J. G. CHALFANT & H. G. HAUN.

CORE FOR USE IN MOLDS AND FORMS.

APPLICATION FILED DEC. 13, 1913.

1,140,499.

Patented May 25, 1915.

2 SHEETS—SHEET 1.

Fig. 1

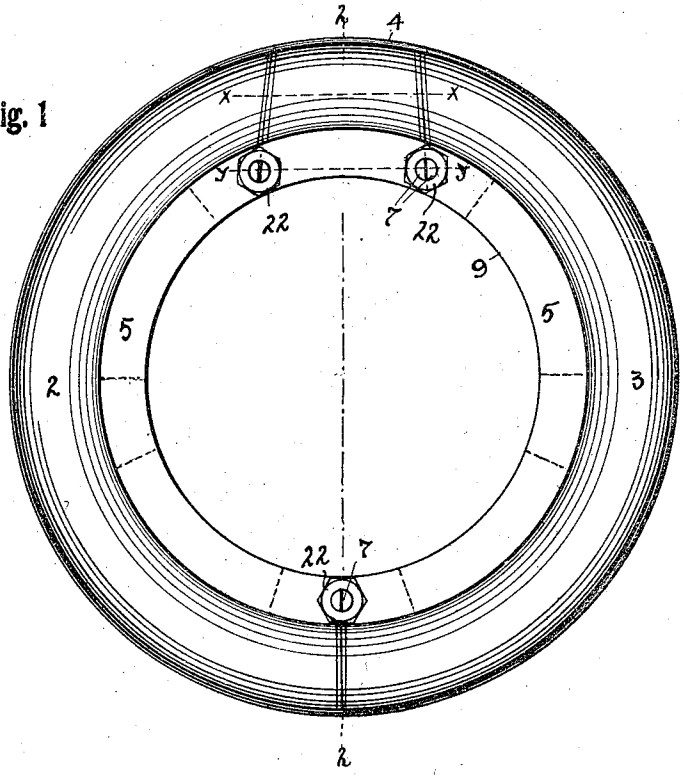


Fig. 2

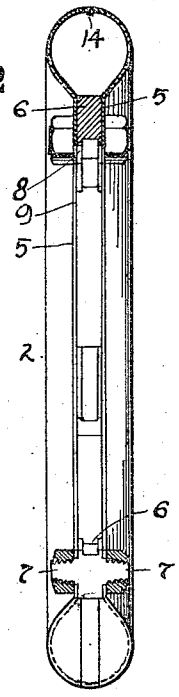


Fig. 3

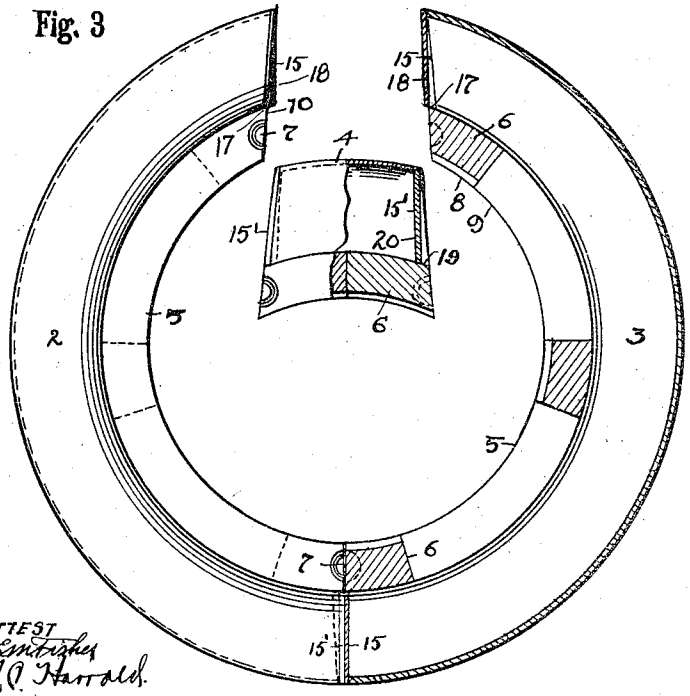
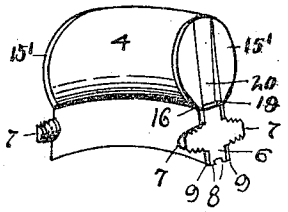


Fig. 4



ATTEST

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2 SHEETS—SHEET 2.

