

No. 614,613.

Patented Nov. 22, 1898.

F. B. HAYES.

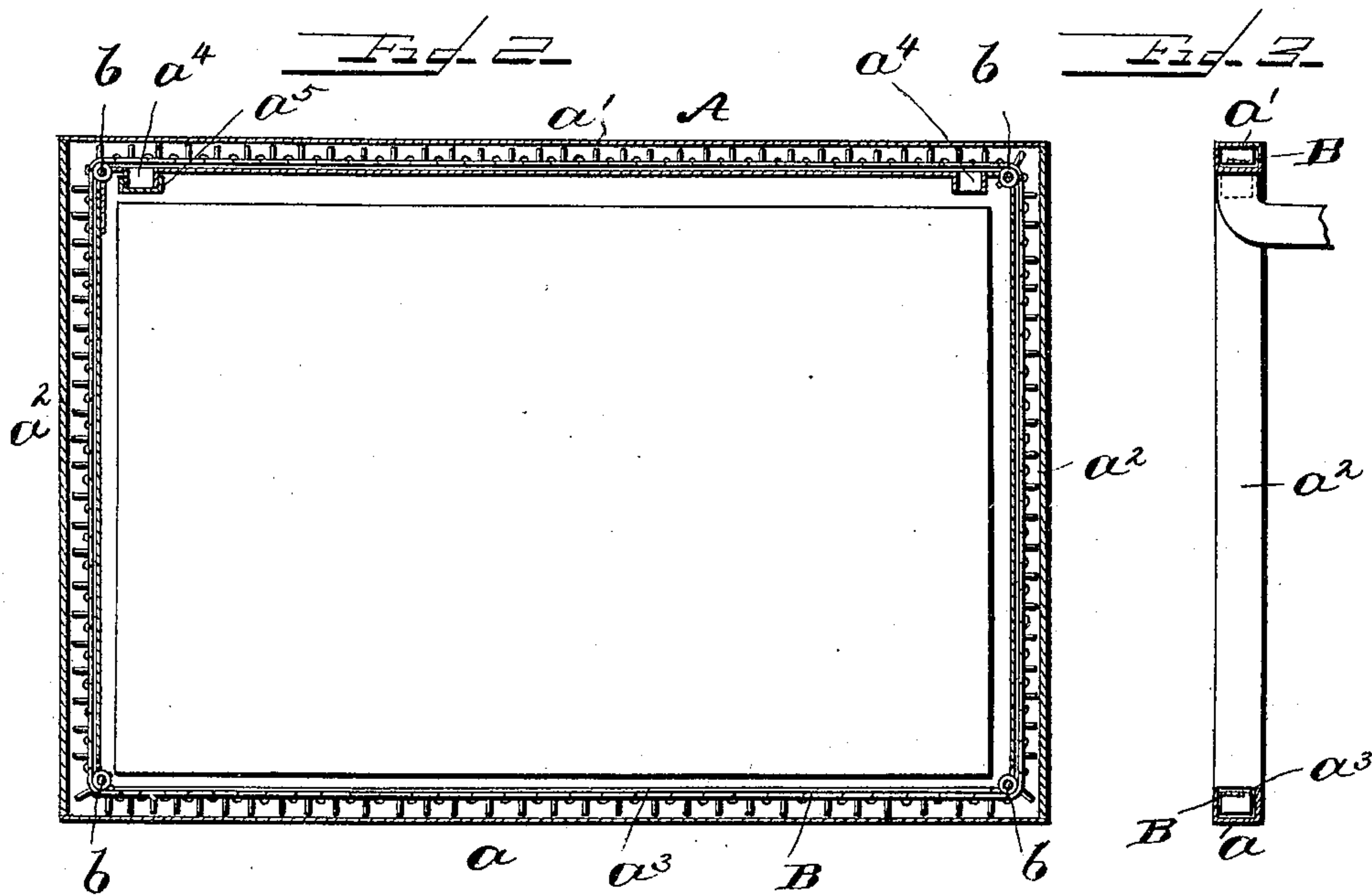
