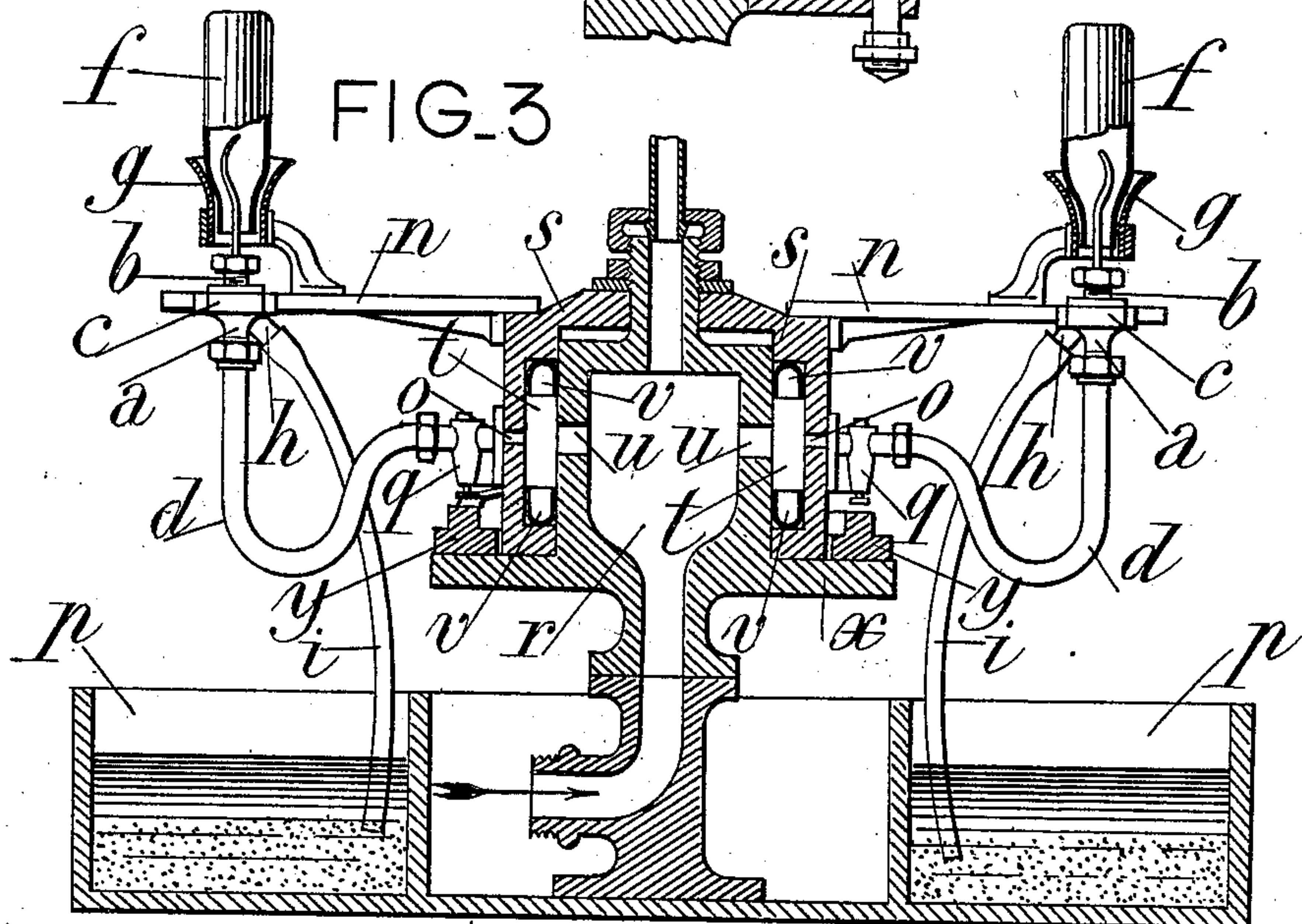
