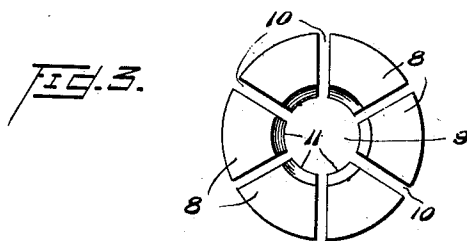
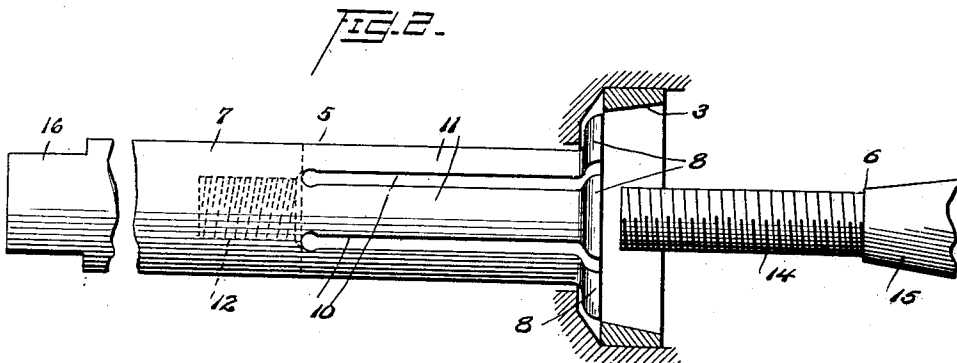
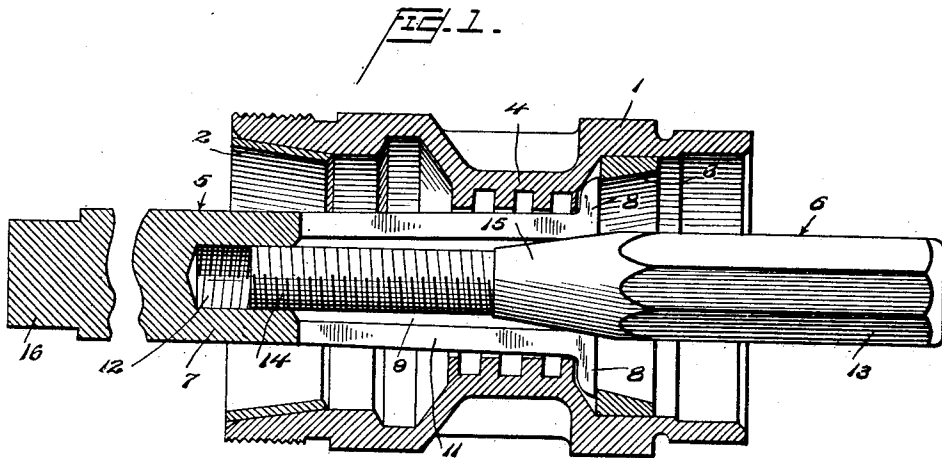


L. C. EDELBLUT.
 IMPLEMENT FOR DISPLACING BUSHINGS IN TUBULAR HOLDERS.
 APPLICATION FILED APR. 12, 1920.

1,364,489.

Patented Jan. 4, 1921.



Inventor
 Louis C. Edelblut

By *Haus, Cameron, Lewis & Kerkam*

Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS C. EDELBLUT, OF AUGUSTA, GEORGIA.

IMPLEMENT FOR DISPLACING BUSHINGS IN TUBULAR HOLDERS.

1,364,489.

Specification of Letters Patent.

Patented Jan. 4, 1921.

Application filed April 12, 1920. Serial No. 373,312.

To all whom it may concern:

Be it known that I, LOUIS C. EDELBLUT, a citizen of the United States of America, and a resident of Augusta, Georgia, have invented new and useful Improvements in Implements for Displacing Bushings in Tubular Holders, which invention is fully set forth in the following specification.

This invention relates to an improved implement for displacing bushings in tubular holders so constructed that ordinary tools cannot be used for the purpose. In many mechanical devices, bushings are seated in tubular holders with their interiors so constructed as to form an obstruction of such a character as to prevent the access of an ordinary tool to the inner end of the bushing for the purpose of displacing the bushing. As a specific instance, the axle-box in the hub of an ordinary motor-vehicle wheel has an interior structure of such a character that it is almost impossible to engage an ordinary tool with the inner end of a seated bushing to move the latter outwardly. The object of the present invention is to provide an implement that can be readily positioned in a tubular holder to engage the inner end of a bushing seated therein so that the implement can be driven to displace the bushing.

In the drawings, in which similar reference characters designate corresponding parts,—

Figure 1 is a longitudinal sectional view, partly broken away, of an axle-box and the implement positioned therein in engagement with the bushing that is to be displaced;

Fig. 2 is a plan view, partly broken away, showing the implement in position preliminary to engaging adjustment, the bushing and part of the axle-box being shown in section;

Fig. 3 is a detail view, showing the flanged end of the engaging member.

In Fig. 1 of the drawings is shown an axle-box 1 of the hub of an ordinary motor-vehicle wheel. In the opposite ends of this axle-box are seated the bushings 2 and 3 to form bearings for the antifriction rollers carried by the axle. When these bearings become worn, replacement of the bushings is necessary. To prevent accidental displacement, these bushings are firmly seated when first placed in the axle-box. The subsequent rolling action of the antifriction rollers under the pressure of the load still further

swages the bushings in place so that their subsequent removal becomes extremely difficult with ordinary tools. This difficulty is increased by the annular projection 4 in the axle-box as it obstructs access to the inner ends of the bushings. It is the purpose of the present invention to provide an implement that is particularly adapted to the removal of bushings so placed.

