April 13, 1926. **1,581,090**

R. J. SCHMIDT

VULCANIZING PRESS

Filed Dec. 26, 1925 2 Sheets-Sheet 1

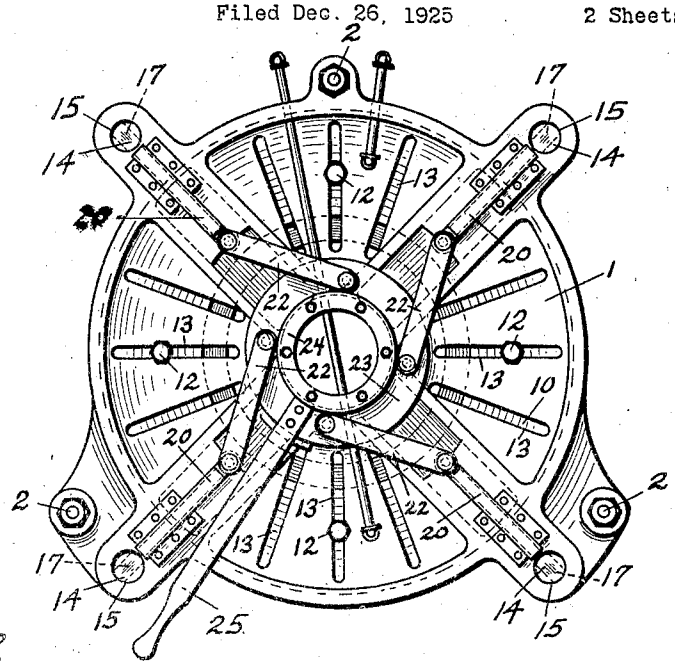


FIG-2

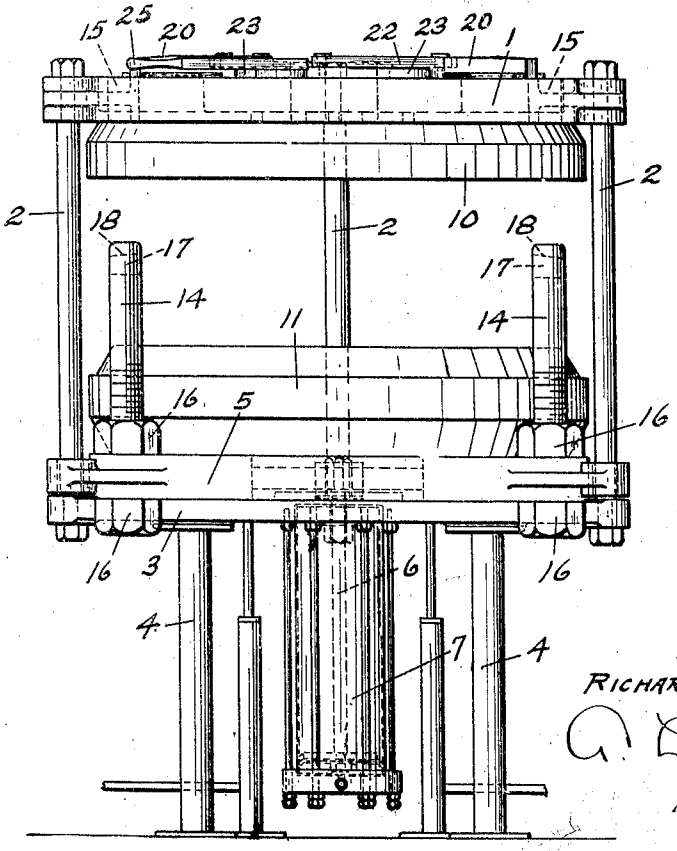


FIG-1

INVENTOR.
RICHARD J. SCHMIDT

ATTORNEY.

