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TACK RASP

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Fig. 1

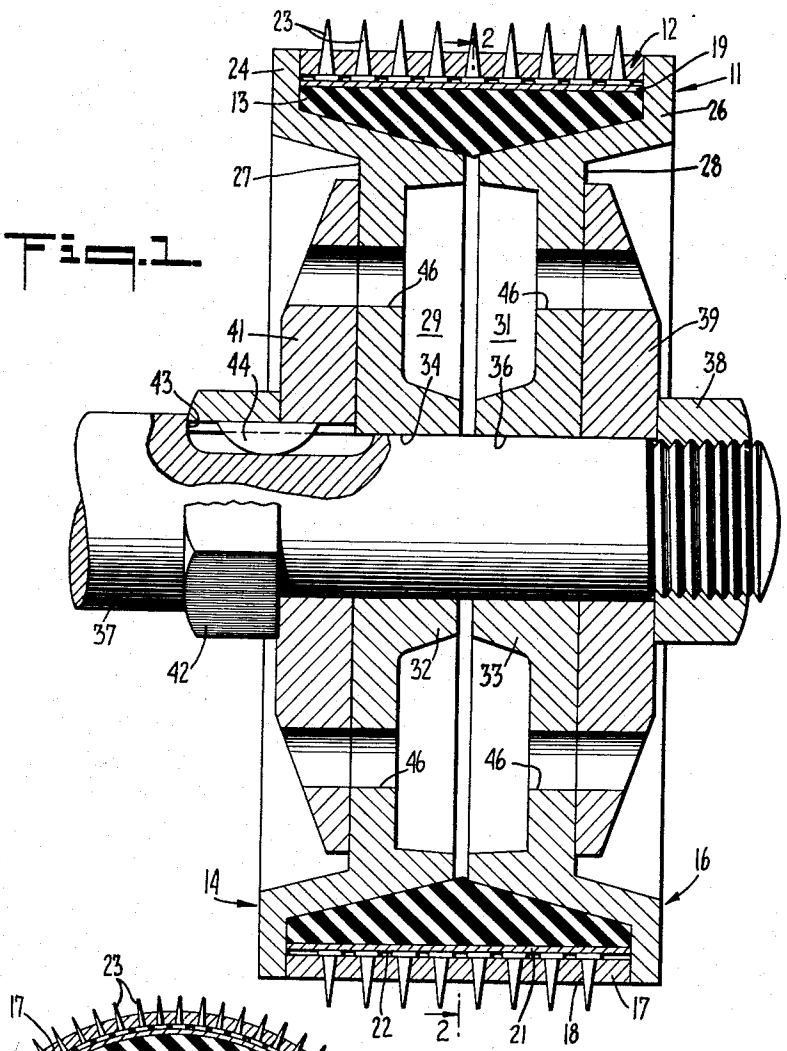
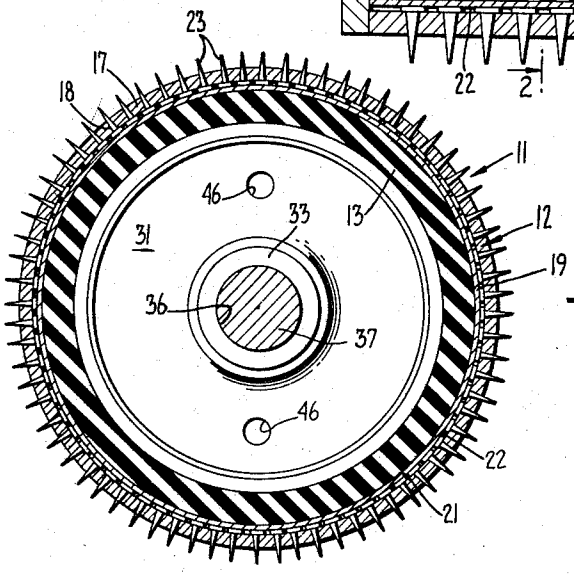


Fig. 2



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TACK RASP

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This invention relates to tack rasp bands or casings of the type which are arranged for mounting on a rotatable drum or hub to facilitate abrading of rubber tires prior to the retreading or recapping thereof, and is particularly directed to an improved ruggedized and simplified construction thereof.