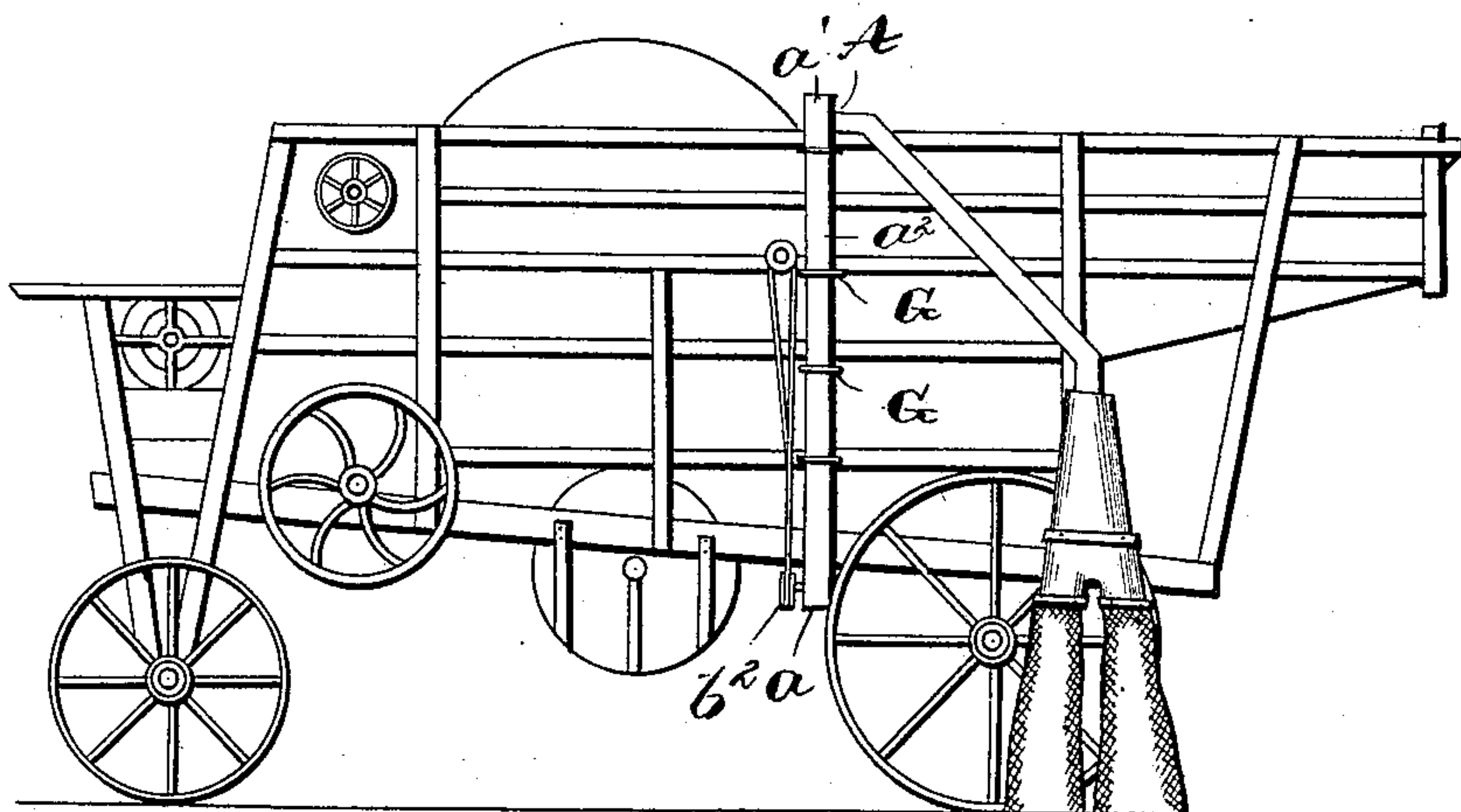
GRAIN ELEVATOR FOR THRESHING MACHINES.

