H. RAFLOVICH.

MEANS FOR SPLICING THE INNER TUBES OF PNEUMATIC TIRES.

APPLICATION FILED NOV. 17, 1914.

1,158,284. Patented Oct. 26, 1915.

FIG. 1.

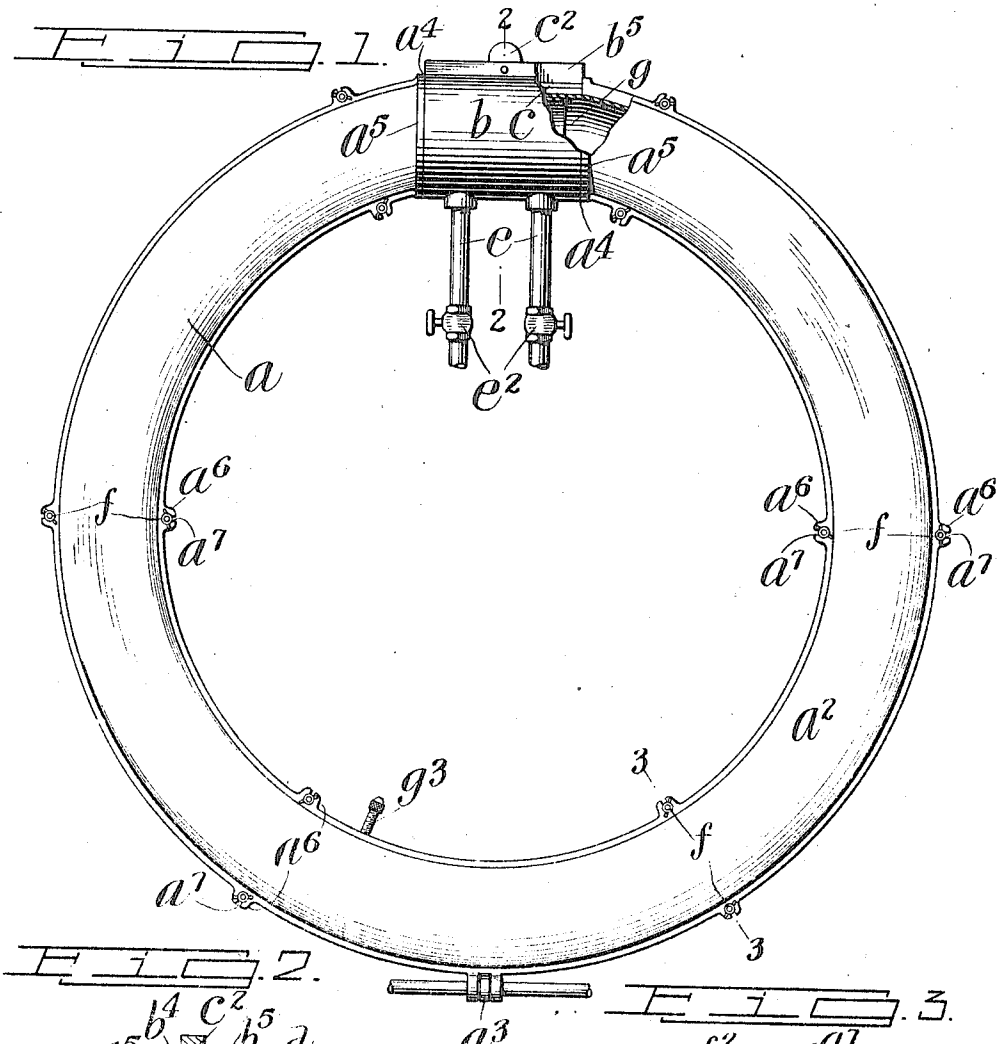



FIG. 2.

