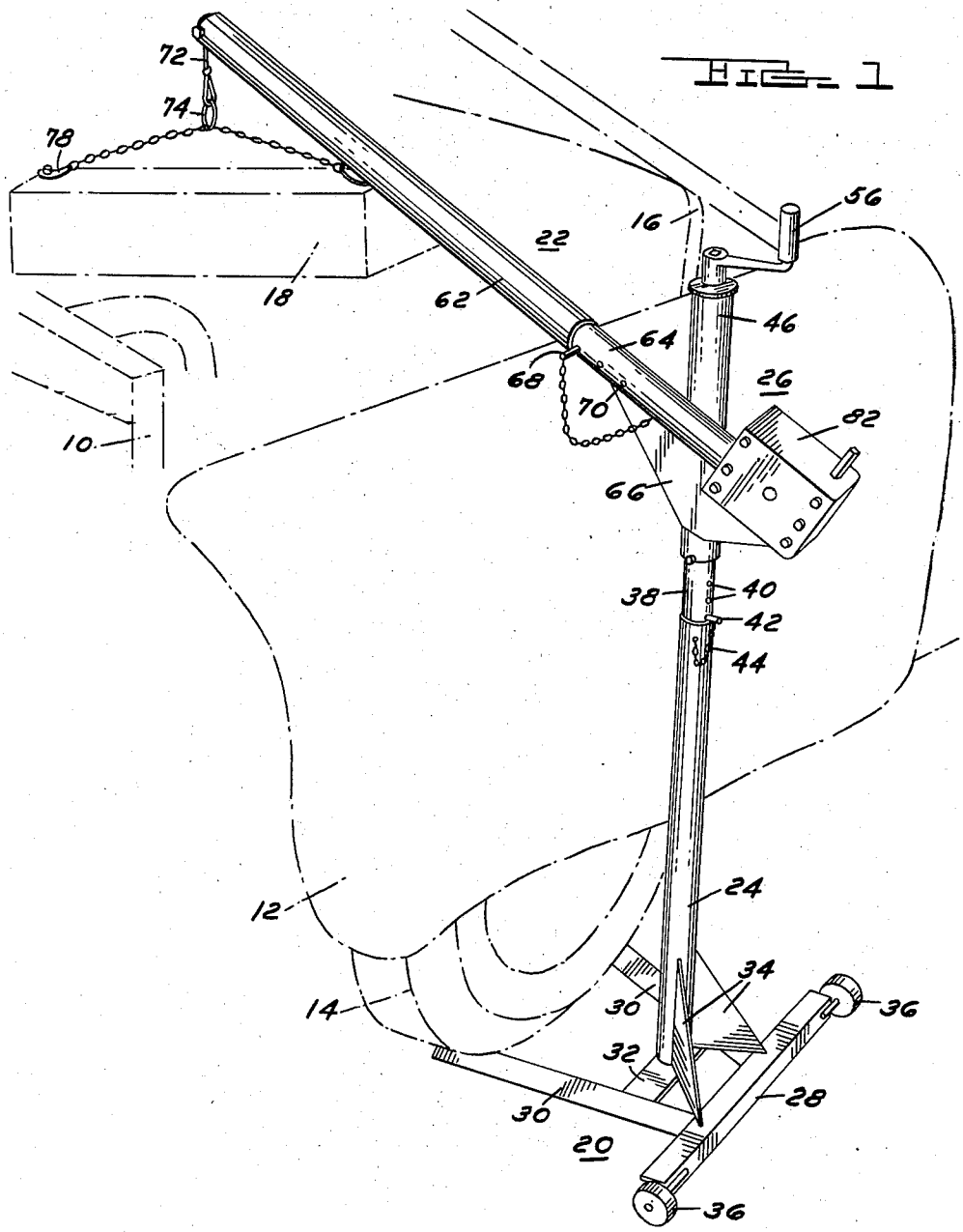
Nov. 4, 1958 J. W. BREED 2,858,946

CYLINDER HEAD HOIST

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FIG. 1



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FIG. 2

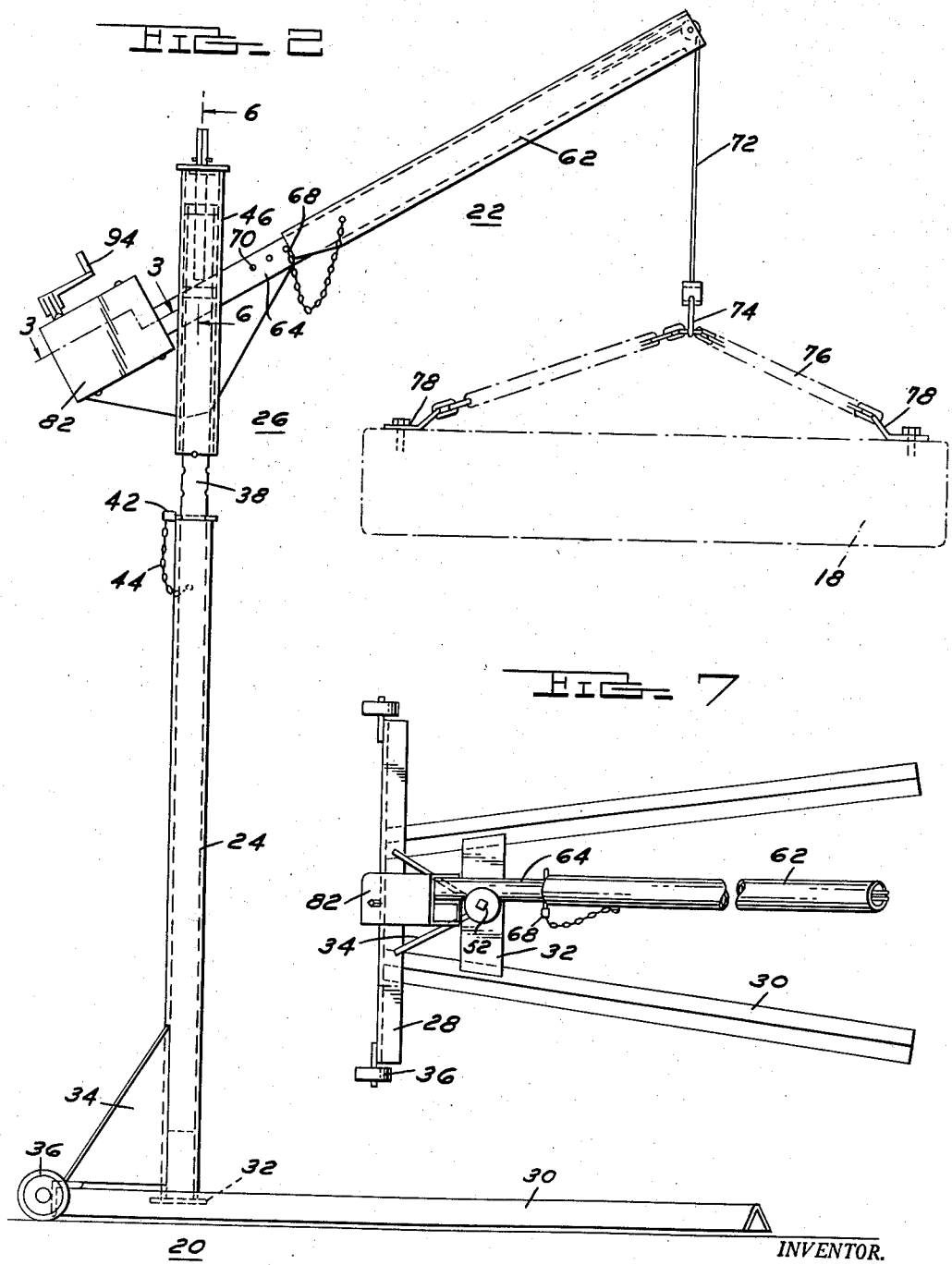


FIG. 7

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CYLINDER HEAD HOIST

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FIG. 3

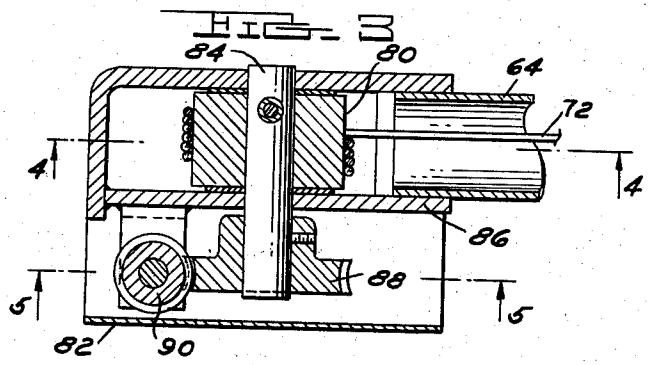


FIG. 6

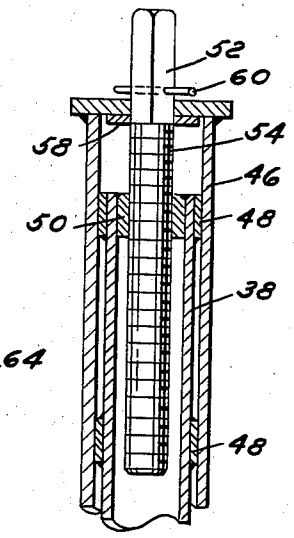


FIG. 4

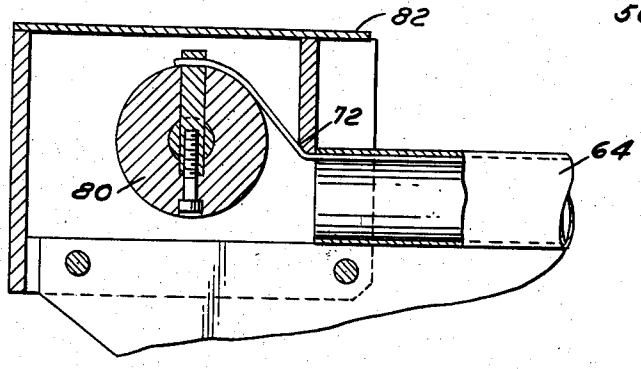
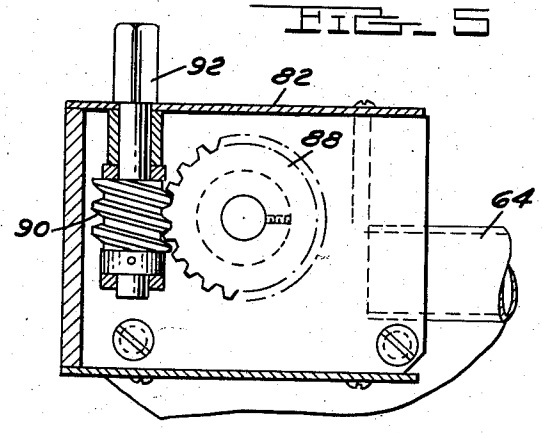


FIG. 5



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CYLINDER HEAD HOIST

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Application April 30, 1956, Serial No. 581,792

1 Claim. (Cl. 212—64)

This invention relates to an improved cylinder head hoist.

