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D. F. BISHOP

AUTO JACK

Filed April 30, 1923

2 Sheets-Sheet 1

Fig. 1.

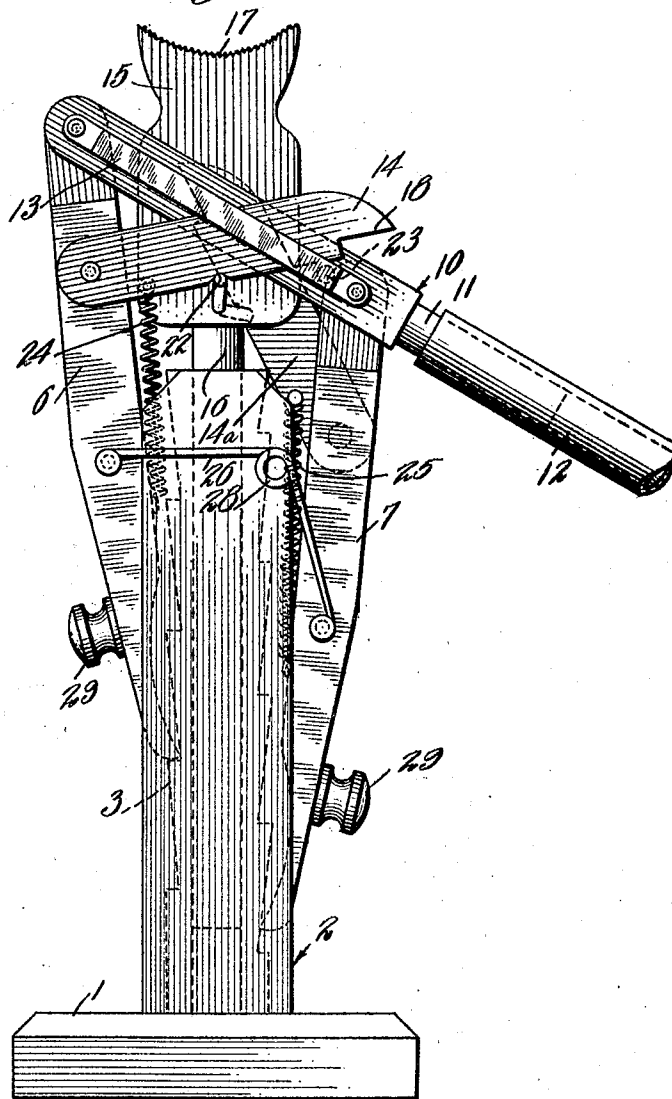
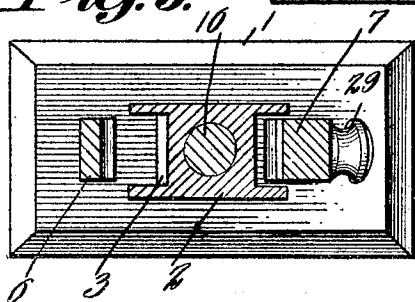


Fig. 3.



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Fig. 2.