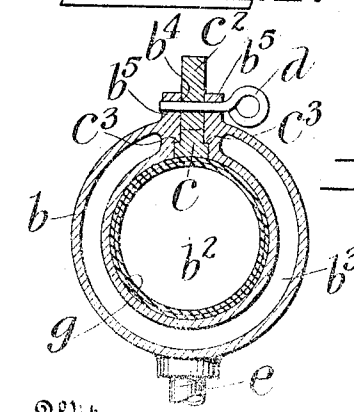



FIG. 3.

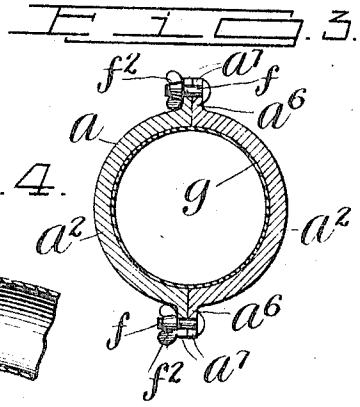
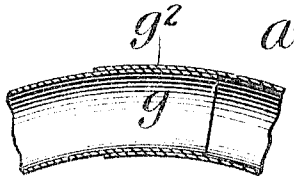



FIG. 4.




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# UNITED STATES PATENT OFFICE.

HARRY RAFLOVICH, OF NEW YORK, N. Y.

## MEANS FOR SPLICING THE INNER TUBES OF PNEUMATIC TIRES.

1,158,284. Specification of Letters Patent. Patented Oct. 26, 1915.

Application filed November 17, 1914. Serial No. 872,518.

*To all whom it may concern:*

Be it known that I, HARRY RAFLOVICH, a citizen of the United States, and residing at Bronx, New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Means for Splicing the Inner Tubes of Pneumatic Tires, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to means for splicing the ends, or connecting the ends, of the inner tubes of pneumatic tires; and the object thereof is to provide an improved device or apparatus of this class by means of which the ends of tubes of the class specified may be quickly and easily connected or spliced and at the same time vulcanized and secured together; and with this and other objects in view the invention consists in a device or apparatus of the class specified, constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a side or plan view of my improved device or apparatus; Fig. 2 a cross section on the line 2—2 of Fig. 1; Fig. 3 a similar section on the line 3—3 of Fig. 1; and, Fig. 4 a sectional view showing one step of the process of connecting the ends of the inner tube of a pneumatic tire.

In the practice of my invention, as shown in the drawing, I provide a circular, tubular casing $a$ composed of two similar parts $a^2$ hinged, or otherwise connected at $a^3$ so that said parts $a^2$ will open and close in the manner of a hinge, and the casing $a$ may be connected, if desired, with any suitable support at the point $a^3$, and one part $a^2$ of the casing may be held stationary if desired.

The circular, tubular casing $a$ is open at the side thereof opposite the hinge connection at $a^3$, and I also provide a vulcanizing, cylindrical and tubular block $b$ which is adapted to be inserted into the opening between the points $a^4$ of the casing $a$, and the block $b$ may be supported in its position in any desired manner, and is preferably without any mechanical connection with said tubular casing, but if desired the tubular casing $a$ and the block $b$ may be secured together in any desired way, or by any preferred means, and the separate parts of the tubular casing $a$ are provided with flanges or rims $a^5$ which abut against the ends of the block $b$. The block $b$ is provided with a central bore $b^2$ which is of the same diameter as the central bore of the tubular casing $a$, and around the central bore $b^2$ is an annular chamber $b^3$ which entirely incloses said central bore except at one side thereof, at which point the block $b$ is provided with a longitudinal slot or opening $b^4$ which communicates with the central bore $b^2$ and at the opposite sides of which are parallel projecting jaws $b^5$, and the slot or opening $b^4$ opens through both ends of the block $b$, and I also provide an oblong plug $c$ which is adapted to be inserted longitudinally into the slot or opening $b^4$ and is provided with a central thumb and finger piece $c^2$ which projects beyond the jaws $b^5$ and which serves as means for manipulating the plug $c$, or inserting and removing it, and a key pin $d$ is passed centrally through the jaws $b^5$ and through the part $c^2$ and by means of which the plug $c$ is secured in position. The top part of the plug $c$ is of less dimensions than the bottom part thereof, whereby said plug is provided with parallel side shoulders $c^3$, and the bottom side walls of the slot or opening $b^4$ are provided with corresponding grooves to receive the bottom, thickened portion of said plug. The block $b$ is also provided with two steam pipes $e$ by which steam may be admitted to and discharged from the annular chamber $b^3$, and these pipes may be connected with any suitable steam supply and in any desired manner, and said pipes are also provided each with a valve $e^2$.

