J. J. COTTER.

VULCANIZING DEVICE.

APPLICATION FILED DEC. 4, 1919.

1,372,799.

Patented Mar. 29, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

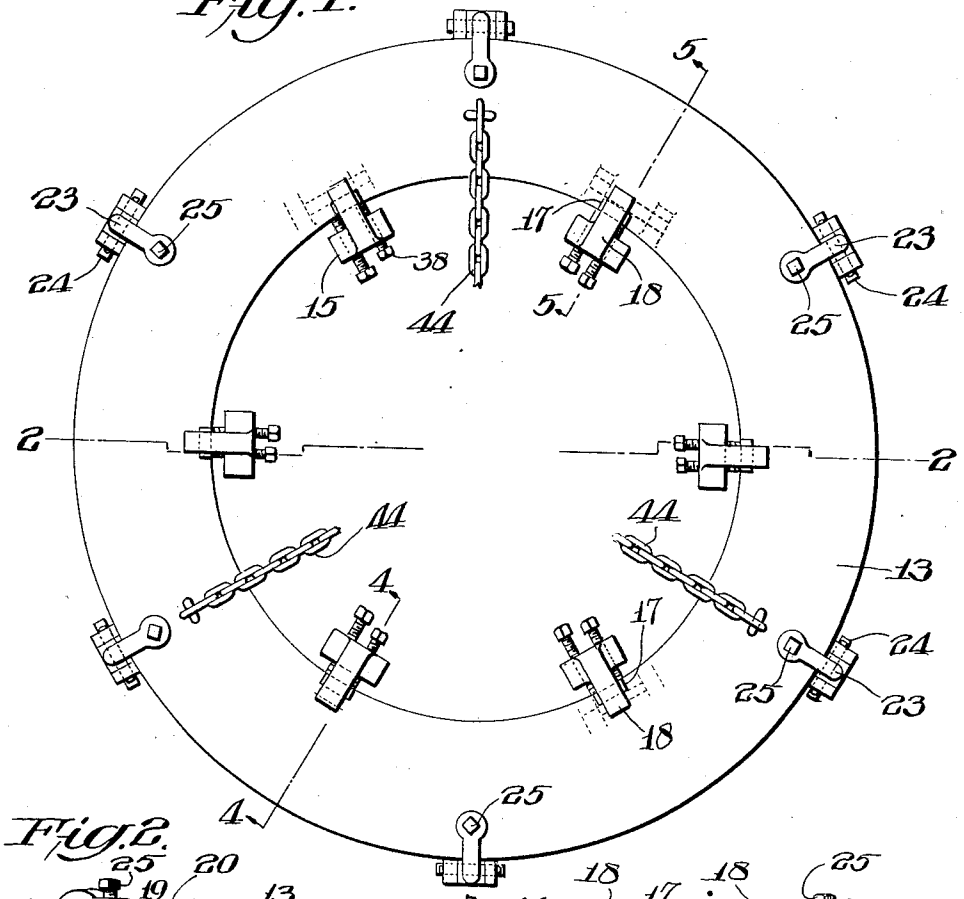
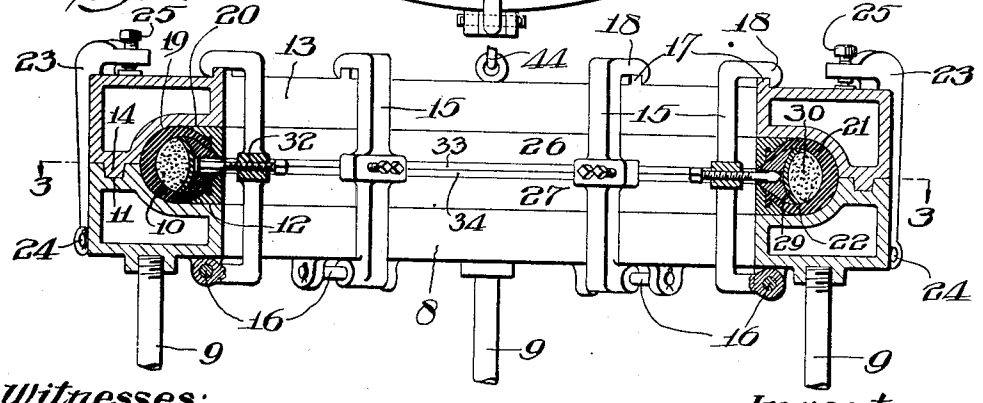


