No. 637,996. Patented Nov. 28, 1899.

H. W. H. POWEL.

CAN.

(Application filed May 15, 1897.)

(No Model.)

Fig. 1.

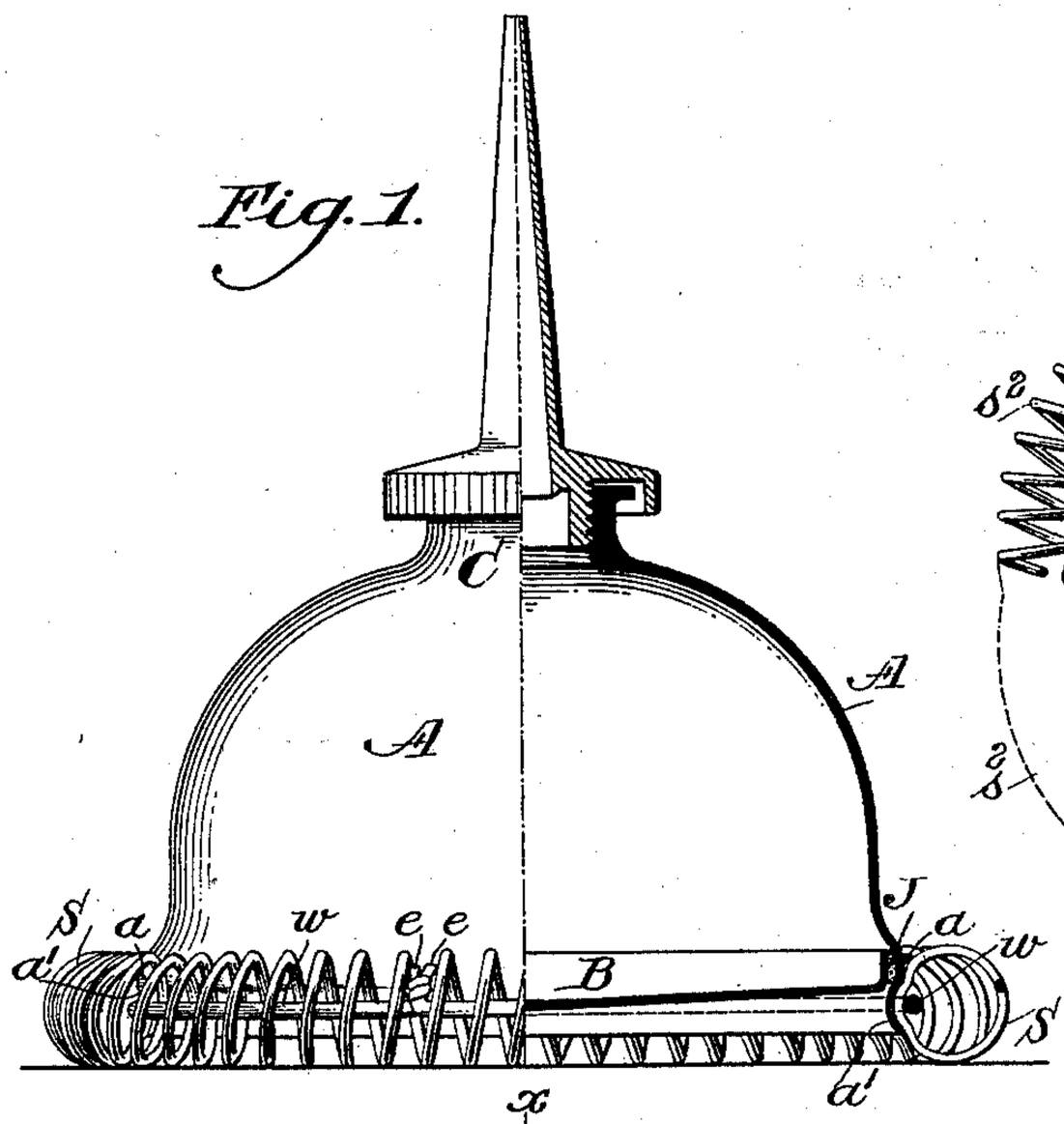


Fig. 3.

