

No. 810,532.

PATENTED JAN. 23, 1906.

W. B. HAINES.
COMBINED OIL PUMP AND MEASURE.

APPLICATION FILED OCT. 19, 1903.

Fig. 1.

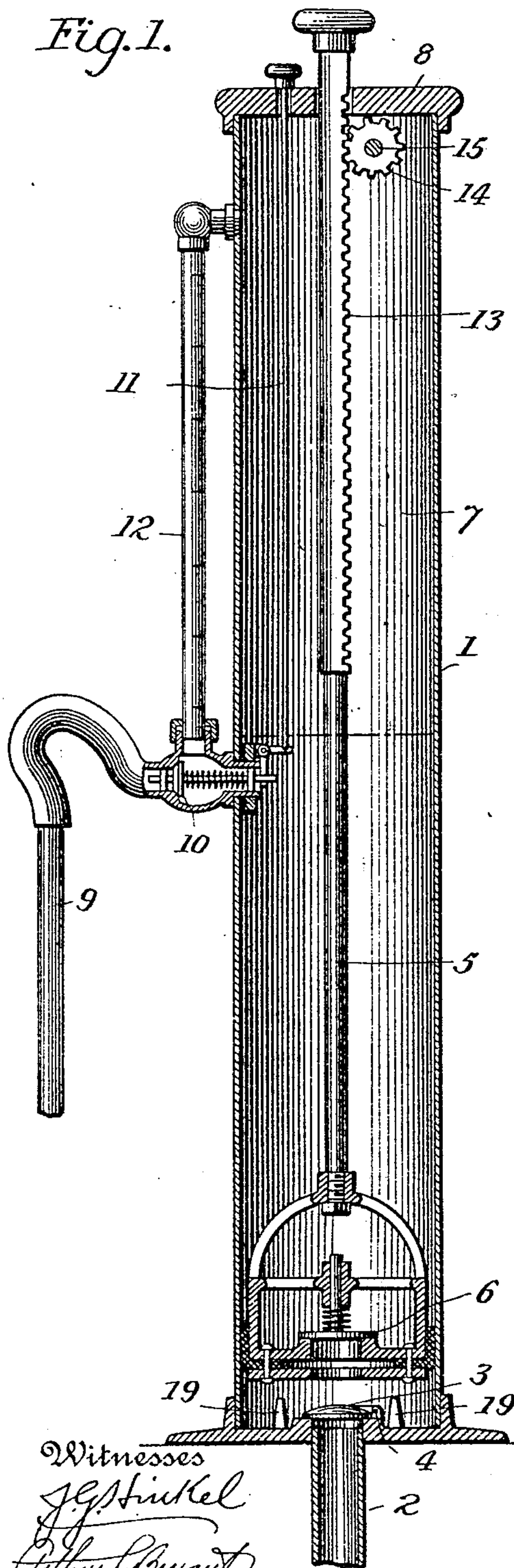


Fig. 2.

