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.I. KIRBY

2,189,665

JACK

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Fig. 1

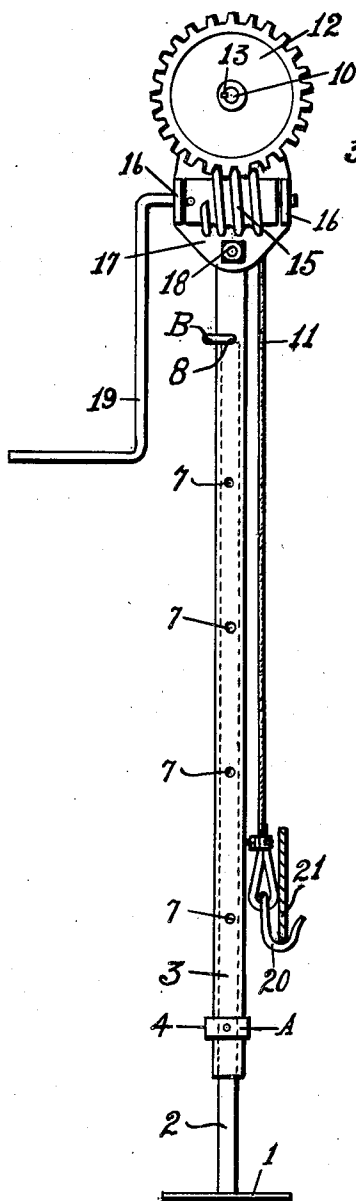


Fig. 2

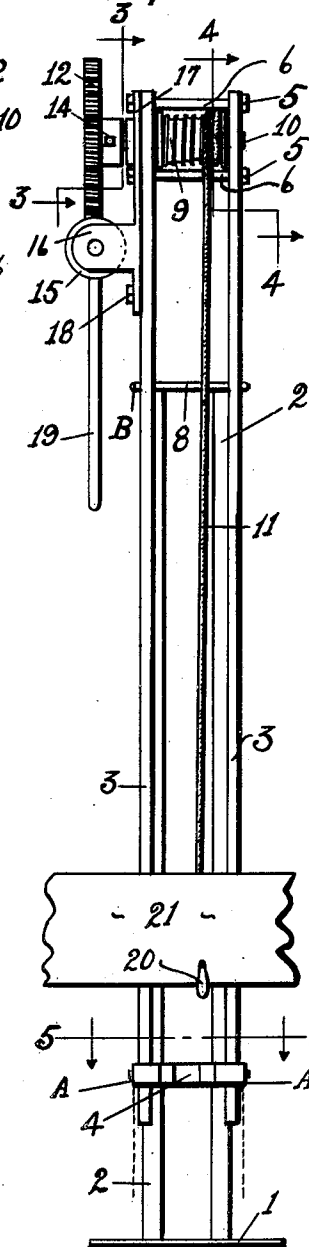


Fig. 3

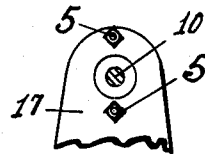


Fig. 4

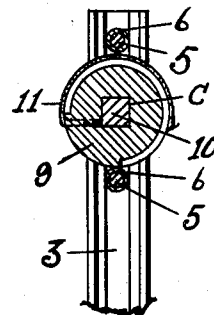


Fig. 5

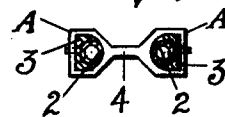
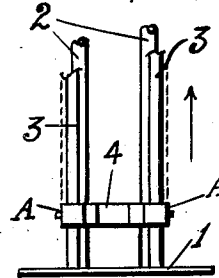


Fig. 6



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2,189,665

JACK

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1 Claim. (Cl. 254—145)

My invention relates to improvements in jacks, and has for its principal object a mechanical advantage whereby a load of great weight may be easily raised, lowered and maintained against retraction except as manually operated for retraction.

A further object of my invention is to provide a jack having an adjustable shaft telescopically engaging and means to secure the jack shaft at a predetermined length for quick result prior to raising the load.

A still further object of my invention is to provide a hoisting jack inexpensive to construct, convenient to operate, efficient in its performance and the weight thereof being comparatively reduced with respect to other jacks for a similar purpose.

A still further object of my invention is to provide a lifting jack whose load engaging element may be lowered to close proximity to the foot of the jack shaft should the load available point of contact be so positioned.

These and other objects will hereinafter be more fully explained, reference being had to the accompanying drawing forming a part of this specification, in which like characters will apply to like parts in the different views.

Referring to the drawing:

Fig. 1 is an erect elevation of the jack transverse to the axis of its crank connection, the jack shaft thereof being elongated a short distance.

Fig. 2 is an elevation of the jack axial with the crank connection.

