

F. S. STILES & J. YEMIKER.

CORE FOR MOLDING TIRES.

APPLICATION FILED APR. 9, 1910.

995,732.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

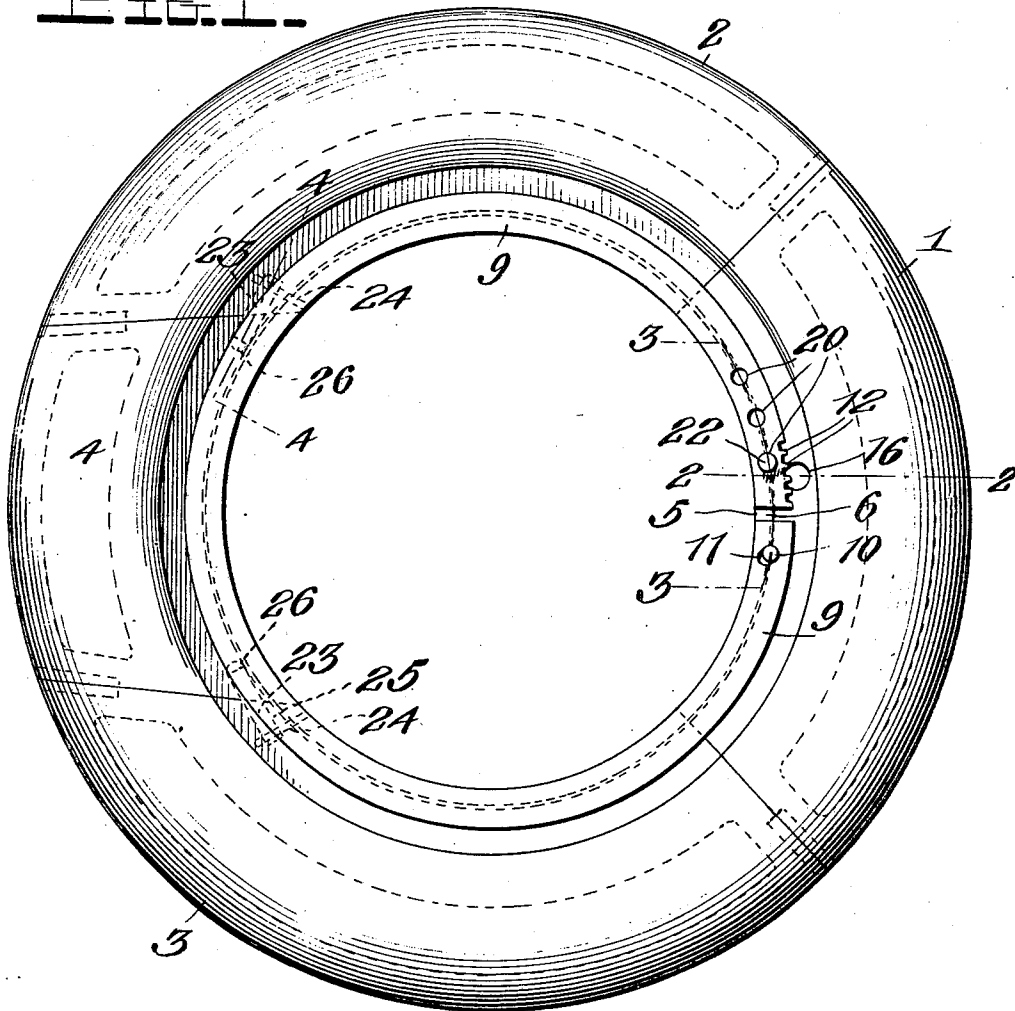
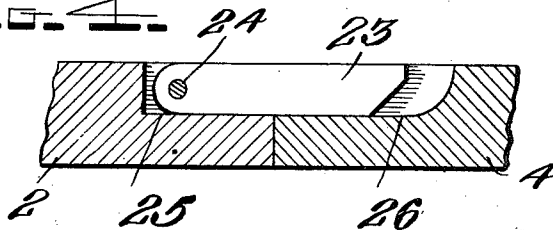


Fig. 2.



Inventors

F. S. Stiles and
J. Yemiker,

Witnesses

Chas. L. Griesbauer.
C. M. Rickette

By

Watson E. Coleman,
Attorney

F. S. STILES & J. YEMIKER.

CORE FOR MOLDING TIRES.

APPLICATION FILED APR. 9, 1910.

995,732.

Patented June 20, 1911.

2 SHEETS-SHEET 2.

Fig. 2.