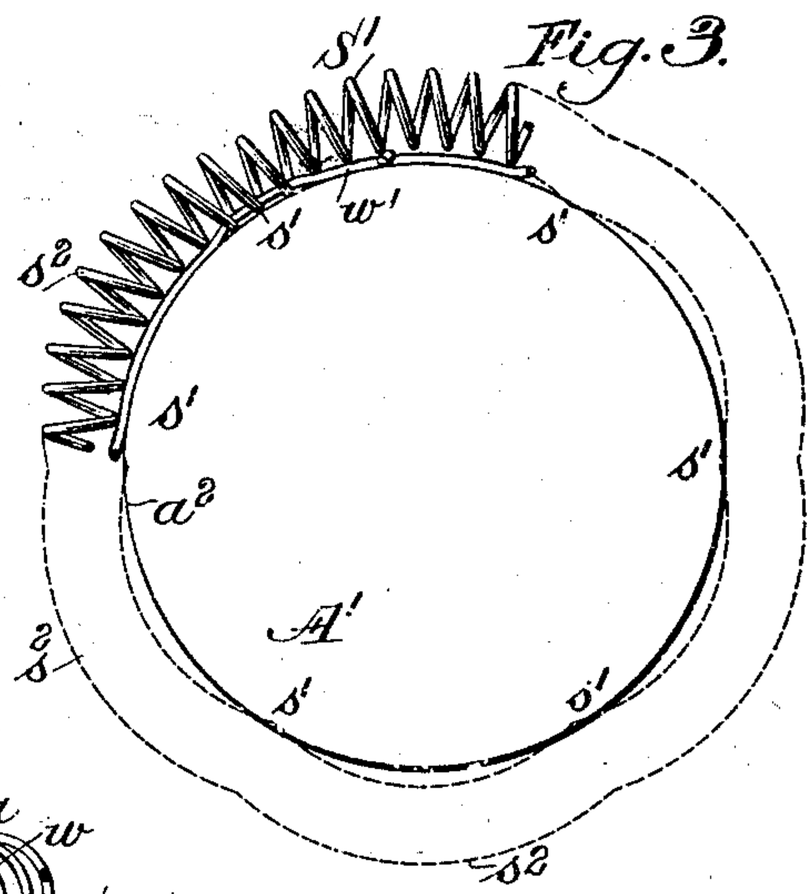


Fig. 2.

Fig. 4.

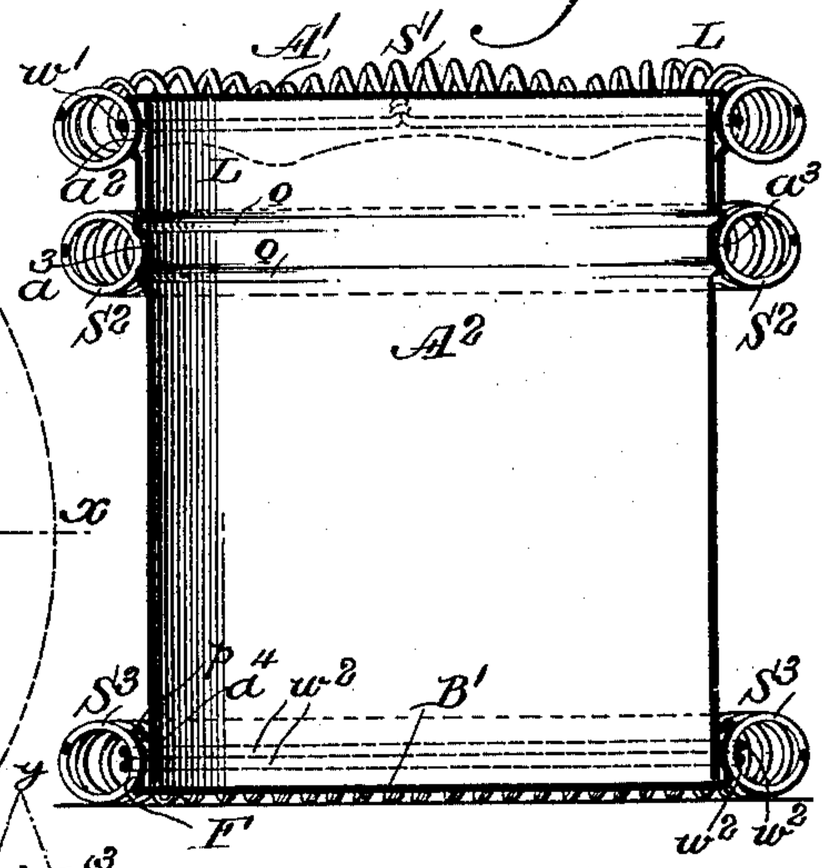
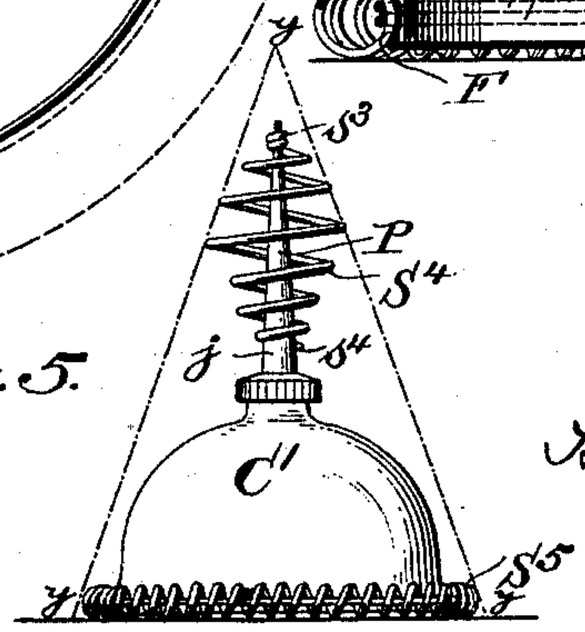


