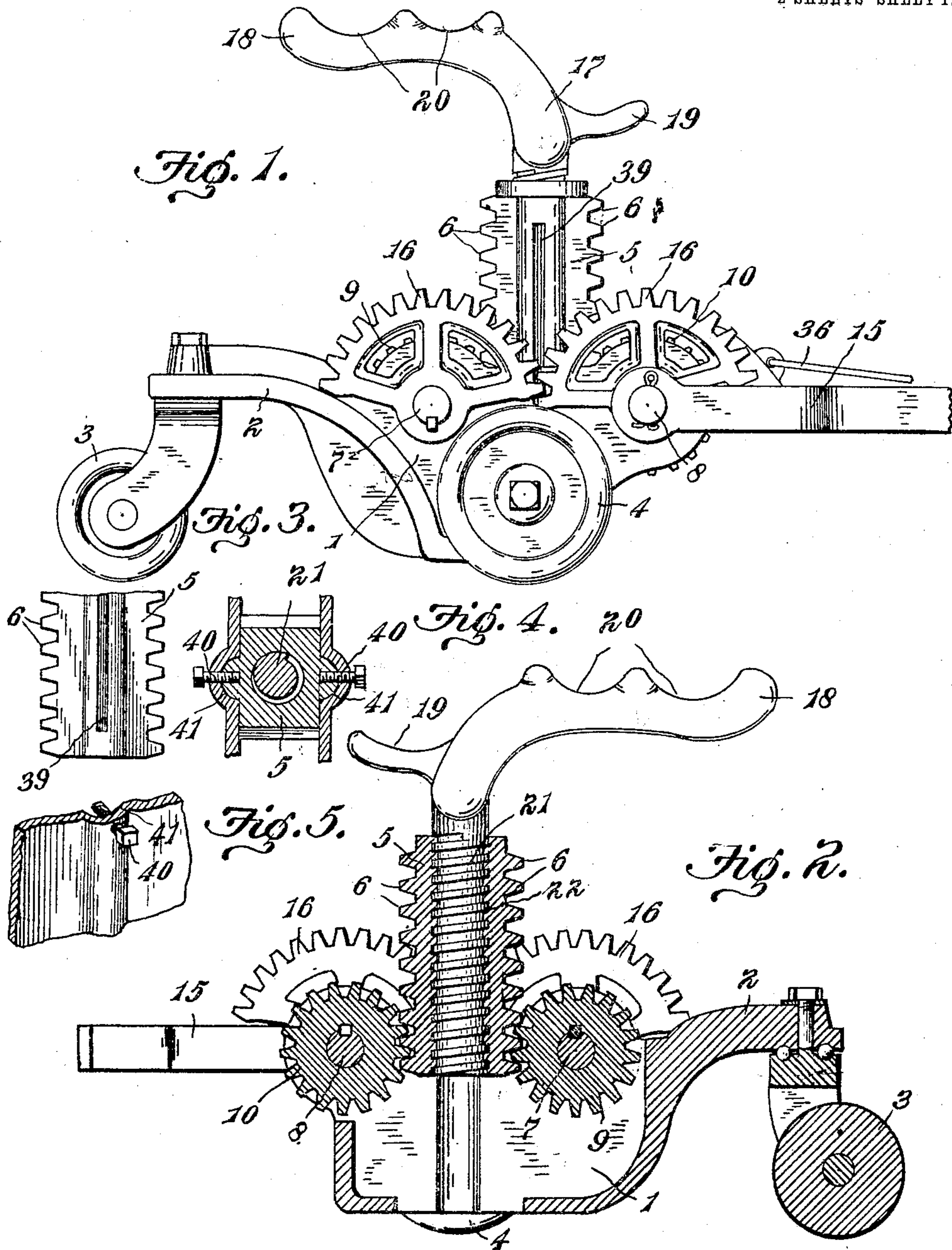


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LIFTING JACK.
APPLICATION FILED OCT. 11, 1909.

998,211.

Patented July 18, 1911.

