No. 771,470. PATENTED OCT. 4, 1904.

J. I. FULTON.

GRAIN ELEVATOR.

APPLICATION FILED MAY 21, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.

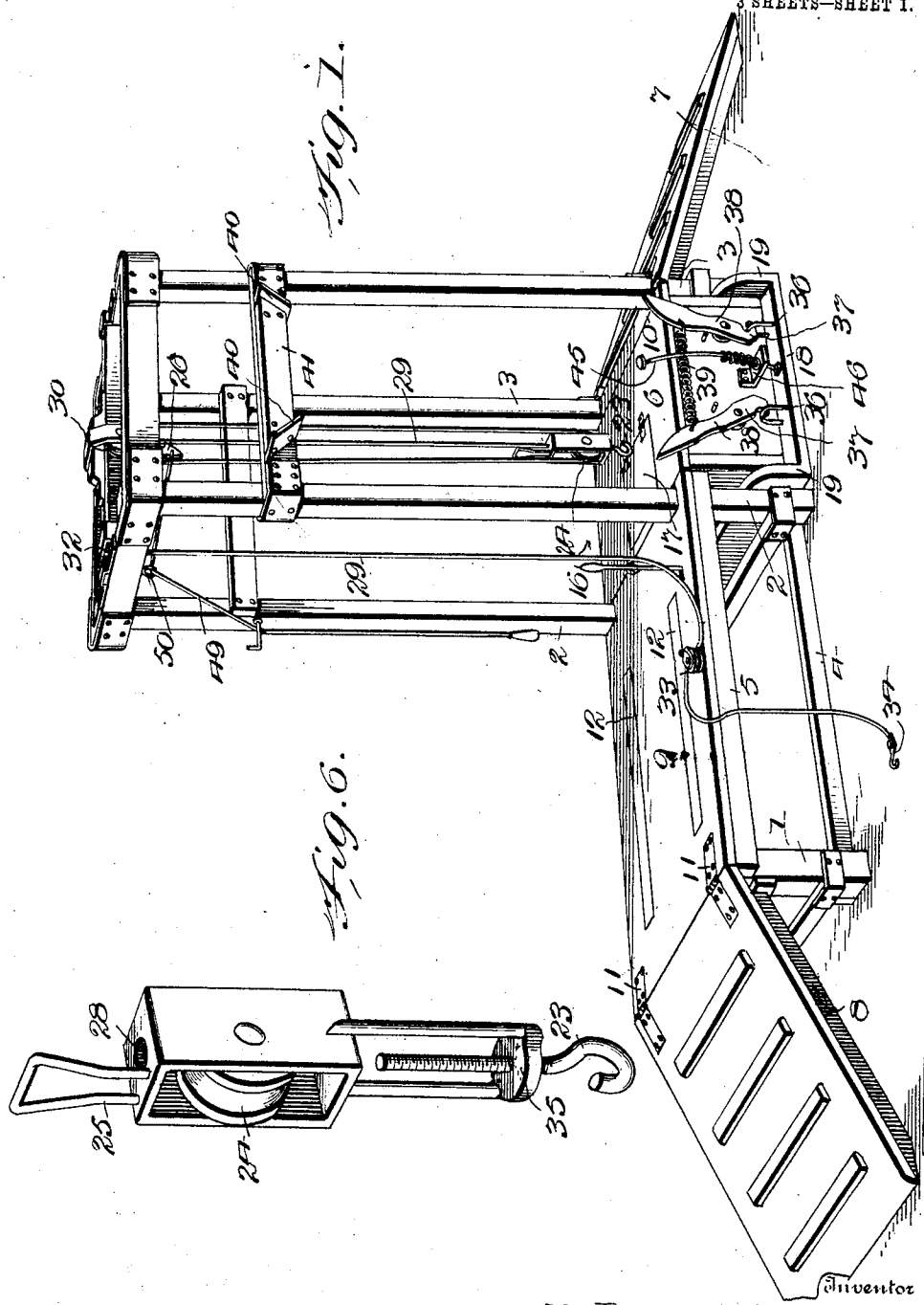


Fig. 6.

