

No. 631,935.

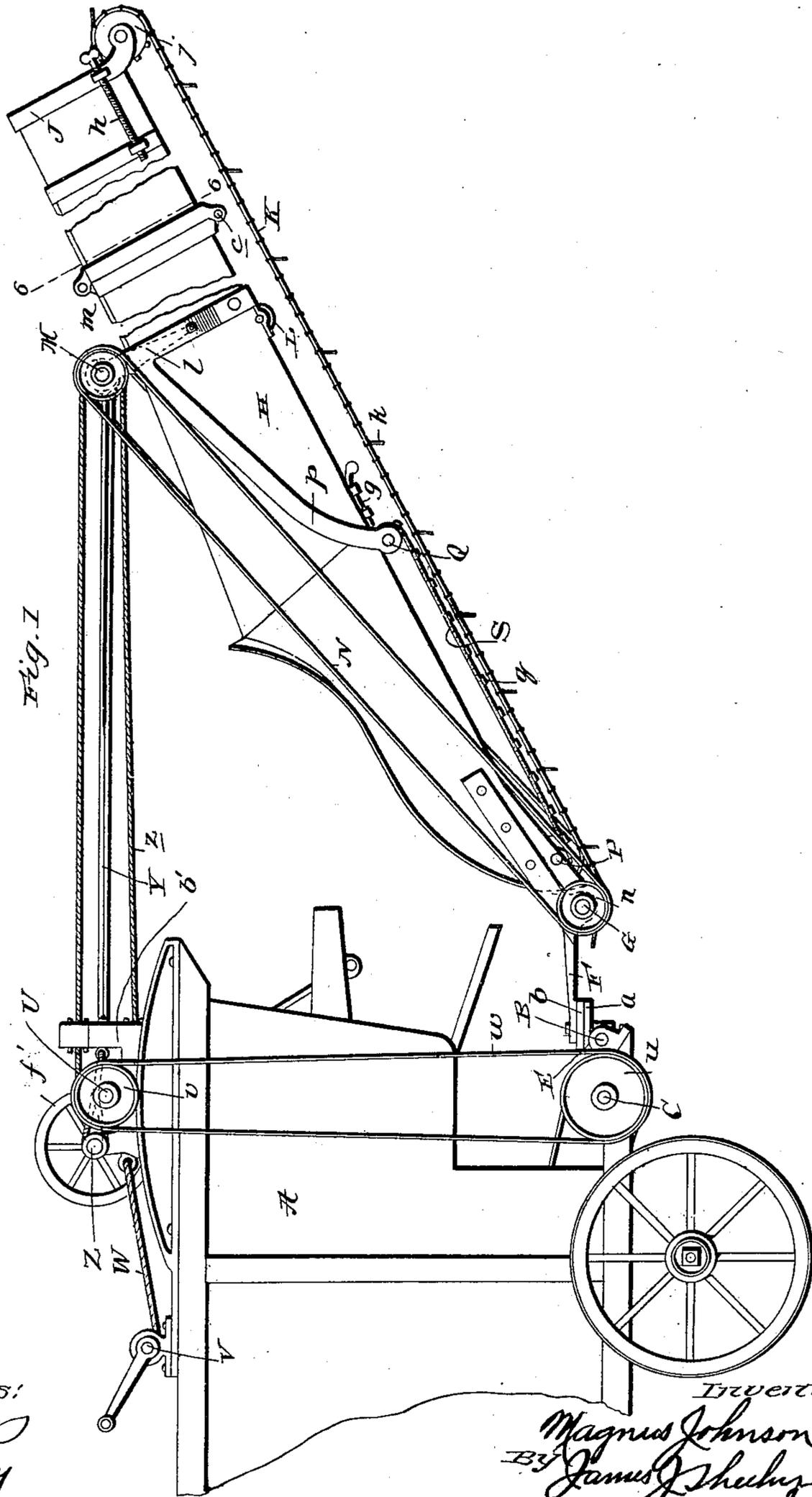
Patented Aug. 29, 1899.

M. JOHNSON.
STRAW STACKER.

(Application filed June 9, 1899.)

(No Model.)