The adjacent or abutting faces of the parts $a^2$ of the circular, tubular casing $a$ are provided at intervals with projecting ears $a^6$ having notches or recesses $a^7$ into which are passed bolts $f$ having thumb nuts $f^2$, and by means of which the separate parts $a^2$ of the casing $a$ may be secured together, but my invention is not limited to this particular means for connecting the parts $a^2$ of the casing $a$, and this object may be accomplished in any preferred manner.

I have also shown at $g$, in Fig. 4, an inner inflatable tube of a pneumatic tire which consists, as usual, of a rubber tube one end of which is inserted into the other end as shown at $g^2$, and the object of this invention is to

provide means for connecting the ends $g^2$, or vulcanizing them together, and this operation will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement.

In the beginning of this operation, the separate parts of the casing $a$ are opened up, or one of said parts is opened up while the other is held stationary. The tube $g$ formed as shown in Fig. 4, or the connected ends thereof are passed downwardly through the slot or opening $b^4$ in the block $b$ into the central bore $b^2$ of said block, after which the remainder of the tube $g$ is placed in one of the parts of the tubular casing $a$, after which the plug $c$ is inserted and secured in position as shown in Fig. 2, after which the separate parts of the casing $a$ are closed and secured together.

The process of vulcanizing the ends of the tube $g$ is then carried out by admitting steam to the chamber $b^3$ and this part of the operation will be the same as others of its class and, in practice, the ends of the tube $g$ are preferably provided with a coating of a rubber cement which facilitates the operation of vulcanizing, but my invention is not limited to any particular process of vulcanization nor to the means employed, and my invention is also not limited to the exact details of construction herein shown and described, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages. It will also be understood that the central bore $b^2$ of the block $b$ may be made of any desired diameter or transverse dimensions as may also the central bore of the tubular, circular casing $a$ and, if desired, means may be provided for increasing or decreasing the diameter of the central bore of the block $b$ by the insertion of tubular sleeves thereinto, or the removal of said sleeves therefrom, whenever desired, or in any other way. The tube $g$ is also provided with an inflating nozzle $g^3$ which projects inwardly through the casing $a$ and by means of which said tube may be inflated, and this operation of inflating the tube $g$ is performed before the vulcanization process hereinbefore described. After the tube $g$ has been perfected, or the ends thereof connected and vulcanized, as hereinbefore described, the casing $a$ is opened up, the plug $c$ removed and said tube $g$ removed from the casing, and this process may be repeated as often as desired, and in the use of this apparatus the block $b$, or the chamber $b^3$ therein may be kept supplied with steam at the desired temperature any length of time, and the apparatus may thus be maintained in condition for use as long as desired.

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

1. In an apparatus of the class described, a tubular circular casing composed of similar parts hinged together at one side, said casing being open at one side, and a vulcanizing member comprising a tubular block adapted to be inserted into said opening and having a central bore which corresponds with the bore of said casing and around which is a steam chamber, said block being also provided on one side thereof with a longitudinal slot or opening which communicates with the central bore thereof, and means for closing said slot or opening.

2. In an apparatus of the class described, a circular, tubular casing composed of separate parts, said casing being open at one side, and a vulcanizing device adapted to be inserted into said opening and provided with a central bore which corresponds with the bore of said casing and around which is a steam chamber.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 13th day of November 1914.

HARRY RAFLOVICH.

Witnesses:

C. MULREANY,

H. E. THOMPSON.