

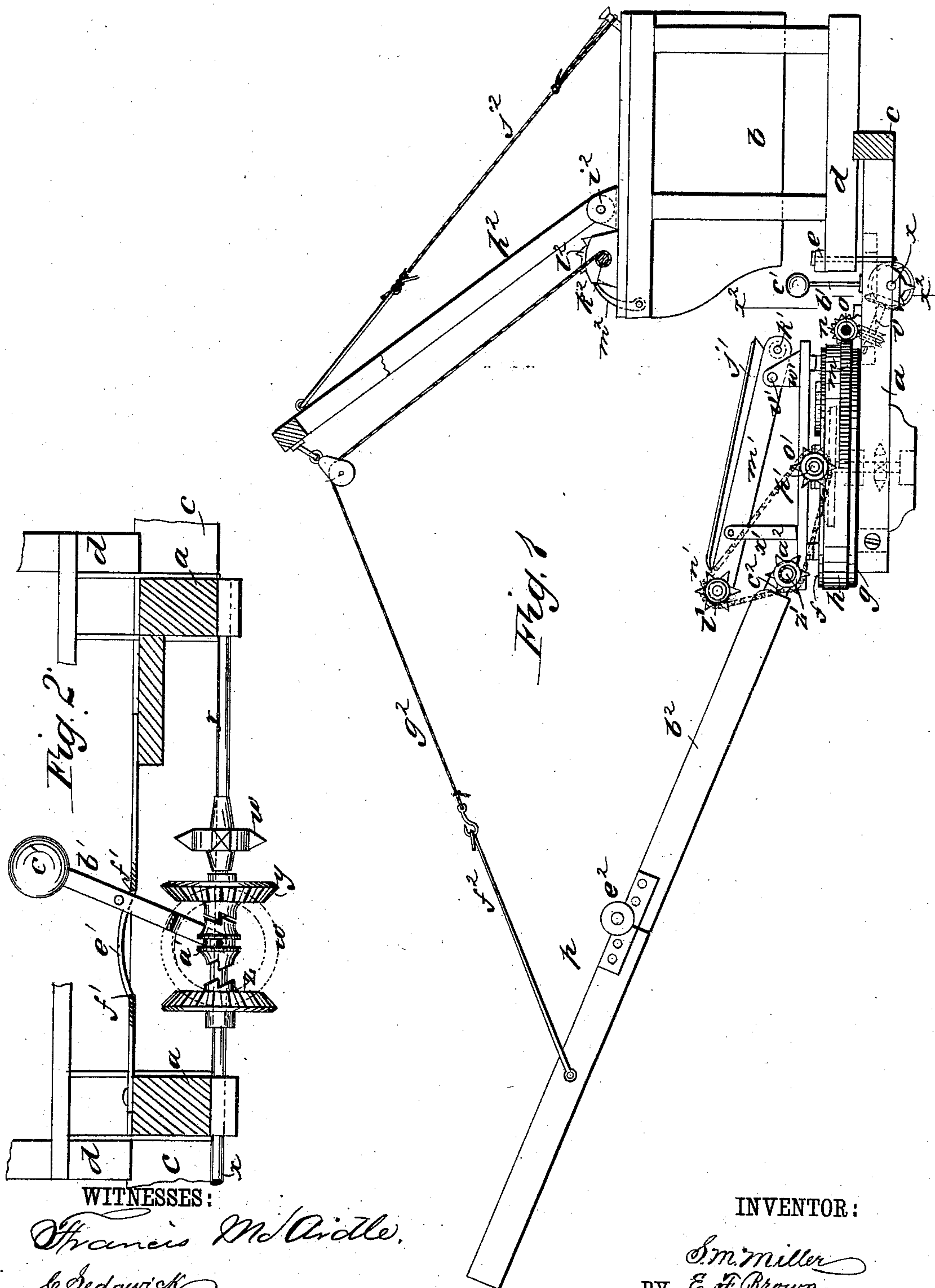
(No Model.)

3 Sheets—Sheet 1.

S. M. MILLER & E. F. BROWN.
STRAW STACKER.

No. 299,933.

Patented June 3, 1884.