3 Sheets—Sheet 1.



witnesses:
C. H. Paeder
J. L. Crony

Inventor
Magnus Johnson
BY *James J. Shelby*
Attorney

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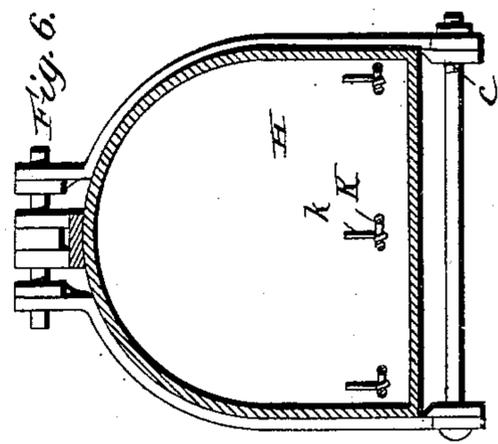
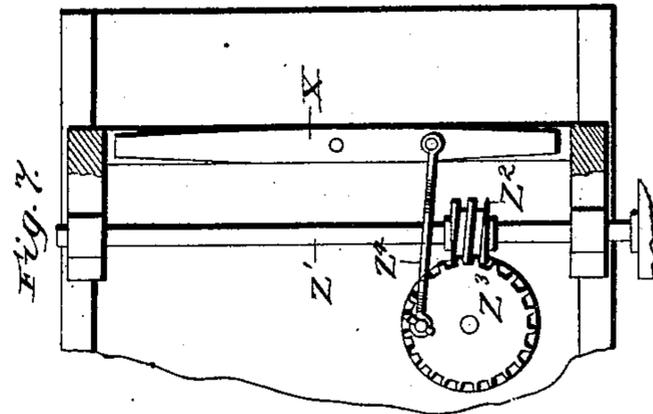
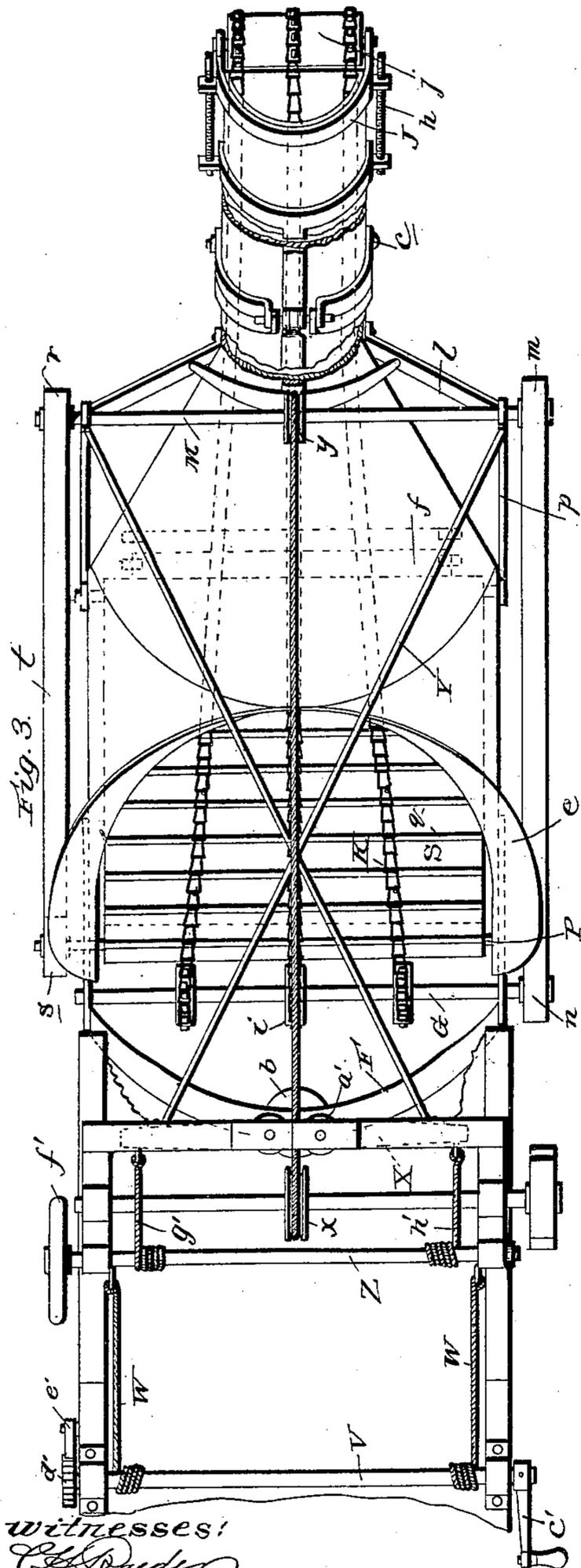
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3 Sheets—Sheet 3.



witnesses:
Chas. P. ...
J. A. Conroy

Inventor
Magnus Johnson
James J. Sheehy
Attorney

UNITED STATES PATENT OFFICE.

