Aug. 16, 1955 O. D. WILLIAMS 2,715,261

ADJUSTABLE HYDRAULIC SLEEVE PULLER

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Fig. 1.

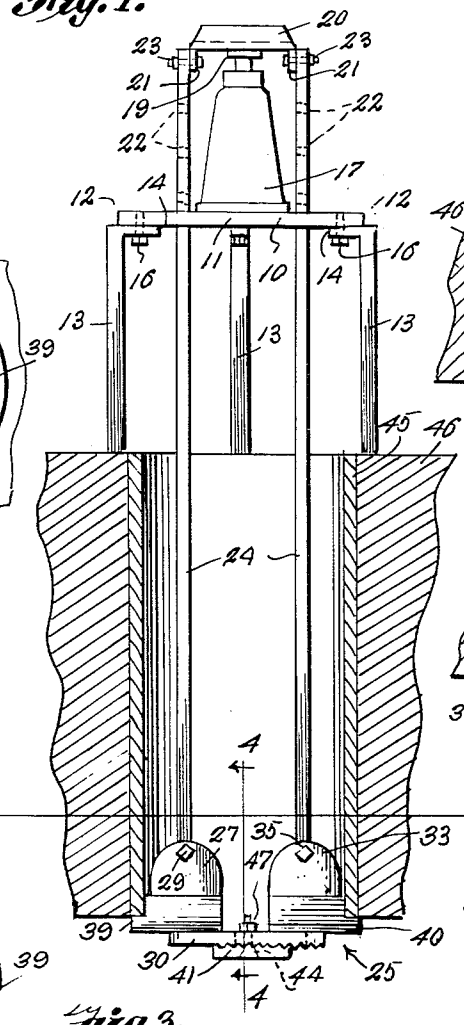
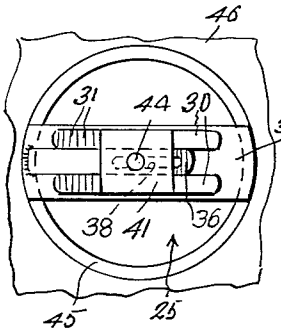


Fig. 2.



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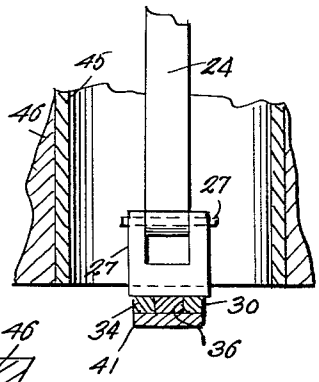

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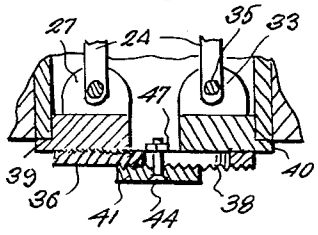

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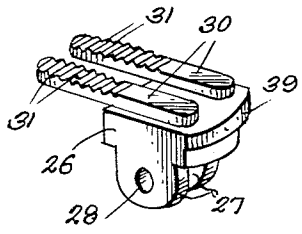
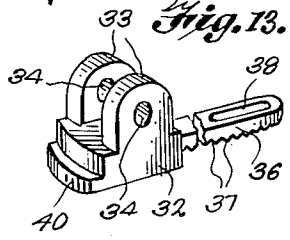


Fig. 13.



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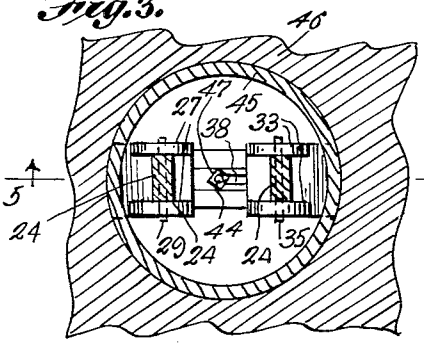

Fig. 14.

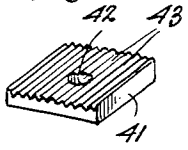

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Fig. 6.

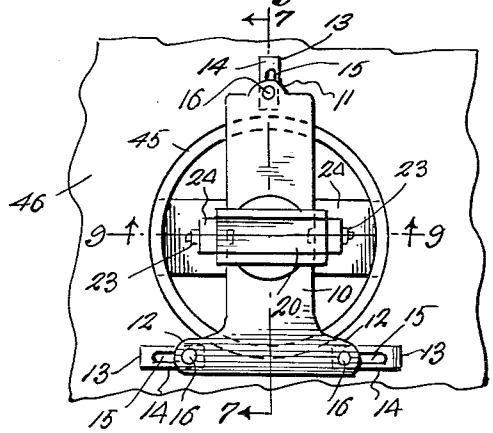


Fig. 11.

