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F. G. RADTKE

2,367,889

CARRYING TONG

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Fig. 1.

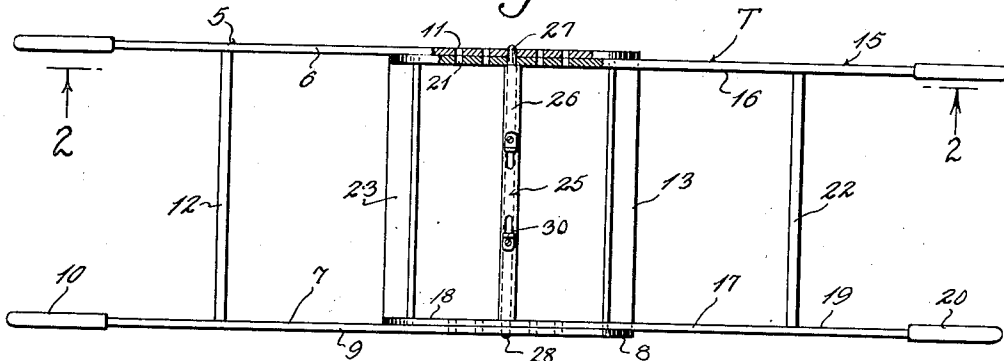


Fig. 2.

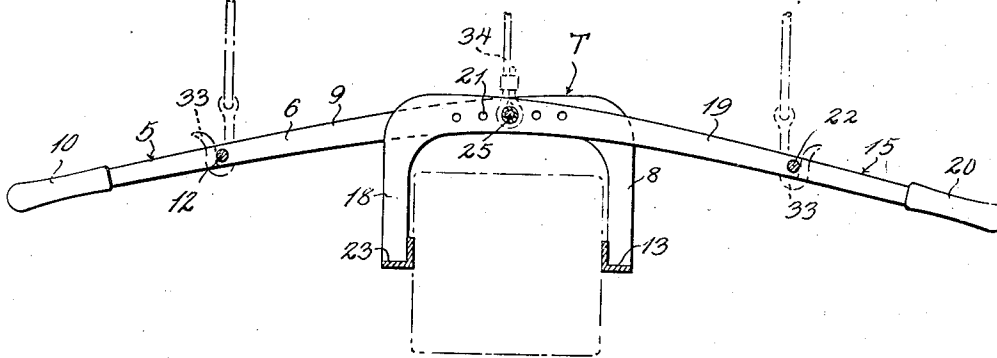


Fig. 3.

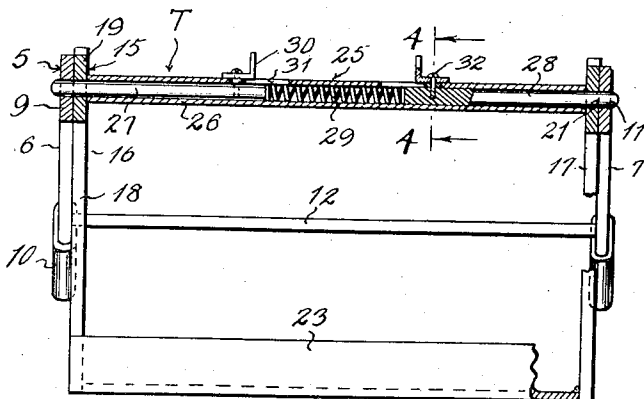
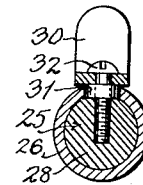


Fig. 4.



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UNITED STATES PATENT OFFICE

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CARRYING TONGS

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2 Claims. (Cl. 294-16)

This invention appertains to devices for lifting and carrying heavy objects, such as, boxes, barrels, and explosive shells and bombs.

One of the primary objects of my invention is to provide a pair of lifting tongs, which can be readily operated by two or more men (depending upon the weight to be carried), for facilitating the lifting of heavy objects from point to point without undue strain on the men.

Another salient object of my invention is to provide a pair of lifting tongs embodying companion carrying frames each including lifting levers or handles and a jaw for engaging the object to be carried with an adjustable pivot shaft for connecting said frames together and to vary the distance between the jaws of the frame, so that objects of different sizes can be conveniently gripped.

A further important object of my invention is to provide a novel means for constructing and associating the pivot shaft with the companion frames, whereby the pivot shaft can be quickly and easily connected to the frames at different points for adjusting the position of the jaws relative to one another.

A still further object of my invention is to provide a pair of lifting tongs of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a top, plan view of my novel lifting tongs, parts of the view being shown broken away and in section.

Figure 2 is a longitudinal, sectional view through the lifting tongs taken on the line 2-2 of Figure 1 looking in the direction of the arrows.

Figure 3 is an enlarged, transverse, sectional view through the tongs illustrating the novel detachable pivot shaft.

Figure 4 is an enlarged, fragmentary, detail, sectional view through the novel pivot shaft, the section being taken on the line 4-4 of Figure 3 looking in the direction of the arrows.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter T generally indicates my novel lifting tongs and the same includes a pair of like companion

lifting frames 5 and 15 detachably and adjustably connected together by the novel pivot shaft 25.

