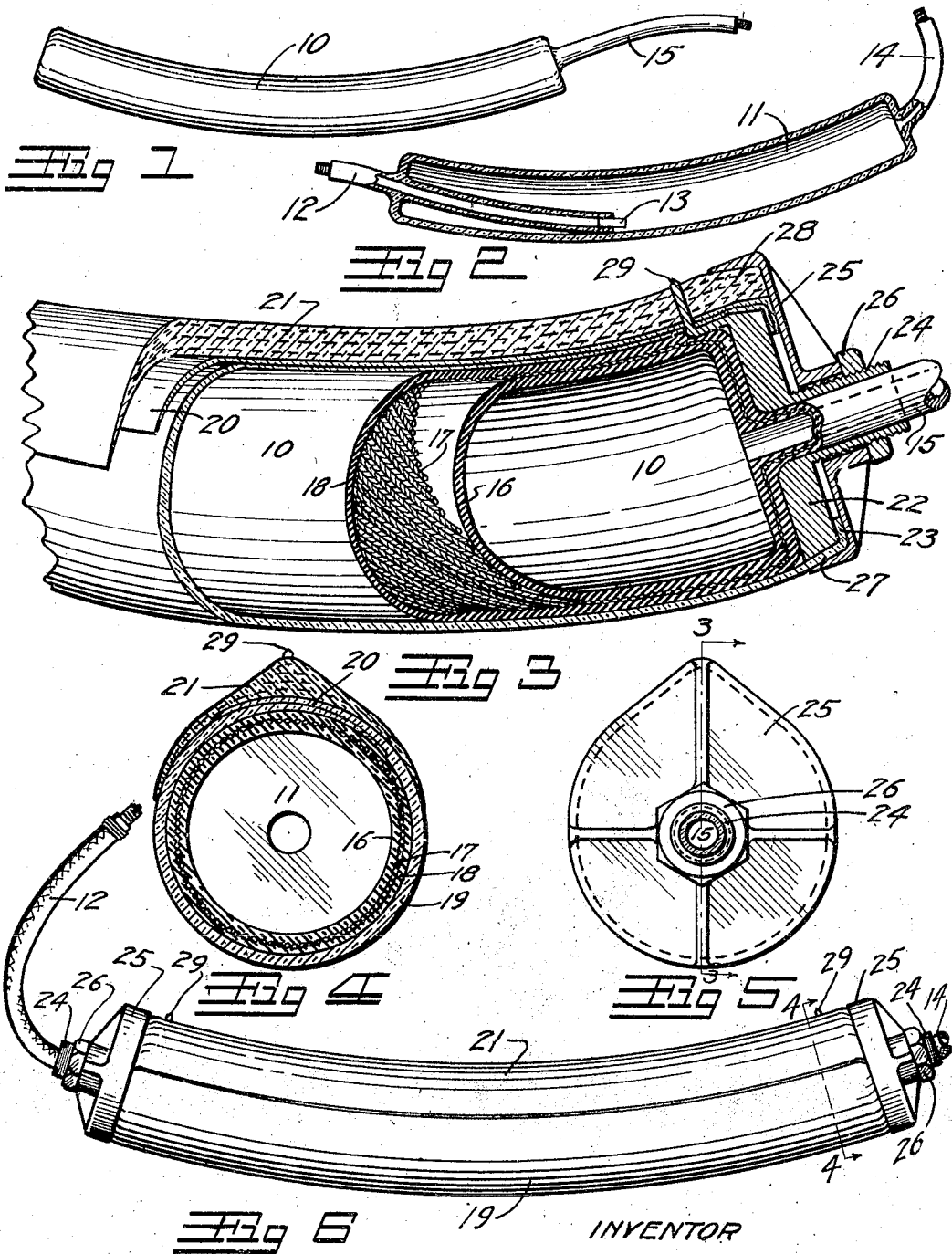


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AIR AND STEAM BAG FOR VULCANIZERS.
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AIR AND STEAM BAG FOR VULCANIZERS.

Application filed January 21, 1922. Serial No. 530,974.

To all whom it may concern:

Be it known that I, CHARLES G. ANDREWS, a citizen of the United States of America, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Air and Steam Bags for Vulcanizers, of which the following is a specification.

The invention relates to new and useful improvements in air and steam bags, particularly of the type used by vulcanizers for distending a tube or casing in a vulcanizing machine for pneumatic tires.

The principle object of the invention is to provide a bag which will allow a greater radius of expansion than those at present in use and yet will be protected against bursting.

Another object of the invention is to provide a bag which will be pliable and expandable long after the present type would have become hard and rigid from use.

A further object of the invention is to allow the renewal of the air or steam containing portion of the bag without the necessity of renewing the complete device.

A still further object of the invention resides in the detail construction thereof, whereby the whole device is securely held together without the use of bolts, screws or rivets. This adds to its simplicity both in use and in manufacture.

With these and other objects, which will be apparent from the following description, in view; the invention will now be described in detail, reference being had to the accompanying drawing forming a part hereof.

In the drawing:

Figure 1 is a side elevation of an air container such as may be used in the device.

