

No. 829,546.

PATENTED AUG. 28, 1906.

P. SCHOU.
PACKING.

APPLICATION FILED NOV. 28, 1904.

Fig.1.

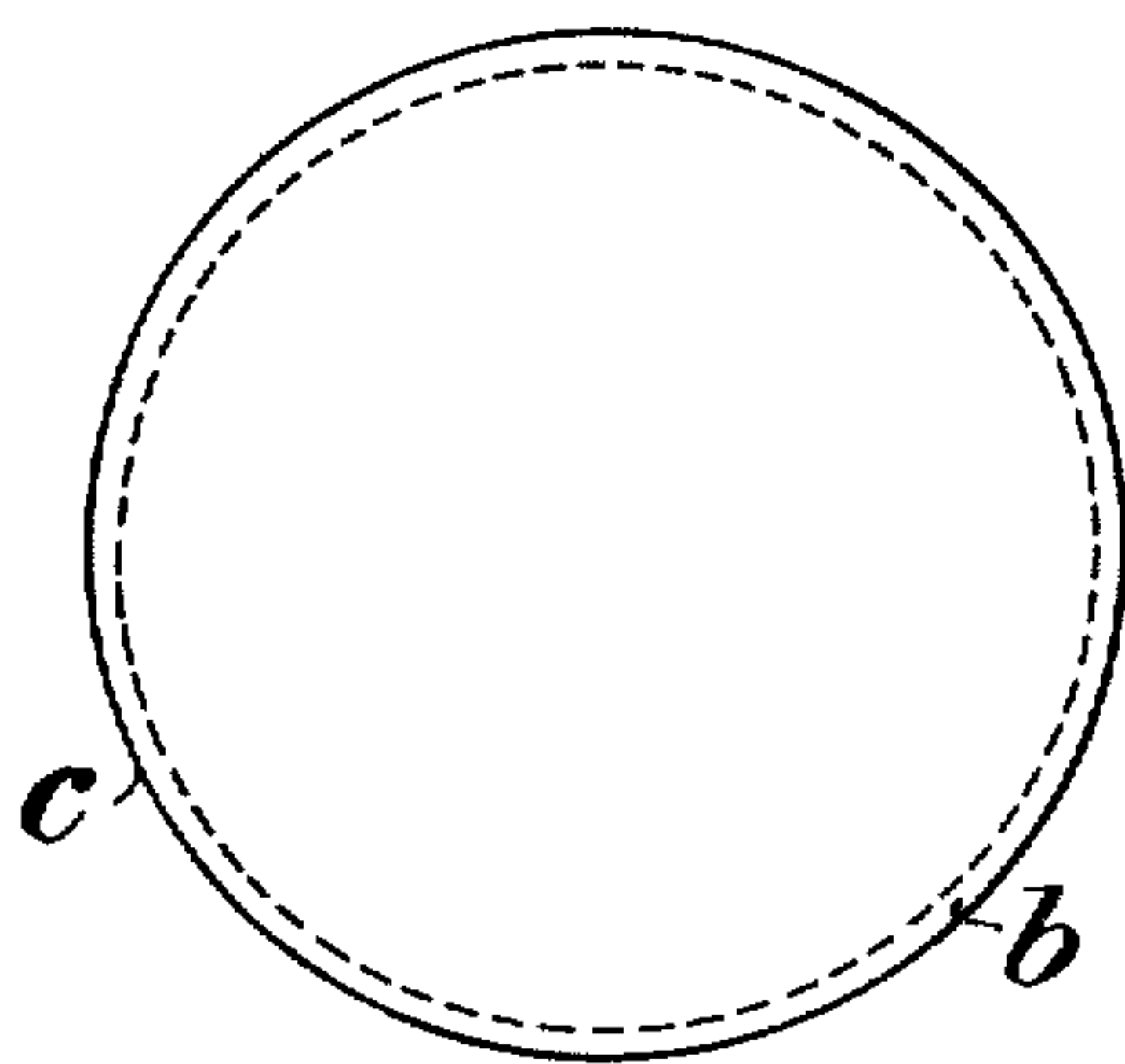


Fig.3.

