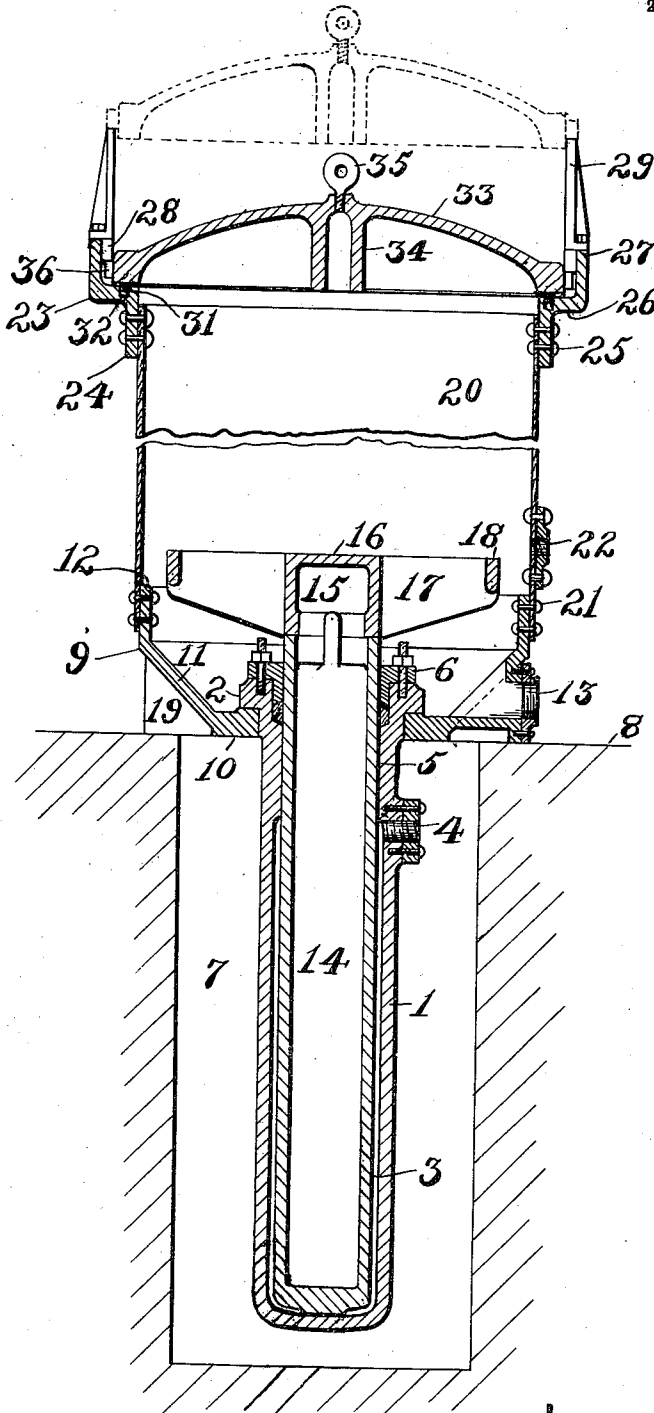


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VULCANIZER PRESS.  
APPLICATION FILED NOV. 11, 1910.

988,295.

Patented Apr. 4, 1911.

2 SHEETS—SHEET 1.



Witnesses:  
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Fig. 1 INVENTOR—  
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2 SHEETS—SHEET 2.

