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JACK FRAME

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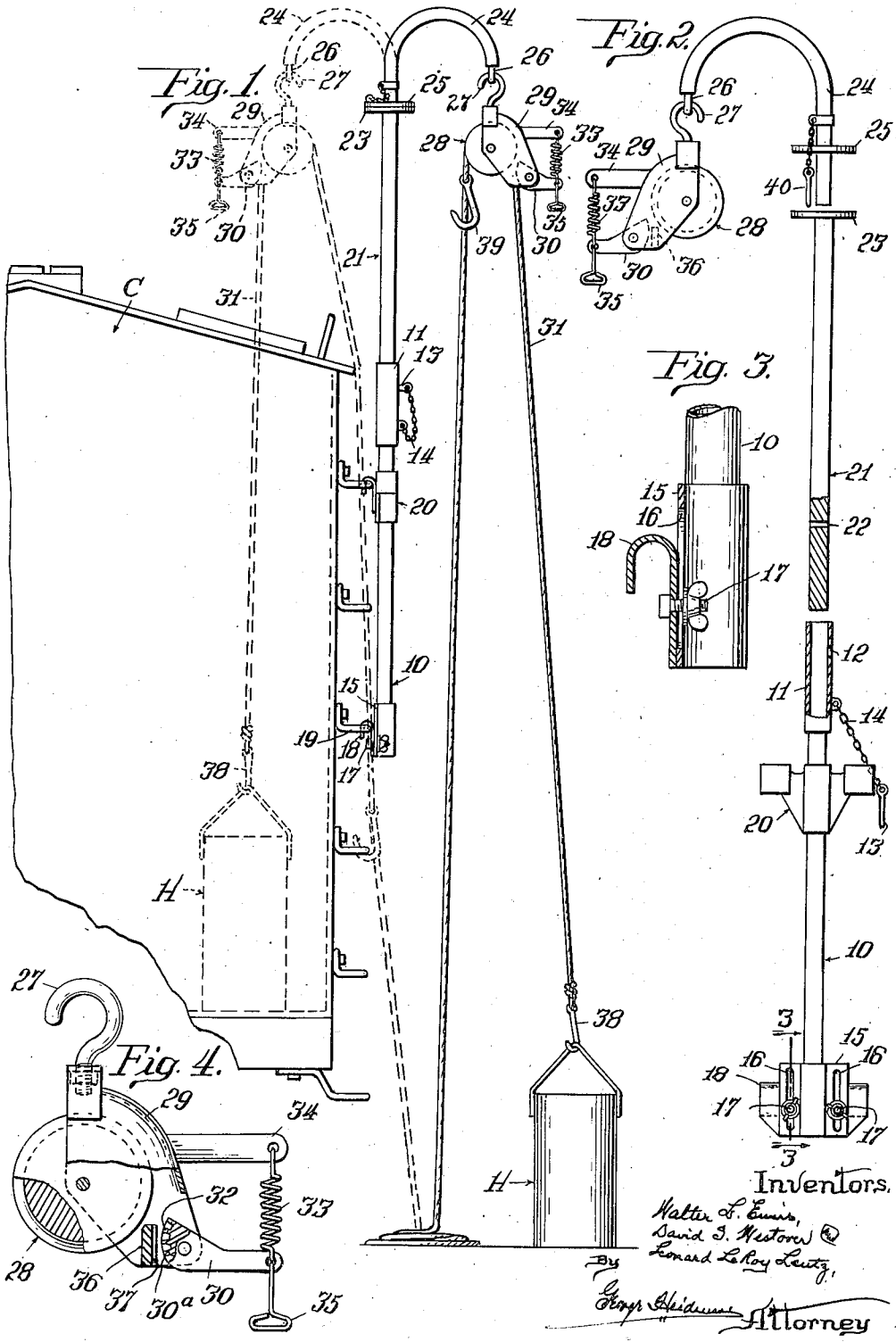

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2,292,353

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Our invention relates more particularly to a jack frame or device for raising and removing car heaters which are placed into the bunkers of refrigerator cars; the device enabling the heaters (which are of considerable weight) to be easily raised from the ground to a point above the usual hatch openings of railroad refrigerator cars by an individual while on the ground adjacent the cars without being subject to the hazards encountered with the present day method of handling the heaters.

