No. 649,992. Patented May 22, 1900.

# D. S. LEE & F. C. STUCKEL.

## GRAIN ELEVATOR FOR THRESHING MACHINES.

(Application filed Apr. 7, 1897.)

(No Model.) 2 Sheets—Sheet 1.

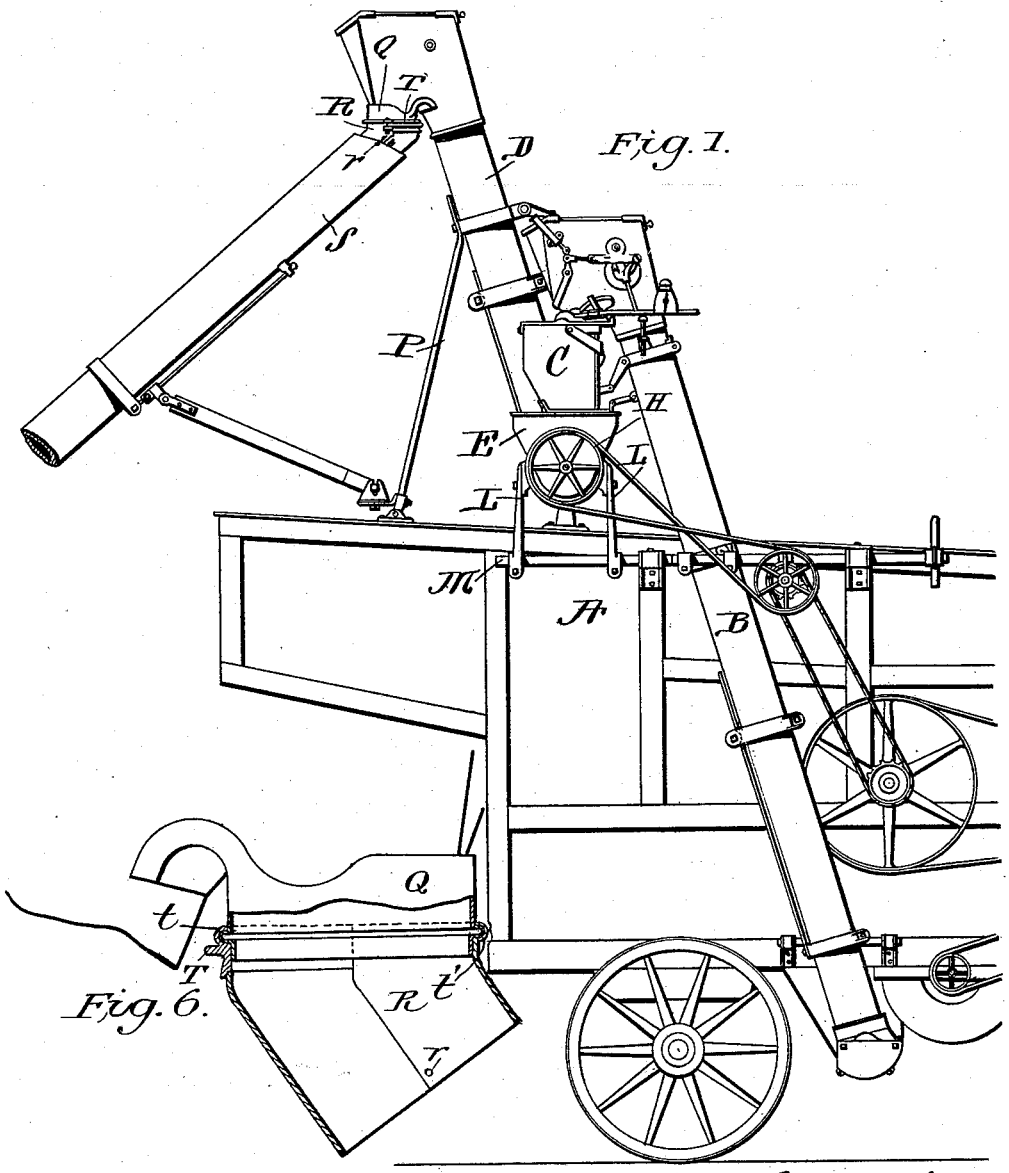


Fig. 1.




