

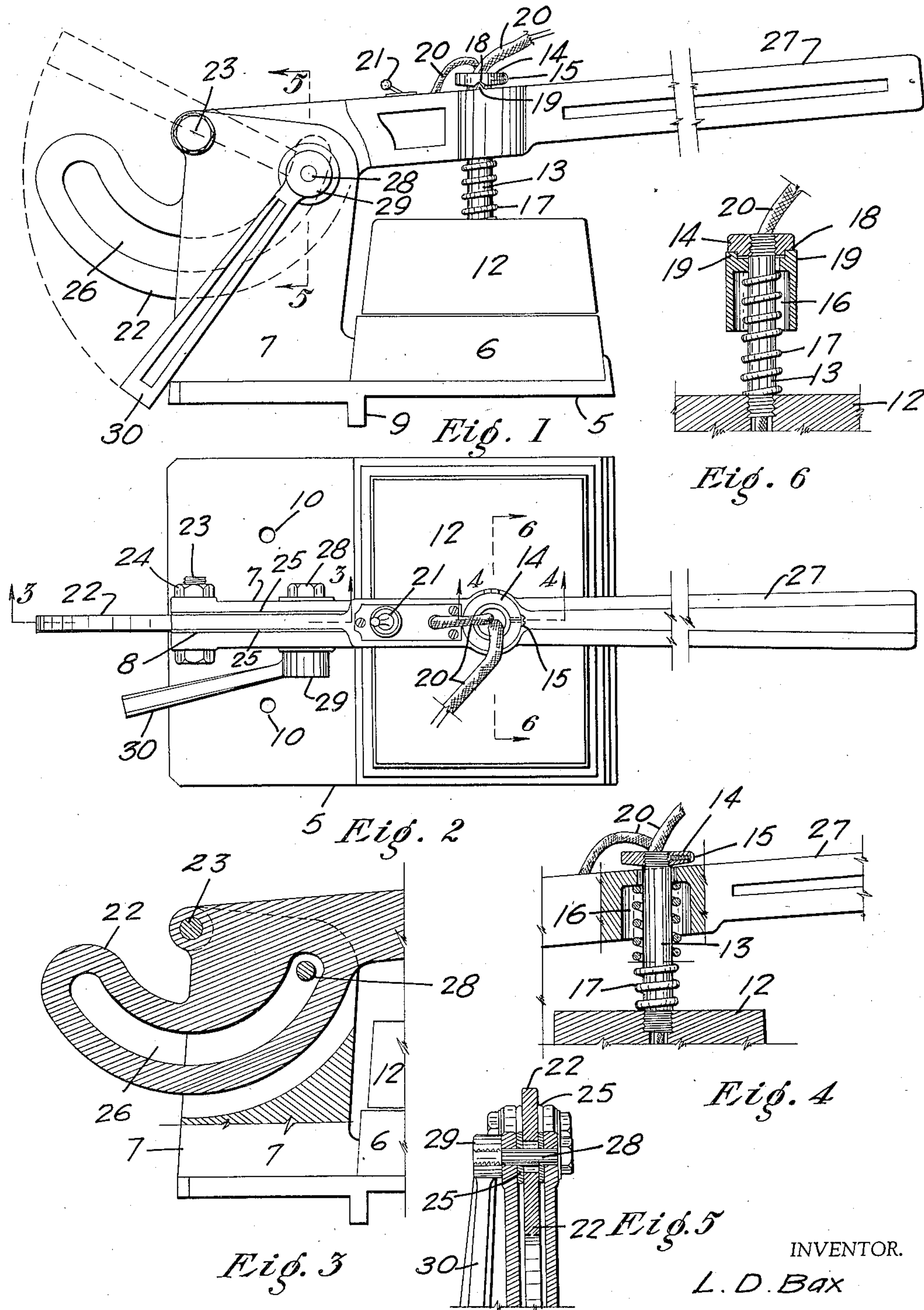
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L. D. BAX

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VULCANIZER

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INVENTOR.

