F. B. LA MAY.

LIFTING DEVICE.

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919,731.

Patented Apr. 27, 1909.

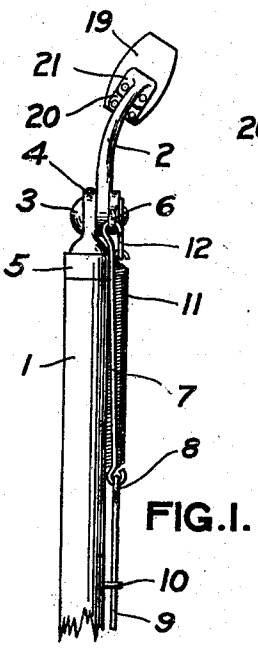


FIG. 1.

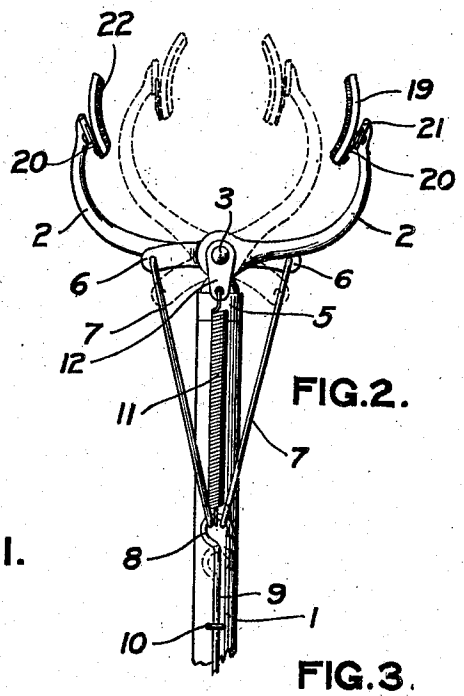
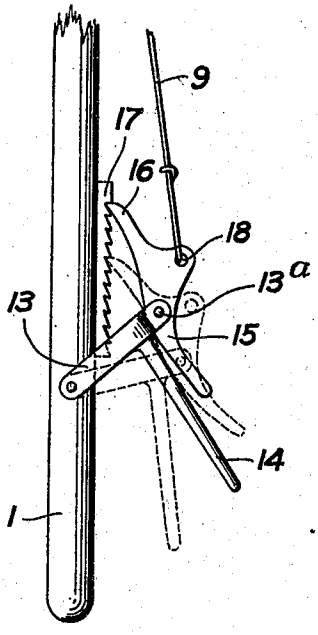


FIG. 2.



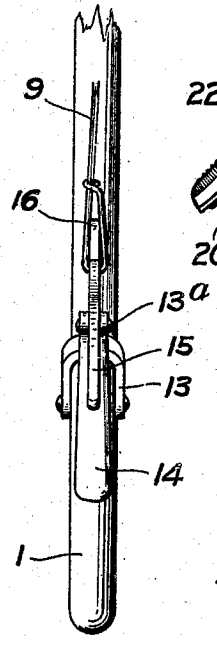


FIG. 3.

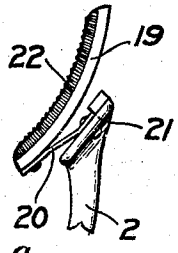
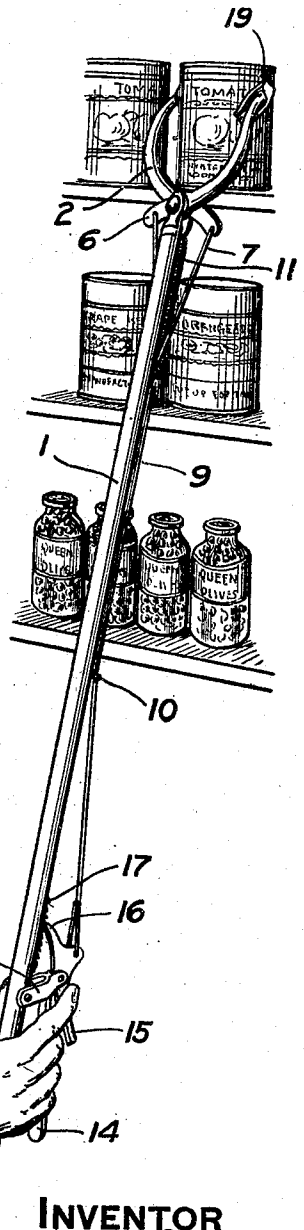


FIG. 4.



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LIFTING DEVICE.

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To all whom it may concern:

Be it known that I, FRANK B. LA MAY, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lifting Devices, of which the following is a specification.

This invention relates to lifting devices, and has for its object to produce a simple and efficient mechanism, and which may be easily operated by one hand.

The invention consists in the apparatus hereinafter described and claimed.