An object is to provide a cylinder head hoist embodied in a compact easily shiftable and easily operable mechanism capable of use to be secured to the cylinder head of various makes of automobile engines to remove the head from the cylinder block and to swing the head clear of the vehicle and capable also of being used to swing the cylinder head back into position and to lower the same upon the block.

A meritorius feature is that the mechanism is embodied in a device which is adaptable for use in a service station with the various makes and models of cars that will be brought thereinto for repair. The mechanism is embodied in a relatively compact easily portable device which may be readily moved from place to place for service use.

The mechanism is also adapted particularly for use with the modern type of motor vehicle wherein it is necessary to work underneath the hood which is incompletely elevated to expose the engine and where it is necessary to lift up the cylinder head and to swing it from the engine cavity outwardly underneath the partially elevated hood and through a relatively limited space.

A further object is to provide mechanism of the character set forth which is readily adjustable to adapt itself for use with various makes and models of motor vehicles wherein the lift of the cylinder head and the swinging thereof is at different heights depending upon the particular make and model of automobile.

Another object is the provision of cylinder head hoist mechanism as hereinabove set forth wherein the mechanism or apparatus is adapted to be moved adjacent to one side of the engine compartment of an automobile and is provided with an arm which may be swung over the engine compartment underneath the elevated hood and which arm is extensible to enable the lift means of the hoist being coupled with the cylinder head.