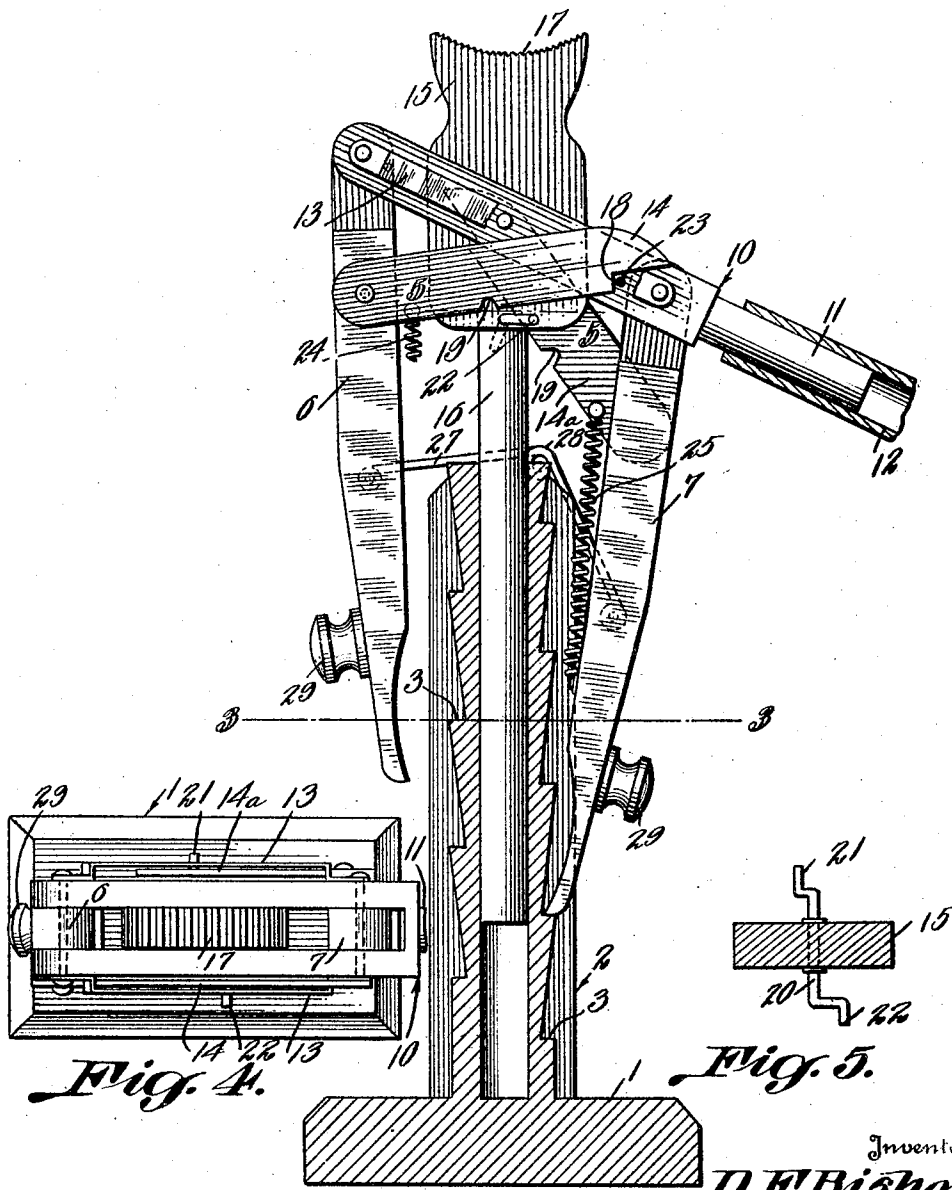


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

DEALEY F. BISHOP, OF GREENVILLE, TEXAS.

AUTO JACK.

Application filed April 30, 1923. Serial No. 635,652.

To all whom it may concern:

Be it known that I, DEALEY F. BISHOP, a citizen of the United States, residing at Greenville, in the county of Hunt and State of Texas, have invented a new and useful Auto Jack, of which the following is a specification.

This invention relates to automobile jacks of the quick acting type.

The object of the invention is to provide a tool of this character constructed to have a double stroke for raising it and which may be quickly lowered without a sudden drop by the use of a single handle only.

Another object is to provide a tool of this character which is simple, small and light, having a removable handle to enable it to be packed in a small tool box.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a side elevation of a jack constructed in accordance with this invention with the parts in the position assumed for lifting a load, the handle being broken off for convenience in illustration.

Fig. 2 is a longitudinal vertical section through the pedestal with the coacting parts shown in side elevation and the parts in the position assumed when lowering the jack.

Fig. 3 is a transverse section taken on the line 3—3 of Fig. 2.

Fig. 4 is a top plan view, and

Fig. 5 is a section on the line 5—5 of Fig. 2.

In the embodiment illustrated, a hollow standard or pedestal 2 is shown rising from a base 1 and provided at diametrically opposite sides with ratchet teeth 3 arranged to resist downward movement of cooperating pawls or dogs 6 and 7. The teeth 3 on one side are arranged in staggered relation to those on the opposed side. The dogs are pivotally attached at their ends to an operating lever 10 which is fulcrumed at a lifting head 15 carried by a lifting or guide rod 16 mounted for vertical movement in the pedestal 2. The upper end of the lifting head

15 is made concave and serrated as shown at 17 to facilitate its engagement with a vehicle axle or other object to be lifted.