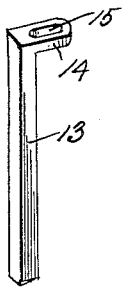


Fig. 7.

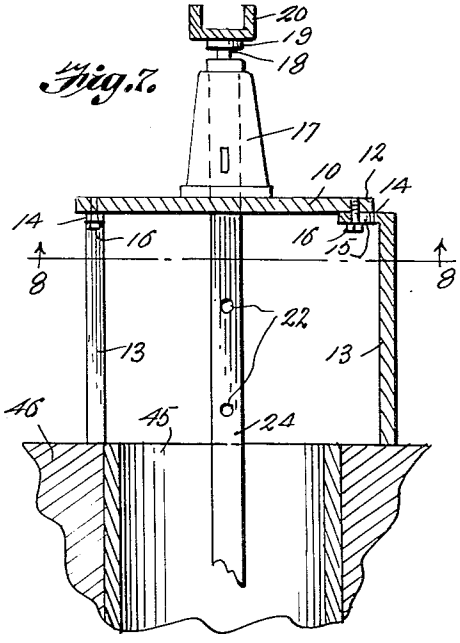


Fig. 10.

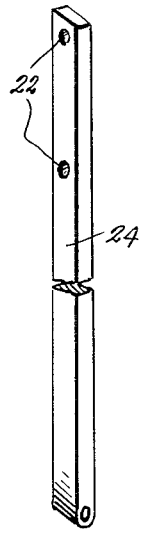


Fig. 9.

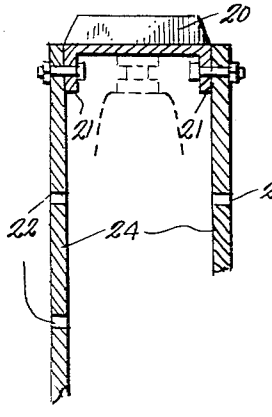
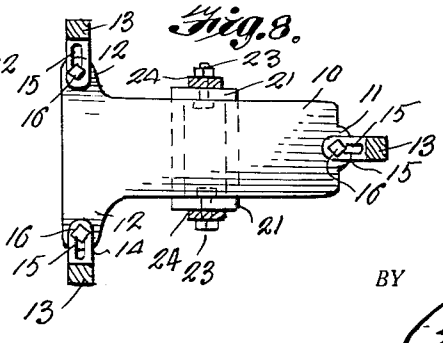


Fig. 8.



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2,715,261

ADJUSTABLE HYDRAULIC SLEEVE PULLER

Ollie Dee Williams, Kress, Tex.

Application June 1, 1951, Serial No. 229,455

1 Claim. (Cl. 29—252)

The present invention relates to an adjustable hydraulic sleeve puller and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

Generally there is provided an hydraulically operated sleeve puller having several adjustable features which allows the device to be utilized for the withdrawing or pulling of sleeves of various sizes from internal combustion engines and the like. There is embodied in the invention an adjustable sleeve engaging head, adjustable pulling arms and a jackstand having novel adjustable legs so designed that they may avoid the stud bolts conventionally found upon an engine block adjacent the cylinder opening therein.

It is accordingly an object of the invention to provide a device of the character set forth which is simple in construction, inexpensive to manufacture and yet effective and efficient in use.

Another object of the invention is the provision, in a device of the character set forth, of a novel adjustable sleeve engaging head forming a part of the invention.

Another object of the invention is the provision, in a device of the character set forth, of novel adjustable supporting legs for a jack platform forming a part of the invention.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawing, in which:

Figure 1 is a vertical elevational view of an embodiment of the invention shown in operative position with a sleeve in a motor block, the sleeve and block being shown in vertical sectional view.

Figure 2 is a bottom plan view thereof,

Figure 3 is a sectional view taken along line 3—3 of Figure 1,

Figure 4 is a fragmentary sectional view taken substantially along line 4—4 of Figure 1,

Figure 5 is a fragmentary sectional view taken substantially along line 5—5 of Figure 3,

Figure 6 is a plan view of Figure 1,

Figure 7 is a fragmentary sectional view taken substantially along line 7—7 of Figure 6,

Figure 8 is a sectional view taken along line 8—8 of Figure 7,

Figure 9 is a fragmentary sectional view taken substantially along line 9—9 of Figure 6,

Figure 10 is a perspective view, partly broken away, of a pulling leg forming a part of the invention,

Figure 11 is a perspective view of a platform supporting leg forming part of the invention,

Figure 12 is a perspective view of a portion of a sleeve engaging head forming a part of the invention,

Figure 13 is a perspective view of another portion of a sleeve engaging head forming a part of the invention, and

Figure 14 is a perspective view of a lock plate forming a part of the invention.

