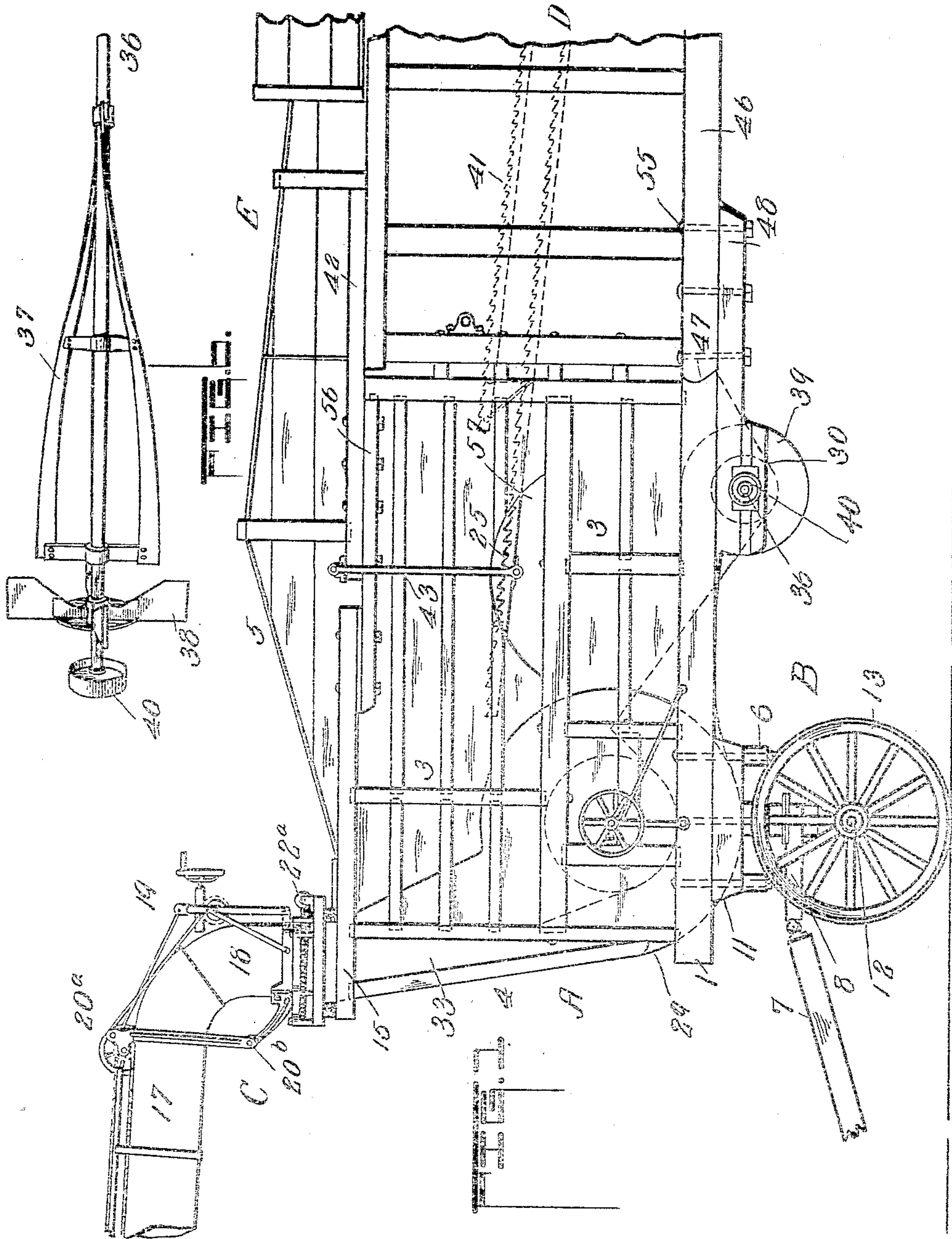


958,213.

J. B. BARTHOLOMEW.
THRESHING MACHINE FRAME.
APPLICATION FILED JULY 24, 1907

Patented May 17, 1910.

