(No Model.)

J. B. DEFFLER.

APPARATUS FOR ELEVATING BAGS, BARRELS, &c.

No. 474,653. Patented May 10, 1892.

Fig. 1.

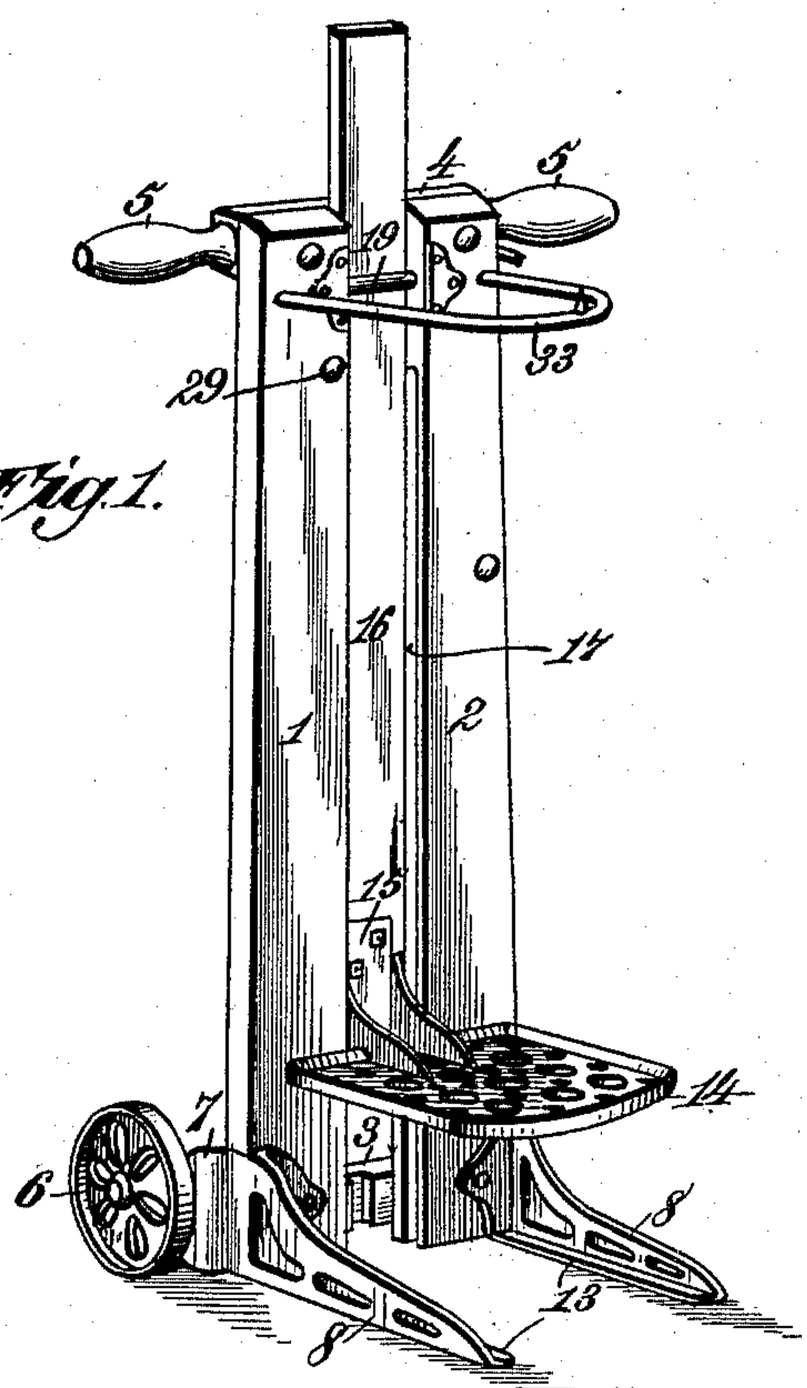


Fig. 2.

