No. 618,947. Patented Feb. 7, 1899.

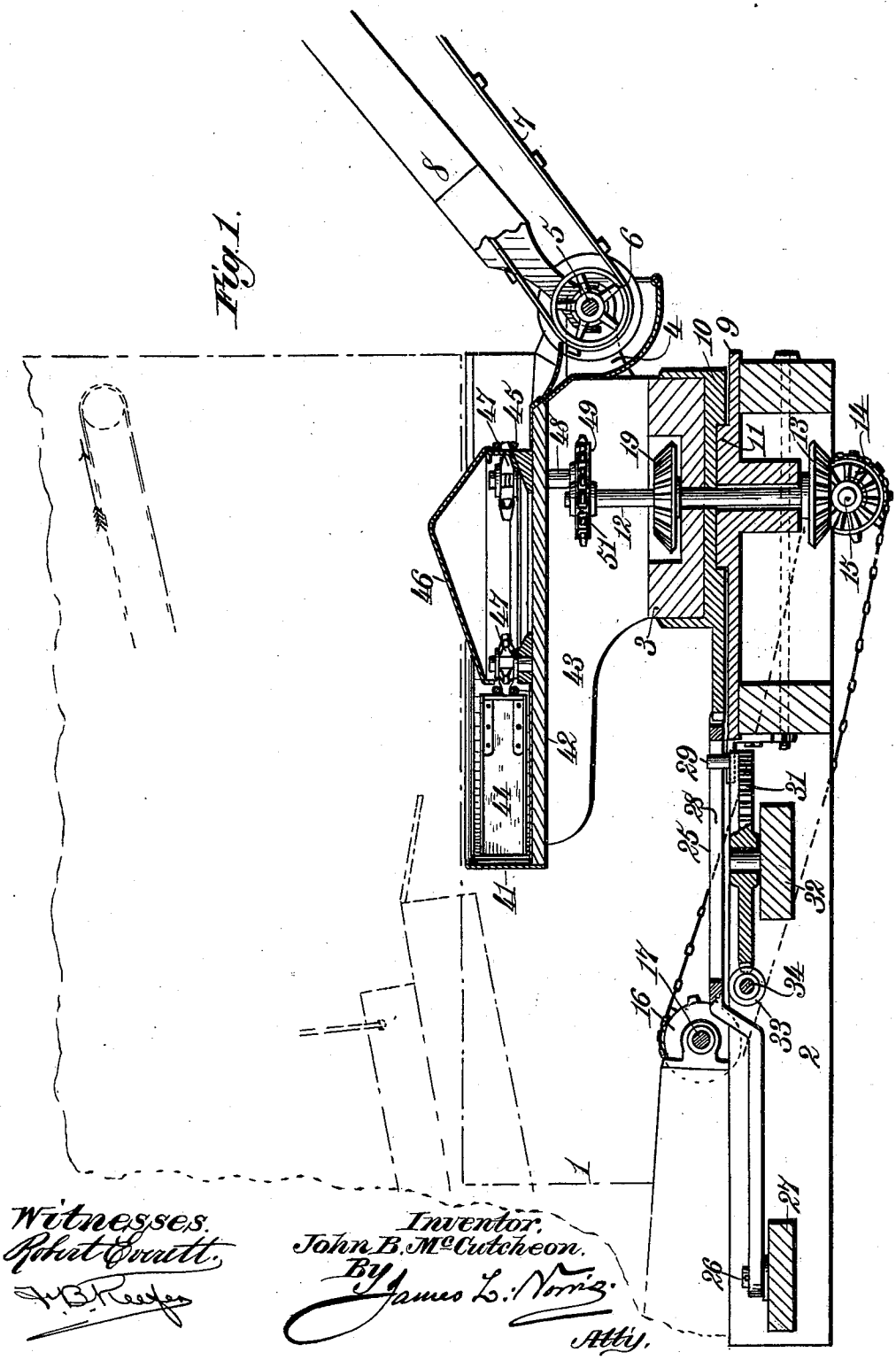
J. B. McCUTCHEON.

