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G. C. PEARSON

HOLDING MEANS FOR TIRE CASINGS

Filed July 29, 1920

2 Sheets-Sheet 1

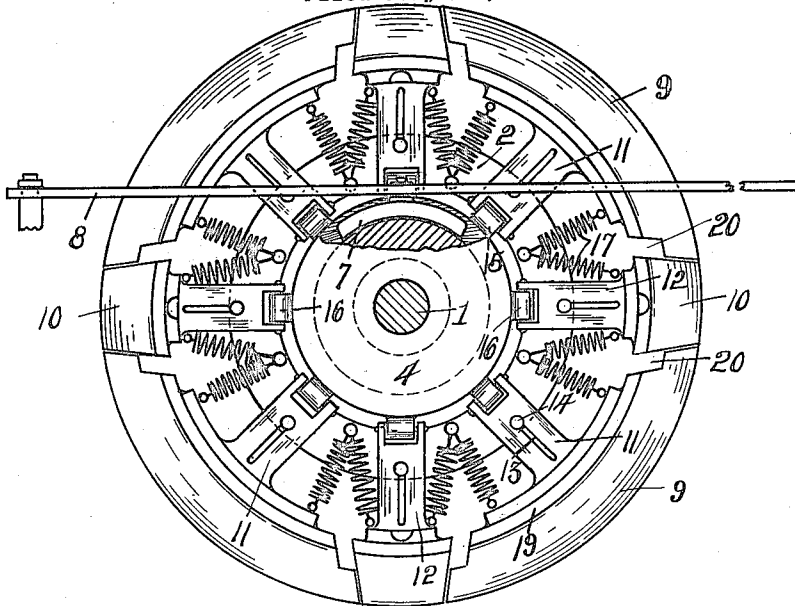


FIG. 1.

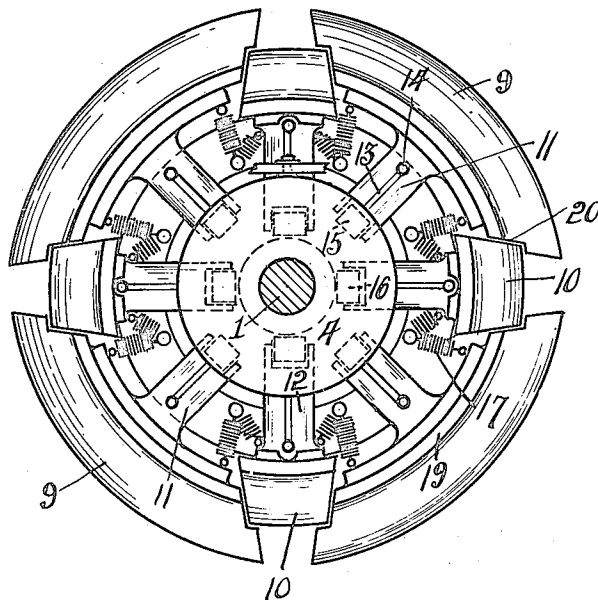


FIG. 2.

