(No Model.)

2 Sheets—Sheet 1.

M. SATTLEY & M. HEINECKE.

STRAW STACKER.

No. 442,750. Patented Dec. 16, 1890.

Fig. 1.

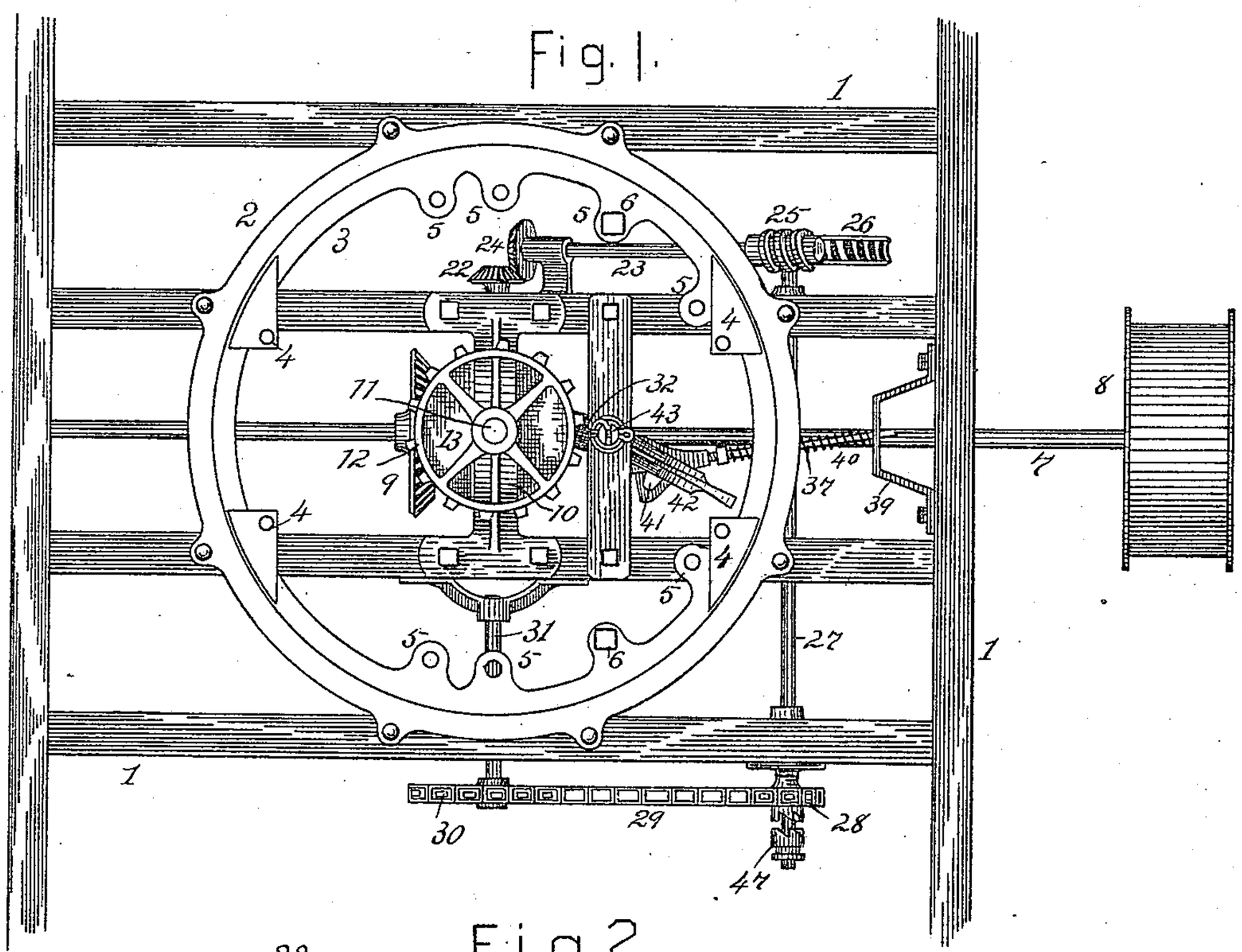
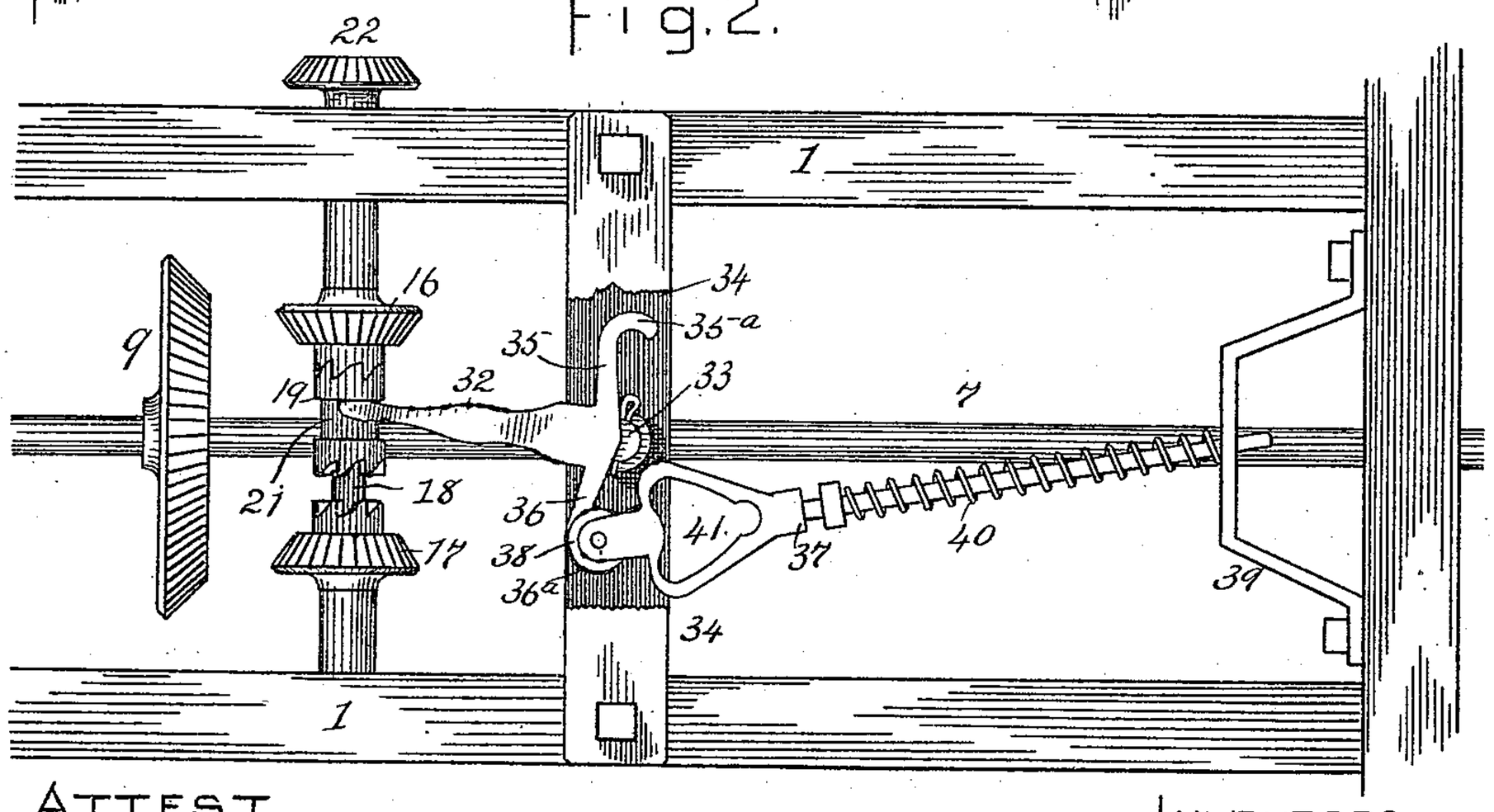


Fig. 2.



ATTEST

Helen Graham

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INVENTORS.

MARSHALL SATTLEY

MARTIN HEINECKE

By L. P. Graham

their attorney.