In the drawings: Figure 1 is a side elevation of the device; Fig. 2 is a rear view thereof; Fig. 3 is an enlarged view of a detail; and Fig. 4 is a perspective view illustrative of the mode of using the device.

The device comprises a handle 1, of any desired length, carrying a pair of curved jaws 2 at its upper end, and having at its lower end means for moving the ends of said jaws toward or away from each other. The jaws 2 are pivoted at 3 in a post 4 which may form part of a metal ferrule 5 on the upper end of the handle 1. The jaws 2 have extensions 6 beyond the pivot 3, to which links 7 are attached. The lower ends of said links take into a hook 8 on the upper end of a rod or wire 9 which is guided in staples or eyes 10 on the handle 1. A coiled tension spring 11 is also fastened at one end to said hook 8, and at the other end to a hanger 12 depending from the pivot 3. Said spring, together with the links 7, constitutes means for opening the jaws 2 after the device has been used.

On the lower end of the handle 1 is pivoted a yoke-shaped lever 13, from which extends an arm 14. The lever 13 carries latch means for holding the jaws closed. The lever 13 has pivoted in it at 13^a a latch 15, the upper end 16 of which is adapted to engage a toothed rack 17 that is fastened to the handle 1 (Fig. 1). The rod or wire 9 is hooked into an extension 18 of the latch 15, and the continuous tension of the spring 11 therefore tends to hold the end 16 of said latch in engagement with the rack 17.

Suitable gripping pieces are provided at the extremities of the jaws 2, for the purpose of engaging and holding the article to be removed from a high shelf. In the present instance curved pieces 19 are shown, and they are spring controlled and are flexibly connected to the jaws 2. Each piece 19 is fixed to one end of a flat spring 20, whose other end is riveted to a head 21 on the extremity of the jaw 2 (Fig. 3) so that it is tiltable in all directions on the jaw. Rubber pads 22 may be attached to the inner faces of the pieces 19 to afford a firmer grip than could be obtained by the metal pieces 19 alone. The springs 20 permit the gripping pieces to adjust themselves to the surface contour of various articles and also always tend to move the gripping pieces automatically to a definite or normal position and to return them automatically to such normal position after use.

Fig. 4 shows clearly the operation of the device. The jaws 2 being normally spread to the position shown by full lines in Fig. 2, the operator grasps the handle 1, resting the forefinger upon the latch 15, and the third, fourth and fifth fingers upon the lever 14. Placing the device so that the jaws 2 are on opposite sides of the article on the shelf, the third, fourth and fifth fingers may be contracted, thus pulling the lever 14 toward the handle 1, and moving the latch downward along the ratchet rack 17 to the position shown in dotted lines in Fig. 1. By this movement the rod 9 is moved downward, carrying with it the links 7 against the action of the spring 11, and bringing the jaws 2 toward each other at their outer ends, as indicated by dotted lines in Fig. 2. The gripping pieces 19 engage the article upon the shelf, and are prevented from springing apart again by the engagement of the latch-end 16 with the rack 17. To release the article from the device, it is only necessary to press the forefinger upon the latch 15, releasing it from the rack 17, and then the spring 11 may contract and pull the links 7 upward, moving the jaws 2 into the normal or open position. It is clear that the gripping pieces 19 in grasping a cylindrical object are capable of turning around a line or axis which is transverse to the plane of movement of the movable jaw 2, and this would be true even if one of the jaws should become fixed.

What I claim is:—

1. In a lifting device, the combination of a handle, two jaws pivoted to the handle, spring means for opening the jaws, self-adjusting gripping pieces flexibly connected to the ends of the jaws, a lever pivoted on

the handle for operating the jaws, and connecting means between said lever and said jaws.

2. In a lifting device, the combination of a handle, two jaws pivoted to the handle, spring means for opening the jaws, a spring on each jaw attached thereto at one end, a gripping piece attached to the other end of each spring, a lever pivoted on the handle for operating the jaws, and connecting means between said lever and said jaws.

3. In a lifting device, the combination of a handle, two jaws pivoted to the handle, spring means for opening the jaws, a flat spring on each jaw attached thereto at one end, a gripping piece attached to the other end of each spring, a lever pivoted on the handle for operating the jaws, and connecting means between said lever and said jaws.

4. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, means tending to open the jaw mechanism, a lever pivoted to the handle for operating said jaw mechanism, an automatic latch on the lever, a rack on the handle for engaging the latch, and a connection from the lever to the jaw mechanism.

5. The combination of a handle, two movable jaws pivoted to the handle, two links one connected to each jaw, a spring connected to the links and to the handle for opening the jaws, a latch arm pivoted on the handle for closing the jaws, a rack on the handle for engaging the latch arm, and connecting means from the latch arm to the links.

