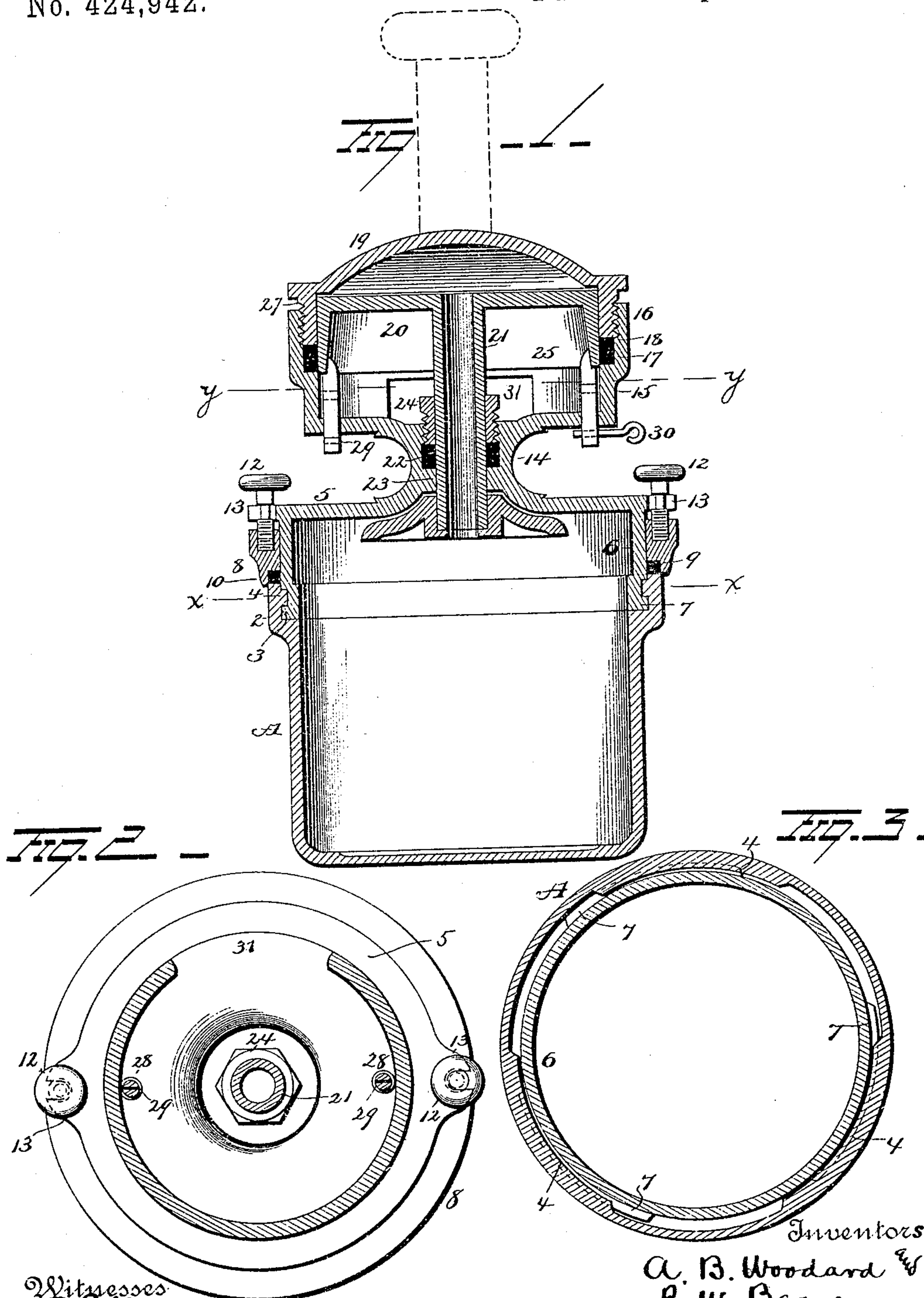


(No Model.)