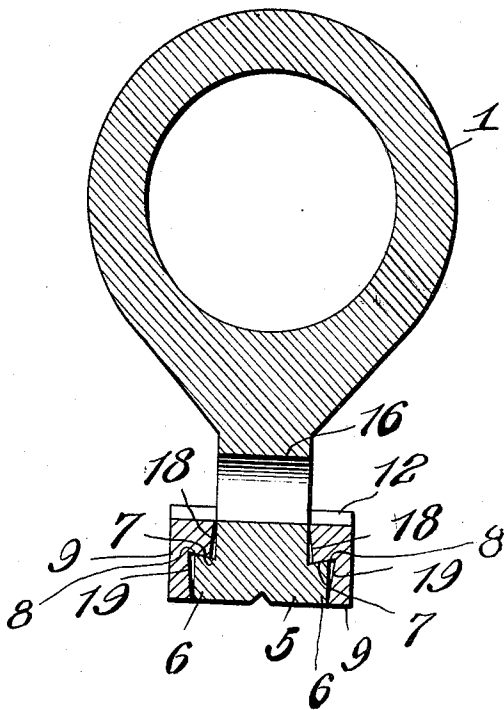


Fig. 3.

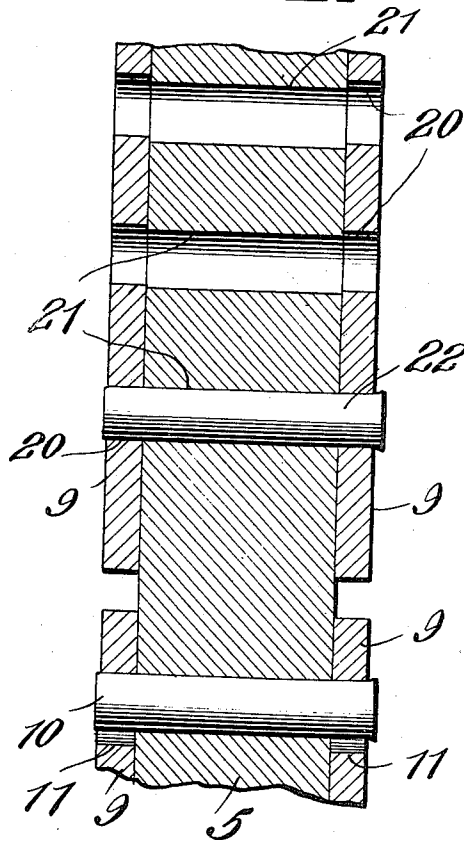
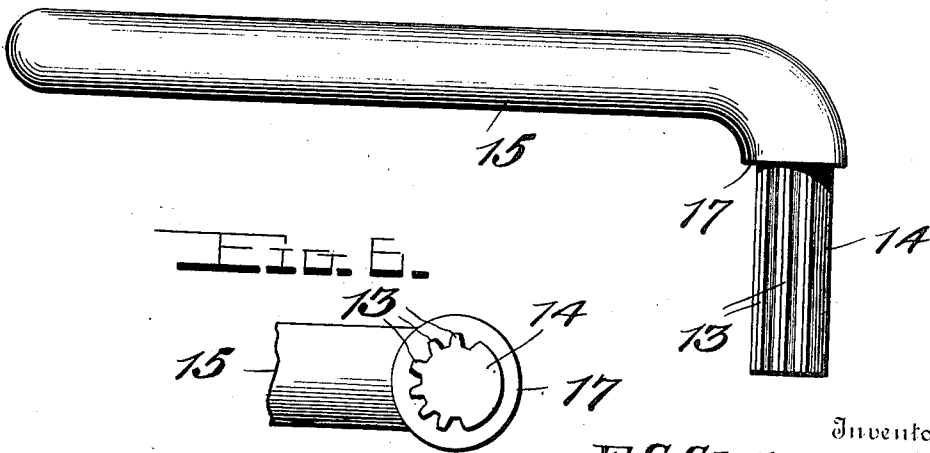


Fig. 5.



Witnesses

Chas. L. Gruebauer.
C. M. Ricketts

Inventors

F. S. Stiles and
J. Yemiker,

By Watson E. Coleman,
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK S. STILES AND JOHN YEMIKER, OF AKRON, OHIO, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE FAULTLESS MACHINE & MANUFACTURING COMPANY.

CORE FOR MOLDING TIRES.

995,732.

Specification of Letters Patent. Patented June 20, 1911.

Application filed April 9, 1910. Serial No. 554,396.