Referring more particularly to the drawing, there is

shown therein an adjustable hydraulically operated sleeve puller comprising a jack supporting platform **10** of generally rectangular shape and a centrally disposed ear **11** is at one of its ends and a pair of outstanding ears **12** at the other of its ends. Three supporting legs **13** are each provided with a laterally extending head **14** at their upper ends and each of the heads **14** is provided with a slot **15**. The legs **13** are each attached to one of the ears **11** and **12** by means of a vertically extending bolt **16** which extends through the ear and through the slot **15** in the adjacent head **14** whereby the legs **13** may be adjusted toward and away from the platform **10** and also may be selectively circumferentially positioned with respect to the associated bolt **16**.

Mounted upon the platform **10** is an hydraulic jack **17** provided with the conventional rod **18** which extends upwardly therefrom and which is provided with a head **19** at its outer end.

A jack head **20** is mounted atop the head **19** and is provided with a pair of downwardly extending ears **21** to each of which is adjustably connected through openings **22** and pins **23** a pair of vertically extending puller arms **24**.

A puller head is generally indicated at **25** and comprises a portion **26** having a pair of spaced upstanding ears **27** each apertured, as indicated at **28**, and connected by a pin **29** with the lower end of one of the puller arms **24**. The portion **26** is also provided at its lower side with a pair of horizontally extending spaced parallel arms **30** each provided upon its bottom face with serrations **31**. The puller head **25** is also composed of a portion **32** which is provided upon its upper side with a pair of upstanding spaced parallel ears **33** each apertured, as indicated at **34**, for the connection by means of a pin **35** with the lower end of the other puller arm **24**. The bottom side of the portion **32** is provided with a horizontally extending arm **36** which is provided with serrations **37** upon its lower face and which is also provided with a longitudinally extending slot **38**. The portion **26** is provided with an outwardly extending rounded shoulder **39** and the portion **32** is provided with a like rounded shoulder **40**.

A lock plate **41** is provided with a centrally disposed opening **42** and with a serrated upper face, as indicated at **43**, and a bolt **44** is adapted to adjustably lock the portions **26** and **32** by having its serrations **43** engage with the serrations **31** and **37** when the bolt **44** is extended through the slot **38**, it being understood that the arm **36** extends between the arms **30** in operative position.

In operation, it will be apparent that when it is desired to remove a cylinder liner or sleeve **45**, for example, from an engine block **46**, it is only necessary to insert the puller head **25** downwardly into the block until the shoulders **39** and **40** may engage to meet the lower end of the sleeve **45**, the bolt **44** and lock plate **41** being utilized for the purpose of adjusting the shoulders **39** and **40** to a proper distance from each other after which the bolt **44** locks the puller head **25** in the selected position by means of the nut **47**. The legs **13** may be adjusted in the manner above set forth so as to have the lower ends thereof avoid contact with any obstacles upon the upper side of the block **46** and when the device is properly positioned as aforesaid, it is only necessary to apply hydraulic pressure to the jack **17** to thereby lift the arms **24** and thus force the sleeve **45** outwardly of the block **46**.

While but one form of the invention has been shown and described herein, it will be readily apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claim.

What is claimed is:

A device of the character described comprising a plat-

form, supporting legs for said platform, a hydraulic jack mounted on said platform, a jack head for said jack, elongated puller arms affixed at their upper ends to said jack head, and a puller head connected to the lower ends of said puller arms, said puller head comprising a pair of members each having a pair of upstanding ears, said pairs of ears each being pivotally connected to the lower end of one of said puller arms, said members each having an outwardly extending rounded shoulder, a pair of horizontally and inwardly extending spaced parallel arms affixed to the bottom of one of said members, a single horizontally and inwardly extending arm affixed to the other of said members, serrations upon the lower faces of all of said arms, said single arm being slidably receivable between the pair of arms and having a longitudinal

slot therein, a lock plate having a serrated upper face bearing against the undersides of all of said arms, a bolt extending through said plate and said slot, and a nut for said bolt.

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