The lever 10 is bifurcated at its fulcrum end and straddles the head 15, the dogs 6 and 7 being pivotally connected at their upper ends between the furcations.

The lever 10 has a reduced extension 11 at its outer end which telescopically engages a removable handle 12. This handle 12 may be of any suitable or desired length sufficient to provide the necessary leverage and is removable to enable the jack to be stored in a small tool box.

Keepers 13 extend longitudinally of the outer face of the furcations of the lever and are secured thereto by riveting or otherwise and form guides for auxiliary dogs 14 and 14^a, one of which is pivoted at one end to one of the first mentioned dogs near its upper end, and the other to the opposed face to the other dog. These dogs 14 and 14^a extend through the keepers 13 and are provided near their free ends with teeth or shoulders 18 and intermediate their ends with notches 19, which latter notches are designed to be engaged by crank arms 21 and 22 of a crank shaft 20 extended transversely through the lower portion of the head 15 and which are designed to hold the dogs 14 and 14^a with their shoulders disengaged from the studs 23 projecting laterally from the lever near opposite ends of the keepers 13.

Coiled springs 24 and 25 yieldably connect the inner ends of the dogs 14 and 14^a with the dogs 6 and 7 respectively, whereby when the crank 20 is released from said dogs, they will be moved into engagement with the studs 23 and yieldably held engaged therewith.

The dogs 6 and 7 are yieldably connected by springs 26 and 27 which are exactly alike and are here shown V-shaped with coils 28 formed at their apices. These springs tend to move the dogs 6 and 7 toward each other and to hold them in engagement with the racks formed on opposite sides of the pedestal.

Finger grips 29 in the form of buttons or knobs are secured to the outer faces of the dogs 6 and 7 in advance of the springs which connect them and are designed for releasing the dogs manually from the ratchet teeth on the pedestal when desired.

The pedestal 2 is provided along opposite

edges of the ratchet teeth thereof with flanges 8 and 9 which form guides for the free ends of the dogs 6 and 7 to prevent the dogs from slipping laterally off the ratchet when in operation.

In the use of this jack, the parts being in the position shown in Fig. 1, the raising and lowering of the lever 10 by means of the handle 12 will operate to alternately engage the dogs 6 and 7 with the ratchet teeth 3, thereby quickly lifting the head 15 and when engaged with the load, operates to lift the load to the desired extent.

When it is desired to let down or lift the head 15 and the load carried thereby, the upper or auxiliary dogs 14 and 14^a are tripped to disengage them from the crank arms of the crank shaft 20 and the handle 12 is raised until the first upper dog falls into place and the dogs 6 and 7 may then be moved downward step by step to lower the load. When it is desired to lower the jack, a few inches only, the upper dogs are not dropped, but the weight is lifted from one of the lower dogs and the highest lower dog is moved manually outward by grasping the knob 29 carried thereby.

It is of course understood that the parts of this jack may be made of any suitable strong material, the pedestal and base being preferably of iron, but the dogs should be of good cast steel.

From the above description it will be obvious that this jack may be quickly applied and removed and owing to the double stroke thereof, will lift the load in a rapid manner and that said load may be lowered quickly in the manner above set forth.

When the jack is not in use, the handle 12 is removed from its engagement with lever 10 and it may be stored in a comparatively small space.

Various changes in the form, shape, proportion and other minor details of construction may be made without departing from the principle or sacrificing any of the advantages of the claimed invention.

I claim:—

1. In a lifting jack, a fixed member, a member movable vertically in said fixed member, and provided with a head at its upper end, an operating lever fulcrumed intermediate its ends on said head, rack teeth carried by said fixed member, a pair of pawls pivoted to said lever on opposite sides of the fulcrum and depending therefrom, a spring connecting said pawls to hold their free ends normally in contact with said teeth, means whereby said pawls will alternately engage said teeth to cause the movable member to ride upwardly, and means to permit lowering of the pawls by skipping a plurality of teeth on each stroke.

