

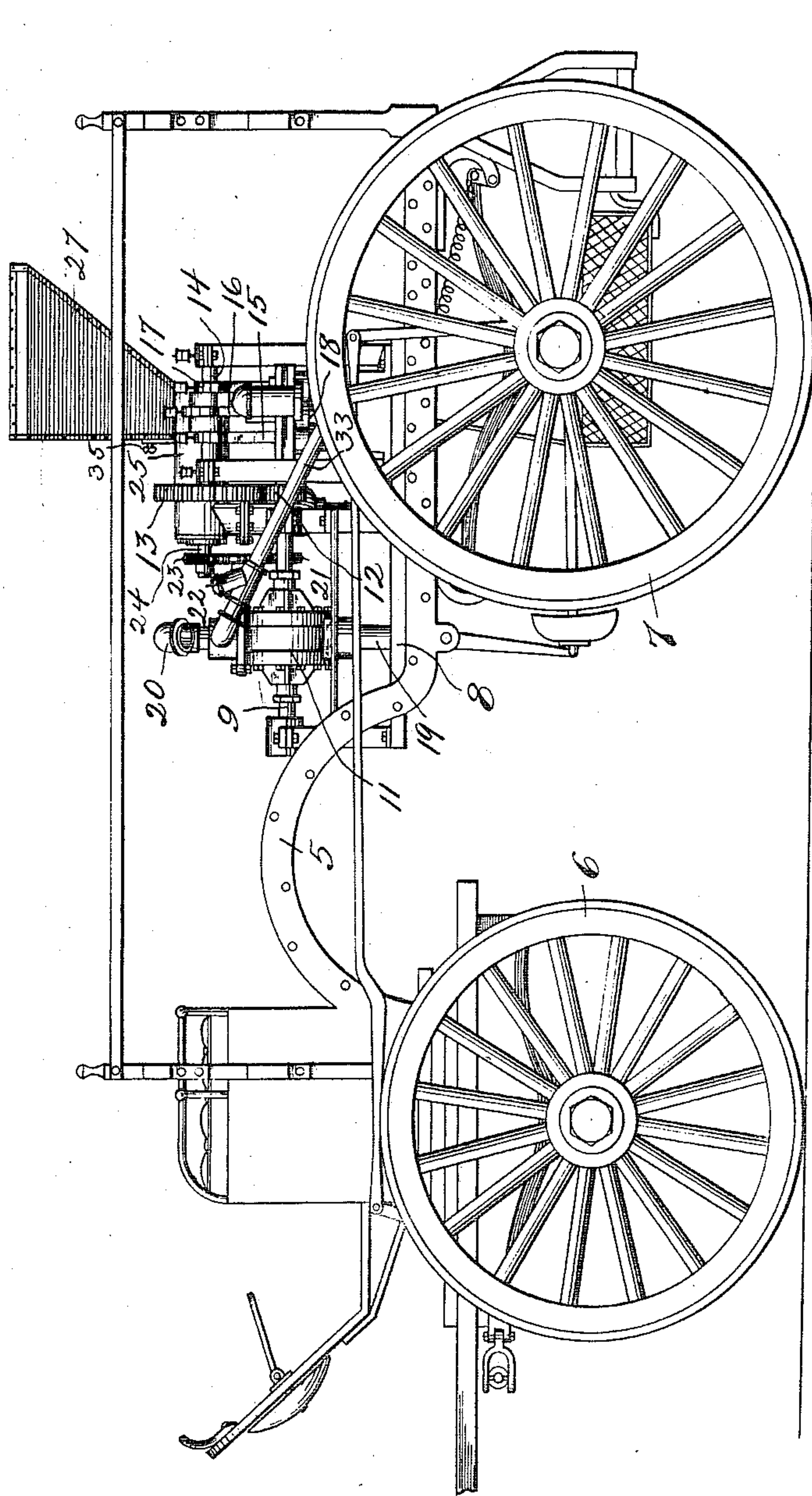
J. A. THOMAS.  
CHEMICAL ENGINE.  
APPLICATION FILED JULY 13, 1910.

983,006.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

FIG. I.