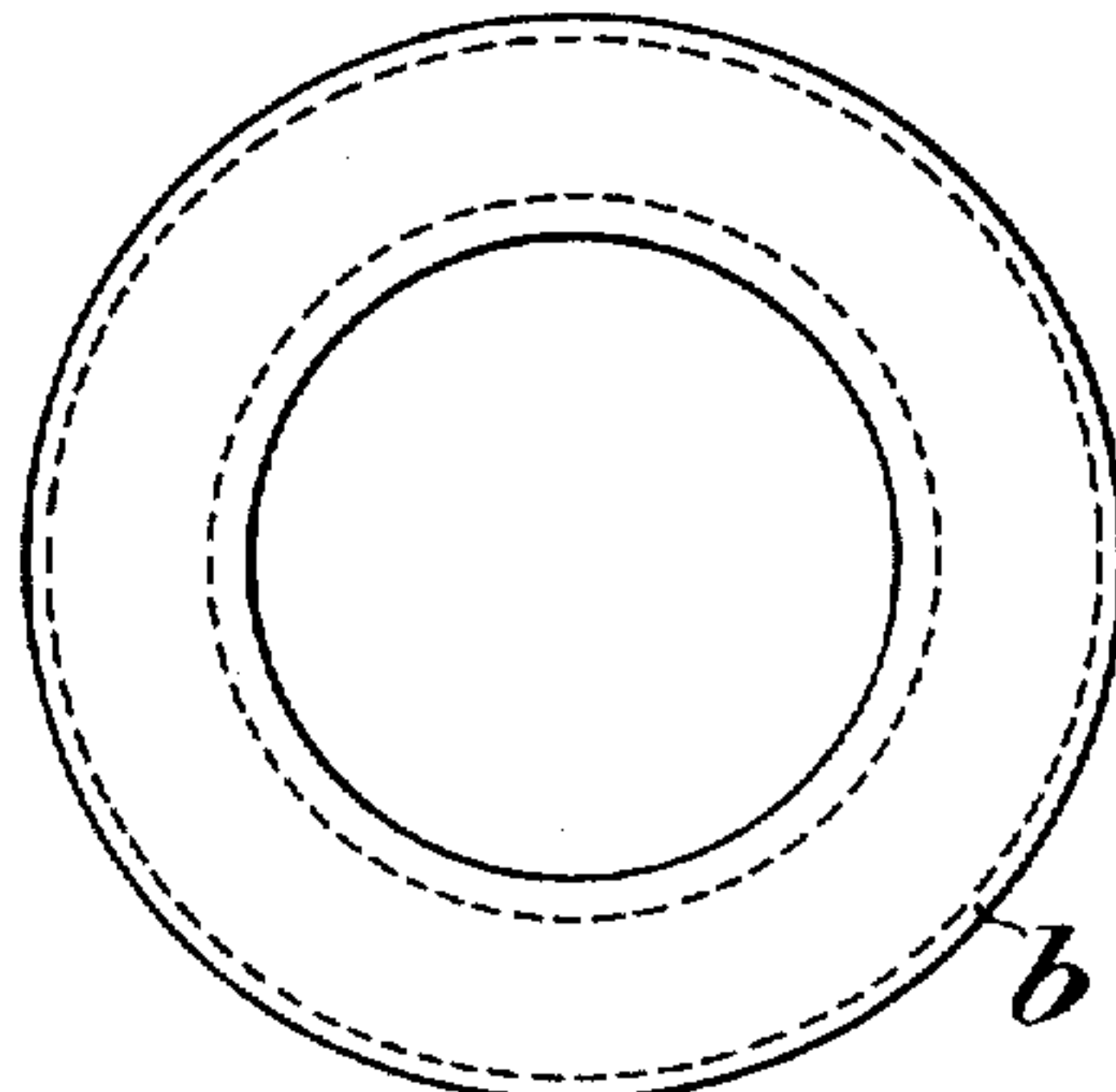


Fig.2.