WITNESSES:

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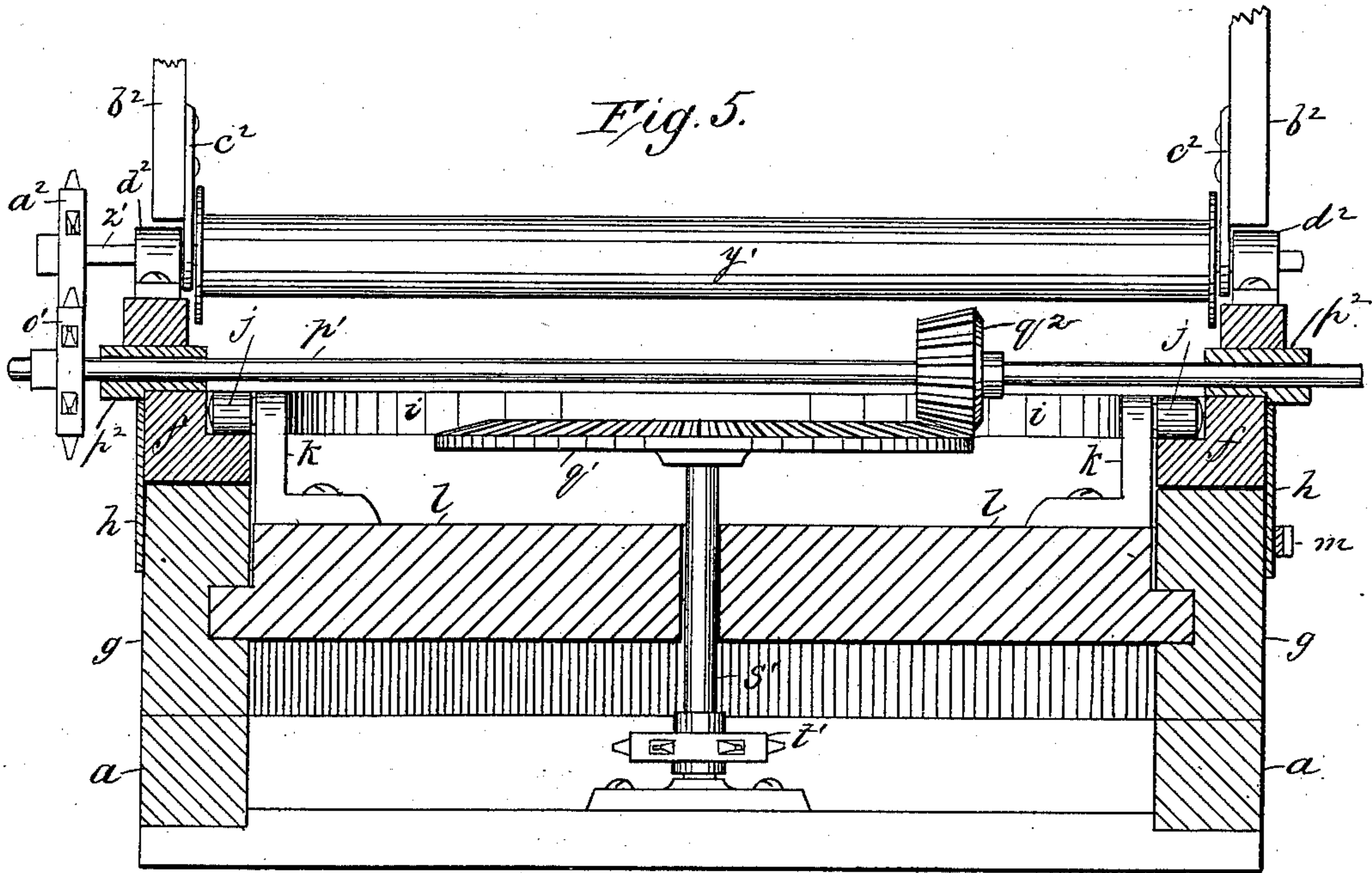
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

SAMUEL M. MILLER AND EMANUEL F. BROWN, OF NEBRASKA, OHIO.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 299,933, dated June 3, 1884.

Application filed November 20, 1883. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL M. MILLER and EMANUEL F. BROWN, of Nebraska, in the county of Pickaway and State of Ohio, have
5 invented a new and Improved Straw-Stacker, of which the following is a full, clear, and exact description.

Our invention consists of improvements in the construction and arrangement of the ap-
10 paratus of a vibrating straw-stacker, whereby it is designed to simplify the machine and increase its efficiency and durability, all as hereinafter fully described.

Reference is to be had to the accompanying
15 drawings, forming part of this specification, in which the same letters of reference indicate the same or corresponding parts in all the figures.

Figure 1 is a side elevation of our improved straw-stacker with some of the parts in sec-
20 tion. Fig. 2 is a transverse section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a longitudinal sectional elevation, and Fig. 4 is a plan view with same parts broken out. Fig. 5 is a transverse
25 section of the turn-table on line $z z$ of Fig. 4, looking toward the left; and Fig. 6 represents the connection between the lower end of the long carrier and the turn-table.