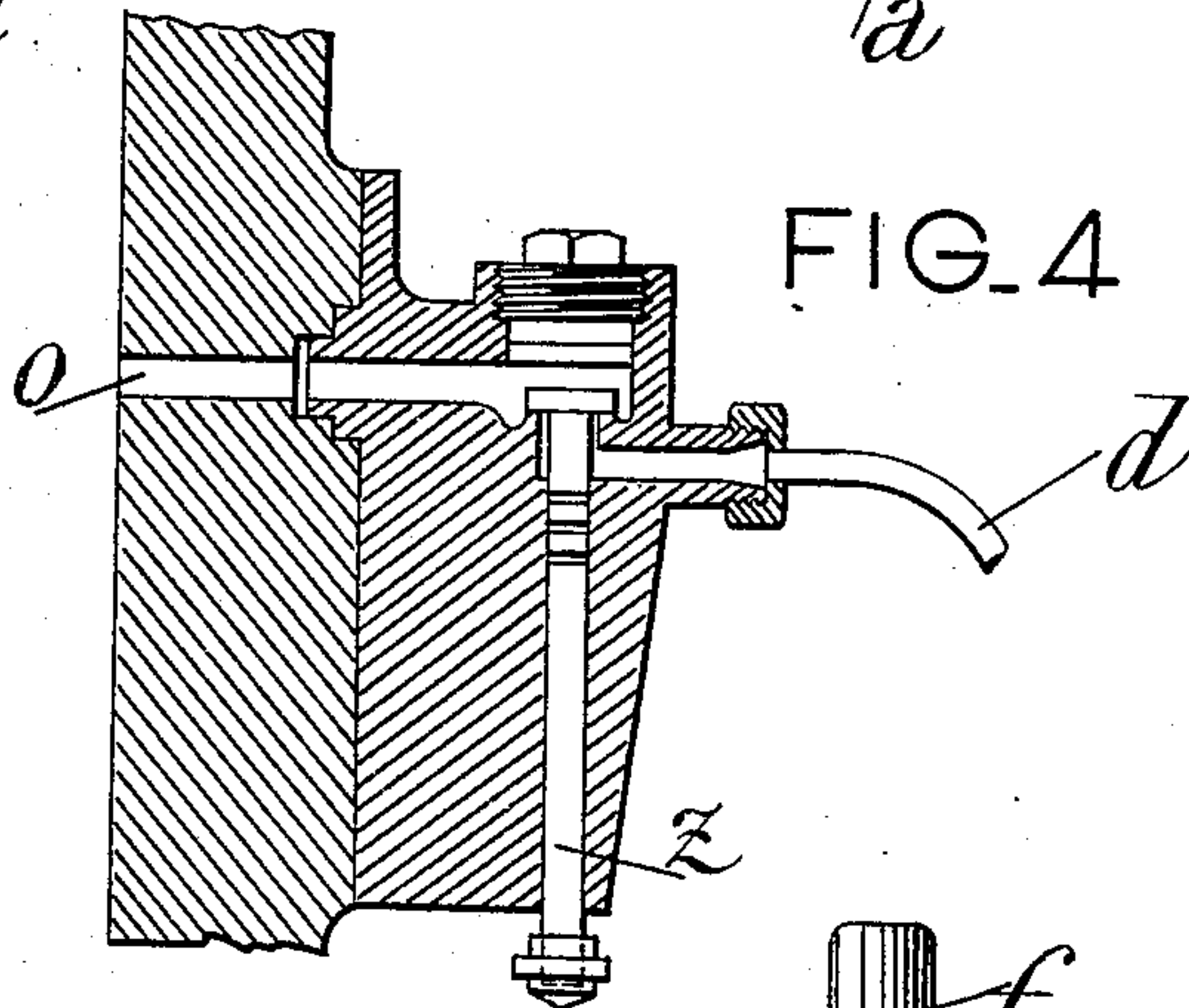
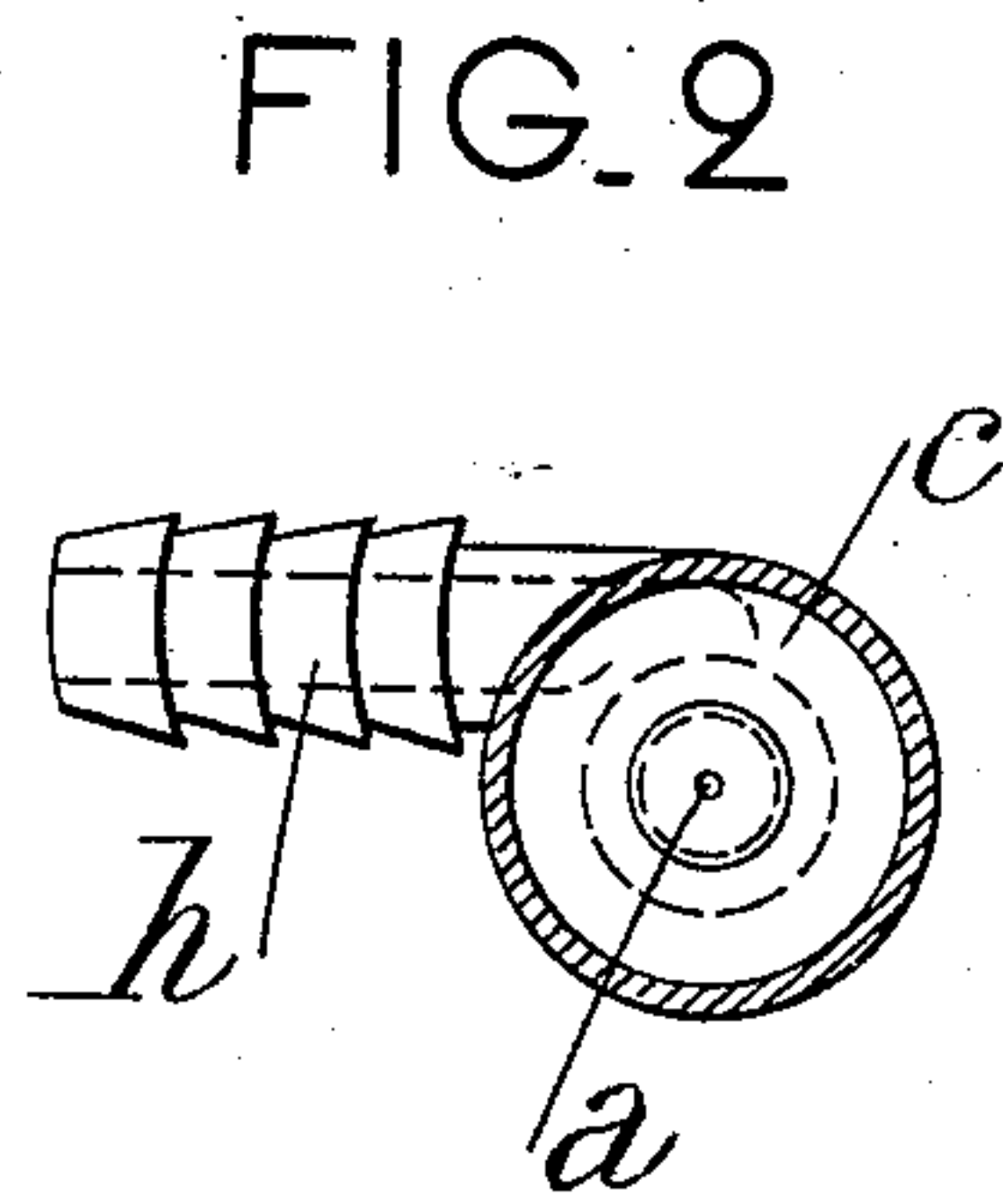