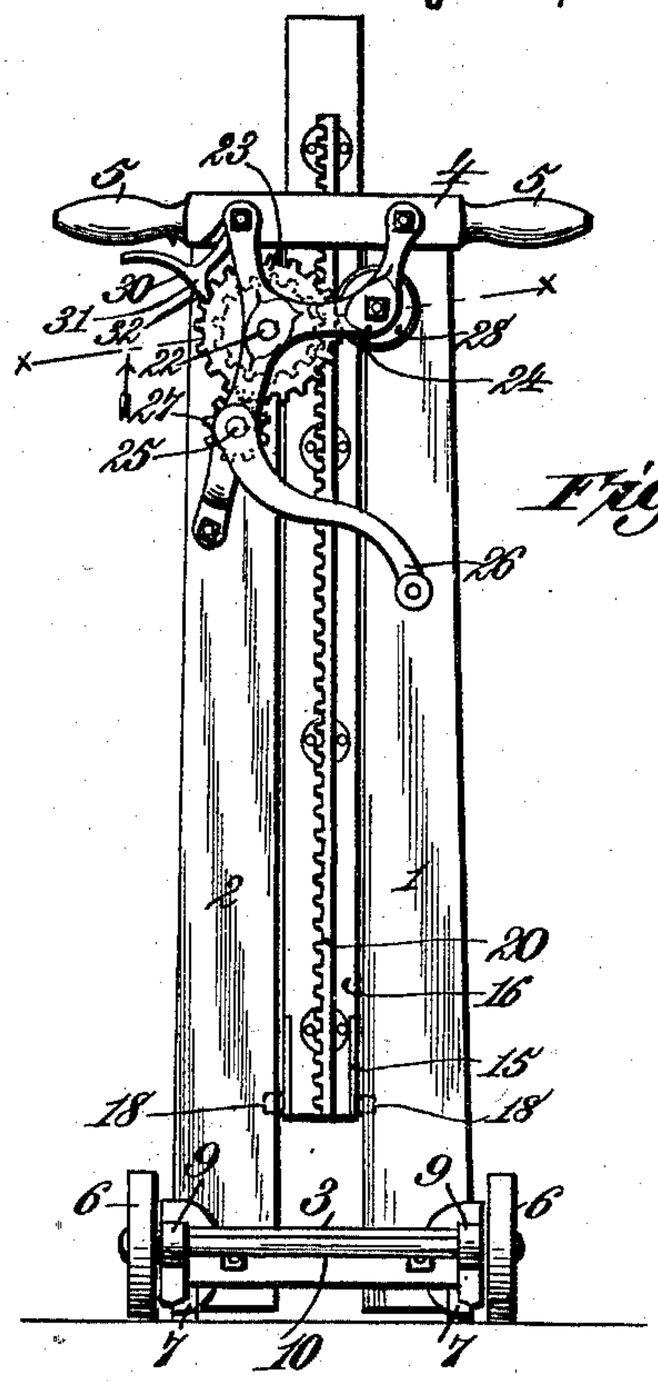


Fig. 3.

