

(No Model.)

A. G. HUNTER.  
APPARATUS FOR DISINFECTING AND DEODORIZING PURPOSES.  
No. 591,352. Patented Oct. 5, 1897.

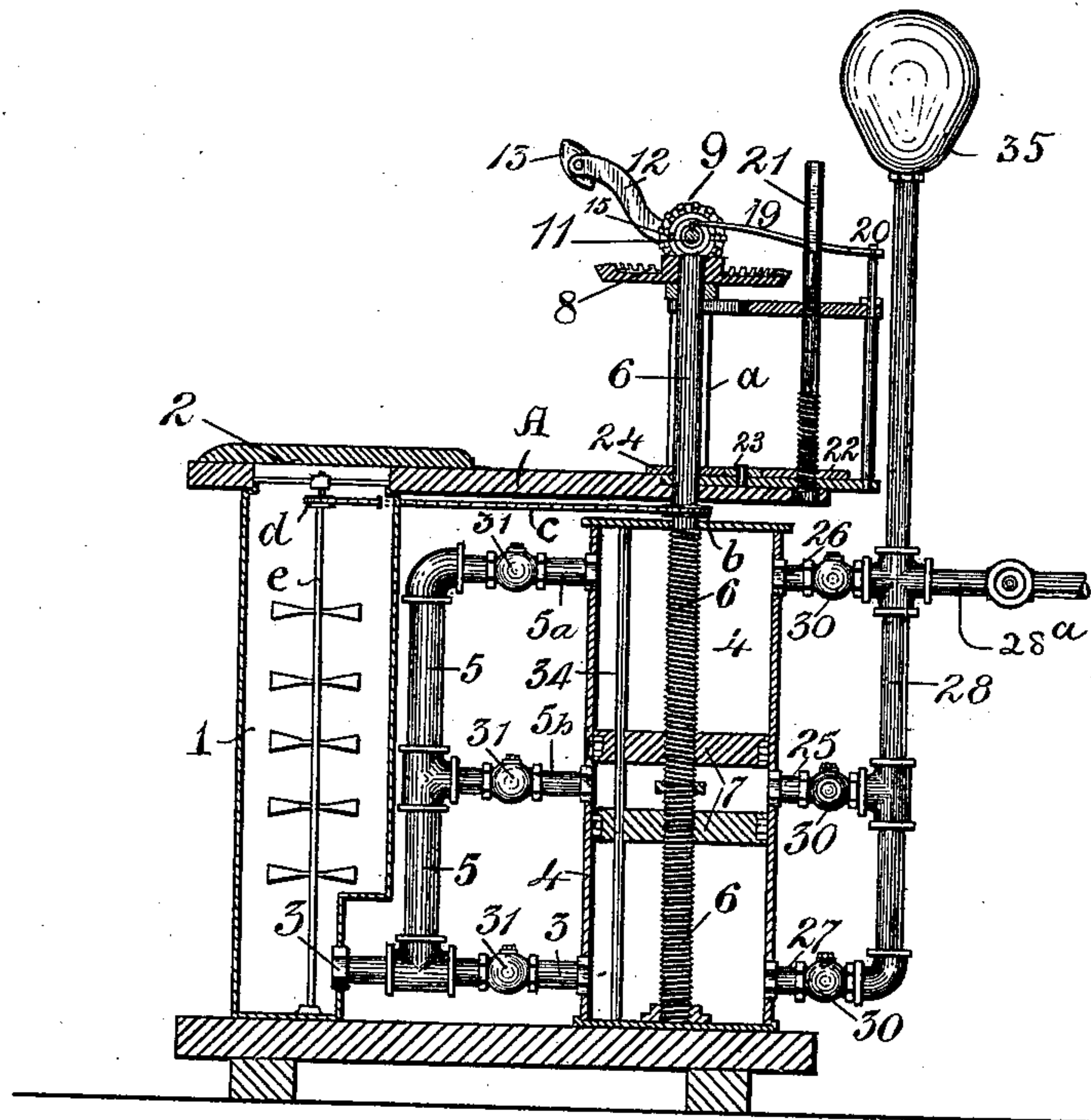


Fig. 1.

