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2,496,005

GRIPPING DEVICE TO REMOVE BUSHINGS AND THE LIKE

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Fig. 1.

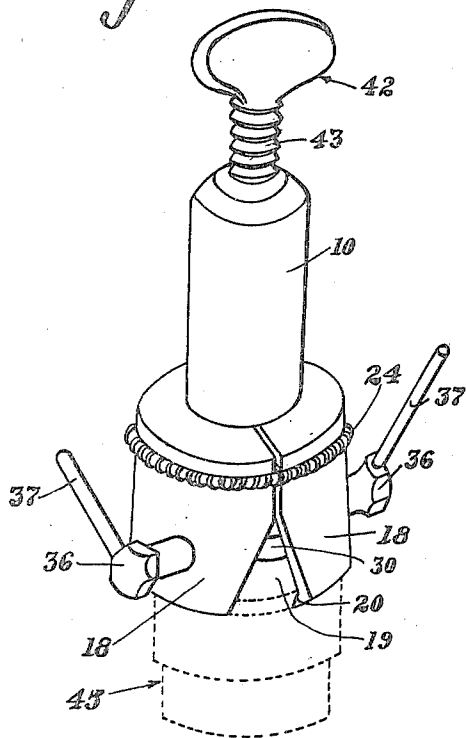


Fig. 2.

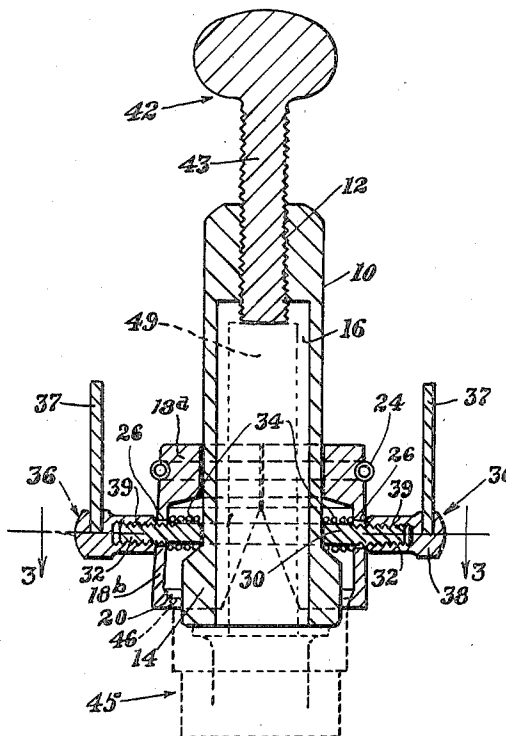


Fig. 3.

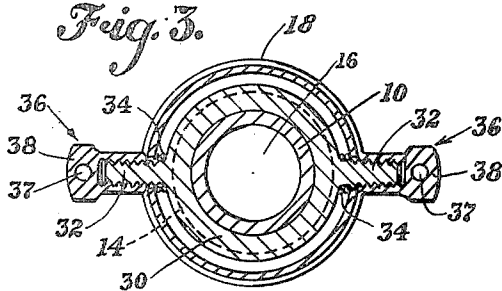


Fig. 4.

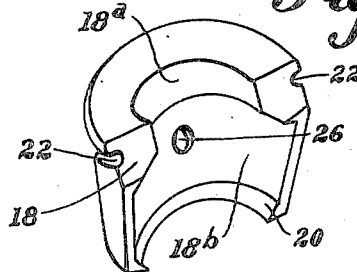
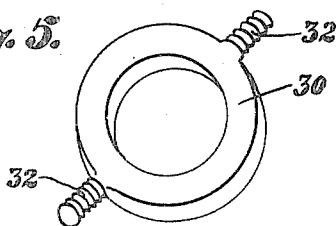


Fig. 5.



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UNITED STATES PATENT OFFICE

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GRIPPING DEVICE TO REMOVE BUSHINGS
AND THE LIKE

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1 Claim. (Cl. 29—283)

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This invention relates to a gripping device for removing bushings or the like, particularly from steering post assemblies in automobiles.

In repairing or making changes in the steering post assembly of some automobiles the bushing around the post must be removed, and since it is tightly fitted in the outside housing or jacket it is customary to forcibly hammer and pry it out. This often irreparably damages it. My principal object is to provide a special device to withdraw said bushing easily without damaging it.

Another object is to provide a said device that is compact, simple in operation, and that can be manufactured at a reasonable cost.

The foregoing and other objects which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and arrangement of parts such as is disclosed by the drawings and specification. The nature of the invention is such as to render it susceptible to various changes and modifications, and, therefore, I am not to be limited to said disclosure; but am entitled to all such changes therefrom as fall within the scope of my claim.