Fig. 3 shows a fragmentary portion of the upper end of the shaft, partly in section taken on line 3—3 in Fig. 2 looking in the direction of the arrows.

Fig. 4 is a sectional view taken on line 4—4 in Fig. 2, parts broken away for convenience of illustration.

Fig. 5 is a cross section taken on line 5—5 in Fig. 2.

Fig. 6 is a fragmentary portion of the shaft adjacent the foot of the jack, showing a maximum collapsed position thereof.

The invention herein disclosed consists of a shaft telescopically arranged and comprised of a foot plate 1 having secured thereto a pair of legs 2, preferably made of pipes, said legs being spaced apart, in parallelism and adapted to receive a pair of channel members 3 slideable thereon. The lower ends of said channel members are connected by a bar 4, each end of which has an eye A through which the channels extend respectively and being secured therein a spaced distance from

the lower end of the channels, the upper ends of said channels being secured together in spaced relation by a pair of bolts 5, said bolts being spaced apart longitudinal of the channels. Each bolt 5 has a sleeve 6 thereon as spacing means for the channel members apart when the bolts are tightened by their respective nuts threadedly engaging thereon, the concavity of said channels confronting each other; being so connected is means to permit sliding movement of the said legs in their respective channels and eyes for telescopic engagement.

The web of said channels, each have a plurality of apertures 7 spaced therealong to register in pairs and through which a pin 8 will engage at right angle to said channels, one end of the pin having a bend as at B functioning as a stop when inserted through the apertures, the other end to extend well through its respective channel by which means the said pin when inserted through the apertures selectively along the channels will function as a stop to avoid further collapse of the shaft as the free ends of the said legs will engage with the pin seated thereon which otherwise would collapse under a load pendantly carried by a winch arrangement that is positioned at the upper end of the said channels and being carried thereby.

The winch consists of a spirally grooved drum 9 through which a spindle 10 extends axially with the drum, a portion of said spindle being square as at C to avoid turning of the drum thereon and also to bind the end of a cable 11 wound on the drum as shown in Fig. 4, the said drum being trunnioned in the channels near the upper end thereof and between said sleeves of their respective bolts, the sleeves to retain the winds of the cable in the groove of the drum.

Positioned on one end of the spindle is a worm gear 12 secured thereto by a key 13, and a set screw 14 to avoid outward movement of the gear, said gear being in mesh with a worm 15 that is trunnioned in the ears 16 of a plate 17, the latter being secured to its respective channels by the said bolts 5 heretofore described and a third bolt 18 at the lower end of said plate. The said worm has a crank 19 axially connected as turning means for the worm which in turn rotates the said gear as revolving means for the said grooved drum to wind or unwind the cable, and the said cable has on the free end thereof a hook 20 to engage, for example, the bumper 21 of a motor vehicle as hoisting means therefor, and prior to connecting the hook the shaft length is properly adjusted longitudinally as heretofore described

and with respect to the position of the bumper or other available point of a load to be raised by the jack; being so arranged with respect to the jack shaft telescopically, a sufficient length of the cable extension may be provided to meet the hoist required, and furthermore, a jack constructed as above described, will engage and pick up a load that is positioned at the foot of the jack or in close proximity thereto.

- 10 It will also be seen that the jack will retain its load against retraction in view of worm engagement with the drum gear, and the load being pendantly carried is means to provide a flexing tendency with respect to reasonable horizontal movement of the load without tipping the jack.

15 While I have shown and described a hook structure and a spirally grooved drum, I do not wish to be restricted to such specifically as other connecting means for the cable may be provided, and the grooves of the drum may be eliminated as the said cable would wind on a smooth periphery of a drum, and the shaft of the jack may be varied from that shown and described without altering its telescopic feature, and such other modifications may be employed as lie within the scope of the appended claim.

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

In a jack, a shaft comprised of tubular members spaced apart and in parallelism, the lower ends of said tubular members secured to a plate, the later functioning as a foot for the jack shaft, another pair of members, channel-like in cross section, spaced apart in parallelism and adapted to slideably engage on the tubular members, a bar having an eye on each end thereof as securing means for the lower ends of said channels in their spaced relation to the tubular members, the eyes to slideably engage along their respective tubular members, each channel having a plurality of apertures equally spaced therealong to receive a pin extending from one channel to the other and at right angles thereto, and against which the upper end of the tubular members will engage as carrying means for the channel members at predetermined extension for the leg of the jack, the upper end of said channel members having a drum trunnioned thereon, and a cable wound on the drum and having a hook on the free end thereof, the drum having a gear secured thereto and a worm in mesh therewith, and a plate secured to one of the channels, said plate having a pair of ears extending at right angles from one side of the plate and between which the worm is trunnioned, and a crank to turn the worm, all as and for the purpose specified.

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