Inventor

John A. Thomas

Witnesses

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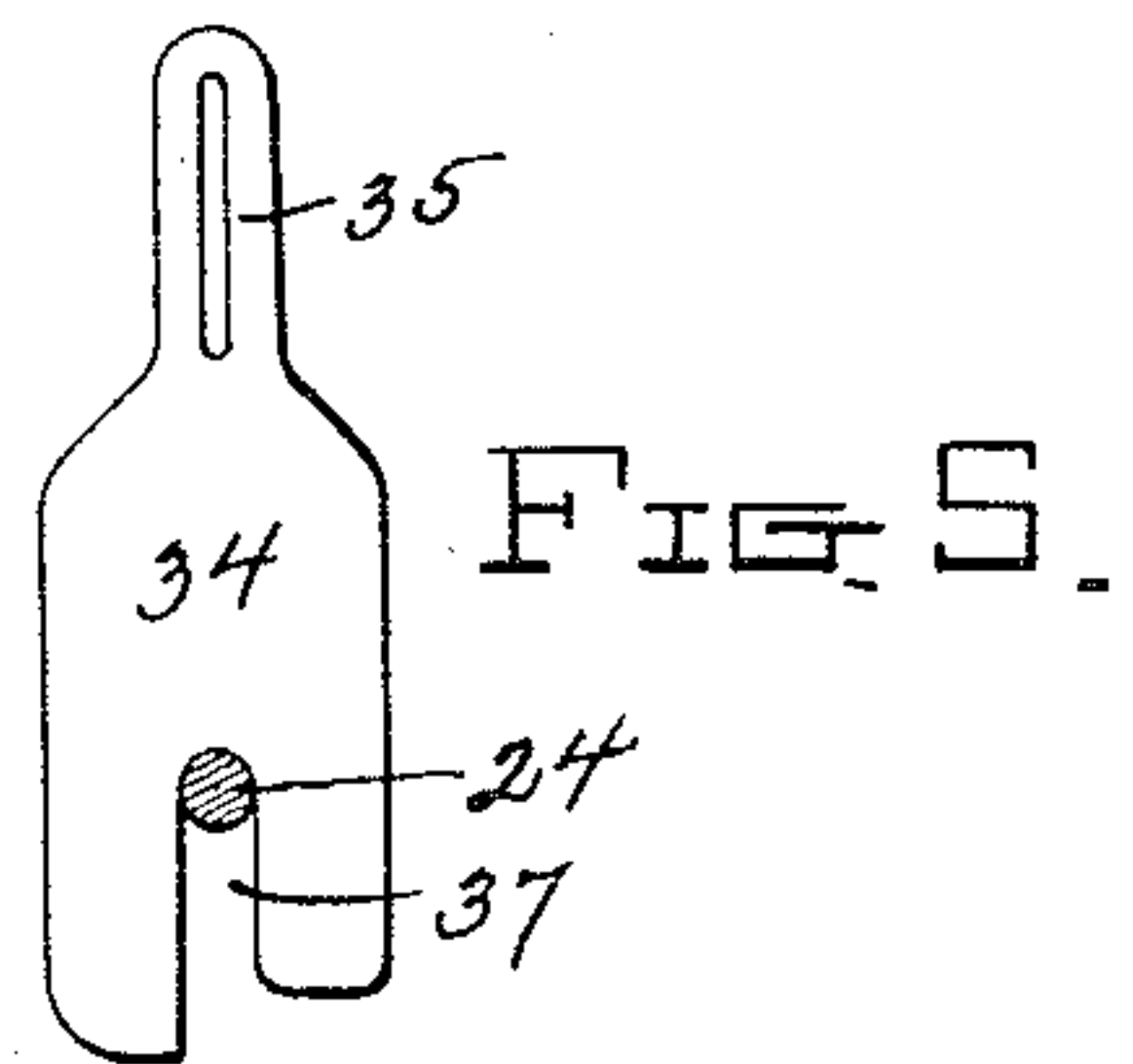
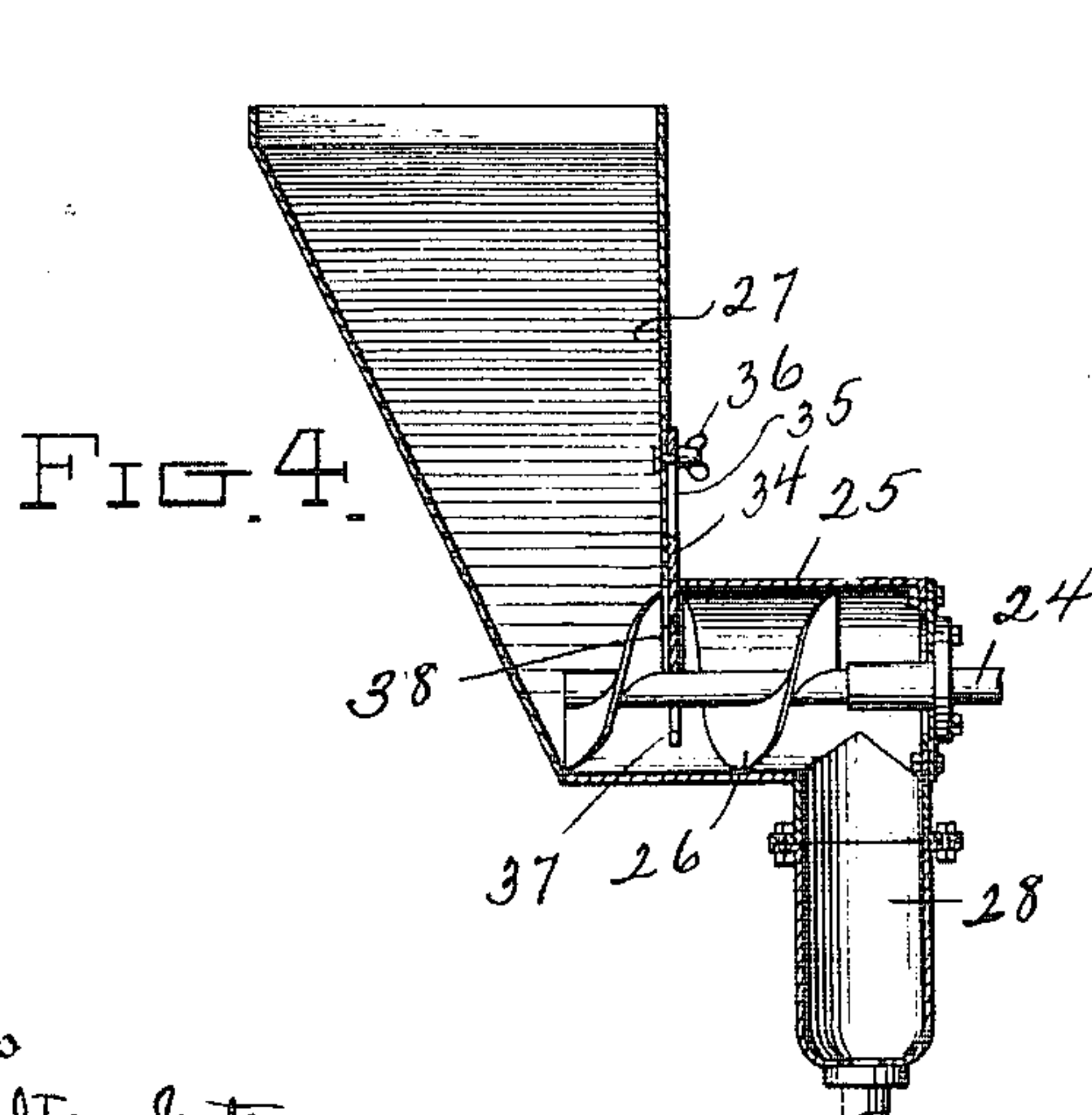