We arrange an extension-frame, a , back of the separator b of the thrashing-machine by
30 suitably connecting said frame with the axle c of the thrashing-machine truck and suspending it from the sills d of the same with yoke-bolts e , or other approved means, and on the rear portion of this frame we arrange
35 a turn-table, f , on a circular supporting-bed, g , permanently attached to the frame a , the turn-table being fitted with a guard-rim, h , projecting downward from its periphery below the face of the bed to guide it around the
40 bed and keep the turn-table in its position thereon. The turn-table f also has an annular rabbet, i , in the inner periphery, in which rabbet the guard-rollers j , fitted on brackets k , attached to the cross-beam l bear, to further
45 assist in keeping the turn-table in its position. The turn-table f has a toothed rim, m , attached to guard-rim h , and extending about half the circumference of the turn-table, and a worm-wheel, n , on the shaft o gears with
50 this toothed rim for turning the turn-table for-

ward and backward suitably for swinging the straw-carrier p as required for delivering the straw on the stack. The shaft o has a bearing at one end in the sliding box q , with which
a shifting-lever, s , is connected suitably for
55 disconnecting the worm from the turn-table when it may be desired to have the straw-carrier p stand and discharge in one position. The shaft o is geared by a wheel, t , with a
worm, u , on a short shaft, v , which has a bevel-
60 wheel, w , which gears with the driving-shaft x by the bevel-wheels y or z , according as the clutch a' is shifted to connect them for turning the carrier p to the right or left.

For automatically shifting the clutch a' to
65 enable the carrier to be reversed satisfactorily, we have a clutch-shifting lever, b' , carrying a heavy weight, c' , at its upper end, and arranged to extend upward from the clutch in
suitable proximity to the turn-table, to be
70 shifted by the arms d' , attached to it, said arms raising the lever from the inclined position to which it falls past the vertical position, so that
said lever falls the other side and reverses the
clutch, and said lever b' being arranged in a
75 slotted fulcrum-plate, e' , along which it swings to acquire momentum by its fall after passing the vertical line, to cause a thrust on the clutch when the lever is arrested at the ends f' of
the slotted fulcrum, which will positively shift
80 the clutch.

The driving-shaft x is to be turned by a belt from any suitable driver working on the pulley g' .

The straw is to be discharged out of the rear
85 end of the separator b of the thrashing-machine and over the turn-table, on the top of which we have arranged a short endless carrier, h' , over a table, i' , and under the sides j' of a low
hopper, said carrier working on the rollers k'
90 and l' , which are mounted in the ends of the supporting-bars m' , respectively. The roller l' , at the upper end of the carrier h' , has a sprocket-wheel, n' , by which it is driven to
work the carrier with a chain-belt from the
95 sprocket-wheel o' on a shaft, p' , that is mounted in suitable bearings on the top of the turn-table f , and extending across the top of the same, and gearing with the large bevel-driver
 q' on a vertical shaft, s' , arranged in the axis
100

of the turn-table, and geared by the sprocket-wheel t' , and a suitable chain with the sprocket-wheel u' on the driving-shaft x .

The circular turn-table f has no axial shaft arranged vertically, as is usual, on which shaft the table revolves; but on the contrary the table is solely supported around its outer edge by the circular supporting-bed g , and by the absence of such axial shaft we are enabled to employ the single counter-shaft p' , which extends continuously across the table, and is mounted in opposite bearings, p^2 , thereon, whereby the shaft partakes of the circular turning movements of the table, and its pinion q^2 travels around on the bevel drive-wheel q' on the vertical drive-shaft s' , when the table is adjusted around. The construction of parts for supporting the turn-table and operating the carrier h' and elevator simplifies the structure, and is an advantage over those stackers in which the turn-table rotates on a central vertical pivot-pin, as in such structures two separate counter-shafts are essential on the stationary bed-frame of the turn-table.

The side bars m' of the supporting-frame of the carrier h' are pivoted at v' to standards w' , suitably mounted on the turn-table f , and near the upper end said side bars have legs x' , resting on the top of the turn-table, so that said carrier h' and its supporting-frame may be turned up and supported against the end of the separators for being transported.

The carrier h' discharges the straw from its upper end upon the long endless carrier p , by which the straw is to be elevated to the stack. This carrier runs on the rollers y' , attached to the shaft z' , which has its bearings on the top of the turn-table f , and is provided with the sprocket-wheel a^2 , to be turned by the same driving-chain that turns the roller l' of the carrier h' .