(Application filed Oct. 6, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



WITNESSES.

G. A. Pauberschmidt,
J. D. Knigoburg.

INVENTOR.

Frederick B. Hayes
By Whitaker & Revost Atty.

No. 614,613.

Patented Nov. 22, 1898.

F. B. HAYES.

GRAIN ELEVATOR FOR THRESHING MACHINES.

(Application filed Oct. 6, 1897.)

(No Model.)

2 Sheets—Sheet 2.

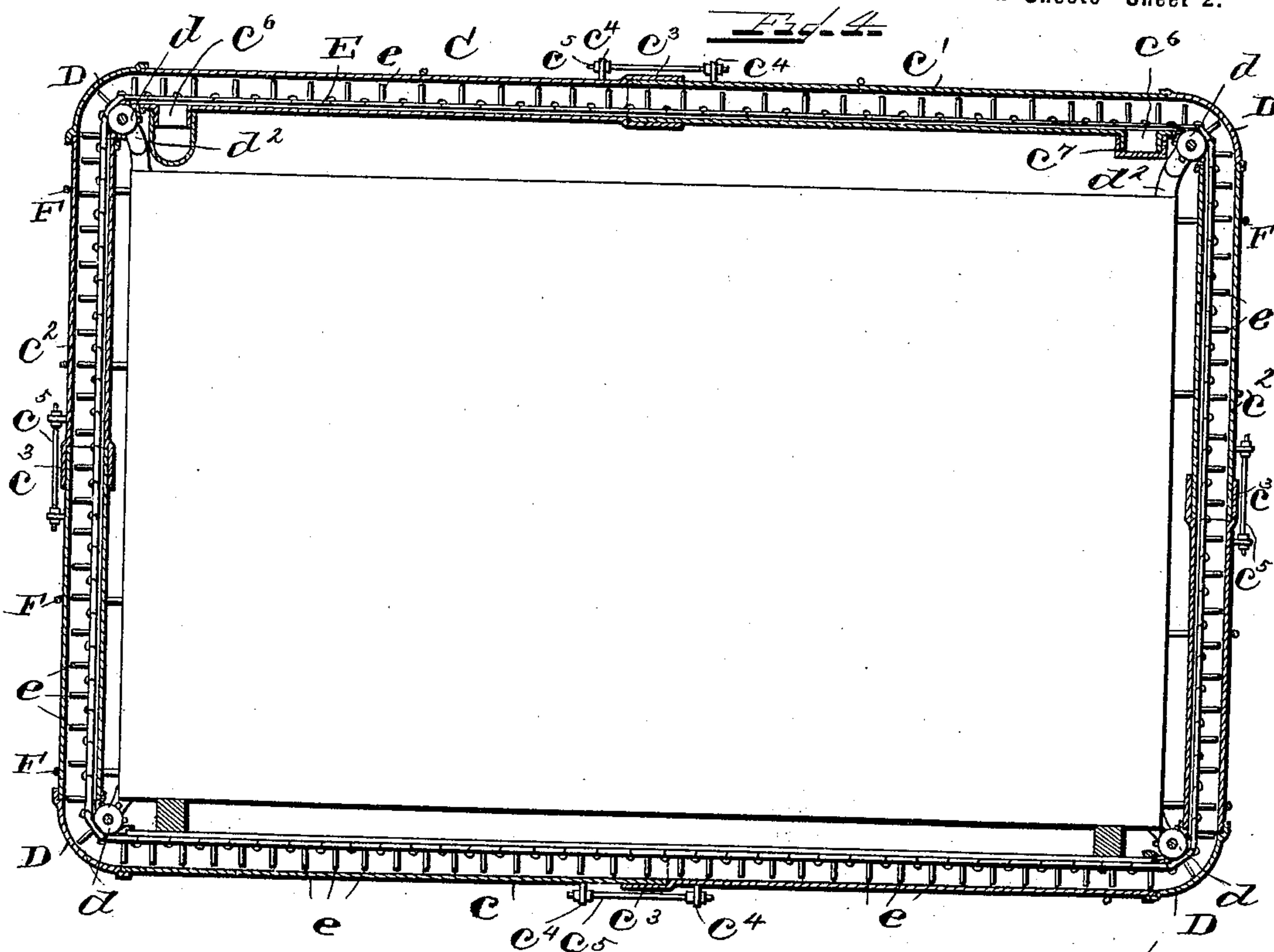


Fig. 5.