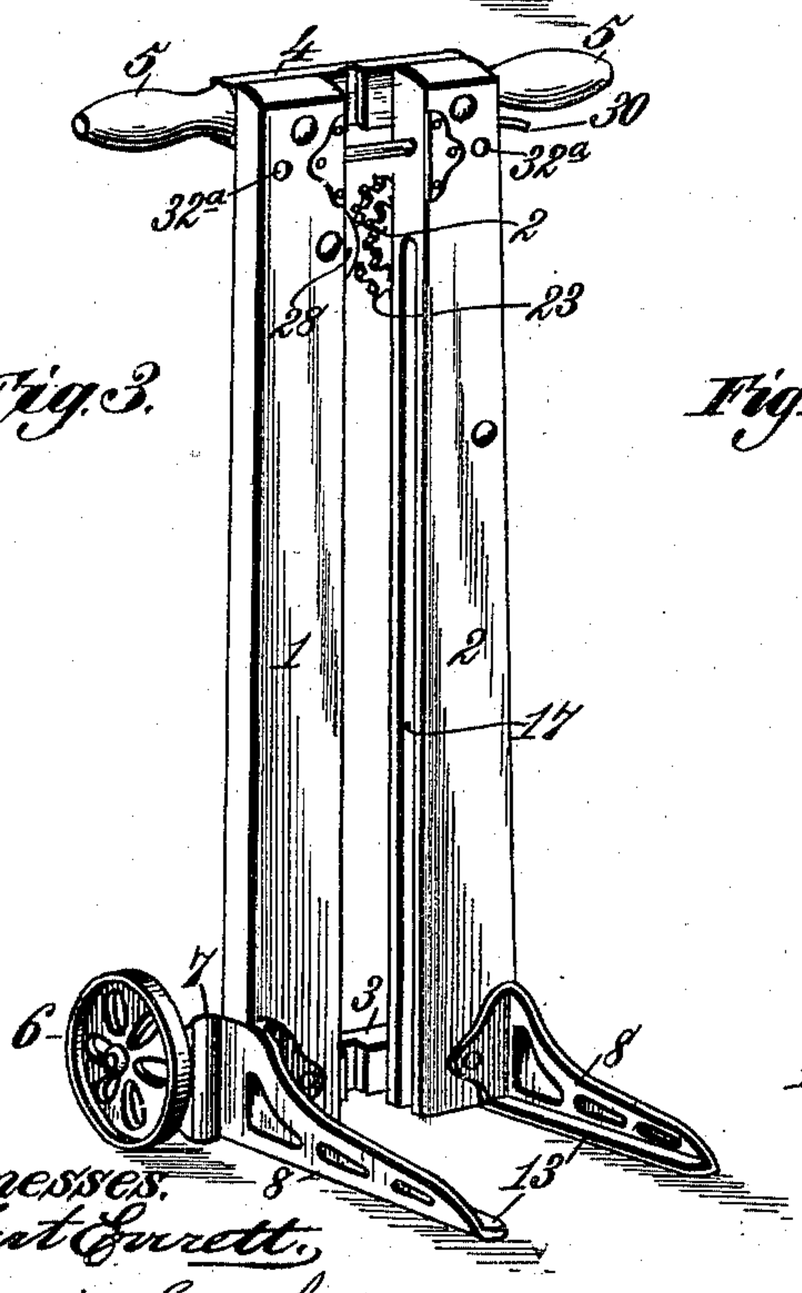


Fig. 4.

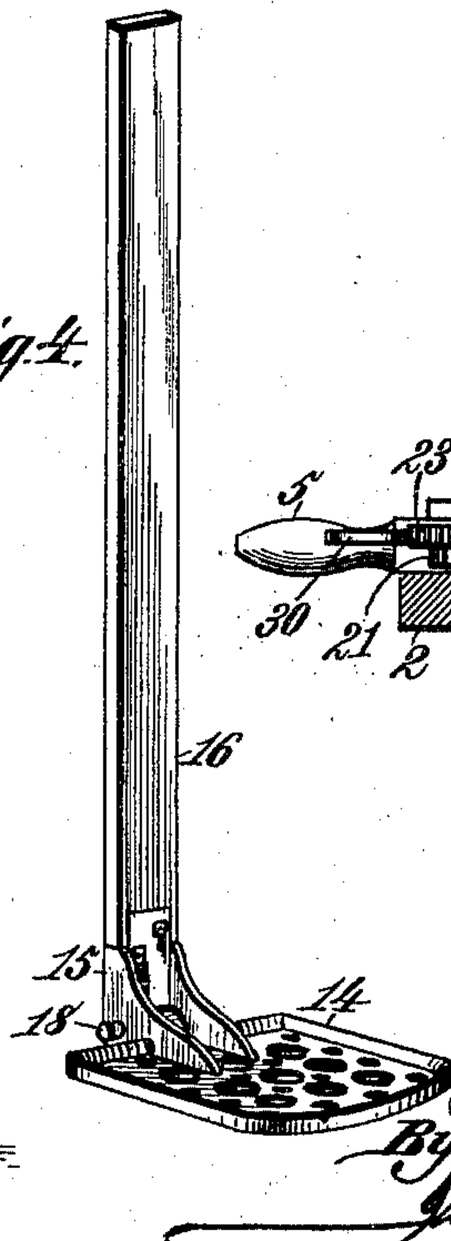
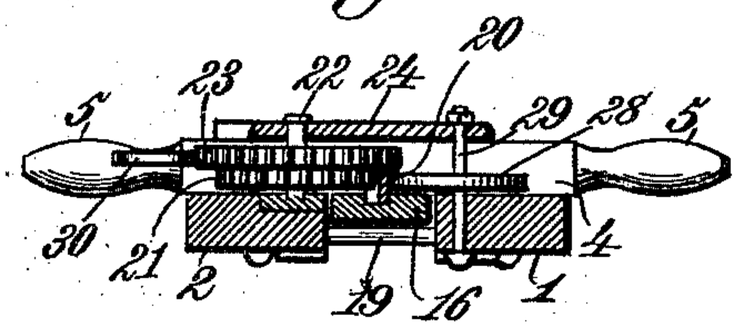


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN B. DEFFLER, OF JOHNSTOWN, PENNSYLVANIA.

APPARATUS FOR ELEVATING BAGS, BARRELS, &c.

SPECIFICATION forming part of Letters Patent No. 474,653, dated May 10, 1892.

Application filed December 2, 1891. Serial No. 413,795. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. DEFFLER, a citizen of the United States, residing at Johnstown, in the county of Cambria and State of Pennsylvania, have invented new and useful Improvements in Apparatus for Elevating Bags, Barrels, and other Articles, of which the following is a specification.

