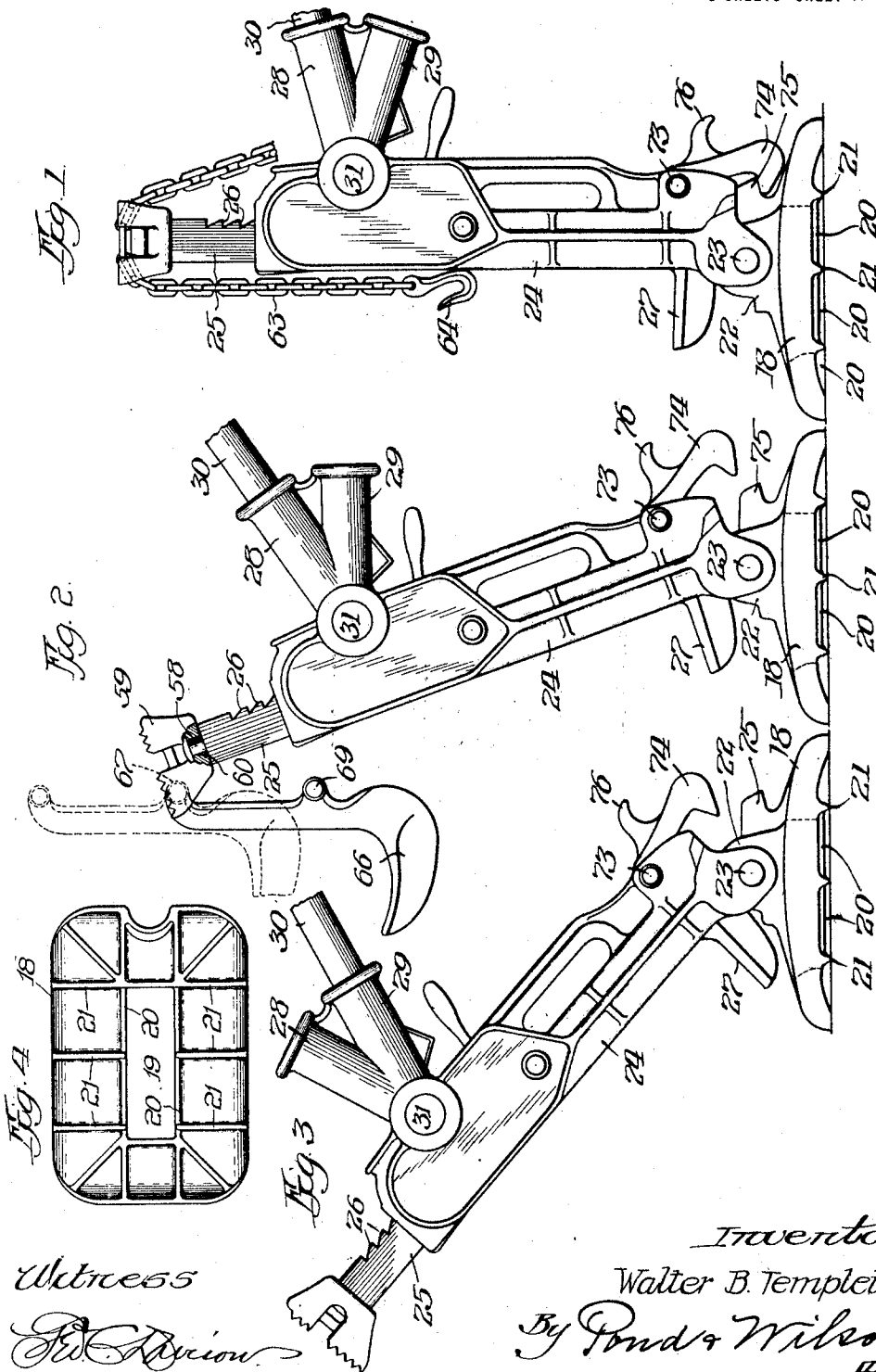


W. B. TEMPLETON.  
LIFTING APPLIANCE.  
APPLICATION FILED MAR. 4, 1918.

1,325,964.

Patented Dec. 23, 1919.  
3 SHEETS—SHEET 1.