Fig. 2 is a longitudinal section through a steam container such as may be used in the device.

Fig. 3 is an enlarged elevation, partly in section, of the end portion of the complete device, showing how the various parts of the device are held in place. The sectional portion of this view is taken on the line 3—3, Fig. 5.

Fig. 4 is a cross section through the complete device taken on the line 4—4, Fig. 6.

Fig. 5 is an end view of the complete device.

Fig. 6 is a side elevation of the complete device with a steam container in place. When using an air container, the supply

hose alone would show at one end of the device, the other end being blank.

Corresponding and like parts are referred to in the following description and indicated in all views of the accompanying drawing by the same reference characters.

Let the numeral 10 indicate an air container and the numeral 11 a steam container, either of which may be used in the device according to the work to be done. The steam container 11 differs from the air container 10 only in that it is provided with a steam and condensate outlet pipe 12. The inner end of outlet pipe 12 lies normally at the lowest point of the container, as indicated in Fig. 2, so as to allow the pressure of the steam to force out all of the condensate which may accumulate therein. The inner end of the outlet pipe 12 is provided with a nipple 13, the weight of which assists in holding the outlet at the low point. The steam is admitted through an inlet pipe 14. Air container 10 is provided with an air inlet pipe 15 only.

The wall construction of the containers 10 and 11 is believed to be new and novel. Referring to Figs. 3 and 4, an inner layer 16 of very pliable, slow-curing rubber is surrounded by a single layer of cords 17, over which a second and thinner layer of similar rubber 18 is placed. The three layers being formed into a single homogeneous wall.

The cords 17 are placed diagonal to the horizontal axis of the container, as indicated in Fig. 3. This allows the tube to expand freely in a radial direction at the expense of a slight shortening in an axial direction. The cords however bind the whole together and prevent the bursting of the tube should it be inflated outside of its casing. The containers at present on the market are provided with either a fabric or a cross-cord binder which has very little elasticity and allows but a very slight expansion of the bag.

In use, the containers 10 and 11 are placed within a casing 19, of the ordinary fabric and rubber composition, which in itself, like the present bags in use, has no elasticity. Casing 19 is not continuous however, but is open along the upper side. The edges of the opening being lapped as indicated in Figs. 3 and 4 at 20. This lapped joint allows the casing 19 to expand as freely as may be required by the containers 10 and 11,

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The lapped joint 20 is protected by a heavy strip of fabric and rubber 21, shaped to conform to the inner profile of a pneumatic tire. Strip 21 also removes the necessity of the air or steam container conforming to the shape of the tire and since the containers are always kept perfectly circular, uneven strains are avoided and longer life assured.

The ends of the casing 19 are turned over metal end plugs 22 as shown at 23. End plugs 22 are provided with hollow threaded nipples 24 which project through cup shaped end plates 25 and are provided with nuts 26. The edges of end plugs 22 and the inner cupped face of end plates 25 are beveled as indicated at 27. By tightening nut 26, end plug 22 is drawn into the cupped shaped depression in end plate 25 and the end of casing 19 is firmly clamped in place as is clearly shown in Fig. 3.

The ends of strip 21 are also clamped between the beveled edges of end plugs 22 and end plates 25 as shown at 28, and in addition a hook 29 formed on the end plug 22 projects through the casing 19 and the strip 21, assisting in drawing them into end plate 25 and holding them in place. The pipes 12, 14 and 15 pass through the hollow center of nipples 24.

In use, it is not necessary to disassemble the end plates in order to insert a new air or steam container. The strip 21 is simply lifted at its mid point, the flaps 20 spread apart and the container inserted.

The casing serves to protect the pressure container and prevent it blowing out through unprotected openings in the vulcanizer and also serves to tie the end plates together and prevent endwise expansion.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. An air and steam bag comprising a pressure container of rubber or other elastic

material having a single layer of cords imbedded in the walls thereof, said cords being disposed at an angle to the axis and diameter of the container for the purpose set forth, and an expansible casing adapted to contain said pressure container.

2. An air and steam bag comprising a pressure container; a casing surrounding said container, said casing being provided with an expansion joint to allow radial expansion; rigid end members closing the ends of said casing; means for clamping said casing to said end members.

3. An air and steam bag comprising a pressure container; a casing surrounding said container, said casing being provided with an expansion joint to allow radial expansion; a strip-shaped to conform to the inner contour of a pneumatic tire and adapted to cover said expansion joint; rigid end members closing the ends of said casing; means for clamping said casing and said strip to said end members.

4. A pressure core for vulcanizers composed of rubber or other elastic material and having a single layer of cords imbedded in the walls thereof, said cords being disposed at an angle to the axis and diameter of said core for the purpose of allowing radial expansion.

5. An air and steam bag for vulcanizers comprising a flexible casing provided with an expansion joint to allow radial expansion; rigid end members closing the ends of said casing; means for clamping said casing to said end members and a steam container adapted to be contained within said casing provided with inlet and outlet pipes, said outlet pipe being flexible and adapted to extend within said steam container and lie at the lowest point thereof. In testimony whereof I affix my signature.

CHARLES G. ANDREWS.