United States Patent

Harding

[15] **3,691,610**

[45] **Sept. 19, 1972**

[54] **DIE PULLER**

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[22] Filed: **Nov. 18, 1970**

[21] Appl. No.: **90,744**

[52] **U.S. Cl.** **29/255**

[51] **Int. Cl.** **B23p 19/04**

[58] **Field of Search** .....29/254, 255, 275; 81/52.3, 81/52.35; 173/131; 72/457, 705; 145/61 F, 61 D

[56] **References Cited**

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[57] **ABSTRACT**

An elongated flexible member is permanently secured at one end to an enlarged head and is secured at its opposite end to a clamping device. A rigid elongated member is detachably secured at one end to the device and at its opposite end to a handle. A cylinder having an axial bore of larger diameter than the rigid member is disposed between the handle and the device with the rigid member extending through the bore.

2 Claims, 3 Drawing Figures

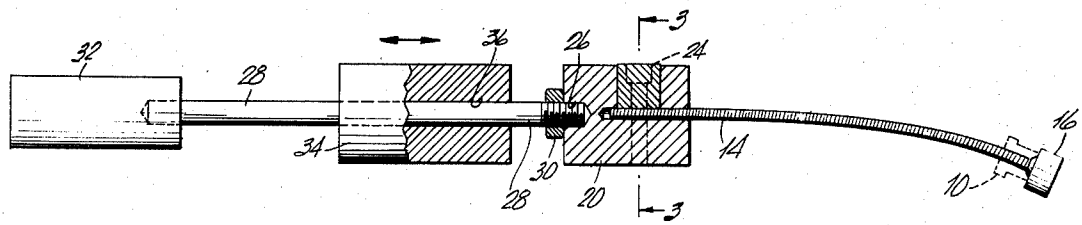


FIG. 1

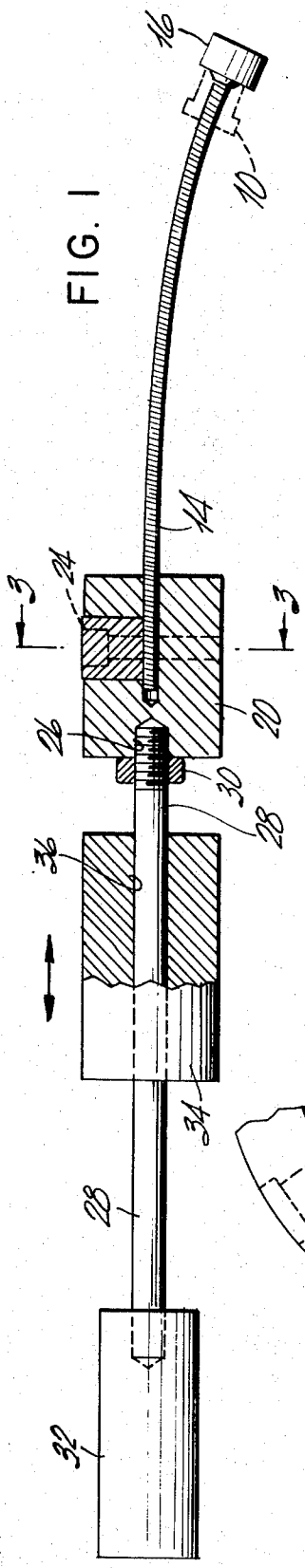


FIG. 3

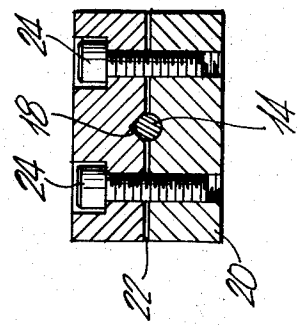
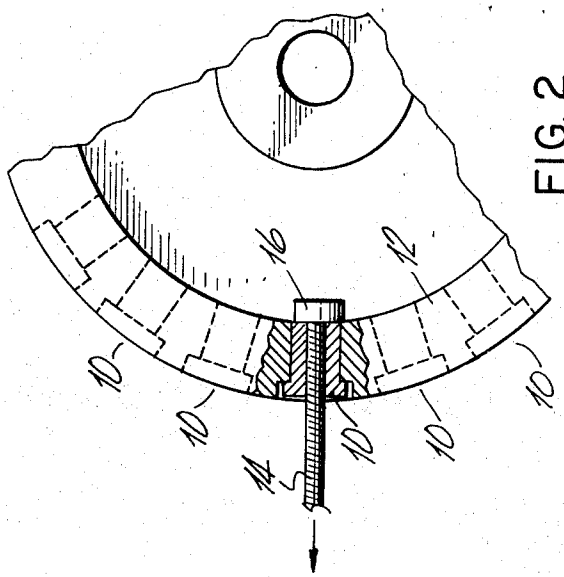


FIG. 2



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DIE PULLER

SUMMARY OF THE INVENTION

My invention is directed toward a manually operable die puller for removing dies jammed in flanges. It is particularly useful for removal of dies in rotary printing equipment which has "line hole and control" punches and dies.

In my invention, I employ a rigid rod which extends through an axial bore of a cylinder with sufficient clearance to enable the cylinder to slide back and forth thereon. A handle is secured to one end of the rod; a clamping device is secured to the other end of the rod. An elongated flexible member having an enlarged head at one end is detachably secured at its other end to the device.

In use, the flexible member, disconnected from the device, is passed through a bore in the die to be removed until the head, which is larger than the die bore, rests on the outside of one end of the die and the member extends out of the other end. The member is secured to the device.

Since the flange in which the die is jammed is fixed in position, the user of my invention needs only to hold the handle at one end and to slide the cylinder along the rod to strike the handle. This action is repeated as necessary until the die is pulled out.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is a side view of my invention just after a die has been removed;

FIG. **2** is a detail view illustrating a step in the die removal process; and

FIG. **3** is a cross section taken along line **3—3** in FIG. **1**.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to FIGS. **1–3**, a die **10** is jammed in a flange **12**. The die has an axial bore.

To remove the die, a flexible elongated member **14** is passed through the bore until the enlarged head or disc **16** welded to one end of the member contacts the rear of the die. The head is too large to pass through the die bore.

The other end of member **14** is disposed in an axial bore **18** formed between opposite portions of a clamping device **20** having a transverse slot **22**. Allen head cap screws **24** in the device are then tightened to hold the member in place. The device **20** has an oppositely disposed dead headed threaded bore **26** into which a threaded end of a rigid rod **28** extends. A lock-nut **30** on the rod holds the rod tightly against the device. The opposite end of the rod is secured to an elongated enlarged handle **32**. A cylinder **34** has an axial bore **36** through which rod **28** extends intermediate its ends. The diameter of bore **36** is larger than that of rod **28** whereby the cylinder can be slid back and forth therealong.

By holding the handle in one hand and repeatedly sliding the cylinder against the handle, the die will be pulled as indicated.

While I have described my invention with particular reference to the drawings, such is not to be considered as limiting its actual scope.

Having thus described this invention, what is claimed as new is:

1. A die puller comprising a flexible elongated first member, a cylindrical head fixedly attached at one end thereof, a clamping device comprising two sections adapted to engage said flexible elongated first member, means in said clamping device disposed on each side of said flexible first member to allow application of pressure on said flexible first member by said clamping device, a rigid second member adapted to engage said flexible first member, means threaded on said rigid second member and adjustable to engage said clamping device, a handle secured at the other end of said second member, and means slidable along said second member between said handle and said clamping device.

2. A die puller as claimed in claim **1** wherein said last mentioned means comprises a cylinder with an axial bore adapted to slidably receive said rigid second member.

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