4 SHEETS—SHEET 1.



Witnesses
N. E. Costello
George E. Collier

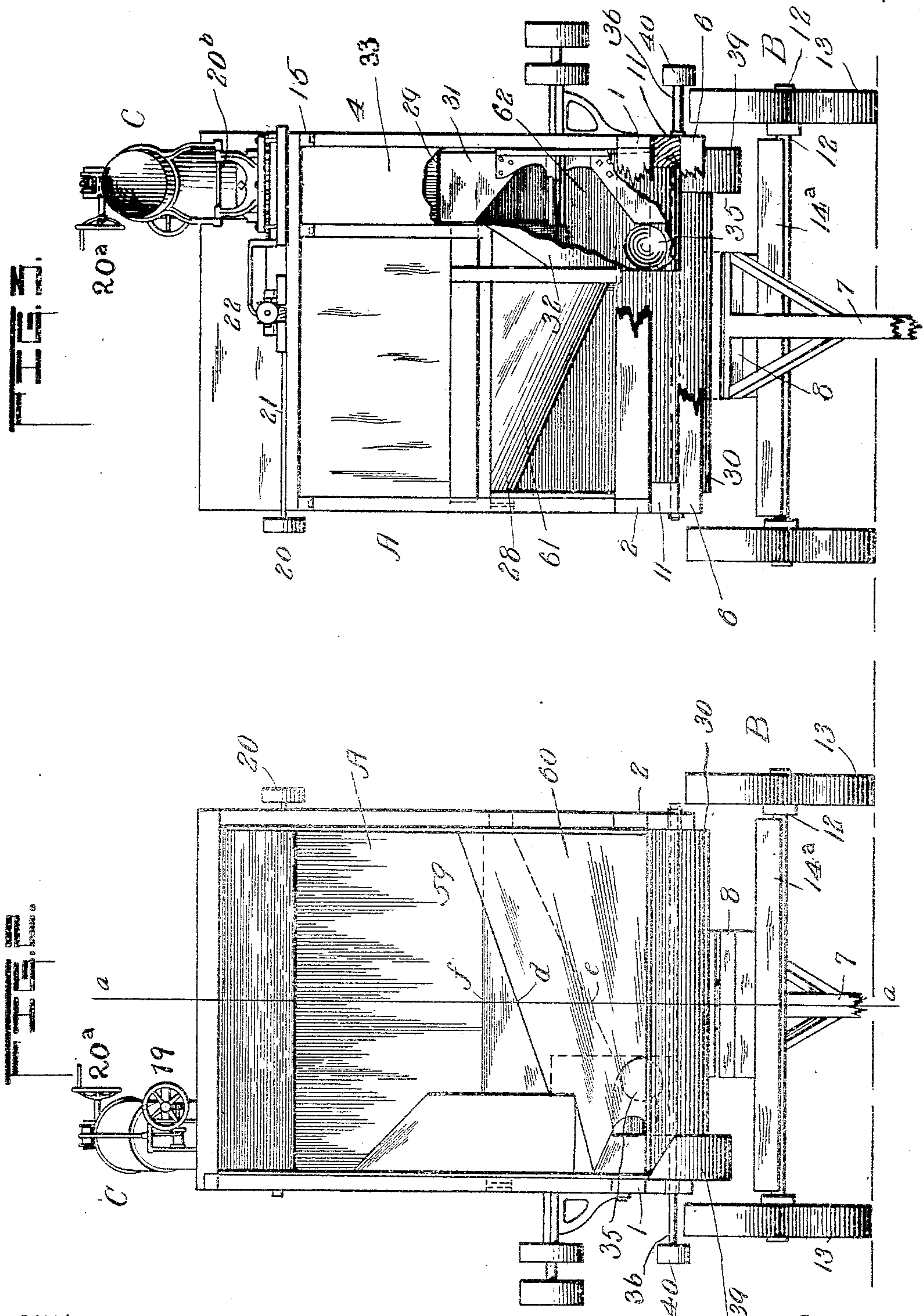
Inventor:
John B. Bartholomew
By H. H. Bliss
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George E. Edelin