MAGNUS JOHNSON, OF SOUTH CYPRESS, CANADA.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 631,935, dated August 29, 1899.

Application filed June 9, 1899. Serial No. 719,943. (No model.)

To all whom it may concern:

Be it known that I, MAGNUS JOHNSON, a citizen of the Dominion of Canada, residing at South Cypress, in the Province of Manitoba and Dominion of Canada, have invented new and useful Improvements in Straw-Stackers, of which the following is a specification.

My invention relates to straw-stackers for use in conjunction with threshing-machines and contemplates the provision of a straw-stacker adapted to perform the additional function of separating chaff from the straw, the said stacker being simple and inexpensive in construction, readily applicable to threshing-machines such as at present in general use, and susceptible of adjustment in a horizontal as well as a vertical direction, so as to place the straw at various points on a stack incident to the building of the same.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a broken side elevation illustrating the discharge portion of an ordinary threshing-machine and my improved stacker attached thereto. Fig. 2 is a vertical longitudinal central section of the same. Fig. 3 is a top plan view. Figs. 4 and 5 are enlarged detail sections taken in the planes indicated by lines 4 4 and 5 5, respectively, of Fig. 2. Fig. 6 is an enlarged transverse section taken in the plane indicated by line 6 6 of Fig. 1. Fig. 7 is a detail horizontal section illustrating a modification.

In the said drawings similar letters designate corresponding parts in all of the several views, referring to which—

A is the discharge-end portion of the body of an ordinary threshing-machine. B is a transverse rock or other suitable shaft located at the bottom and rear end of the said body.

C is a transverse shaft arranged adjacent to the shaft B and designed to be rotated from any other shaft (not shown) of the machine.

D are curvilinear tracks, which are arranged on top of the body and describe an arc of a circle, in the center of which the shaft C is disposed.

E is a clamp fixed on the shaft B so as to rock therewith and having an apertured disk portion *a*.

F is a yoke which is equipped with a disk portion *b*, arranged upon and pivotally connected to the disk portion *a* of clamp E and is therefore adapted to swing in a horizontal plane.

G is a transverse rotary shaft journaled in the yoke F, and H is a conduit loosely mounted on the shaft G.

It follows from the foregoing that the conduit H is free to be swung in a vertical plane on the shaft G and is adapted to be swung in a horizontal direction with said shaft and the yoke F in which the shaft is journaled. In the preferred embodiment of the invention the conduit H is made of light sheet-iron and embraces an inner section and an outer section connected together in a hinged manner at *c*, so as to permit of the conduit being folded when the machine is to be moved from one point to another after the manner common to the ordinary straw-carriers. The inner portion of the conduit is enlarged and provided at its upper side with a mouth *d*, surrounded by a lip *e* and adapted to receive straw and chaff from the discharge. At its under side and about the distance illustrated from its inner end the conduit is provided with an opening *f*, which is controlled by a door *g* and is designed for the discharge of chaff, as will be presently described.

I is a transverse shaft journaled in a U-shaped bearing J, loosely mounted on the outer end of the conduit and adjustably connected therewith by screws *h*, and K are straw-carrying belts, which take around sprocket-wheels *i j* on the shafts G and I and have their upper stretches arranged to pass through the conduit H adjacent to the bottom thereof and over a roller L, the purpose of which is to prevent contact between said upper stretches of the belts and the bottom of the conduit, and thereby insure easy running of the belts and remove all liability of frictional wear of the same and the bottom of the conduit. The belts K are preferably composed of ordinary wire links, with links at intervals, terminating in fingers *k*, adapted to engage the straw and carry it along with the upper stretches of the belts and discharge it at the outer end of the conduit.

