Sept. 30, 1952 N. L. BATES ET AL 2,612,100

PNEUMATIC JUICE EXTRACTOR

Filed July 21, 1950 2 SHEETS--SHEET 1

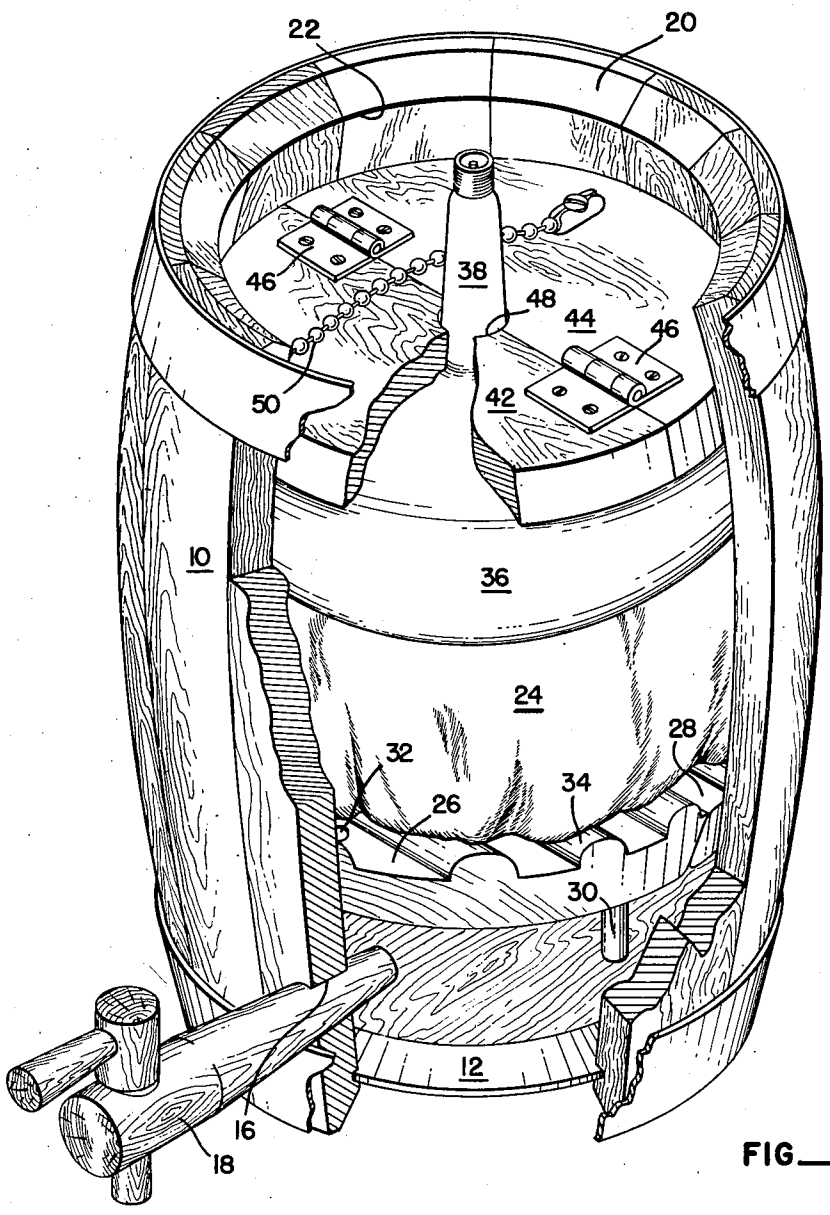


FIG. 1

RAY D. BATES &
NORMA L. BATES
Inventors

By Smith & Tuck
Attorneys

Sept. 30, 1952 N. L. BATES ET AL 2,612,100

PNEUMATIC JUICE EXTRACTOR

Filed July 21, 1950 2 SHEETS—SHEET 2

FIG. 3

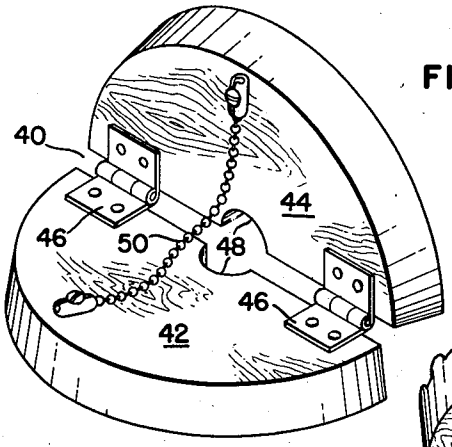
