spring for holding such valve in one position, a lever connected
10 to such valve for moving it in opposition to such spring, such lever having an inclined portion adjustable longitudinally thereof, and an agency for periodically engaging such inclined portion to move such lever to
15 actuate the valve in opposition to the action of said spring.

2. A feeder for slurry, wood pulp and other semi-fluid materials, comprising, in combination, a valve, a spring for holding
20 such valve in one position, a lever connected to such valve for moving it in opposition to such spring, a wedge adjustably secured to such lever, and an agency for periodically engaging such wedge to move such lever to
25 actuate the valve in the opposite direction to the action of the spring thereon.

3. A feeder for slurry, wood pulp and other semi-fluid materials, comprising, in combination, a valve, a spring for holding
30 such valve in one position, a lever connected to such valve for moving it in opposition to such spring, such lever having an inclined portion adjustable longitudinally thereof, and a constantly operating wheel having
35 spaced-apart peripheral projections for periodically engaging such inclined portion to move such lever to actuate the valve in the opposite direction to the action of the spring thereon.

4. A feeder for slurry, wood pulp and other semi-fluid materials, comprising, in combination, a valve, a spring for holding
40 such valve in one position, a lever connected to such valve for moving it in opposition to

such spring, a wedge adjustably secured to
such lever, and a constantly operating wheel
having projection portions for periodically
engaging such wedge. 45

5. In combination, a valve, a spring for holding such valve in one position, a lever
50 connected to such valve for moving it in opposition to such spring, a wedge adjustably secured to such lever, and a constantly operating wheel carrying a series of rollers for periodically engaging such wedge. 55

6. In combination, a valve, a stem leading from such valve, a spring encircling such stem, a yoke mounted on the valve casing, a lever fulcrumed on said yoke, an adjustable
60 connection between said lever and said valve stem, a wedge adjustably secured on said lever, a sprocket-like wheel carrying a series of rollers for engaging said wedge, a shaft on which said wheel is mounted, a support for such shaft, and means for oper-
65 ating the latter.

7. In a valve for slurry, wood pulp and the like, a casing having an inlet and an outlet in line with each other, a disk tapered
70 toward the bottom on opposite sides and having in its lower portion a chamber opening through its bottom and having an outlet through one of said tapered sides at the lower end thereof and in line with the outlet of the valve casing. 75

8. In a valve for slurry, wood pulp and the like, a tapered disk having bearing plates secured to its edges, said disk having
80 a chamber opening through the bottom of the disk, and an outlet opening from such chamber in one face of such disk.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

RALPH W. E. LEACH.

Witnesses:

FRED K. MARSHALL,
JOSEPH EBNER.