Witness  
*Ed. Dixon*

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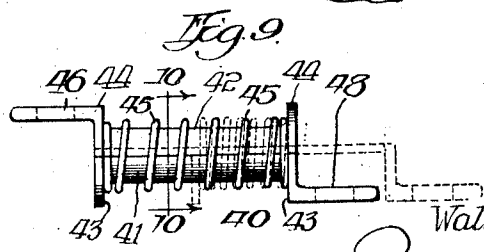
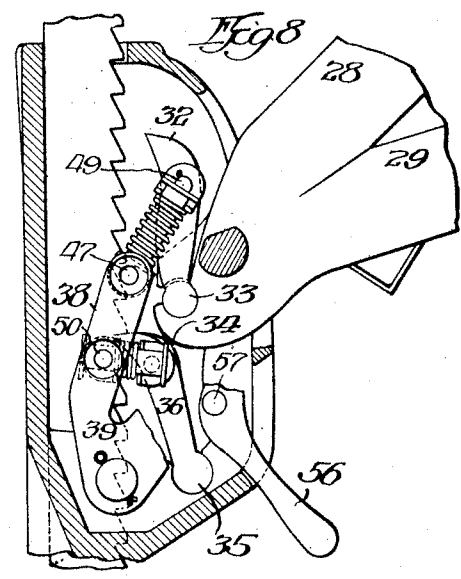
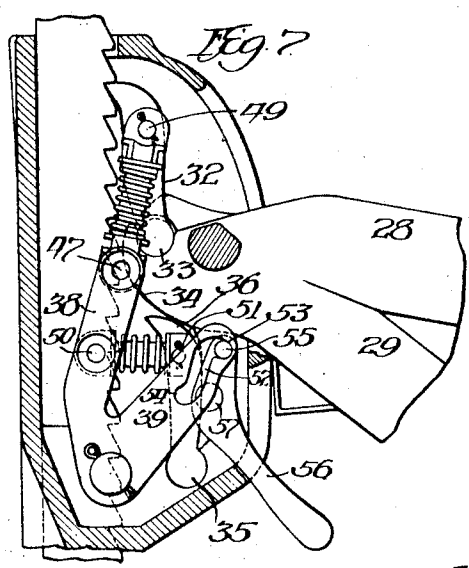
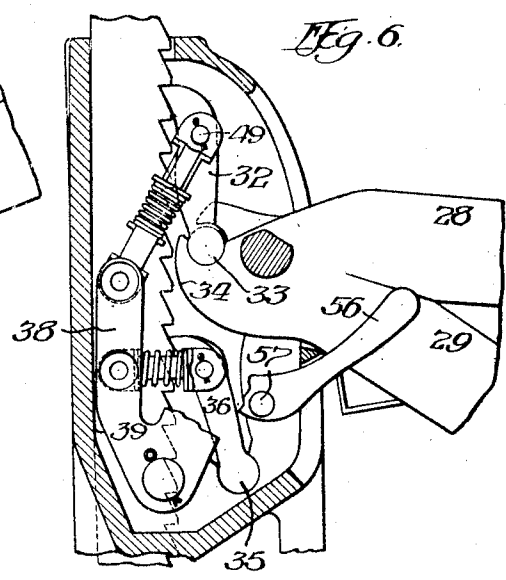
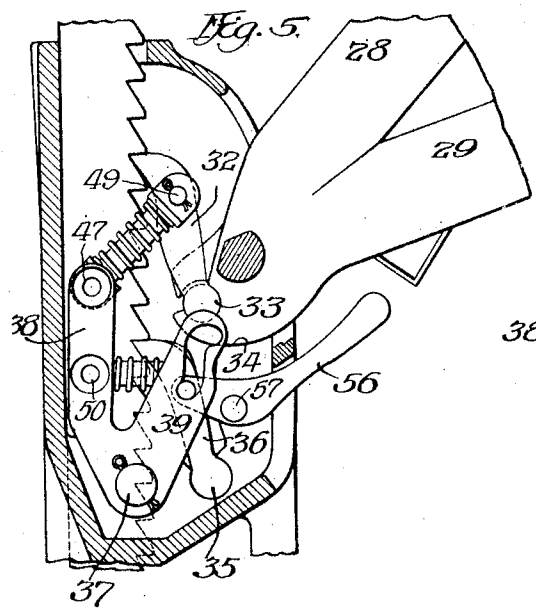