2 SHEETS-SHEET 1.



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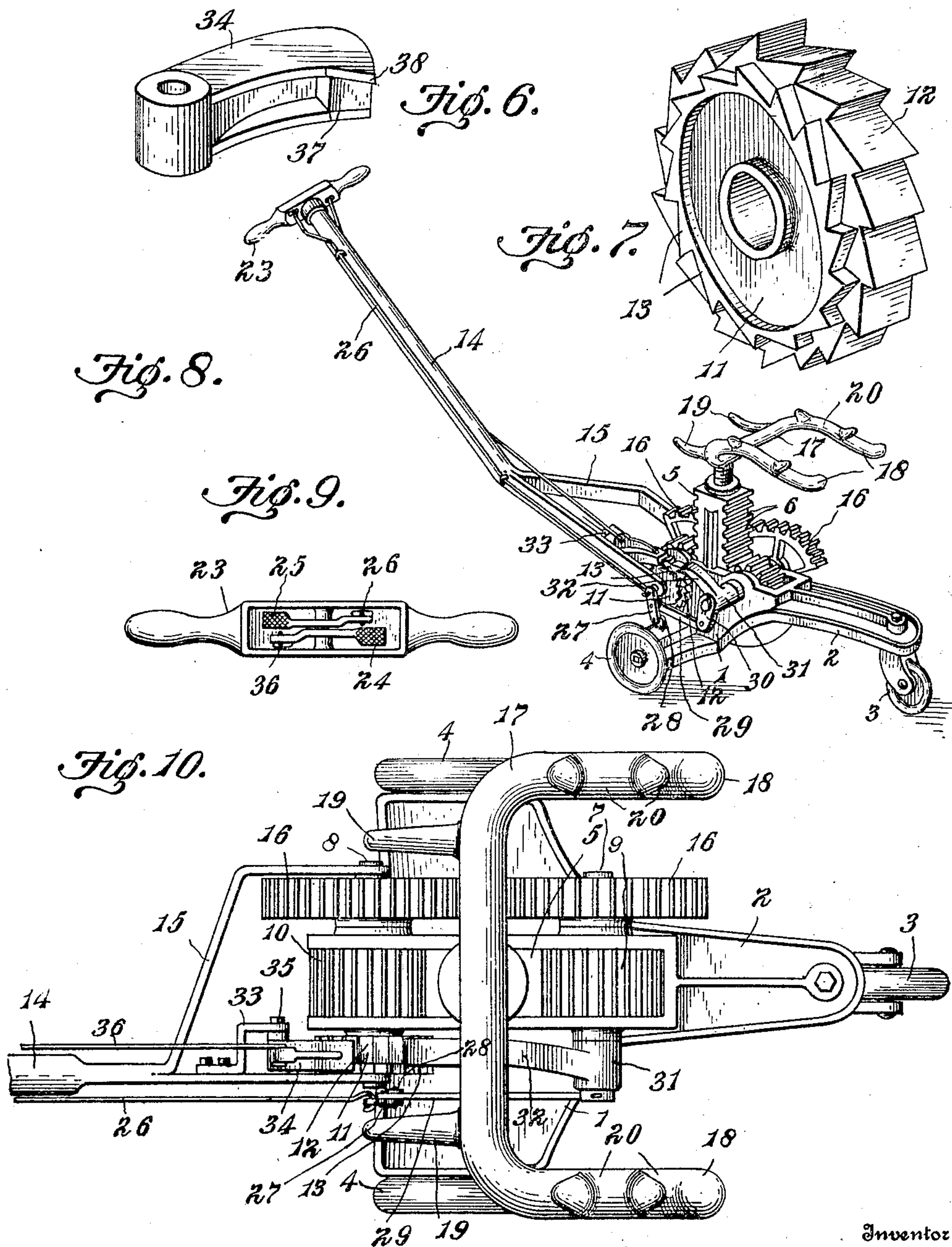
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UNITED STATES PATENT OFFICE.

ALBERTUS O. SLENTZ, OF CANTON, OHIO, ASSIGNOR TO THE CANTON FOUNDRY AND MACHINE COMPANY, OF CANTON, OHIO, A CORPORATION OF OHIO.

LIFTING-JACK.

998,211.

Specification of Letters Patent.

Patented July 18, 1911.

Application filed October 11, 1909. Serial No. 522,129

To all whom it may concern:

Be it known that I, ALBERTUS O. SLENTZ, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention relates to lifting jacks and has especial reference to jacks more especially designed for use in connection with automobiles and other heavy vehicles.

One of the objects of the present invention is to provide a portable jack, so that when placed in position and in use the jack and vehicle can be moved a short distance or the vehicle changed from one position to another.

Another object of the invention is to provide a combined operating lever or tongue.