In the present method of placing the car heaters into the bunkers of railroad refrigerator cars, that are not "spotted" adjacent an ice dock, where two refrigerator cars are coupled together, the heater is customarily placed on the draw bar and the workman on top of the car places one foot on the adjacent ends of the running boards of the two cars and by means of a rope and hook pulls the heater to the roof of the car and then lowers the heater into the car bunker; repeating the operation for each refrigerator car.

Or, where there is but one car on "spot," the workman, by means of the rope will pull the heater up from the side or end of the car roof or running board.

As the heaters are employed during the winter season, it is apparent that this operation is very hazardous, especially with car roofs and running boards covered with snow or sleet, causing the workman to become ruptured or to fall between the cars or to lose his balance or slide off the car roof.

Our improved jack frame has been devised to overcome the difficulties mentioned and its objects and advantages will be readily comprehended from the detailed description of the accompanying drawing wherein:

Figure 1 illustrates our improved jack frame in side elevation applied to a refrigerator car of which a portion of one end is shown in outline, with one end of the elevating ropes shown attached to a conventional heater.

Figure 2 is an exploded view of our improved jack frame in elevation with portions shown in section.

Figure 3 is a detail sectional view of one of the ladder engaging elements of the jack frame, taken on line 3—3 of Figure 2.

Figure 4 is a detail view in elevation of the pulley member, with portions broken away and shown in section.

Our invention relates to a device which is more especially intended for elevating the usual car heaters onto railroad refrigerator cars to be lowered into the bunkers of such cars; the device enabling the comparatively heavy heaters to be easily and quickly raised to the car roof by an operator on the ground.

In the specific exemplification of the invention, the jack frame is preferably of a knock-down type for easy transportation to the place of use consisting of the lower section or rod 10 of preselected length, with its upper end shown provided with a sleeve 11 having a pin receiving aperture 12; the pin 13 being preferably secured to the sleeve by chain 14, see Figure 2.

The lower end of rod 10 is provided with a plate 15 fixedly secured thereto, with the extended sides or wing portions thereof provided with vertically disposed slots 16 which are adapted to receive suitable bolts, as at 17, preferably provided with wing nuts; the bolts providing means for firmly securing a hook-plate 18 to the rear side of the rod and slotted plate 15. The plate 18 has its upper end bent rearwardly into the hook form shown in Figure 3; the hook portion being intended to fit onto one of the rungs 19 of the usual ladder arranged on the car side wall as shown in Figure 1 where C represents the end of a railroad refrigerator car; the bolt-and-slot connection between plate 15 and hook plate 18 permitting adjustability to slight variations in distance between the ladder rungs.

The lower section or rod 10 adjacent its upper end and beneath the sleeve 11 is provided with a second hook-plate 20, substantially similar to the hook-plate 18 except that the hook-plate 20 may be rigidly or immovably secured to the rod 10; the hook-plate 20 being intended to fit over a rung 19 adjacent the top of the car as shown, thereby firmly holding the jack frame on the ladder of the car.

Sleeve 11 is of sufficient length to telescopically receive the lower end of a second rod or tube 21 of predetermined length so as to, in conjunction with lower section or rod 10, extend to the top of the car; the second rod 21 being shown apertured at 22 to register with aperture 12 in sleeve 11 and to receive the pin 13 to prevent accidental dissociation during use.

The upper end of tube 21 is shown provided with an annular plate or flange at 23; and the upper end of tube 21 is intended to receive the end of the U-shape top section 24, which, at a distance removed from the lower end is also provided with an annular flange or plate 25 adapted to seat on flange or plate 23 and thereby limit telescopic movement between section 24 and tube

section 21 and permit section 24 to swing about the vertical axis of the jack frame.

The U-shape top section 24 at its free end is shown provided with a loop 26 for receiving the hook 27 which has swivel connection with the housing of a sheave 28. The housing 29 is extended at one side where it is provided with a pivoted pawl 30 which is adapted to act as a snubber on the pull rope 31 and prevent the heater dropping if the hands of the operator on the car roof are disengaged from the rope.

