No. 883,448. PATENTED MAR. 31, 1908.

V. B. CAHILL.

LIFTING APPARATUS.

APPLICATION FILED JUNE 1, 1907.

Fig. 1.

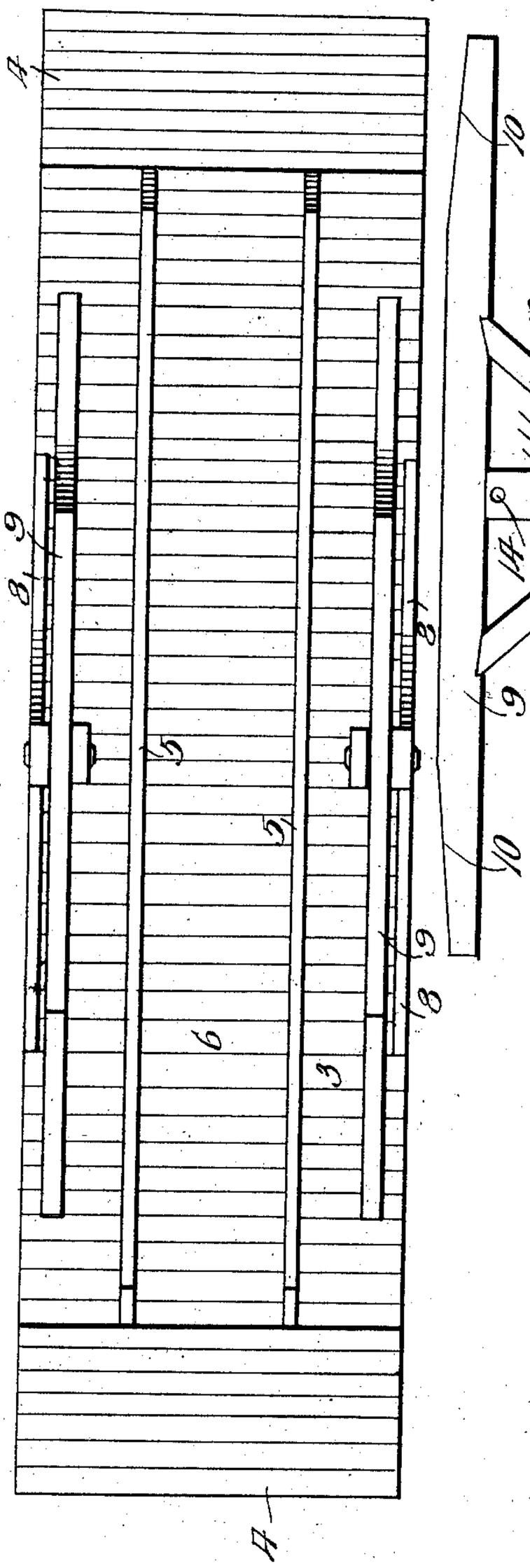


Fig. 3.