This invention has for its object to provide a novel apparatus capable of use for various purposes—such, for instance, as loading or unloading vehicles, elevating bags, barrels, boxes, or other articles to the shoulders of persons, transporting loads from place to place, and sustaining bags while they are being filled.

To accomplish this object my invention involves the features of construction and combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view looking at the front of the elevating apparatus. Fig. 2 is an elevation looking at the rear of the same. Fig. 3 is a perspective view looking at the front of the apparatus and omitting the lifting-platform and its sliding bar. Fig. 4 is a detail perspective view of the lifting-platform and its sliding bar, and Fig. 5 is a transverse sectional view taken on the line x x, Fig. 2.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings wherein—

The numerals 1 and 2 indicate a pair of parallel side beams or frames separated from each other a suitable distance and rigidly united at their lower ends through the medium of a cross-bar 3 and at their upper ends by a similar cross-bar 4, which is preferably extended at each end into a handle 5, by which to manipulate the apparatus on truck-wheels 6, as will hereinafter appear. The lower ends of the side beams or frames are provided at the outer edges with metallic brackets or castings 7, each formed with a horizontally-projecting foot-piece 8, extending from the front side of the apparatus, and with an axle-bearing 9, extending from the rear of the apparatus. The axle-bearings 9 serve to support an axle 10, having a truck-wheel 6 at each end, in such manner that by grasping the handles 5 the apparatus can be moved similar to an ordinary hand-truck.

The horizontally-projecting foot-pieces 8, in connection with the truck-wheels 6, fulfill the conditions required to firmly support the side beams or frames in a perpendicular position when the apparatus is to be used for elevating or lowering bags, barrels, boxes, or other objects.

The foot-pieces 8 and the axle-bearings 9 are cast integral with the bracket 7, and the inner sides of the foot-pieces are constructed with laterally-projecting flanges 13 to form rests for a platform 14 when the latter is in its lowermost position. The platform is preferably composed of a metal casting having at its center a suitably-constructed socket 15, to which is rigidly secured the lower extremity of a slide or bar 16, interposed between the adjacent edges of the parallel beams or frames 1 and 2. The inner edges of these beams or frames are constructed with guideways composed, as here shown, of grooves 17, formed in the inner edges of the beams or frames to receive the extremities of a transverse shaft, pin, or roller 18, secured to the socket 15 at the lower end of the slide or bar, so that when the slide or bar is moved longitudinally it is properly guided by the engagement of the shaft, pin, or roller with the grooves in the adjacent edges of the beams or frames. The shaft or pin 18 is preferably constructed in the form of a roller adapted to rotate for the purpose of reducing friction and rendering the parts free and easy in operation.

A transverse roller or shaft 19 is journaled in the upper extremities of the side beams or frames in such position as to bear against the front surface of the slide or bar 16, for the purpose of holding the slide or bar in proper position, while permitting it to freely move in a vertical plane. The upper end portion of the slide or bar is properly confined in place by the cross-bar 4 and the roller or shaft 19, while its lower end portion is confined in proper position by the roller or shaft 18, engaging the guideways or grooves 17. This construction reduces friction to a minimum and renders the platform and slide, with a load thereupon, susceptible of being elevated with ease and convenience through the me-

dium of a rack-and-pinion mechanism, which I will now proceed to describe.

The rack 20 is rigidly secured along the rear surface of the slide or bar 16 and engages a pinion 21, mounted on the axle or shaft 22 and rigidly secured to or formed with a gear-wheel 23. The shaft or axle 22 is journaled at one end in one of the side beams or frames and at the opposite end in a suitably-constructed metallic frame or bracket 24, secured at one end to the cross-bar 4 and at the opposite end to one of the side beams or frames. A shaft 25, journaled in the bracket or frame 24, is provided with a crank-handle 26 and a pinion 27, which engages the gear-wheel 23, so that when the crank-handle is rotated a rotary motion is transmitted to the pinion 21, and the rack 20 is caused to rise or fall according to the direction in which the crank-handle is turned. By this means the slide or bar 16 and its attached platform 14 are raised or lowered for the purpose of raising or lowering a bag, barrel, box, or other object which has been placed on the platform. The rack 20 is preserved in proper engagement with the pinion 21 through the medium of a friction-wheel 28, journaled on a stud or shaft 29 of the bracket or frame 24.

