

June 19, 1923.

1,459,469

S. M. JOHNSON

PAIL CLOSURE

Filed March 4, 1922

2 Sheets-Sheet 1

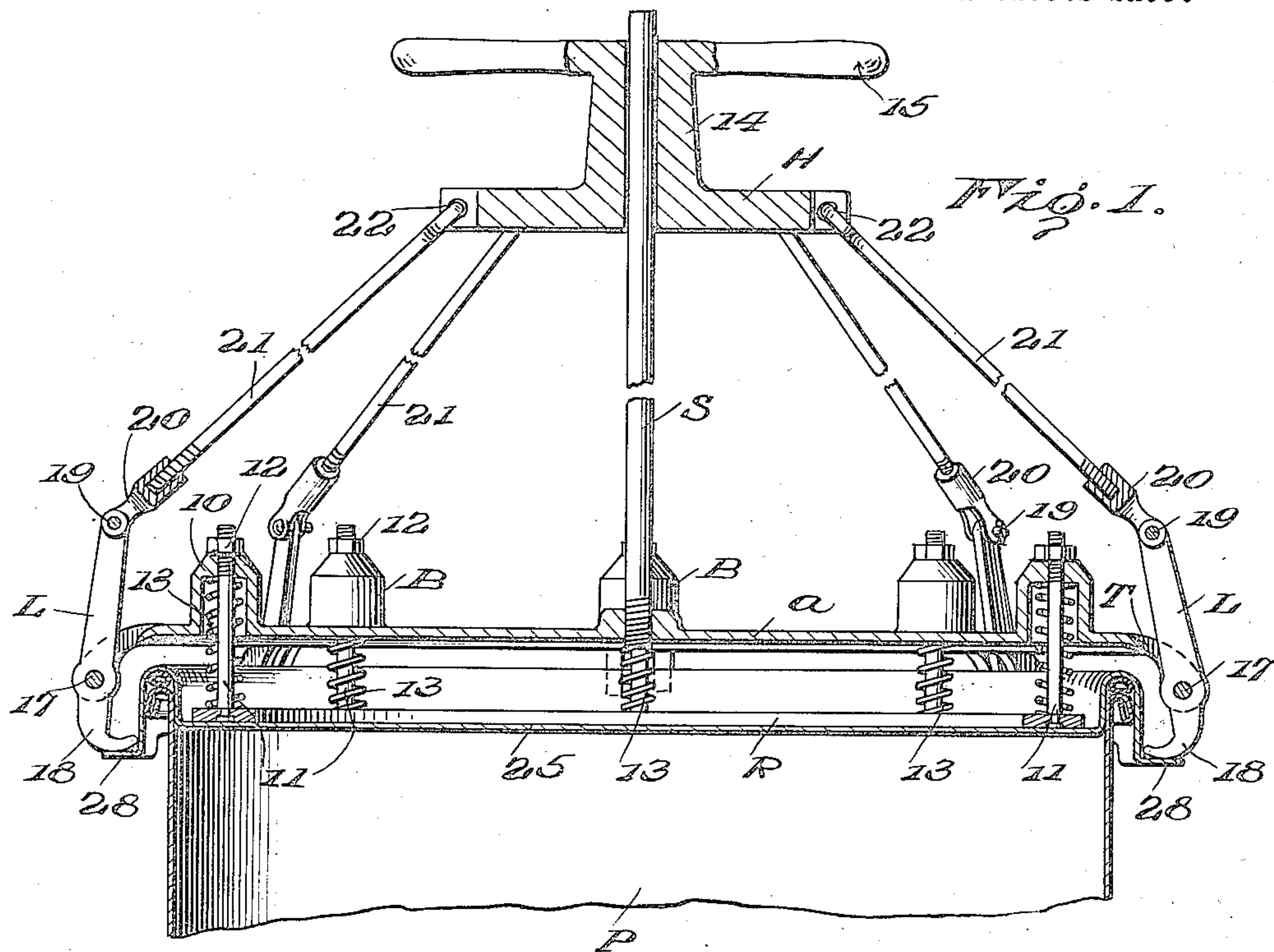