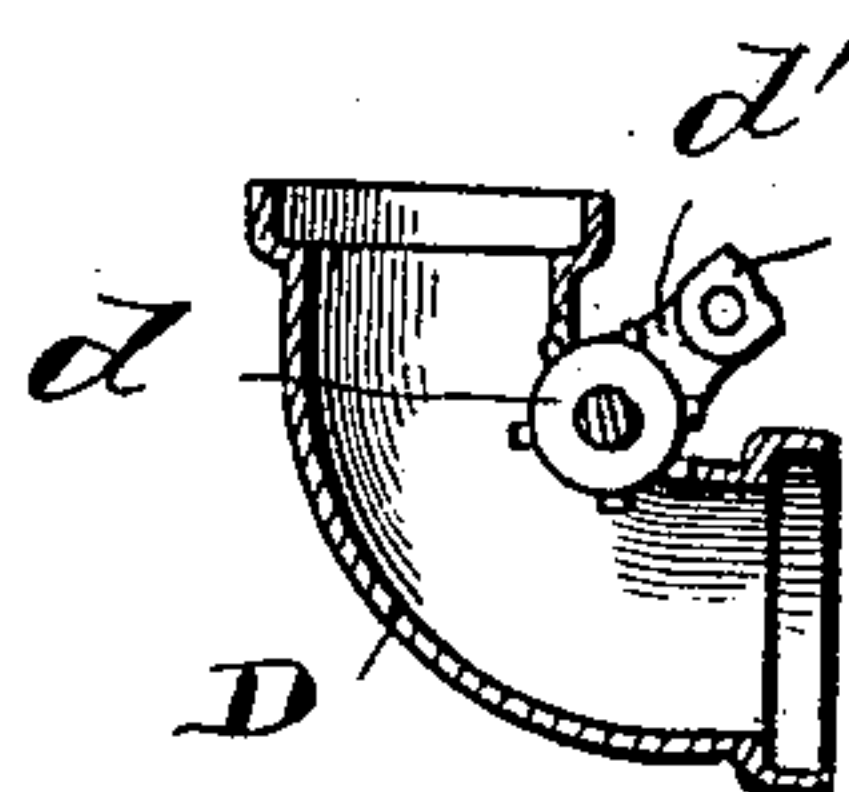


Fig. 6.