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

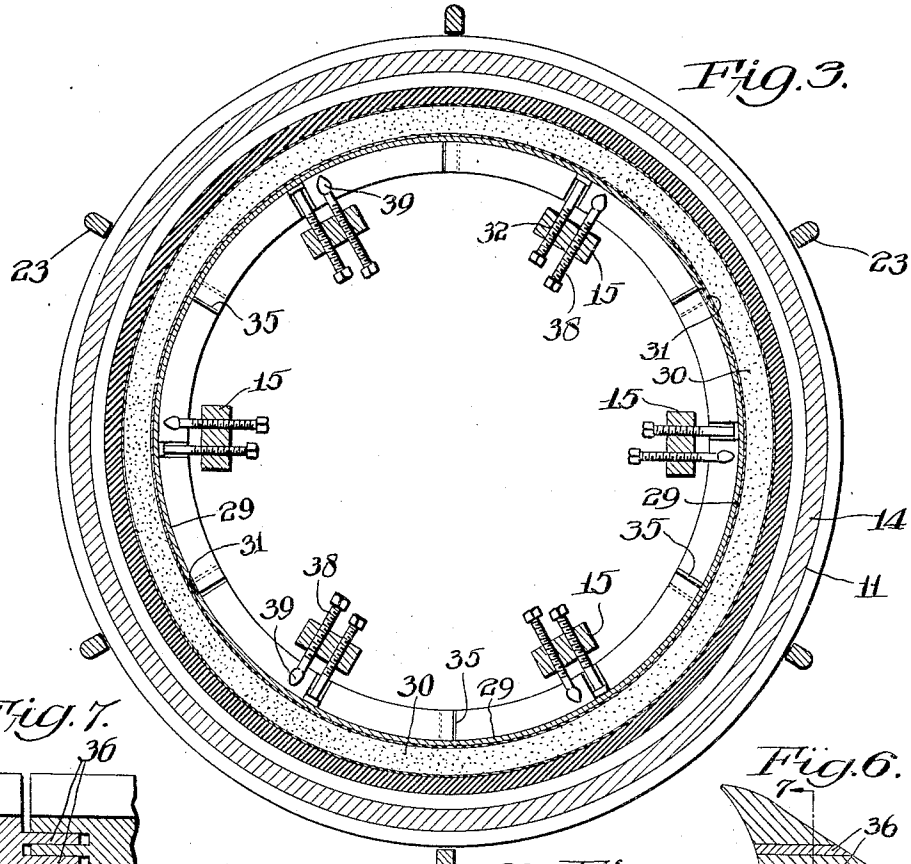


Fig. 7.

Fig. 6.

Fig. 4.

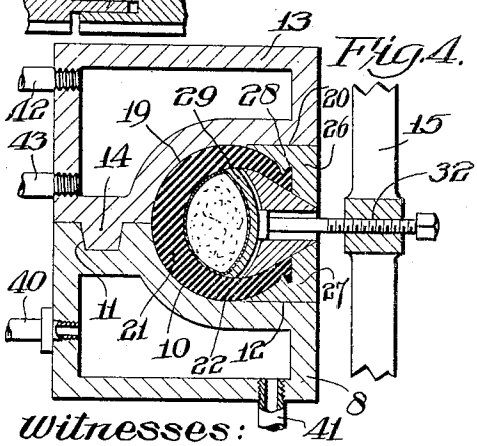
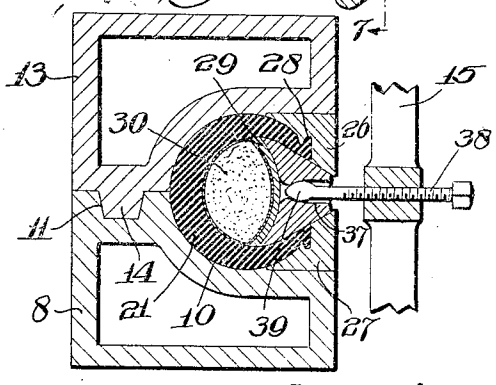


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN J. COTTER, OF PHILADELPHIA, PENNSYLVANIA.

VULCANIZING DEVICE.

1,372,799. Specification of Letters Patent. Patented Mar. 29, 1921.