Fig. 6.

Witnesses:-
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David S. Lee
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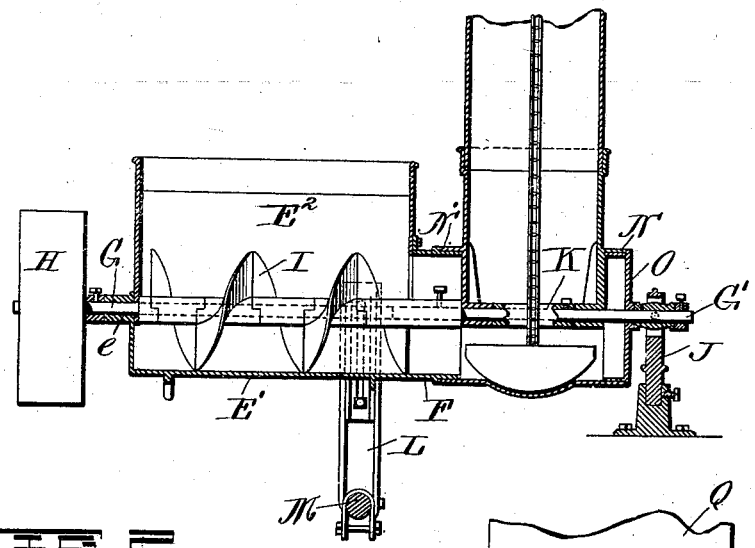


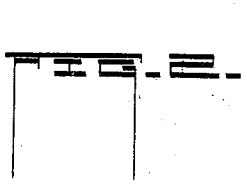

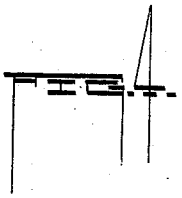

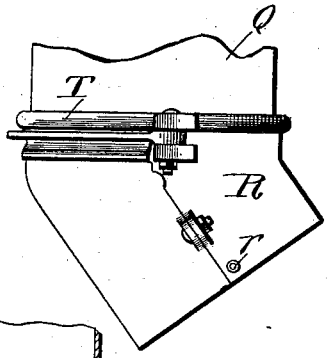


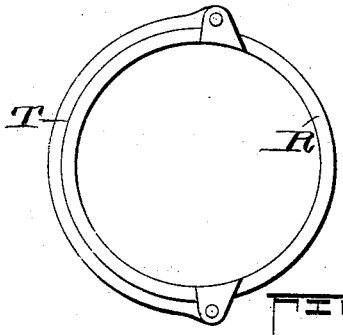


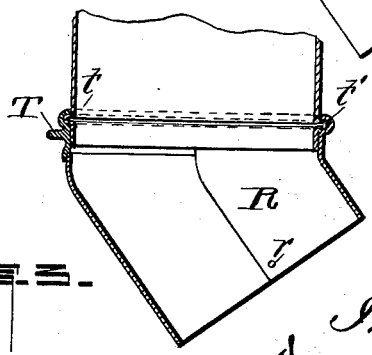


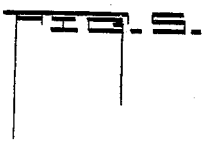

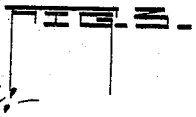

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Chas. N. LaPorte,
and
N. E. Francis

Inventors,
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Frank C. Stuckel
By W. V. Jeffrey
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# UNITED STATES PATENT OFFICE.

DAVID S. LEE AND FRANK C. STUCKEL, OF PEORIA, ILLINOIS, ASSIGNOR TO THE HART WEIGHER COMPANY, OF SAME PLACE.

## GRAIN-ELEVATOR FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 649,992, dated May 22, 1900.

Application filed April 7, 1897. Serial No. 631,171. (No model.)

*To all whom it may concern:*

Be it known that we, DAVID S. LEE and FRANK C. STUCKEL, citizens of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Grain-Elevators for Threshing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to grain-elevators for threshing-machines, and has for its object to provide a construction to facilitate in delivering the grain as it leaves the machine to a considerable height above it, from which point it may deliver the grain on either side of the machine into waiting receptacles—as, for instance, wagons, bins, &c.—and which may be folded to occupy very little space upon the machine when not in use and for detaching the delivery-spout connected with the elevator, if desired.