A. B. WOODARD & R. W. BARNEY.
VULCANIZING APPARATUS.

No. 424,942.

Patented Apr. 1, 1890.



Witnesses

E. H. Attingham
G. F. Downing

Inventors
 A. B. Woodard &
 R. W. Barney

By their Attorney

H. A. Seymour

UNITED STATES PATENT OFFICE.

ALONZO B. WOODARD AND RICHARD W. BARNEY, OF HORNELLSVILLE, NEW YORK; SAID WOODARD ASSIGNOR TO SAID BARNEY.

VULCANIZING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 424,942, dated April 1, 1890.

Application filed January 13, 1890. Serial No. 336,814. (No model.)

To all whom it may concern:

Be it known that we, ALONZO B. WOODARD and RICHARD W. BARNEY, of Hornellsville, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Vulcanizing Apparatus; and we 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.

Our invention relates to an improvement in vulcanizing apparatus.

It is the purpose of our invention to provide simple and novel means whereby the flasks may be automatically closed by the pressure of the steam generated within the flask during the process of vulcanization, to combine with the movable cylinder-head simple means for locking the same when at its lowest point of descent, and to combine with the cover of the vessel suitable devices whereby a steam-tight joint may be formed upon uniting the parts.

Our invention also contemplates means whereby a steam-joint may be formed between the body of the vulcanizing-vessel and the removable cap, the construction being such as to facilitate the ready removal and application of said cap.

To these ends the invention consists in the several novel features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of a vulcanizing-vessel and cap illustrating our invention. Fig. 2 is a horizontal section in line *y y* of Fig. 1. Fig. 3 is a horizontal section of the vessel on the line *x x* of Fig. 1.

A represents the body of the vessel, which is of cylindrical form and has an offset-ring 2 rising a suitable distance above an interior shoulder 3, formed by said ring. Upon the upper face of the ring are formed ribs or feathers 4 of equal length and separated from each other by equal intervals.

The numeral 5 designates the cap, which has a circular flange 6, provided near its edge with an external groove or channel of such dimensions as to receive the ribs 4, to permit the

engagement of which portions of the lower edge 7, inclosing the channel, are removed over a space equal in length to the length of the ribs 4, as shown in Fig. 3. By turning the flange 6 around until in the position shown in Fig. 3 it may be inserted within the offset-ring 2 until it rests on the shoulders 3, whereupon a turn to the right or left brings the projecting ribs 7 under the ribs 4 and locks the vessel and cap together.

Surrounding the flange 6, above the offset-ring 2, is a ring 8, having at its lower edge an angular pocket containing a packing-ring 9, which rests upon the offset-ring, and is held against the outer face of the flange 6 by the depending flange 10 on the ring 8. The latter slides upon the flange 6, and is raised and lowered to engage and disengage the packing by means of screws 12, tapped through lugs 13, projecting from the cap. The screws are swiveled in these lugs and engage with threaded recesses in the ring 8.

From the center of the flat top of the cap rises the neck 14, which supports a cylindrical shell 15, having an offset-ring 16, forming an annular pocket 17, within which is placed a packing-ring 18. This shell, in conjunction with the closing-cap 19, forms the cylinder, within which is fitted the piston 20, having a tubular piston-rod 21, which passes down through the neck 14 and through a packing-ring 22, which lies upon an internal collar 23 of said neck, and is compressed by a nut 24, having a male thread engaging with a thread on the interior of the neck.

The piston 20 is provided with a flange 25, which drops below and covers the packing-ring 18. Closing the steam-chamber is the cap or dome 19, having an externally-threaded flange 27, which enters the pocket 17, engaging with a female thread thereon, and is screwed down upon the packing. The proportions of the parts are such that the piston-head is prevented from rising far enough to uncover the packing 18.

