May 9, 1944. R. A. FONTAINE 2,348,288

FIXTURE FOR INSTALLING AND REMOVING THE ABRADING ELEMENTS OF ROTARY ABRADERS

Filed Oct. 8, 1943 2 Sheets-Sheet 1

Fig. 1.

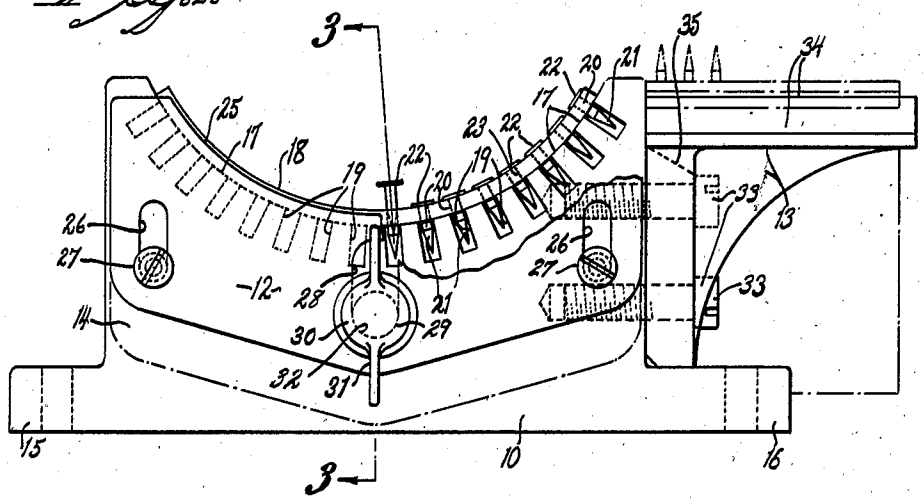


Fig. 3.

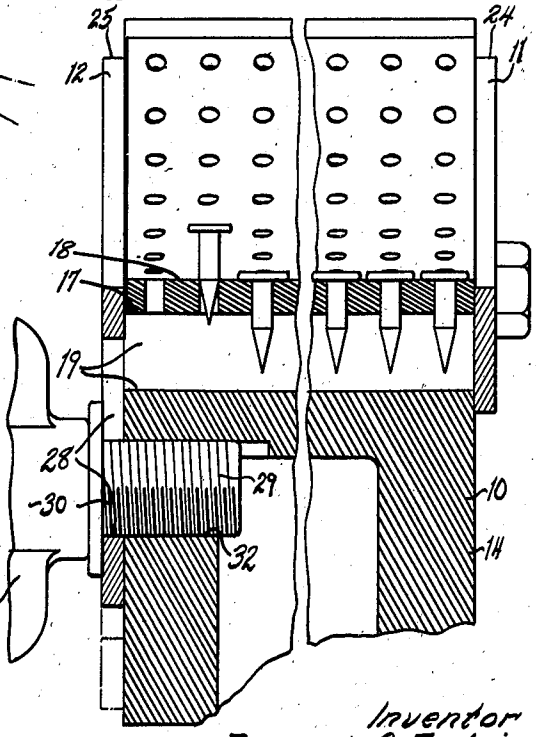
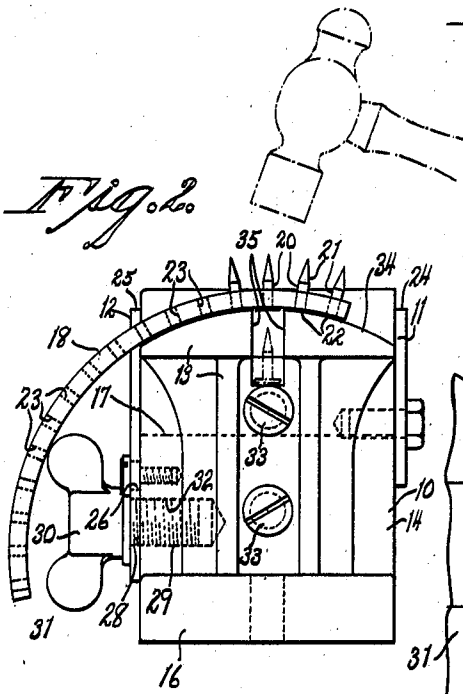


Fig. 2.



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Fig. 4.