Fig. 5.



Witnesses.

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HARFORD WILLING HARE POWEL, OF NEWPORT, RHODE ISLAND.

CAN.

SPECIFICATION forming part of Letters Patent No. 637,996, dated November 28, 1899.

Application filed May 15, 1897. Serial No. 636,627. (No model.)

To all whom it may concern:

Be it known that I, HARFORD WILLING HARE POWEL, a citizen of the United States of America, residing in the city and county of Newport, in the State of Rhode Island, have invented a certain new and useful Improvement in Cans, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

This invention, while applicable to cans or fragile vessels generally, especially relates to sheet-metal vessels, such as oil or milk cans, which if unprotected in transportation, the usages of trade, or the household are easily deformed or ruptured and made to leak.

The object of my invention is to protect such fragile vessels, especially in the region of their angles or joints. This I do by combining with them certain novel armor, as hereinafter described.

Reference now being had to the accompanying drawings, they will be found to illustrate my invention as follows:

Figure 1 is a side elevation, partially in section, of an oil-can embodying my invention, the planes of section being indicated by lines *x x* of Fig. 2. Fig. 2 is a diagrammatic bottom view of the oil-can shown in Fig. 1. Fig. 3 is a diagrammatic plan view of the removable lid or top of a modification, the parts being shown in the act of assembling. Fig. 4 is a sectional elevation on the median line of said modification. Fig. 5 is a side elevation of a still further modification.

Fig. 1 illustrates the preferred form of my invention. Here a machinist's oil-can C, a quadrant sectioned to exhibit detail, has the usual solid-drawn main walls or dome A and terminates in an enlarged or chambered foot *a*. Into this foot an ordinary cup-shaped spring-bottom B is inserted and the two parts soldered tight along the joint J, after which, preferably, and by any convenient method, such as grooving with a tinsmith's roller-die, I form in the projecting part of said foot a groove *a'*. About this groove as a seat I then place a spring S, which spring, as indicated in Fig. 1, is metallic and of the spiral sort. It is proportioned in size, elasticity, and "pitch" (or distance from coil to coil) with reference to the gage of the can and its contents. It is preferably located as illustrated in Fig. 1—to wit, not only close to the angle formed by the junction of the walls A and bottom B of the can C, but also, preferably, in such relation to said parts of the can as to project therefrom both sidewise and downward—by reason of which relation and the yielding yet resilient nature of the spring S the can is protected in its most vulnerable parts, even should it be, say, dropped upon its side or base. The spring S may be united into a band or garter and merely be sprung into place upon its seat—the groove *a'*, Fig. 1; but for the sake of security I prefer, as therein illustrated, to insert within the coils of spring S a binding-wire *w* and then by twisting together the ends *e e* of the latter to tie the combination firmly together.

Securing all the coils of a coiled spring to a seat on a can, as above described, in some cases attached such spring with too considerable rigidity. To allow, therefore, for a greater freedom than such arrangement admits, as well as for other reasons, I have devised certain modifications, one of which is illustrated in Fig. 3, which figure, it will be well to recall, is a diagrammatic plan view of the can-lid A'. (Shown in Fig. 4.) In this modification a binding-wire *w'* is passed at intervals *s' s'* in and out of the coils of an armoring-spring S'. By this means loops or bights s^2 are formed, and these, by forming the spring S' longer than the girth of the seat a^2 and by spacing the points of attachment *s'* regularly, naturally stand out from the seat a^2, assume a sinuous or wavy line, (see S', Fig. 4,) and have a desirable flexibility coupled with capacity for absorbing forces which if delivered more directly upon the can might damage it. Each bight s^2 in this case in itself becomes an armoring-spring, the original spiral character thereof being secondary and subordinate to its sinuous or bowed form.

