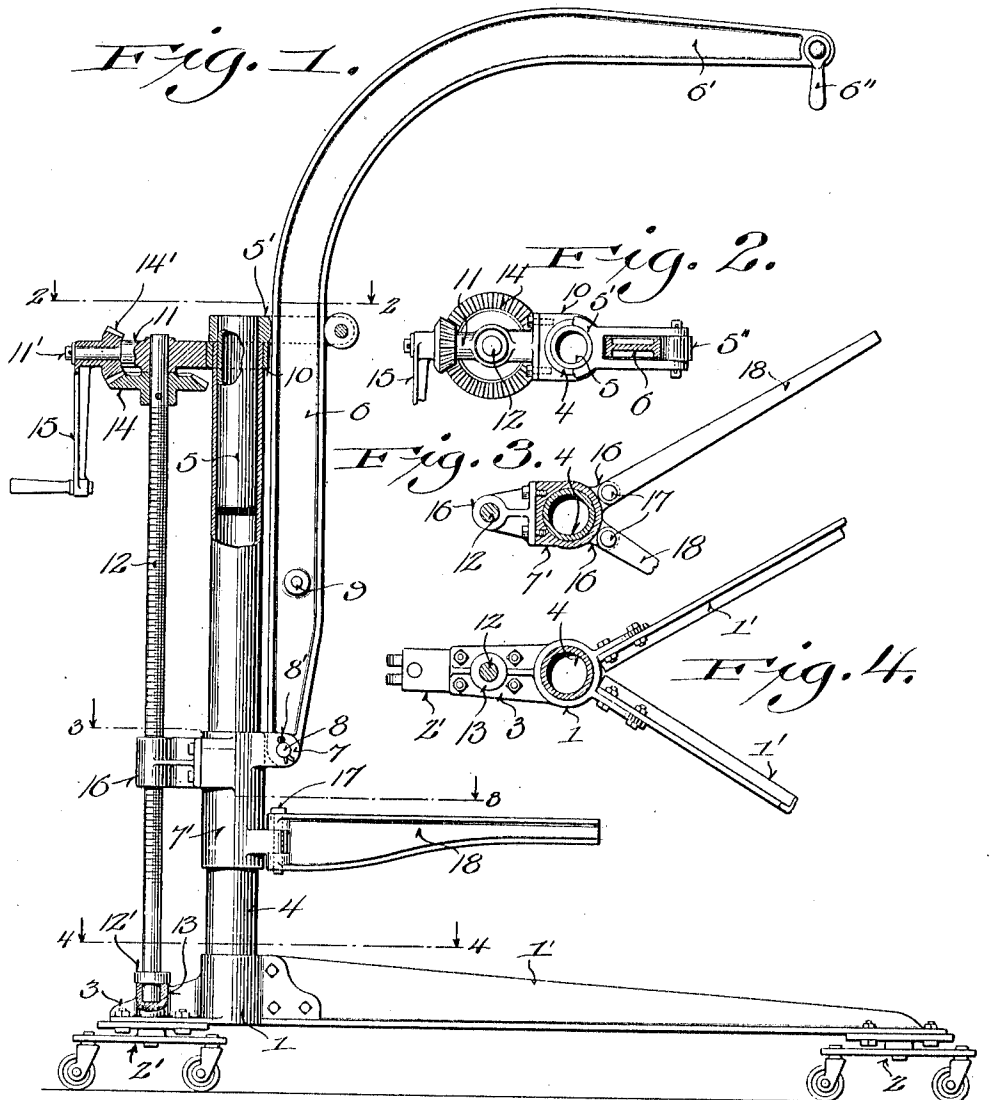


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PORTABLE CRANE.
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UNITED STATES PATENT OFFICE.

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PORTABLE CRANE.