2. In a lifting jack a stationary upright column with rack teeth on its opposed faces

those of one rack alternating with those of the other, a movable column mounted on said stationary column, an open lever fulcrumed on said movable column, a pair of pawls depending from said lever on opposite sides of its fulcrum and adapted to engage said rack, yielding means tending to force said pawls into engagement with said racks to provide for the upward movement of the pawls and the movable column on the rocking of the lever, and reversing means carried by said pawls and cooperating with said lever to alternately disengage said pawls from the racks.

3. In a lifting jack a hollow stationary upright column provided with a pair of racks having outwardly facing teeth on its opposite side, the teeth of one rack being arranged in staggered relation with those of the other rack, a vertically movable column mounted in said stationary column and having an article engaging head, an operating lever straddling and fulcrumed to said head, a pair of main pawls pivoted to and depending from said lever on opposite sides of the column, and adapted to engage said rack, yielding means to force said pawls into engagement with said racks and providing for the upward movement of said pawls and the movable column in response to movements of said operating lever, auxiliary pawls carried by each of said main pawls, pins on said lever for engagement by said auxiliary pawls, and a crank shaft carried by said head to engage said auxiliary pawls and hold them out of engagement with said pins during the upward movement of the movable column.

4. In a lifting jack a hollow stationary upright column provided with a pair of racks having outwardly facing teeth on its opposite side, the teeth of one rack being arranged in staggered relation with those of the other rack, a vertically movable column mounted in said stationary column and having an article engaging head, an operating lever straddling and fulcrumed to said head, a pair of main pawls pivoted to and depending from said lever on opposite sides of the column, and adapted to engage said rack, yielding means to force said pawls into engagement with said racks and providing for the upward movement of said pawls and the movable column in response to movement of said operating lever, auxiliary pawls carried by each of said main pawls, pins on said lever for engagement by said auxiliary pawls, and a crank shaft carried by said head to engage said auxiliary pawls and hold them out of engagement with said pins during the upward movement of the movable column, said pins operating as fulcrums for the main pawls during the lowering of the movable column.

5. In a lifting jack an upright stationary

column provided on its opposed faces with a pair of racks the teeth of one alternating with those of the other, a column movable vertically relative to the stationary column and supported thereby, a lever fulcrumed on said movable column, a pair of main pawls pivoted to and depending from said lever on opposite sides of the columns, and adapted to engage said racks, yielding means to force said pawls into engagement with said rack, auxiliary pawls pivoted at one end to said main pawls below the pivotal connection of the main pawls with the lever, said auxiliary pawls facing in opposite directions, said auxiliary pawls having notches in their free ends, pins on said lever for engagement by the notched ends of said pawls when the vertical column is to be lowered, said auxiliary pawls having notches in their lower edges intermediate their ends, and a crank shaft to engage said intermediate notches when the movable column is to be raised, thereby disengaging the notches of the said auxiliary pawls from said pins.

6. In a lifting jack an upright stationary column provided on its opposed faces with a pair of racks the teeth of one alternating with those of the other, a column movable vertically relative to the stationary column and supported thereby, a lever fulcrumed on said movable column, a pair of main pawls pivoted to and depending from said lever on opposite sides of the columns, and adapted to engage said racks, yielding means to force said pawls into engagement with said rack, auxiliary pawls pivoted at one end to said main pawls below the pivotal connection of

the main pawls with the lever, said auxiliary pawls facing in opposite directions, said auxiliary pawls having notches in their free ends, pins on said lever for engagement by the notched ends of said pawls when the vertical column is to be lowered, said auxiliary pawls having notches in their lower edges intermediate their ends, and a crank shaft to engage said intermediate notches when the movable column is to be raised, thereby disengaging the notches of the said auxiliary pawls from said pins, and coiled springs for connecting said auxiliary pawls with said main pawls.

7. In a lifting jack of the class described a stationary upright column having racks on its opposed faces, a vertically movable column on said stationary column and having a head at its upper end, a lever fulcrumed on said head, main pawls pivoted at one end to said lever on opposite sides of said head, yielding means to force said pawls into engagement with said racks, auxiliary pawls pivoted at one end to said main pawls below their pivotal connection with said lever, cooperating means carried by said auxiliary pawls and said lever and head respectively whereby the auxiliary pawls may be alternately actuated for raising and lowering the main pawls.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

DEALEY F. BISHOP.

Witnesses:

J. H. Cook,
C. T. Cook.