The side bars b^2 of the frame of the carrier p have slotted plates c^2 , that hook onto the shaft z' , for supporting the lower end of said carrier-frame on said shaft, and the said shaft has similar slotted bearing-supports d^2 on the top of the turn-table, into which the shaft may be readily placed when the carrier p is to be set up for use, and from which the shaft may be readily removed with the carrier around it when the machine is to be packed in the condition for being transported. The driving-chain will then be detached from the wheel a^2 .

The frame of the carrier p has joints at e^2 to enable it to be folded up, and said frame has a wire or rope suspending-yoke, f^2 , by which it is hooked to the rope g^2 of a derrick, h^2 , pivoted at i^2 on the top of the separator-frame and supported by the guy j^2 . The derrick-rope g^2 winds around the shaft k^2 of a windlass employed to raise and lower the carrier, and having a ratchet, l^2 , and pawl m^2 for holding it in position.

By providing a shiftable clutch, a' , in connection with reversing-wheels on the driving-shaft x , and devices for automatically adjust-

ing the clutch to reverse the motion of the turn-table, the elevator and intermediate carrier are moved back and forth in a horizontal circular plane, and therefore the straw is continuously and uniformly delivered around on all parts of the straw-stack, which is very desirable in this class of machines.

As the shaft o is adjustable at one end by suitable means, such as the sliding box q and pivoted lever s , it will be obvious that the worm or gear n on the shaft can be moved into or out of engagement with the toothed rim of the turn-table, whereby, if the said worm or gear be adjusted by its carrying-shaft o out of engagement with the turn-table, the latter, together with the intermediate carrier and elevator, can stand in a stationary position or be freely and rapidly adjusted around in a horizontal plane to any desired position. If the shiftable clutch a' be adjusted to such position between the reversing-wheels y and z as not to engage the clutch on either wheel, and the shifting-lever b' be brought to a perpendicular position and held in that position by suitable means—such as a catch or stop—it will be obvious that both reversing-wheels stand loose on the driving-shaft x , and therefore the shaft o will not be revolved. When the parts are in this position and the worm or gear n is engaged with the toothed rim m , the turn-table will be locked in a stationary position, together with the elevator. This is desirable where small straw-stacks are to be made, and it is not necessary for the elevator to move back and forth in a horizontal plane to uniformly distribute the straw. The elevator can also be quickly adjusted around and locked in any required position by moving the shaft o to disengage the worm or gear n from the toothed rim m , and then properly adjusting the turn-table, after which the worm or gear is again engaged with the toothed rim to lock the turn-table.

The novel mechanism provided by us places the structure under control of the attendant, renders it convenient to manipulate, and so adapts the machine that the straw can be deposited in any one place or in a circular range, while the automatic circular sweep of the elevator can be changed to a longer or shorter arc by properly fixing the clutch-shifting arms d farther apart or closer together on the turn-table, or into sockets o^2 thereon provided.

We do not broadly claim the combination, with a thrashing-machine, of a pivoted laterally-swinging straw-elevator and a pivoted conveyer intermediate of the machine and swinging elevator to follow the lateral swing of the elevator and transfer the straw thereto; but

What we do claim is—

1. The combination, with a thrashing-machine, of a turn-table, a straw-elevator partaking of the turning movement of the table, a driving-shaft capable of adjustment toward

and from the table to engage and disengage the same for positively rotating the turn-table or permitting it to stand stationary or be freely turned, substantially as described.

5 2. The combination, with a thrashing-machine, of a turn-table, a straw-elevator partaking of the turning movement of the table, a shaft adjustable toward and from the table to engage and disengage the same, a driving-
10 shaft, gearing for rotating the adjustable shaft, a shifting-clutch for reversing the motion of the gearing, and a clutch-shifting lever, substantially as described.

3. The combination, with a thrashing-machine, of a turn-table, a circular toothed rim thereon, a straw-elevator partaking of the turning movement of the table, a shaft engaging the toothed rim, a driving-shaft, reversing gear-wheels on the driving-shaft for re-
20 volving the shaft which engages the rim, a shifting-clutch between the reversing gear-wheels, and a clutch-shifting lever automatically operated by the turn-table to reverse the turning movement of the latter, substantially
25 as described.

