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PULLER TOOL HAVING A MANUALLY OPERATED SLIDING HAMMER

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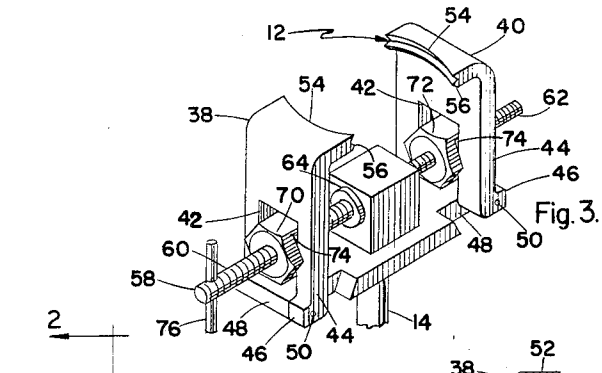


Fig. 3.

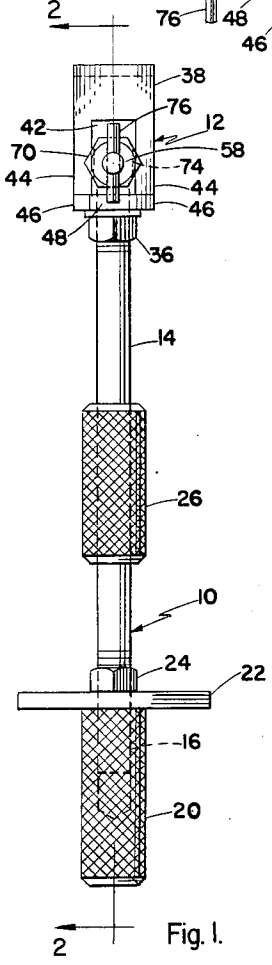


Fig. 1.

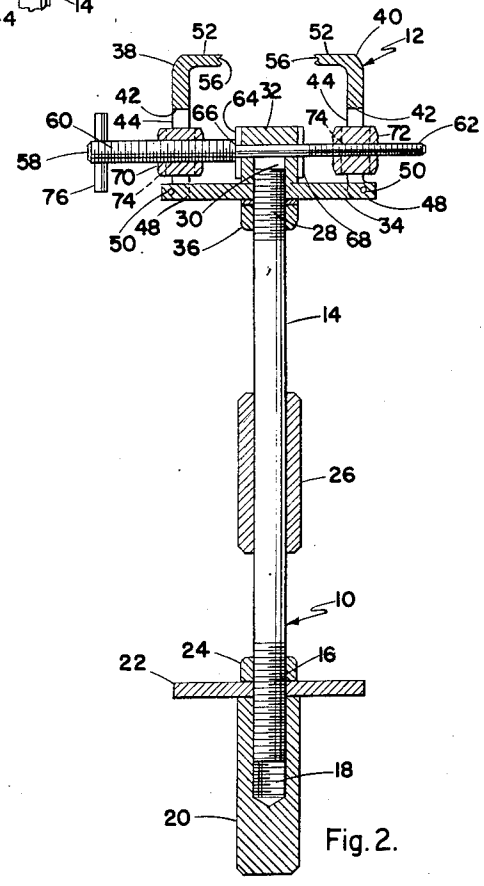


Fig. 2.

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AGENTS

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PULLER TOOL HAVING A MANUALLY OPERATED SLIDING HAMMER

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1 Claim. (Cl. 29—254)

The present invention relates generally to puller tools and more particularly to a puller having opposed pivoted jaws which can be adjusted for engaging and removing grease caps or the like, the device including a hammer slidably mounted on the shank of the tool, the tool being also used in installation and replacement of grease caps or the like.

The primary object of this invention is to provide a knock-off puller adaptable for removing and replacing grease caps from automobile wheel hubs or the like without damaging the relatively thin walled caps.

Another object of this invention is to provide a knock-off puller having a clamp portion adjustable for grasping various sizes of grease caps or the like.

Another object of this invention is to provide a knock-off puller of the type described having a sliding hammer thereon to provide sufficient force of inertia for removing and replacing grease caps or the like.

Another object of this invention, ancillary to the preceding objects, is to teach the best known mode of implementing the principles of the invention in carrying the invention into actual practice.

Another object of this invention is to provide a knock-off puller which is adapted for fabrication from many different materials, so that the choice of material can be according to the dictates of availability and price considerations, the exact sizes and proportions being matters easily determined to suit particular conditions and needs.

Another object of this invention is to provide a knock-off puller which is inexpensive and practicable to manufacture.

Finally, it is an object to provide a knock-off puller of the aforementioned character which is simple, safe and convenient to operate, and which will give generally efficient and durable service.

With these and other objects definitely in view, this invention consists in the novel construction, combination and arrangement of elements and portions, as will be hereinafter fully described in the specification, particularly pointed out in the claim, and illustrated in the drawing which forms a material part of this disclosure and wherein similar characters of reference indicate similar or identical elements and portions throughout the specification and throughout the views of the drawing, and in which:

Fig. 1 is a side elevation view of the device.