(No Model.)

2 Sheets—Sheet 2.

M. SATTLEY & M. HEINECKE.

STRAW STACKER.

No. 442,750. Patented Dec. 16, 1890.

Fig. 3.

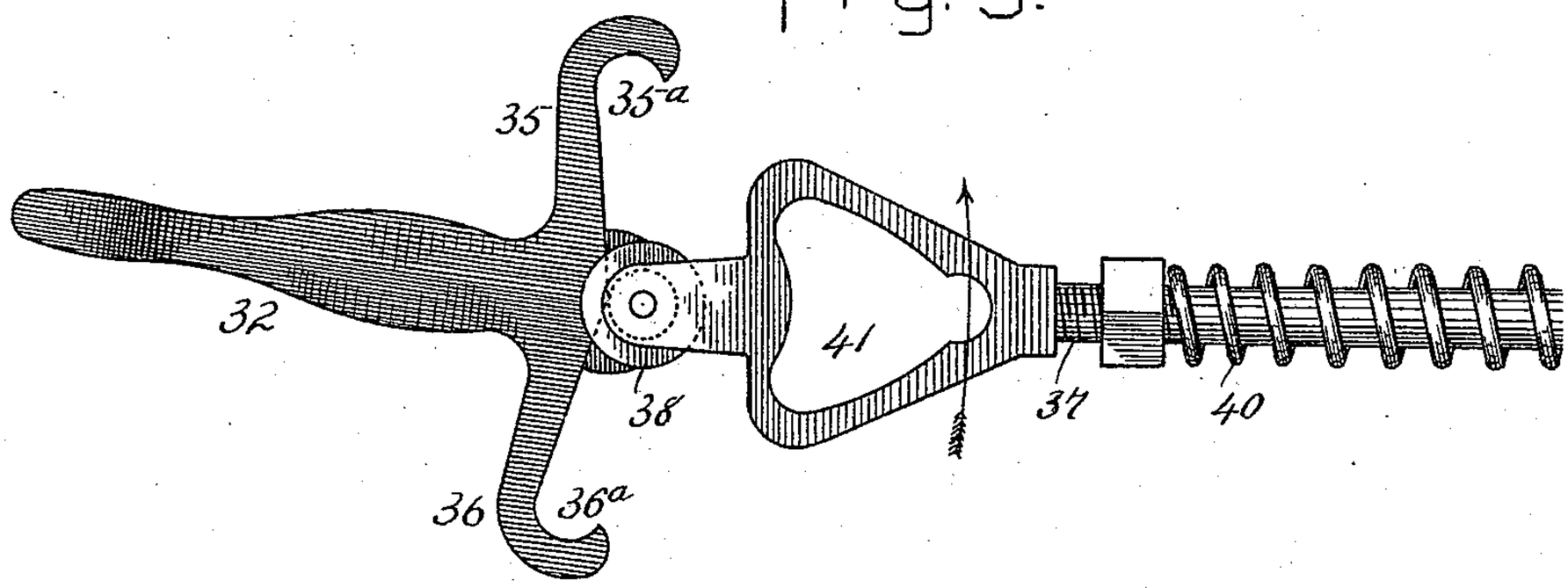


Fig. 4.