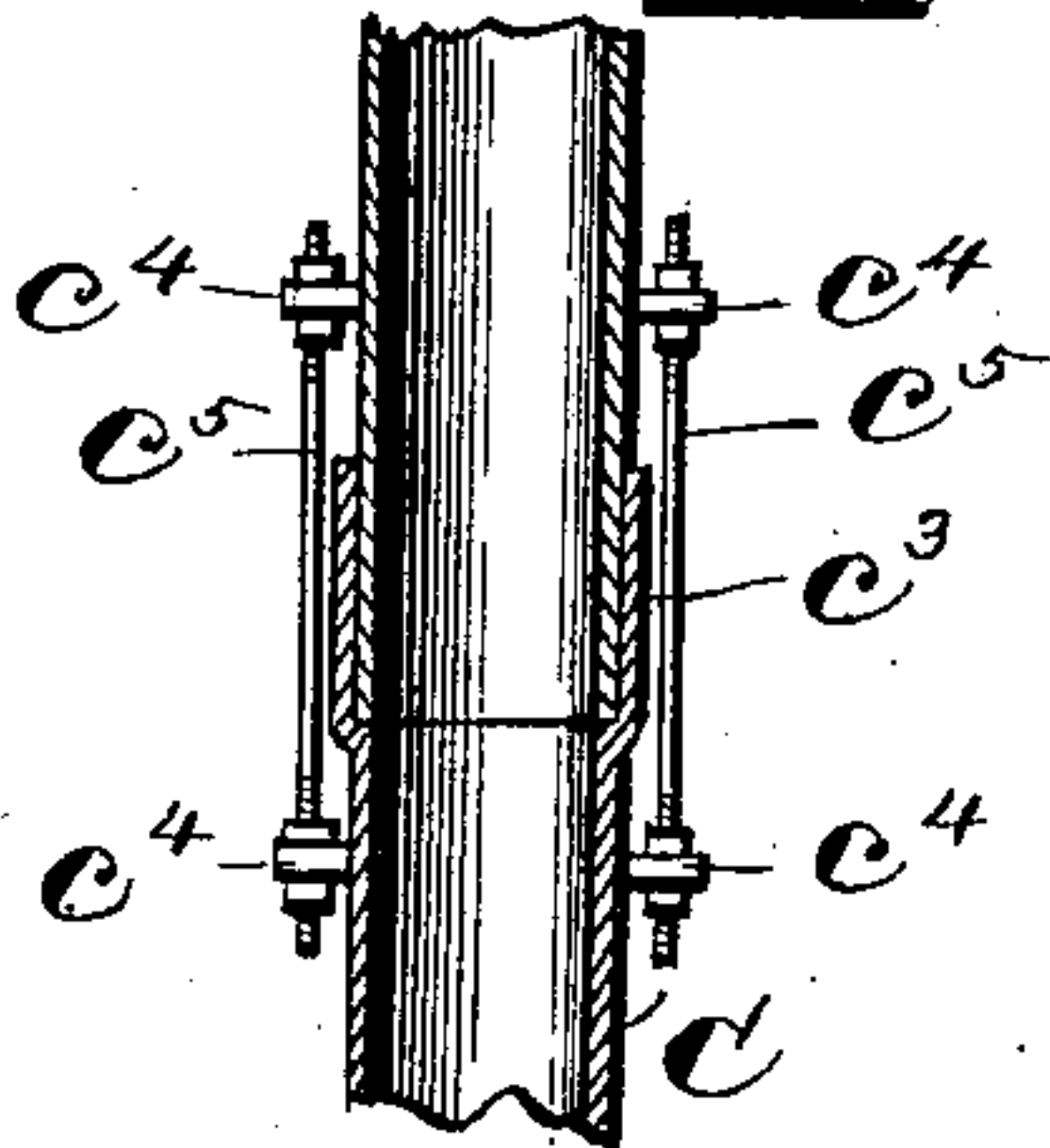


Fig. 7.

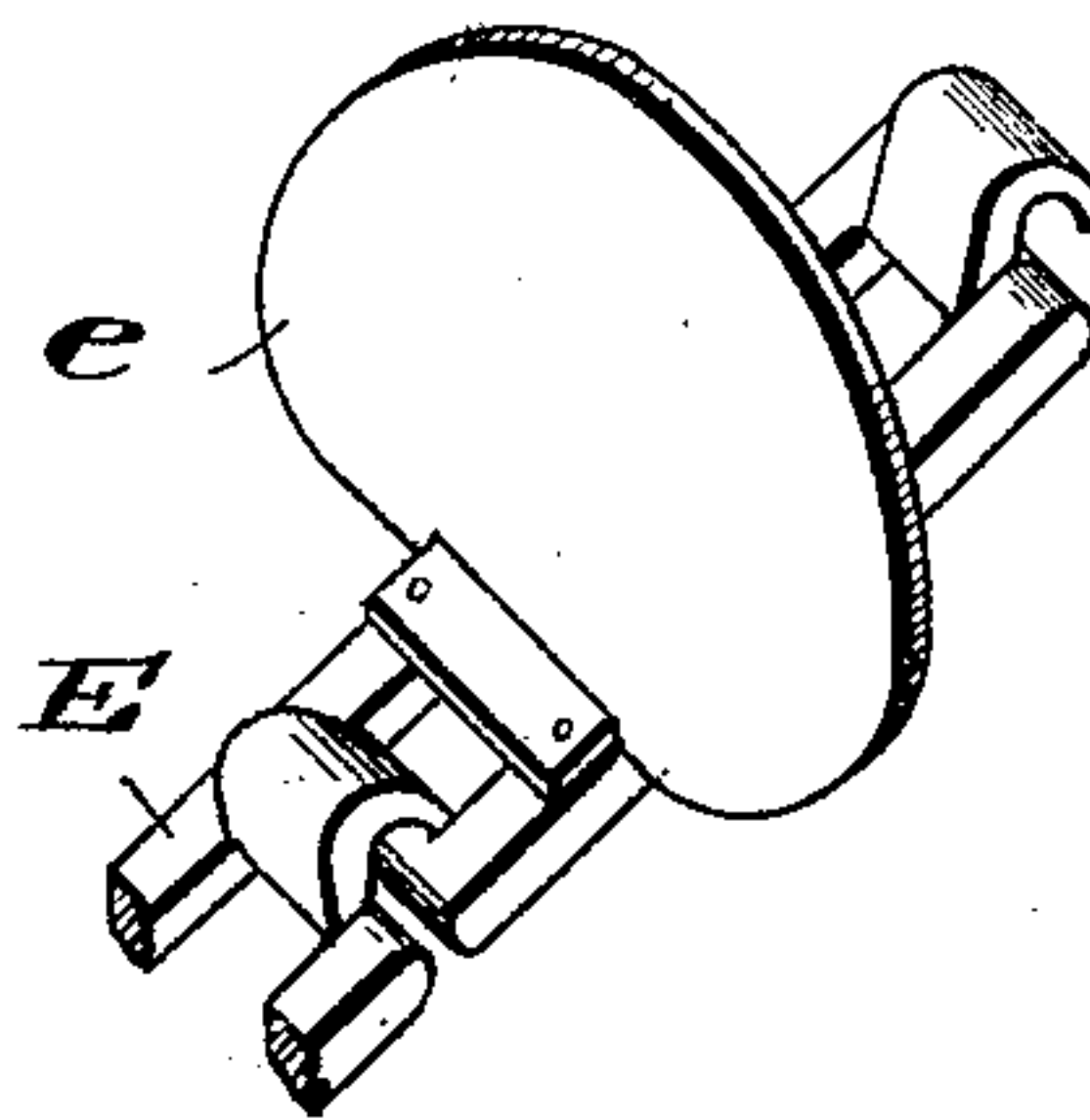


Fig. 8.