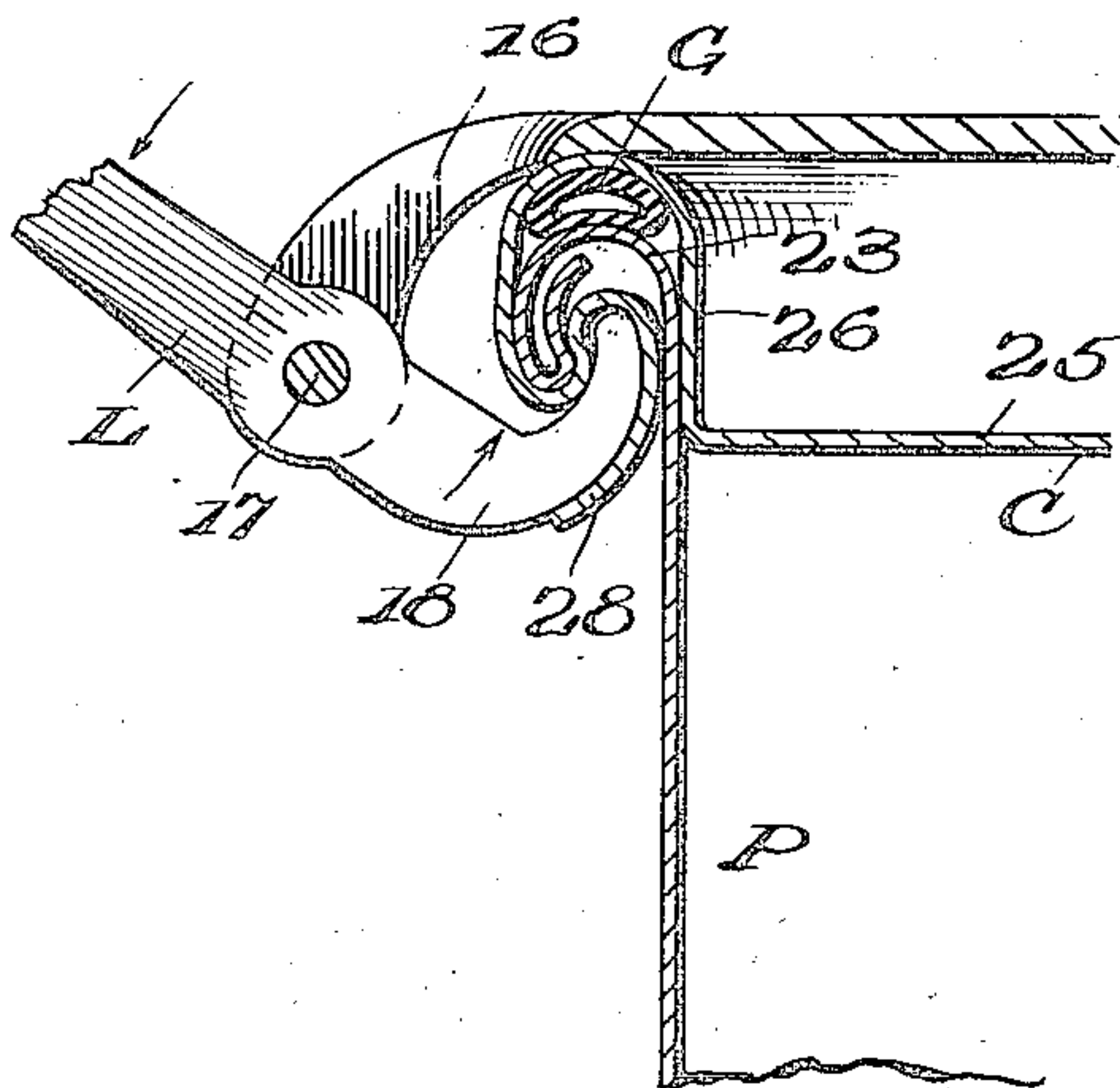
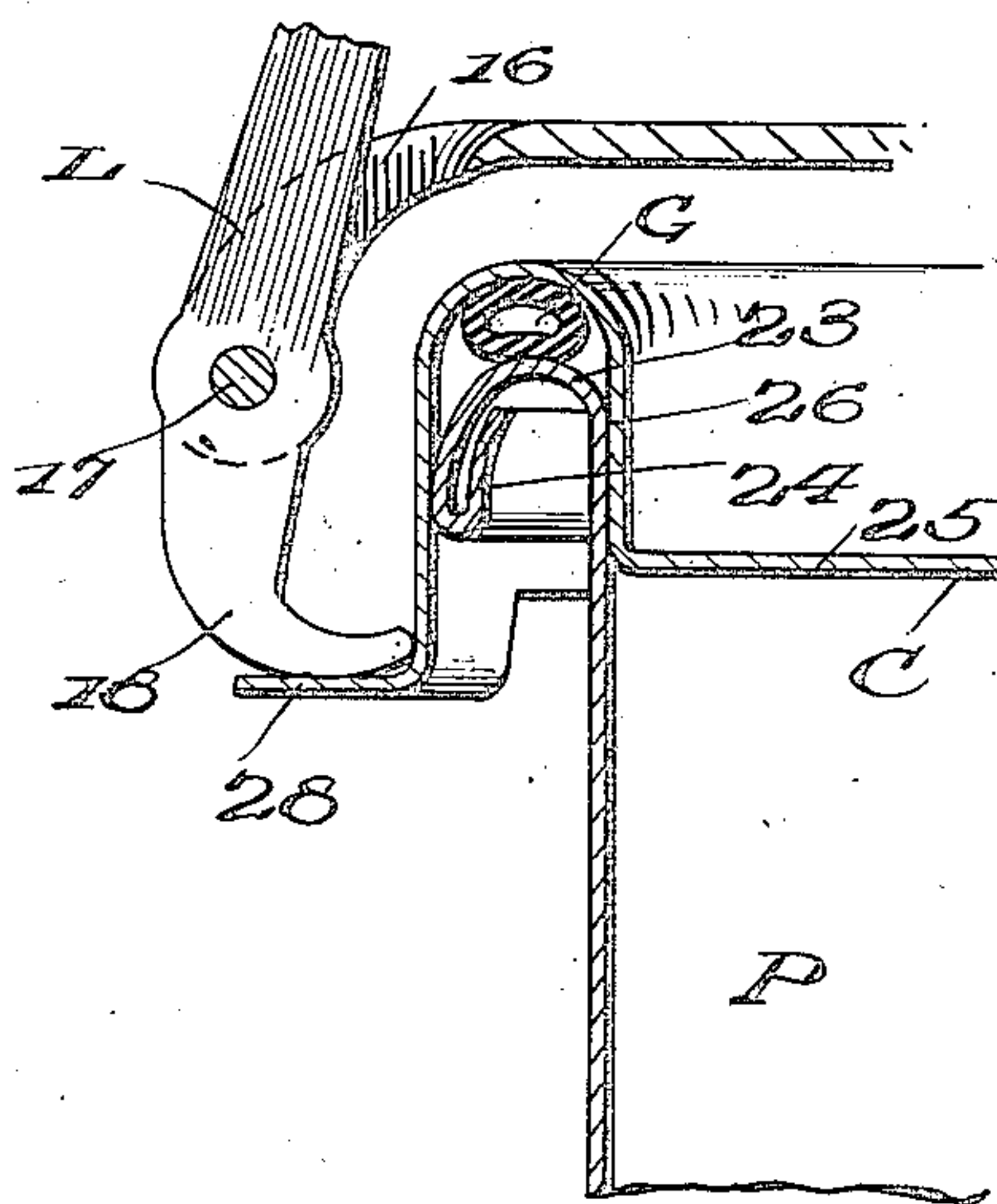