Fig. 10  
Witness:  
*Ed. Davis*

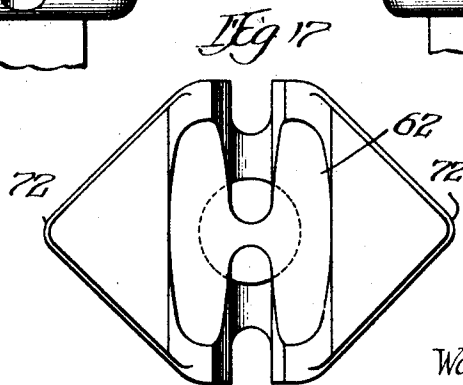
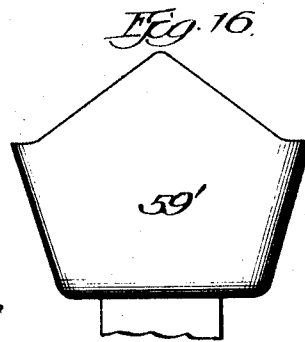
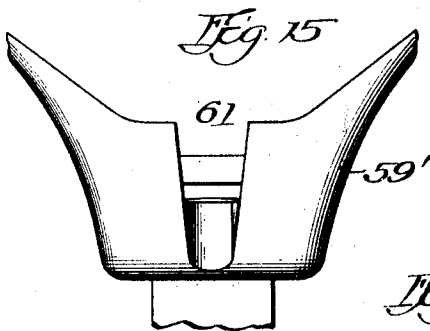
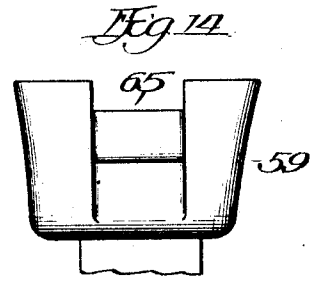
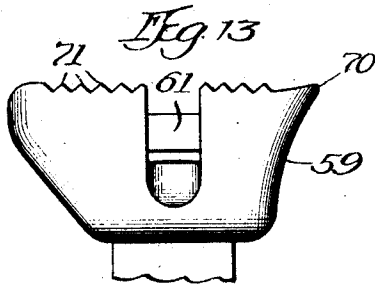
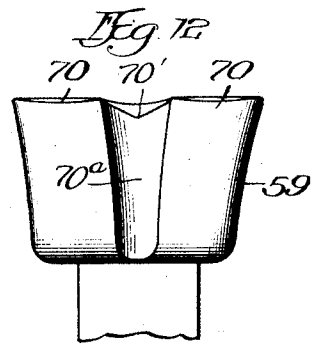
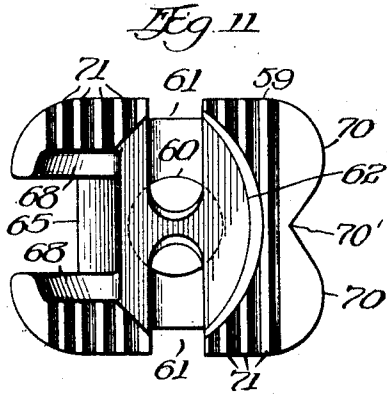
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3 SHEETS—SHEET 3.



Witness!

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# UNITED STATES PATENT OFFICE.

WALTER B. TEMPLETON, OF CHICAGO, ILLINOIS.

## LIFTING APPLIANCE.

1,325,964.

Specification of Letters Patent.

Patented Dec. 23, 1919.

Application filed March 4, 1918. Serial No. 220,122.

*To all whom it may concern:*

Be it known that I, WALTER B. TEMPLETON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lifting Appliances, of which the following is a specification.

This invention relates to lifting appliances in the general nature of jacks, and has for its principal object to provide a handy, convenient and powerful tool of this nature that shall be adapted to a large number and variety of uses, not only for lifting and lowering heavy objects of all sorts, but also for straightening poles, buildings and other objects, re-railing or extricating derailed or mired trucks, removing obstructions from a right of way, moving or re-setting heavy machinery or equipment of all sorts, launching boats and vessels from the ways, and generally adaptable to practically any and all emergency or other situations where a powerful lifting or thrust effect in either a vertical or inclined direction through the agency of manually operated means is desired or required.