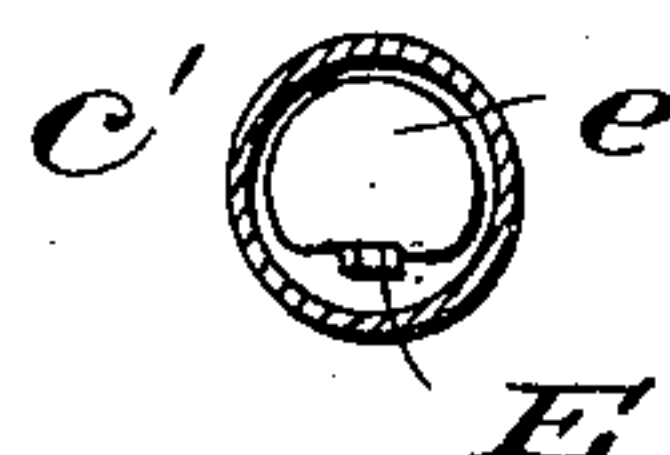


Fig. 9.



Fig. 10.



WITNESSES

G. W. Pauberschmitt,
J. D. Kingsbury.

INVENTOR

Frederick B. Hayes
By Whitaker & Tabor
Attys.

UNITED STATES PATENT OFFICE.

FREDERICK B. HAYES, OF ECKFORD, MICHIGAN, ASSIGNOR OF ONE-HALF
TO BEN F. WARNER, OF HOMER, MICHIGAN.

GRAIN-ELEVATOR FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 614,613, dated November 22, 1898.

Application filed October 6, 1897. Serial No. 654,250. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK B. HAYES, a citizen of the United States, residing at Eckford, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Grain-Elevators for Threshing-Machines; 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 is an improvement in grain-elevators for threshing-machines; and it consists in the novel features of construction and combination of parts hereinafter fully described, reference being had to the accompanying drawings, which illustrate one form in which I have contemplated embodying the said invention and a slight modification thereof, said invention being fully disclosed in the following description and claims.

In the drawings, Figure 1 is a side elevation of a separator or threshing-machine, showing an elevator attached thereto embodying my invention. Fig. 2 represents a vertical section of the elevator, taken transversely of the threshing-machine. Fig. 3 represents a transverse sectional view of the elevator, taken longitudinally of the threshing-machine. Fig. 4 is a view similar to Fig. 2, showing a slightly-modified form in which I have contemplated constructing my elevator. Figs. 5, 6, 7, 8, 9, and 10 are detail views of parts of the construction shown in Fig. 4.

The object of my invention is to provide an elevator or conveyer which will take the grain directly from the fanning-mill of the separator or threshing-machine, elevate it to the top of the machine, and deliver it at either side of the machine, the said elevator being rigidly attached to the machine and having no part which extends to a great height above the machine and require to be folded in transportation.

The elevator consists, essentially, of a tube or passage extending entirely around the body of the threshing-machine, containing an endless conveyer, and provided at its upper end with a delivery-spout adjacent to each side of the machine, to which a grain-delivery chute or bagging device of any desired con-

struction can be attached, it being understood that when such chute or bagger is attached to one of the spouts the spout on the other side of the machine will be closed.

In Figs. 1, 2, and 3 I have shown the elevator A, consisting of a tube rectangular in cross-section and extending entirely around the body of the separator, having the bottom section a , the top section a' , and the two vertical side sections a^2 a^2 . The tube or casing is conveniently formed by using strips of wood for the lateral faces of the tube and sheets of metal, such as sheet iron or steel, for the broad walls or faces, the said sheets being secured to the wooden strips by riveting or by nails or screws. At each corner of the elevator is journaled a sprocket b , and an endless sprocket-chain B of any suitable construction, provided with flights, buckets, or other suitable elevating or conveying devices, passes entirely around the elevator, through the interior thereof, the sprocket-chain engaging the sprocket-wheel b . One or more of the shafts of said sprocket-wheels is provided with a driving-pulley b^2 , which is connected by suitable gearing with a shaft of the separator for imparting continuous motion to the conveyer within the elevator-casing.

