July 5, 1932. F. SCHÜRMANN 1,865,969

SEALING MEANS FOR FLUID STORING CONTAINERS

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Fig. 1.

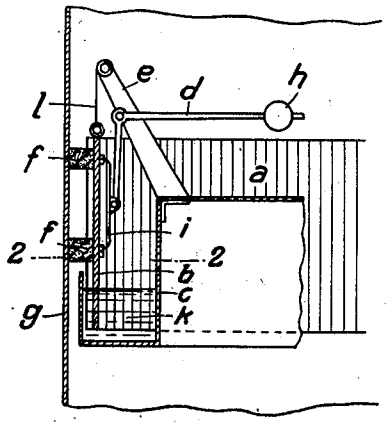
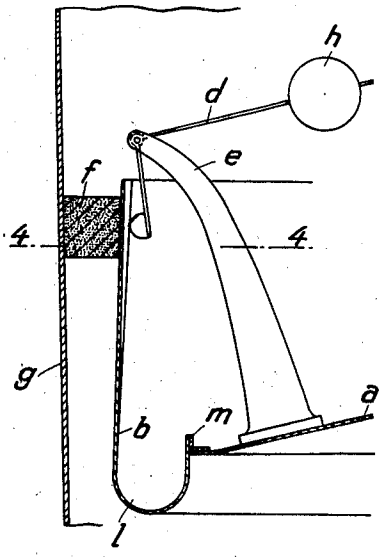


Fig. 3.



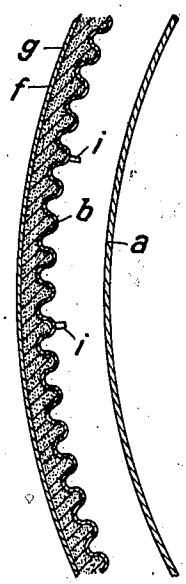
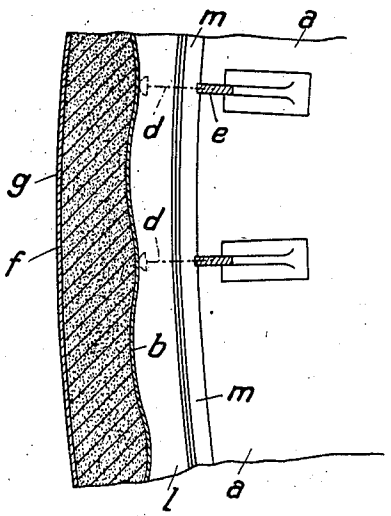


Fig. 2.

Fig. 4.



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Fig. 5.

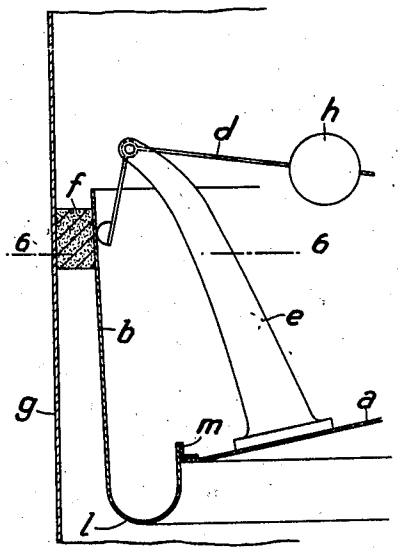


Fig. 7.

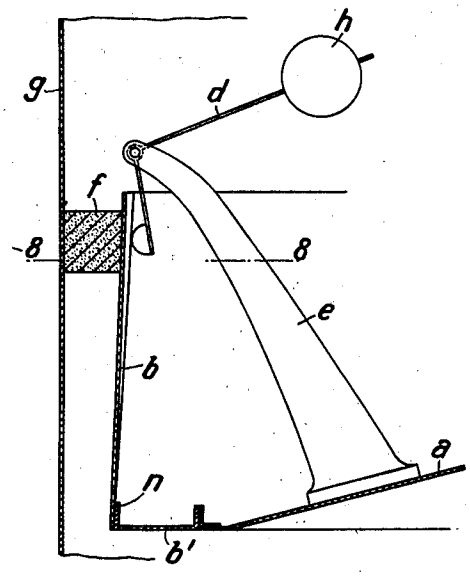


Fig. 6.

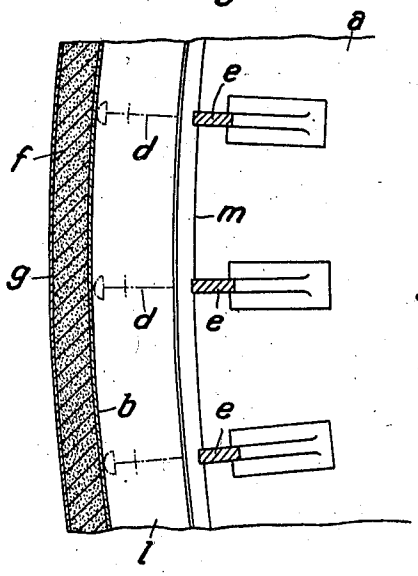
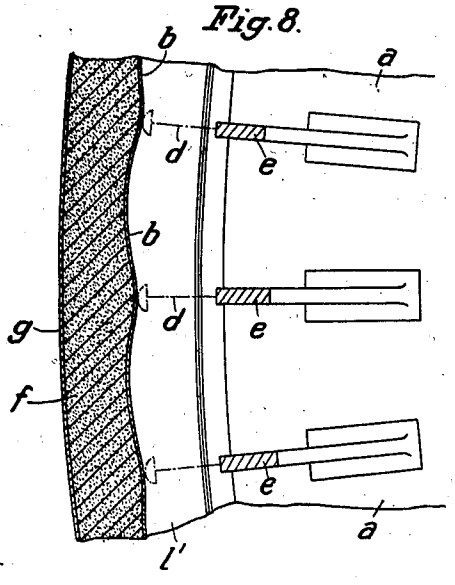


Fig. 8.