Formed upon the inner face of the flange 25 of the piston are two or more rods or bars separated from each other by equal intervals, and having their lower ends projecting through openings 28 in the shell 15. As the

piston descends under the pressure of steam within the cylinder these rods drop therewith and expose more or less of their length below the shell. Holes 29 may be formed in each
5 at suitable intervals to receive locking-pins 30, whereby the piston may be held at its lowest point of descent.

An opening 31 is formed in the shell 15 to permit access to the nut 24. The thermometer
10 may be attached to the dome or cap.

The mode of operation is as follows: The flasks being arranged within the vessel one upon the other, the cover is attached, the piston resting upon the upper flask and raised
15 as far as it will go. The packing-ring is adjusted to close the joint and heat is applied in the usual manner. The steam generated passes up through the tubular piston-rod 21, and exerts its pressure upon the broad top of
20 the piston 20, driving it down and closing the flasks gradually and without obstruction. As the piston descends, the rods attached thereto are projected through the openings 28 in the shell, and the locking-pins 30 may be placed
25 in the holes 29, formed in these rods, to hold the piston permanently at its lowest point.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

30 1. The combination, with a vulcanizing-vessel and a cap, of a piston and a hollow piston-rod passing from the piston into the vulcanizing-vessel, said hollow rod adapted to conduct steam generated during the vulcanizing process from the vulcanizing-vessel and
35 discharge it over the piston, whereby the piston and its rod are automatically depressed by the steam-pressure at the required intervals, substantially as set forth.

40 2. The combination, with a vulcanizing-vessel, a cap, and dome, of a piston fitted in the dome, and a hollow piston-rod passing from the piston into the vulcanizing-vessel, said hollow rod adapted to conduct steam generated during the vulcanizing process from
45 the vulcanizing-vessel and discharge it over the piston, whereby the piston and its rod are automatically depressed at the required intervals, and means for locking the piston in its depressed position, substantially as set forth.

50 3. The combination, with a vulcanizing-vessel having an offset-ring provided with interior ribs or feathers, of a cap having a flange provided with channels adapted to engage

with the ribs, an adjustable ring surrounding the flange of the cap and having a packing-ring set in an angular pocket therein, and means for raising and lowering said ring, substantially as described. 55

4. The combination, with a vulcanizing-vessel having an offset-ring provided with ribs, of a cap having a flange engaging said ribs, a ring surrounding and movable upon said flange and having an annular pocket containing packing, and adjusting-screws swiveled in
60 lugs on the cap and engaging threaded recesses in the ring, substantially as described. 65

5. A vulcanizing-vessel, the cap whereof is provided with a central neck, a cylindrical shell supported by said neck, and having an
70 offset-ring forming a pocket for packing, in combination with a cylinder having a flange dropping below said pocket, and a cap having a threaded flange entering said pocket, the piston having a tubular piston-rod pass-
75 ing through a packing-chamber in the neck, substantially as described.

6. In a vulcanizing-vessel, a steam-chamber in the cap, a piston moving in said chamber and having a flange dropping below the
80 piston-packing, and a tubular piston-rod passing into the vulcanizer, the piston being provided with rods passing through openings in the shell below the piston-packing, said rods having apertures receiving pins which lock
85 the piston at its lowest point of descent, substantially as described.

7. In a vulcanizer, the combination, with the removable cap having a central neck, a cylindrical shell supported by said neck, and
90 provided with an internally-threaded offset ring or flange, of a tubular piston-rod passing through the neck, a packing-ring lying in an internal collar of said neck, a compressing-nut surrounding the tubular piston-rod
95 and engaging the thread in the neck, and a cap or dome having a threaded flange engaging the interior thread of the offset-ring, substantially as described.

In testimony whereof we have signed this
specification in the presence of two subscribing witnesses. 100

ALONZO B. WOODARD.
RICHARD W. BARNEY.

Witnesses:

CLARA M. BARNEY,
MARY CASEY.