OSCILLATING STRAW STACKER.

(Application filed May 16, 1898.)

(No Model.) 3 Sheets—Sheet 1.

Fig 1.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

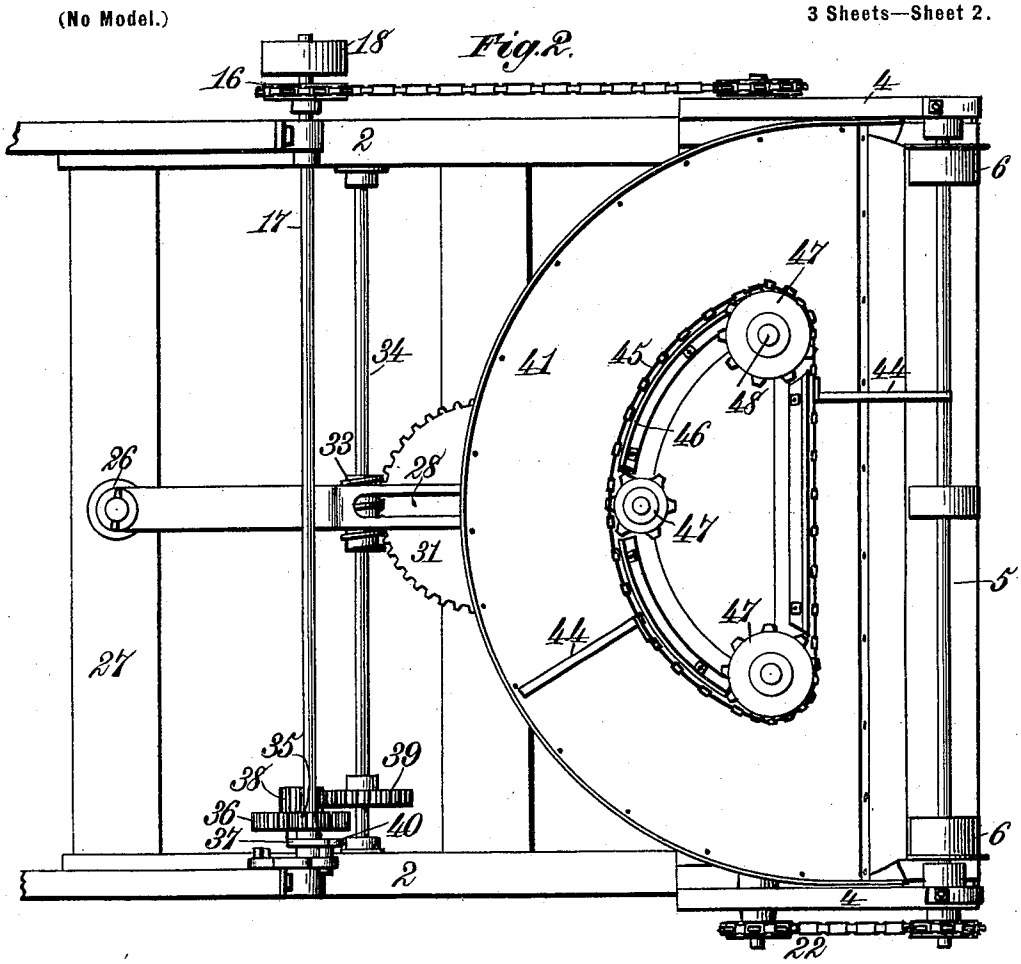
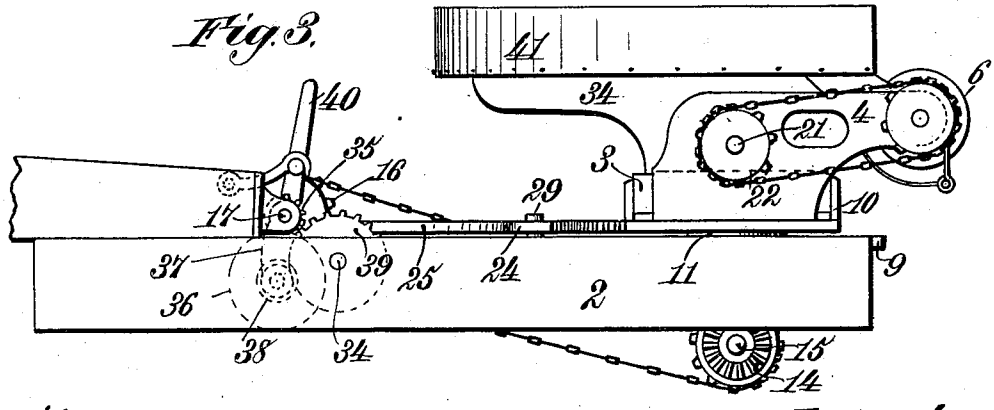