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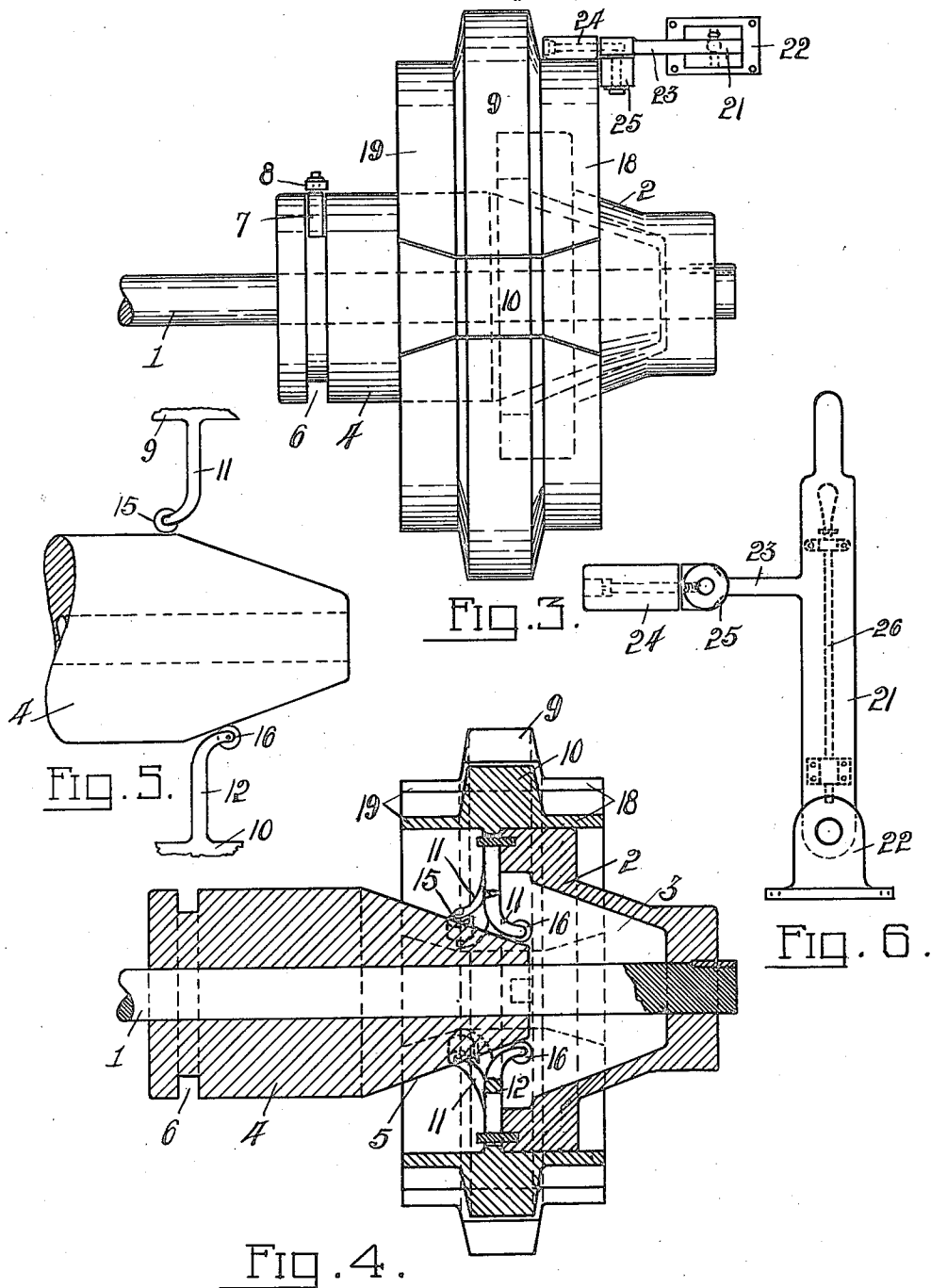
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2 Sheets-Sheet 2



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## UNITED STATES PATENT OFFICE.

GEORGE CHESTER PEARSON, OF ROCHESTER, NEW YORK.

## HOLDING MEANS FOR TIRE CASINGS.

Application filed July 29, 1920. Serial No. 399,830.

*To all whom it may concern:*

Be it known that I, GEORGE CHESTER PEARSON, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have made an Invention Appertaining to Holding Means for Tire Casings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to means for holding the casings of pneumatic tires while smoothing or removing rough surfaces from the inner tube coacting wall thereof and lining the same.

The object of the invention is the provision of means of the class described, which is simple and efficient in its construction, easy to operate to engage and release a casing and adapted to firmly hold a casing while being operated on to smooth its inner surface and also during the application of the customary inner gum coating thereto, thereby effecting a considerable saving of expense and time in the treatment of such casings.

It is also an object of the invention to provide means, in association with the casing holding means, to apply a flap to an edge of the casing in a simple and rapid manner.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is an inner end elevation of the device in expanded casing holding position with a part broken away. Fig. 2 is a similar view thereof in collapsed position. Fig. 3 is a side elevation thereof in expanded position. Fig. 4 is a central longitudinal section thereof in collapsed position. Fig. 5 is a detail of the expanding cam with the coacting portions of two rim sections in engagement therewith, and Fig. 6 is a top view of the flap applying means.

Referring to the drawings, 1 designates a flap having a wheel member 2 keyed there-

to with its rim portion laterally offset from its hub portion to provide a socket 3 in the inner side of the wheel in surrounding relation to the shaft. A cam member 4 is loosely mounted on the shaft and has one end reduced to form a conical cam surface 5, which is adapted to be projected into the socket 3 of the wheel 2. The outer end of the cam 5 is provided with a circumferential groove 6 for receiving a segmental shoe 7 of a shipper lever 8.

The wheel 2 carries two sets of circumferentially aligned rim sections 9 and 10 with the sections 10 considerably shorter than the sections 9 and disposed therebetween. Each rim section 9 has an arm 11 projecting inwardly therefrom toward the cam 4 and each rim section 10 has a similar arm 12 projecting inwardly therefrom toward said cam. Each arm 11, 12 is provided with a longitudinal slot 13 disposed radially of the wheel and receiving a carrying pin 14, which fixedly projects from the inner side of the rim portion of the wheel 2 so that the rim sections 9 and 10 are retained to the wheel 2 and permitted to have radial movements relative thereto. The arms 11 have their inner or free ends turned outward relative to the wheel 2, and each carries a roller 15 for engagement with the conical surface 5 of the cam 4, while the arms 12 have their inner or free ends turned inward toward the wheel 2 and each carries a roller 16 at such end for coaction with the conical surface of the cam.