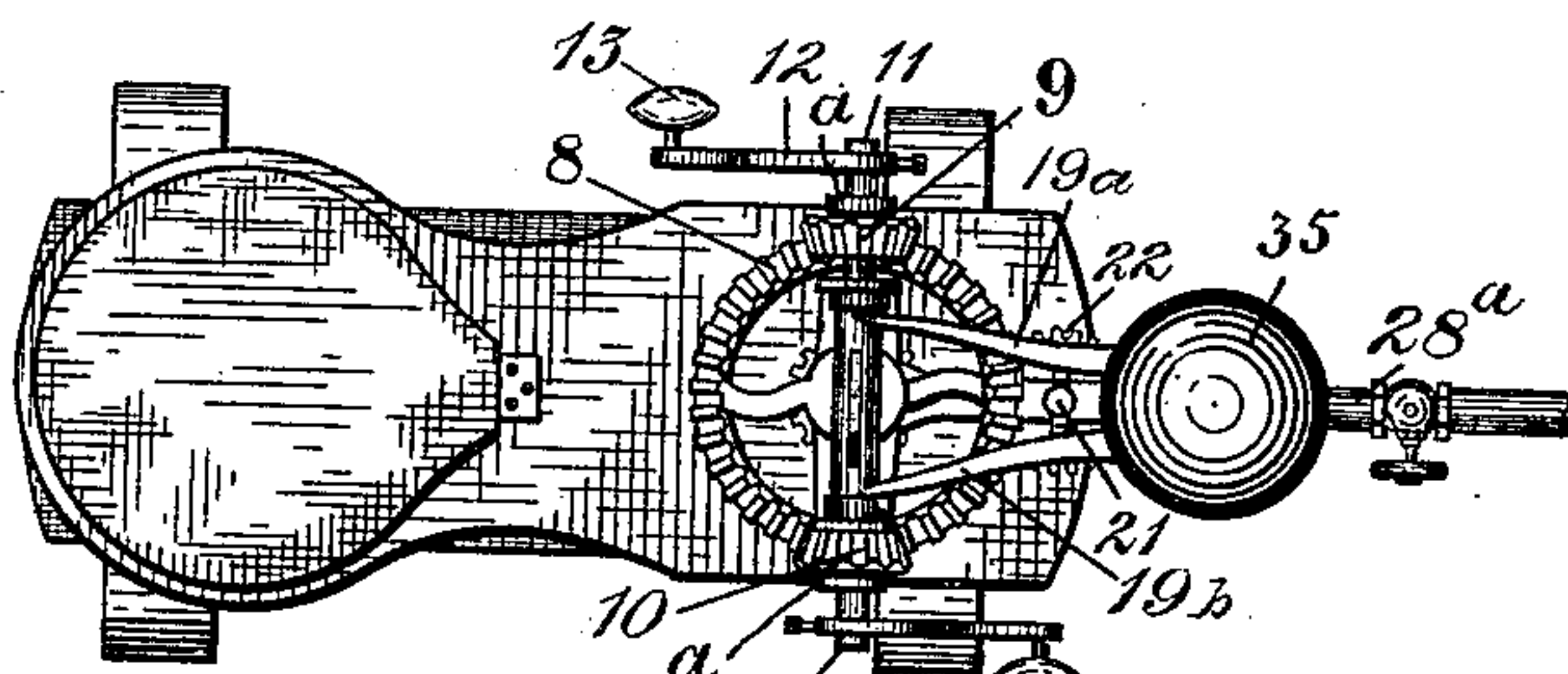


Fig. 2.