The tool of the present invention is of that type which employs a base, a frame mounted on the base, a lifting-bar slidably mounted in the frame, and a handle-operated pawl-and-ratchet lifting and lowering mechanism for the lifting-bar; and more specific objects and aims of the invention are to provide an improved and simplified control mechanism for the lifting and dogging pawls that shall insure increased safety and reliability of action with less liability to derangement than has heretofore been attained and to provide an improved head or cap on the lifting-bar that alone, and in conjunction with various auxiliary appliances shall give to the tool the multi-functional character above indicated.

Still other objects and advantages of the invention will be apparent to those skilled in the art as the same becomes better understood by reference to the following detailed description, taken in connection with the accompanying drawings in which I have illustrated practical and workable embodiments of the principle of the invention, and wherein—

Figure 1 is a side elevation of the jack shown in vertical position, and equipped

with a detachable grab hook and chain that is anchored in the head of the lifting-bar, for lifting objects not readily accessible by either the head or the foot of the lifting-bar.

Fig. 2 is a similar view showing the frame and lifting-bar in a forwardly inclined or tilted position, and the head of the lifting-bar equipped with an auxiliary detachable shoe suspended therefrom, in lieu of the grab hook and chain shown in Fig. 1.

Fig. 3 is a similar view, but showing the frame and lifting-bar in a more forwardly inclined or tilted position than in Fig. 2, in which the implement is adapted to exert a powerful direct thrust against an object that requires to be straightened from an inclined or partially fallen position, or against an object in the nature of an obstruction that requires to be bodily displaced.

Fig. 4 is a bottom plan view of the base or pedestal.

Figs. 5 and 6 are enlarged detail views, in vertical section through the frame or casing, and more particularly showing the pawl-control mechanism, Fig. 5 illustrating the relative positions of the parts when set for lifting and when the handle-lever is at the extreme of its upward swing ready for a power stroke, and Fig. 6 illustrating the relative positions of the parts at the extreme end of the downward or power stroke of the handle-lever and just before the dogging pawl assumes the load.

Figs. 7 and 8 are views similar to Figs. 5 and 6, but showing the pawl-control mechanism set for lowering, Fig. 7 illustrating the relative positions of the parts when the handle lever is at its lowest position and the lifting pawl has just assumed the load, and Fig. 8 illustrating the relative positions of the parts when the handle-lever is at its highest position and the dogging pawl has just assumed the load.

Fig. 9 is a detail side elevation of one of the pawl-actuating links.

Fig. 10 is a cross-section on line 10—10 of Fig. 9.

Fig. 11 is a top plan view of the head or cap of the lifting-bar; and Figs. 12, 13 and 14 are side elevations of the same as viewed from the right, the bottom, and the left, respectively of Fig. 11.

Figs. 15 and 16 are side elevations at right angles to each other of a modified form of

head; and Fig. 17 is a top plan view of the head shown in Figs. 15 and 16.

Referring to the drawings, 18 designates the base or pedestal of the jack that, as shown in Fig. 4, is formed with a central opening 19 therethrough, and with longitudinal and transverse ribs 20 and 21 on its under side to increase its non-slipping qualities. 22 designates a pair of upstanding lugs on either side of the opening 19, to which is pivoted at 23 a frame or casing designated as an entirety by 24 that is formed with a slideway for the lifting-bar 25, the latter having the usual ratchet-tooth formation 26 on one edge thereof, and provided at its lower end with the usual lifting-toe 27. The lever socket piece comprises two integral sockets 28 and 29 inclined to each other, the upper socket 28 being designed to receive the handle-lever 30 when the tool is used in a vertical or slightly inclined position, as shown in Figs. 1 and 2, and the lower socket 29 receiving the handle-lever when the jack is used in a considerably inclined position, as shown in Fig. 3. The socket piece is pivoted between the sides of the frame on trunnions 31 as usual, and carries at its forward end the lifting and lowering pawl 32 articulated thereto at 33. In advance of the pawl seat the extreme forward end of the socket piece is rounded at 34 to form a cam that acts, when the socket piece is raised during the load-lowering operation, to force the dogging pawl into engagement with the lifting-bar, as more particularly hereinafter described.