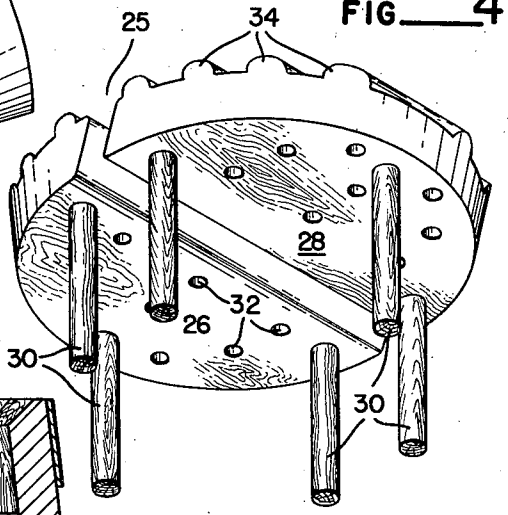


FIG. 4



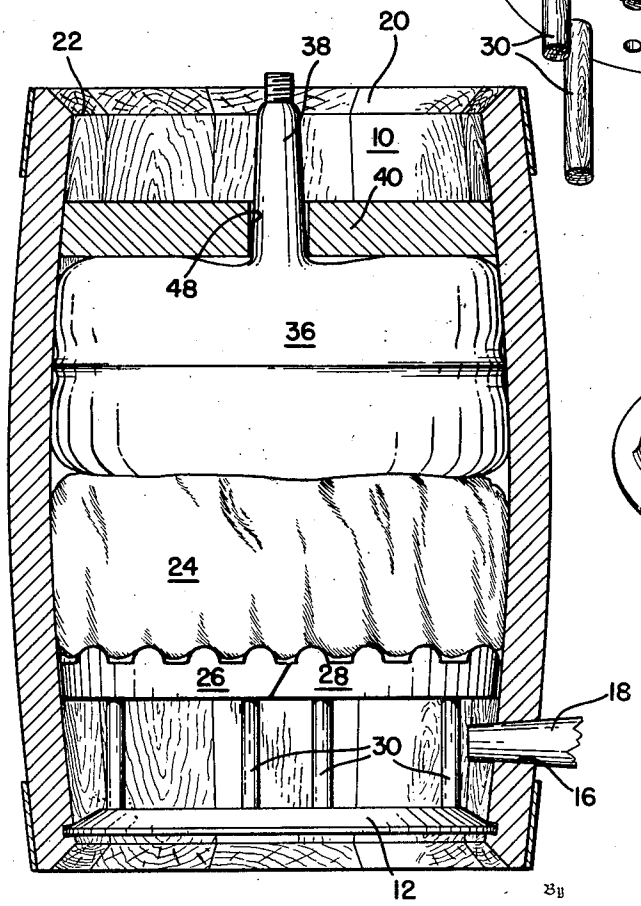


FIG. 2

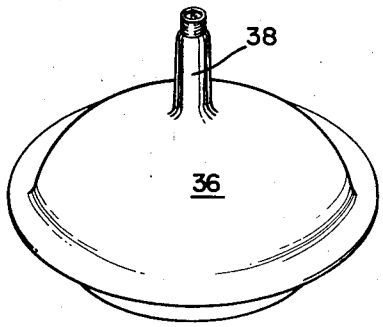


FIG. 5

RAY D. BATES &
NORMA L. BATES
Inventors

By Smith & Tuck

Attorneys

Patented Sept. 30, 1952 2,612,100

UNITED STATES PATENT OFFICE

2,612,100

PNEUMATIC JUICE EXTRACTOR

Norma Lee Bates and Ray D. Bates,
Auburn, Wash.