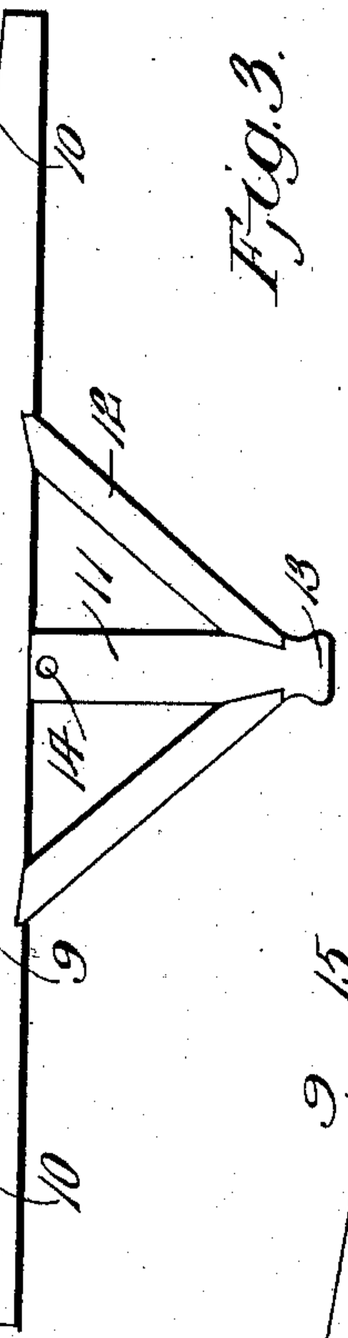
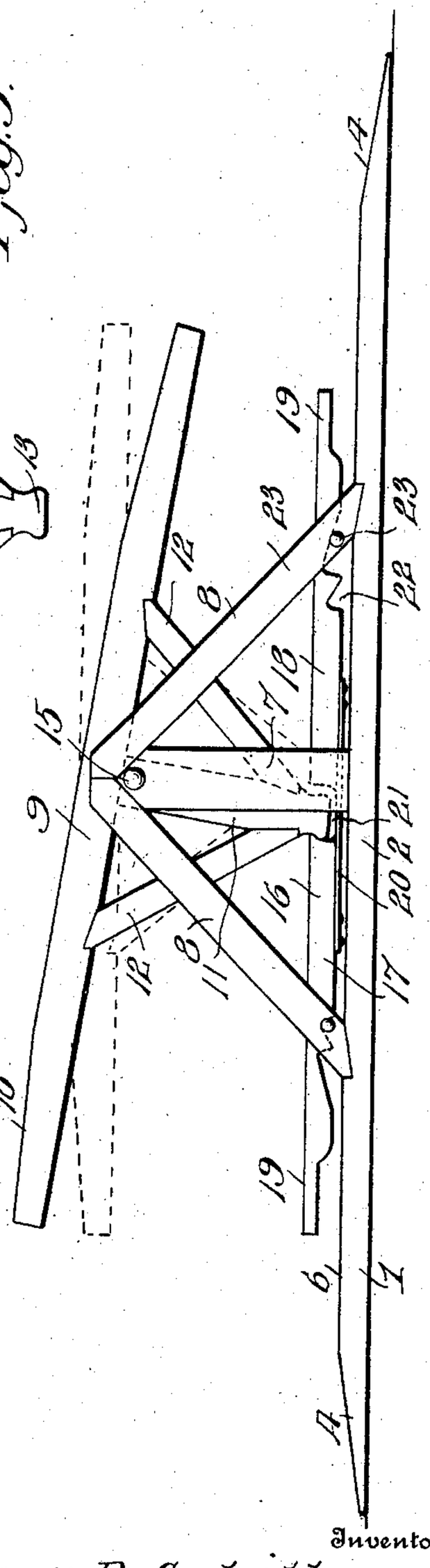


Fig. 2.



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UNITED STATES PATENT OFFICE.

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LIFTING APPARATUS.

No. 883,448. Specification of Letters Patent. Patented March 31, 1908.

Application filed June 1, 1907. Serial No. 376,745.

To all whom it may concern:

Be it known that I, VOLNEY B. CAHILL, a citizen of the United States of America, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Lifting Apparatus, of which the following is a specification.

This invention relates to improvements in lifting apparatus, comprehending particularly an apparatus especially designed for removing and applying hay racks, wagon boxes, water tanks, wood racks, header-boxes and the like from and upon their wheeled supporting frames or running gearing, the object of the invention being to provide a simple, convenient, powerful, effective and comparatively inexpensive appliance of this nature in which provision is made for the automatic removal of the boxes from their running gear by the power of the draft animals attached to the latter and for the automatic locking of the lifting mechanism in its adjusted positions.

With the above and other objects in view, the invention consists of the novel construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawing, in which:—

Figure 1 is a top plan view of a lifting apparatus embodying my invention. Fig. 2 is a side elevation of the same, showing different positions of the swinging frame in full and dotted lines. Fig. 3 is a side view of one of the members of the swinging frame.

Referring to the drawing, the numeral 1 represents a supporting frame, which may vary in construction as occasion demands, but, as shown in the present instance, comprises a pair of longitudinal side bars 2 upon which are laid cross boards to provide a substantial supporting platform 3, the end portions 4 of which are properly beveled or inclined to form easily graded ascents and descents for the passage of the vehicle to an from the platform. Upon the main portion of the platform is mounted a pair of longitudinal guide rails 5, said rails being spaced in parallel relation to form an intermediate path or track 6 for the passage of the draft animals. In practice, the team from which the box or rack is to be removed is driven from either end on to the platform, the draft animal or animals traveling in the track or space 6 between the rails 5 and the wheels of the vehicle on the outer sides of said rails, the latter serving as guides for the wheels to bring the vehicle in proper position for the application or removal of its box or rack.