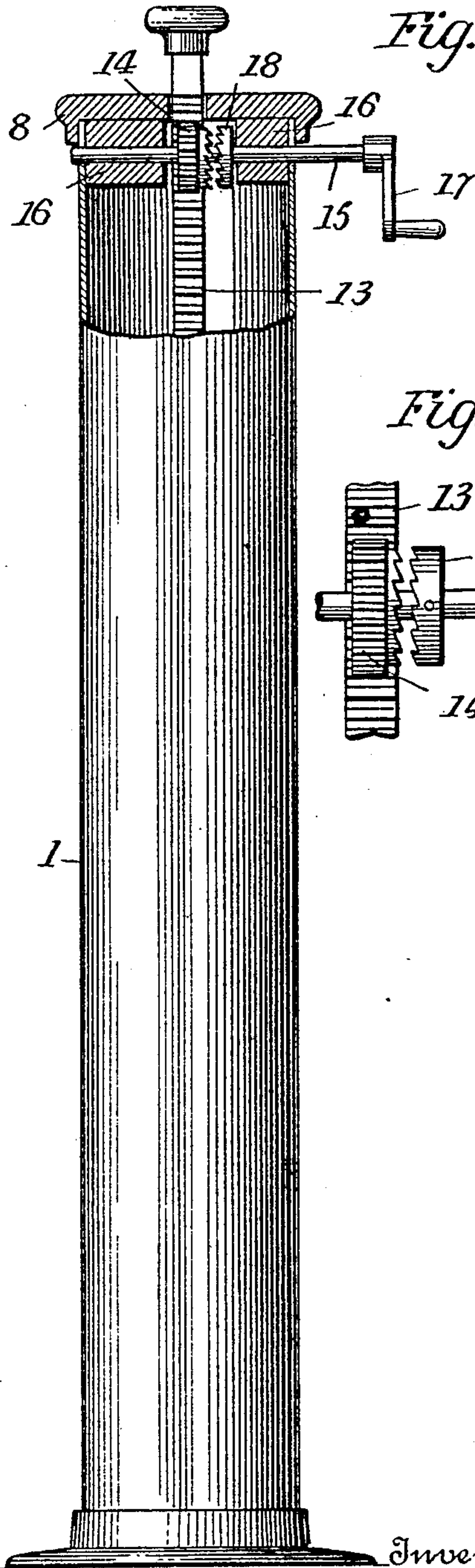
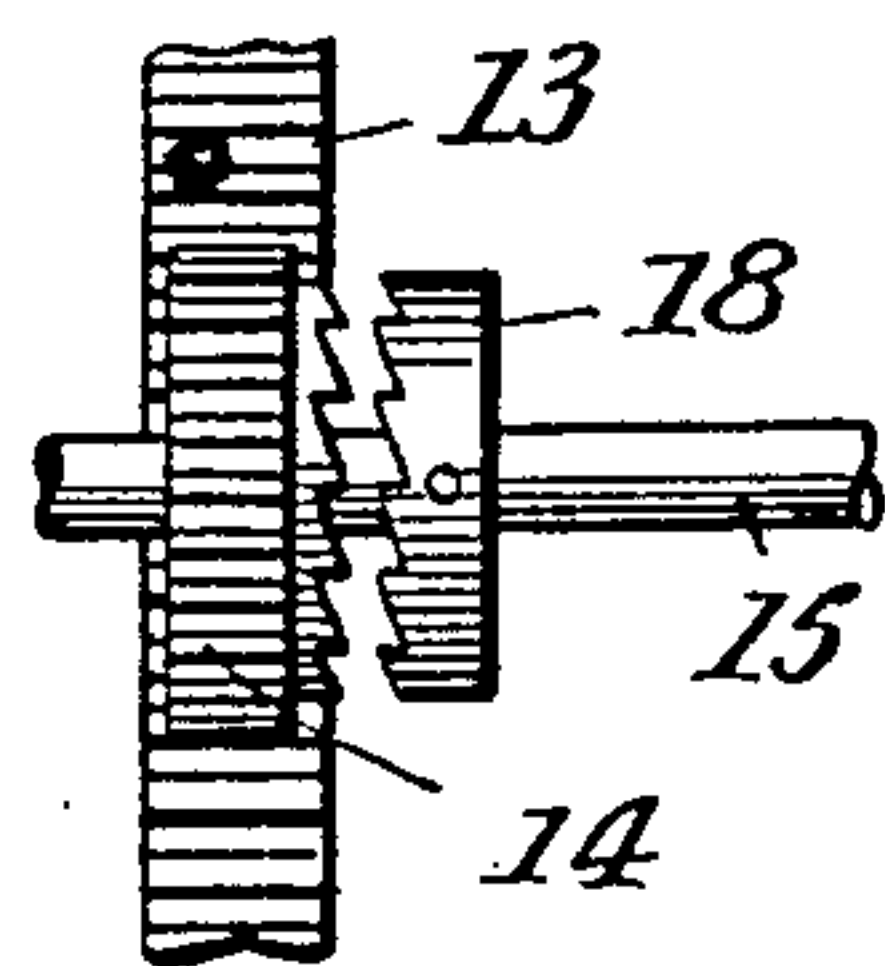


Fig. 3.



Witnesses
J. G. Stuckel
Arthur Bryant

Inventor
William B. Haines
By Foster, Freeman & Watson
Attorneys

UNITED STATES PATENT OFFICE

WILLIAM B. HAINES, OF SUNBURY, PENNSYLVANIA.

COMBINED OIL PUMP AND MEASURE.

No. 810,532.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed October 19, 1903. Serial No. 177,677.

To all whom it may concern:

Be it known that I, WILLIAM B. HAINES, a citizen of the United States, residing at Sunbury, Northumberland county, Pennsylvania, have invented certain new and useful Improvements in a Combined Oil Pump and Measure, of which the following is a specification.

This invention relates to a combined measuring-pump and measuring device especially adapted for use by retail dealers in selling oil; and the object of the invention is to provide a simple device by which any desired quantity of liquid can be accurately measured as it is withdrawn from a larger body or supply.

In the accompanying drawings, Figure 1 is a vertical sectional view through an apparatus constructed in accordance with the present invention. Fig. 2 is a similar view taken on a plane at right angles to that of Fig. 1. Fig. 3 is a detail view.

Referring to the drawings, in the several figures of which like reference characters designate corresponding parts, 1 indicates a pump-barrel, preferably made of metal and of cylindrical form. This barrel 1, which may be of any suitable size and material, is provided at its lower end with a valved aperture or opening communicating with one end of a supply-pipe 2, leading from a tank or other suitable source from which liquid is to be drawn. The supply-tank may therefore be located at any desired distance from the pump or delivery apparatus—for instance, in another apartment or outside of the building containing the pump and measuring device. This is of great importance in case the invention is used in handling inflammable liquids, for which use it is particularly adapted. The opening in the bottom of the pump-barrel is adapted to be closed by a valve 3, pivotally mounted at one side, as at 4, to a suitable stud rising from the bottom of the barrel 1. Within the barrel 1 is arranged a piston or plunger having a valved passage therethrough and connected to the lower end of an upwardly-extending rod 5. A valve 6 is adapted to control the passage of liquid through the passage in the plunger or piston.