Witnesses

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 2.

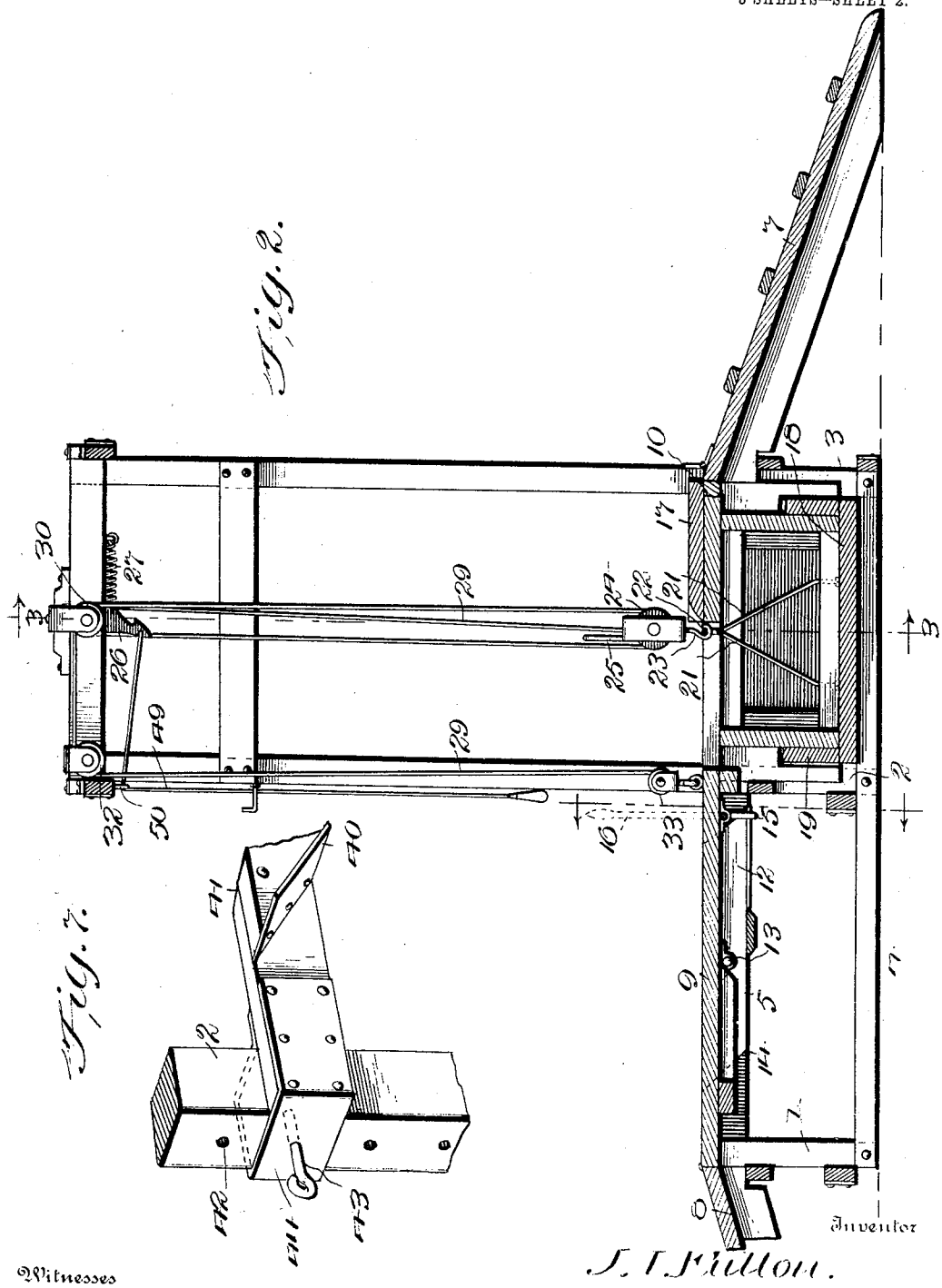


Fig. 7.

Witnesses

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NO MODEL. 3 SHEETS—SHEET 3.