Rising from the sides of the platform are stationary standards 7, supported and braced from said platform by oppositely arranged divergent braces or struts 8, bolted or otherwise fixed to the said bars and standards, which latter are bolted or otherwise fastened to said side bars in any secure manner. If desired, this frame construction may be modified by embedding the standards and their braces in the ground and dispensing with the platform section, the rails 5, however, being employed between these standards for the purpose described.

Mounted upon the supporting frame as thus constructed is a swinging frame comprising opposite side members, pivotally mounted respectively upon the standards 7. Each of these side members comprises a longitudinal lifting bar 9 having its end portions provided with beveled faces 10 to permit the vehicle bed or box to readily ride on and off the same. From the center of said bar depends a supporting arm 11 reinforced therefrom by a pair of oppositely arranged inclined or diverging braces 12, the lower end of the arm being rounded, as at 13, to form a knuckle or pivot portion for engagement with the locking means, as hereinafter described. A transverse opening 14 is provided in the arm for the passage of a bolt 15, carried by the standards 7, by which the said member of the swinging frame is mounted to swing or tilt thereon.

In the operation of the device, the two side members of the tilting or swinging frame are swung from their normally horizontal supporting positions to a desired angle to the horizontal, as indicated, for instance, from the dotted line to the full line position shown in Fig. 2, and the vehicle carrying the body or rack which is to be removed is driven on to the platform from the end thereof adjacent the lower ends of the bars 9. As the vehicle is drawn by the power of its draft animal or animals along the platform to a central position thereon, the lower beveled ends 10 engage under the rack or body of the vehicle, which passes upon the upper plane surfaces of said bars and is thereby in the forward movement of the vehicle elevated by the inclination of the platform from the running gear, this operation being auto-

matically performed by the inclined arrangement of the swinging frame and the movement of the vehicle under the pull of the draft animals, as will be readily understood. The team may then be driven off the platform, leaving the body or rack deposited upon the swinging frame, which will then be automatically tilted to a horizontal position and locked, as hereinafter described, to hold the body or rack firmly supported until its subsequent removal is desired.

Means are provided for locking the side members of the swinging frame in adjusted position. As clearly shown in Fig. 2, a locking bar 16 is provided to coöperate with the standard of each side member, and comprises two sections 17 and 18, provided at their outer ends with suitable controlling handles 19. The inner ends of the bar sections are connected and reinforced by a brace 20 and are spaced or shaped to provide an opening 21 to receive the lower end 13 of the supporting arm 11. This receiving opening 21 is of somewhat greater length than the part 13 so as to permit a pivotal movement of the latter therein to a slight degree in one direction or the other, allowing the coacting side member of the tilting frame to swing to a slight extent to impart motion in either direction to the locking bar.

Each section of the locking bar is provided at its lower edge with a plurality of locking slots 22 adapted to receive locking pins 23 arranged upon the lower ends of the braces 8, to maintain the members of the swinging frame in a plurality of adjusted positions. Each locking notch 22 is provided with an abrupt inner shoulder or side and an outer inclined side, the shoulder being adapted to engage the pin to lock the bar and the inclined side to slide over the pin and permit longitudinal movement of the bar. When the swinging frame sections are swung downward for inclination in one direction, the supporting arms thereof are permitted to have a limited independent movement in the slots 21 of the locking bars until the pivot portions 13 of the supporting arms 11 engage the side walls of the openings in the direction of their swinging movement, whereupon longitudinal motion will be imparted to the locking bars 18. The bracing connection 20 between the sections 17 and 18 of each locking bar preferably comprises a spring metal or wooden strip adapted to allow an independent vertical movement of each bar section. Hence when the right-hand ends of the swinging frame members are depressed and the arms 11 swing to the left, the inclined sides of the notches of the locking bar sections 18 will slide over the coacting locking pins 23, while upon the manual elevation of the sections 17 the notches therein will be freed from engagement with their locking pins, thus allowing movement of the bars 16 to the left to the desired degree, it being understood that when the swinging platform sections are tilted to the desired extent the locking bar sections 17 are released to permit the proper notches therein to engage the coöperating locking pins, thereby locking said swinging frame sections in adjusted positions. The mode of operation of the parts in the reverse swinging action of the swinging frame section will be apparent from the foregoing description, as well as the mode of releasing and adjusting the locking bars for the swinging motion of the frame sections in either direction.