These objects, together with other objects readily apparent to those skilled in the art I attain by the construction illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation. Fig. 2 is a vertical section. Fig. 3 is a view showing the bottom or lower portion of the adjustable lifting bar. Fig. 4 is a transverse section of the lifting bar showing the same in proper relation with reference to the housing or body of the jack. Fig. 5 is a view showing a portion of the jack frame or housing and a set screw designed to limit the upward movement of the lifting bar. Fig. 6 is a detached view of the ratchet actuating dog. Fig. 7 is a detached view of the actuating ratchet wheel. Fig. 8 is a perspective view of the lifting jack. Fig. 9 is a view showing the rear side of the handle illustrating the dog and detent actuating levers. Fig. 10 is a top view of the jack.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, 1 represents the jack frame or housing, which is substantially of the form shown and as shown it is provided with the arm or bar 2 to which arm or bar is attached in any convenient or well known manner the caster 3. The frame or housing 1 is also provided with the traveling wheels 4, which are connected in any convenient and well known manner. It will be understood that the only

purpose of providing the caster 3 and the traveling wheels 4 is to provide means for movably mounting the jack proper.

The lifting bar 5 is substantially of the form shown and is preferably provided with teeth or cogs 6 upon its opposite faces as illustrated, but it will be understood that in some instances this lifting bar may be provided with cogs or teeth upon one of its faces only, but for ease of movement it is preferable to provide teeth or cogs upon both faces of the lifting bar 5. In the frame or housing 1 are journaled the cross shafts 7 and 8 upon which shafts are securely mounted the toothed pinions 9 and 10, which pinions mesh with the teeth upon the lifting bar 5.

Upon the shaft 8 is securely mounted the compound ratchet wheel 11, the periphery of which is provided with the oppositely inclined ratchet teeth 12 and 13, said teeth being inclined in opposite directions for the purpose hereinafter described.

Upon the shaft 8 and upon the frame or housing 1 is pivotally mounted the combined operating lever and tongue 14, which combined operating lever and tongue is formed of such a length that the desired amount of leverage will be provided for, and at the same time a convenient tongue provided for the purpose of moving the lifting jack proper from place to place either when the same is in use as a jack or when the same is detached from the object designed to be elevated and held in elevated position. For the purpose of properly bracing the combined operating lever and tongue the same is provided with the lateral brace 15, which brace constitutes a portion of the tongue proper and is pivotally mounted to the frame or housing 1.

It will be understood that pinions 9 and 10 should rotate in perfect unison so that there will be no binding of the lifting bar 5 during its movement. For the purpose of rotating the pinions 9 and 10 in unison the toothed segments 16 are provided and are fixedly mounted upon the shafts 7 and 8 in any convenient and well known manner.

It is well understood that wheeled vehicles and especially automobiles vary as to height; that is to say in some instances the axles of the automobile are comparatively

low and others comparatively high and in order to provide proper adjustment of the jack proper I employ what might be termed a yoke 17, which yoke is provided with the
 5 long curved arms or prongs 18 and the short prongs 19, said prongs 18 and 19 being located in different horizontal planes, by which arrangement a limited adjustment as to height is provided without manipulating
 10 any of the adjusting parts of the lifting jack.

It is well understood that many automobiles are provided with gear cases or housings located near the longitudinal center of
 15 the automobile proper and it is also well understood that it is of importance to lift the automobile in such a manner that both of the traveling wheels will be lifted at one and the same time or in other
 20 words the axle lifted should be moved upward in such a manner, that one end of the axle will not be moved in advance of the other or only one end of the axle lifted; that is to say the axle should not be brought
 25 into an inclined position. In order to accomplish this beneficial result and in order to get proper contact the yoke 17 is so formed that two spaced contact points are provided.

For the purpose of insuring the proper
 30 seating of the axle upon the yoke proper the prongs 19 are preferably curved and the arms 18 provided with depressions 20 for the purpose of providing adjustment of the yoke proper independent of the adjustment
 35 of the toothed bar 5 the yoke is provided with the screw threaded shank 21, which screw threaded shank is located in the screw threaded passage or opening 22 formed in the lifting bar 5. By entering the screw
 40 threaded shank 21 in the lifting bar 5, a swiveled connection is provided as between the lifting bar 5 and the yoke proper. This is of importance, owing to the fact that there can be no relative movement as between the
 45 axle carried by the yoke and the yoke, but by providing the swivel connection as between the lifting jack proper and the yoke the lifting jack can change its position without interfering in any manner with the yoke.