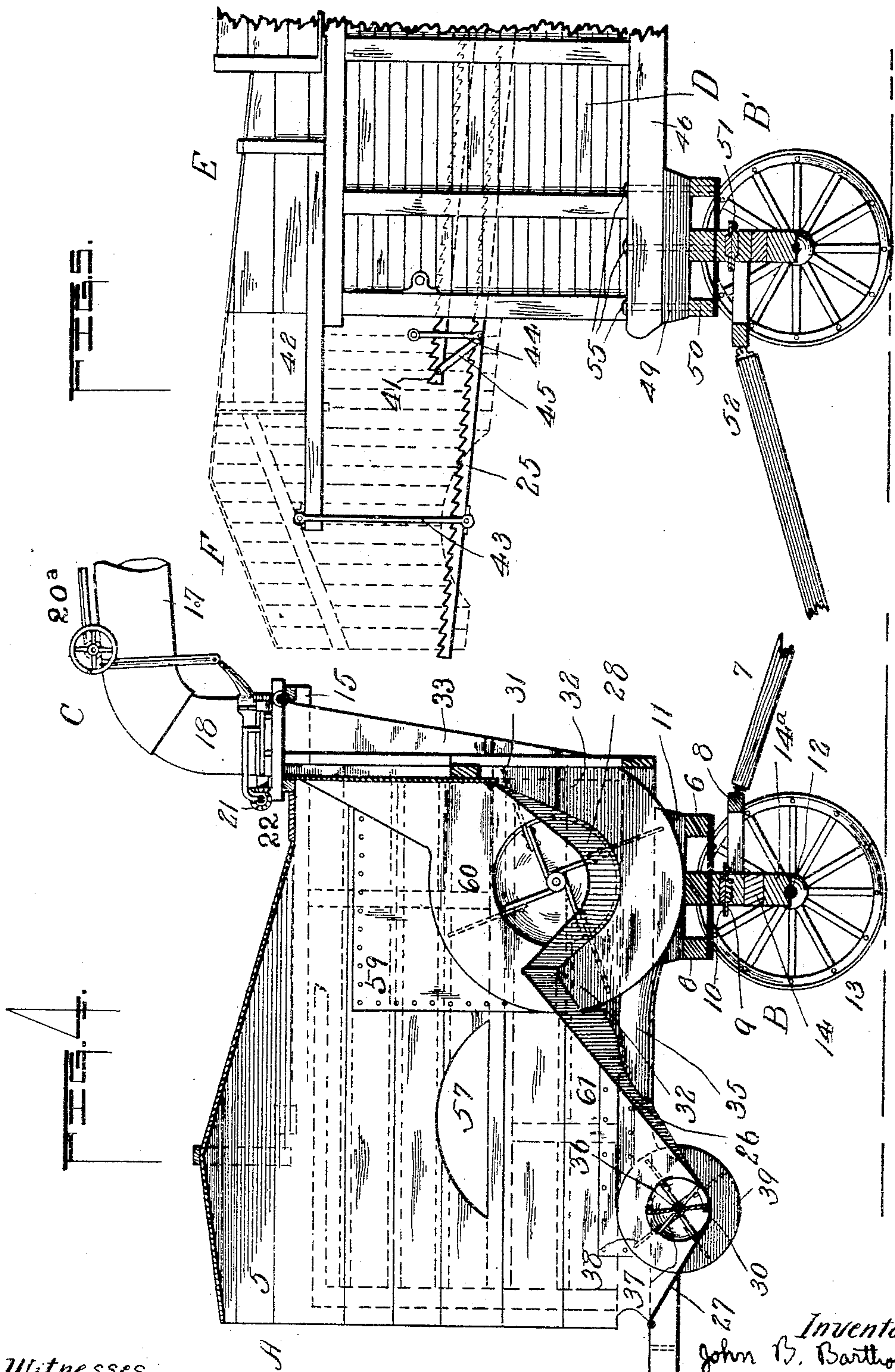
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