To all whom it may concern:

Be it known that we, FREDERICK S. STILES and JOHN YEMIKER, 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 Molding Tires, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to improvements in collapsible cores or mandrels used in molding rubber tires or analogous articles.

The object of the invention is to provide a collapsible core of this character with improved means for uniting its members or sections without the use of bolts.

Another object of the invention is to provide a fastening means for a collapsible core of this character which will tend to effectively draw the core sections or members together, and in which the parts are so constructed as to compensate for wear.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts, hereinafter fully described and claimed, and illustrated in the accompanying drawings in which:—

Figure 1 is a side elevation of a collapsible core embodying the invention; Fig. 2 is a cross section taken on line 2—2 in Fig. 1; Figs. 3 and 4 are detail sectional views taken on the planes indicated by the lines 3—3 and 4—4 in Fig. 1; Fig. 5 is a side view of a wrench; and Fig. 6 is a detail end view of the same.

The body of the core is composed of a plurality of separable members or sections which are of segmental shape and of hollow tubular form. Preferably four members are employed and these sections are designated 1, 2, 3, 4 in the drawing. One or more of the members has its ends disposed in planes oblique to the radii of the annular body of the core, whereby the inner portion of such member is of greater length than the outer or peripheral portion. As illustrated, the member 4 is so constructed, and it will be seen on reference to Fig. 1 that this construction enables said member 4 to be readily moved inwardly out of engagement with the obliquely arranged ends of the adjacent members 2, 3, when it is desired to collapse the core to remove it from the mold-

ed tire or tire casing. The abutting ends of the members 1, 2 and 3, may have radially disposed ends as shown, because these members or sections may be readily removed from the tire after the key member 4 has been removed.

The inner portions of the several core members or sections form when the members are united, an annular beading which is engaged by the improved clamping means. This beading 5 is formed on opposite sides with outwardly projecting flanges 6 having their outer edges inclined as shown at 7 for engagement with similar inclined faces or shoulders 8 formed on two split annular clamping rings 9 which are of angular shape in cross section for engagement with the flanges 6, as will be understood on reference to Fig. 2. The rings 9 are detachably secured at one end to one of the core members, preferably the member 1; and as shown, this detachable connection consists of a pin 10 which is passed through elongated openings 11 in said ends of the rings and a transverse opening in the inner portion or beading of said core member 1. The outer edges of the other ends of the rings 9 are formed with gear teeth 12 which are adapted to be engaged by teeth of a segmental gear 13 which forms a means of drawing the ends of the clamping rings together to unite the core members. This segmental gear 13 is formed of a cylindrical pivot 14 on one end of a handle 15, and a transverse opening 16 is formed in the inner portion or beading of the core member 1 for the reception of the pivot 14. The wrench handle 15 is disposed in a plane at angles to the longitudinal axis of the pivot 14, and an annular shoulder 17 is formed at the inner end of said pivot to properly position it in the opening 16, whereby it will simultaneously engage the gear or rack teeth 12 on both of the clamping rings.

For the purpose of giving the clamping rings a double clamping action on the beading of the core members, that is, to cause said rings to not only hold the members in perfect alinement but also draw them inwardly in a radial direction, the opposing inclined faces 7, 8, are provided, and the inner faces of the rings 9 are beveled or inclined as shown at 18 and 19 in Fig. 2 to give the rings a proper clearance, whereby

the desired clamping action will be effected when the ends of the rings are drawn together.

For the purpose of locking the rings in their tightened position, a longitudinal series of transverse openings 20 are formed in the rings 9, and similar transverse openings 21 are formed in the beading 5 of the core member 1, said openings 20 and 21 being adapted to receive a transverse locking pin 22 and being so arranged that as the parts wear, the pin may be inserted in different openings and thereby always hold the rings in their tightened position.

For the purpose of preventing the core from collapsing when the rings are being tightened, latches 23 are provided between the core member 4 and the adjacent members 2, 3. These latches are in the form of bars pivoted at one end on pins 24 and in recesses 25 in the beading 5 of the four members 2, 3. The latch bars 23 have beveled free ends which are adapted to swing into recesses 26 in the beading of the member 4 and thereby lock said member to the members 2, 3, the recesses 26 being of such size that a finger may be readily inserted in them and engaged with the beveled end of the latch 23, for the purpose of lifting the same to unlock the core members.