L. D. Bax

BY

*D. J. McLaughlin*

ATTORNEY.



## UNITED STATES PATENT OFFICE

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## VULCANIZER

Lionel D. Bax, Denver, Colo.

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9 Claims. (Cl. 18—18)

This invention relates to vulcanizers, and more particularly to devices used for vulcanizing inner tubes of automobile tires.

It is an object of the invention to provide in a device of this character certain advantageous features of construction which facilitate its operation, simplify its production, and in general, promote its efficiency and practicability in use.

Among these advantageous novel features are:

10 A pressure-member loosely suspended for yielding self-adjustment whereby to equalize and intensify the pressure exerted against a relatively fixed anvil.

15 A centering appliance which permits of automatically determining the operative position of the pressure-member, irrespective of its loose suspension; and

20 A novel locking mechanism to secure an operating lever from which the pressure-member is suspended in its adjusted position.

Further objects of the invention reside in details of construction and a novel arrangement of parts as will be fully disclosed in the course of the following description.

25 In the accompanying drawing, in the several views of which like parts are similarly designated,

Figure 1 represents a side-elevation of the vulcanizer, part of the operating lever having been broken away for lack of space,

30 Figure 2 is a plan or top view of the vulcanizer as shown in Figure 1,

Figure 3 is a fragmentary section taken on the line 3—3 of Figure 2,

35 Figure 4 is a fragmentary section along the line 4—4 of Figure 2,

Figure 5 is a similar section on the line 5—5 of Figure 1, and

Figure 6 is a fragmentary section taken on the line 6—6 of Figure 2.

40 Referring further to the drawing, the vulcanizer comprises a base-plate 5 upon which is fastened the stationary anvil 6. Rearward of the anvil is a standard 7 formed integrally with the base-plate and vertically grooved as at 8, for the reception of the operating lever hereinafter to be described.

45 The base-plate has at its undersurface a transverse rib 9 which establishes its position upon a suitable support. Holes 10 in the base at opposite sides of the standard are used for the application of screws or bolts by which the apparatus is fastened in place.

50 The pressure-member 12 is suspended from the operating lever 21, hereinbefore referred to, by means of a hollow stem 13 carrying at its upper

screw-threaded end, an annular head 14 which is held in place by a set-screw 15.

The stem extends loosely through an opening of the lever, which is enlarged to form a recess 16 at the underside of the same. Into this recess 5 extends a spring 17, coiled around the stem and resting upon the upper surface of the pressure-member. The head 14 has at its underside, two radial grooves 18 of V-shaped section, and the lever has beneath the head two correspondingly 10 shaped ribs 19 which, by engagement in the grooves, determine the position of the pressure-member in which it is in its proper operative relation to the stationary jaw.

Both the anvil and the pressure-member are 15 preferably of rectangular form with opposed flat surfaces to engage at opposite sides of the article to be vulcanized. The pressure-member is hollow and contains the heating medium, usually in the form of an electrical resistance (not 20 shown in the drawing), which by means of conductors 20 passing through the hollow stem are connected in an electric circuit. A switch 21 on the lever provides a handy manual control for the current flow to and through the heat- 25 ing medium. The operation of the vulcanizer is too well known to require further explanation.

The lever has a head 22 which works in the groove 8 of the standard 7. A bolt 23 pass- 30 ing through alined holes of the standard and the lever-head, provides a fulcrum for the lever, and a nut 24 on the threaded end of the bolt, holds it against lengthwise displacement. The head 22 of the lever is of plate-like form and between 35 its flat sides and thereto opposed flat surfaces of the groove in the standard are washers 25 made of fiber or other friction-reducing material, to prevent a metal-to-metal contact, thereby facilitating the movement of the lever. The 40 lever-head has a segmental slot 26 through which extends a headed bolt 28 which passes through alined holes of the head at opposite sides of its groove.