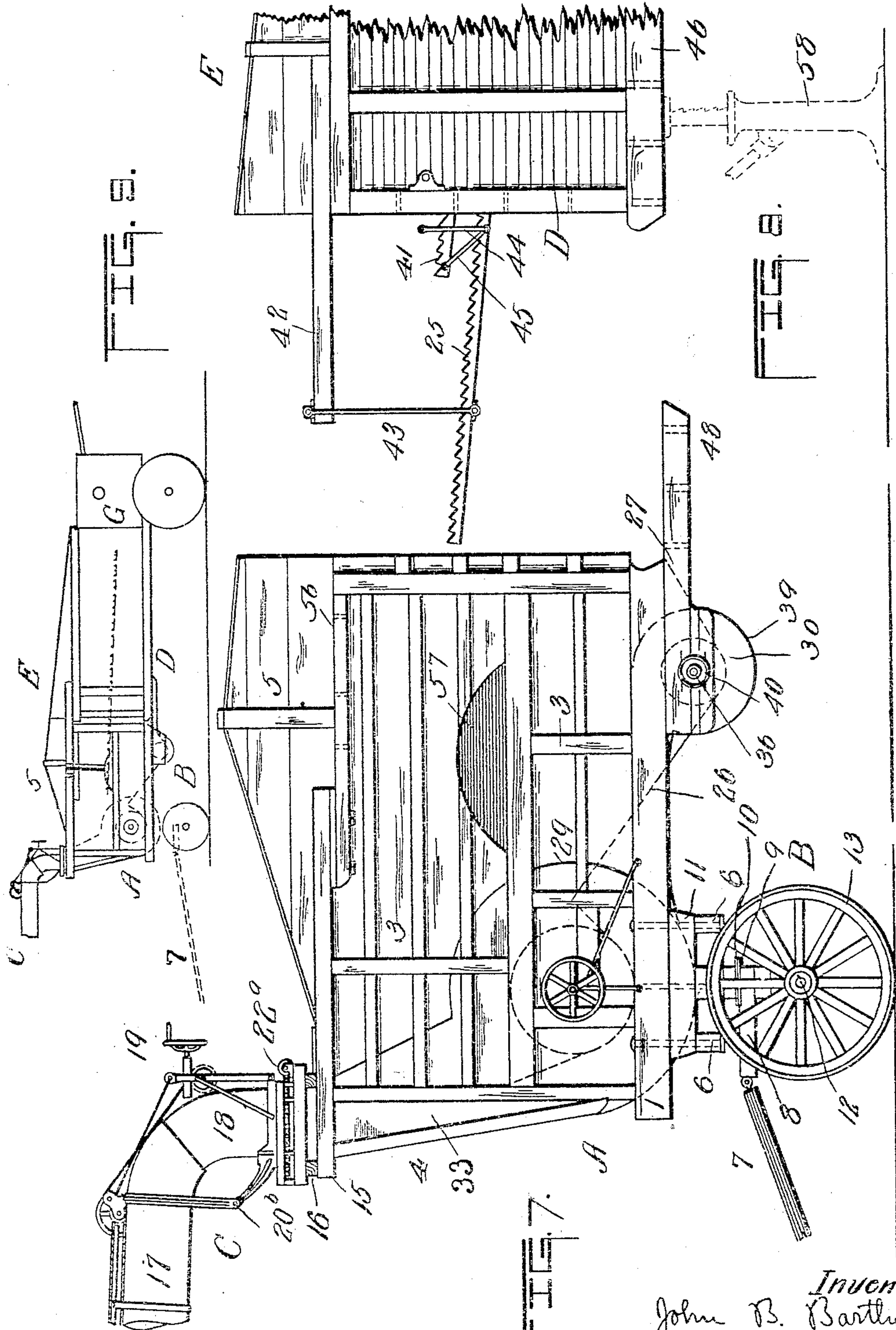
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4 SHEETS—SHEET 4.