Fig. 5

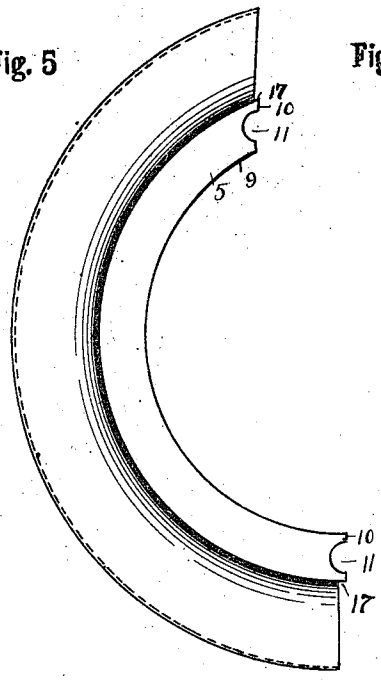


Fig. 6

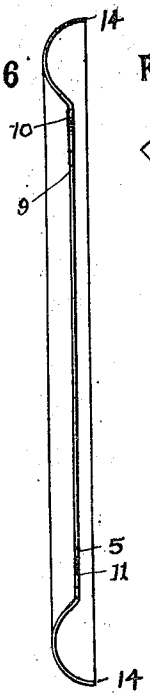
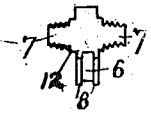


Fig. 7



Fig. 8



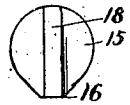


Fig. 9



Fig. 10

Fig. 11

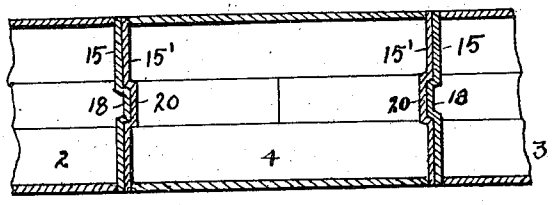
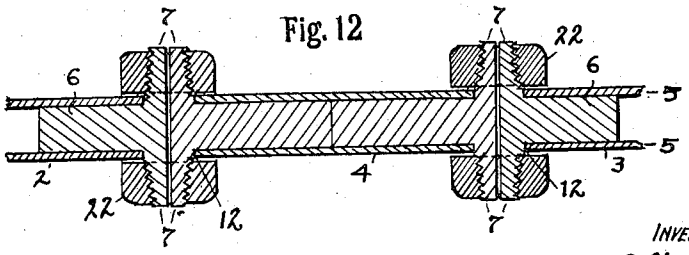


Fig. 12



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UNITED STATES PATENT OFFICE.

JOSEPH G. CHALFANT AND HARVE G. HAUN, OF AKRON, OHIO.

CORE FOR USE IN MOLDS AND FORMS.

1,140,499. Specification of Letters Patent. Patented May 25, 1915.

Application filed December 13, 1913. Serial No. 806,384.

To all whom it may concern:

Be it known that we, JOSEPH G. CHALFANT and HARVE G. HAUN, citizens of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Cores for Use in Molds and Forms, of which the following is a specification.

This invention relates to improvements in cores for use in molds or forms for producing resilient tires or tire casings, especially such tires or casings as have a divided base, and the improvement comprises a construction and arrangement of parts substantially as herein shown and described and more particularly pointed out in the claims.

The primary object of the invention is to provide a core of exceptional light weight and great strength by pressing or stamping and drop-forging the respective parts thereof and by welding sections of the parts together. The general practice is to make such cores of cast metal and the result is that the cores are unnecessarily heavy and very difficult to handle. In making the core of sheet metal a new mode of construction is involved as will now be described. A further object in making the core of sheet metal is to provide a relatively thin wall of uniform thickness throughout the core, and the inner circular flange portion of the core is spaced apart and open to permit the entrance of steam into the core, whereby uniform pressure and curing results may be obtained.

In the accompanying drawings, Figure 1 is a side view of the improved core assembled and united and as it would appear in the mold, the latter not being shown, as the said core is adapted to be used with various types of molds. Fig. 2 is a sectional view on the line 2—2, Fig. 1. Fig. 3 is a side view and a sectional view in part and showing the small or key section of the core removed or displaced from the position which it occupies when the parts are assembled. Fig. 4 is a perspective view of the small key section. Fig. 5 is a side view, and Fig. 6 an edge view projected from Fig. 5 showing one of the stamped plates which forms one side half of one of the larger core sections. Figs. 7 and 8 are side and edge views respectively of one of the connecting members forming a portion of each extremity of each core section. Figs. 9 and 10 are face and edge views respectively of the end plate for the extremities of the core sections. Fig. 11 is a sectional view through the small key section on line *x*—*x*, Fig. 1. Fig. 12 is a sectional view through the flanges of the core sections and the connecting members on line *y*—*y*, Fig. 1. Figs. 11 and 12 are enlarged as compared with the other figures.