Articulated to the casing at 35 below the trunnions of the socket piece is the dogging pawl 36; and pivotally mounted on a bearing pin or stud 37 on a side wall of the casing is an elbow lever formed with upwardly extending divergent arms 38 and 39. The upper end of the arm 38 is connected to the lifting-pawl 32 by an elastic extensible and contractible link designated as an entirety by 40, and shown in isolated detail in Figs. 9 and 10. This link comprises a pair of substantially semi-cylindrical members 41 and 42 disposed face to face and slidable upon each other, one of the members preferably being formed with a tongue 41' lying in a groove 42' of the other member. These members are also formed with semi-circular shoulders 43 and 44 respectively at their ends that form abutments for the ends of a coiled spring 45 that has the double function of binding the twin members of the link together and giving to the latter its elastic character. One end of the member 42 is formed with an offset extension 46 parallel to the axis of the link by which the latter is pivotally connected at 47 to the upper end of the arm 38 of the elbow lever. The opposite end of the other link section 41 has a similar offset extension 48 by which said link

section is pivotally connected at 49 to one side of the lifting-pawl 32. An identical and somewhat shorter link connects an intermediate portion of the arm 38 with one side of the dogging-pawl 36, this link being pivoted to the arm 38 at 50 and to the dogging-pawl at 51.

In the free end of the arm 39 of the elbow lever is formed a cam slot 52 that terminates at its upper and lower ends in oppositely offset extensions 53 and 54 respectively. This slot is engaged by a stud 55 carried by the upper end of a trigger lever 56, this latter being pivoted to the casing at 57, and the depending arm of the trigger lever 56 extending through a slot in the rear wall of the casing in convenient reach of the operator.

Describing at this point the operation of this pawl-control mechanism, when the jack is to be employed for lifting or thrusting purposes, the trigger lever 56 is swung upwardly to the position shown in Figs. 5 and 6, the engagement of stud 55 with the left-hand wall of the cam slot 52 rocking the elbow lever to the position shown in Figs. 5 and 6, and the engagement of stud 55 with the offset extension or notch 54 of the cam slot serving to lock the elbow lever in its shifted position. In this position of the parts the upper link 40 is under sufficient tension to hold the lifting-pawl 32 engaged with the teeth of the lifting-bar, and the same is true of the lower link which holds the dogging-pawl similarly engaged with the teeth of the lifting-bar. As the handle-lever is swung downwardly, the lifting-bar is raised, and the upper link 40 is placed under a gradually increasing tension while the lower link, being likewise placed under tension as the nose of the dogging-pawl slides over the teeth of the lifting-bar, draws the dogging-pawl constantly toward the teeth of the lifting-bar. Fig. 6 shows the relative positions of the parts at the extreme limit of the downward stroke of the handle-lever, the load being still carried by the lifting-pawl 32, and the dogging-pawl being in position to receive the load as soon as the rising movement of the handle-lever begins. During the rising movement of the handle-lever the dogging-pawl 36 of course sustains the load as the lifting-pawl 32 descends for a fresh bite on the lifting-bar.

When the load is to be lowered or the jack is to be released from the lifting or thrusting strain, the trigger lever 56 is swung downwardly to the position indicated in Figs. 7 and 8. During this movement the stud 55, through engagement with the right side or wall of the cam slot 52 rocks the elbow lever to the right, and the engagement of the stud with the upper offset or notch 53 of the cam slot locks the elbow lever in the shifted position shown in Figs. 7 and 8. This has the

effect of placing both of the pawl-control links in compression, so that, when the handle-lever is swung to its extreme upward position as illustrated in Fig. 8, the dogging-pawl 36 is forced by the cam 34 of the socket piece into a holding engagement with the teeth of the lifting-bar, and holds it in such engagement, and as soon as it has taken the load, on the further upward movement of the handle-lever the upper pawl 32 is forced by the compressed upper link backwardly out of engagement with the lifting-bar, as shown in Fig. 8. As the handle-lever is then lowered, while the dogging-pawl is carrying the load, the upper link passes from a condition of compression, through a neutral condition, to a condition of tension, and draws the upper pawl 32 back into engagement with the lifting-bar to take the load, and as soon as this occurs, the cam 34 releases the dogging-pawl 36 and the lower link, being in compression, forces the dogging-pawl away from the lifting-bar permitting the latter to be lowered as the handle-lever is again raised.