To lock the rack-and-pinion mechanism against back motion, I provide suitable mechanism for this purpose, which, as here shown, is composed of a locking-pawl 30, pivoted to the bracket or frame 24 and adapted to engage the gear-wheel 23. The locking-pawl is provided with a finger-piece arranged in such relation to one of the handles 5 of the cross-bar 4 as to be conveniently released from the gear-wheel by a hand grasping such handle 5. The locking-pawl is of such construction that it will permit the rotary motion of the gear-wheel in the direction required to elevate the slide or bar 16 and the platform 14, but will prevent the descent of the slide or bar and the platform unless such locking-pawl is intentionally moved out of engagement with the gear-wheel 23. I prefer to construct the locking-pawl with an arm 31, to which is secured a brake 32, adapted to press against the teeth of the gear-wheel 23 when the locking-pawl is moved out of engagement with such gear-wheel for the purpose of preventing too rapid descent of the slide or bar 16 and the platform 14.

The locking mechanism and likewise the brake device may be variously modified without altering the character of my invention, and therefore I do not confine myself to the specific construction herein described and shown.

The upper ends of the side beams or frames are provided with sockets 32^a to receive the extremities of a removable yoke 33, adapted to suspend a bag which is being filled, so that the bag will be directly above the platform 14, and consequently when such bag is properly filled it can, without manipulation, be elevated to any desired height.

It will be obvious that the apparatus is capable of being used for loading and unloading vehicles or for elevating bags, barrels, or boxes to place them at such convenient height that they can be taken on the shoulders of a person for transportation to the place desired, thereby materially reducing the labor involved. The apparatus can also be used similar to an ordinary hand-truck, and in this respect the elevating mechanism is an important feature in that it enables bags, barrels, boxes, and other articles to be placed on the truck, wheeled to the place desired, and then elevated into such position as to facilitate loading a vehicle. The apparatus is useful for many purposes not specially mentioned, and therefore I do not confine myself to any particular use of the invention.

Having thus described my invention, what I claim is—

1. The combination, with side beams or frames having foot-pieces and truck-wheels and longitudinal guideways at their adjacent edges, of a longitudinally-movable slide or bar having a rigidly-attached platform and pins which engage the guideways, a rack secured to the rear side of the slide or bar, a bracket or frame rigidly secured to the rear of the side beams or frames, a pinion journaled to the bracket or frame, meshing with the rack and rotating in a plane parallel with the rear surface of the slide or bar, and a shaft journaled to the bracket or frame, having a crank-handle and provided with a pinion for operating the pinion which meshes with the rack, substantially as described.

2. The combination, with the longitudinally-grooved side beams or frames having foot-pieces and truck-wheels at their lower extremities, of a cross-bar attached to the upper ends of the side beams or frames, a shaft secured to the latter in front of the cross-bar, a longitudinally-movable slide or bar interposed between the cross-bar and the shaft, and provided at its lower extremity with a platform and pins which engage the grooves in the side beams or frames, a rack secured to the rear side of the slide or bar, a bracket or frame rigidly secured to the rear of the side beams or frames, a pinion journaled to the bracket or frame, meshing with the rack and rotating in a plane parallel with the rear side of the slide or bar, and a shaft journaled to the bracket or frame, having a crank-handle and provided with a pinion for operating the pinion which meshes with the rack, substantially as described,

3. The combination, with the longitudinally-grooved side beams or frames having foot-pieces and truck-wheels at their lower extremities, of a cross-bar secured to the upper ends of the side beams or frames, a shaft attached to the latter in front of the cross-bar, a longitudinally-movable slide or bar arranged between the cross-bar and the shaft and having a platform and pins which engage the longitudinal grooves of the side

beams or frames, a rack secured to the rear side of the slide or bar, a bracket or frame rigidly attached to the rear of the side beams or frames, a shaft journaled to the bracket or frame and provided with a gear-wheel and a pinion which meshes with the rack, a shaft journaled to the bracket or frame, having a crank-handle and provided with a pinion for operating the gear-wheel, and a locking-pawl for engaging the gear-wheel to prevent back motion thereof, substantially as described.

4. The combination, with the side beams or frames having longitudinal guideways and foot-pieces and truck-wheels at their lower extremities, of a slide or bar having a platform and pins which engage the longitudinal guideways, a rack secured to the rear side of the slide or bar, a bracket or frame connected with the rear of the side beams or frames, a pinion journaled to the bracket or frame and meshing with the rack, a friction-wheel journaled to the bracket or frame and bearing against the rack to hold it in mesh with the pinion, and a shaft journaled to the bracket or frame, having a crank-handle and provided with a pinion for operating the pinion which meshes with the rack, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

JOHN B. DEFFLER. [L. S.]

Witnesses:
JOHN HITSHEW,
H. E. WOODWARD.