Application filed December 4, 1919. Serial No. 342,368.

To all whom it may concern:

Be it known that I, JOHN J. COTTER, a citizen of the United States, residing at Roxboro, Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vulcanizing Devices, of which the following is a specification.

One object of my invention is to facilitate the vulcanizing of hollow circular or arcuate rubber bodies, such for example as tire shoes for vehicle wheels.

Another object is to provide an improved device which can be quickly and easily placed in position for vulcanizing objects as above described and which is adjustable to suit various requirements so that portions on the outside and inside of said bodies can be properly treated.

Another object is to make my invention of a comparatively simple and durable construction.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a top plan view of my improved vulcanizing device,

Fig. 2 is a sectional elevation taken on the line 2—2 of Fig. 1,

Fig. 3 is a sectional plan view taken on the line 3—3 of Fig. 2,

Fig. 4 is an enlarged fragmentary sectional plan view taken on the line 4—4 of Fig. 1,

Fig. 5 is an enlarged fragmentary section taken on the line 5—5 of Fig. 1,

Fig. 6 is an enlarged fragmentary section taken on the line 6—6 of Fig. 3, and

Fig. 7 is a fragmentary sectional elevation taken on the line 7—7 of Fig. 6.

Referring to the drawings, my improved vulcanizing device includes a hollow base section 8 in the form of a ring which is mounted upon standards or legs 9. The upper face of the base section 8 has a recess 10 and a groove 11 surrounding said recess. The innermost portion of the recess 10 is arcuate and this arcuate portion blends into a substantially flat portion 12 for the purpose hereinafter described.

A hollow top section 13 which is made in the form of a ring is adapted to rest upon the top of the base section 8 and has an annular rib 14 which fits within the groove 11. Arms 15 are pivotally mounted on rods 16 which are supported on the bottom of the base section 8. In addition to the pivotal mounting of said arms on the rods 16, said rods are made sufficiently long so that the arms 15 can slide longitudinally thereon. The top section 13 has lugs 17 for engagement with hooked ends 18 on the arms 15. The lower face of the top section 13 has an arcuate recess 19 which blends into a flat face 20 and the arcuate recess 19 is adapted to register with the recess 10 of the base section 8 to form a receptacle for the tread portion 21 of a tire shoe 22 which for example is to be vulcanized.

In addition to the arms 15, the base section 8 has arms 23 pivotally connected thereto, as shown at 24, and are adapted to be swung upwardly so as to bridge the parting between the top and base sections. The upper ends of the arms 23 extend over the top section 13 and are provided with clamping screws 25 whereby the top and base sections can be securely clamped together.

Two metallic rings 26 and 27, which will hereinafter be termed bead rings, are adapted to be interposed between the flat portions 12 and 20 of the base and top sections, said bead rings having their inner surfaces shaped to register with the tire shoe beads or edges 28 of the tire shoe. A pressure band 29 is adapted to be inserted within the shoe and to engage a sand bag or other compressing means 30 which is placed within the tire shoe, as clearly shown in Fig. 4. This band 29 is split at distances apart within its circumference as shown at 31 and pressure screws which fit tapped holes 32 in the arms 15 are adapted to push the band 29 against the sand bag 30 and thereby force the tread portion of the tire into firm engagement with the surfaces of the base and top sections which provide the recesses 10 and 19 respectively.

Two metallic core rings 33 and 34 are positioned between the bead rings 26 and 27 and are split at distances apart within their circumference, as shown at 35, said splitting consisting of interlocking tongue portions, as clearly illustrated at 36 in Figs. 6 and 7. The adjacent faces of the core rings 33 and 34 at points throughout the circumference thereof provide inwardly tapered openings 37. Wedging or spreading screws 38 fit tap-

ped openings in the arms 15 and have enlarged heads 39 adapted to enter the tapered openings 37 and spread the innermost portions of the core rings 33 and 34 into engagement with the inner surface of the tread shoe 22 adjacent the beads 28. In addition to the spring action of the screws 38, the inward movement of said latter screws causes the innermost parts of the core rings 33 and 34 to be wedged between the band 29 and the beads of the tire so that a close fit is provided for the core rings against said inner portion of the tire shoe. The base section is provided with a steam inlet pipe 40 and a drain or return pipe 41. In like manner the top section 13 is provided with a steam inlet pipe 42 and a drain pipe 43.