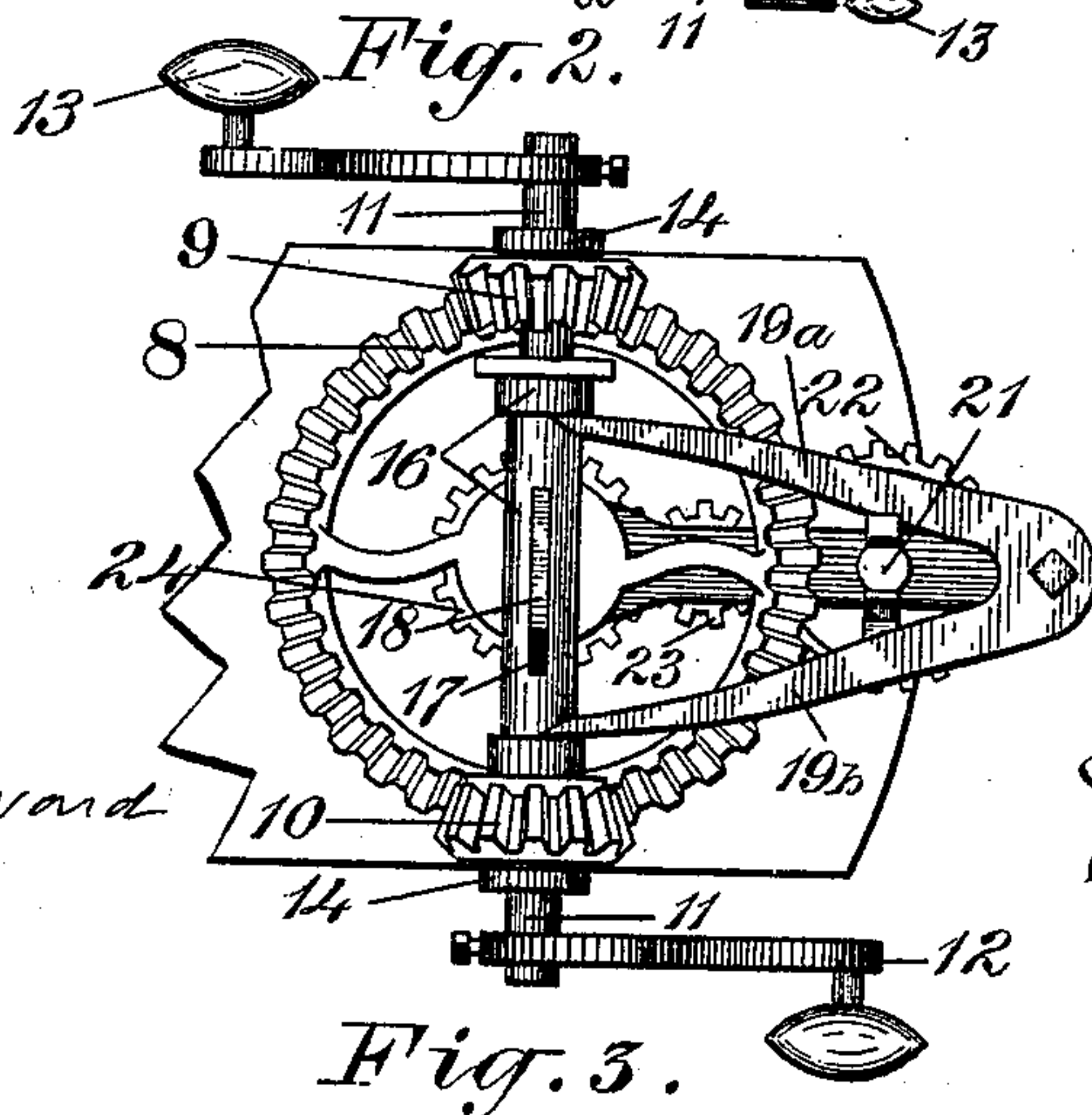


Fig. 3.

Witnesses,  
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# UNITED STATES PATENT OFFICE.

ALEXANDER G. HUNTER, OF TORONTO JUNCTION, CANADA.

## APPARATUS FOR DISINFECTING AND DEODORIZING PURPOSES.

SPECIFICATION forming part of Letters Patent No. 591,352, dated October 5, 1897.

Application filed July 10, 1896. Serial No. 598,699. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER G. HUNTER, a subject of the Queen of Great Britain, and a resident of Toronto Junction, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Apparatus for Disinfecting and Deodorizing Purposes, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to produce a simple and effective apparatus for disinfecting and deodorizing purposes and which can be readily constructed and easily manipulated; and the invention consists in the peculiar construction and operation of the invention, as hereinafter more fully described, and pointed out in the claims.

Referring to the accompanying drawings, Figure 1 represents a vertical longitudinal section of an apparatus for disinfecting and deodorizing embodying my invention. Fig. 2 is a plan or top view of the same. Fig. 3 is an enlarged view of the driving-gear.