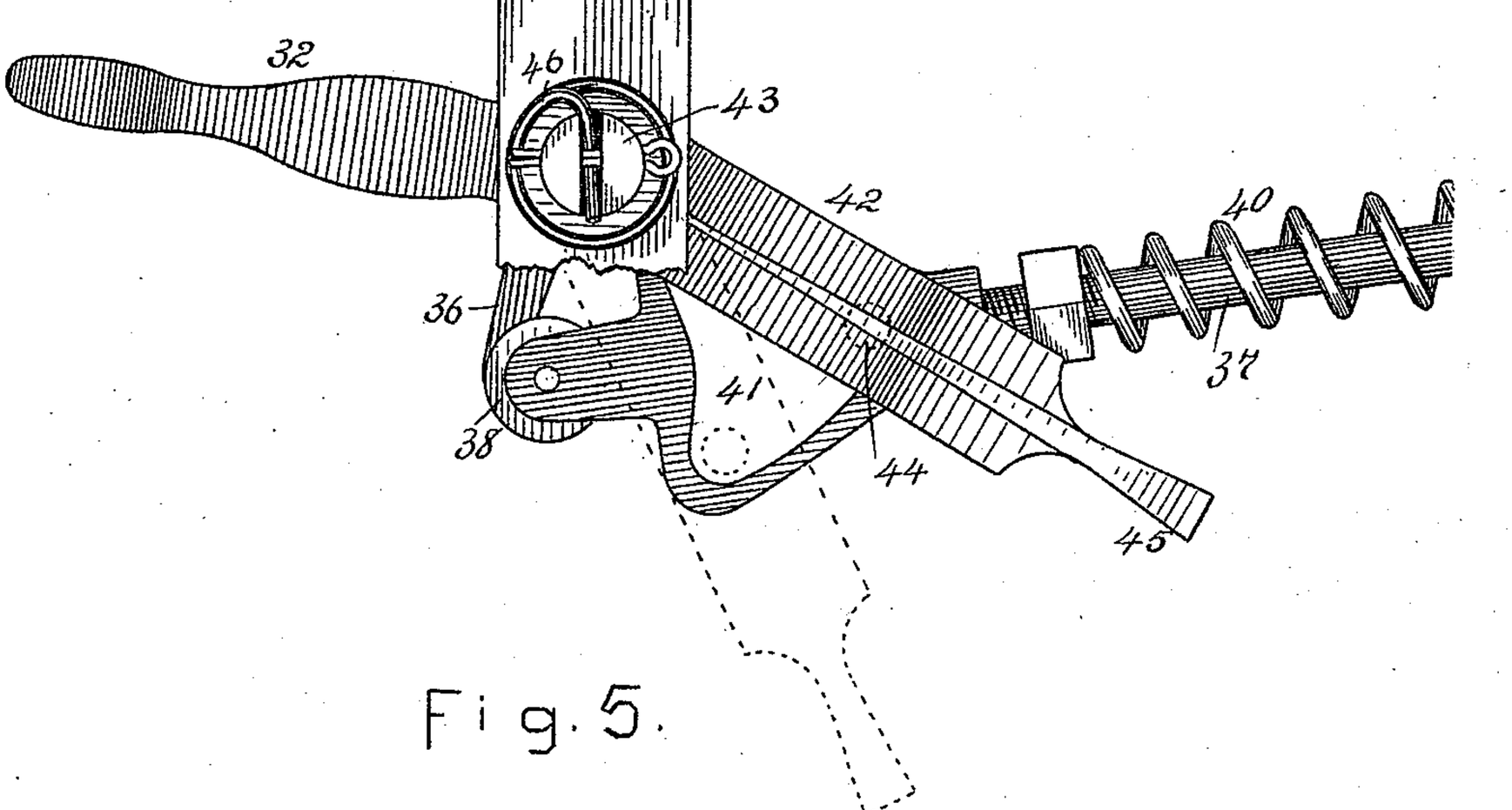
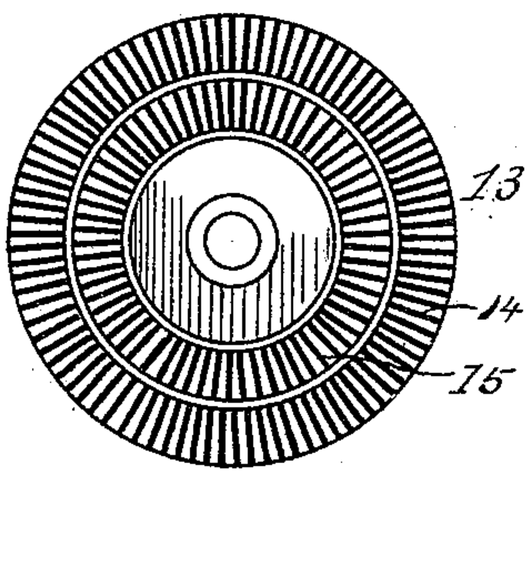


Fig. 5.