The implement comprises a driving member 5 and an expanding member 6. The driving member consists of a cylindrical body-part 7 having an engaging flange 8 at one end. Extending into the flanged end of the driving member is the bore 9, and the annular wall so formed is divided by longitudinal slots 10 to form fingers 11 carrying at their ends the sections of the flange 8. Preferably there are six of these fingers, but the number may be varied to meet different requirements. The metal forming the slotted part of the driving member is tempered so as to impart elasticity to the fingers. The inner end of the bore 9 is continued inwardly at a reduced diameter, as at 12, and is screw-threaded. With the spring-fingers 11 in their normal position, the diameter of the body-part 7 is somewhat less than that of the opening through the annular projection 4 in the axle-box, and the diameter of the flanged part 8 is somewhat less than the interior diameter of the bushing 3, so that the driving member can be inserted in the axle-box with the body-part passing through the projection 4 and the edge of the flange-sections 8 inside of the inner end of the bushing 3 that is to be removed, as shown in Fig. 2.

The expanding member 6 is formed of a metal bar, and has at one end a handle 13 of a polygonal shape to provide a hand-grip for easy turning. The other end of the expanding member is screw-threaded, as at 14, to engage the threaded bore 12 of the driving member. Between the handle 13 and the threaded part 14, the expanding member is of conical shape, as at 15. The conicity is such that the part so shaped will readily enter the bore 9 of the driving member as the expanding member is turned into the driving member through the engagement of the threaded parts 12 and 14. As the conical part 15 moves into the bore 9, it acts as a wedge and forces apart the spring-fingers 11 until the flange-sections 8 engage the inner end of the bushing 3, as shown in

Fig. 1. With the bushing so engaged, it can be driven from its place by blows on the end or head of the driving member projecting outside of the axle-box. After the implement has been moved clear of the axle-box, the expanding member can be unscrewed from the driving member and the spring-fingers will assume their normal positions.

10 The conical part 15 has considerable length so that bushings of different diameters can be removed. To meet the requirements of axle-boxes of extreme sizes, several of the implements of different sizes may be kept on hand. Where extremely heavy work is done, requiring such stiffness in the spring-fingers as to prevent the turning of the expanding member by hand, a wrench can be used on the polygonal-shaped handle 13 and the end 16 of the driving member flattened to be engaged by a vise.

While the implement has been described in the operation of removing bushings, yet it is obvious that it can also be used in the insertion or adjustment of bushings in tubular holders.

What is claimed is:

1. In an implement for displacing bushings in tubular holders, a bushing-engaging member comprising a cylindrical body-part having a head at one end for the application of a driving force, a flange at the other end and a longitudinal bore extending into the same through the flanged end thereof to form an annular wall, said wall being slotted longitudinally to form spring-fingers carrying flange-sections at their outer ends, in combination with an expanding member adapted to enter the bore of the engaging member to force outwardly the spring-fingers to position the flange-sections to engage the bushing that is to be displaced.

2. In an implement for displacing bushings in tubular holders, a bushing-engaging member comprising a cylindrical body-part having a flanged end and a longitudinal bore extending into the same through the flanged end to form an annular wall, said bore being screw-threaded at its inner end, said wall being slotted longitudinally to form spring-fingers carrying flange-sections at their outer ends, in combination with a bar-shaped expanding member adapted to enter the bore of the engaging member and having its entering end screw-threaded to engage the threaded part of the engaging member, said expanding member having a conical part to enter the longitudinal bore of the engaging member to press outwardly the spring-fingers as the conical part moves

into the bore through the turning of the expanding member into the engaging member, the spring-fingers in their outward movement carrying the flange-sections into position to engage the bushing that is to be displaced.

3. In an implement for displacing bushings in tubular holders, a bushing-engaging member comprising a cylindrical body-part having a flange at one end and adapted at the other end to pass through the tubular holder and to project beyond the same for the application of a driving force, the diameter of the flanged end of the body-part being such as to pass through the bushing seated in the holder that is to be displaced, said body-part having a longitudinal bore extending into the same through the flanged end thereof to form an annular wall and having a screw-threaded extension of said bore, said wall being slotted longitudinally to form spring-fingers carrying flange-sections at their outer ends, in combination with a bar-shaped expanding member adapted to enter the bore of the engaging member and having its entering end screw-threaded to engage the threaded extension of said bore so that the expanding member can be turned into the engaging member, a grip on the outer end of the expanding member for turning the same, and said expanding member having a conical part to enter the bore of the engaging member to force outwardly the spring-fingers to engage the flange-sections with the inner end of the bushing.

4. In an implement for displacing bushings in tubular holders, a bushing-engaging member comprising a cylindrical body-part having a head at one end for the application of a driving force, a flange at the other end and a longitudinal bore extending into the same through the flanged end thereof to form an annular wall, said bore being screw-threaded at its inner end and said wall being slotted longitudinally to form spring-fingers carrying flange-sections at their outer ends, in combination with an expanding member adapted to enter the bore of the engaging member and having its entering end screw-threaded to engage the threaded part of the engaging member, the expanding member entering the bore of the engaging member operating to force outwardly the spring-fingers to position the flange-sections to engage the bushing that is to be displaced.

In testimony whereof I have signed this specification.

LOUIS C. EDELBLUT.