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George E. Edeline.

Inventor:
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By H. H. Bliss.
his Attorney.

UNITED STATES PATENT OFFICE.

JOHN B. BARTHOLOMEW, OF PEORIA, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS,
TO AVERY COMPANY, A CORPORATION OF ILLINOIS.

THRESHING-MACHINE FRAME.

958,213.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed July 24, 1907. Serial No. 385,369.

To all whom it may concern:

Be it known that I, JOHN B. BARTHOLOMEW, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Threshing-Machine Frames, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to improvements in mechanisms for receiving straw from a threshing apparatus and conveying it away therefrom; pertaining more particularly to such a receiving and conveying mechanism
15 which shall be rigidly and securely attachable to and readily detachable from the threshing apparatus.

Figure 1 is a side elevation of a sufficient part of the mechanism to illustrate the manner of utilizing my improvements. Fig. 2 is an end view of that part of the apparatus which receives the straw and pneumatically elevates and stacks it. Fig. 3 is an end view of the same part of the mechanism looking in the opposite direction. Fig. 4 is a longitudinal section on line *a, a* in Fig. 2. Fig. 5 is a side elevation of the rear part of the mechanism immediately behind the elevating and stacking part, and showing by dotted lines the detachable section of housing or casing. Fig. 6 is a perspective view of the devices which convey the chaff and fine stuff laterally and force them into the pneumatic elevator. Fig. 7 is a side view of the
35 straw elevator and stacker when detached from the rear part of the apparatus. Fig. 8 is a side view of the forward end of the rear part of the apparatus showing the parts as they appear when the elevating and stacking section is detached. Fig. 9 is a side elevation showing conventionally on a reduced scale the entire threshing, separating and stacking apparatus.

The elevating and stacking part of the structure has a body indicated by A, and a fore-carriage at B. At C there is indicated conventionally some of the parts of a well known pneumatic stacker. D indicates the forward end of a straw receiving and separating mechanism and the housing or casing therefor, there being shown at E the roof part, or cover. At F there are detachable casing or housing sections which can be used when it is desired to dispense with the
55 pneumatic elevator and stacker and cause

the straw supporting and conveying devices in the structure of section D to deliver directly to the ground or to some form of outside carrier other than the pneumatic one illustrated. The threshing cylinder and adjacent parts are indicated by G. The parts which constitute the pneumatic elevator and carrier are arranged within the framework and casing. 1, 2, indicate longitudinal bottom sills at the sides of the machine and above these there is a suitable arrangement of vertical and horizontal bars as shown at 3, 3 and one or more inclined bars at 4. At 5 the roof or cover part is shown as extended sufficiently to provide a free space for the forward moving straw mass. This elevator and stacker element of the apparatus is mounted upon the aforesaid fore-carriage B for propelling, steering and supporting the forward end and also the rear parts D, E, when they are connected up to the elevator and stacker.

11, 11 are short longitudinal bars near the front end connected by cross girt bars 6, 6. The axle 12 carries the wheels 13, 13.

7 is the tongue projecting beyond the front end of the elevator and stacker and adapted to have draft animals attached thereto, or a propelling engine. This tongue at its rear end is flexibly connected to the hounds 8 of a fifth wheel at 9, 10, the upper part of this fifth wheel being carried by or supported from cross bars 6 and the lower part resting upon the axle through the bolsters or bars at 14, 14^a.

The upper sills of the stacker frame are extended forward as shown at 15, Figs. 4 and 7, and upon the extended parts a base or platform 16 is constructed. Upon this is mounted a pneumatic stacker indicated as a whole by C, and which may be of any desired style, many different forms being now well known. It is preferred that this stacker should be capable of bodily oscillating laterally and of having the outer end thereof adjustable vertically, and having the outer end part adjustable back and forth along the main part of the stacker tube to increase or decrease the length of the tube. Power is transmitted through the pulley 20 to the shaft 21 for effecting the oscillating, horizontally, of the stacker—the train of devices for this purpose comprising the reversible gear at 22 and gearing, driven thereby, engaging with the worm gearing

22^a or other gearing at the base of the stacker tube. The outer section 17 of the stacker tube is adjustable around the pivot 20^b in such way as to move up and down
 5 along the inner section 18, this resulting in varying the height of the outer end of the stacker tube. Such movement of the outer part of the stacker is effected by the adjusting devices at 19. But inasmuch as any
 10 form of elevating and stacking tube can be employed in conjunction with any desired devices for elevating and adjusting it vertically it is not necessary here to describe any particular form of apparatus in detail
 15 for this purpose; or the devices for lengthening and shortening the tube indicated at 20^a. And the same is to be stated in respect to the details of the mechanism at 20, 21, 22, 22^a, for oscillating the stacker tubes around
 20 a vertical axis. The interior chamber in this forward section A of the apparatus may be regarded as having an upper compartment 59, a rear lower compartment 60, a forward lower compartment 61 and a
 25 compartment or chamber at 62 for the ejector fan. Within the upper compartment is situated the forward projecting part of the straw carrying and delivering table 25. The bottom of this interior chamber as an
 30 entirety, has the rear sloping floor section 26, the forward sloping section 27, the downward inclined straw hopper or chute 28 and the fan casing at 29. The floor sections 26 and 27 converge toward and terminate
 35 in a concave at 30, these floor sections being the parts upon which fall the chaff and fine stuff that descend from the rapidly reciprocating table 25 and also the chaff and finer particles which are blown forward by
 40 the winnower fan.