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their attorney.

UNITED STATES PATENT OFFICE.

MARSHALL SATTLEY AND MARTIN HEINECKE, OF SPRINGFIELD, ILLINOIS, ASSIGNORS TO THE SATTLEY MANUFACTURING COMPANY, OF SAME PLACE.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 442,750, dated December 16, 1890.

Application filed March 8, 1890. Serial No. 343,106. (No model.)

To all whom it may concern:

Be it known that we, MARSHALL SATTLEY and MARTIN HEINECKE, of Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Straw-Stackers, of which the following is a specification.

This invention has reference to straw-stackers that oscillate automatically to distribute the straw in a segment of a circle. It relates intimately to the reversing mechanism of such stackers; and it consists in the details of construction and relative arrangements of parts hereinafter set forth and claimed.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan of the central portion of the base-frame of a stacker, showing our invention and the parts immediately related thereto; Fig. 2, a plan of certain parts of the reversing mechanism. Fig. 3 is a plan of the shifting-lever and the yielding pressure-bar that actuates such lever. Fig. 4 is a plan embodying the most essential elements of the reversing mechanism. Fig. 5 is a view of the under surface of the gear-wheel used to impart motion to the reversing clutch-pinions.

The frame 1 is mounted on wheels in the customary manner. It carries annular guide-frame 2, in which base 3 of the stacker is loosely held, and it provides bearings for the different shafts, &c., used to actuate the stacker and impart oscillatory motion thereto. The lugs 4 provide points of connection for the stacker, and the lugs 5 have holes for the trip-pins 6. Shaft 7 has drive-pulley 8 and bevel-wheel 9. The arched bracket 10 provides a bearing for shaft 11, which carries sprocket-wheel 12 and gear-wheel 13. Wheel 13 has teeth 14, that mesh with wheel 9, and also has teeth 15, that mesh with pinions 16 and 17. The pinions are mounted loosely on shaft 18. They rotate in opposite directions and they have ratchet-teeth on their opposing surfaces. The clutch 19 is splined on shaft 18. It has ratchet-teeth on its ends adapted to the teeth of the pinions, and it has the intermediate annular recess 21. On the extended end of shaft 18 is a gear-wheel 22. Shaft 23 carries wheel 24, which meshes with wheel 22, and also carries worm 25, which imparts motion to worm-wheel 26. Worm-wheel 26 and sprocket-wheel 28 are mounted on shaft 27. Chain 29 connects wheel 28 with wheel 30. Wheel 30 is mounted on shaft 31, and such shaft has a gear-wheel (not seen) that meshes with crown-gear in the under surface of base-ring 3. Force applied to pulley 8 is imparted through gearing 9 13 to sprocket-wheel 12, and from the sprocket-wheel motion is imparted the elevating belt or apron of the stacker. Motion is conveyed through shaft 18, shaft 23, shaft 27, and shaft 31 to the base of the stacker, and the direction of such motion depends on which pinion 16 or 17 is engaged by the clutch. Our invention relates to the device employed to automatically shift the clutch, and thereby impart a regular oscillation, of greater or less degree, to the discharging end of the stacker. Such device comprises details as follows: The shifting-lever 32 is adapted to the annual recess 21 of the clutch, is pivoted at 33 in cross-bar 34, and it has the arms 35 and 36, which extend in opposite directions from the pivot and form a continous way for the roller 38 of press-bar 37. The way formed by the arms describes an obtuse angle with the apex thereof in approximate vertical alignment with the pivot of the lever, and presented in a direction opposed to the lever's extension. The press-bar has a swinging bearing in a slot in bracket 39, which is secured to frame 1. It is provided with compression-spring 40. It has the slot or opening 41, and the center of its swinging is approximately in line with the center of swinging of the shifting-lever. Arm 42 is pivoted at 43. It has a downwardly-extending stud 44, which is indicated by a dotted line in Fig. 4, and which engages the apex of the triangular slot 41 of the press-bar. Its end 45 stands ordinarily in the path of the trip-pins 6, and it is actuated by such pins. Spring 46 is connected with the pivot of arm 42 in such manner as to yieldingly oppose motion in either direction.