1 represents a tank or reservoir to receive the fluids and other material to be used for disinfecting purposes, and is open at the top, so that said materials may be inserted therein, which opening is covered by a lid 2, attached to a table A, supported in any suitable manner. 4 is a cylinder connected near its bottom to the bottom of the tank 1 by a pipe 3. A branch pipe 5 extends up from the pipe 3 and is connected to the top of the cylinder 4 by a pipe 5<sup>a</sup> and to the center of the cylinder by a pipe 5<sup>b</sup>. Each of the pipes 3, 5<sup>a</sup>, and 5<sup>b</sup> is fitted with a check-valve 31.

6 is a rod that passes through the cylinder 4 and is fitted at its upper end with a bevel-wheel 8. The portion of this rod that is within the cylinder is formed with a right and left screw-thread which meet in the center of the cylinder. Upon the screw-threaded portions are fitted pistons 7 7, having corresponding screw-threaded holes. Said pistons are held in the cylinder so that they cannot turn, but must work up or down as the shaft 6 is rotated. In the drawings I have shown a rod 34 passing through said pistons and secured at its ends to the heads of the cylinder.

To the side of the cylinder opposite to the pipes 3 5<sup>a</sup> 5<sup>b</sup> are secured pipes 25, 26, and 27, each fitted with a check-valve 30, that connect with an upright pipe 28, on the upper end of which is fitted an air-chamber 35, and from said pipe 28 is a branch pipe 28<sup>a</sup>, to which a hose may be attached. Said pipe 28<sup>a</sup> is fitted with a suitable stop cock or valve.

To the table A are secured two standards *a a*, in which is mounted a shaft 11, upon which is loosely mounted two pinions 9 and 10 in gear with the bevel-wheel 8. A clutch-gear is also mounted on said shaft between the pinions, so that either of said pinions 9 or 10 can be held fast to the shaft 11, so as to operate the cog-wheel 8 when said shaft 11 is rotated by the crank 12, to which a handle 13 is attached.

To operate the clutch-gear, I secure to the shaft 6, just above the table A, a cog-wheel 24, in gear with an intermediate wheel 23, carried by a stud, which wheel is in gear with a wheel 22, having a central screw-threaded hole through which passes the screw-threaded end of a rod 21, the upper end of which has a wedge-shaped projection on each side that comes into contact with the inner sides of a fork 19, fulcrumed to a rod 20, so that as the screw-threaded rod 21 is worked up and down it will throw the fork 19 first to one side and then to the other side, thus shifting the clutch and causing the pinions 9 and 10 to be thrown alternately into gear with the cog-wheel 8, thus reversing the motion of the shaft 6 to draw the pistons 7 up or down and that automatically and without reversing the motion of the crank 12. On the shaft 6, just under the table A, is also secured a sprocket-wheel *b*, that by a chain *c* communicates motion to a sprocket-wheel *d* on a shaft *e* of an agitator located in the tank 1. I have shown the chain *c* passing through small openings in the upper portion of the tank, but of course it could be arranged so that the chain *c* would pass over the top of the tank.

The operation is as follows: Supposing the apparatus to be in the position shown, the tank 1 is first supplied with the desired fluid and other materials. The crank 12 is then rotated, which, through one of the pinions—



say 10—transmits motion to the bevel-wheel 8 and shaft 6, and as the pistons 7 cannot turn in the cylinder 4 they are forced apart, creating a vacuum between them, by which liquid from the tank 1 is drawn in through pipe 5<sup>b</sup>. At the same time the rod 21 has been gradually lowered until the cam on one side strikes the arm 19<sup>a</sup> and thus throws the clutch over, so that the pinion 9 is in gear with the bevel-wheel 8, which causes it to rotate in the opposite direction, thus moving the pistons again toward each other and drawing liquid from the tank 1 through pipes 5<sup>a</sup> and 3<sup>a</sup> into the upper and lower portions of the cylinder 4, at the same time forcing the liquid between the pistons out through the pipe 25 into the pipe 28, from which it is discharged. When the pistons are again forced apart, the liquid in the upper and lower portions of the cylinder is forced out through the pipes 26 and 27 into the pipe 28 to be delivered. The rod 21 being carried up forces the fork over to the other side, and thus the operation is repeated. Of course as the shaft 6 is rotated the agitator in the tank 1 will be rotated first one way and then the other, thus keeping the ingredients in the same thoroughly mixed.