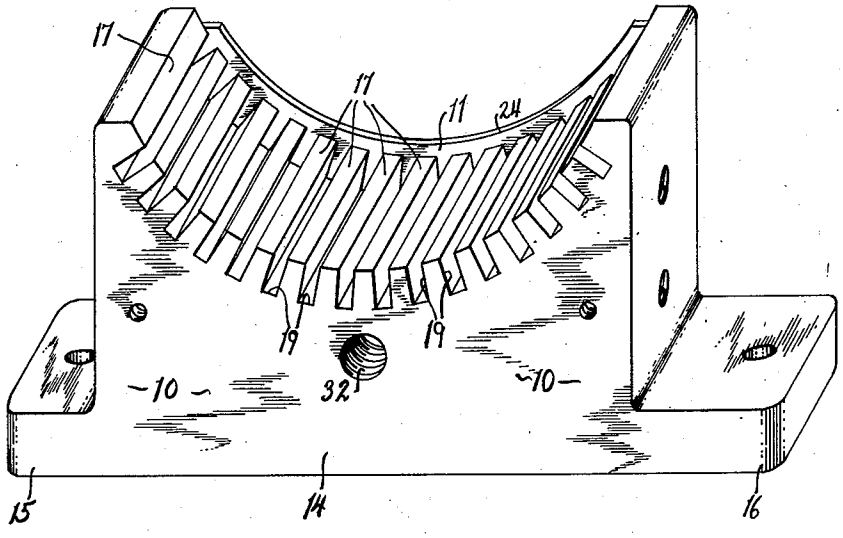


Fig. 5.

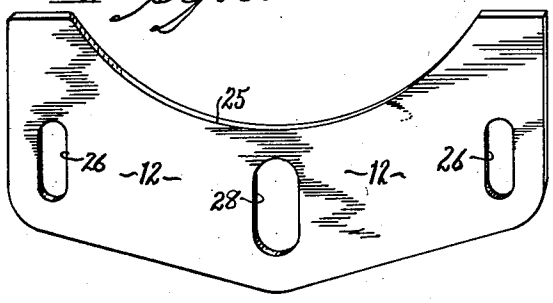


Fig. 6.

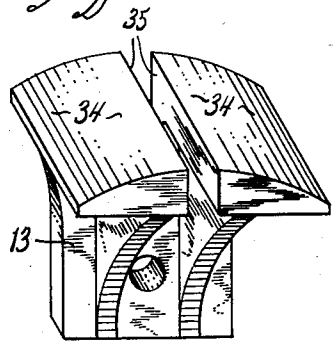


Fig. 7.

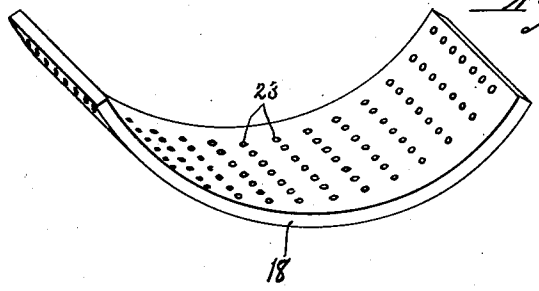
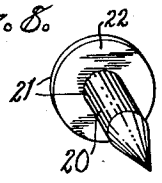


Fig. 8.



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FIXTURE FOR INSTALLING AND REMOVING THE ABRADING ELEMENTS OF ROTARY ABRADERS

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Application October 8, 1943, Serial No. 505,434

8 Claims. (Cl. 29—89)

The present invention relates to improvements in fixtures and relates more particularly to improvements in fixtures whereby the removable abrading-elements of rotary abraders may be both installed and removed. The rotary abraders of the type referred to are suitable for use in roughening the surfaces of tire casings, though available for use in connection with other work requiring a roughening or rasping action.

The fixtures of the present invention are useful in a wide variety of situations but are especially well adapted for removing and installing the abrading-elements of the arcuate mounting plates of the rotary abrader shown and described in my co-pending application Serial No. 503,311, filed September 22, 1943.

One of the objects of the present invention is to provide superior means whereby curved mounting-members designed to carry removable abrading-elements, may have the said abrading-elements installed or removed without damage to the mounting-member.

Another object of the present invention is to provide a superior fixture of the character referred to, which will support a curved mounting-plate in such manner as to permit the installation of removable abrading-elements therein with ease, facility, and economy of time.