Application July 21, 1950, Serial No. 175,154

4 Claims. (Cl. 100—122)

1

This invention relates to improvements in a pneumatic juice extractor and, more particularly, is concerned with the provision of a mechanism for expelling and expressing fluids from pulped fluid-containing fruit and vegetable materials.

Among the more important objects of this invention are the provisions of liquid expelling means that is simple to construct, is relatively inexpensive, is simple to use, and which efficiently carries out the fluid extraction desired. Another and highly important object has been the provision of a simple receptacle and receptacle closure construction that permits the rapid and ready sealing of the mechanism at the beginning of an extraction cycle and is easily and readily unsealed at the completion of an extraction cycle, which closure means is inexpensive, simple to construct and operate, and includes a high degree of safety for the operator during such times as the receptacle and its contents is being subjected to substantial pressures. Other objects and advantages of the invention will be apparent during the course of the following specification.

The accomplishment of the foregoing and other objects of the invention has been achieved by providing a receptacle which has an upwardly open mouth and which is interiorly shaped adjacent said mouth so there is a shoulder inside the receptacle that overhangs the interior. There is a ported member in the receptacle and the pulped material to be extracted is placed in a sac that is, when extraction is taking place, disposed on said member. A bladder is also placed in the receptacle chamber on top of the sac and a hold-down closure lies on the bladder and is suitably engaged under said shoulder, whereupon fluid under pressure may be supplied to the bladder and as the latter expands, pressure is applied to the material within the sac to cause the expression therefrom of the fluid that is sought to be removed. In a preferred form of the invention the closure is formed in two halves which suitably block off the mouth of the container and which abut each other along their chordal edges, and thus avoid buckling or disclocating one from another.

The invention in its preferred form is shown in the accompanying drawings, in which:

Figure 1 is a perspective view of the juice extractor of our invention with portions broken away and omitted for convenience of illustration;

Figure 2 is a vertical sectional view of the device shown in Figure 1;

Figure 3 is a perspective view of the closure member;

Figure 4 is a perspective view of the ported, sac-supporting shelf used within the receptacle during juice extraction; and

2

Figure 5 is a perspective view of a bladder used in our juice extractor.

A suitable form of receptacle for use in our mechanism takes the form of an open-mouthed barrel 10, as shown in Figures 1 and 2, of the usual wooden type. This barrel has a bottom 12 firmly anchored in place and slightly above the bottom is an outlet port 16 which may receive a spigot 18 of conventional nature for selectively draining fluids from the interior.

As in usual barrel constructions, this receptacle 10 converges gradually to the mouth 20 so that, in effect, an annular shoulder 22 is provided adjacent the mouth and which shoulder overhangs the enlarged interior of the container 10.

In Figure 4 we have shown a ported member 25 which is supported above the receptacle bottom 12. This member forms a shelf within the receptacle for the reception of a sac 24 and comprises two half-sections 26 and 28, each of which have legs 30, is ported as at 32 and has corrugations 34 on their upper surfaces.

A bladder 36, which is circular in a preferred form, shown partially inflated in Figure 5, is placed in the receptacle and inflated through air or other fluid supplied to its interior through the stem 38 by means of a pump or pressure flask or other conventional source of fluid pressure. To hold the bladder in place and to insure that the pressure created by its expansion operates in the desired direction and manner, we have provided the closure plate, indicated as a whole in Figure 3 by the numeral 40. The closure plate is shaped to span the receptacle chamber inside the mouth thereof; and, in this instance, is frusto-conical in shape. The plate is divided diametrically into a pair of halves 42, 44 and these are hingedly joined as by hinges 46, 46. The abutting edges of the closure halves are oppositely notched to form a port 48 through which the stem 38 may be passed.