Various cylindrical rasp bands or casings are known in which tacks are mounted with their tips projecting radially outward to provide abrading prominences. The casings are arranged for mounting upon a rotatable hub or drum such that by placing a tire adjacent the periphery of the rotating member, the tire may be roughened or ground down by contact with the tack points. One reasonably adequate arrangement of this type is disclosed in my prior Patent No. 2,436,621 dated Feb. 24, 1948. The casing disclosed therein features inner and outer concentric split bands of thin metallic sheet material, each of the bands having overlapping ends. The ends of the inner and outer bands are secured in a relatively complex relationship so as to define a channel between one overlapped end of the inner band and the outer band adjacent the inner overlapped end of the latter. The other end of the inner band is then slideably disposed in the channel to permit contraction and expansion of the inner ring. The outer ring is perforated except in the region of its overlapped ends. Upon contraction of the inner ring the points of tacks may be inserted from the inner periphery of the outer ring radially outward through the perforations, the heads of the tacks being thus interposed between the inner and outer rings. When the inner ring is expanded, the tack heads are tightly clamped between the inner and outer rings to thus rigidly hold the tacks with their points in radially projecting positions over most of the outer ring periphery except in the relatively small region of its overlapped ends.

It is an object of the present invention to provide a tack rasp band or casing of the foregoing general type but which is of improved relatively simple and rugged construction.

Another object of the invention is the provision of a tack rasp casing wherein the tacks are uniformly distributed over the entire casing periphery.

Still another object of the invention is to provide a tack rasp casing construction which features a continuous relatively sturdy outer ring member.

It is a further object of the invention to provide a tack rasp hub wherein the individual tacks may be readily replaced when broken or worn.

The invention possesses other objects and features of advantage, some of which, with the foregoing will be set forth in the following description of the preferred form of the invention which is illustrated in the drawing accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawing and description may be adopted within the scope of the invention as set forth in the claims.

FIGURE 1 is a sectional view taken on a diametric plane through an abrading hub embodying the improved tack rasp casing construction of the present invention.

FIGURE 2 is a transverse section taken at line 2—2 of FIGURE 1.

Referring now to the drawing, an abrading hub 11 is provided which includes a tack rasp casing 12 constructed in accordance with the present invention mounted by

means of a resilient backing member 13 upon opposed hub heads 14, 16. As an extremely important feature of the invention, the casing 12 includes a continuous outer cylindrical ring 17 of relatively thick rigid construction. A plurality of radial perforations 18 are provided in the ring 17, distributed uniformly over its entire periphery such that no relatively void regions exist therein. The casing further includes a split inner ring band 19 having ends 21, 22 closely spaced apart which is freely concentrically interposed within the outer ring 17. Inner band 19 is formed of relatively thin metallic material so as to be resilient and normally expand outwardly against the inner surface of the outer ring.

The inner band 19 and outer ring 17 serve to mount a plurality of tacks 23 with their heads clamped therebetween and their points projecting radially outward through the outer ring perforations 18. In this regard, the band 19 may be manually compressed to expose a small portion of the inner periphery of the outer ring 17 while still backing the remaining major portion thereof. Thus tacks may be inserted into, or removed from the perforations in the exposed portion while tacks are retained in the perforations of the remaining portion of the outer ring by the inner band. Thereafter the band may be released to permit it to expand into retentive contact with all tacks in the outer ring. The band may be rotated and again compressed to expose a different small portion of the inner periphery of the outer ring while retaining the tacks in the perforations of the remaining portion thereof. In this manner any or all of the tacks in the outer ring may be readily replaced.

The resilient backing member 13 facilitates retention of the inner split band 19 in operative clamping contact with the inner periphery of the outer ring as well as mounting of the overall rasp casing 12 on the hub heads 14, 16. More particularly, the backing member is provided as a ring formed of rubber or equivalent resilient material. The outer periphery is uniformly cylindrical and of a diameter substantially equal to that of the band 19 so as to tightly fit concentrically therein. The inner periphery of the backing member is preferably uniformly tapered radially inward from its opposite ends to a minimum inner diameter at the center, thus defining a V-shaped cross section. The taper of the inner periphery of the backing member is advantageously selected to be 15 degrees.