A further object is the provision of apparatus as set forth in the immediately preceding paragraph wherein the mechanism embodies an upright standard the lower end of which is provided with a base having splayed apart feet adapted to be received underneath and on opposite sides of the vehicle road wheel to firmly position the mechanism alongside of the vehicle.

A further meritorious feature is that the upright standard has an upper end portion which is vertically adjustable with respect to the lower end portion to vary the height of the arm and the arm itself is swingable with respect to and about the axis of the upright standard.

A further feature of importance is that the upper end portion of the standard is provided with a surmounting tubular cap part rotatably and slidably supported thereupon and which cap part carries the aforesaid arm and a hoist cable and cable-winding mechanism is supported upon the arm. The cable extends to the outer end of the arm and is there provided with cylinder head attaching means.

Other objects, advantages, and meritorious features will

appear from the following description, claim, and accompanying drawings wherein:

Fig. 1 is an upright perspective of my improved mechanism associated with the front end of a schematically illustrated motor vehicle;

Fig. 2 is a side elevation of the mechanism shown in Fig. 1 with the cable supporting a cylinder head;

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

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3;

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 2; and

Fig. 7 is a top plan view of the mechanism showing the relatively splayed feet of the base.

In the drawings the front end portion of a motor vehicle is schematically illustrated in Fig. 1 wherein a portion of the radiator is indicated as **10**, a front fender as **12**, a front wheel as **14**, the fire wall which separates the engine compartment from the interior of the body as **16**, and the cylinder head as **18**. The cylinder head hoist mechanism is embodied in portable apparatus which may be easily moved apart. It is shown in Figs. 1 and 2. It comprises an upright standard assembly having a base **20** at its lower end and an arm assembly **22** at its upper end. The upright standard is formed of a lower tubular section **24**, and an upper tubular assembly **26** telescopically coupled with the lower tubular section **24** for vertical adjustment as hereinafter described.

The lower tubular section or end portion of the standard is mounted upon the base as shown in Fig. 1. The base includes the axle portion **28** and a pair of feet **30**. These feet are secured at one end to the axle and held in spaced relationship by a strut **32** and the tubular section **24** may be welded to the strut **32** and brace wings **34** may be provided as shown. The axle **28** is provided at opposite ends with rollers or wheels **36**. The feet **30** are splayed apart so that their outer ends may be thrust underneath the front wheel of a motor vehicle on opposite sides thereof as shown in Fig. 1.

The upper end portion of the standard comprises a tubular section **38** which is telescopically received within the lower tubular section **24**. This section **38** may be provided with a plurality of aligned apertures **40** adapted to receive a pin **42** as shown in Figs. 1 and 2 to support the section **38** at different positions of vertical adjustment with respect to the section **24**. The pin may be secured to the lower tubular section by a chain **44** as shown. The upper end portion of the standard includes a tubular cap **46** which is slidably and rotatably supported upon and received over the upper end of the tubular section **38**. This tubular section **38** may be provided with a plurality of bearings **48** as shown in Fig. 6 to provide a suitable slidable support for the cap and the upper end of the tubular section **38** is interiorly fitted with an internally threaded nut **50** as shown in Fig. 6.

A bar **52** has a threaded portion **54** which threadedly engages within the nut **50**. The upper end of the bar extends upwardly through the upper end of the cap as shown in Figs. 1, 2, and 6 and may there be fitted with a crank **56** as shown in Fig. 1 whereby the bar may be rotated. The bar is provided with a plate **58** fixed thereto as shown in Fig. 6 and supporting the cap **46**. A pin **60** may be extended through the bar to hold it in position.

It will be seen that rotation of the bar will raise or lower the same together with the cap with respect to the tubular section **38**. The tubular section **38** is, as has heretofore been set forth, telescopically adjustable with respect to the lower end portion of the standard. There are therefore two methods of adjusting the vertical height

of the cap with respect to the lower end portion of the standard. The cap also is freely rotatable upon the tubular section **38** so that the cap may not only be raised and lowered vertically but may be rotated about the vertical axis of the standard.