With the mechanism above described the action of both pawls, in both the lifting and lowering operations, is positive and certain, and the shifting of the pawl-control mechanism from lifting to lowering position and vice versa can be safely performed regardless of the position of the handle-lever and of the loaded or unloaded condition of the lifting-bar.

The upper end of the lifting-bar 25 is formed with a stud or tenon 58 that receives a detachable head or cap, designated as an entirety by 59 in Figs. 1, 2 and 3; this head being shown in enlarged detail in Figs. 11 to 14 inclusive. This head has been especially designed to serve a variety of specific purposes or uses for which the implement may be employed, both alone and in conjunction with auxiliary or accessory parts. The head is formed with a central hole 60 in its lowest side by which it is rotatably mounted on the tenon 58, and two opposite sides of the head are formed with oblique vertical slots 61, while the upper surface thereof is formed with a shallow horizontal seat 62. As shown in Fig. 1, the slots 61 accommodate a pair of links of an ordinary oval link chain 63, said links being disposed edge-wise or in vertical planes within the slot 61, and the central horizontal seat 62 forms a seat for the intermediate horizontally disposed link. This formation of the head enables the chain to be securely connected to the head at any point in the length of the chain without danger of slipping or yielding under any tensional strain on the forward depending portion of the chain which, as herein shown, terminates in a grab hook 64 for engaging objects to be lifted that are not readily accessible by either the head or

the toe of the lifting-bar. Another side of the head is formed with a vertical slot 65 to receive the shank of a detachable auxiliary shoe 66, the shank of said auxiliary shoe having at its upper end laterally projecting pintles 67 that rest in open seats 68 formed in the side walls of the slot 65 at the upper end of the latter. This auxiliary shoe 66 is generally used in situations where it is necessary or desirable to cant or incline the frame of the jack somewhat forwardly, as indicated in Fig. 2, to obtain a hold upon an object not directly accessible by either the head or the toe of the lifting-bar. To increase the range of usefulness of the auxiliary shoe 66, the stem or shank of the latter is preferably provided at an intermediate point with a second pair of bearing pintles 69 which may engage the seat 68 of the head, as shown by dotted lines in Fig. 2, in case the object to be raised presents a higher engaging point. In this position of the shoe 66 it may be used to effect not merely a lifting action but a pushing or thrusting action in an upwardly inclined direction as well, since the foot of the shoe is but slightly below its point of support and the object engaged usually offers resistance to the vertical as well as the horizontal portion of the shoe.

The fourth side of the head is formed with a pair of rounded and comparatively sharp lips 70 which, by turning the head to bring said lips to the front of the lifting-bar, and tilting the frame of the jack forwardly on its pivot 23 may be forced into the yielding surface of an object, such as a telegraph pole, that is to be straightened from an inclined or partially fallen position, so as to obtain a secure bite on such object. The adjacent edges of these lips form straight lines which meet at an angle, as clearly shown in Fig. 11, thereby forming a sharp-angled notch 70' excellently adapted to engage and bite into a corner surface of an upright or inclined object, and to facilitate this action the face of the head on which the lips 70 and notch 70' are formed is vertically recessed beneath the notch, as shown at 70<sup>a</sup> in Fig. 12, forming clearance space for the corner engaged by the notch. Furthermore the unrecessed portion of the top surface of the cap is formed with a plurality of transverse corrugations 71 that insure a non-slipping engagement of the upper surface of the head with a superposed object engaged thereby.

In Figs. 15, 16 and 17 I have illustrated a modified form of detachable head 59' which is preferably used in lieu of the head 59 in certain situations for which it is better adapted. This head 59' has in opposite sides thereof the vertical slots 61, and in the top surface thereof the shallow horizontal recess 62, the same as the head 59, adapting it to re-

ceive and hold the lifting chain 63. The other two sides of the head, however, are upwardly and outwardly extended in the form of comparatively sharp pointed prongs 5 72. The head 59' is more particularly adapted for shipbuilding and logging work, being designed for forcing and holding cants, framing, sheathing, ceiling, battens or false-work of wooden ships or barges. It is also used to advantage in piling, loading 10 or unloading logs or timbers for placing chokers; while the head 59 is better adapted for straightening and shoring and for situations requiring the use of an auxiliary detachable shoe.