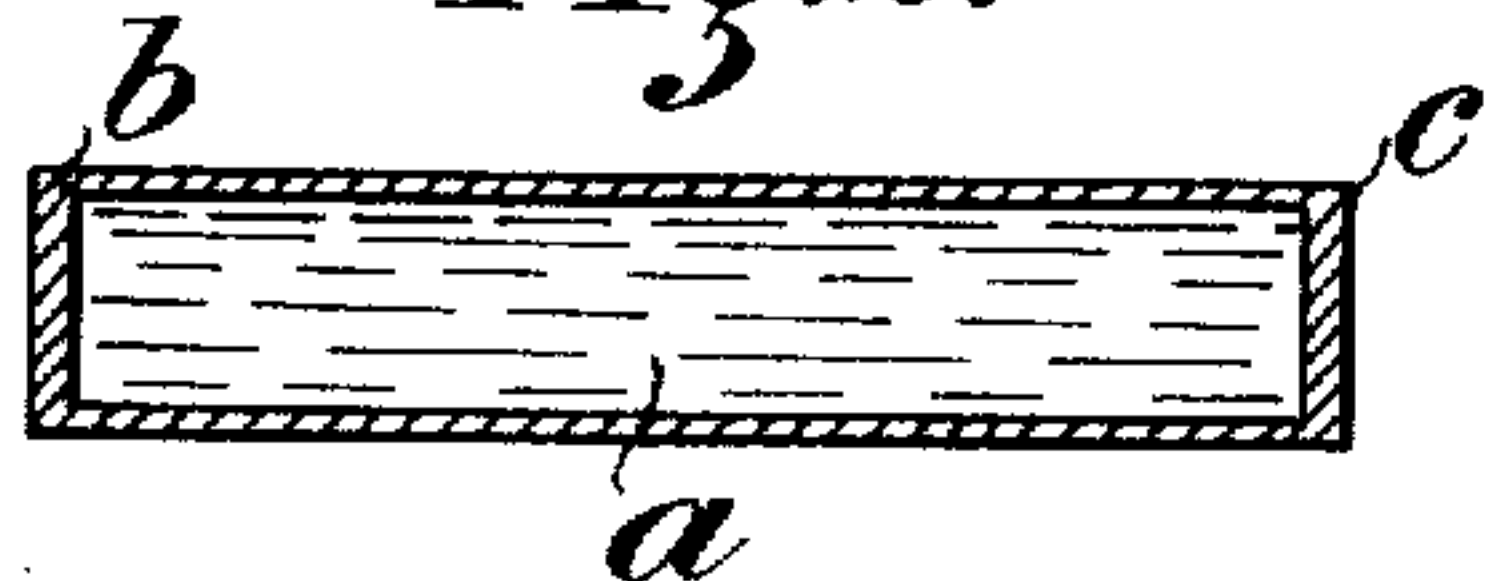


Fig.4.