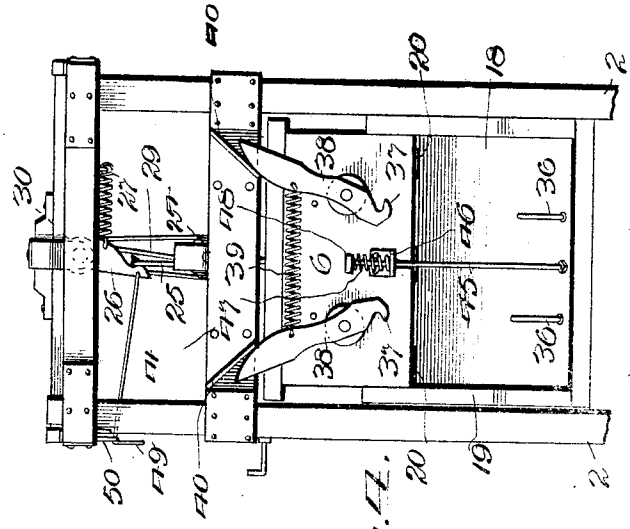


Fig. 4.

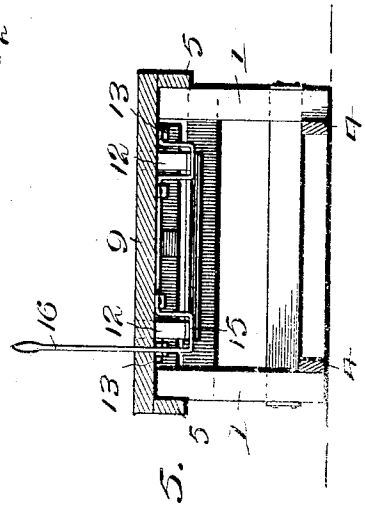


Fig. 5.

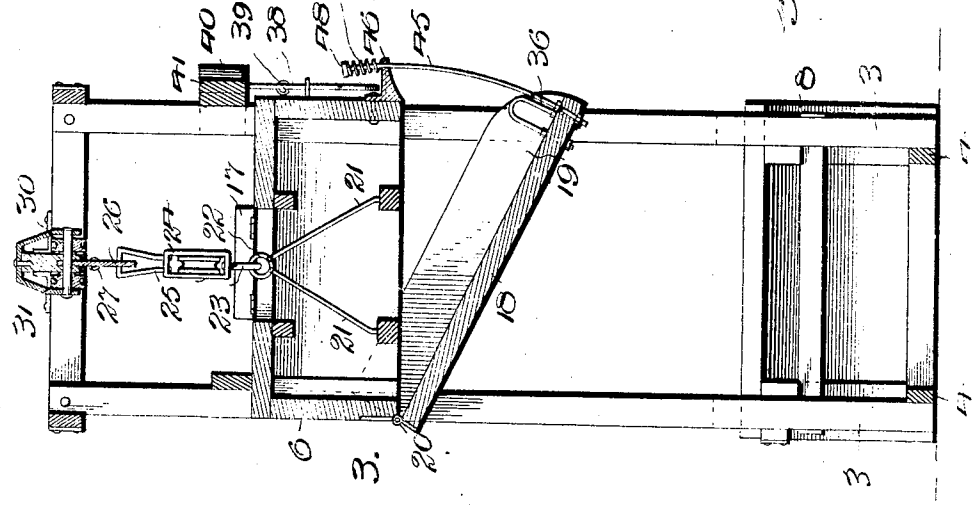


Fig. 3.

Witnesses
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No. 771,470. Patented October 4, 1904.

UNITED STATES PATENT OFFICE.

JACOB I. FULTON, OF TAYLORVILLE, ILLINOIS, ASSIGNOR OF ONE-HALF TO ALBERT E. FLEMING, OF ELPASO, ILLINOIS.

GRAIN-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 771,470, dated October 4, 1904.

Application filed May 21, 1904. Serial No. 209,038. (No model.)