With the above and other objects in view, as will appear to those skilled in the art from the present disclosure, this invention includes all features in the said disclosure which are novel over the prior art.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

Fig. 1 is a view in side elevation of one form of fixture embodying the present invention;

Fig. 2 is an end view thereof looking toward the knockout-member;

Fig. 3 is a broken transverse sectional view taken on the line 3—3 of Fig. 1, but on a larger scale;

Fig. 4 is a perspective view of the installing-member, detached;

Fig. 5 is a similar view of the adjustable stop-plate, detached;

Fig. 6 is a perspective view of the knockout-member, detached;

Fig. 7 is a perspective view of an arcuate mounting-plate suitable for use in connection with the fixtures of the present invention; and

Fig. 8 is a perspective view of one of the abrading-elements, detached.

The particular fixture chosen for purposes of illustrating one form of the present invention includes, in the main, an installing-member 10, complemental stop-plates 11 and 12, and a knockout-member 13.

The installing-member 10 may be conveniently formed from a casting of iron or steel and includes a relatively-heavy body-portion 14 having fastening-lugs 15 and 16 integral therewith and respectively projecting beyond the opposite ends thereof.

The upper face of the body-portion 14 of the installing-member 10 is formed with a concave arcuate installing-seat 17. The said installing-seat is preferably formed on a circular arc and corresponds in curvature to the curvature of the outer surface of the mounting-plate or -ring which it is desired to use in conjunction with the fixture. Such a mounting-plate may take the form shown in Fig. 7 and designated by the reference character 18.

Extending transversely across the concave installing-seat 17 of the installing-member 10 from side to side thereof, is a series of clearance-grooves 19 extending parallel with each other in a direction crosswise of the installing fixture but extending in depth in a direction substantially radially with respect to the center of curvature of the concave installing-seat 17. The depth and width of the clearance-grooves 19 are sufficient to freely accommodate the pointed shanks 20 of abrading-elements such as 21, each of which also includes a flange-like head 22, as is especially well shown in Fig. 8. The upper portions of the clearance-grooves 19 just referred to are spaced from each other a distance substantially corresponding to the distances between the transverse rows of holes 23 formed in the mounting-plate 18 or its equivalent. The holes 23 extend through the mounting-plate 18 in a substantially-radial direction, as will be apparent by reference to Figs. 1 and 2.

The stop-plate 11 before referred to is normally fixed with reference to the installing-member 10 and is bolted, or otherwise secured, to one face thereof in such manner that the arcuate upper edge 24 thereof stands slightly above the surface of the installing-seat 17.

The complemental stop-plate 12 is mounted against the face of the installing-member 10 opposite the stop-plate 11 and is vertically adjustable for purposes as will hereinafter appear. Like the stop-plate 11, the stop-plate 12 has an arcuate upper edge 25 normally projecting above the installing-seat 17 of the installing-member 10. Adjacent its respective opposite ends, the

stop-plate 13 is formed with one of two corresponding vertical guide-slots 26—26 through which respectively pass one of two headed shouldered guide-screws 27—27 threaded at their respective inner ends into the adjacent side portion of the body-portion 14 of the installing-member 10.

The stop-plate 12 above referred to is also provided centrally with a vertical clearance-slot 28 through which extends the threaded stem 29 of a wing-screw generally designated by the reference character 30 and including also the usual wing-head 31. The threaded stem 29 of the wing-screw 30 is threaded into a threaded bore 32 formed in the adjacent side wall of the body-portion 14 of the installing-member 10, as is especially well shown in Fig. 3.

The knockout-member 13 before referred to is rigidly secured to the body-portion 14 of the installing-member 10 in a position directly over and resting upon the upper surface of the fastening-lug 16, by the two (more or less) machine-screws 33—33. The said machine-screws extend centrally through the knockout-member 13 and into threaded engagement with the adjacent end-portion of the body-portion 14.

The upper surface of the bracket-like knockout-member 13 is convexed to form an arcuate knockout-seat 34 substantially conforming in curvature to the curvature of the inner periphery of the mounting-plate 18 or such other mounting-member as it may be desired to use in conjunction with the present invention.

Located centrally of the length of its arcuate knockout-seat 34 and extending in substantial parallelism with the axis of curvature thereof, is a clearance-slot 35 of a length substantially corresponding to the width of the plate 18 or its equivalent and having a width sufficient to freely accommodate the entire group of abrading-elements 21 constituting one transverse row as mounted in the mounting-plate 18.