To the outer or free end of the combined
 50 operating lever and tongue 14 is attached the handle 23, to which handle are pivotally attached the levers 24 and 25, said levers being pivoted intermediate their ends in
 55 any convenient and well known manner. To the lever 25 is attached the rod 26, which rod is formed of a length to correspond substantially with the length of the tongue 14, the opposite end of said rod being pivotally
 60 attached to the rock bar 27, which rock bar is pivotally connected at its bottom or lower end to the lug 28 or its equivalent. Between the top and bottom ends of the rock bar 27 is pivotally attached the link 29,
 65 which link is also pivoted to the bottom or

lower end of the short flange or arm 30, which flange or arm is preferably formed integral with the hub 31, which hub is also provided with the integral detent or catch
 70 32, which catch is for the purpose of engaging the teeth 12 and prevent what might be termed backward movement of the ratchet wheel 11, thereby preventing any movement of the parts of the lifting jack proper designed to impart reciprocating movement to
 75 the lifting bar 5 and the parts carried thereby.

To the tongue 14 is attached the bracket 33, which bracket is for the purpose of providing means for carrying the detent or
 80 dog 34, which detent or dog is pivotally mounted upon the bolt 35 as best illustrated in Fig. 10. To the detent or dog 34 is pivotally attached a rod 36, which rod extends rearward along the tongue 14 and is con-
 85 nected to the lever 24. The dog or detent 34 is chambered upon its bottom or underside and its free end provided with the tooth engaging lip 37, which lip is so arranged that it will engage the proper tooth 12 of the
 90 ratchet wheel 11. The dog or detent 34 is also provided with the flange 38, which flange is for the purpose of engaging the teeth 13 formed upon the ratchet wheel 11.

It will be understood that by providing
 95 the ratchet teeth 12 and 13 and inclining said teeth in said opposite direction that a positive and fixed contact will be had with the ratchet wheel 11 regardless of the movement of the tongue 14, that is to say that
 100 when the tongue 14 is moved downward at its free end the ratchet wheel 11 will be rotated in the direction to elevate the lifting bar 5, the flange 38 riding idly over the teeth 13 and when the tongue 14 is moved
 105 in the opposite direction the lip 37 will ride idly over the teeth 12. By this arrangement it will be understood that if in the event there should be any binding of the lifting
 110 bar 5 during its downward movement the bar could be moved downward and is moved downward by means of the flange 38 engaging the proper tooth 13. It will be understood that when a downward movement is to be imparted to the lifting bar 5 the catch
 115 32 should be thrown out of engagement with the teeth 12 which is done by operating the lever 25 in such a manner that the catch will be lifted by means of the connections be-
 120 tween said lever and said dog or catch.

For the purpose of limiting the upward movement of the lifting bar 5 and preventing any accidental displacement of said lifting bar the non-toothed sides of the bar are provided with the grooved flanges 39, the
 125 grooves being closed at their bottom or lower ends and are so closed for the purpose of coming in contact with the set screws 40, which set screws are located through the housing or jack frame 1. It will be under-
 130

stood that by swiveling the caster 3 that the lifting jack proper can be moved at any angle or curved with ease.

It will be understood that in use the lifting jack is to be placed under the front axle or the hind axle of the automobile or other vehicle and when so placed the vehicle is portably mounted, that is to say the lifted axle rides upon the lifting jack proper, which lifting jack is mounted upon traveling wheels, and the opposite end of the vehicle is movably mounted upon its own traveling wheels, thereby movably mounting the lifting jack and vehicle, which lifting jack and vehicle can be moved in unison with ease. This is of importance, owing to the fact that it frequently happens that the position of the vehicle and especially automobiles must be changed from time to time for the purpose of facilitating repair work.

By providing the grooved flanges 39 and seating said grooved flanges in the grooves 41, the lifting bar 5 will be held in such a manner that its reciprocating movements will be substantially in a true vertical line, thereby insuring the proper mesh, as between the engaging pinions 9 and 10 and the teeth. It will be understood that by the peculiar formation of the yoke and the prongs or arms 18 and 19 that by simply manipulating the combined operating lever and tongues, said yoke can be brought into the desired adjustment without difficulty and can be quickly adjusted for proper contact with the axles of automobiles or other objects, which adjustment is made simply by the manipulation of the combined operating lever and tongue except in cases where it is desired to adjust the yoke relatively as between the lifting bar 5 and the yoke proper.