The particular features of the invention consist in the mounting of the elevator on top of the machine and providing in connection therewith a conveyer and receptacle containing it adapted to receive the grain from an elevator leading up to said receptacle or from the weighing-hopper.

The elevator proper herein shown is the same in construction as that disclosed in the patent to Stacey B. Hart, issued April 30, 1889, and numbered 402,522. Likewise the weigher shown in Figure 1 of the drawings is like that disclosed in patent to Stacey B. Hart, issued February 4, 1890, and numbered 420,798, and we do not make any claim on these constructions, but merely show the weighing apparatus to illustrate our manner of receiving grain therefrom, and the elevator is merely an auxiliary or detached elevator from the main one.

That our invention may be more fully understood, reference is had to the accompanying drawings, in which—

Fig. 1 is a side elevation of a part of a grain separator or thresher with our improved grain-elevator attached thereto. Fig. 2 is a longitudinal section showing a spiral conveyer mounted in a receptacle which connects with and leads into the elevator. Fig. 3 is a plan view of the coupling between the hood of the elevator and the adjustable swinging spout. Fig. 4 is an elevation of the coupling, showing a portion of the hood. Fig. 5 is a vertical section through the coupling; and Fig. 6 is also a vertical section of the coupling, but shows in addition thereto the lower portion of the hood with the flange in connection therewith.

In the drawings, A is a threshing-machine or grain-separator.

B is an elevator adapted to deliver grain into the weigher-hopper C, the said weigher-hopper and weighing mechanism being preferably carried at a point on top of the machine and at a height convenient to be reached by a person standing on top of the separator, the said weighing apparatus and hopper being supported in any suitable manner thereon, but preferably supported in the manner shown in the drawings.

D is an elevator, which consists of a hollow metal tube provided at each end with pulleys over which runs an endless chain or belt provided with flights, cups, or other suitable means for elevating the grain.

E is a receptacle adapted to receive grain from hopper C, the said hopper being provided with the circular extension F, which leads into the elevator D, at the lower or receiving end thereof.

E′ is the lower portion of the receptacle and is preferably made of cast metal and so formed as to provide the journal-bearing *e* for the shaft G, upon which is fixed the belt-wheel H, and also to form the circular extension F, which leads into the elevator. The top portion $E^2$ of the receptacle is open at the top and fits down upon the lower section.

I is a spiral conveyer, which may be made in sections and properly fixed on the shaft G. The said conveyer bears down in close proximity to the bottom of section E′ of the receptacle, and this portion of the receptacle is shaped to conform with the general circular shape of the conveyer. The shaft G, which supports the belt-wheel and the spiral conveyer, is adapted to be driven from the said belt-wheel H, which will cause the conveyer to be operated for the purpose of conveying the grain deposited in the receptacle into the lower or receiving end of the elevator.

G′ is a shaft in line with and butting up against shaft G and is suitably journaled in the standard J at one end, and the other end thereof is carried in the sleeve portion of one of the sections of the spiral conveyer, and the sleeve and shaft are secured together by means of a set-screw or in any other suitable manner, and by means of this connection the said shaft is turned with shaft G.

K is the hub of the wheel that carries the chain in the elevator-tube and is fixed upon shaft G′ by means of the set-screw, as shown.

The elevator and the conveyer-receptacle E are supported by the standard J, which is mounted upon the top of the separator, and the standards L L, supported upon rod M and having an adjustable connection with the receptacle E. We have described and shown a spiral conveyer and also shown and described the detail construction of the same and the manner of mounting and connecting the same with the elevator D; but we may use any kind of conveyer that will perform the function of conveying the grain from the receptacle into the lower or receiving end of the elevator. The elevator D is adapted to be raised and lowered, and to facilitate this adjustment the circular flanges N N′ are provided, the flange N engaging the cap O, which is journaled on shaft G′, and the flange N′ is supported upon the extension F from the receptacle E and is adapted to turn thereon and the cap O to turn as the elevator is raised or lowered. By means of this manner of mounting the elevator in connection with the conveyer-receptacle we are able to lower the elevator upon the top of the separator or upon a suitable support adapted to receive and secure it when it is not in use, and we accomplish this without disengaging the elevator from the conveyer-receptacle and without disengaging any parts except the supporting-bar P, which is provided to maintain it in an elevated position, and we do this simply by removing the bolt connection between the bar and the elevator.