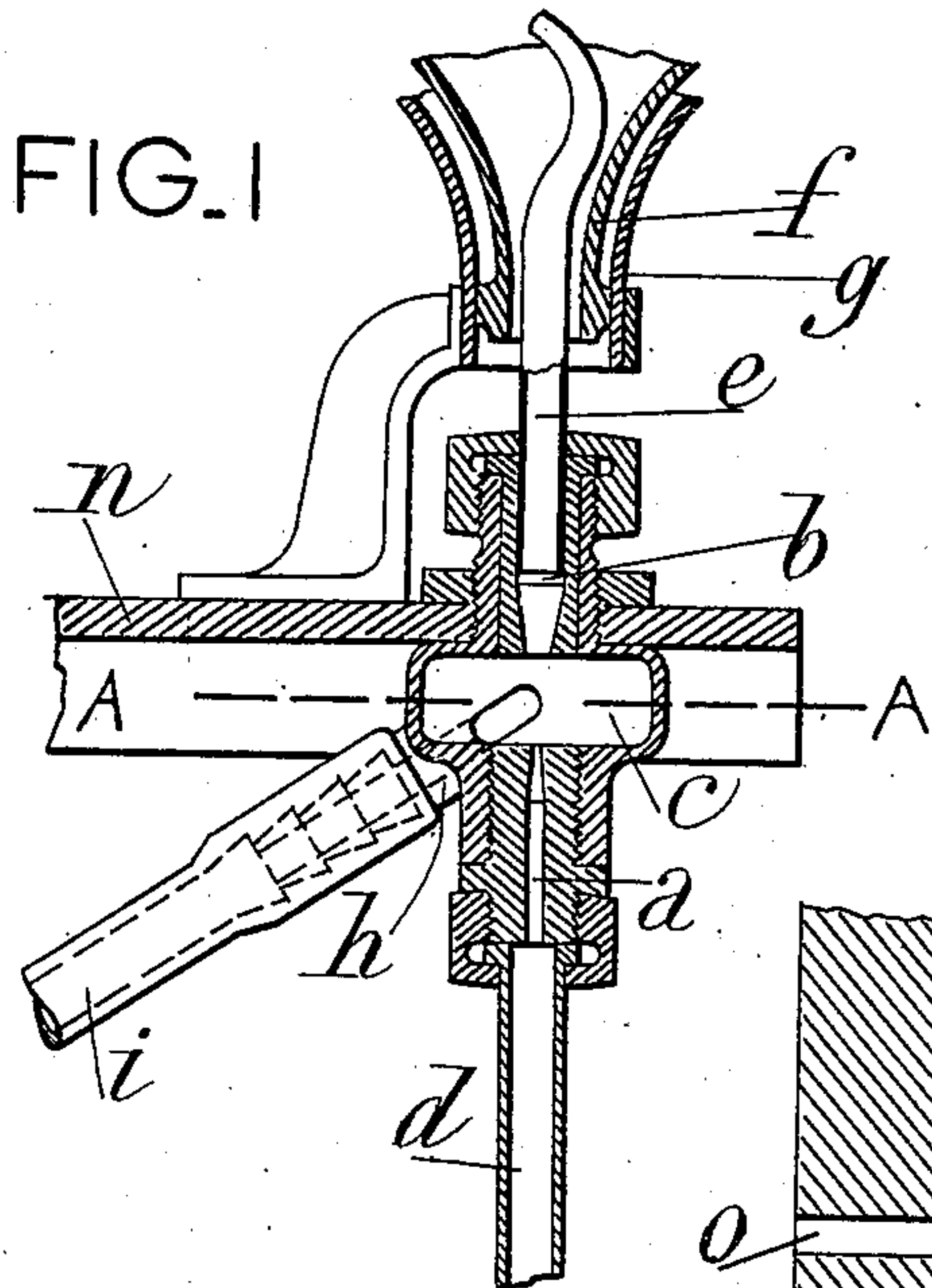