The cap itself carries the arm assembly **22**. This arm assembly consists of an outer end portion **62** and an inner end portion **64**. The inner end portion **64** is fixed to the cap by being welded or otherwise secured thereto and through the employment of a web or rib-like structure **66**. The arm extends away from the cap in opposite directions. In one direction it extends downwardly and outwardly away from the cap as a short arm. In the opposite direction it extends upwardly and outwardly therefrom as a long arm. This long arm is the one that includes the outer end portion **62**. This outer end portion **62** is telescopically associated with the inner end portion **64**. It is telescopically adjustable and may be maintained at adjusted positions by a pin **68** received in any one of a plurality of openings **70** as shown in Fig. 1.

A hoist lift cable **72** extends through the interior of the arm. The arm is here shown as being of a tubular construction. This cable extends beyond the outer end of the arm and is shown in Figs. 1 and 2 as terminating in a loop which engages a ring or clevis **74** that may carry a chain **76** which chain may be provided within fittings **78** which fittings are adapted to be secured to a cylinder head to support the same. The cable therefore terminates in an attachment or means adapted to support a cylinder head as shown for lifting the same from or placing the same on a cylinder block. The opposite end of the cable **72** is wound about a drum or the like **80**. The drum forms a part of the winding mechanism.

The winding mechanism is supported within a box or housing **82** shown in Figs. 1 and 2 as mounted on the short end of the arm. This winding mechanism includes the drum **80** which is fixed in a shaft **84** which shaft is supported within the housing within a side wall thereof and a partition wall **86** for rotation. The shaft carries a gear **88** as shown in Fig. 3. This gear is coupled through a worm **90** with a crank shaft **92** to be driven thereby. The end of the crank shaft is shown in Figs. 2 and 5 as extending through the casing **82** to a point exterior thereof. The outer end of the crank shaft is adapted to be fitted with a crank **94** whereby the winding mechanism may be manually actuated to wind the cable **72** upon the drum or to unwind the same therefrom for the raising and lowering of a cylinder head supported at the outer end of the cable.

It will be seen that the mechanism is a compact, easily portable unit. It normally occupies an upright position as shown in Figs. 1 and 2. When it is desired to move the same to a position of use, the standard may be swung rearwardly so as to throw the weight of the mechanism upon the wheels **36** and it may then be moved as desired.

When it is to be used to lift the cylinder head from the cylinder block of a motor vehicle, it is moved up alongside one of the front wheels of the vehicle. The splayed apart feet **30** are moved underneath the front tire as shown in Fig. 1 so that the mechanism is securely supported in the upright position. The arm may be adjusted as to height by telescopically adjusting the tube **36** within the lower portion **24** of the standard. The arm is then swung into place underneath the elevated hood of the vehicle and connection made with the head of the engine after the head has been loosened from the block. If further adjustment of the arm is necessary, such may be accomplished by means of the crank **56** which raises and lowers the cap **46** upon the tube **38**. Such may be necessary to accomplish the swinging of the head from out of position over the engine cavity.

The arm may be swung rotatably about the axis of the standard due to the manner in which the cap **46** is mounted upon the tube **48** as heretofore described. It may be swung to bring the cylinder head clear of the vehicle. It is not ordinarily intended to move the head from one position to another through wheeling the mechanism but the head is dropped onto a suitable wheeled vehicle for movement. Replacement of the head involves the reverse operations.

What I claim is:

A cylinder head hoist comprising, in combination, a base consisting of an axle provided at opposite ends with supporting wheels and provided with two feet projecting outwardly away from one side of the axle to have opposite ends of the feet bear directly frictionally upon a floor upon which the wheels rest, said feet being splayed apart as they project away from the axle, a plate extending between the feet in proximity to the axle, an upright vertically extensible standard supported upon the plate, a longitudinally extensible arm swingably mounted upon the standard and adapted to project outwardly therefrom overhanging the feet, hoist mechanism supported upon the standard and including a cable supported to extend lengthwise of the arm and having its free end depending from the outer end of the arm, said feet adapted to be received under a vehicle wheel transversely thereof upon opposite sides of the point of support of the wheel upon the floor and adjacent to the point of support whereby the ends of the feet are held by the wheel directly against the floor.

References Cited in the file of this patent

UNITED STATES PATENTS

1,978,999	Jones	Oct. 30, 1934
2,433,921	Nelson	Jan. 6, 1948
2,571,858	Garland	Oct. 16, 1951
2,575,564	Rinkel	Nov. 20, 1951
2,708,374	Engh	May 17, 1955