M is a transverse shaft journaled in standards *l* rising from the conduit H.

N is a band which takes around pulleys m on the shafts M G and is designed to transmit motion from the former to the latter, and P Q are transverse shafts, the former being 5 journaled in the conduit and the latter in straps p , depending from the standards l . On the shafts P Q are rollers R, around which passes an endless apron S, of canvas or other suitable material, which is provided at intervals with transverse strips d of sheet-iron or other suitable material. The said apron S has for its purpose to receive the chaff that falls from the straw when the same is deposited on the belts K and convey such chaff 10 to and discharge it through the opening f . Its upper stretch extends between the upper stretches of the belts K and the bottom of the conduit H and its lower stretch below the bottom of the conduit, and it is designed to be driven from the shaft M through the medium of pulleys $r s$ on said shaft M and the shaft P and a band t , connecting said pulleys.

T is a carriage arranged and adapted to move on the tracks D, and U is a transverse shaft journaled therein. This shaft U is rotated from the shaft C through the medium of the pulleys $u v$ and a connecting-band w , (see Fig. 1,) and as the carriage T moves only in the arc of a circle, in the center of 30 which the shaft C is arranged, it follows that adjustment of the carriage will in no wise interrupt or affect the transmission of motion from the shaft C to the shaft U. Motion is transmitted from the shaft U to the shaft M to drive the belts K and apron S through the medium of pulleys $x y$ on said shafts U and M and a band z , connecting said pulleys. In order to prevent the horizontal adjustment of the conduit H from displacing the band z , 40 the upper and lower stretches of the said band are carried, as best shown in Figs. 2 and 4, between pulleys a' , mounted in the forward transverse portion b' of the carriage T.

For the purpose of enabling an attendant 45 to easily raise and lower the conduit H, I provide the transverse shaft V, which is journaled in bearings on the body A in front of the tracks D. This shaft is equipped with a hand-crank c' and a ratchet d' , designed to be engaged by a pawl e' . It is connected by cables 50 W with the carriage, whereby it will be seen that when it is rotated in one direction the cables will be wound upon it, the carriage T will be moved forwardly, and the conduit H will be raised, while when it is turned in the opposite direction the cables will be unwound and the conduit H will gravitate and draw the carriage T forwardly through the medium of the band z .

X is a lever fulcrumed at its middle in the forward transverse portion b' of the carriage T and connected through the medium of the crossed bars Y with the opposite ends of the shaft M, and Z is a transverse shaft journaled in the carriage T and provided at one 65 end with a hand-wheel f' . This shaft Z is connected with opposite ends of the lever X

by cables $g' h'$, which are wound in opposite directions on the shaft. By virtue of this when the shaft Z is rotated in one direction 70 the lever X will be rocked and the conduit H swung toward the right, while when said shaft is rotated in the opposite direction the lever X will be rocked and the conduit H will be swung toward the left. The shaft Z and 75 the lever X being both carried by the carriage T it follows that the conduit H may be swung either to the right or left, irrespective of the extent to which said conduit is elevated. When it is desired to transmit motion 80 from some suitable shaft of the threshing-machine to the lever X, and thereby swing or oscillate the conduit H, the shaft Z and the cables $g' h'$ are omitted and the power-transmitting mechanism shown in Fig. 85 7 employed. This mechanism comprises a horizontal shaft Z' , designed to be rotated from some suitable shaft (not shown) of the threshing-machine and provided with a worm Z^2 , a gear-wheel Z^3 , mounted on a shaft journaled in the body A and intermeshed with 90 the worm, and a pitman Z^4 , connecting said gear-wheel and the lever X. When the shaft Z' is rotated, the conduit H will be swung first in one direction and then in the opposite direction, and this without interfering with the said conduit being raised and lowered in the manner before described. 95

It will be appreciated from the foregoing that a single operator is enabled to properly 100 manipulate the conduit H with but very little effort and through the medium of the same deposit the straw at the proper points to form a stack. It will also be appreciated that prior to stacking the straw chaff is separated from 105 the same, which is an important advantage.

In practice canvas walls will be arranged at opposite sides of the threshing-machine between the discharge end of the same and the mouth of the conduit H; but as said walls 110 do not form part of my invention I have deemed it unnecessary to illustrate them.