The spacing of the rollers 15 and 16 longitudinally of the cam axis causes a placing of the rollers of the two sets at different elevations when on the conical portion 5 of the cam, so that when the rim sections are in collapsed position, as shown in Figs. 2 and 4, with the rollers of both sets resting on the conical portion of the cam, the rim sections 10 will be drawn inwardly a greater extent than rim sections 9. Upon an inward movement of the cam 4 this relation of the rim sections is maintained until the rollers 15 have reached the cylindrical surface of the cam, after which a continued inward movement of the cam will bring the rollers 16 to such cylindrical surface to effect an outward movement of the rim sections 10 into proper register with the rim sections 9, as shown in Figs. 1 and 3. It is

evident that upon a retracting or outward drawing of the cam 4 from its rim section expanding position the rollers 16 will travel a predetermined distance down the cam incline before the rollers 15 have moved into engagement therewith, thereby effecting first a retraction of the rim sections 10 and then a uniform retraction of both sets of rim sections.

The rim sections are normally drawn inward by contractile springs 17 which connect the sections at their ends to the rim portion of the wheel 2.

The rim sections 9 and 10 each have flanges 18 and 19 projecting in opposite directions from their inner edges. The ends of the sections 9 are notched at their inner edges, as shown at 20, to permit a relative contraction of the rim sections 9 when the rim sections 10 have been moved inwardly a sufficient distance relative thereto for their outer end edges to register with said notches, as illustrated in Fig. 2.

In the use of my casing holding means a casing is turned inside out and then mounted on the holder when in collapsed position, with the edges of the casing lapping the rim flanges 18 and 19. The cam 4 is then forced inward to expand the rim sections to fill and firmly hold the casing so that the casing will be caused to rotate with the holder. During such rotation the exposed inner surface of the casing may be sandpapered or otherwise operated on to smooth and remove rough surfaces therefrom.

At one side of the holding device, preferably at its top portion, is mounted a horizontally swinging lever 21 pivoted, in the present instance, to a bracket 22, which may be mounted in any suitable manner, and this lever has an arm 23 projecting from one side thereof toward the rim flange 18, in the present instance, of the device and carrying a roll 24, for rolling engagement with the outer peripheral surface of such flange, and a roll 25, for rolling engagement with the outer edge of the flange, the axis of one roll being disposed at right angles to the other. The lever may be swung to place the rolls 24 and 25 into or out of operative relation to the coacting flange and is held in operative position by a latch member 26 engaging in a notch in the bracket 22. The purpose of the lever 21 and rollers 24, 25 is to facilitate the securing of a flap to an edge of the casing, as is customarily done. The flap is cemented to the casing edge and in being applied thereto is fed under the roll 24 and firmly pressed thereby to the casing edge. The edge roll 25 serves as a gauge means for the outer edge of the flap.

It is evident that I have provided a simple and efficient device for holding tire casings during a smoothing of the inner surfaces thereof, and that it also materially facili-

tates the applying of edge flaps to the casings.

I wish it understood that the invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes, without departing from the spirit of the claims.

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

1. In a device of the class described, a shaft, a wheel member fixed to the shaft, a cam mounted for axial movements on the shaft and having adjoining conical and cylindrical surfaces, rim sections carried by the wheel member for radial movements and each having bearing contact at its inner side with the cam, with the bearing contact of one set of rim sections axially spaced from the bearing contact of the other set of rim sections with the cam whereby an axial movement of the cam in one direction will force the rim sections outwardly a uniform extent during a portion of the movement and will then move one set of sections outward relative to the other to bring the sections into circumferential register, and vice versa, and means urging an inward collapsing of the sections.

2. In a device of the class described, a shaft, a wheel member fixed to the shaft and having a laterally offset rim portion, a cam axially movable on the shaft and having adjoining conical and cylindrical surface portions, two sets of rim sections carried by the rim portion of the wheel member for radial movements relative thereto and each having arms projecting inwardly therefrom, a roller carried at the inner end of each arm in contact with the cam with the rollers of one set axially offset a predetermined extent from the rollers of the other set so that when the rollers are travelling on the cylindrical portion of the cam the rim sections will be in circumferential alignment, and when the rollers are travelling on the conical portion of the cam the rim sections of one set will be drawn inward a greater extent than the other set, and means normally urging an inward movement of the rim sections.

3. In a device of the class described, a shaft, a wheel member fixed to the shaft and having a laterally offset rim portion, a cam axially movable on the shaft and having adjoining conical and cylindrical surface portions, two sets of rim sections carried by the rim portion of the wheel member for radial movements relative thereto, and each having arms projecting inwardly therefrom in coaction at their inner ends with the cam, with the arms of one set coacting with the cam in axially spaced relation to the arms of the other set whereby the arms when in engagement with the cylindrical portion of the cam

will maintain the rim sections in expanded circumferentially aligned position and when in contact with the conical portion of the cam will permit one set of rim sections to be drawn inwardly a greater extent than the other set, thereby permitting a collapsing of the rim sections, means for urging an inward movement of the rim sections, and means for coacting with a side portion of the rim sections when expanded to apply an edge flap to a casing mounted on the device. 10

In testimony whereof I have hereunto signed my name to this specification.

GEORGE CHESTER PEARSON.