No. 828,361.

PATENTED AUG. 14, 1906.

A. & C. WINCKLER.  
MACHINE FOR WASHING AND RINSING BOTTLES.

APPLICATION FILED JAN. 10, 1905.



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# UNITED STATES PATENT OFFICE.

ALBERT WINCKLER AND CHARLES WINCKLER, OF LYON, FRANCE.

## MACHINE FOR WASHING AND RINSING BOTTLES.

No. 828,361.

Specification of Letters Patent.

Patented Aug. 14, 1906.

Application filed January 10, 1905. Serial No. 240,417.

*To all whom it may concern:*

Be it known that we, ALBERT WINCKLER and CHARLES WINCKLER, citizens of France, residing at 3 Rue de l'Humilité, Lyon, France, have invented new and useful Improvements in Machines for Washing and Rinsing Bottles, of which the following is a specification.

The machine forming the subject of the present invention has for its object to wash bottles by means of an inclined jet of water at high pressure carrying with it particles of carbon, pumice-stone, hard india-rubber, ebonite, or other material capable by their friction of cleaning the surface of the glass without scratching it.

Sand, which is at present ordinarily employed, scratches the glass, and its use should be discontinued. The rinsing takes place without removing the bottle by means of the same jet of water under pressure without the cleaning particles before mentioned. The removal of the bottle is then effected automatically.

The accompanying drawings represent at Figure 1 one of the injectors supporting the bottle and distributing to it the water and cleansing material. Fig. 2 is a horizontal section on the line A A of Fig. 1. Fig. 3 shows in elevation one of the arrangements which can be given to the whole of the machine, the part of the apparatus designed to automatically remove the bottles not being represented. Fig. 4 represents in section one of the valves for controlling the flow of liquid into the bottles.

The injector, Figs. 1 and 2, consists of two tubes *a* *b*, situated in the same vertical axis and separated by a circular chamber *c*. The tube *a* is terminated by a truncated conical part opening into the chamber *c* by a very small opening. The tube *d* conveys to it pure water at a pressure of ten to fifteen atmospheres. The tube *b* is also terminated at the end opening into the chamber *c* with a truncated conical part, but with wider opening than the preceding. It is terminated at the upper part by a curved tube *e*, open at its upper part.