In the drawings

Figure 1 is a perspective view of my device.

Figure 2 is a longitudinal sectional view thereof.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a perspective view of a jaw member.

Figure 5 is a perspective view of a clamp supporting ring.

As illustrated, my device has a relatively long supporting sleeve 10 which is interiorly screw threaded as at 12 and has an enlarged neck portion 14 at the bottom. There is an interior opening 16 extending longitudinally therethrough.

I provide means to grip the bushing 45 of a steering post assembly, later described, having two substantially semi-circular jaw members 18 the outer surfaces of which preferably flare downwardly, so that the lower edge of this gripping means is of greater circumference than the upper edge. The upper portions of said jaw members 18 are thicker as at 18a than the lower portions 18b. Both side edge extremities of said jaw members slant downwardly inward thus leaving considerable space 19 between one said jaw member and another at the lower portions 18b thereof to make the gripping of the bushing rim 46, later described, easier. An inwardly extending rim at the lower edges of said jaw members 18 provides a shoulder 20 which overlaps and

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extends under the rim 46 of the bushing when positioned for use, as later described.

A channel 22 is formed in the outer surfaces of said upper portion 18a of jaws 18 to receive a circular, coiled spring 24 which holds said jaw portions 18 in assembled position. A hole 26 extends through the side of each jaw portion 18 at upper portion of said thinner portion 18b.

Mounted within said gripping means between said two jaw members 18 is a clamp supporting ring 30 which has two screw-threaded extensions 32 each of which extends through a said hole 26 and around which are coil springs 34 which bear against the interior surfaces of said jaw members 18 that surround said holes 26. These springs 34 keep said jaw members 18 under some tension to hold the assembly firmly. Said neck portion 14 of said supporting sleeve 10 serves as a stop to prevent said ring 30 slipping off said sleeve.

Cooperating with said screw-threaded extensions 32 are movable clamp members 36, each of which has a handle 37 attached to the head of a socket 38 that is interiorly screw-threaded as at 39. Said socket 38 is larger than said hole 26 hence the outside end surface of each said socket bears against the outside surface of a said jaw member 18 surrounding a said hole 26 when said clamp members 36 are tightened by screwing them up on said screw-threaded extensions 32. This pressure on the outside of said jaw portions 18 forces them towards each other thus tightening said gripping means.

Cooperating with said supporting sleeve 10 is a forcing member 42 having a long, screw-threaded portion 43 which extends into said interior opening 16 in said supporting sleeve 10 and screw-threadedly connects with said threads 12. Its head or finger portion is wider than said opening 16.

In Figures 1 and 2 my device is shown positioned on a bushing 45 which ordinarily has an outwardly projecting rim 46 at the top. The steering post 49 of the type of automobile or other vehicle this device is adapted for normally extends into the opening 16 of said supporting sleeve 10 directly below the lower end of said forcing screw 42 when my device is positioned for use.

In use, the clamp members 36 are loosened and said gripping means is placed on said bushing 45 with said shoulder 20 of the gripping means extending over and bearing against the inner surface of said bushing projecting rim 46 so that any upward movement of said gripping means will tend to pull said bushing away from said

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steering post assembly. Then said clamp members 36 are tightened, thus moving said jaw members 18 together to tightly hold said bushing 45 in said gripping means. The forcing screw 42 is screwed downwardly against said steering post 49, which is in fixed position, hence said bushing is raised, thus gradually withdrawing it from the steering post assembly.

What I claim is:

A gripping device comprising a supporting sleeve having a neck portion at the bottom that is of greater width than the adjoining portion thereof, two substantially semi-circular jaw members each having a peripherally extending channel in their upper portion outer surfaces, a spring in said channels extending around both said jaw members, each said jaw member having an upper portion that is thicker than the lower portion and each having a hole in said lower portion, a clamp supporting ring exteriorly telescoping said sleeve for axial sliding movement thereon limited by said neck portion, said clamp supporting ring lying within and extending between said jaw members the interior space of which is less than the width of said sleeve neck portion, said

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ring having two extensions embodying screw threaded portions that extend through said jaw member holes, coil springs around said extensions the outer ends of which bear against the inner surfaces of the portions of said jaw members that surround said holes, two clamp members for said two extensions each embodying a handle and a screw-threaded socket portion that are in screw-threaded engagement with said extensions.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,858,238	Cornwall	May 17, 1932
2,377,973	Scott	June 12, 1945
2,421,324	Graham	May 27, 1947

FOREIGN PATENTS

Number	Country	Date
331,320	Great Britain	Feb. 5, 1930