Having fully described my invention what I claim as new and desire to secure by Letters Patent, is—

1. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame, and provided with teeth, two shafts mounted in the frame, a handle pivotally supported on one of the shafts, a gear wheel secured to each shaft and meshing with the teeth of the lifting bar, other gears on the pair of shafts and intermeshing, a ratchet wheel secured to one of said shafts and having oppositely disposed teeth, a pawl pivoted to the handle and provided with two lips arranged side by side and which engage alternately both sets of teeth upon being oscillated, means on the handle for disengaging the pawl from the ratchet teeth, a pawl engaging the ratchet wheel to prevent backward movement of the same, and means on the handle for disengaging the latter pawl.

2. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame

and provided upon opposite sides with teeth, means for guiding said lifting bar in the frame, two shafts mounted in the frame, a gear wheel secured to each shaft and meshing with the teeth of the lifting bar, other gears on the pair of shafts and intermeshing with each other, a ratchet wheel secured to one of said shafts and having oppositely disposed teeth, a single pawl provided with means to alternately engage both sets of teeth upon being oscillated, a pawl engaging the ratchet wheel to prevent backward movement of the same, a pivoted handle on which the first mentioned pawl is pivoted, and levers on the handle for operating both pawls to disengage them from the ratchet teeth.

3. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame and provided upon opposite sides with teeth, means for guiding said lifting bar in the frame, two shafts mounted in the frame, a gear wheel secured to each shaft and meshing with the teeth of the lifting bar, other gears on the pair of shafts and intermeshing with each other, a ratchet wheel secured to one of said shafts and having oppositely disposed teeth, a pawl provided with means to alternately engage both sets of teeth upon being oscillated, a pawl mounted on the other shaft engaging the ratchet wheel to prevent backward movement of the same, a handle pivotally mounted on one of the shafts to which the first mentioned pawl is pivoted, a lever mounted on the handle and connected to the latter pawl to disengage it from the ratchet teeth, a link pivoted to the frame, a second link pivoted to the aforesaid link and the second mentioned pawl, an operating lever on the handle and connected to the first mentioned link to release the second mentioned pawl.

4. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame and provided upon opposite sides with teeth, means for guiding said lifting bar in the frame, two shafts mounted in the frame, a gear wheel secured to each shaft and meshing with the teeth of the lifting bar, other gears on the pair of shafts and intermeshing with each other, a ratchet wheel secured to one of said shafts and having oppositely disposed teeth, a pivotally mounted handle, a pawl pivoted on the handle, and provided with two engaging lips to alternately engage the teeth of the ratchet wheel when the handle is oscillated, a second pawl engaging the ratchet wheel to prevent backward movement of the same, and means on the handle for disengaging the second mentioned pawl from the ratchet teeth.

5. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame and having teeth, a shaft mounted in said

frame, an operating handle mounted on the shaft, a gear on the shaft to engage the teeth on the lifting bar, a ratchet wheel secured to said shaft and having oppositely disposed teeth, a pawl provided with two lips which engage both sets of teeth, a lever mounted on the operating handle, a link connecting the same with the pawl, whereby when the operating handle is oscillated the ratchet wheel will turn its shaft in the same direction.

6. In a lifting jack, the combination of a frame, a lifting bar mounted therein, two shafts mounted in the frame, a gear wheel secured to each shaft for actuating the lifting bar, intermeshing gears on said shafts, a ratchet wheel secured to one of said shafts and having oppositely disposed teeth, an operating handle mounted on one of the shafts, a pawl having two engaging surfaces to engage the ratchet teeth, a lever mounted on the operating handle, and a link connecting the lever and the pawl whereby when the operating handle is oscillated the pawl will turn the ratchet wheel in the same direction.

7. In a lifting jack, the combination of a frame, a lifting bar mounted in the frame and provided with teeth, means for guiding said bar in the frame, a shaft mounted in the frame, a gear wheel secured to said shaft and meshing with the teeth on the lifting bar, a ratchet wheel secured to said shaft and having oppositely disposed teeth, a pawl provided with lips to engage the oppositely disposed ratchet teeth, an operating lever pivotally mounted on the shaft, a lever pivoted to the operating handle, a connection between the pawl and the lever, a second pawl engaging one set of the ratchet teeth to prevent reverse movement of the ratchet wheels, a second handle pivoted to the operating handle, and a connection between the said second lever and said second mentioned pawl.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

ALBERTUS G. SLENTZ.

Witnesses:

SYLVIA BOBON,
T. W. BOND.