The heavier masses of straw which finally escape from the table 25 and drop from its rear end are received in the straw hopper 28, the bottom of which inclines sharply from
 45 the right hand side (looking forward of the machine) toward the chamber of the fan ejector. The walls of this ejector, at their upper part, conform somewhat closely to the planes of rotation of the fan blades 31;
 50 but the lower part of the fan chamber is widened out considerably toward the central longitudinal plane of the machine, the walls tapering as shown at 32. Consequently there is left a wide unobstructed space on
 55 the inside of the vertical planes in which rotate the inner edges of the fan blades. This insures that the bulk of the straw deposited in the fan chamber from the inclined hopper or chute 28 shall be advanced
 60 through the elevator trunk 33 to the stacker tube without such contact with, or blows from, the fan as to be cut or broken. Moreover, by widening inward the lower part of the fan chamber I am enabled to
 65 deliver the chaff and light stuff from the

trough at 30 in such way that it can travel continuously forward, upward and outward without clogging, choking or unduly loading the blades 31 of the ejector fan. The
 chaff trough at 30 at the left hand end has
 70 a pipe or duct 35 which at its forward end opens into the inwardly widened fan chamber. In the chaff trough there is mounted the device shown in Fig. 6, it consisting of a
 75 shaft 36 mounted in bearings at the side of the machine, the spiral feeder blades 37 secured to this shaft and the fan blades 38 mounted in the casing 39 at the side of the machine. This shaft 36 and its attached
 80 parts are rapidly rotated by the pulley 40 actuated by a belt connected to a suitable driver.

At times large quantities of chaff and fine stuff are delivered to the ejector fan in these
 pneumatic elevators and stackers as com-
 85 monly made and these materials at such times heavily load the fan, coming in contact in masses with the ejector blades. I obviate this by effectually separating the
 90 masses of chaff and small pieces of stuff from the main body of straw and delivering them on lines parallel to the planes of rotation of the ejector blades at 31 and outside of
 95 their planes of rotation, so that the forcible air currents which are created by the two fans cause the chaff to first rapidly enter the widened part of the fan chamber and then to
 instantly rise therefrom through the elevator duct 33 and thereafter pass out through the
 100 stacker tube.

The straw and chaff elevating and stacking mechanism, as I have above described, and the parts which support and house them are so constructed and related that the
 105 threshing, separating and stacking machine, as an entirety, can be used for delivering either directly to the ground or to an endless carrier, on the one hand, or, where circumstances permit, can be employed for thresh-
 110 ing grain and separating it from the straw and then pneumatically delivering the latter to a stack, the latter being gradually raised as the operation progresses.

In Fig. 5 there is shown more or less in detail the parts at the forward end of the
 115 rear section of the thresher and separator when they are constructed and related in such a way as to deliver the straw directly to the ground. Within the main housing or casing D and below the top or cover E are
 120 placed the longitudinally arranged reciprocating straw tables 25 and 41; and when the machine is used for the direct delivery of the straw from the table 25 the detachable forward section F of the housing is used,
 125 this being supported from the forward extending top sill 42 and being formed with suitable cross girts to sustain it. At such times the forward end of this part of the machine is supported on a fore-carriage B
 130

which can be substantially similar to that above described. At 49 there are short sills below which there are cross girts 50 which carry the upper part 51 of a fifth wheel connection for the axle and sills of the fore-carriage, a tongue 52 being flexibly connected to the lower rotary part of the fifth wheel. From the main frame, as from the sills 42, extend downward the hinged hanger rods 43 which sustain the rear end of the reciprocating table 25, these being on the outside of the extension casing F, when it is in use. Supplemental to these hangers 43 there are hangers at 44 pivotally supported at their upper ends by the wall of the extension housing, and between the two table sections 25 and 41 there are interposed links 45 if desired.

