No. 866,638. PATENTED SEPT. 24, 1907.

O. EWERS.

WAGON LOADING DEVICE.

APPLICATION FILED JAN. 21, 1907.

2 SHEETS—SHEET 1.

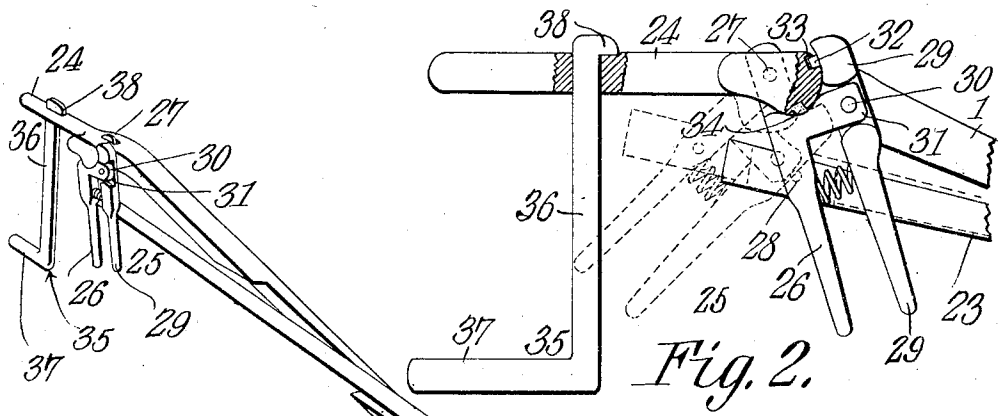


Fig. 1.

Fig. 2.

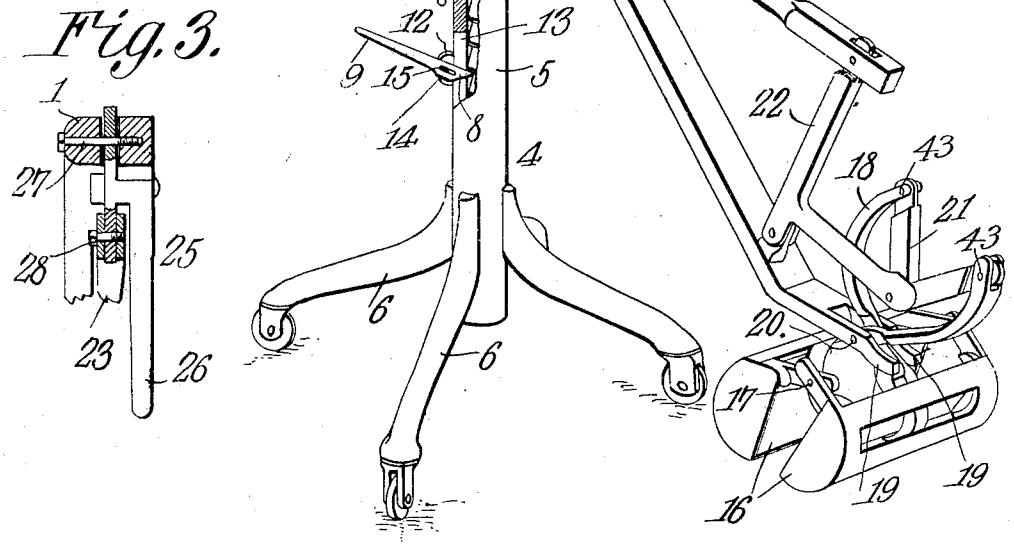


Fig. 3.

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2 SHEETS—SHEET 2

Fig. 4.

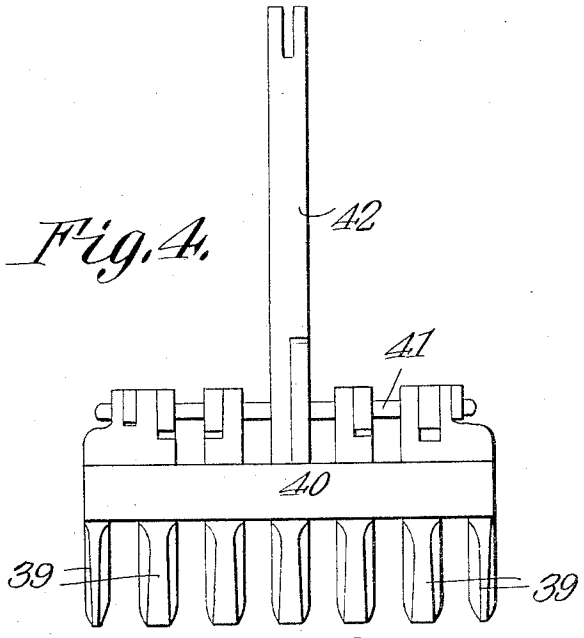
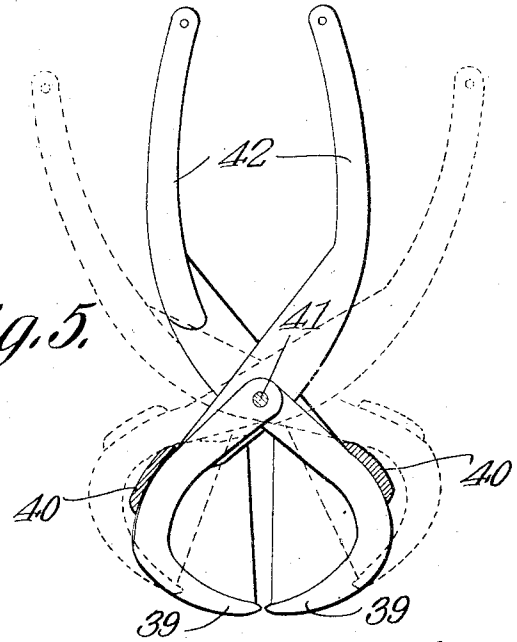