To all whom it may concern:

Be it known that I, JACOB I. FULTON, a citizen of the United States, residing at 626 East Adams street, Taylorville, in the county of Christian and State of Illinois, have invented certain new and useful Improvements in Grain-Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to grain-elevators, and more particularly to a portable grain-elevator and dumping appliance; and it consists of certain novel features of combination and construction of parts, the preferred form whereof will be hereinafter clearly set forth, and pointed out in the claims.

The prime object of my invention, among others, is to provide an elevator which, while primarily intended for lifting grain and receiving the same from wagons, carts, &c., and delivering the same into railway-cars, boats, or other point desired, will also be found efficient and useful for handling other articles of merchandise, as coal, &c., all of which will be made obvious from the following specification.

A further object of my invention is to provide an appliance of the character specified which may be easily portable, so that it may be removed from place to place.

Another object of my invention, among others, is to provide an appliance for the purpose set forth which will enable the grain to be easily discharged, as from a farmer's wagon or the like, into a receptacle, said receptacle having means coöperating therewith to elevate it to any desired point, where it will be automatically delivered of its contents.

Other objects and advantages will be made clearly apparent from the following specification, considered in connection with the accompanying drawings, which are made a part of this application, and in which—

Figure 1 shows a perspective view of my invention complete ready for use. Fig. 2 is a longitudinal central section thereof. Fig. 3 is a transverse sectional view as taken on line 3 3 of Fig. 2. Fig. 4 is a detail view showing certain parts of my invention in side elevation. Fig. 5 is a detail view in section, showing the tripping mechanism for lowering the rear wheels of the wagon, whereby the grain contained therein will be easily delivered into the grain-receptacle. Fig. 6 is a perspective view showing the preferred form of sheave-block and the adjustable hook provided to coöperate therewith. Fig. 7 is a perspective view showing a detail of the adjustable tripping mechanism employed to release the grain from the receptacle after the latter has been elevated to the desired height.

For convenience of reference to the various details of my invention and coöperating accessories numerals will be employed, the same numeral applying to a similar part throughout the several views.

Referring to the numerals on the drawings, 1, 2, and 3 are supporting-standards properly braced and connected together in any preferred way, as by the cross-bars 4 and the platform-supporting bars 5, as fully shown. The standards 2 and 3 are arranged in pairs, there being four of said standards, all of which are preferably of the same height and reach upward sufficiently to insure that the grain-receptacle 6 may be raised to a proper point, as will be hereinafter set forth. Suitable approaches 7 and 8 are also provided, said approaches being inclined drives properly hinged or otherwise suitably connected to the platform 9 and the side bar 10 extending between the standards 3 3, as by the hinges 11 or equivalent thereof, whereby said inclined ways may be folded upward when not in use, the platform 8 being disposed directly upon the platform 9 when in a folded condition. The platform 9 is provided with a pair of tilting-bars 12, which, as will be seen by reference to Fig. 2, are pivotally secured in any suitable manner to the under side of the platform, as designated by the numeral 13. The outer ends of the tilting-bars 12 are beveled in such a manner that they cannot move downward, said beveled edge being designated by

the numeral 14, while the inner ends of said tilting-bars are beveled in such a manner that they can only move downward, but are held against casually moving down by means of the U-shaped members 15, which fit around the pointed end of the bars and are thus reliably held in place until the controlling-lever 16 is moved outward, which will disengage the supporting U-shaped members 15 and permit the inner ends of said bars to move downward and incidentally lower the rear wheels of the wagon, whereby the grain, coal, or the like contained therein will drop into the receptacle 6 when the trap-door 17 is opened.

It will be understood that the receptacle 6 is provided with a hinged bottom section or chute 18, provided with side bars 9, whereby when the chute 18 is lowered into a discharging position, as designated in Fig. 3, said side bar will prevent the grain or the like from moving laterally, the chute being secured in position by suitable supporting-hinges 20, as will be obviously necessary. The receptacle 6 is designed to be bodily raised and lowered, and to accomplish this at the expense of a minimum amount of force suitable block and tackle will be provided, as will be hereinafter particularly pointed out.