In Fig. 4 I have indicated, in addition to above-described modification of the spring element of the device, certain modifications of the seat whereon the spring or its equivalents may be placed, to wit: About the can-lid A', which is of the solid-drawn cup-shaped variety, I have shown the seat a^2, formed by a corrugation or groove rolled integral therein and not situate upon an extension thereof, as

was the case of the seat a', Fig. 1. The spring S^2 being endless is assembled by being stretched and sprung to place about the seat a^3 and serves to illustrate the fact that I do not in all cases limit myself to a particular form of spring attachment. Yet I do prefer both that form and the simple and efficacious attachment of a binding-wire, which wire, as indicated in the case of spring S^2, girdling the foot of the can shown in Fig. 4, may for greater security be multiple. (See w^2 w^2, which indicate the ends of two tied wires.) Another seat a^3, also formed integral in the can by molding therein parallel twin grooves o o, is shown in Fig. 4 about the neck of the cylindrical can-body A^2. This modification evidences the fact that while I prefer it for the sake of the range of projections I do not always limit the location of the spring to a seat at the extremities or angle of the can.

About the can-bottom B', Fig. 4, also of the solid-drawn cup-shaped type, I have indicated a still further variety of seat—viz., the groove a^4, formed not only by grooving the entire flange F, but also by bending the lip p thereof inwardly upon itself and so reinforcing the seat.

In Fig. 5 I have shown the spout P of an oil-can armored with a volute spring S^4, the coils thereof being of varying size. This spring is here conveniently attached by soldering one or two of its terminal coils s^3 s^4, respectively, to the tip and mid-walls of the the spout j. In other respects the spring S^4, like the bights s^2, (illustrated in the modification shown in Fig. 3,) stand free. However, in this case the spout j and its joint, if any, are protected not only by the spring S^4, but also to a considerable extent by the joint action of the spring S^5, gartering the base of the can. In fact, these two springs S^4 S^5 together, in their combination with the can base and spout, protect and prevent the whole outfit from coming unarmored into contact with any extended plane surface. This wholesale intervention of a spring-buffer is indicated in Fig. 5 by the lines y y tangent to the springs S^4 S^5, respectively.

A marked advantage of my invention, especially in its preferred form, resides in the fact that it not only protects the vessel, but also supplies it with an airy, elastic, and cleanly foot or contact surface, which foot, being a metallic spring, is prone to retain its shape, be durable, and resist the action of grease and oil, virtues which have not existed with the use of india-rubber cushions, for I am aware that housings placed upon the bottoms of cans heretofore have been supplied with rubber cushions; but these I distinguish from my invention not only for being less efficient and more costly, but chiefly for being cushions—not springs—nor directly combined with their proper can; but

Having now sufficiently specified my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with a vessel, of a metallic spring having open spirals and surrounding said vessel, the said spring bearing upon the vessel at intervals and projecting therefrom at portions between said intervals.

2. The combination with a vessel having a seat formed exteriorly thereof, of a spring having open metallic spirals bearing at one side within said seat and a tie-band passing through the spirals and binding the said spirals to the seat.

3. The combination with a vessel having a seat formed exteriorly thereof, of a spring having open spirals bearing at one side within said seat, the opposite side projecting therefrom to form a projecting spring-buffer, and means passing through some and outside of others of the spirals to secure some of the spirals to the seat and leave others free.

4. The combination with a vessel having a seat formed exteriorly thereof near the edge of the vessel, a spring having open spirals bearing at one side in said seat and projecting from the side of the vessel and beyond the edge thereof to form a spring-buffer for the side and end of the same.

5. The combination with a vessel composed of side walls and a separate bottom suitably secured thereto, and having a groove formed therein near the joint of said side walls and bottom, of a spring having open spirals seated in said groove and projecting beyond the walls and below the bottom.

6. As an article of manufacture an oil-can having an open metallic spiral spring secured near the edge thereof and a spiral spring secured to the spout of said can.

HARFORD WILLING HARE POWEL.

Witnesses:

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