The heads 14, 16 are in turn arranged to concentrically engage the inner periphery of the backing member 13 at its opposite ends. To this end the heads are preferably formed with annular lugs 24, 26 at their opposite ends to provide lateral stops for the backing member and rasp casing. The heads are inwardly radially tapered from the lugs in conformity with the tapered inner peripheral portions of the backing member so as to be concentrically insertable therein. When the heads are fully inserted in opposition within the backing member such that the lugs engage the end faces of the backing member and casing, the inner end faces of the heads abut. In the interest of light weight the heads 14, 16 are preferably respectively formed with tapered cylindrical recesses 27, 28 in their outer end faces. In addition tapered annular recesses 29, 31 are preferably formed in the inner end faces of the heads defining central bosses 32, 33. Central bores 34, 36 extend through the bosses for receiving a shaft 37. Preferably the end of shaft 37 is threaded to receive a nut 38, and a flange 39 concentrically disposed on the shaft is interposed between the nut and surface of recess 28. A second flange 41 is concentrically disposed on the shaft to engage the surface of recess 27 in the other head. A large washer 42 is outwardly interposed between flange 41 and a shoulder 43 formed on the shaft. Both the washer 42 and flange 41 are keyed to shaft 37

as by means of a half-moon key 44. Accordingly where the washer is formed with a hexagonal periphery it advantageously facilitates holding of the shaft upon gripping the washer with a wrench. A second wrench may then be conveniently employed to tighten nut 38 and thereby clamp the heads into assembly on the shaft 37. The heads in being urged together into abutment impart forces to the tapered inner peripheral portions of the backing member. The forces are resolved thereat to include radial components which act to urge the backing member outwardly against the inner band 21, the latter thus tightly clamping the heads of the tacks 23 against the outer ring 17. When rotary motion is imparted to the shaft 37, the entire hub and its associated abrading tacks will be likewise rotated.

The heads 14, 16 are advantageously provided with apertures 46 through the bases of recesses 27, 28 to facilitate insertion of a tool, pin, or the like for aiding in the disassembly of the heads.

What is claimed is:

1. A tack rasp hub comprising a continuous cylindrical ring having radial tack receiving perforations uniformly distributed over its periphery, a resilient split ring band having closely spaced ends concentrically disposed within said ring, a plurality of tacks having their heads interposed between said ring and band and their points projecting radially outward through said perforations, an annular backing member of resilient material concentrically disposed within said band, said backing member having an inner periphery uniformly inwardly radially tapered from its opposite sides, a pair of opposed heads having peripheral portions conformed to and concentrically engaging the inner periphery of said backing member, said heads having annular lugs at their outer ends engaging said ring, band, and backing member, said heads having central bores and diametrically opposed apertures, a shaft extending through the bores of said heads, said shaft having a threaded end and a shoulder spaced from the threaded end, a flange concentrically disposed on said shaft and engaging one of said heads, a hexagonal washer concentrically disposed on said shaft intermediate said flange and shoulder, means keying said washer and flange to said shaft, a second flange concentrically disposed on said shaft and engaging the other of said heads, and a nut secured to the threaded end of said shaft and engaging said second flange.

2. A tack rasp hub comprising a continuous cylindrical ring having radial tack receiving perforations uniformly distributed over its periphery, a resilient split ring band having closely spaced ends concentrically disposed within said ring, a plurality of tacks having their heads interposed between said ring and band and their points projecting radially outward through said perforations, an annular backing member concentrically engaged within said band, a pair of opposed heads having peripheral portions concentrically engaging the inner periphery of said backing member, said heads having central bores, a shaft extending through the bores of said heads, said shaft having a threaded end and a shoulder spaced from the threaded end, a flange concentrically disposed on said shaft and engaging one of said heads, a washer concentrically disposed on said shaft intermediate said flange and shoulder and having a periphery adapted for gripping by a wrench, means keying said washer and flange to said shaft, a second flange concentrically disposed on said shaft and engaging the other of said heads, and a nut secured to the threaded end of said shaft and engaging said second flange.

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