When it is desired to install a set of abrading-elements such as 21, in a curved mounting-member such as 18, the given mounting-member may be placed upon the arcuate installing-seat 17 of the installing-member 10 in a manner shown in Figs. 1 and 2. Under these conditions, each transverse group of holes 23 in the mounting-plate will register with one of the clearance-grooves 19. Each of the abrading-elements 21 may now be driven downwardly through the selected one of the holes 23 in the mounting-plate until the underface of the head 22 of the given abrading-element is firmly seated against the mounting-member. In this connection, it may be explained that the shanks 20 of the abrading-elements 21 are proportioned to fit the holes 23 in the mounting-plate with a very severe drive-fit, so that hard and repeated hammer-blows are required to seat them in place.

During the installation of the abrading-elements 21 or their equivalent, as above described, the arcuate mounting-plate will be firmly supported at such close intervals and so firmly as to avoid the distortion thereof. During the operation described, the two stop-plates 11 and 12 serve to prevent the undue shifting of the mounting-plate in a direction parallel with the clearance-grooves 19.

When all of the holes 23 in the mounting-plate 18 have been charged with their respective abrading-elements, it would be impossible to lift the said mounting-plate free of the installing-member 10, due to the radial disposition of the now-projecting shanks of the said abrading-elements into their respective clearance-grooves 19. To effect the removal of the now-loaded mounting-plate, the wing-screw 30 is slightly unthreaded and the stop-plate 12 is depressed into substantially the position indicated by broken lines in Fig. 1, whereupon the mounting-plate, together with its charge of abrading-elements, may be withdrawn edgewise over the said stop-plate 12.

When it is desired to install new abrading-elements in the mounting-plate 18, the said mounting-plate may be placed over the knockout-seat 34 of the knockout-member 13 so that a selected row of abrading-elements 21 registers with the clearance-slot 35. Under these conditions, the said row of abrading-elements may be hammered out of the mounting-plate and caused to drop down through the clearance-slot 35. Another row of abrading-elements may then be brought into registry with the clearance-slot 35 and the knockout process repeated until the mounting-plate has had all of its rows of abrading-elements removed, preparatory to the installation of new abrading-elements.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

I claim:

1. A fixture including an installing-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter.

2. A fixture including an installing-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter and with at least one side-face of the installing-member.

3. A fixture including an installing-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter and with two of the respective opposite sides of the said installing-member.

4. A fixture including in combination: an installing-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter and with at least one side-face of the installing-member; and stop-means located adjacent one end of the clearance-grooves of the said installing-member and projecting beyond the arcuate installing-seat of the latter.

5. A fixture including in combination: an in-

stalling-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter and with two of the respective opposite sides of the said installing-member; and stop-means located adjacent each of the respective opposite ends of the clearance-grooves of the said installing-member and projecting beyond the arcuate installing-seat of the latter.

6. A fixture including in combination: an installing-member having a concave arcuate installing-seat and formed with a clearance-groove extending crosswise of the said installing-seat in intersecting relationship with respect thereto; first stop-means located adjacent one end of the clearance-groove of the said installing-member and projecting beyond the arcuate installing-seat of the latter; and a stop-plate mounted on the side of the installing-member opposite the first said stop-means and having mounting-means constructed and arranged to provide for the adjustment of the said stop-plate between a position projecting beyond the installing-seat of the installing-member and a position below the same.

7. A fixture including in combination: an installing-member having a concave arcuate installing-seat and formed with a plurality of clearance-grooves extending crosswise of the said installing-seat and spaced from each other in a direction lengthwise of the said arcuate installing-seat in intersecting relationship with the latter and with two of the respective opposite sides of the said installing-member; first stop-means located adjacent one end of the clearance-grooves of the said installing-member and projecting beyond the arcuate installing-seat of the latter; and a stop-plate mounted on the side of the installing-member opposite the first said stop-means and having mounting-means constructed and arranged to provide for the adjustment of the said stop-plate between a position projecting beyond the installing-seat of the installing-member and a position below the same.

8. A fixture including in combination: an installing-member having a concave arcuate installing-seat formed with a plurality of laterally-spaced-apart clearance-grooves extending in intersecting relationship with the face of the installing-seat of the installing-member and with at least one of the edges of the installing-seat of the said installing-member.

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