The bottle *f* to be washed is reversed on the tube *e* and supported by a conical funnel *g*, carried by a support at a small distance from the body of the injector. The bottle is held in position by the wedging of its neck in the bottom of the funnel. On the chamber *c* is arranged a third tube *h* of larger diameter

than the tube *b*, and arranged to receive a flexible tube *i*, which plunges into a reservoir containing water and particles of ebonite or other cleansing-body.

The operation of this apparatus is readily understood: The water under pressure entering the chamber *c* with great speed draws by the tube *h* the mixture of water and ebonite which fills the chamber *c*. The jet under pressure draws with it this mixture into the tube *b* where, consequent on the conical divergent form of the inlet, the speed is preserved at its maximum. Finally the mixture is projected with energy by the curved tube *e* on the interior surface of the bottle and describes on this surface an inclined path during which the particles of ebonite or other matter completely cleanse the interior of the bottle. The mixture having operated, runs out by the neck around the tube *e* and returns to the reservoir to be again drawn up by the tube *i*. The employment of india-rubber more or less hardened or of ebonite as cleansing-body avoids the scratching of the bottles produced by the shock of the molecules of other bodies and also avoids the wear of the washing-jet, which deteriorates with sufficient rapidity by the passage of other matters. On the other hand, ebonite and india-rubber generally being a body the molecules of which have great cohesion among themselves, it results that the waste produced thereby during the washing is almost nothing. When it is judged that the bottle is completely cleansed, the rinsing is proceeded with, preventing the entry of the fragments of ebonite or other body. For this it suffices to remove the flexible tube *i* from the reservoir, whence it draws these fragments. Pure water then arrives alone during the time necessary for the rinsing. Then the water is shut off to withdraw the bottle and replace it by another, after which the same operation is recommenced. In practice these different operations should be effected automatically and on a large number of bottles at a time. Various arrangements are capable of fulfilling this purpose. One of them is represented at Fig. 3. In this arrangement the valves *q* are arranged to open or close communication between the chamber *r* into which the water under pressure arrives, and the tubes *d*, which communicate with the bottles *f*. These valves are of course of equal number to that of the tubes *d*.

The chamber *r* has externally the form of a



cylinder furnished with a lower flange *x*, upon which rests a cap *s*, carrying the supporting-arms *n*. In the interior of this cap, as represented in section on the drawings, is formed a circular groove *t*, which when the cap is in position forms an annular chamber communicating with the chamber *r* by orifices *u* and with the valves *q* by openings *o*. When the valves *q* are closed, the liquid entering the chamber *r* cannot enter the tubes *d*. The contrary takes place when these valves are open.

It will be understood that to control the flow of liquid into the bottles *f* it is only necessary to open or close the valves *q* at the desired moment by suitable means. The cap *s*, receiving during the working of the apparatus a rotary movement, slides on the flange *x* and around the exterior side of the chamber *r*, which remains immovable, and the valves following this movement the desired result may be obtained by fixing on the exterior part of the flange *x* an annular cam *y*, which will raise or allow to descend the rods *z*, Fig. 4, operating the valves. It will be easy to construct this cam with a convenient curve, so that the valves are opened or closed in such manner that the arrival and interruption of arrival of the liquid into the bottles take place at the desired time to secure a good working of the apparatus. The cup-leathers *v* are for the purpose of forming a perfect joint between the interior face of the cap *s* and the exterior side of the chamber *r*.

The rotation of the cap *s* is obtained by any suitable mechanism.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A machine for washing and rinsing bottles comprising a chamber, a support for the bottle above the chamber, an outlet-nozzle from the chamber to the interior of the bottle, means for delivering fluid under pressure to said chamber, a receptacle containing solid particles, and a flexible pipe having one end in communication with the chamber and its free end depending in the said receptacle.

2. A machine for washing bottles comprising a rotatable support, a series of chambers carried thereby, nozzles connected to the chambers, means for supporting bottles over the nozzles, said means being carried by the rotatable support, means for delivering fluid under pressure to the said chambers, a receptacle containing solid particles and flexible pipe having one end connected to the chamber and its free end depending in the said receptacle.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ALBERT WINCKLER.  
CHARLES WINCKLER.

Witnesses:

GASTON JEAUNIAUX  
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