April 13, 1926. 1,581,090

R. J. SCHMIDT

VULCANIZING PRESS

Filed Dec. 26, 1925 2 Sheets-Sheet 2

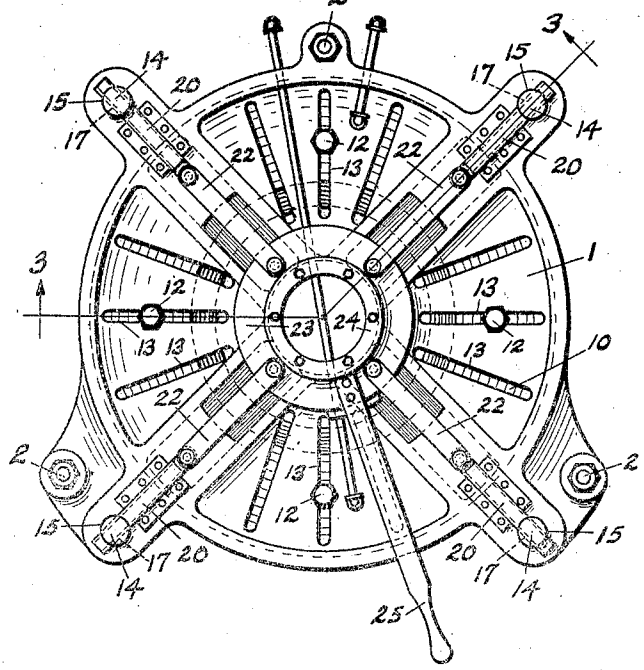


FIG.-4

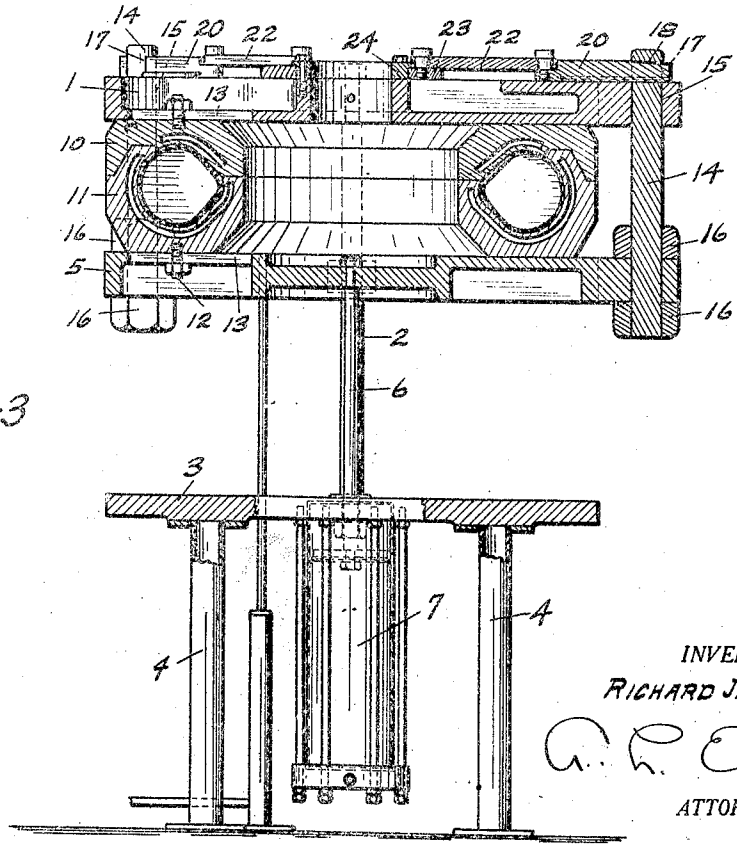


FIG.-3

INVENTOR.
RICHARD J. SCHMIDT
ATTORNEY.

Patented Apr. 13, 1926. 1,581,090

UNITED STATES PATENT OFFICE.

RICHARD J. SCHMIDT, OF AKRON, OHIO, ASSIGNOR TO THE AKRON EQUIPMENT COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

VULCANIZING PRESS.

Application filed December 26, 1925. Serial No. 77,702.

To all whom it may concern:

Be it known that I, RICHARD J. SCHMIDT, a citizen of the United States, and a resident of Akron, county of Summit, State of Ohio, have invented certain new and useful Improvements in Vulcanizing Presses, of which the following is a specification.

This invention relates to the manufacture of inner tubes or similar articles of rubber which are cured in individual steam jacketed molds, the object of the invention being to construct a press for this purpose which shall have a number of features of novelty and utility as will appear.

The apparatus is in the nature of a fluid operated press having a stationary and a movable platen to each of which is attached one section of the mold. The press is equipped with a simple, quick operating locking device by which the two platens may be securely fastened after they are brought together by a fluid operated ram. The locking means is readily adjusted for varying sizes of molds. Other objects of the invention are simplicity and ease of operation and design.

In the drawings in which one form of the invention is shown:

Figure 1 is a side elevation of a press embodying the invention, the press being shown in open position;

Figure 2 is a plan view showing the locking mechanism;

Figure 3 is a section on the line 3—3 of Figure 4, showing the press in closed and locked position; and

Figure 4 is a plan showing the position of the locking means.

The press comprises a stationary platen 1 which is supported at the upper ends of a plurality of vertical rods 2 arising from a bed plate 3. The bed plate is supported from the floor by uprights 4. Slidably mounted on the rods 2 is the movable platen 5, which is moved by the ram 6, the head of which operates in a cylindrical chamber 7 suspended from the bottom of the bed plate 3. The ram is operated by water, air, or other fluid under pressure.

The stationary platen 1 carries upon its under side one member or section 10 of the mold, which is here illustrated as a mold for inner tubes, being chambered for the circulation of steam. The movable platen 5 carries the other section 11 of the mold. Each section is secured to its platen by bolts 12 arranged in slots 13 in the respective platens.

The movable platen is provided with a suitable number of adjustable posts 14, here shown as four in number, which, when the mold is closed, project through apertures 15 in the stationary upper platen 1. Each post 14 is screw threaded at its lower end for a considerable distance and is provided at either side of the platen 5 with nuts 16, so that the extent to which each post projects above the movable platen or its effective length may be accurately adjusted. The upper end of each post is provided with a transverse hole 17, the upper surface of which is slightly tapered as shown at 18, the location of the hole being such than when the posts are properly adjusted and the lower or movable platen is at the upper end of its movement the hole 17 will be located just above the stationary platen.