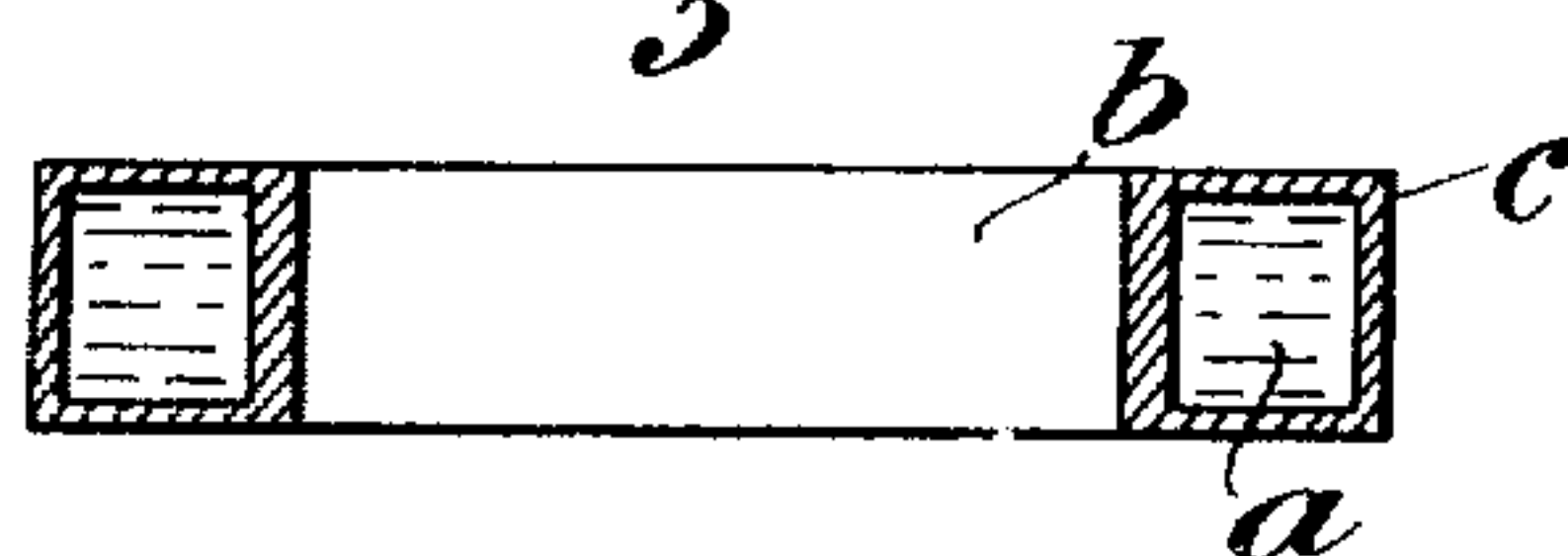
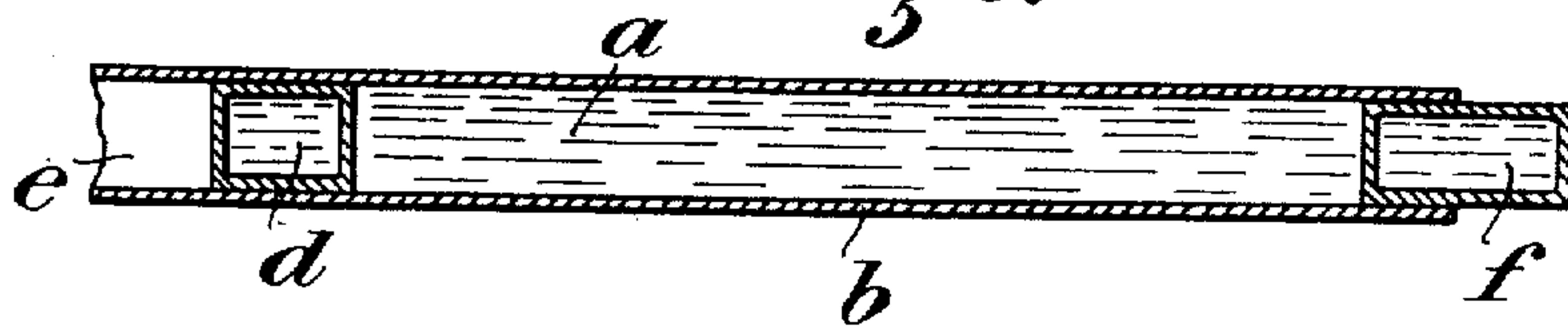


Fig.5.



Witnesses.
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UNITED STATES PATENT OFFICE.

PAUL SCHOU, OF COPENHAGEN, DENMARK.

PACKING.

No. 829,546.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed November 28, 1904. Serial No. 284,686.

To all whom it may concern:

Be it known that I, PAUL SCHOU, civil engineer, a citizen of the Kingdom of Denmark, residing at No. 257 Vesterbrogade, Copenhagen, V., in the Kingdom of Denmark, have invented certain new and useful Improvements in Packing Devices; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The present invention refers to packing devices (rings, disks, tubes, and the like) consisting of a core of liquid or semiliquid matter (water, glycerin, oil, or alike) and a soft elastic cover (india-rubber, caoutchouc, woven fabric, or alike) inclosing the said liquid core.