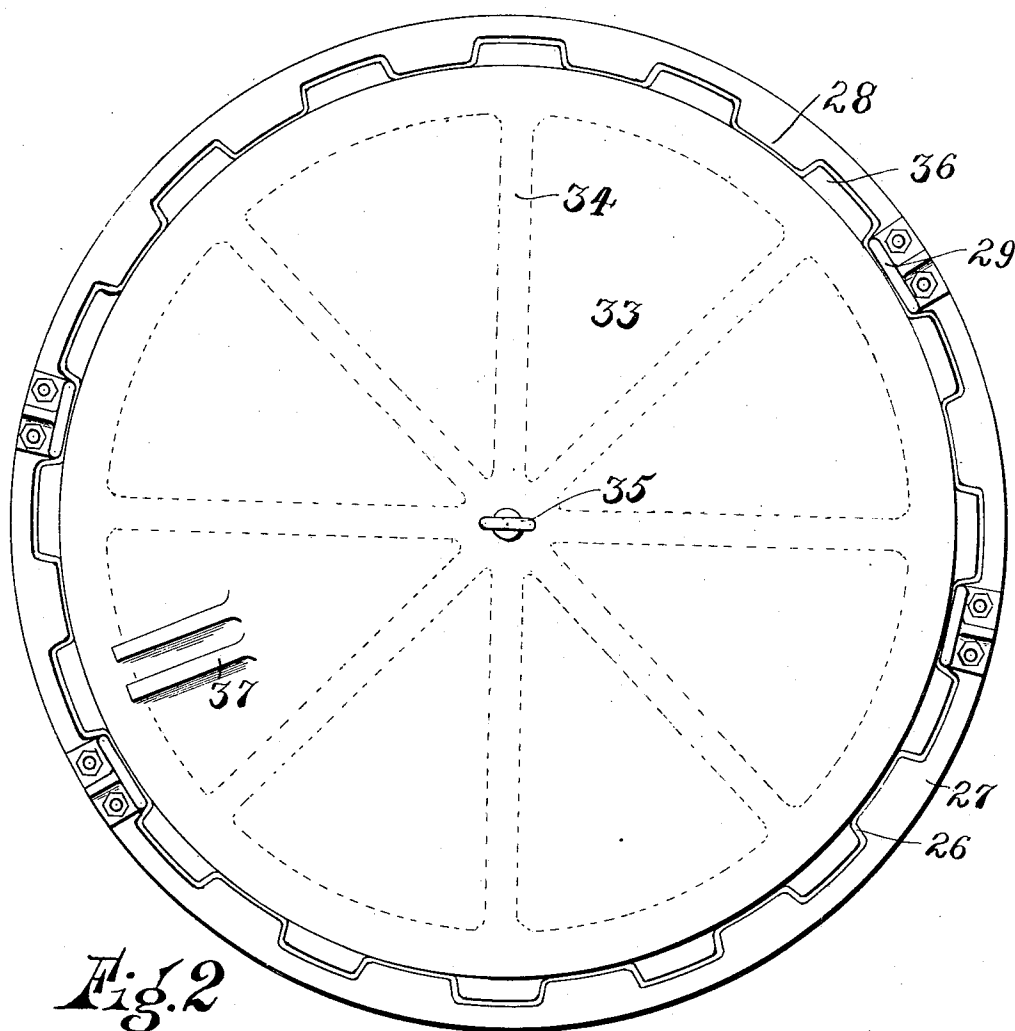


Fig. 2

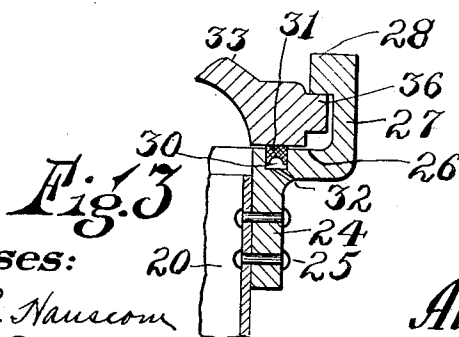


Fig. 3

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# UNITED STATES PATENT OFFICE.

ALEXANDER ADAMSON, OF AKRON, OHIO.

## VULCANIZER-PRESS.

988,295.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed November 11, 1910. Serial No. 591,908.

*To all whom it may concern:*

Be it known that I, ALEXANDER ADAMSON, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented new and useful Improvements in Vulcanizer-Presses, of which the following is a specification.

This invention relates to improvements in vulcanizing presses for holding the various sections of a mold firmly together during the vulcanization of the articles contained therein.

The object of the invention is to provide a vulcanizing press of the class described embodying a reciprocally-movable, fluid-operated ram or plunger for clamping the mold sections together within a vulcanizing receptacle, one end of which is connected with the ram cylinder and the other provided with a head which is held in place by mechanism with which it is provided, interlocking with cooperating means on the open end of the vulcanizer. This head when in its closed position constitutes a closure means for the vulcanizer and also acts as an abutment against which the nest of molds are forced when clamped by the head of the ram or plunger; and when unlocked from engagement with the vulcanizer is raised in unison with the molds for the loading and unloading of the press. When the head is raised to its upper position to open the vulcanizer it is then sustained by suitable mechanism to permit free access to the interior of the press.