1,090,248.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES TOEPFER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Portable Cranes; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to hoisting cranes, its object being to provide a simple, economical and effective light duty portable device of the above character, the construction and arrangement of which is such that it is capable of being manipulated by a single operator and can readily be adjusted to meet the various duties of such devices in lifting or jacking up heavy machine elements without liability of the crane to tip under load strain, the said device being provided with jacking arms that can be swung to a selected position for work or shifted, to clear a load that is suspended from the boom, when not in use so as not to form an obstruction.

This crane is particularly designed for use in shops wherein such work, as automobile repairing or the like is made a specialty, although it is understood that the crane may be, of course, utilized for any type of work.

With the above objects in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying drawings and subsequently claimed.

In the drawings Figure 1 represents a side elevation partly in section of a hoisting crane embodying the features of my invention; Fig. 2, a detailed cross-section of the same, the section being indicated by line 2—2 of Fig. 1, and Figs. 3 and 4, detailed cross-sections of the crane, the same being indicated by lines 3—3 and 4—4 respectively of Fig. 1.

Referring by characters to the drawings, 1 represents the shank-piece of a base which is formed by spider-arms 1', 1', that extend from the shank-piece and are bolted thereto as shown, the outer ends of the spider-arms being provided with swiveled casters 2 preferably of the double roller type. The shank-piece of the base is also provided with a foot 3 to which is pivotally secured a swiveled caster 2' that is in all respects similar to the caster before mentioned, the casters combined constituting a three-point support for

the base, which points are of sufficient distance apart to render the base in all instances sufficiently solid to prevent tipping of the device, while at the same time said base is capable of being shifted in any desired position upon its caster supports.

Extending upwardly from the shank-piece of the base is a column 4 that is preferably formed from a section of tubing and loosely fitted into the upper open end of the column is the shank 5 of a guide-block 5', the same being provided with horizontally extended arms that are cross-connected by an anti-friction roller 5'' as best shown in Figs. 1 and 2. The shank of the guide-block in this instance is shown shrunk into the laterally extended arm portion thereof, but it is understood that said block may be formed in one piece, if desired.

The stem portion 6 of an overhanging boom 6' is slidably mounted between the arms of the guide-block and the lower end of the boom-stem is fitted between apertured ears 7 of a hollow head 7' which is slidably mounted upon the column, the stem end being provided with an aperture, through which aperture and the apertures of the ears 7 a stud 8 is fitted, the said stud being secured by suitable cotter-pins 8'. The stem of the boom is also provided with a stop-pin 9 which is adapted to engage the arms of the guide-block 5 when it is desired to remove the boom from the column, it being understood that under such conditions the cotter-pins 8' are removed, together with the stud 8, whereby the boom may be lifted upwardly and when the pin 9 engages the guide-block, said guide-block will be stripped from the mouth of the column, whereby it will remain intact with the boom when the latter is dismantled. This dismantling of the boom is desirable in instances where the same is not desired for use in lifting or suspending a load, it being understood that the end of the boom is provided with the usual link 6'' for the purpose of connecting a chain or cable whereby the load may be lifted or suspended.

The upper end of the column has brazed or otherwise secured thereto a lug 10, to which lug is fastened a bracket 11 that is centrally apertured and terminates with a fixed stud 11'. The bracket aperture forms the upper bearing for a screw-threaded spindle 12, the lower end of which is stepped into an apertured boss 13 that forms part

of the base-shank 1, the said stem being provided with a collar 12' which serves to take up the down strain upon the spindle, it being understood that between this collar and the boss 13 there may be interposed a suitable anti-friction ball-bearing if desired, which ball-bearing is not shown. Adjacent to the upper end of the spindle there is secured thereto a beveled gear-wheel 14 which is adapted to mesh with a beveled pinion 14' that is loosely mounted upon the fixed stud 11' which extends from the bracket 11, the hub of the pinion being provided with a hand-crank 15.

It is apparent that, in some instances, I may substitute a wheel for the hand-crank shown, whereby the power is applied to the gear connection of the spindle.