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is an isometric view of the clamp portion of the device.

Referring now to the drawing in detail the device comprises a handle portion **10** and a clamp portion **12**. The handle assembly **10** comprises a shank **14** having a screw threaded portion **16** which is engaged with a screw threaded hole **18** in a handle **20**. The hand grip **20** is secured to the outer end of the shank **14**, and a plate-like hand shield **22** is secured at the inner end of the hand grip by means of a lock nut **24**.

A hammer **26** is axially bored and slidably mounted on the shank **14**, said hammer being of suitable heavy metal to provide considerable force of inertia when struck against the lock nut **24**. The remaining end of the shank **14** is provided with a screw threaded portion **28** which is engaged with a screw threaded hole **30** in a bearing block **32**, said bearing block being integrally formed with a cross bar **34** which is retained in position on the shank **14** by means of a lock nut **36**.

The clamp portion **12** comprises jaws **38** and **40** each having a slot **42**, the portions of the jaw on either side of the slot being lugs **44** which are outwardly bent normal at their ends to comprise hinge elements **46**. The hinge elements **46** are pivotally mounted to terminal tongues **48** of the cross bar **34** by means of hinge pins **50**, said tongues being a close fit within the slots **42** as illustrated in Fig. 3. The jaws **38** and **40** are bent at their other ends to form lips **52** which project on the opposite side of said jaws from the hinge elements **46**, said lips having arcuate recesses **54** provided with serrations **56**.

The jaws **38** and **40** are adjusted by means of a clamp screw **58** having a right hand threaded portion **60** and a left hand threaded portion **62** having the same pitch and of slightly smaller diameter than said right handed threaded portion. The clamp screw **58** is rotatably mounted in the bearing block **32** and is retained by a washer **64** secured against the shoulder **66**, formed by the increase in diameter of said clamp screw at that position, and by a washer **68** welded or suitably secured to the left hand threaded portion **62** as illustrated in Fig. 2. The clamp screw **58** is threadedly engaged with suitable nuts **70** and **72**, each of said nuts having grooves **74** of such a depth that the nuts may be slidably fitted within the slots **42**. The spacing of the roots of the grooves **74** is related to the width of the slots **42** so that the nuts will be prevented from rotating, said grooves also being of sufficient width that the nuts **70** and **72** may remain in free alignment with the clamp screw regardless of the angular position of the jaws **38** and **40** during adjustment. The clamp screw **58** is further provided with a T-handle **76** secured in the right hand threaded portion **60** to provide sufficient leverage for adjusting the jaws **38** and **40**.

To remove a grease cap, the device is placed with the jaws **38** and **40** on either side of said grease cap and the jaws are adjusted by means of the clamp screw **58** until the grease cap is firmly clamped between the lips **52**. The hammer **26** is then repeatedly slid along the rod **14** striking the lock nut **24** thus providing a series of sharp pulls on the grease cap causing it to be removed from its seating. The fingers of the operator are protected from accidental blows of the hammer by the shield **22**.

When the tool is used for installing or replacing a grease cap or other unit, the jaws are first clamped thereon and the hammer is reciprocated against the lock nut **36** to drive the unit into place without damaging it.

It will be obvious that the use of the device is not limited to the removal of grease caps but may also be applied to the removal of bearings, collars or the like, the versatility being limited only by the size and adjustment of the clamp portion.

The operation of this invention will be clearly comprehended from a consideration of the foregoing description of the mechanical details thereof, taken in connection with the drawing and the above recited objects. It will be obvious that all said objects are amply achieved by this invention.

Further description would appear to be unnecessary.

It is understood that minor variation from the form of the invention disclosed herein may be made without departure from the spirit and scope of the invention, and

that the specification and drawing are to be considered as merely illustrative rather than limiting.

I claim:

A puller tool comprising a bearing block, a handle fixed to said block, a cross bar having its central portion fixed to said block, opposing jaws pivoted to the ends of said cross bar, and a clamp screw having its center portion rotatably mounted in said block and having oppositely threaded end portions, of different diameters whereby a shoulder is defined between said portions said central portion having said shoulder on one side of said block and a washer element secured to the smaller of said portions on the other side of said block in frictional abutment with said block whereby axial movement of the screw relative to the block is prevented, said jaws having opposed slots in portions thereof adjacent said cross bar, correspondingly threaded nuts being laterally grooved for a sliding fit in said slots, whereby said nuts are non-rotatively mounted in said slots, said nuts threadedly engaging said end portions and being somewhat loosely engaged in said slots to permit slight pivotal movement and thus to avoid binding, said slots being open at the ends of the jaws adjacent to said cross bar whereby the nuts are easily assembled onto the jaws during construction and repair means to rotate said screw to open and close said jaws, said handle including an elongated shank, a stop on the handle, said shank extending transversely of said screw from the side of said cross bar remote from said jaws, and a manually operable hammer mounted on said shank for sliding movement axially thereof and engageable with said stop.

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