Fig. 2.

Fig. 3.



WITNESSES

D. E. Rousseau

INVENTOR

Smith M. Johnson

BY

Smith M. Johnson

ATTORNEYS

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2 Sheets-Sheet 2

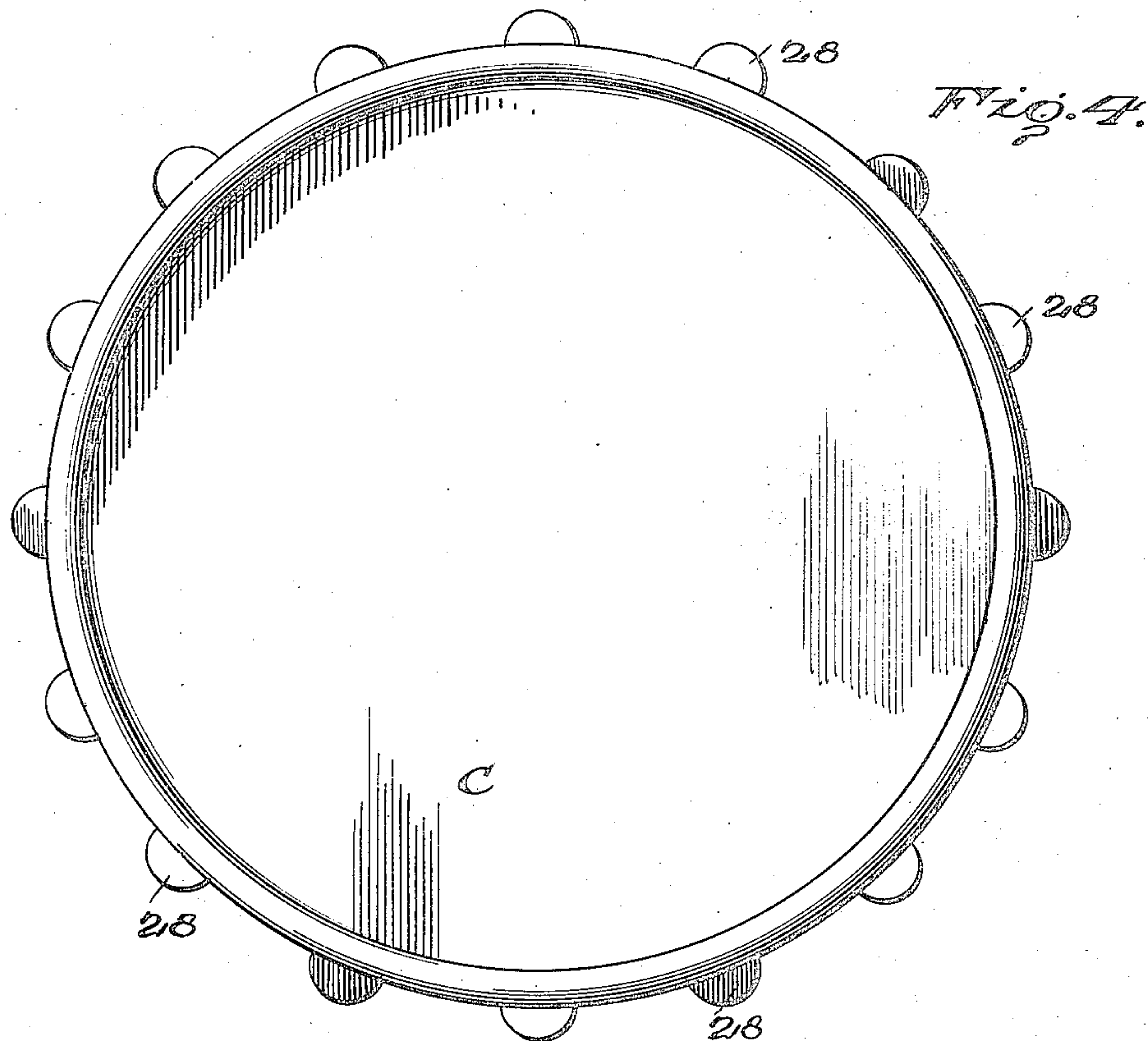
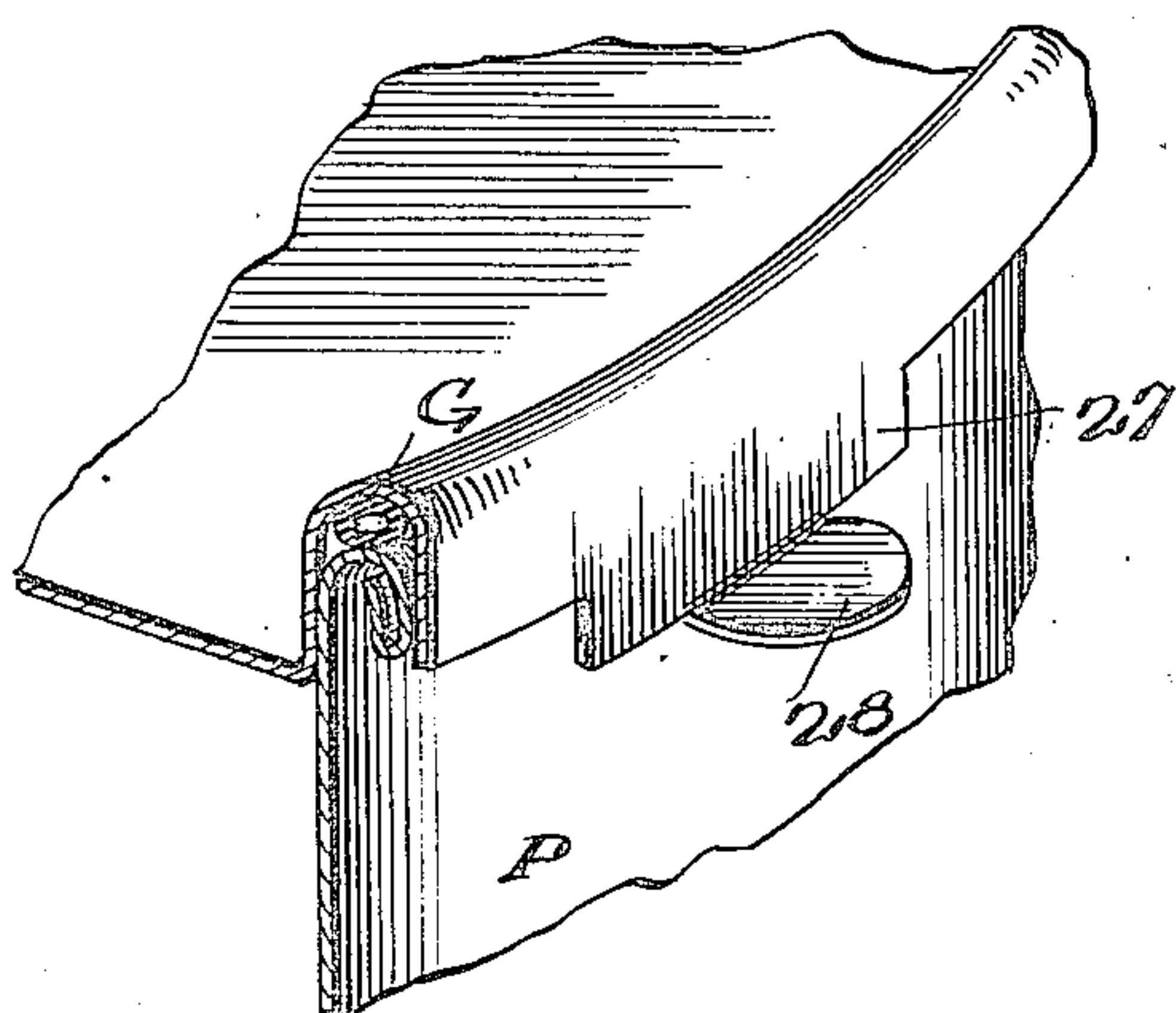


Fig. 4.