By means of the provision of the conveyer and the receptacle containing it used in connection with the auxiliary elevator we are able to weigh the grain at a convenient point at or near the top of the separator, as and in the manner shown in the drawings, which enables us to mount the said weigher in a fixed and firm position, thus obviating the necessity of removing the weigher or folding it up when not in use and for transportation, and also obviating excessive vibration which would attend the operation of the separator, which would affect the weighing apparatus if it were mounted at considerable height above it, and by using the auxiliary elevator D we are able to elevate the grain to the high point necessary in order to spout it into wagons, bins, or other waiting receptacles at either side of the machine and at varying distances therefrom, and by using the receiving-receptacle E, containing a conveyer adapted to convey the grain into the lower or receiving end of elevator D, we obviate any danger of clogging or overloading the elevator, as the conveyer is adapted to deliver the grain thereto in such quantities as said elevator is adapted to handle conveniently, the receiving-receptacle E being made of sufficient size to accommodate accumulation above the normal quantity, so that there is no chance for packing for clogging therein.

At the upper portion of the elevator and in connection with the plate Q on the mouth of the hood we have provided an intermediate coupling R between the said plate and the spout S. The said coupling is formed of two main sections, which are bolted together in the manner shown, and the hinge-section T, which said section is provided with the groove *t*, which matches with the groove *t′* in the upper edge of the coupling R, which forms a continuous circular groove adapted to engage a flange on the lower end of plate Q and is adapted to turn thereon, thus enabling the spout connected with the coupling to be turned from one side of the machine to the other at will. The spout S is adapted to be pivoted to the coupling, as at *r*, and to be made considerably larger than the said coupling R in order to allow said spout to be raised and lowered. By means of the hinge-section T being made to form a part of the connection of the coupling with plate Q by disengaging one end of the hinge-section we are able to swing it out of engagement with the flange on plate Q and then to remove the coupling and the spout connected therewith, thus providing a simple means of attaching and detaching the spout from the elevator for convenience in folding up for transportation.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination with a threshing-machine, of a main elevator extending from the bottom of the machine to a point above the top, an auxiliary elevator mounted upon the top of the machine and extending upwardly to a point above the same and suitably pivoted to adapt it to be raised or lowered, a receptacle suitably carried in connection with and at the lower or receiving end of said auxiliary elevator, means for carrying the grain received in said receptacle to the auxiliary elevator, a discharge-chute suitably carried in connection with the auxiliary elevator as to permit it to be raised or lowered and adapted to deliver grain at either side of the machine, all substantially as and for the purpose described.

2. The combination with a threshing-machine, of the main elevator B, extending from the bottom of the machine to the top of the same, the intermediate receptacle E, the spiral conveyer I, suitably carried therein and adapted to receive grain from the main elevator B, of the auxiliary elevator D, connected with the receptacle E, and receiving grain

therefrom, discharge-chute S, suitably carried in connection with the auxiliary elevator as to permit it to be raised or lowered and adapted to deliver grain at either side of the machine, all substantially as and for the purpose described.

3. In a grain-elevator, the combination with the main elevator B, of the intermediate receptacle E, a suitable conveyer carried therein, the auxiliary elevator D, suitably carried in connection with the receptacle E, the plate Q, the intermediate coupling R, between the said plate and the spout S, which is pivoted to said coupling R, the hinged section T, adapted in conjunction with the main coupling to engage a flange on plate Q, whereby when the hinge-section disengages the flange on the plate, the coupling and the spout may be detached from the conveyer.

In testimony whereof we affix our signatures in presence of two witnesses.

DAVID S. LEE.
FRANK C. STUCKEL.

Witnesses:
S. B. HART,
J. E. DEVRIES.