Owing to the elasticity of the cover and to its intimate touch everywhere with the inclosed liquid core the principal feature of the present packing device will consist in its capability of transmitting instantaneously and evenly in all directions any pressure exerted on the outside of the packing, even if this pressure be only a very small one. At the same time the packing remains perfectly incompressible as far as its volume is concerned. It only alters its shape when exposed to exterior pressure and again assumes its original shape when the pressure is removed.

As the present packing devices are closed up and completely finished before use, the tightening effect can only be produced by an outside pressure, either by mechanical means or by means of the pressure existing in the working room or by both means combined.

The liquid used must be of such a kind that it does not by the existing temperature develop steam or gas which would prevent a direct touch between the liquid core and the cover, and thus do away with the incompressibility.

The accompanying drawings illustrate various forms of the packing device.

Figures 1 and 2 show a disk, and Figs. 3 and 4 a ring, respectively, in top view and in cross-section. Fig. 5 represents a tube in longitudinal section and which can be bent into a ring.

a is the liquid-core, and *b* the cover. The thickness of the cover can, as shown in Figs.

3 and 4, be different in different parts of the disk or ring. The edges *c* may be sharp or rounded off. The profile is indifferent and depends upon the cross-section of the place where the packing is to be employed.

In Fig. 5 the cover *b* is a tube open in both ends. One end of the tube is closed by a plug *d*, (filled with liquid and having an elastic cover,) leaving the extremity *e* of the tube free. The other end is closed with a similar but somewhat longer plug *f*, part of which projects outside the tube. When the tube is bent into a ring, the free end of the plug *f* can be introduced into the part *e* of the tube's other end, and the whole will be closed and act as the ring shown in Figs. 3 and 4.

The employment of liquid and semiliquid substances in packing devices is not new; but hitherto the covers have generally been made of metal, or the packing devices when the covers consisted of an elastic material were either partly filled with liquid or with air-containing liquid after they had been placed in position, or liquid was pressed through the hollow space of the packing by means of a pumping device or the like. If metal covers or covers not completely filled with liquid are used, it will be impossible to obtain the same result as with the present packing devices—viz., local sensitiveness even by the smallest pressure in combination with total incompressibility, and consequently instantaneous and equal distribution of the pressure. As has been proved by numerous experiments, a perfect tightness by a minimal friction to an extent hitherto unknown is obtained by the present invention.

The nature of the liquid or of the cover is irrelevant to the invention. It is also without importance whether the cover is made in one piece or made up of several parts, also whether it is homogeneous or consists of two or several layers of different substances if it only be soft, elastic, and, relatively speaking, thin.

What is considered the invention, and what it is desired protected by United States Letters Patent, is—

1. A yielding hollow sealed packing filled with a liquid of substantially unalterable volume.

2. An elastic hollow sealed packing filled, with an incompressible liquid of substantially constant consistency under varying temperature conditions, substantially as described.

3. A sealed elastic hollow packing filled with glycerin, substantially as described.

4. A closed elastic hollow packing entirely filled with a substantially incompressible fluid
5 said fluid sealed therein.

5. A closed elastic hollow rubber packing filled with a liquid said liquid sealed therein.

6. A hollow packing having separate internal chambers and each chamber filled with
10 a liquid.

7. An elastic hollow packing having end chambers and intermediate chambers and each chamber filled with a liquid.

8. An elastic hollow packing-tube having
15 end chambers fitted liquid-tight therein to

form a chamber intermediate of them, one of the chambers projecting from one end of the tube, the other a slight distance from the other end, so that the projecting chamber can enter the other end of said tube when bent into a ring, and all of the chambers filled with a liquid.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

PAUL SCHOU.

Witnesses:

A. HOFMAN SAWYER,
ALBERT S. MICHELSON.