Arranged on the upper platen is a locking device which cooperates with the posts 14 to secure the sections of the mold together. This consists of a series of bolts or keys 20 which are designed to slide in radial slots formed on the upper surface of the platen 1 and to enter the holes 17 in the manner illustrated in Figure 3, the upper surfaces of the keys being tapered to correspond with the tapers 18. The keys are projected and withdrawn simultaneously by a plurality of links 22 which are pivotally connected to a central rotating ring 23 which rotates upon a central bearing 24 located on the platen 1. The ring 23 is arranged to be rotated by a handle 25. It will be observed that when the ring is rotated in one direction, the keys are all projected outwardly and when rotated in the other direction the keys are all withdrawn.

The operation of the apparatus may be briefly described as follows, the descrip-

tion being given for the curing of an inner tube:

When the parts are in the position shown in Figure 1, the tube is laid in the lower half of the mold, the valve stem being connected to a suitable piping for fluid under pressure, air, gas or steam as may be desired. Pressure is admitted to cylinder 7 and the lower platen rises until the two mold sections are brought tightly together, whereupon the posts will project through the upper platen, the holes 17 being in register with the sliding keys. The ring 23 is rotated and the keys are all projected through the holes in the posts, the tapered surfaces drawing the platens tightly together. The mold is now securely clamped and heat is admitted to the chambered mold sections and the internal pressure to the tube, these being maintained for the period required to vulcanize the tube. Even should the pressure in the cylinder 7 fail, the lower platen cannot fall. As the keys project through the holes 17 and are supported on both sides thereof, they must be sheared off in order to fail. Obviously they can be easily constructed to withstand such action.

As long as one mold is used, the apparatus will work perfectly after the initial adjustment. Should the mold be changed and adjustment required, the posts 14 can be adjusted for the new mold with very little effort. Accurate adjustment may be easily obtained by manipulation of the nuts 16 after the platens are brought together.

The piping for the chambered mold sections, the ram and the link have not been described as they can be easily connected in any suitable manner. Changes and modifications may also be made within the scope of the invention as set forth in the claims. Other articles than inner tubes can be cured in the press shown herein with suitable changes in the mold. The invention is not necessarily limited to vertically operating molds, but may be applied to other types as will be understood by those skilled in the art.

What is claimed is:

1. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen, a ram and a movable platen carried thereby, a mold section carried by each platen, a plurality of posts carried by one of the platens and adapted to project through the other platen, and a plurality of keys movable into locking engagement with the posts to secure the platens together.

2. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen, a ram and a movable platen carried thereby, a mold section carried by each platen, a plurality of posts carried by one of the platens and adapted to project through the other platen, a plurality of keys movable into locking engagement with the posts to secure the platens together, and means to move the keys simultaneously.

3. In an apparatus for the vulcanization of rubber goods, the combination of an upper platen and a movable lower platen, a ram for moving the lower platen, a plurality of posts upon the lower platen adapted to pass through holes in the upper platen, a mold section carried by each platen, a plurality of radially sliding keys on the upper platen, the keys being adapted to pass into locking engagement with the posts, and a single actuating device for said keys.

4. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen and a movable platen, a ram for operating the movable platen, a mold section on each platen, a plurality of posts on one of said platens, said posts projecting through the other platen when the mold sections are closed, means to adjust the effective length of said posts, and keys slidably carried by one platen and adapted to pass into locking engagement with the posts.

5. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen and a movable platen, a ram for operating the movable platen, a mold section on each platen, a plurality of posts on one of said platens, said posts projecting through the other platen when the mold sections are closed, means to adjust the effective length of said posts, and keys slidably carried by one platen and adapted to engage the posts, the keys and the apertures having correspondingly tapered surfaces.

6. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen and a movable platen, a ram for operating the movable platen, a mold section on each platen, a plurality of posts on one of said platens, said posts projecting through the other platen when the mold sections are closed, means to adjust the effective length of said posts, keys slidably carried by one platen and adapted to engage the posts, and means to operate said bolts in unison.

7. In an apparatus for the vulcanization of rubber goods, the combination of a stationary platen and a movable platen, a ram for operating the movable platen, a mold section on each platen, a plurality of posts on one of said platens, said posts projecting through the other platen when the mold sections are closed, means to adjust the effective length of said posts, keys slidably carried by one platen and adapted to enter apertures in the posts, the keys and the apertures having correspondingly tapered surfaces, and means to operate said bolts in unison.

8. An apparatus of the character described, comprising an upper stationary platen and a lower movable platen, a mold section carried by each platen, a series of posts carried by the movable platen and adapted to project through the stationary platen, adjustment means for varying the extent of said posts above the movable platen, a plurality of radial sliding keys on the stationary platen, a central rotatable ring, and links connecting the ring and the keys, the keys being received within apertures in the posts when projected outwardly.

RICHARD J. SCHMIDT.