A flexible strand such as the short length of chain 50, is joined at each end to one of the closure halves 42, 44 and crosses the hinge axis. This strand serves as an effective and simple means and causes the upper faces of the closure halves to swing on their hinges toward each other and to, in effect, collapse the closure for insertion and removal purposes past the restricting shoulder 22.

In operation, fruit and vegetable material, which has first been pulped and comminuted, is placed in the sac 24 and the same placed upon

the ported supporting shelf member **25**. The bladder is then disposed over the sac and its contents; and the cover or closure **40**, in the collapsed condition, is inserted through the receptacle mouth and then distended so that thet closure halves lie in a common plane and under the shoulder **22**. In such conditions the closure halves abut along their chordal edges and as long as they are thus retained cannot escape from the receptacle. Fluid pressure is then supplied to the bladder, it expands and presses solidly and firmly down upon the sac and its contents, causing the fluids to be expressed. The corrugations of the shelf member **25** insure that the sac does not seal the upper ends of ports **32** which terminate in the valleys of the corrugations. Fluids that have been expressed collect in the receptacle below the shelf member **25**.

When it is desired to disassemble the mechanism, the bladder is deflated, relieving the cover or closure **40** of pressure and permitting it to descend from below shoulder **22**. Then by grasping the strand **50** the two halves are hingedly moved and turned slightly sideways whereby the cover and the bladder are withdrawn from the receptacle. Closing together of the two halves with the bladder stem in the port **48**, results in the latter being pinched, whereupon the bladder can be carried along with the cover plate. The sac and the divided shelf member **25** can then be removed and the whole interior of the receptacle is exposed for cleansing and sterilizing.

We have shown and described a preferred form of our invention but it is to be understood that modifications and alterations of the parts are contemplated within the spirit and scope of the subjoined claims.

What we claim is:

1. A mechanism for expressing fluids from pulped fluid-containing fruit and vegetable materials, comprising: a receptacle having an upwardly open circular mouth, said receptacle being shaped interiorly so that adjacent said mouth is provided an annular shoulder overhanging the interior of said receptacle; a sac; a lower ported member in said receptacle to support above the bottom of said receptacle said sac containing the pulped material from which fluid is to be expressed; an inflatable bladder adapted to lie upon such a sac within said receptacle, said bladder having an upstanding stem adapted to receive fluid under pressure for the inflation of said bladder; and a circular closure plate for said receptacle adapted to overlie said bladder, said closure plate being ported to receive said upstanding bladder stem and including a pair of semi-circular plate halves the curved edges of which are shaped to engage said receptacle interior beneath the annular shoulder and, when lying in a common plane with the chordal edges in juxtaposition, to resist upward expulsion from said receptacle upon the inflation of the bladder, said closure plate being removable when said bladder is deflated by movement of said plate halves out of coplanar relationship in which condition said plate halves may be withdrawn from said receptacle through said open mouth.

2. The structure according to claim 1 in which the closure plate halves are hinged together in a manner to permit the upper faces thereof to close together, and a flexible strand is joined at each end to each of the upper faces of the closure plate halves and the strand crosses the hinge axis.

3. The structure according to claim 1 in which the curved edges of the closure plate are frusto-conical in shape and in which the portion of said annular shoulder against which said closure plate abuts is generally frusto-conical in shape and generally the same size and shape as said curved edges of said closure plate.

4. The structure according to claim 1 in which the curved edges of the closure plate are frusto-conical in shape and in which the portion of said annular shoulder against which said closure plate abuts is generally frusto-conical in shape and generally the same size and shape as said curved edges of said closure plate, and the two halves of said closure plate are hingedly joined together to permit the upper faces to be brought together.

NORMA LEE BATES.
RAY D. BATES.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
385,697	Cudner	July 10, 1888
706,681	McCown	Aug. 12, 1902

FOREIGN PATENTS

Number	Country	Date
612,161	Germany	Apr. 15, 1935
649,837	Germany	Sept. 6, 1937