The invention especially contemplates providing the joint between the upper end of the vulcanizer and the under face of the head with a packing ring of such construction that the use of bolts or the clamping of the two members together is unnecessary, it being sufficiently expansible to close the joint hermetically notwithstanding a slight separation of the vulcanizer and head, and retained thus by the employment of a fluid under pressure.

A further object of the invention is to so construct the device that the body of the vulcanizer not only serves as a receptacle for the vulcanizing fluid as well as the support for the head or abutment for the ram but also the sole connection between them.

With the foregoing and other objects in view, the invention consists in the novel construction, combination and arrangement of parts constituting the invention to be here-

inafter specifically described and illustrated in the accompanying drawings which form a part hereof wherein is shown the preferred embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings, in which similar reference numerals indicate like parts in the different figures: Figure 1 is a vertical, central, sectional view of a device embodying this invention. Fig. 2 is a plan; and, Fig. 3 is a vertical, sectional view enlarged of the locking means for the vulcanizer head.

Referring to the drawings in detail, the reference numeral 1 denotes a hollow ram cylinder provided at its upper end with an annular laterally-extending flange 2. The diameter of the interior of the lower portion of the cylinder is enlarged to provide a chamber 3 to which an operating fluid is admitted and withdrawn through a suitable aperture 4. Above the chamber 3 the diameter of the cylinder is reduced to the proper bore at 5 to receive a ram and above this the portion is again enlarged to receive a packing-gland 6 mounted on the flange 2. The ram cylinder is usually positioned freely in a well 7 extending below a floor 8, although the manner of supporting the device is entirely arbitrary with the user thereof.

The vulcanizer body comprises a base 9 having a horizontal lower end 10 provided with a central opening to receive the ram cylinder 1, permitting the annular flange 2 to rest thereon. From this lower end 10 which is less in diameter than the vulcanizer body extends an outwardly-flaring wall 11 terminating in an annular flange 12. In this wall 11 is a drainage opening adapted to receive a pipe by which the condensation is carried away.

The outer face of the base 9 is provided with outwardly-projecting integral radial wings 19 which rest on the floor 8 and serve to support the entire device. Mounted in the cylinder 1 is a ram or plunger 14 operated by pressure or absence of pressure in the chamber 3. Mounted on the upper end of the ram 14 is a head 15 comprising a hub 16 from which extend ribs 17 to support an annular rim 18.

Mounted on the base 9 is the vulcanizer body commonly consisting of a sheet metal cylinder 20, the lower end of which is se-

cured to the flange 12 by suitable holdfast devices such as rivets 21. The vulcanizing fluid is introduced to the interior of the cylinder 20 through an opening 22 into which  
 5 is usually secured a pipe from a suitable source of supply. The interior of the cylinder 20 is sufficient to permit the free reciprocal movement of the head 15 and the upper end thereof is open.

10 Mounted on the upper end of the cylinder 20 is an annular member 23 having a depending cylindrical flange 24 lapping the outer face of the vulcanizer body 20 and secured thereto by suitable means as rivets  
 15 25. Above the flange is an integral horizontally-projecting portion or flange 26 the upper face of which constitutes a seat. At the outer portion of the flange 26 is an upwardly-extending integral, annular flange  
 20 27 provided at the top on the inner face thereof with a series of spaced, integral inwardly-extending lugs 28. Secured on the lugs 28 on opposite sides of the flange 27 are  
 25 a pair of posts 29 extending upwardly a short distance for a purpose to be later described.

In the upper face of the horizontal flange 26 is an annular groove 30 (see Fig. 3) to constitute a seat for an annular packing-  
 30 ring 31 having a groove in the lower face thereof arranged to expand laterally and upwardly by admitting a fluid under pressure to the bottom of the groove 30 below the ring 31 which may be accomplished  
 35 through the medium of a duct 32 tapped to receive the end of a pipe (not shown).