Above the pump-barrel and forming a continuation thereof is arranged a measuring-chamber 7. The walls of said chamber may, as shown, be integral with the pump-barrel, a suitable piece of metal tubing, for instance, forming both the said barrel and chamber.

The upper end of the chamber 7 is closed by a suitable cap-piece 8, through which extends the upper end of the piston-rod 5, said rod terminating in an enlarged head. A delivery-spout 9 communicates with the interior of the measuring-chamber and is provided with a valve 10, the stem of which is connected to one arm of a bell-crank lever mounted within the chamber 7 and having its other arm connected to a rod 11, which extends upwardly through the cap-piece 8. A suitably-graduated gage-tube or indicator 12 is arranged outside of the measuring-chamber, with which chamber it communicates at both ends.

A rack 13 is attached to or formed on the piston-rod 5 and with said rack constantly meshes a pinion or gear 14, that is loosely mounted on a shaft 15, mounted to rotate and move longitudinally in suitable bearings 16. The shaft 15 extends beyond the measuring-chamber and is provided at its outer end with a crank or handle 17, by which it can be moved as desired. A clutch-disk 18 is secured on said shaft and adapted to engage the pinion 14 to connect the same to the shaft, so that it will rotate therewith.

The operation of the apparatus hereinbefore described may be briefly stated as follows: Normally the barrel 1 is filled with the oil or other liquid to the level indicated by the dotted line in the drawings, and the plunger or piston is in its lowermost position, where it rests on and is supported by suitable studs or projections 19. All of the valves 3, 6, and 10 are closed, and the shaft 15 may be in such position that the pinion 14 is disengaged therefrom. The shaft 15 is shifted to engage the pinion 14 therewith and then rotated to lift the piston or plunger to raise the desired amount of liquid from the pump-barrel into the measuring-chamber, the amount of such liquid being shown by the gage 12. The several parts are so proportioned also that the amount of liquid thus raised into the measuring-chamber can be ascertained by noting the extent of rotation of the shaft 15. For instance, the parts are preferably so proportioned that one revolution of the shaft when the plunger or piston is in its lowermost position will raise one quart of liquid into the measuring-chamber. Two revolutions of the shaft will raise two quarts, &c. By thus providing two measuring means the accuracy of the apparatus is maintained. When the desired amount of liquid has been raised into the measuring-chamber,

it can be drawn therefrom by raising the plug 10 at the inner end of the delivery-spout 9. As the piston or plunger rises in the pump-barrel the valve 3 is opened, owing to the pressure below it being then in excess of that on its upper surface, and liquid is drawn into the pump from the supply-pipe 2 to replace that raised into the measuring-chamber. The shaft 15 can be disengaged from the pinion 14 and rack 13 when desired and the piston or plunger returned to the lower end of the pump-barrel by applying pressure to the upper enlarged end of the piston-rod. As the piston or plunger descends the valve 6 therein is forced open and the liquid previously drawn into the pump-barrel through the valve 3 allowed to pass to the upper side of the piston or plunger, said valve 6 closing again when the piston comes to rest at the lower end of the barrel 1.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In an apparatus for the purpose described, the combination of a measuring-pump having its cylinder or barrel extended upwardly to form a measuring-chamber, a rack connected to the rod or stem of the pump-plunger, a shaft journaled in opposite walls of the measuring-chamber and having at one end a suitable crank or handle, a pinion loosely mounted on said shaft and constantly engaging the rack on the piston-rod, means for clutching the pinion to the shaft, and a delivery-spout leading from the measuring-chamber.

2. In an apparatus for the purpose described, the combination of a measuring-pump having its barrel extended upward to form a measuring-chamber and provided

with a valved inlet at its lower end, a rack at the upper end of the rod of the piston or plunger of the pump, a shaft mounted to rotate and move longitudinally in bearings in opposite walls of the measuring-chamber, a pinion loose on said shaft and constantly meshing with said rack, a clutch-disk fast on the shaft and adapted to be moved to and from engagement with said pinion as the shaft is moved longitudinally, and a delivery-spout leading from the measuring-chamber.

3. In an apparatus for the purpose described, the combination of a measuring-pump having its barrel extended upward to form a measuring-chamber and provided with a valved inlet at its lower end, a rack at the upper end of the rod of the piston or plunger of the pump, a shaft mounted to rotate and move longitudinally in bearings in opposite walls of the measuring-chamber, a pinion loose on said shaft and constantly meshing with said rack, a clutch-disk fast on the shaft and adapted to be moved to and from engagement with said pinion as the shaft is moved longitudinally, a delivery-spout leading from the measuring-chamber, and a gage connected at its ends with the upper portion of the pump-barrel and with said delivery-spout, the parts being so proportioned that the quantity of liquid delivered at each revolution of the handle will correspond to the amount indicated by one of the graduations on the gage.

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

WILLIAM B. HAINES.

Witnesses:

B. F. KELLEY,
W. E. BLOOM.