Secured to and extending rearwardly from the slidable head 7' is a threaded hub bracket 16, which bracket is arranged to engage the threaded spindle 12. Hence when motion is imparted to the spindle through the gear connection, it is apparent that the block 7' may be raised or lowered within the limits of the column upon which it is mounted, said block carrying with it the boom and should there be a load connected to the end of the boom this load will be raised or lowered as the case may require, the lateral load strain due to the right-angle boom construction being upon the anti-friction roller 5'', whereby liability of the boom to cramp incidental to its movement is avoided.

As best shown in Figs. 1 and 3, the slidable block 7' is also provided with laterally extending apertured ears 16, to which ears are hinged, by means of bolts 17, jacking arms 18, these jacking arms being capable of independent horizontal swing about their pivot points.

From the foregoing description it is apparent that should it be desired to jack up the rear axle of an automobile or other vehicle, for example, the jacking arms 18, may be swung so as to spread them the desired distance apart, whereby they will engage the axles at said points when the threaded spindle is put into motion in order to raise the head. Thus the vehicle will be lifted from the ground and the threaded stem 12 or jack-screw will hold said vehicle in its suspended position by means of the supporting arms 18. If it is not desirable to use the pivoted jacking-arms 18 they may be readily swung out of an engaging position and the boom can then be used for raising and lowering machine elements, it being apparent that, owing to the relative position of the base casters, there is no liability of the load to tilt whether said load is supported by the jacking arms or suspended from the end of the boom. Furthermore, owing to the fact that the spider-feet of the

base extend a considerable distance from the end of the column and that the end of the boom also extends in the same direction, said crane as a whole can be readily manipulated and slipped into position for gripping a load clear of the column.

I claim:

1. A portable crane comprising a base-supported column, a guide-block carried by the column adjacent to its upper end, a head in slidable union with the column, an overhanging boom having a stem in slidable engagement with the guide-block, the lower end of the stem being secured to the head, a horizontally swinging jacking arm carried by the head, a rotary spindle in threaded engagement with said head, the spindle being supported by the column, and means for actuating the spindle.

2. A portable crane comprising a base-supported column, a guide-block carried by the column adjacent to its upper end, a head in slidable union with the column, an overhanging boom having a stem in slidable engagement with the guide-block, the lower end of the stem being secured to the head, a rotary spindle in threaded engagement with said head, the spindle being supported by the column, and means for actuating the spindle.

3. A portable crane comprising a base-supported column, a guide-block carried by the column adjacent to its upper end, a head in slidable union with the column, an overhanging boom having a stem in slidable engagement with the guide-block, the lower end of the stem being secured to the head, a pair of jacking arms in pivotal union with the head, a rotary spindle in threaded engagement with said head, the spindle being supported by the column, and means for actuating the spindle.

4. A portable crane comprising a base-supported column, a guide-block detachably mounted upon the end of the column, a head in slidable union with said column, an overhanging boom having a stem in slidable union with the guide-block, means for detachably securing the lower end of the boom-stem to the aforesaid head, a horizontally swinging jacking arm carried by the head, a rotary spindle in threaded engagement with said head, the spindle being supported by the column, and means for actuating the spindle.

5. A portable crane comprising a shank-piece having spider-arms extending radially therefrom, casters mounted upon the shank-piece and ends of the spider-arms, a column extending upwardly from the shank-piece, a bracket extending from the upper end of the column, a foot extending from the shank-piece, a threaded stem having its ends journaled in the bracket and foot, an actuating mechanism for the spindle, a block

in slidable union with the collar a hub in threaded union with the spindle, horizontally swinging jacking arms carried by the head, a guide-block mounted upon the upper
5 end of the column, and an overhanging boom provided with a stem portion in slidable union with the guide-block the lower end of the boom being supported by the aforesaid slidable head.

In testimony that I claim the foregoing 10
I have hereunto set my hand at Milwaukee in the county of Milwaukee and State of Wisconsin in the presence of two witnesses.

CHARLES TOEPFER.

Witnesses:

GEO. W. YOUNG,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