When the body or rack is deposited upon the inclined rear ends of the swinging frame sections as hereinbefore described, and the team and running gear are driven off the platform, the body or rack will be so disposed that a slight preponderance of weight will be forwardly beyond the center of gravity (the journals 15), and the swinging frame will be automatically tilted to a horizontal position and securely locked by the gravity locks with its load, to hold the body or rack firmly supported until its subsequent removal is desired, at which time, because of the excess of weight on swinging frame being on that side of the center of gravity toward the front of the rack or bed, when the running gear is placed in position for reloading the rack or bed by simply releasing the gravity locks at the ends opposite the front of the vehicle, the rack or bed will cause the swinging frame to incline toward the front bolster of the running gear, until the front end of the rack or bed is placed in position thereon, at which time the team may be driven ahead, and the rack or bed will slide down the inclined front ends of the swinging frame sections and be automatically replaced upon the running gear of the vehicle.

The manifold uses for which the invention is adapted will be readily understood from the foregoing description and the advantages of the construction herein described will, furthermore, be apparent to those versed in the art.

The specific construction set forth is not essential but may be varied within the scope of the appended claims.

Having thus described the invention, what is claimed as new, is:—

1. In an apparatus of the character described, the combination of supporting means, lifting means comprising a pair of bars intermediately pivoted to said supporting means for tilting motion above and below the horizontal in either direction, and a set of locking devices for each lifting bar, including a pair of locking members upon the supporting means, and a locking bar shiftable by said lifting bar into and out of engagement with the locking members to se-

cure the lifting bar in either of its operative positions, said locking bar embodying a pair of manually-controlled sections.

2. In an apparatus of the character described, the combination of supporting means, a pair of tilting lifting bars intermediately pivoted upon said supporting means for a tilting motion above or below the horizontal in either direction, a pair of locking devices upon the supporting means for each lifting bar, and a locking bar connected with each lifting bar for adjustment thereby to engage such locking devices, such being provided with rack teeth to engage the locking devices and comprising sections adapted for independent manual adjustment to throw them out of locking engagement.

3. In an apparatus of the character described, the combination of supporting means, a pair of locking bars intermediately pivoted upon the supporting means, said bars having duplicate end portions, locking members upon the supporting means for each bar, said members being arranged beyond the plane of the pivotal supports, and a locking bar intermediately connected with each lifting bar for adjustment thereby into and out of engagement with said locking devices, said bar comprising sections adapted for independent manual adjustment to throw them out of locking engagement.

4. In an apparatus of the character described, the combination of a supporting frame, a pair of lifting bars intermediately pivoted upon said frame and having duplicate end portions, a pair of locking pins for each lifting bar mounted upon the opposite end portions of the frame, and a locking bar pivotally connected with each lifting bar and comprising sections adapted to interlock with said locking means, said sections being adapted for independent manual adjustment to throw them into and out of locking engagement.

5. In an apparatus of the character described, the combination of a supporting frame having uprights, a pair of lifting bars intermediately pivoted to the respective uprights and having arms centrally depending therefrom, a pair of locking pins upon the frame of each lifting bar, said pins being arranged on opposites of the uprights, and a locking bar for each lifting bar, said locking bar being pivotally connected with the depending arm for longitudinal movement when the lifting bar is tilted, and comprising end sections provided with notches to engage the locking pins, said sections being independently operable for manual adjustment to throw them out of engagement with said pins.

6. In an apparatus of the character described, the combination of a supporting frame, including side standards, lifting means comprising a pair of lifting members pivotally supported by said standards and each having a lifting bar, a depending supporting arm, locking members upon the frame, and locking bars pivotally connected with the depending arms of the tilting lifting members and comprising manually-controlled sections, said sections being provided with notches to interlock with the said locking members on the frame.

In testimony whereof, I affix my signature in presence of two witnesses.

VOLNEY B. CAHILL.

Witnesses:

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