Fig. 5.



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UNITED STATES PATENT OFFICE.

ORLANDO EWERS, OF LONGMONT, COLORADO.

WAGON-LOADING DEVICE.

No. 866,638. Specification of Letters Patent. Patented Sept. 24, 1907.

Application filed January 21, 1907. Serial No. 353,322.

To all whom it may concern:

Be it known that I, ORLANDO EWERS, a citizen of the United States, residing at Longmont, in the county of Boulder and State of Colorado, have invented a new and useful Wagon-Loading Device, of which the following is a specification.

This invention relates to a device for taking up materials, such as wheat, potatoes, and the like, in sacks, and beets, or other similar material, in bulk, and transporting the same to any desired point, as, for instance, in loading a wagon with material piled on the ground adjacent the wagon, thereby relieving the operator from manually picking up the objects to be loaded into the wagon and depositing the same therein.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character, so as to be comparatively simple and inexpensive to manufacture, thoroughly effective in use, and adapted to enable a man to pick up heavy objects and place them in any desired place with considerable ease and facility.

A further object of the invention is to provide a pair of jaws suitably mounted upon a boom or lever which the operator controls from a suitable point, the jaws being opened and closed by an actuating mechanism which is controllable from a point convenient to the operator.

Another object of the invention is to so mount the lifting boom or lever that it can be raised and lowered by means of a jack device carried by the stand on which the boom is fulcrumed.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the invention comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter, and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a perspective view of the loading device showing a portion of the column of the stand broken away to illustrate the details of the jack device. Fig. 2 is a fragmentary side elevation of the operator's controlling device for the jaw operating mechanism. Fig. 3 is a transverse section of the handle end of the lifting lever showing the jaw actuating device. Fig. 4 is a side elevation of the beef gathering jaws. Fig. 5 is a transverse section thereof.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, 1 designates the lifting boom or lever of the apparatus which is hinged at 2 on the upper end of a vertically disposed pivot 3 mounted in the stand, designated generally by 4. The stand comprises a hollow column or post 5 provided at its lower end with a suitable base, such, for instance, as legs 6, whereby the upright or column 5 is supported in a vertical position. The pivot 3 is provided with a shoulder or collar 7 which is adapted, when the lever 1 is in its lowermost position, to bear on the upper end of the upright 5. By this means, the lifting lever 1 can be moved about the vertical axis of the stand and also tilted on the horizontal pivot 2.

In some circumstances, it may be desirable to vary the height of the pivot 2 on which the lifting lever 1 swings, as, for instance, to accommodate the device to load wagons of different heights. For this purpose, a mechanism for adjusting the pivot 3 is employed, the same comprising a pawl 8 having a handle 9 and arranged to engage ratchet teeth 10 on the pivot 3, a spring actuated pawl 11 coöperating with the pawl 9 to permit the pivot 3 to be raised or lowered step by step. The pawls are fulcrumed on lugs 12 formed on the upright 5, and adjacent the lugs are slots 13 into which the pawls extend to engage the ratchet teeth on the pivot. The pawl 8 is provided with a slot 14 through which the fulcrum pin 15 extends, the slot permitting of the pawl being moved back and forth as it is worked from one tooth to another. In order to permit the pivot 3 to be turned, while it is held in position by the pawl 11, the ratchet teeth 10 are circular and extend entirely around the pivot. By means of this jack device, the lifting lever or boom 1 can be readily and conveniently raised or lowered on the supporting stand 4 to any desired position.

The lifting lever or boom 1, which may be of any desired construction and of suitable proportions, carries at one end a pair of scooped-shaped jaws 16 which are approximately semi-cylindrical in shape and hinged together at 17. Each jaw is provided with an arm 18 arranged at the middle thereof and extending between the bifurcations 19 of the lever 1. The jaws are so arranged that the arms 18 cross each other after the fashion of a pair of tongs, and are hinged to the lever 1 by the pin 20. The upper ends of the arms 18 are connected by toggle links 21 which are straightened and collapsed by the bell crank lever 22 fulcrumed on the lever 1 adjacent the jaw carrying end. The tilting of the bell crank lever 22 actuates the toggle links 21 so that the jaws 16 are either opened or closed, so that articles can be picked up thereby and deposited. The bell crank lever is actuated by a pitman or connecting rod 23 which extends approximately from one end of the connecting lever 1 to the other. At the end of the lever 1 opposite from that carrying the jaw 16 is a handle 24, and adjacent this handle is a controlling device, designated generally by 25, for moving the pitman 23 longitudinally back and forth to open and close the jaws. This controlling device comprises an arm 26 fulcrumed at 27 on the handle end of the lever 1 and pivoted at 28 to the pitman. Hence, by oscillating the arm 26, the pitman will be moved in one direction