To the lower end of the frame or casing 24 is pivoted at 73 a depending locking pawl 74, the nose of which, when the frame is normal to its base or pedestal 18 engages beneath a catch 75 integral with the base and 20 securely locks the frame rigid with and normal to the latter, as shown in Fig. 1. On the back of the locking pawl 74 is a fingerhold 76 by which the locking pawl may 25 readily be disengaged when the jack is to be used in a forwardly inclined position, as shown in Figs. 2 and 3. This locking pawl gives to the tool the character of a functionally duplex jack.

The central opening 19 in the base 18 lies 30 at the lower end of the path of movement of the permanent lifting-foot 27, enabling the lifting bar to be lowered to a point where the foot 27 lies in said opening. This construction has the advantage of enabling the 35 lifting-foot 27 to reach beneath objects that offer a hold at a height above the ground of only substantially the thickness of the base. In other words, it gives the foot of 40 the lifting-bar a lower reach than has heretofore been possible where solid bases have been employed.

It is, of course, impossible within the limits of this description to set forth all of the manifold uses which the tool of the present invention is capable of serving, but the foregoing will afford at least an indicating of 45 its multi-functional character and the many ways in which it may be employed for lifting, pulling, shoring, straightening, starting and other operations. Moreover, it is evident that the implement herein shown and described is capable of being modified in 50 many details without altering its essential structural or functional characteristics and capabilities or sacrificing the advantages inherent therein. Hence, I do not limit the invention to the precise embodiment here presented for purposes of illustration and 60 disclosure but reserve all such variations and modifications and mechanical equivalents as fall within the scope and purview of the appended claims.

I claim:

65 1. In a lifting appliance, the combination

with a frame, and a lifting bar slidable therein, of a socket piece pivoted in said frame, a lifting pawl articulated to said socket piece, a dogging pawl articulated to said frame, an arm pivoted at one end to 70 said frame at a point laterally opposite said lifting bar and lying forwardly of said pawls, said arm extending in the general direction of said lifting bar, a pair of extensile and contractile links through which 75 said arm is connected to said pawls, respectively, and means for shifting said arms angularly between two positions in one of which said pawls are controlled for the load lifting operation and in the other of which they 80 are controlled for the load lowering operation.

2. In a lifting appliance, the combination with a frame, and a lifting bar slidable therein, of a socket piece pivoted in said 85 frame, an upper lifting pawl articulated to said socket piece, a lower dogging pawl articulated to said frame, an upstanding arm pivoted at its lower end to said frame at a point laterally opposite said lifting bar and 90 lying forwardly of said pawls, said arm extending in the general direction of said lifting bar, a pair of extensile and contractile links through which said arm is connected to said pawls, respectively, and means for 95 shifting said arm angularly between two positions in one of which said pawls are controlled for the load lifting operation and in the other of which they are controlled for the load lowering operation. 100

3. In a lifting appliance, the combination with a frame, and a lifting bar slidable therein, of a socket piece pivoted to said frame, an upper lifting pawl articulated to said socket piece, a lower dogging pawl 105 articulated to said frame, an elbow lever pivoted at its elbow to said frame at a point laterally opposite said lifting bar, said lever having an upstanding arm lying forwardly of said pawls and extending in the general 110 direction of said lifting bar, a pair of extensile and contractile links through which said lever arm is connected to said pawls, respectively, and means connected to the other arm of said lever for shifting the latter angularly between two positions in one of which 115 said pawls are controlled for the load lifting operation and in the other of which they are controlled for the load lowering operation.

4. In a lifting appliance, the combination 120 with a frame, and a lifting bar slidable therein of a socket piece pivoted to said frame, an upper lifting pawl articulated to said socket piece, a lower dogging pawl articulated to said frame, an elbow lever 125 pivoted at its elbow to said frame at a point laterally opposite said lifting bar, said lever having an upstanding arm lying forwardly of said pawls and extending in the general direction of said lifting bar, a pair of ex- 130

tensile and contractile links through which said lever arm is connected to said pawls, respectively, and means connected to the other arm of said lever for shifting the latter angularly between two positions in one of which said pawls are controlled for the load lifting operation and in the other of which they are controlled for the load lowering operation.