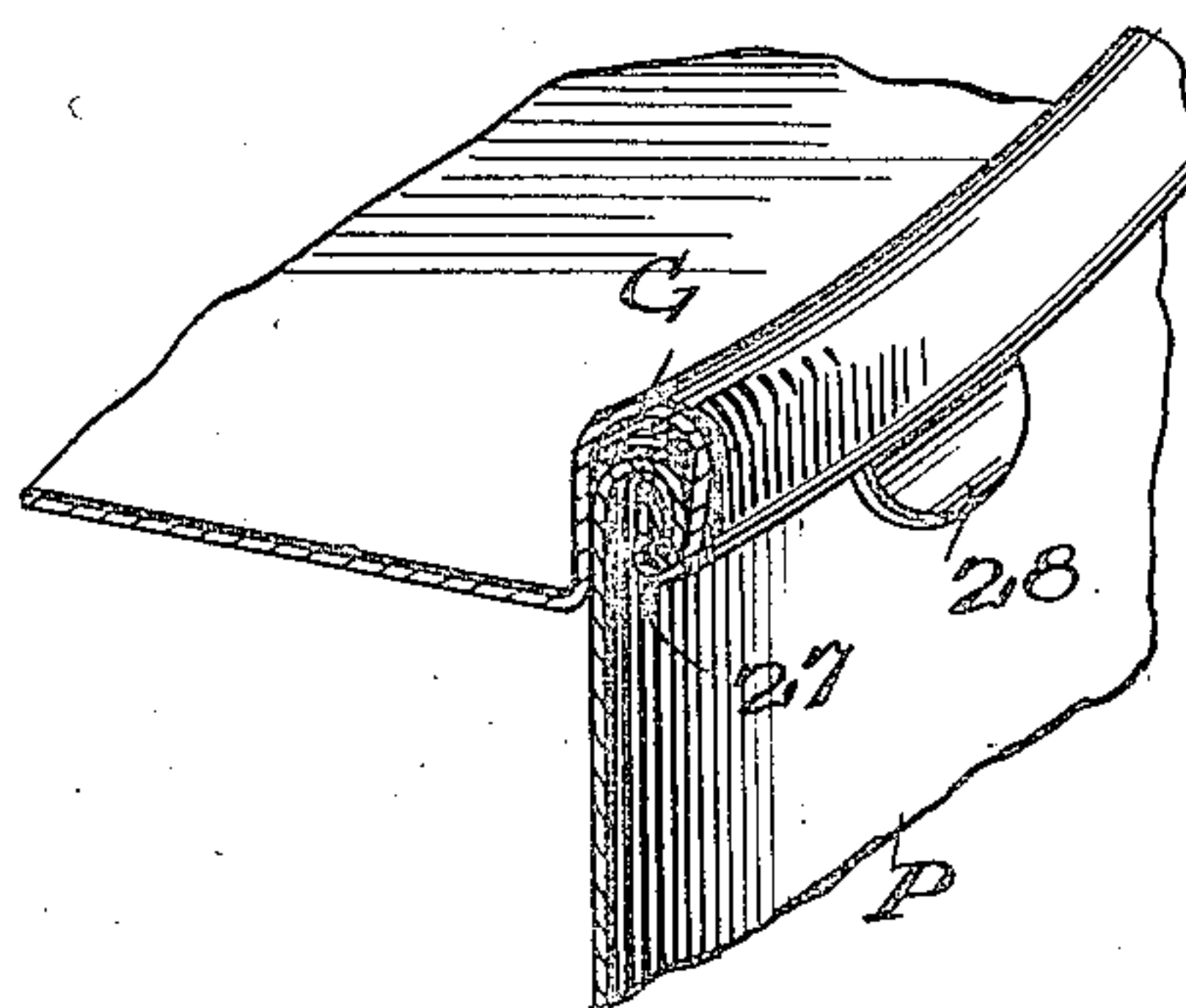
Fig. 5.