6. The combination of a handle, two movable jaws pivoted on the handle, two links, one connected to each jaw, a latch arm pivoted on the handle, a rack on the handle for engaging the latch arm, connecting means from the latch arm to the jaws, and a spring for opening the jaws connecting the handle and said connecting means.

7. A handle, two movable jaws pivoted on the handle, a spring for opening the jaws, an arm pivoted on the handle, a latch pivoted on the arm, a rack on the handle for engaging the latch, and connecting means from the latch to the jaws.

8. A handle, two movable jaws pivoted to the handle, two links, one connected to each jaw, an arm pivoted on the handle, a latch pivoted on the arm, a rack on the handle for engaging the latch, a connection from the latch to the links, and a spring for opening the jaws attached to said connecting means and to said handle.

9. In a lifting device, the combination of a handle, two jaws carried by the handle, spring means for opening the jaws, self-adjusting gripping pieces flexibly connected to the ends of the jaws, and manual means for closing said jaws.

10. In a lifting device, the combination of a handle, two jaws carried by the handle, spring means for opening the jaws, a spring on each jaw attached thereto at one end, a gripping piece attached to the other end of each spring, and manual means for closing said jaws.

11. In a lifting device, the combination of a handle, two jaws carried by the handle, spring means for opening the jaws, a flat spring on each jaw attached thereto at one end, a gripping piece attached to the other end of each spring, and manual means for closing said jaws.

12. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, means for automatically opening the jaw mechanism, gripping pieces attached to said jaw mechanism and universally and automatically adjustable to objects grasped thereby, and manual means for closing said jaw mechanism.

13. In a lifting device, the combination of a handle, jaws carried by the handle, automatic means for opening the jaws, a hand lever for operating the jaws, a latch carried by said lever for locking the jaws and movable in the same direction as the lever for release, a rack on the handle for the latch, and a connection to the jaws.

14. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, means for automatically opening the jaw mechanism, one or more gripping pieces attached to said jaw mechanism and tiltable around an axis transverse to the plane of movement of the jaw mechanism and thereby automatically adjustable to objects grasped thereby, and manual means for closing said jaw mechanism.

15. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, means for automatically opening the jaw mechanism, one or more gripping pieces attached to said jaw mechanism and tiltable around an axis transverse to the plane of movement of the jaw mechanism and thereby automatically adjustable to objects grasped thereby, a hand lever pivoted to said handle, a latch carried by said lever, a rack on the handle for the latch, and a connection to said jaw mechanism.

16. In a lifting device, the combination of a handle, jaws carried by the handle, gripping pieces carried by the jaws and tiltable around an axis transverse to the plane of movement of the jaw mechanism and comprising means for moving the gripping pieces automatically to a normal position to permit automatic adjustment thereof to fit the surfaces of objects to be grasped, and means for operating said jaw mechanism.

17. In a lifting device, the combination of a handle, jaws carried by the handle, gripping pieces carried by the jaws comprising means for moving the gripping pieces auto-

matically to a normal position, and means for operating said jaw mechanism.

18. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, one or more spring-controlled gripping pieces connected to the jaw mechanism and tiltable around an axis transverse to the plane of movement of the jaw mechanism and thereby automatically adjustable to objects grasped thereby, and means for operating said jaw mechanism.

19. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, one or more gripping pieces connected to the jaw mechanism and tiltable around an axis transverse to the plane of movement of the jaw mechanism and thereby automatically adjustable to objects grasped thereby, and means for operating said jaw mechanism.

20. In a lifting device, the combination of a handle, jaw mechanism carried by said handle comprising a movable jaw, one or more gripping pieces tiltably connected to said jaw mechanism and thereby self-adjustable to fit the surfaces of objects grasped thereby, comprising means for moving the same automatically to a normal position, and means for operating said jaw mechanism.

21. In a lifting device, the combination of a handle, jaw mechanism carried by the handle, one or more spring-controlled gripping pieces tiltably connected to the jaw mechanism and thereby automatically adjustable to objects grasped thereby, and means for operating said jaw mechanism.

22. In a lifting device, the combination of a handle, jaws carried by the handle, gripping pieces carried by the jaws and tiltable in all directions with reference thereto, and means for causing the jaws to approach and separate.

23. In a lifting device, the combination of a handle, jaws carried by the handle, gripping pieces carried by the jaws and tiltable in all directions with reference thereto and comprising means for moving the gripping pieces automatically to a normal position, and means for causing the jaws to approach and separate.

24. In a lifting device, the combination of a handle, jaws carried by the handle, gripping pieces tiltably connected to said jaws and comprising means for moving the gripping pieces automatically to a normal position, and means for causing the jaws to approach and to separate.

25. In a lifting device, the combination of a handle, jaws carried by the handle, spring-controlled, self-adjusting gripping pieces connected to the jaws and tiltable in all directions thereon, and means for causing the jaws to approach and separate.

FRANK B. LA MAY.

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