In order that the receptacle 6 and the load carried thereby may be readily elevated and lowered, I provide the bail members 21, united together by the ring 22. The ring 22 is intended to coöperate with the hook 23 upon the sheave-block 24, a suitable loop or bracket 25 being provided for the upper part of the casing of the sheave-block, whereby said loop will be engaged by the trigger 26, held in a normally vertical position by the controlling-spring 27. The casing of the sheave-block is also provided with an aperture 28, in which the end of the controlling rope or cable 29 is anchored, the said cable passing thence upward around the stationary pulley-wheel 30 and thence downward around the wheel 24, the cable then being passed around another fixed pulley, 31, arranged adjacent to the pulley 30, and is thence passed outward over the pulley-wheel 32 and downward into engagement with the pulley 33, arranged at a convenient point on the platform 9, said cable preferably being provided with a hook-terminal 34, whereby it may be attached to some part of the vehicle being unloaded for a purpose hereinafter specified.

It will be observed that the hook-terminal 23 is adjustably mounted in the bracket 35, carried by the casing of the sheave-block 24, and it therefore follows that the hook may be readily lowered or raised, and thus adjusted to better perform its office and to insure that the load will be engaged at any desired height by means of the trigger or hook 26.

The bottom of the grain-receptacle 6 being hinged thereto in the manner above specified, it becomes desirable to provide means for holding the same in a closed position, and with this purpose in view I provide a pair of staples or keepers 36, located in the edge of the bottom 18, said staples or keepers being designed to be engaged by the hooks 37 upon the lower ends of the pivoted controllers 38, said controllers being held normally toward each other by the tension-spring 39 or the equivalent thereof.

Owing to the tension of the spring 39 the hook members will be held in position to engage the keepers 36, and to insure that said keepers or staples will be released after the grain-receptacle has been elevated to a proper height I provide a pair of preferably obliquely-disposed plates 40, carried by the cross-bar 41, the ends of which wrap loosely around the contiguous standards 2 and 3 and may be permanently or adjustably secured thereto, as desired. If the bar 41 is adjustably secured to the standards 2 and 3, then I prefer to provide a plurality of openings 42 and also provide the locking pin or bar 43, designed to pass through apertures in the collar member 44, carried by the bar 41, after said apertures have been brought into registration with the apertures 42, this construction being fully illustrated in Fig. 7. The upper ends of the controlling members 38 are rounded or beveled upon their inner edges, whereby they will more reliably engage the outer surface of the plates 40 upon the bar 41, said plates being disposed directly in the upward path of said controlling members 38. I also provide for the outer edge of the hinged floor member or chute 18 the upwardly-extending rod 45, which passes loosely through an aperture in the bracket 46, secured to a contiguous part of the end wall of the receptacle 6, a suitable cushioning-spring 47 being provided to encircle the upper end of the bar or rod 45 intermediate the head 48 and the bracket 46, whereby the strain or jar incident to the release of the free end of the chute 18 will be reduced to a minimum. I also provide means for overcoming the tension of the spring 27, and thus drawing the detent or hook member 26 out of engagement with the loop member 25 when it is desired to release the receptacle and permit it to drop downward to its initial position between the lower ends of the standards 2 2 and 3 3, a suitable controlling cable or rope 49 being provided for this purpose, said rope being passed through the eyebolt 50, secured to the upper part of the framework carried by the upper ends of said standards.

Believing that the construction of the various parts of my invention have thus been made clearly apparent, the operation thereof or manner of using the same may be stated to be as follows: The entire elevator is located at the proper point, as contiguous to a railway-track or other receiving-point, and the vehicle