The frame 5 includes spaced parallel levers 6 and 7. The levers are of a substantially bell crank shape and hence each includes a relatively short arm 8 and a relatively long arm or handle 9. The outer ends of the handles 9 are provided with detachable hand grips 10. The handles 9 are provided with equi-distantly spaced openings 11 which are positioned adjacent the short arms 8. The levers 6 and 7 are connected together by a transversely extending brace bar 12 and a gripping jaw 13. The gripping jaw is carried by the outer ends of the arms 8 while the brace rod 12 is connected with the handles 9. Obviously, the frame can be braced in any other preferred way. For the sake of strength, the jaw 13 has been shown to be constructed of angle iron.

The frame 15 is constructed in the same manner as the frame 5 and hence the same includes a pair of spaced parallel levers 16 and 17 which are also of a substantially bell crank shape. Thus each lever 16 and 17 includes a short arm 18 and an elongated arm or handle 19. The outer ends of the handles 19 have detachably fitted thereon hand grips 20. Each lever 16 and 17 has formed in its handle 19 adjacent to the short arm 18 a row of equi-distantly spaced openings 21. The levers 16 and 17 are connected together by a transversely extending brace bar 22 and a gripping jaw 23. The jaw 23 is carried by the outer ends of the arms 18 and is normally arranged in facing relation to the jaw 13. The width of the frame 15 is slightly less than the width of the frame 5 so that the frame 15 can be slipped within the frame 5, as is clearly shown in Figures 1 and 2.

The detachable pivot shaft 25 comprises a tubular sleeve 26 of a length equal to the distance between the levers 16 and 17 of the frame 15. The opposite ends of the sleeve 26 slidably receives bolts or pivot pins 27 and 28. The bolts are normally urged in opposite directions out of the sleeve by an expansion coil spring 29 which is arranged in the sleeve between the inner ends of the bolts. Connected to the inner ends of the bolts are finger pieces 30 and obviously by gripping the finger pieces and pressing the same inwardly, the outer ends of the bolts can be drawn within the sleeve. To facilitate the manipulation of the bolts, the sleeve 26 is slotted on opposite sides of its transverse center, as at 31, and the fastening elements 32 for the thumb

pieces extend into the bolts through said slots. The engagement of the fastening members 32 with the outer end walls of the slots 31 limit the outward sliding movement of the bolts.

By moving the frames 5 and 15 inward and outward, the desired set of openings 11 and 21 can be brought into registration and by placing the shaft 25 between the frames with the bolts drawn inward, the bolts can then be moved into said openings for rockably connecting the frames 5 and 15 together.

Obviously, by placing the shaft in selected openings, the position of the jaws 13 and 23 can be initially adjusted relative to one another for gripping different sized objects.

In use of my device, the jaws 13 and 23 are placed over the object to be lifted and upon the raising of the hand grips 10 and 20, the jaws 13 and 23 will be forced into gripping contact with the object so that the object can be readily raised and carried. A man can get at each end of the frame for carrying the object, or, if the object is heavy, one man can take hold of each handle. If the object is extremely heavy, elongated hand grips can be substituted for the short hand grips 10 and 20 shown and in this manner more than one man can take hold of each hand grip.

The tongs can also be used with a lifting crane and when an object is to be lifted by a crane, hooks 33 on chains can be placed into engagement with the brace rods 12 and 22. Where lifting chains and hooks are used, a release line 34 can be connected to the pivot shaft 25. This will permit the quick releasing of an object by slacking up on the hooks 33 and by pulling up on the release cable.

The jaws 13 and 23 can be provided with cushion faces, such as strips of brake lining, rubber or other material, for engaging the article to be gripped. This not only will aid in gripping an object, but will prevent marring or scratching of polished faces.

From the foregoing description, it can be seen that I have provided an exceptionally simple and rugged form of lifting tongs which can be successfully used in handling heavy objects.

Changes in details may be made without departing from the spirit or the scope of my invention, but what I claim as new is;

1. A device for lifting and carrying heavy objects comprising a pair of companion frames, each of said frames including spaced parallel lifting levers of a substantially bell crank shape, each lever including a depending short arm and an elongated handle, a jaw connecting the outer ends of the short arms of each frame together, hand grips carried by the outer ends of the handles, each of the handles being provided with a row of pivot openings adjacent to the short arms and a detachable pivot shaft for connecting said frames together including a sleeve adapted to fit between the frames, bolts slidably carried by the sleeve, spring means normally urging the bolts outwardly, the outer ends of the bolts being adapted to fit in selected openings in the frames, and finger pieces carried by the bolts for actuating said bolts against said spring means.

2. A device for lifting and carrying heavy objects comprising a pair of companion frames, each of said frames including spaced parallel lifting levers of a substantially bell crank shape, each lever including a depending short arm and an elongated handle, a jaw connecting the outer ends of the short arms of each frame together, each of the handles being provided with a row of pivot openings adjacent to the short arms and a detachable pivot shaft for connecting said frames together including a sleeve adapted to fit between the frames, bolts slidably carried by the sleeve, spring means normally urging the bolts outwardly, the outer ends of the bolts being adapted to fit in selected openings in the frames, and finger pieces carried by the bolts for actuating said bolts against said spring means.

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