The core comprises three sections, 2, 3 and 4 of ring form when joined together. The sections 2 and 3 are of substantially identical construction and of the same size and shape, and the two larger sections are adapted to be secured in abutting relations at their lower extremities, and the smaller section 4 unites with and is interposed between their other or upper extremities. The abutting ends of sections 2 and 3 are on a radial line of the ring, whereas the opposed upper ends of the sections 2 and 3 are obliquely disposed in reverse relations to said radial line. The small key section 4 has its ends made to correspond and fit within the oblique ends of the two larger sections, and it is therefore of wedge shape so that it may be entered between and withdrawn from its engaging relations with said sections 2 and 3 and from the inside of the ring, see Fig. 3. This arrangement of parts permits the core to be collapsed and to be removed from the finished tire and the mold. Each core section corresponds in outline to the internal shape of the tire or casing to be built up or molded thereon, and as shown this shape is partly circular in cross section and partly converging on straight lines inwardly toward the median line thereof and the center of the ring, and terminating in two straight parallel flanges 5 annularly of the ring. The flanges 5 are spaced apart relatively as shown, and short flat-sided segment-shaped members 6 are secured between the extremities of the flanges of each section. Each member 6 possesses laterally-extending projections 7 at each side and at one end and which projections are tapering and provided with a screw-thread and also semi-circular in cross section with the flat face thereof on the same plane and flush with each other and one end of said member. The bottom surface of each member 6 is channeled to provide relatively narrow side ribs or edges 8 which are adapted to come into juxta-position with the bottom edges 9 of the annular flanges 5. Each end edge 10 of the flanges 5 is provided with

a semi-circular recess 11 adapted to seat the semi-circular shoulder 12 of the threaded projections 7.

In the manufacture of the sections member 6 is placed between the ends of the flanges of two similar plates such as shown in Figs. 5 and 6, and which are separately stamped or pressed from sheet metal and finally brought together at their outer annular edges 14, this joint line constituting the median line of the two halves of the core section when united at these edges by any of the known processes of welding. The member 6 is also welded to the flanges 5, the edge 8 thereof being particularly provided for this purpose. Each section is completed by welding an end plate or cap 15 to the end edges of each section, said cap corresponding in outline to the circular end of each section and the said ends being notched or retired the thickness of the plate with the bottom edge 16 of the plate resting upon the shoulders 17 of the section. Plate 15 is preferably struck up or formed with a straight rib 18 centrally thereof between its opposite edges, and the said rib may be inclined relatively to the face of the plate so that the circular edge of the plate will coincide without irregularity with the circular end edge of each section extremity and so that the end of the raised portion of the rib 18 will form a stop to engage with a shouldered seat or recess 19 in the respective end faces of the short section 4, it being understood that the end plates 15′ of said short section 4 are made to correspond to plates 15 but with a stamped depression 20 to receive the ribs 18. Plates 15′ are also welded at their edges with the end edges of the wall of section 4.

The ribbed and channeled formation of the end plates 15 and 15′ permit the respective sections to be perfectly alined, and clamping of the sections together is accomplished by nuts 22 when screwed upon each pair of juxtaposed projections 7 of the connecting members 6, see Fig. 12. When the plates 15 and 15′ are in close contact a slight space remains between the opposed members 6 at the flat faces of projections 7, and a tapering thread on the projections and within the nut produces the required clamping action to firmly unite the parts together. The members 6 are preferably drop-forgings.

The core sections constructed of sheet metal as described have relatively thin walls as compared with sections made of cast metal. Such cores will not crack or break when roughly handled, and are relatively light in weight and convenient to handle. The connecting members 6 are a unitary part of each section, and the only parts to be handled comprise the three sections and the nuts. Manifestly, it is a simple matter to assemble and unite the core sections, and also to collapse the same.

What we claim is:

1. A core for the manufacture of tires comprising a set of hollow sections having connecting members at their ends, said connecting members comprising a plate having threaded projections semi-circular in cross-section, in combination with threaded nuts to unite juxtaposed projections.

2. In a collapsible core for the manufacture of tires, a separable section comprising sheet metal plates having curved edges united together and flanges having spacing members united therewith at the extremities of said section, said members having lateral projections semi-circular in cross section and threaded.

3. A separable section for a collapsible core, comprising a pair of sheet-metal plates welded together and provided with flat plates welded thereto at the extremities thereof, and connecting members united with said extremities comprising lateral screw-threaded projections.

4. A collapsible core comprising separable sections having abutting end plates provided with ribs and channels, and connecting members at the extremities of said sections having lateral screw-threaded projections of semi-circular cross section adapted to be brought together and engaged by nuts, in combination with screw-threaded nuts for said projections.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH G. CHALFANT.
HARVE G. HAUN.

Witnesses:
J. H. Miles,
Grant G. Stunick.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."