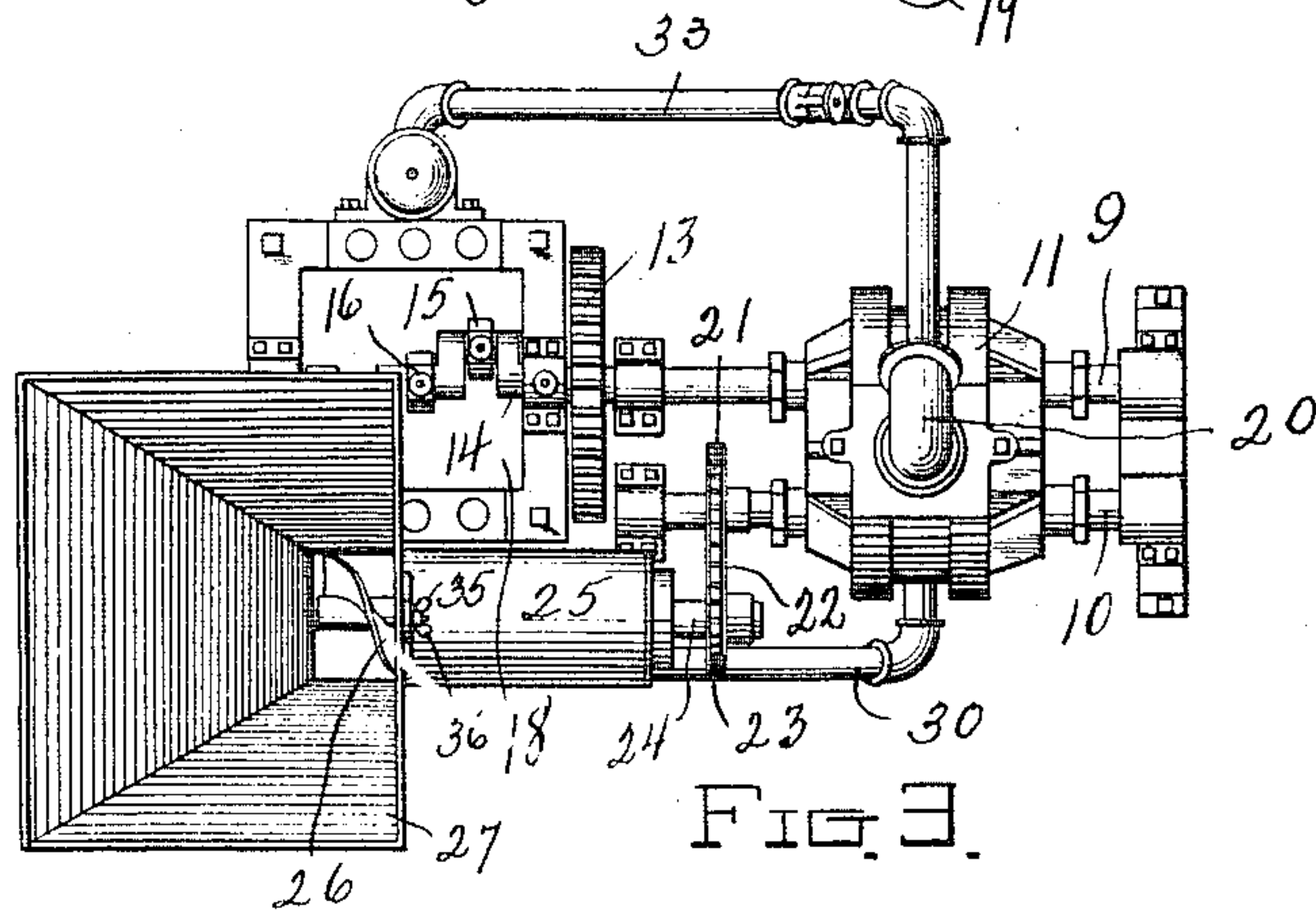
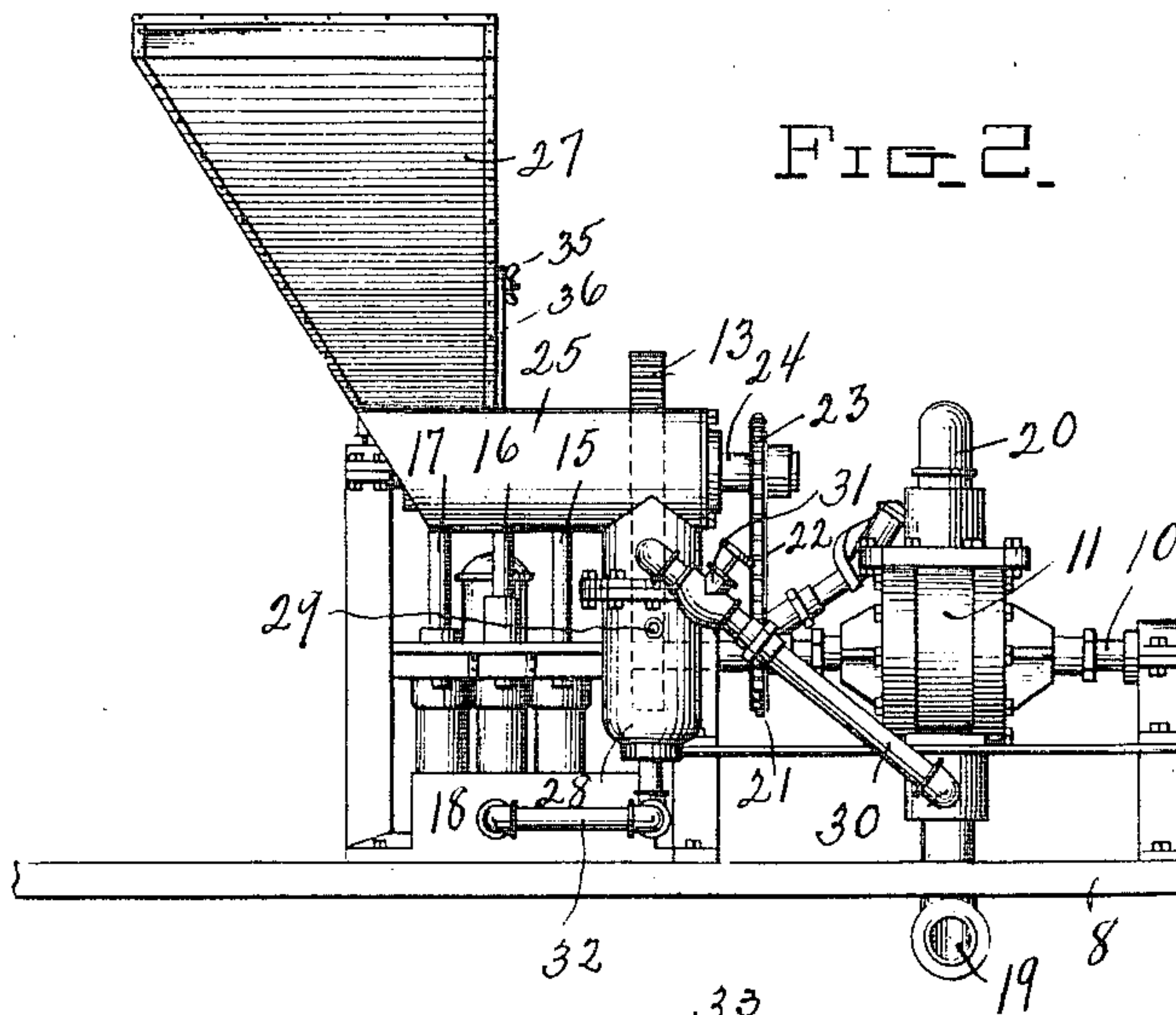
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Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN A. THOMAS, OF ZANESVILLE, OHIO, ASSIGNOR OF ONE-HALF TO SAMUEL A. WELLER, OF ZANESVILLE, OHIO.