By the use of the device as above described, steam entering the base and top sections will impart heat directly to the tread portion of the tire shoe and through the medium of the bead rings 26 and 27 and the core rings 33 and 34 will provide heat for treating the inner and outer portions of the shoe adjacent the bead.

In applying the several parts in the position above illustrated, the top section can be suspended from any suitable overhead structure by means of chains 44 or other suitable devices and the lower bead ring 27 is placed in position on the base section 8. The tire with the core rings 33 and 34, band 29 and sand bag 30 therein can be placed in position upon the base section and bead ring 27, after which the bead ring 26 can be placed in position and the top section lowered into the position as illustrated. The arms 23 can then be swung into position and the screws 25 can be tightened. The arms 25 can then be swung upwardly in positions so that their hooked ends 18 clear the sides of the lugs 17 and afterward these arms can be shifted to cause the hooked ends 18 to engage the lugs 17.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

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

1. A vulcanizing device including ring heating sections; and clamping members slidably pivoted to one of said sections, the other of said sections having lugs thereon whereby portions of said clamping members can be slid into and out of embracing position with said lugs to permit the sections to be locked or freed from each other; substantially as described.

2. A vulcanizing device including ring heating sections having registering recesses of sufficient depth to include the tread and inner edge portions of a tire shoe; pressure means positioned within the central portion of the space provided by said ring sections and operative to force the tread portion of a tire shoe into engagement with the inner part of the recess; means for heating said sections; core rings for embracing said edge portions of the shoe within said recess; and means for spreading said core sections apart whereby the edge portions of said shoe will receive heat from said ring sections; substantially as described.

3. A vulcanizing device including ring heating sections having registering recesses of sufficient depth to include the tread and inner edge portions of a tire shoe; pressure means positioned within the central portion of the space provided by said ring sections and operative to force the tread portion of a tire shoe into engagement with the inner part of the recess; means for heating said sections; core rings adapted to be positioned between the inner surfaces of said edge portions of the tire shoe; core rings adapted to be placed between said edge portions of the tire shoe and said heating sections; and means operative between said first core rings to spread them apart whereby said second mentioned core rings will be held in engagement with said heating sections, said latter mentioned core rings having portions for engagement with said first mentioned core rings whereby heat conducted to the inner core rings will act to vulcanize the inner surfaces of said edge portions of the shoe which are not engaged by the outermost core rings; substantially as described.

4. A vulcanizing device including ring heating sections having registering recesses, the innermost parts of said recesses being arcuate and adapted to engage the tread portion of a tire shoe placed therein; pressure means positioned within the central space provided by said ring sections and operative to force the tread portion of said tire shoe into engagement with said arcuate recesses; core rings positioned within said tire shoe and recesses; and means for spreading apart said core rings within the shoe; substantially as described.

5. A vulcanizing device including ring heating sections having registering recesses, the innermost parts of said recesses being arcuate and adapted to engage the tread portion of a tire shoe placed therein; pressure means positioned within the central space provided by said ring sections and operative to force the tread portion of said tire shoe into engagement with said arcuate recesses; core rings positioned within said tire shoe; means for spreading said core rings; and bead rings interposed between

said core rings and opposite portions of said heating ring sections; substantially as described.

6. A vulcanizing device including ring heating sections having registering recesses, the innermost parts of said recesses being arcuate and adapted to engage the tread portion of a tire shoe placed therein; pressure means positioned within the central space provided by said ring sections and operative to force the tread portion of said tire shoe into engagement with said arcuate recesses; core rings positioned within said tire shoe and recesses, said core rings having tapered openings therebetween; and means having wedged portions adapted to enter said tapered openings and thereby spread said core rings; substantially as described.

7. A vulcanizing device including ring heating sections having registering recesses, the innermost parts of said recesses being arcuate and adapted to engage the tread portion of a tire shoe placed therein; pressure means positioned within the central space provided by said ring sections and operative to force the tread portion of said tire shoe into engagement with said arcuate recesses; core rings positioned within said tire shoe, said core rings having tapered openings therebetween; means having wedged portions adapted to enter said tapered openings and thereby spread said core rings; and bead rings interposed between said core rings and between the opposite portions of said heating ring sections which provide said recesses; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN J. COTTER.

Witnesses:
ADA COTTER,
CHAS. C. POTTS.