What I claim is—

1. In an apparatus for disinfecting and deodorizing a tank for holding the disinfectant, an agitator in said tank, a cylinder, suitable connections between said tank and cylinder, a right and left hand screw-threaded rod passing through the center of said cylinder, two pistons mounted upon said screw-threaded rod and means such as described for operating said screw-threaded rod whereby the pistons will be drawn toward each other or forced apart so that the disinfectant will be drawn from the tank into both ends of the cylinder or into the center of same and expelled therefrom according to the motion of the pistons substantially as set forth.

2. In an apparatus for disinfecting or deodorizing, a cylinder, a right and left hand screw-threaded rod passing longitudinally through the same, means for rotating said rod alternately in one direction and then in the opposite direction, two pistons having screw-threaded holes mounted upon said screw-threaded rod, so that said pistons will be drawn toward each other or forced apart according to the movement of the screw-threaded rod, means for keeping the pistons from rotating, a tank, an agitator in said tank and suitable pipe connections between the tank and both ends and center of the cylinder also suitable pipe connections for delivering said fluid from both ends and center of the cylinder substantially as set forth.

3. In an apparatus for disinfecting and deodorizing a cylinder a right and left hand screw-threaded rod passing through same, two pistons each having central screw-threaded holes mounted upon said screw-threaded rod

and suitable pipe connections for drawing disinfecting fluid into said cylinder at both ends or into the center between the pistons and conducting said fluid therefrom, a bevel-wheel on the upper end of said screw-threaded rod, a shaft passing over same, two loose pinions and a clutch mounted upon said shaft, a fork fulcrumed on the end of a rod and having its two ends in contact with the clutch and means such as described for operating said fork substantially as set forth.

4. In an apparatus for disinfecting and deodorizing a cylinder a screw-threaded rod passing through the center of same the lower end of which is carried by a step inside the cylinder the portion of said rod within the cylinder being formed with a right and left hand screw-thread, two pistons each having screw-threaded holes mounted upon the screws of said rod, a tank, an agitator within same, suitable pipe connections between the tank and both ends and center of the cylinder and means such as described for imparting motion to the agitator from the screw-threaded rod substantially as set forth.

5. In an apparatus for disinfecting and deodorizing a cylinder, a right and left hand screw-threaded rod passing through said cylinder, two pistons each having screw-threaded holes mounted upon said screw-threaded rod, a shaft at right angles thereto, two loose pinions and a clutch mounted upon same and a crank on the end of said shaft in combination with a cog-wheel secured upon the screw-threaded rod, an intermediate cog-wheel and a cog-wheel having a screw-threaded hole through same, a screw-threaded rod passing through said cog-wheel, cams on the upper end of said rod and a pivoted fork operated by said cams for shifting the clutch substantially as set forth.

6. In an apparatus for disinfecting and deodorizing the combination of a tank, an agitator arranged therein, a cylinder, two pistons each having screw-threaded holes in said cylinder, a right and left hand screw-threaded rod for operating said pistons connections between the bottom of the tank and the upper, lower and central portions of the cylinder, discharge-pipes from each end of and between the pistons of said cylinder, check-valves arranged in said pipes and means such as described for imparting a rotary motion in one direction to the screw-rod and agitator and then in a reverse direction substantially as and for the purposes set forth.

7. In a disinfecting and deodorizing apparatus the combination of a tank, an agitator arranged therein a cylinder having two pistons formed with a screw-threaded hole, a right and left handed screw-threaded rod for operating said pistons to draw them together or force them apart, connections between the tank and cylinder above, below and between the pistons and discharge-pipes above, below



and between said pistons all of said discharge-  
pipes entering a main delivery-pipe and an  
air-chamber on the upper end of said main  
delivery-pipe all arranged and operating sub-  
stantially as set forth.

In testimony whereof I have signed my  
name to this specification, in the presence of

two subscribing witnesses, on this 24th day of  
March, A. D. 1896.

ALEXANDER G. HUNTER.

Witnesses:

WILLIAM J. DUTTEL,  
W. F. MILLER.