CHEMICAL-ENGINE.

983,006.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed July 13, 1910. Serial No. 571,812.

REISSUED

*To all whom it may concern:*

Be it known that I, JOHN A. THOMAS, a citizen of the United States of America, residing at Zanesville, in the county of Muskingum and State of Ohio, have invented certain new and useful Improvements in Chemical-Engines, of which the following is a specification.

This invention relates to chemical engines, and more particularly to those chemical engines wherein a fire extinguishing chemical is carried in concentrated and condensed form, and is injected at a predetermined rate into a stream of water under pressure, whereby the entire stream is chemicalized, said stream of water being secured from a fire plug, a fire engine, or other source of water under pressure.

A further object of the invention is the provision of improved means for injecting the concentrated chemical into the stream, said means being driven by the water that is under pressure.

A further object of the invention is the provision of improved means for injecting into a stream of water a fire extinguishing chemical, such as bicarbonate of soda, from which the carbonic gas is released by the heat of the fire into which the stream is discharged in contradistinction to having such carbonic acid gas released by subjecting the bicarbonate of soda to the action of an acid.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing, Figure 1 is a side elevation of a chemical engine constructed in accordance with the invention, Fig. 2 is a side elevation of a portion thereof, looking from the opposite side of the machine, Fig. 3 is a plan view of the engine parts, Fig. 4 is a sectional view through a hopper and mixing chamber hereinafter described, and, Fig. 5 is a detail view of an adjustable slide hereinafter described.