WITNESSES

R. P. Rousseau

Fig. 6.



INVENTOR

Smith M. Johnson.

BY

Allen Geo.

ATTORNEYS

UNITED STATES PATENT OFFICE.

SMITH MADISON JOHNSON, OF MIDDLEFIELD, OHIO.

PAIL CLOSURE.

Application filed March 4, 1922. Serial No. 541,095.

To all whom it may concern:

Be it known that I, SMITH M. JOHNSON, a citizen of the United States, and a resident of Middlefield, in the county of Geauga and State of Ohio, have invented certain new and useful Improvements in Pail Closures, of which the following is a specification.

This invention relates to improvements in pail closures.

The invention particularly relates to the type of pail employed for storing or shipping paint or the like, in which the pail closure or top must be securely held against displacement for obvious reasons.

The primary object of the invention is to provide a closure for pails by which every possibility of unintentional displacement of the closure of a pail is eliminated.

It is also an important object of the invention that the closure be easily removed when desired.

It is a further object of the invention to provide a closure which is adapted to be crimped for securing the same to a pail in two operations by an apparatus for crimping or fastening pail tops similar to that disclosed in my Patent No. 1,443,264, issued January 23, 1923.

Other objects and objects relating to details of construction, combination and arrangement of parts will hereinafter appear in the detailed description to follow.

The invention is illustrated by way of example in the accompanying drawings, in which,

Figure 1 is a partial vertical sectional view of a pail and top of the present invention showing the top or closure when applied and ready for being secured to the pail and also showing in vertical section the apparatus for crimping the closure.

Figures 2 and 3 are detail sectional views illustrating the crimping apparatus when positioned for beginning the crimping action and when the crimping operation is completed, respectively.

Figure 4 is a top plan view of a closure when positioned upon a pail ready for being secured to the pail.

Figures 5 and 6 are detail sectional views illustrating the pail and closure therefor before the crimping of the closure to the pail and after the crimping of the closure to the pail, respectively.

I will first briefly describe the apparatus for fastening the pail closure disclosed in my application heretofore referred to and then follow with a detailed description of my novel pail closure.

The fastening apparatus consists in a base plate A from which there extends upwardly a plurality of nipples or protrusions B, each nipple having its upper end formed with a head closure as at 10. Extending through the head closure of each nipple is a bolt or plunger 11. The lower end of each bolt 11 is secured to a ring R, said ring being of less diameter than the base plate A, as shown. The upper end of each bolt may be provided with a nut 12 and encircling each bolt 11 is a coil spring 13, said spring being interposed between the head closure 10 of each nipple B and the ring R and adapted to force the ring R downwardly with respect to the base plate A.

Extending upwardly from the center of the base plate A is a standard S which is in the form of a rod or shaft as shown and slidable thereon is a cross head H, said head being formed with an extended neck portion 14 which terminates in a handle 15.

The base plate A is formed with a plurality of extension members 16 about its peripheral edge, each extension 16 being curved downwardly as shown and pivotally supporting a crimp lever L. Each lever L is elongated as shown and pivoted at a point intermediate its ends to the associated extension 16 by a pin 17. The lower end of the lever is formed with a crimping head 18 which is hook shaped as shown. The upper end of each lever L is pivoted as at 19 to a coupling 20 and said coupling in turn being threaded at its other end to a push rod 21. The upper end of each push rod is pivoted to the cross head 8 as at 22.

