

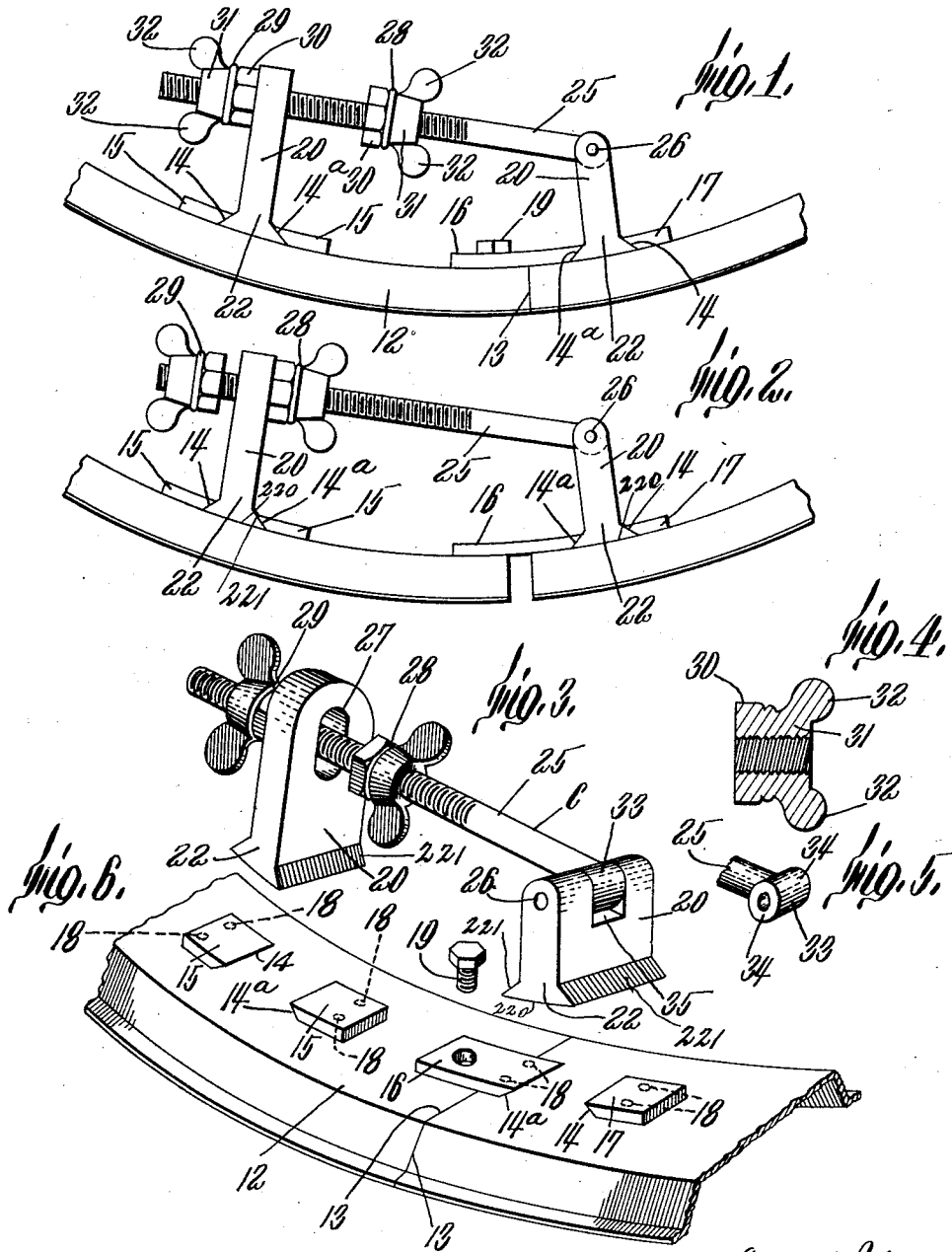
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DEVICE FOR EXPANDING AND CONTRACTING DEMOUNTABLE RIMS

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DEVICE FOR EXPANDING AND CONTRACTING DEMOUNTABLE RIMS

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The object of this invention is to provide a simple, easily operated and effective tool adapted to be used by a layman or person of limited mechanical experience in automobile work, to expand and contract a demountable rim of the special construction hereinafter described, the tool being adapted to be maintained in its operative position on the rim wholly by frictional engagement therewith, without the employment of positive engaging means requiring manipulation after the tool is placed in position on the rim, so that the tool may be quickly and conveniently installed and removed.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side view of the tool and an edge view of a portion of a demountable rim, the tool being conditioned to contract the rim.