Like numerals designate corresponding parts in all of the figures of the drawings.

Referring to the drawings, the numeral 5 designates a chemical engine frame mounted upon wheels 6 and 7 in the usual and well known manner. A base frame 8 for the engine parts is carried by the frame 5. Mounted in bearings carried by the base 8 are the shafts 9 and 10 (see Fig. 3) of a water motor 11. This water motor is of the well

known type in which two intermeshing rotary members are employed between which the stream of water passes to rotate them. These motors are well known in the art and require no further description except to say that the shafts 9 and 10 are rotated thereby. The shaft 9 carries a pinion 12 that meshes with a gear wheel 13 upon a shaft 14, and from this shaft the three connecting rods 15, 16, and 17 of a triplex pump 18 are actuated. A water inlet 19 is adapted to have a pipe from a fire hydrant or fire engine connected thereto and this pipe conducts water to the casing of the motor 11. The outlet 20 of the motor is adapted to have the fire hose (not shown) connected thereto. The shaft 10 carries a sprocket wheel 21, which, by means of a chain 22, drives a sprocket wheel 23, which is mounted upon a shaft 24. This shaft extends horizontally through a cylindrical casing 25 and has a conveyer screw 26 mounted thereon. A fire extinguishing chemical material is received within a hopper 27 and is fed from said hopper through the casing 25 by the conveyer screw 26 and discharged into a mixing chamber 28. A small overflow spout 29 (see Fig. 2) leads from one side of this mixing chamber. A water supply pipe 30 leads from the motor inlet 19 to the mixing chamber 28, the passage of the water therethrough being controlled as desired by a valve 31.

The suction pipe 32 of the triplex pump leads from the bottom of the mixing chamber 28, and the discharge pipe 33 of the triplex pump discharges into the motor outlet 20. A vertically adjustable slide 34 is provided with a slotted extension 35, through which a binding screw 36 passes, whereby the vertical movement of said slide may be adjusted. This slide is slotted at 37 so that it passes over the shaft 24 and thereby means are provided for determining the rate of feed of the material contained within the hopper 27 to the mixing chamber.

By referring to Fig. 4, it will be seen that the conveyer screw 26 is cut out at 38 to permit of the vertical movement of the slide 34.

The operation of the device is as follows: Water passes under pressure into the inlet or supply 19 through the motor 11 and out through the discharge or outlet 20 to a line of fire hose from which it is discharged upon the fire to be extinguished. During its passage through the chemical engine, the entire



stream is chemicalized. This is accomplished by virtue of the fact that the passage of the water through the casing 11 results in rotating the shafts 9 and 10. The rotation of the shaft 10 drives the conveyer screw 26. The movement of this conveyer screw feeds a predetermined amount of chemical, such as bicarbonate of soda, into the mixing chamber 28. By opening the valve 31, water is admitted to this mixing chamber and the bicarbonate of soda in solution is drawn through pipe 32 by the triplex pump, and from said triplex pump is discharged into the outlet 20.

It is to be noted that the bicarbonate of soda is mixed with water and not with an acid which releases the carbonic acid gas from the bicarbonate of soda. In other words, the bicarbonate of soda remains bicarbonate of soda during its passage through the fire hose and until it is discharged upon the fire to be extinguished, the carbonic gas being then released by the heat of the fire.

Where the carbonic acid gas is released at a distant point and is then carried to and discharged upon the fire, much of its fire extinguishing qualities are lost before it reaches the fire. By the present apparatus, I am enabled to convey the chemical in concentrated form directly to the seat of the fire, and only then is the carbonic gas released.

From the foregoing description, it will be seen that simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the precise construction set forth but includes within its purview such changes as may be made within the scope of the appended claim.

Having described my invention, what I claim is:

A water motor comprising a pair of rotative shafts arranged side by side and in parallel relation to each other, a force pump driven from one of said shafts, a conveyer driven from the other of said shafts, a casing in which said conveyer is located, a hopper for containing a chemical to be conveyed by said conveyer, a mixing chamber into which said chemical is delivered by the conveyer, a suction line from the force pump to said mixing chamber, and a delivery line from said force pump to the discharge line of the water motor.

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

JOHN A. THOMAS.

Witnesses:

STANLEY J. CREW,  
J. T. CREW.