In operation, when it is desired to set up the core body, the members 1, 2, 3, are arranged with their radially disposed ends abutting; the member 4 is then placed between the inclined or oblique ends of the members 2, 3, and secured by swinging the latches 23 inwardly into the recesses 26. The two split rings 9 are then sprung over the outwardly projecting flanges 6 on the annular beading 5 formed by the inner portions of the several core members, and said rings are secured at one end by the transverse pin 10. The pivot 14 of the wrench is then inserted in the opening 16 in the member 1 so that the teeth 13 of the gear meshes with the teeth 12 on the two rings. The lever 15 is then turned to draw the ends of the rings together, whereupon the several core members are not only pressed into perfect alinement, but also drawn inwardly in a radial direction so that their abutting ends will tightly engage each other. When the rings are tightened they may be locked in such position by passing the pin 22 through two registering openings 20, 21. By reversing this operation, the core members may be unlocked and the core collapsed and removed from the molded tire, the core member 4 being first removed.

Having thus described the invention, what is claimed is:

1. A tire molding core comprising a plurality of separable segment members adapted to abut against one another, end for end, and each having an inwardly extending

member provided with a lateral flange an open clamping ring engaging said flanges and coacting therewith to draw the segments together and means to detachably secure the ends of the said open clamping ring to the said inwardly extending member, of one of said segments.

2. A tire molding core comprising a plurality of separable segment members adapted to abut against one another, end for end, and each having an inwardly extending member provided with a lateral flange, an open clamping ring engaging said lateral flanges, and coacting therewith to draw said segment members together, and means to detachably secure one end of said clamping ring to the inwardly extending member of one of said segments, the said inwardly extending member of said segment having an opening forming the seat for the pivot member of a wrench provided with a gear, the opposite end portion of said open clamping ring having teeth for engagement by said gear of the wrench; and means to adjustably secure the last mentioned end of said open clamping ring to the said inwardly extending member of the said segment.

3. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against each other, the inner portion of said members forming an annular beading having outwardly projecting flanges, a pair of split clamping rings engaged with said flanges and arranged on opposite sides of the beading, and means for actuating said rings simultaneously to draw their ends together.

4. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against each other, said members having inner portions forming an annular beading having outwardly projecting flanges formed with inclined faces, split clamping rings arranged on opposite sides of the annular beading and having inclined faces to engage the inclined faces on the flanges, and also having inclined faces to oppose the outer faces of said beading and said flanges, and means for drawing together the ends of said clamping rings.

5. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against each other, said members having inner portions forming an annular beading having outwardly projecting flanges formed with inclined faces, split clamping rings arranged on opposite sides of the annular beading and having inclined faces to engage the inclined faces on the flanges, and also having inclined faces to oppose the outer faces of said beading and said flanges, means for fastening said rings at one end to one of the members, said member having a

transverse opening to receive a wrench pivot provided with segmental gear teeth, gear teeth formed on the outer edges of the free ends of the rings and adapted to be engaged 5 by the segmental gear teeth on a wrench pivot inserted in said transverse opening, and means for locking the rings in tightened position.

10 6. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against each other, the inner portions of the members forming an annular beading having outwardly projecting flanges, split clamping 15 rings arranged on said flanges on opposite sides of the beading, means for detachably fastening the rings at one end to one of the members, said member having a pivot opening, gear teeth formed on the outer edges 20 of the free ends of the rings and adapted to be engaged by segmental gear teeth on a pivot inserted in the last mentioned opening, and means for locking the rings in tightened position.

25 7. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against each other, the inner portions of the members forming an annular beading having 30 outwardly projecting flanges, split clamping rings engaged with said flanges and arranged on opposite sides of the beading, means for fastening said rings at one end

to one of the members, the free ends of said rings being formed with a longitudinal 35 series of openings and the beading of one of said members being formed with a longitudinal series of openings, means for drawing the free ends of the rings toward the 40 fixed ends of the same, and a pin adapted to be placed in certain of said series of openings to lock the rings in tightened position.

8. A device of the character described comprising a plurality of separable segmental-shaped members adapted to abut against 45 each other, one of the members having its ends oblique to the radii of such member, and the several members having inwardly projecting portions forming an annular beading, oppositely disposed communicating 50 recesses formed in the beading of the abutting ends of certain of the members, latches pivoted in the recesses in certain of said members and adapted to swing into the 55 opposing recesses in the adjacent member, and means engaged with said annular beading to maintain the members in abutting engagement.

In testimony whereof we hereunto affix our signatures in the presence of two witnesses. 60

FREDERICK S. STILES.
JOHN YEMIKER.

Witnesses:

R. T. HOUSLEY,
JOHN L. HOUSLEY.