45 The parts of the standard at the sides of the groove are inherently resilient, so that they may be pressed together against the lever-head in order to lock the lever in its adjusted positions. To this end, a nut upon the screw-threaded end of the bolt bears upon the outer surface of one of 50 said resilient parts and cooperates with the head of the bolts to force the parts into clamping engagement with the head of the lever. An arm 30 on the nut facilitates its manual rotation. It is a distinctive feature of this locking arrange- 55



ment that the locking bolt 28 is at a distance from the fulcrum, which obviously increases its clamping effect. The ends of the segmental slot in the head of the lever limit its movement in both

5 directions.

In the operation of the vulcanizer the pressure-member is separated from the anvil by upward movement of the lever, which is locked in its raised position by movement of the nut 29, as stated

10 hereinbefore.

After the tire tube or other article to be vulcanized is placed upon the anvil, the pressure-member is lowered by means of the lever, and forcibly pressed against the article placed upon the anvil. This movement compresses the spring 17 and after the lever is again locked in place, the spring continues to exert pressure upon the pressure-member to tightly clamp the article under treatment between the member and the

20 anvil. Owing to the floating suspension of the pressure-member, its contact with the article is even throughout its contacting surface and the pressure exerted by the spring is evenly distributed over the entire extent of the part of the tire tube or other article clamped upon the anvil.

The cooperative relation of the centering ribs and grooves in the opposed surfaces of the head of the stem head 14 and the lever causes the pressure-member to automatically square itself with relation to the anvil, thereby assuring their correct position and preventing the one from overlapping the edges of the other.

The anvil is usually made of rubber or some other resilient material, thereby coacting with the spring to press the pressure-member tightly

35 against the article placed between the same.

What I claim and desire to secure by Letters Patent is:

1. In a vulcanizer, an operating lever having an opening, a pressure-member having a stem passing loosely through the opening, a head on the stem, suspending the member from the lever, and a spring yieldingly resisting movement of the lever relative to the member, the lever and the

45 head having cooperative grooves and projections to automatically establish a determinate position of the member relative to the lever.

2. In a vulcanizer, an operating lever having an opening, a pressure-member having a stem passing loosely through the opening, a head on the stem, suspending the member from the lever, and

a spring yieldingly resisting movement of the lever relative to the member, the lever and the head having cooperative grooves and ribs, of V-shaped section, to automatically establish a determinate position of the member relative to the

5 lever.

3. In a vulcanizer, a standard having a resilient part at a side of a groove, an operating lever having a fulcrumed head moving in the groove and having a segmental slot, a bolt on the standard passing through the slot, and a nut on the bolt, for locking the head in selective positions within the groove, by pressure upon said part.

4. In a vulcanizer, a standard having a resilient part at a side of a groove, an operating lever having a fulcrumed head moving in the groove, washers of friction-reducing material between opposed surfaces of the head and the groove, a bolt on the standard, and a nut on the bolt to lock the lever in adjusted positions, by pressure upon said part.

5. In a vulcanizer, a standard having a resilient part at a side of a groove, an operating lever having a fulcrumed head moving in the groove, and a device for clamping the head against movement in the groove, by pressure upon said part.

6. In a vulcanizer, a standard having resilient parts at the sides of a groove, an operating lever having a fulcrumed head moving in the groove, and a device for clamping the head against movement in the groove, by pressure upon said parts.

7. In a vulcanizer, a standard having resilient parts at the sides of a groove, an operating lever having a fulcrumed, slotted head moving in the groove, a bolt on the standard passing through the slot of the head and bearing upon one of said parts, and a nut on the bolt bearing upon the other part, to clamp the head against movement in the groove.

8. In a vulcanizer, a standard, an operating lever fulcrumed on the standard, and having a segmental slot, and a clamp-bolt on the standard away from the fulcrum, passing through the slot.

9. In a vulcanizer, a standard, a lever fulcrumed thereon, and means on the standard away from the fulcrum, for clamping the lever in selective positions.

LIONEL D. BAX.

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