5. In a lifting appliance, the combination with a frame, and a lifting bar slidable therein, of a socket piece pivoted to said frame, an upper lifting pawl articulated to said socket piece, a lower dogging pawl articulated to said frame, an elbow lever pivoted at its elbow to said frame at a point laterally opposite said lifting bar and having an upstanding arm lying forwardly of said pawls and a rearwardly extending arm, an extensile and contractile link directly connecting the upper end of the upstanding arm of said elbow lever to said lifting pawl, a similar link directly connecting the same arm intermediate its ends to said dogging pawl, and means connected to the rearwardly extending arm of said elbow lever for shifting the latter angularly between two positions in one of which said pawls are controlled for the load lifting operation and in the other of which they are controlled for the load lowering operation.

6. In a lifting appliance, the combination with a frame and a lifting bar slidable therein, of a socket piece pivoted to said frame, an upper lifting pawl articulated to said socket piece, a lower dogging pawl articulated to said frame, an elbow lever pivoted at its elbow to said frame at a point laterally opposite said lifting bar and having an upstanding arm lying forwardly of said pawls and a rearwardly extending arm, an extensile and contractile link directly connecting the upper end of the upstanding arm of said lever to said lifting pawl, a similar link directly connecting the same arm substantially midway of its length to said dogging pawl, means connected to the rearwardly extending arm of said elbow lever for shifting the latter angularly between two positions in one of which said pawls are controlled for the load lifting operation and in the other of which they are controlled for the load lowering operation, and means on said rearwardly extending arm through which said lever shifting means is caused to hold said lever in either shifted position.

7. In a jack, the combination with a lifting-bar, of a head thereon formed with engaging seats for a plurality of auxiliary lifting appliances.

8. In a jack, the combination with a lifting-bar, of an angularly shiftable head thereon formed with engaging seats for a plurality of auxiliary lifting appliances.

9. In a jack, the combination with a lift-

ing-bar, of a head thereon formed with a seat to non-slippingly engage links of an auxiliary chain and also with a seat to support an auxiliary lifting shoe.

10. In a jack, the combination with a lifting-bar, of an angularly shiftable head thereon formed with a seat to non-slippingly engage links of an auxiliary chain and also with a seat to support an auxiliary lifting shoe.

11. In a jack, the combination with a lifting bar, of a head thereon formed in its top and opposite sides with sockets shaped to seat links of an auxiliary chain and also with one or more laterally projecting lips adapted to effect a bite on an object to be raised.

12. In a jack, the combination with a lifting-bar, of an angularly shiftable head thereon formed in its top and opposite sides with sockets shaped to seat links of an auxiliary chain and also with one or more laterally projecting lips on an edge thereof adapted to effect a bite on an object to be raised.

13. In a jack, the combination with a lifting-bar, of a head thereon formed with a chain seat, a seat to support an auxiliary detachable lifting shoe, and one or more laterally projecting lips on an edge thereof.

14. In a jack, the combination with a lifting-bar, of an angularly shiftable head thereon formed with transverse notches to non-slippingly engage links of a chain, a seat forming a support for a suspended auxiliary lifting shoe, and one or more laterally projecting lips on an edge thereof adapted to effect a bite on an object to be raised.

15. In a jack, the combination of a base, a frame pivoted to said base, a lifting bar slidable in said frame, and a head on said lifting bar having a laterally projecting edge formed with a sharp-edged V-shaped notch adapted to bitingly engage with an upright corner surface of an object to be moved.

16. In a jack, the combination of a base, a frame pivoted to said base, a lifting bar slidable in said frame, and a head on said lifting bar formed with a pair of laterally projecting lips on an edge thereof and a sharp-edged V-shaped notch between said lips adapted to bitingly engage with an upright corner surface of an object to be moved.

17. In a jack, the combination of a base, a frame pivoted to said base, a lifting bar slidable in said frame, and a head on said lifting bar formed with a pair of laterally projecting lips on an edge thereof, a sharp-edged V-shaped notch between said lips, and a recess in the side of said head below said notch.

18. In a jack, the combination with a lifting-bar, of a head thereon formed with a

seat, and an auxiliary lifting shoe having a shank provided with a plurality of pairs of lateral bearing studs spaced lengthwise thereof and adapted to detachably engage  
5 said seat.

19. In a jack, the combination with a lifting-bar, of an angularly shiftable head

thereon formed with a seat in its upper face, and an auxiliary lifting shoe having a shank provided at its upper end and intermediate 10 its ends with lateral bearing studs adapted to detachably engage said seat.

WALTER B. TEMPLETON.