or the other. In order to lock the arm 26 in either of its two positions and thus hold the jaw 16 open or closed, the latch 29 is fulcrumed at 30 on a lug 31 formed on the arm 26. The latch is provided with a projection 32 which engages in the upper opening or depression 33 when the jaws are open, and in the lower opening or depression 34 when the jaws have been moved to closed position, as shown respectively by the full and dotted lines in Fig. 2.

When the lever 1 has been adjusted to such a height that it is not convenient for the operator to reach the handle 26, the said lever can be moved by the operator taking hold of the auxiliary or secondary handle 35. The said auxiliary handle comprises a vertically extending member 36 that is freely movable through an aperture in the handle 24 and at its lower end carries a grip member or handhold 37. On the upper end of the member 36 is a projection 38 forming a stop for preventing the auxiliary handle from pulling out.

In operation, the lever 1 is first adjusted by means of the jack device on the stand 4 to the desired position, and the stand is placed in suitable proximity to the wagon or other place where the material is to be deposited, and also in suitable proximity to the material to be taken up by the device and transferred to the wagon. The operator then takes the main or auxiliary handle of the lever in one hand and with the other operates the latch 29 and controller arm 26. By loosening the latch and throwing the arm 26 toward the stand 4, the jaws are opened by the intervening connections. The lever 1 is next tilted so that the jaws can take up a sack or any bulk material on the ground and the latch is again released and the arm 26 swung in the opposite direction. By this operation, the jaws are closed upon a sack or whatever other object is to be lifted. The operator then pulls down on the handle end of the lever 1 and at the same time swings the lever around on the pivot 3 as an axle so as to throw the jaw end of the lever over the body of the wagon into which the jaws are to empty. While being held in this position, the latch 29 is again released, and the arm 26 moved toward the stand 4, thus causing the jaws to open and the contents thereof to be deposited into the wagon. The lever 1 is then swung back and lowered to its initial position to take up another sack and transport it to the wagon, and so on, indefinitely. It will thus be seen that the lifting and transporting of suitable material from place to place can be conveniently and quickly accomplished by means of the improved device.

The preferred form of jaws for use with the apparatus when handling beets and similar loose products is shown in Figs. 4 and 5. These jaws each comprise a plurality of spaced curved teeth connected or formed integral with a cross bar 40, and the inner ends of the teeth 39 of both jaws overlap and are connected by a pintle 41 so as to hinge open or closed. The central teeth are provided with arms 42 through which the pintle passes, and these arms serve to connect the jaws with the toggle links 21 of the device. These beet gathering jaws and the sack gathering jaws shown in Fig. 1 are intended to be used interchangeably, and to detach one set of jaws and apply the other, it is merely necessary to remove the pins 43, Fig. 1, which connect the arms of the jaws with the toggle links 21, and substitute the jaws desired.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but I desire to have it understood that the device shown is merely illustrative, and that various changes may be made, when desired, as are within the scope of the claims.

What is claimed is:—

1. In an apparatus of the class described, the combination of a lifting element, a stand, a pivot on which the element is fulcrumed, circular ratchet teeth on the pivot, pawls on the stand coöperating with the teeth to raise and lower the pivot, carrying means on one end of the element, and a handle on the other end of said element.

2. In an apparatus of the class described, the combination of a lifting element mounted to move on two different axes, jaws on one end of the element, means at the opposite end of the element and connected with the jaws for opening and closing the latter, a handle adjacent said means, and a device for locking the jaws in open or closed position.

3. In an apparatus of the class described, the combination of a lifting element mounted to move on two different axes, jaws on one end of the element, toggle links connected with the jaws for opening and closing the same, a bell crank lever mounted on the element and connected with the toggle links, a device on the element at the end opposite from the jaws, and a connection between the device and bell crank lever for opening and closing the jaws by the said device.

4. In an apparatus of the class described, the combination of a lifting element mounted to swing on two right-angularly disposed axes, jaws fulcrumed on one end of the element and provided with arms arranged in crossed relation, toggle links connecting the free ends of the arms, a bell crank lever connected with the toggle links, an arm fulcrumed on the end of the element opposite from that having the jaws, a connection between the bell crank lever and arm, and a locking device associated with the said arm for holding the latter in either of two positions corresponding to the open or closed positions of the jaws.

5. In an apparatus of the class described, the combination of a suitably mounted lifting element, jaws fulcrumed thereon, a handle at the opposite end of the element, an auxiliary handle, an arm on the element adjacent the auxiliary handle, means between the arm and jaws for permitting the arm to open or close the latter, and a device associated with the arm for holding the jaws in open or closed position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ORLANDO EWERS.

Witnesses:
J. E. WHITE,
GEO. GREGORY.