4. The combination, with a thrashing-machine, of a straw-elevator, a straw-conveyer intermediate of the elevator and the machine, and capable of moving around in a circular
30 path, together with the elevator, gearing for so moving the intermediate conveyer and elevator, and an automatically-operated clutch for reversing the circular movement of the intermediate conveyer and elevator, and con-
35 tinuously moving them back and forth to uniformly distribute the straw, substantially as described.

5. The combination, with a thrashing-machine, of a turn-table, a straw-elevator partaking of the turning movement thereof, a traveling conveyer supported on the turn-table intermediate of the machine and the elevator, gearing for turning the table, and an auto-
40 matically-operated clutch for reversing the movement of the table and continuously moving the straw-elevator back and forth in a circular path, substantially as described.

6. The combination, with a thrashing-machine, of a turn-table, a straw-elevator partaking of the turning movement of the table, a traveling conveyer supported on the table intermediate of the machine and the elevator and movable around with it, a driving-shaft capable of adjustment toward and from the
55 table to engage and disengage the same, for positively rotating the turn-table, intermediate conveyer, and the elevator in a circular path, or permitting them to stand in a stationary position or to be freely turned to any
60 desired position, substantially as described.

7. The combination, with a thrashing-machine, of a turn-table, a straw-elevator partaking of the turning movement of the table, a traveling conveyer supported on the table and
65 moving around with it and the elevator, a shaft adjustable toward or from the table to

engage and disengage the same, gearing for rotating the said shaft, a shifting-clutch for reversing the motion of the gearing, and a clutch-shifting lever, substantially as de- 70 scribed.

8. The combination, with a thrashing-machine, of a turn-table, a circular toothed rim thereon, a straw-elevator partaking of the turning movement of the table, a traveling
75 conveyer supported on the table intermediate of the machine and the elevator and moving around with the elevator and the table, a shaft engaging the toothed rim, a driving-shaft, reversing gear-wheels on the driving-shaft for
80 revolving the shaft engaging the rim, a shifting-clutch between the reversing gear-wheels, and a clutch-shifting lever automatically operated by the turn-table to reverse the turning movements of the latter, substantially as
85 described.

9. The combination, with a thrashing-machine, of a turn-table, a circular bed serving as the sole support for the table, and on which the latter is adapted to turn, a guide-flange
90 for confining the table on the bed, a straw-elevator partaking of the turning movement of the table, a traveling conveyer supported on the table intermediate of the machine and the elevator and moving around with said table
95 and elevator, a counter-shaft, p' , extending continuously across the table, and having a pinion, q^2 , bearings on the table supporting the ends of said counter-shaft, a vertical driving-shaft, s' , and a drive-wheel, q' , on the ver-
100 tical shaft, substantially as described.

10. The combination of the turn-table f , the rack m , worm n , shaft o , wheel t , worm u , shaft v , and bevel-wheel w , with the driving-shaft x , reversing-wheels y z , shifting-clutch
105 a' , weighted shifting-lever b' , and the arms d' , arranged to shift said reversing-lever automatically, substantially as described.

11. The weighted clutch-shifting lever b' and the slotted fulcrum-plate e' , in combination
110 with the clutch a' , reversing-wheels y and z , driving-wheel w , and the shifting-arms d' on the turn-table, substantially as described.

12. The combination, in a straw-stacker for thrashing-machines, of the turn-table f , separator b , and the carrier h' , located on the turn-
115 table, pivots v' , and legs x' , enabling the carrier to be set up and rested against the separator, substantially as described.

13. In a straw-stacker for thrashing-machines, the combination of the turn-table f , the carriers h' and p , driving-shaft p' , the drive-
120 wheels o' , a^2 , and n' , a suitable chain, the vertical shaft s' , chain-wheels t' and u' , and a chain, substantially as described. 125

14. The combination of the jointed straw-carrier frame b^2 , slotted bearing-plates c^2 , roller-shaft z' , carrier p , arranged on it, slotted bearings d^2 , and the turn-table, substantially
130 as described.

15. The combination of the turn-table f , guard-rim h , and bed g , with the brackets k

and rollers *j*, working in a rabbet, *i*, on the inner periphery of the turn-table, whereby the turn-table is held in position on the bed, substantially as set forth.

5 16. The combination, with the turn-table *f*, its segmental toothed rim, and mechanism, substantially as described, for automatically oscillating the same, of the shaft *o*, provided with the worm *n*, and mounted at one end
10 in a sliding box, *q*, operated by the pivoted

lever *s*, whereby the toothed rim and worm may be disconnected to cause the automatic oscillation of the turn-table to cease when it is desired to discharge the straw in one place, substantially as set forth.

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EMANUEL F. BROWN.

Witnesses:

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