The pail generally indicated by the reference character T is formed about its upper edge with a flange 23, said flange being substantially U-shaped and having its free end terminating in an upwardly extending portion 24. As shown in Figures 2 and 3, the flange portion 24 is bent so that the same is slightly spaced from the inner side or face of the pail flange, and the purpose of this is to maintain this portion 24 resilient. The pail closure generally indicated by the reference character C consists in a head por-

tion 25 which is formed about its periphery with a substantially U-shaped flange 26. The head 25 of the closure C is adapted to fit within the associated pail P and its flange 26 is adapted to fit over and upon the flange 23 of the pail as illustrated in the figures of the drawings. The flange 26 of the closure C has its outer edge formed with a plurality of extensions 27, said extensions being arranged in circumferential spaced relation and each extension being formed with a tang or tab 28.

When applying the closure C to a pail P the same should be positioned as illustrated in Figs. 1, 2 and 5 and there should preferably be interposed between the bridge portions of the closure flange 26 and the pail flange 23, a gasket G. This gasket G is preferably of tubular formation and made of hard rubber or the like.

The operation for crimping or securing the closure C to a pail is as follows: The closure should be positioned within the pail as illustrated in Figs. 1, 2 and 5 and then the crimping apparatus positioned as shown in Fig. 1. The ring R as is seen will rest upon the head 25 of the closure C and support the remaining parts of the fastening and crimping apparatus through the springs 13. The crimping levers L will each have its crimping heads 18 engaging a tang 28 of the closure C. The crimping levers L are equal in number to one-half of the extensions 27 as illustrated in Fig. 4 and thus two operations of the apparatus are required to completely crimp the closure upon the pail. By pressing downward upon the head H the crimping heads 18 of the levers L will move inwardly and fold the crimp or extensions 27 upwardly and inwardly against the extension 24 of the pail flange 23 as illustrated in Fig. 3 of the drawing. When this action takes place the downward pressure upon the head H will cause a pressure upon the ring R and so flatten the gasket G and tightly grip the same between the bridge portions of the pail flange 23 and closure flange 26. The tabs 28 will still remain free and extend from the pail as above illustrated in Fig. 4. The important purpose of the tabs 28 is to provide means for opening the pail in an easy and expeditious manner. The tabs or tangs 28 also offer a means for quickly finding the proper positions for the different crimping levers L when placing the crimping apparatus upon a pail.

It is to be particularly noted that by securing the closure C in the manner described that any pressure against the inner face of the closure from the contents in the

pail will be withstood by the extensions 27. The extensions 27 after being crimped about the outer portion of the pail flange 23 in turn transfers the stress exerted against the inner surface of the closure upon the engaged portion of the pail flange 23. This operation is reinforced by the extension 24 and thus insuring that the same will withstand any possible amount of pressure from the contents in the pail P to displace the closure C. Also, it will be noted that after the extensions 27 have been crimped that the space between the outer portion of the pail flange 23 and the associated wall of the pail will be bridged at each point where there occurs an extension 27 and tang or tab 28. This is illustrated in Fig. 3 of the drawing. This arrangement further reinforces the closure C against displacement.

It should be observed that by arranging the bent portion 24 of the pail flange in the manner shown, that is, spaced with relation to the inner side of the pail flange, this flange portion will efficiently co-operate with the tangs or extensions 28 to secure the cover to the pail and also to provide a spring action between the bent tangs and this portion of the flange and thereby to insure a stronger connection between the pail and cover.

It may here be stated that while I have shown my apparatus for crimping tops on pails disclosed in my pending application Serial No. 527192, the same will not here be specifically claimed, but claims are made to the combinations which arise between the particular pail closure disclosed and said apparatus.

I claim:

In combination, a pail having a curved flange about its free edge, a cover having a similar flange about its free edge and adapted to fit over the flange of said pail, said flange upon the pail having its free end portion turned upwardly and inwardly and said portion being slightly spaced from the inner face or inner side of said pail flange, and a plurality of extensions formed upon the cover flange and each extension turned upwardly and upon itself and disposed between the upwardly turned portion of the pail flange and the associated side wall of the pail, said upwardly turned extensions and upwardly turned portion of the pail flange being adapted to co-operate with each other to secure said cover to the pail and also adapted to serve as a brace between said secured flanges and the outer wall of the pail.

SMITH MADISON JOHNSON.