The head of the pawl 30 preferably is made somewhat arcuate and grooved as at 30a to receive the pull rope 31 and the grooved portion provided with serrations as indicated at 32 to effect biting relation with the pull rope. The outer end of the pawl has one end of coil spring 33 attached thereto, while the other or upper end of the spring 33 is attached to an arm 34 extending from the pulley housing 29 and disposed above the pawl so a direct pull on the pawl will be exerted by the spring. The outer end of pawl 30 preferably is also provided with a hand grasp or link 35 to enable the operator readily to release the pawl by pulling downwardly against the normal action of spring 33.

The pulley housing 29 coincident with the head of the pawl 30 is provided with a transverse strip or rib as at 36 which also is provided with a socket at 37 to cooperate with the groove in the pawl and thereby firmly grip the pulling or hand-grasping end of the rope and thus prevent the elevated heater dropping down if the operator inadvertently releases the hand-grasping or pulling end of the rope.

One end of the rope 31 is provided with a hook 38 for engaging the bale of the heater which is generally illustrated at H; and at a predetermined point the rope (namely on the hand pulling or down going side of the rope) may, for precaution sake, at a predetermined point also be provided with a hook or other suitable element as at 39 which may be hooked onto the lower rung 19 of the ladder after the heater has been raised to the top of the car and thus assist the pawl in holding the heater in elevated position before it is swung onto the car.

In order that the top section 24 may not accidentally become dissociated from the section 21, the turn-table plates 23, 25, may be provided with registering arcuate slots to receive a pin 40, preferably linked to one of the frame sections as shown; the slot-and-pin connection permitting rotative movement of the upper section 24 about the longitudinal axis of the frame.

With our improved device it is apparent that the heater H, (which is of considerable weight) may be easily elevated to a position above the plane of the car-roof by an operator on the ground and the top section of the frame with the elevated heater readily swung above the roof by the operator standing on the running board of the car-roof without assuming the hazardous positions heretofore required.

Although our device is especially designed for heater elevation as herein described, it is obvious that it may be otherwise employed and while the exemplification is believed to be the best embodiment of the invention, modifications may be possible without, however, departing from the spirit of our invention as defined in the appended claims.

What we claim is:

1. A lifting device for use with the ladder of a railroad refrigerator car comprising a vertically disposed knock-down standard composed of a plurality of separate rod sections whose ends are arranged to have telescopic relation with each other, the top section being U-shape and having swinging relation with the adjacent section; a sheave having swiveled connection with the free end of said U-shape section; ladder-rung engaging members secured to the standard in vertical spaced relation, at least one of said members being vertically adjustable; a load carrying pull rope disposed about said sheave; and means whereby movement of the load-carrying end of the rope may be arrested.

2. In a device of the character described for hoisting a heater to the top of a railway refrigerator car, a standard provided at its top with an overhanging portion; a sheave secured to said portion composed of a housing having side walls extended toward one side and a cross-rib in said extended portion, a rope receiving pulley journalled in the housing, a pawl whose head end is pivotally mounted in the extended housing side walls in proximity to said cross-rib, and means whereby the head end of the pawl is normally swung toward said cross-rib to effect binding relation with the hoisting rope.

3. A lifting device of the character described comprising a sectional standard, the top section being adapted to swing about the vertical axis of the standard and having an overhanging portion; means whereby the sections may be locked in assembled condition; and a hoist rope receiving sheave secured to said overhanging portion composed of a housing, a pulley journaled in the housing and a spring controlled pawl pivoted in the housing adjacent the periphery of the pulley adapted to normally effect binding relation with the hoist rope.

4. A lifting device for use with the ladder of a railroad refrigerator car comprising a sectional standard, the respective sections being arranged at their adjacent ends to effect interengaging relation; the adjacent ends of the intermediate section and the top section being provided with bearing surfaces to permit rotative movement of the top section, said top section extending laterally toward one side of the vertical axis of the device; a sheave arranged at the free end of the top section; vertically spaced members secured to the lower section adapted to effect holding engagement with the rungs of the car ladder to maintain the standard in place; a pull rope disposed about the sheave; and means whereby downward movement of the load-carrying end of the pull rope may be arrested.

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