Figure 2 is a view similar to Figure 1, showing the tool conditioned to expand the rim.

Figure 3 is a perspective view of the tool.

Figure 4 is a sectional view of one of the nuts shown by the preceding figures.

Figure 5 is a fragmentary perspective view, showing a portion of the rod shown by Figures 1, 2 and 3.

Figure 6 is a fragmentary perspective view, showing a portion of the rim.

The same reference characters indicate the same parts in all of the figures.

12 designates a portion of a demountable rim, transversely split at 13, and having fixed members projecting from its inner side forming abutment faces 14, 14^a of channels located at opposite sides of the split and extending crosswise of the rim, said walls are hereinafter called "abutment faces." There are two pairs of members, those of one pair being designated by 15 and fixed on the rim at one side of the split, while those of the other pair are designated by 16 and 17, and are fixed on the rim at the opposite side of the split. Each of said members may be welded, bolted or riveted to the rim, and each, excepting the member 16, may be integral parts of the rim and pressed outwardly from the inner surface thereof. We have conventionally designated by the reference character 18, fastening means securing said members to the rim. 18

may be supposed to designate either rivets or spot welding. The member 16 is, in this instance, secured at one end by fastening means 18 to the rim at one side of the split 13, its other end projecting across the split and being detachably secured to the rim by a headed screw 19 inserted in coinciding tapped orifices in the member 16 and in the rim, the bolt being inserted to confine the sides of the split together when the rim is contracted, and removed to permit the expansion of the rim as indicated by Figures 2 and 6.

Our improved tool is adapted for use with a rim constructed as above described.

Said tool comprises lugs 20 having gibs 22 complementary to the above-described channels and adapted to be frictionally engaged with the abutment faces 14, 14^a thereof by a sliding movement of the lugs crosswise of the rim, and to cause the lugs to project from the inner side of the rim, as shown by Figures 1 and 2.

Each gib 22 is oblong, as indicated by Figure 3, is slidable on the inner side of the rim 12, and includes an inwardly facing central face 220 adapted to bear on the rim, and two outwardly facing side faces 221, at opposite sides of the central face, substantially parallel with each other and adapted to bear on the undercut walls 14.

The tool comprises also means for exerting pressure on the lugs in opposite directions, to either increase or decrease the distance between the lugs and thereby expand and contract the tool. Said pressure is exerted on the undercut channel walls 14, and imparted to the end portions of the rim to expand the latter, as shown by Figure 2, and contract it, as shown by Figure 1.

In the present instance, I embody the means for exerting pressure on the lugs in opposite directions, as next described.

25 designates a screw-threaded rod pivoted by a pin 26 to one of the lugs 20, and extending loosely through a slot 27 in the other lug the slotted lug having opposite abutment faces. 28 designates an inner nut engaged with said rod between the lugs and adjustable to exert pressure on one of said abutment faces, and thereby expand the tool and rim, as

shown by Figure 2. 29 designates an outer nut engaged with the rod 25 at the outer side of the slotted lug and adjustable to exert pressure on the other abutment face and thereby decrease the distance between the lugs, and contract the tool and rim, as shown by Figure 1.

The arrangement shown by the drawings is such that the gibs 22 may be moved into and out of engagement with complementary guiding and confining channels in a split rim. When the gibs are moved into such engagement, the lugs are rigidly supported on the rim by the abutment faces 14, 14^a, and are adapted to impart to the rim the expanding and contracting pressure exerted on the lugs. When said pressure is relaxed, the gibs, confined between the abutment faces wholly by friction, permit the removal of the tool from the rim.

It will be seen that when the tool is used with a rim having the undercut abutment faces 14, 14^a, the lug gibs require no securing means other than said faces, so that the tool may be rendered operative by simply sliding the gibs to place between the abutment faces. Loss of time by manipulating fastening devices is therefore eliminated.

The slotted lug 20 is confined on the rod 25 by the outer nut 29, when the tool is not in use, so that when the tool is stored in a tool box, its parts remain connected and the tool may be quickly conditioned for use. The pivotal connection of one of the lugs to the inner end of the rod 25, and the rod-receiving slot 27 in the other lug, permit the gib ends of the lugs to swing inwardly toward the rod and thus reduce the tool to relatively compact form for storage.