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UNITED STATES PATENT OFFICE

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SEALING MEANS FOR FLUID STORING CONTAINERS

Application filed March 8, 1929, Serial No. 345,500, and in Germany March 8, 1928.

This invention relates to a sealing piston of a reservoir for the storage of gas, steam or volatile liquids, the sealing ring of which piston is supported by an extensible sheet metal ring. According to the present invention the extensible ring is made of corrugated sheet metal. This simplifies the manufacture of the extensible sheet metal ring and makes the ring more yielding. Preferably the corrugations of the sheet metal ring are tapered downwardly, while the sheet metal ring is rigidly connected at its lower end with the sealing piston. The connection may be made in such a manner that the lower edge of the sheet metal ring is bent inwards and upwards and is rigidly connected by its upwardly bent end with the sealing piston.

Several constructional examples of the invention are shown in the accompanying drawings, in which

Fig. 1 is a vertical section through one constructional form,

Fig. 2 a horizontal section on line 2—2 of Fig. 1,

Fig. 3 a vertical section through a second constructional form,

Fig. 4 a horizontal section on line 4—4 of Fig. 3,

Fig. 5 a vertical section through the same constructional form as Fig. 3 but with the parts in a different position,

Fig. 6 a section on line 6—6 of Fig. 5,

Fig. 7 a vertical section through a third constructional form and

Fig. 8 a horizontal section on line 8—8 of Fig. 7.

The sealing piston illustrated in Figs. 1 and 2 consists of a disc-shaped member *a* which is provided with a shell *c*. At the lower end of the shell a liquid pocket *k* is formed. The piston *a* is provided with supports *e*, to which an extensible sheet metal ring *b* is suspended by means of ropes. The extensible sheet metal ring consists of corrugated sheet metal, said corrugations being vertically disposed as is clearly shown in Fig. 2. In the example shown it supports two sealing rings *f* which rest against the inner surface of the container *g*. Instead of two rings a single ring might be used, but more than two rings may also be used.

On the supporting members *e* cranked levers *d* are pivoted which support sliding weights *h*. The downwardly extending arm of the cranked lever *d* is pivoted to a bar *i* which is rigidly fixed to the corrugated sheet metal.

Through the weight-loaded cranked levers the sealing rings *f* are pressed by means of the corrugated sheet metal ring firmly against the inside wall of the container *g*, so that an effective seal is formed at this place. The lower end of the sheet metal ring *b* extends into the liquid pocket *k* so that a good seal is obtained at the lower end as well.

If it is desired to do without a liquid pocket, the constructional forms shown in Figs. 3 to 8 may be used. In these constructional forms the corrugations of the corrugated sheet metal ring taper towards the bottom. In other words, the height of the corrugations decreases towards the bottom, such that the sheet metal ring is smooth at the bottom, as will be seen from Figs. 3, 5 and 7.

In this constructional form it is advisable to use a single sealing ring *f* only.

Figs. 3 and 4 show the sealing ring when new, while Figs. 5 and 6 show it after it has become worn.

As Figs. 3 and 5 show the sheet metal ring *b* is connected by means of a U-shaped ring 1 to the piston body *a*. In the constructural form shown in Figs. 3 to 6 the U-shaped ring 1 is made integral with the sheet metal ring *b*. The free end of the sheet metal ring *b* is rigidly connected to the body *a* for instance by means of the ring *m* of angle iron.

In the constructional example shown in Figs. 7 and 8 the U-shaped ring 1′ consists of a separate part which is connected to the sheet metal ring *b* at *n*.

What I claim is:

1. A sealing piston for containers for the storage of gas, steam or volatile fluids comprising an extensible ring of corrugated sheet metal, said corrugations being vertically disposed, and a sealing ring supported by said sheet metal ring.

2. A sealing piston for containers for the storage of gas, steam or volatile fluids comprising an extensible ring of corrugated sheet metal, said corrugations being vertically disposed, and a sealing ring supported by said sheet metal ring, said corrugated sheet metal ring having its corrugations tapering towards the lower end and smooth at the lower end, and means for connecting the said lower end to the body of the sealing piston in a gas-tight manner.

3. A sealing piston for containers for the storage of gas, steam or volatile fluids comprising an extensible ring of corrugated sheet metal, said corrugations being vertically disposed, and a sealing ring supported by said sheet metal ring, said corrugated sheet metal ring having its corrugations tapering towards the lower end and smooth at the lower end, and a U-shaped ring for connecting the said lower end to the body of the sealing piston in a gas-tight manner.

4. A sealing piston for containers for the storage of gas, steam or volatile fluids comprising an extensible ring of corrugated sheet metal, said corrugations being vertically disposed, and a sealing ring supported by said sheet metal ring, said corrugated sheet metal ring having its corrugations tapering towards the lower end and smooth at the lower end, and a U-shaped ring connected to the corrugated sheet metal ring for connecting the said lower end to the body of the sealing piston in a gas-tight manner.

In testimony whereof I have affixed my signature.

FRIEDRICH SCHÜRMANN.