The cover of the vulcanizer comprises an inverted saucer-shaped member 33 across the interior of which extend a plurality of  
 40 strength-giving radial ribs 34. In the center of the cover is a screw-eye 35 for a purpose to be stated. The annular rim of the cover is provided with a series of outwardly-projecting  
 45 lugs 36 spaced from each other a distance slightly less than the width of the spaces between the lugs 28 on the flange 27 to permit the lugs 36 to freely pass between the  
 50 lugs 28. The lugs 36 are arranged to be passed between the lugs 28 and after a slight rotation of the cover to interlock behind the lugs 28. In order to effectually carry this  
 55 out the lugs 35 are so placed that when they are interlocked, as stated, the lower face of the rim of the cover will slightly clear the upper face of the horizontal flange 26, so  
 60 that easy horizontal rotation of the cover is secured and at the same time the expansion of the packing-ring 31, as already described, will cause it to close the joint between the cover and the flange 26. On the  
 65 upper face of the cover 33 are a pair of parallel spaced lugs 37 radial to the center of the cover to provide means into which may be inserted a bar for rotating the same, as desired.

The operation of the device is as follows: In order to fill the vulcanizer with molds the ram 14 is raised sufficiently to lift the cover 33 high enough to permit the lugs 36  
 70 thereof to rest on the top of the posts 29 which thus support the cover in an elevated position, after which the ram is slightly lowered and molds containing articles to be vulcanized are successively placed one upon  
 75 another on top of the head 15 of the ram, the ram being intermittently lowered to receive them, after which it is raised sufficiently to remove the cover and is then lowered into the vulcanizer body 20 and the  
 80 cover secured in position by a partial rotation sufficient to cause the lugs 36 to interlock behind the lugs 28, after which the ram 14 is raised sufficiently to clamp the tier of molds against the under face of the cover 33.  
 85 This is followed by the introduction of a fluid through the aperture 32, causing the packing-ring 31 to expand against the under face of the rim of the cover 33 thereby closing the joint between the cover and the  
 90 body of the vulcanizer. This is followed by the introduction of a vulcanizing fluid through the opening 22 which is maintained a sufficient length of time to vulcanize the  
 95 articles contained in the mold. After vulcanization is accomplished the vulcanizer body is drained through the opening 13 and the pressure on the packing-ring 31 is released through the aperture 32, after which  
 100 the cover is given a partial rotation to withdraw it from interlocking engagement with the lugs 28, and the ram is raised to return the cover to the position shown in dotted  
 105 lines in Figs. 1 and the molds are successively removed laterally from the head 15, the latter being raised to effect this and the operation is repeated.

I claim:

1. The combination of a vulcanizer body provided at the open end thereof with a plurality of inwardly-extending, spaced lugs, a  
 110 cover for said vulcanizer body provided with a plurality of spaced outwardly-extending lugs arranged to interlock behind the lugs of said body, an expansible fluid-operated  
 115 packing-ring arranged to close the joint between said body and cover, a ram arranged to reciprocate within said body and clamp molds containing articles to be vulcanized  
 120 against said cover when the latter is interlocked with said body, the former serving as an abutment for said ram and the latter as sole support for said cover.

2. The combination of a vulcanizer body having one open end and means for the admission of a vulcanizing fluid thereto, inter-  
 125 locking means at the open end of said body, a cover arranged to be detachably-interlocked with said body, a ram cylinder at the opposite end of said body, a ram for clamping  
 130 molds against said cover and an expansi-

ble fluid-operated packing-ring for closing the joint between said cover and said body.

3. The combination of a vulcanizer body with one open end and having means for the admission of a vulcanizing fluid thereto, a cover for said open end, said body and cover provided with interlocking means for holding the latter in position, an expansible fluid-operated packing-ring suitably-mounted to close the joint between said body and cover and clamping means engaging the closed end of said body arranged to force molds containing articles to be vulcanized against said cover when in its closed position and raise said molds and said cover from said body when said cover is released from its interlocked position.

4. The combination of a vulcanizer body with one open end and having means for the admission of a vulcanizing fluid thereto, a cover for said open end, said body and cover

provided with interlocking means for holding the latter in position, an expansible fluid-operated packing-ring suitably-mounted to close the joint between said body and cover, clamping means engaging the closed end of said body arranged to force molds containing articles to be vulcanized against said cover when in its closed position and raise said molds and said cover from said body when said cover is released from its interlocked position and means carried by said body for supporting said cover when in its upper or raised position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDER ADAMSON.

Witnesses:

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