Each of said nuts preferably includes a wrench-engaging portion 30, and a portion 31 having wings 32, so that the nut may be manually turned, either by a wrench or by hand.

The pivoted end of the rod is preferably provided with a head 33, having flat sides 34 bearing on flat sides of a slot 35 in the lug to which the rod is pivoted, said bearing opposing turning movement of the rod on its longitudinal axis by rotation of a nut thereon, and preventing liability of shearing strain on the pin 26.

It will be seen that the tool is adapted to engage two pairs of abutment faces 14, 14^a, extending crosswise on the inner side of a split rim, one pair being at one side, and the other at the opposite side of the split.

It will also be seen that the tool comprises a pair of lugs 20, having two gibs 22 complementary to and slidable between said abutment faces in a direction crosswise of the rim, and adapted to cooperate with the abutment faces in maintaining the lugs substantially perpendicular to portions of the rim, as shown in Figures 1 and 2.

It will be seen, further, that the screw-threaded rod 25, pivoted to one of the lugs and extending loosely through a slot in the other lug, and the inner and outer nuts 31 engaged with said rod, constitute a suitable embodiment of pushing and pulling means organized to push the lugs away from each other and cause the gibs to exert outward pressure on the abutment faces 14 of each pair, and thereby expand the rims, as indicated by Figure 2, and pull the lugs toward each other and cause the gibs to exert inward pressure on the abutment faces 14^a of each pair, and thereby contract the rim, as indicated in Figure 1.

The interengagement of the gibs with the abutment faces 14 and 14^a is such that the tool is firmly and releasably maintained in its operative position wholly by friction, and is adapted to be installed and removed by the simple operations of sliding the gibs into and out of the channels formed by the abutment faces and the intermediate portions of the rim, there being no loss of time, such as would be involved if positive fastening devices were employed.

We claim:

1. A pushing and pulling tool adapted to engage pairs of undercut abutment faces extending crosswise on the inner side of a split rim at opposite sides of the split, said tool comprising a pair of lugs having gibs complementary to and slidable between said abutment faces and adapted to cooperate therewith in maintaining the lugs substantially perpendicular to portions of said rim, and in position to exert pushing and pulling force on said abutment faces, and pushing and pulling means organized to push the lugs from each other and cause the gibs to exert pushing pressure on one abutment face of each pair and thereby expand the rim and to pull the lugs toward each other to cause the gibs to exert pulling pressure on another abutment face of each pair and thereby contract the rim, said means including a screw-threaded rod pivoted at one end to one of the lugs and extending loosely through a slot in the other lug, an inner nut engaged with the rod between the lugs and adapted to exert pushing pressure on one side of the slotted lug and thereby expand the rim, and an outer nut engaged with the rod and adapted to exert pulling pressure on the opposite side of the slotted lug and thereby cause contraction of the rim, each nut being displaceable from its operative position to permit the operation of the other nut; the effect of the rod and nut connection being to transmit either the pushing or the pulling force at right angles to said lugs.

2. A pushing and pulling tool adapted to engage pairs of undercut abutment faces extending crosswise on the inner side of a split rim at opposite sides of the split, said tool comprising a pair of lugs having gibs com-

plemental to and slidable between said abutment faces and adapted to cooperate therewith in maintaining the lugs substantially perpendicular to portions of said rim and in position to exert pushing and pulling force
5 on said abutment faces, and pushing and pulling means organized to push the lugs from each other and cause the gibs to exert pushing pressure on one abutment face of each pair and thereby expand the rim and to
10 pull the lugs toward each other to cause the gibs to exert pulling pressure on another abutment face of each pair and thereby contract the rim, said means including a screw-threaded rod pivoted at one end to one of the
15 lugs and extending loosely through a slot in the other lug, an inner abutment engaged with the rod and adapted to exert pushing pressure on the opposite side of the slotted
20 lug and thereby cause expansion of the rim, an outer abutment engaged with the rod and adapted to exert pulling pressure on the opposite side of the slotted lug and thereby cause contraction of the rim, said abutments
25 being threadedly adjustable along said rod; the effect being to transmit either the pushing or pulling force at right angles to said lugs.

In testimony whereof we have affixed our signatures.

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