containing the grain or the like to be elevated is driven upon the platform 7 and thence over the receptacle 6 onto the platform 9, and when the rear wheels are upon the inner ends of the titling-bars 12 the inner ends of said bars are released by a proper manipulation of the controlling-lever 16, which will drop the rear end of the wagon down, so that when the door 17 is opened the grain will pass from the wagon-bed into the grain-receptacle. After the grain-receptacle has thus been filled the hook member 23 is placed in engagement with the ring 22 and the hook 34 secured to some part of the vehicle. The vehicle is then driven off the platform 9 and down the inclined way 8, and by reason of the approaches of the cable 29, passing as it does around the several pulley-blocks described, the receptacle, with its load, may be easily elevated, it being understood that the bar 41, with its releasing-plates 40, shall have been properly adjusted to the desired point, so as to engage the controllers 38 and act thereon in such a manner as to push the upper ends outward and incidentally disengage their lower hooked terminals from the keepers or staple-like members 36, and the result will be that the free end of the chute 18 will drop downward and deliver the contents into a railway-car or other receiving-point. When the receptacle has been elevated to the desired point, it is understood that the hook member or detent 26 will engage the loop-terminal 25, and thus hold the receptacle in an elevated position until a downward pull is made upon the cable or rope 49, which will draw the detent 26 to one side and out of engagement with the loop member 25 and permit the receptacle to drop to the initial position ready for another load.

The various parts of my invention may be readily and cheaply manufactured and quickly assembled each in its respective operative position, and the entire appliance may be easily removed from place to place, thereby providing a reliably-efficient portable elevator for the purpose specified, and while I have described the preferred combination and construction of parts I wish to comprehend in this application all substantial equivalents and substitutes.

Believing that the advantages and manner of constructing and using my invention have thus been made clearly apparent, further description is deemed unnecessary.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a portable elevator for grain, the combination with a suitable framework comprising standards extending upward to the desired point, a platform and an inclined driveway reaching to said platform, of a grain-receptacle located between said standards, said grain-receptacle having a hinged bottom, hook members carried by said receptacle and adapted to engage keepers carried by said hinged bottom and hold the same closed, a spring uniting the upper ends of said hook members and adapted to hold them in engagement with said keepers, a cross-bar adjustably secured to said standards, obliquely-disposed plates secured to said cross-bar and adapted to engage the upper ends of said hook members and release them from their respective keepers whereby the bottom of the receptacle will be released and permitted to drop down, and means to lift said receptacle as desired, substantially as specified and for the purpose set forth.

2. In a portable grain-elevator, the combination with a suitable framework comprising standards, a platform erected upon said framework and inclined driveways reaching to said platform, of a grain-receptacle located between said standards, a hinged bottom for said receptacle, coöperating devices carried by the grain-receptacle to keep said bottom normally closed, obliquely-disposed releasing members for said coöperating devices, an adjustable cross-bar carrying said releasing devices, means to lift said grain-receptacle, and additional means carried by the upper ends of said standards adapted to engage and hold said grain-receptacle in its lifted position until released, substantially as set forth.

3. In a grain-elevator, the combination with suitable standards and a grain-receptacle located between said standards, of means to lift said receptacle comprising a cable 29 and sheaves 24, 30, 31, 32, and 33, around which said cable takes, the sheave 24 having a bracket 25 adapted to engage a trigger at the upper end of said standards whereby the grain-receptacle may be retained in its lifted position if desired, and additional means to release said grain-receptacle, substantially as set forth.

4. In a grain-elevator, the combination with suitable standards and a grain-receptacle located between said standards, of means to elevate said receptacle, comprising in part a sheave-block 24, a bracket secured to the upper part of said sheave-block, a hook 23 adjustably secured to said sheave-block and adapted to engage a ring carried by said receptacle, and a trigger at the upper end of said frame adapted to engage said bracket and hold said receptacle in an elevated position, and means to release said trigger from engagement with the bracket when desired, substantially as specified and for the purpose set forth.

5. In a grain-elevator, the combination with suitable standards, and a receptacle movably mounted therebetween, said receptacle having a hinged bottom, of hook members adapted to engage keepers in said hinged bottom and retain it in its closed position, a cross-bar 41 near the upper ends of said standards, a pair

of obliquely-disposed releasing members secured to said cross-bar with which the upper ends of said keepers are designed to engage and release the hinged bottom, means to adjust said cross-bar upwardly or downwardly whereby the grain will be released at different heights, and additional means to lift said receptacle, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JACOB I. FULTON.

Witnesses:
JOHN J. SCOTT,
LESLIE J. TAYLOR.