The lower horizontal section a of the elevator will ordinarily occupy the position of the usual grain-trough and is open on its upper side, as shown at a^3 , so that the grain delivered from the fanning-mill can drop into the section a of the elevator substantially throughout its entire length, and in such case the usual grain-trough and its spiral screw or conveyer will be dispensed with. The chain is preferably made narrower than the diameter of the elevator-casing, and as the grain falls into the lower horizontal section it will fall around and through the chain to the bottom of the casing, where it will be acted on by the flights or buckets of the chain. The jarring of the chain which inevitably results while it is in motion will jar off any grain lodging on top of the chain, so that there is no danger of its being crushed between the chain and the sprocket-wheels around which it travels. In some cases, however, if it is desired, the grain-trough and screw can be retained, and the grain-trough can be

arranged to deliver the grain into the horizontal section *a* of the conveyer, adjacent to one end of the same, instead of delivering to the ordinary conveyer now in use.

5 The upper horizontal section *a'* of the elevator is provided with two delivery-spouts *a⁴a⁴*, one adjacent to each side of the machine, as shown in Fig. 2. When it is desired to deliver grain on one side of the machine, a
10 suitable delivery-chute is connected to one of the spouts *a⁴* on the side on which it is desired to deliver the grain, and the other spout is provided with a suitable closing device, in this instance a cap *a⁵*, which is secured to the
15 spout *a⁴* in any desired way. In Fig. 1 I have shown a bagging device connected to one of the delivery-spouts *a⁴* and arranged to deliver grain on one side of the machine. When it is desired to deliver grain on the other side
20 of the machine, the bagger or grain-chute will be placed in engagement with the other spout *a⁴* and the cap *a⁵* will be placed over the spout which is not in use.

In Figs. 4 to 10, inclusive, I have shown a
25 slightly-modified form of my improved elevator which is adapted to be attached to the separators of different sizes. In this case the casing is made of tubing, preferably of sheet iron or steel, and each section is provided
30 with an extensible or telescoping joint, so that it may be extended to accommodate separators of different sizes. The sections are connected at the corners by suitable elbows, hereinafter described. In these figures, C
35 represents the elevator, comprising the lower horizontal section *c*, the upper horizontal section *c'*, and the lateral vertical section *c²c²*. Each section is composed of two pieces of tubing of the desired diameter, which may
40 be of any desired cross-section, tubing of circular cross-section being shown. (See Fig. 8.) One of the parts of each section is provided with an expanded portion *c³* of any desired length, into which the other part telescopes,
45 as shown in the drawings, (see particularly Fig. 6,) thus forming an extensible or telescoping joint. The tubes are provided at each side of each joint with two or more lugs *c⁴*, which are connected by bolts *c⁵*, having
50 threaded ends, which are preferably provided with nuts on both sides of each lug, so that the tubes can be held rigidly in any position to which they may be adjusted.

D (see Fig. 5) represents one of the elbows
55 or corner-sections for connecting the straight portions of the elevator. These elbows are secured to the ends of the sections, and each elbow is provided with a sprocket-wheel *d*, over which the endless chain *E*, provided
60 with flights *e*, runs, and I prefer to provide each elbow with ears *d'*, which are bolted to a perforated lug *d²*, secured to the body of the separator for supporting the elevator at its corners. The sections of the elevator, preferably the vertical sections, are rigidly se-
65 cured to the separator-body by means of staple-shaped bolts *F*, (see Fig. 4,) which sur-

round the sections and are secured to the body of the separator, and I prefer this form of attachment also for the elevator shown in
70 Figs. 1, 2, and 3, as indicated at *G*, Fig. 1.

The bottom section *c* of the elevator is made in the form of a trough open at the top, as shown in cross-section, Fig. 10, to receive the grain from the separator. The up-
75 per section *c'* is provided at each side of the machine with a delivery-spout *c⁶*, to which a suitable grain-chute or bagger can be attached, and a cap *c⁷* is employed to close the spout which is not in use and is preferably
80 secured thereto by a bayonet-joint, as shown in Fig. 9. Motion will be imparted to the sprocket-chain by providing one of the shafts of the sprocket-wheels *d* with a driving-pulley, which is driven from a shaft of the sep-
85 arator in the same manner as the form of elevator shown in Fig. 1.