It will be seen that the extension section F of the housing or framing can be removed, leaving the parts at the forward end of the rear part of the machine (including the thresher and separator) in the condition illustrated in Fig. 8. Then the fore carriage at B' should be removed and this is permitted by withdrawing the bolts 55 which connect the main sills 46 with the short subsills 48, the end of the part D being temporarily supported in a suitable manner, as shown at 58. After this has been done, and the extension part of the housing has been removed, the above described pneumatic elevator and stacker for the straw and chaff can be brought into operative position as shown in Fig. 1. The bottom longitudinal sills 46 of the frame and casing of the part, D, aline with the sills 1 of the elevator and stacker and these at their ends fit together as shown at 47. The part A has an extension sill 48 which lies partly below the sill 1, and (when the two frame elements are brought together) partly below the sill 46, and it is firmly fastened to both sills 1 and 46, by the bolts 55, 55, which are replaced for that purpose.

The straw tables 25 and 41 remain in position as seen in Fig. 6, they now, however, extending into the chamber in the elevator and stacker casing at A. The cover or top 5 over the chamber in the part A registers with and produces an extension of the straw chamber in the top of the part E. The forward extending sill 42 overlaps the housing of the part A and is secured to the top sill 56 on the latter housing. The vibrating hangers 43 lie outside of the side walls of the part A, there being apertures 57 in said side walls to permit the pivotal connections for the hangers to extend inward and connect with the table 25.

If desired, a single fore-carriage may be provided for the machine capable of being put in the place of either that shown at B or that shown at B', although under some circumstances it may be preferable to allow the

carriage at B to remain permanently attached to the elevator and stacker section in order to provide partial support for it and to permit its transportation. If only one fore-carriage is provided it should, after being detached from the rear part of the machine in the way above described, be put in place under the forward end of the elevator and stacker section, and this is preferably done prior to bringing the said section up to the position shown in Fig. 6. The stacker tube and its attachments can be turned around to the forward position so as to assist in balancing the rear part of the stacker housing at the time it is being attached.

In order to convert the machine back into such condition that it can be used for delivering the straw directly to the ground from the tables 41 and 25, the above series of steps can be reversed, which will result in the detaching of the pneumatic elevator and stacker part, the securing in position of the fore-carriage at the place indicated by B', and the restoring of the casing extension F shown in Fig. 5. The link or hanger rod 44 is in one case, as above described, pivoted at its upper end to the side wall of the casing of the extension F; and in the other case it is pivoted to the side wall of the elevator and stacker part A.

What I claim is:

1. The combination of the frame-work and housing, the pneumatic elevator and stacker carried thereby, the laterally oscillating fore-carriage under the front end of said elevator and stacker frame, the draft devices connected to said fore-carriage and extending forward from the elevator and stacker, the frame and housing for the thresher and separator having an adjustable housing section, the carriage or truck for the rear end thereof, the front end of the thresher and separator frame being adapted to be detachably connected to the elevator and stacker frame and also adapted to be detachably connected to a fore-carriage at the front end thereof, the stacker frame and housing and the thresher and separator frame and housing having overlapping parts adapted to be rigidly secured together, substantially as set forth.

2. The combination of the frame and housing for the thresher and separator, adapted to support the supplemental casing or housing, the reciprocating grain table projecting forward from said thresher frame and housing, the frame or housing for the pneumatic elevator and stacker adapted to overlap and to be rigidly secured to the thresher frame and housing and to inclose the forward end of the reciprocating table, the shaker links supported from the thresher frame and adapted to be supported outside of the frame and housing for the pneumatic elevator and stacker, while engaging with

and supporting the said reciprocating table, substantially as set forth.

3. The combination of the frame and housing for the thresher and separator having
5 the forward extending bars, the forward end of said frame and housing being adapted to support a supplemental housing section, the frame and housing for the pneumatic elevator and stacker having bars or
10 beams and adapted to be joined to the forward end of the thresher frame and housing, and having rearward extending beams or bars overlapping the same, the aforesaid

beams being adapted to overlap and to be bolted to the beams or bars and the beams or bars being adapted to be rigidly secured to the thresher frame, and the vibrating hanger links mounted on the overlapping bars lying outside of the stacker frame and housing. 15

In testimony whereof I affix my signature, 20
in presence of two witnesses.

JOHN B. BARTHOLOMEW.

Witnesses:

G. W. PERRY, Jr.,

G. H. HERZOG.