In operation the spring of the press-bar forces the roller against an end of an arm of the shifting-lever and holds the operative end

of the lever in one of its extreme positions with sufficient force to prevent the clutch from becoming separated from a pinion. (See Fig. 2.) Then as the stacker is swung around a pin 6 in the base-ring will come in contact with end 45 of arm 42 and exert lateral pressure through stud 44 on the press-bar. As the press-bar moves, the roller runs along an inclined surface of an arm of the shifting-levers accumulating force by compressing spring 40 until the apex of the angle is reached, as seen in Fig. 3, when further motion will apply the pressure of the spring to the opposite arm and will thereby cause an instantaneous and forcible shifting of the clutch from one pinion to the other. During the time the roller is passing from an end of an arm to the apex of the angle the pressure of the spring tends to prevent the clutch from shifting, and this, together with the subsequent rapid and forcible motion, effectually precludes the possibility of the clutch stopping midway between the two pinions and out of contact with both. The desirability of such provision arises from the fact that the stacker has slow oscillatory motion, and there is a consequent tendency to disengage the clutch from one pinion without re-engaging the opposite pinion, thereby leaving the stacker at a standstill so far as oscillatory motion is concerned.

The elastic pivot of the arm 42 and the opening 41 in the press-bar are of utility in permitting adjustment of the stacker independent of the reversing mechanism. In such case the splined clutch 47 is disengaged from loose pinion 28, as seen in Fig. 1, thereby rendering the reversing mechanism ineffective; and when the stacker is swung by hand or otherwise from one point to another and a pin 6 comes in contact with the end of arm 42 the stud 44 will be forced out of the apex of the triangular opening and will follow a side of such opening, while the arm swings temporarily out of the path of the pins.

The arms 35 and 36 have the hooked terminations 35^a and 36^a to limit the throw of the press-bar, or other analogous and equivalent devices may be employed to produce such result. The degree of angularity in the arms of the shifting-lever is not definite. It may be varied to some extent without impairing the effectiveness of the device, and may be omitted without rendering the device entirely inoperative. So, also, it is a matter of no serious consequence whether pressure be imparted to the shifting-lever by means of the push-bar shown and described or a draw-bar with an extension or other form of spring be pivotally connected on the opposite side of the shifting-lever and in line with the center of the lever's oscillation.

We claim—

1. A reversing device for straw-stackers, comprising a clutch-shifting lever having lateral arms oppositely extended from the pivot of the lever and forming a continuous way, a swinging press-bar bearing yieldingly and movably against the way with its center of motion in line with the center of motion of the shifting-lever, and means for imparting motion from the stacker-frame to the press-bar, as set forth.

2. A reversing device for straw-stackers, comprising a clutch-shifting lever having at its pivot a way or bearing in the form of an obtuse external angle, a shifting press-bar bearing yieldingly and movably against the obtuse-angled bearing, and means for imparting motion from the stacker-frame to the press-bar, as set forth.

3. A reversing device for straw-stackers, comprising a shifting-lever having at its pivot an external obtuse-angled bearing, a push-bar having a roller adapted to the bearing of the shifting-lever, a spring pressing the push-bar against the lever, and an arm adapted to impart lateral motion to the push-bar, as set forth.

4. A reversing device for straw-stackers, comprising a shifting-lever having at its pivot an external obtuse-angled bearing, a push-bar pressing yieldingly against the bearing, an arm to give the push-bar lateral motion, and pins in the rotating frame of the stacker to actuate the arm, as set forth.

5. In combination with the shifting-lever having the external obtuse-angled bearing, the push-bar having the triangular opening, the arm with the resilient pivot having the stud adapted to the opening of the push-bar, and pins in the rotating portion of the stacker-frame adapted to actuate the arm, as set forth.

In testimony whereof we sign our names in the presence of two subscribing witnesses.

MARSHALL SATTLEY.
MARTIN HEINECKE.

Witnesses:
CLINTON L. CONKLING,
S. H. CUMMINS.