It will be seen that my improved elevator when attached to a threshing-machine can be rigidly secured thereto, so as not to be jarred
90 loose in transportation. The whole apparatus projects but a few inches from the body of the machine, is very light and compact, and will deliver grain at either side of the machine at will. The grain-chute or bagger can
95 be attached to either one of the grain-spouts in any desired manner—as, for instance, by a bayonet-joint, as shown for the cap in Fig. 9.

It will be obvious that when the casing is
100 adjusted to fit a particular threshing-machine the conveyer-chain will be lengthened or shortened by adding or taking out links, so as to adapt it to the casing as adjusted.

I do not limit myself to the exact details of
105 construction herein shown and described, as the same may be varied without departing from the principle of my invention.

What I claim, and desire to secure by Letters Patent, is—
110

1. A grain-elevator for a threshing-machine, comprising among its members, a casing extending entirely around the body of the machine, transversely thereof, having its lower horizontal section open along its upper
115 edge to receive grain from the cleaning devices of the machine, and its upper horizontal section provided on its lower side with a discharge-orifice adjacent to each side of the machine, an endless conveyer within said casing, and a detachable closing device for one of said discharge-openings, whereby grain can be delivered at either side of the machine without reversing the travel of said conveyer, substantially as described.
120 125

2. As an attachment for a threshing-machine, a grain-elevator comprising among its members, a hollow casing adapted to extend entirely around a threshing-machine, said casing having its lower horizontal section
130 open along its upper face to receive grain from the cleaning devices of the machine, and its upper horizontal section provided with a discharge-orifice on its under side at each side

of the machine, an endless conveyer within said casing, devices for detachably connecting the said casing to the machine and a detachable closing device for said discharge-orifices, whereby grain can be delivered at either side of the machine without reversing the travel of said conveyer, substantially as described.

3. An attachment for a threshing-machine consisting of a grain-elevator comprising among its members a casing adapted to extend entirely around a threshing-machine transversely thereof, said casing having longitudinally-extensible portions, whereby said casing may be attached to machines of different sizes, devices for detachably connecting said casing to a threshing-machine, an endless conveyer within said casing, said casing being provided with means for receiving and discharging grain, substantially as described.

4. An attachment for threshing-machines, consisting of a grain-elevator, comprising among its members a casing adapted to extend entirely around a threshing-machine, transversely thereof, said casing having its horizontal and vertical members extensible, whereby the casing may be fitted to machines of different sizes, the lower horizontal section of said casing being open on its upperside to receive grain and the upper horizontal section having a discharge-orifice on its lower side at each side of the machine, an endless conveyer in said casing, devices for detachably securing said extensible sections of said casing to a threshing-machine, and a closure for closing either of said discharge-orifices, whereby grain can be discharged at either side of the machine without reversing the travel of the conveyer, substantially as described.

5. An attachment for threshing-machines, consisting of a grain-elevator comprising among its members, a hollow casing adapted to extend entirely around a threshing-machine transversely thereof, the vertical and horizontal members of said casing being formed of telescoping sections, whereby it can

be attached to machines of different sizes, adjustable devices for holding said telescoping parts rigidly in their adjusted positions, devices for detachably securing said casing to a threshing-machine, an endless conveyer within said casing, and means for delivering grain to and from said casing, substantially as described.

6. An attachment for threshing-machines consisting of a grain-elevator comprising among its members, a hollow casing having telescoping sections, lugs on the adjacent portions of said telescoping parts, adjusting bolts and nuts for engaging said lugs, an endless conveyer within said casing, devices for detachably securing said casing to a threshing-machine, said casing having its lower section provided with means for receiving grain, and its upper section provided with a delivery-orifice on each side of the machine, and a closing device for closing either of said discharge-orifices, whereby grain can be delivered at either side of the machine, without reversing the conveyer, substantially as described.

7. An attachment for a threshing-machine consisting of a grain-elevator comprising among its members a casing adapted to surround a threshing-machine, having its lower section open on its upper side to receive grain and its upper section provided on its lower side with a grain-delivery orifice at each side of the machine, a conveyer within said casing, means for detachably connecting said casing to a threshing-machine, a detachable spout adapted to be secured to either of said delivery-orifices and means for closing either of said orifices, whereby grain can be delivered at either side of the machine without reversing the travel of the conveyer, substantially as described.

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

FREDERICK B. HAYES.

Witnesses:

MYRON H. NICHOLS,
BEN. F. WARNER.