Having thus described my invention, what I claim is—

1. In a straw-stacker, the combination of 115 the body of a threshing-machine, a shaft journaled therein, a track arranged on said body and describing the arc of a circle the center of which is coincident with the shaft, a carriage movable on said track, a shaft 120 journaled in said carriage, a driving connection between the shaft of the body and the shaft of the carriage, a conduit connected with the body so as to swing vertically and provided with an endless carrier, a shaft carried by the conduit, a driving connection between said shaft and the endless carrier, a band connecting a pulley on the shaft of the carriage and a pulley on the shaft of the conduit, and suitable means for moving the carriage, substantially as specified. 125 130

2. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a track arranged on said

body and describing the arc of a circle, the center of which is coincident with the shaft, a carriage movable on said track, a shaft journaled in said carriage, a driving connection between the shaft of the body and the shaft of the carriage, a conduit connected with the body and susceptible of vertical and horizontal swinging movements, an endless carrier movable through the conduit, a shaft carried by the conduit, a driving connection between said shaft and the endless carrier, a band connecting a pulley on the shaft of the carriage and a pulley on the shaft of the conduit, means for moving the carriage, a lever mounted in the carriage, connections between the arms of the lever and opposite sides of the conduit, and means for rocking the said lever, substantially as specified.

3. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a track arranged on said body and describing the arc of a circle the center of which is coincident with the shaft, a carriage movable on said track, a shaft journaled in said carriage, a driving connection between the shaft of the body and the shaft of the carriage, a conduit connected with the body and susceptible of vertical swinging movement, a shaft carried by the conduit, and a driving connection between the shaft of the carriage and the shaft of the conduit, substantially as specified.

4. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a track arranged on said body and describing the arc of a circle the center of which is coincident with the shaft, a carriage movable on said track, a shaft journaled in said carriage, a driving connection between the shaft of the body and the shaft of the carriage, a conduit connected with the body and susceptible of vertical and horizontal swinging movements, a shaft carried by the conduit, a driving connection between the shaft of the carriage and the shaft of the conduit, and a lever mounted in the carriage and connected with the conduit, substantially as specified.

5. In a straw-stacker, the combination of the body of a threshing-machine, a straw-conduit connected therewith and susceptible of vertical and horizontal swinging movements, a carriage movable on the body and connected with the conduit, and a lever carried by the carriage and also connected with the conduit, substantially as specified.

6. In a straw-stacker, the combination of a conduit having a mouth adapted to receive from a threshing-machine and also having an opening in its bottom, an endless straw-carrier taking around wheels at opposite ends of

the conduit and having a stretch extending through said conduit, and an endless apron taking around rollers and arranged between the receiving end of the conduit and the opening in the bottom thereof; the said apron having a stretch movable in the conduit between the inner stretch of the straw-carrier and the bottom of said conduit, substantially as specified.

7. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a track arranged on said body and describing the arc of a circle the center of which is coincident with the shaft, a carriage movable on said track, a shaft journaled in said carriage, a driving connection between the shaft of the body and the shaft of the carriage, a conduit connected with the body so as to swing vertically and provided with an endless straw-carrier and an endless chaff-apron, a shaft carried by the conduit, driving connections between said shaft and the endless carrier and apron, a band connecting a pulley on the shaft of the carriage and a pulley on the shaft of the conduit, and means for moving the carriage, substantially as specified.

8. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a carriage mounted on the body and movable in the arc of a circle the center of which is coincident with the shaft, a shaft journaled in said carriage and connected with the shaft of the body, a conduit connected with the body and susceptible of vertical swinging movement, an endless carrier mounted on the conduit, and a driving connection between the shaft of the carriage and the endless carrier, substantially as specified.

9. In a straw-stacker, the combination of the body of a threshing-machine, a shaft journaled therein, a carriage mounted on the body and movable in the arc of a circle the center of which is coincident with the shaft, a shaft journaled in said carriage and connected with the shaft of the body, a conduit connected with the body and susceptible of vertical and horizontal swinging movements, an endless carrier mounted on the conduit, a driving connection between the shaft of the carriage and the endless carrier, and means arranged on the carriage for swinging the conduit horizontally, substantially as specified.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MAGNUS JOHNSON.

Witnesses:

ALEXANDER E. MAY,
HARRY ANDISON.