Fig. 3.



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Fig. 4.

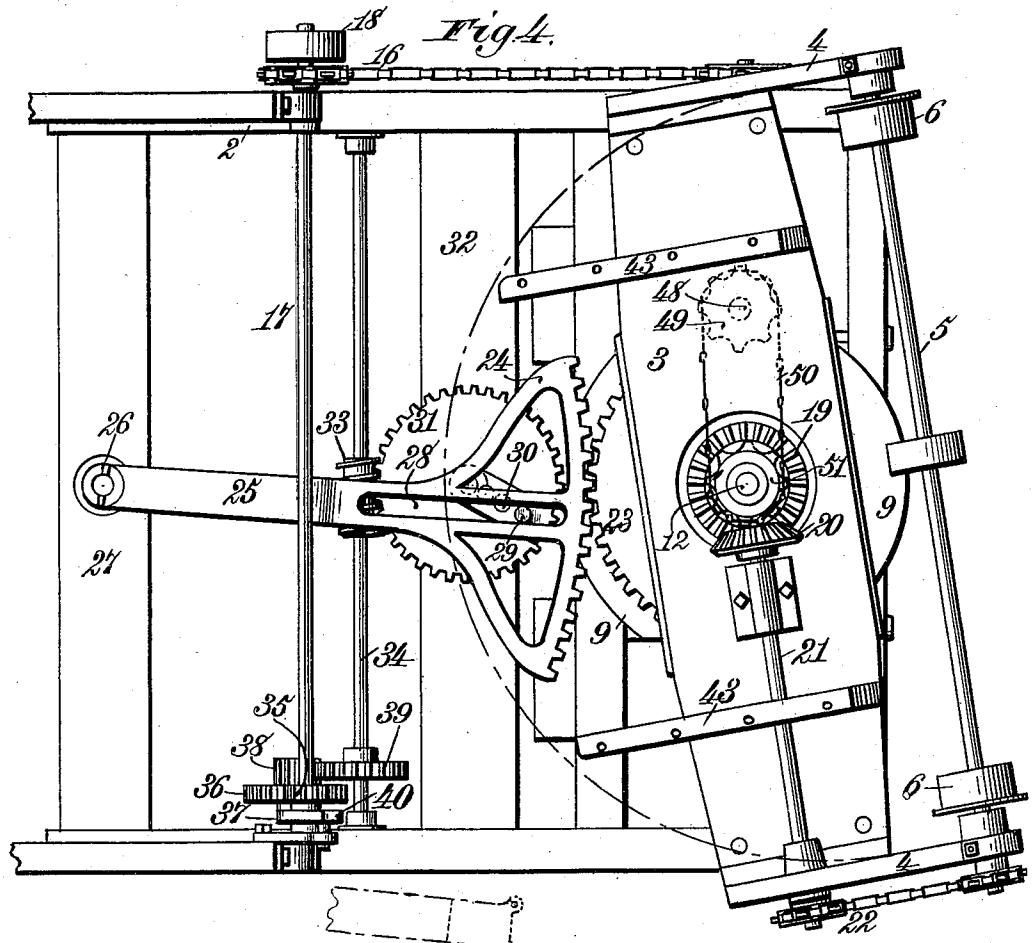
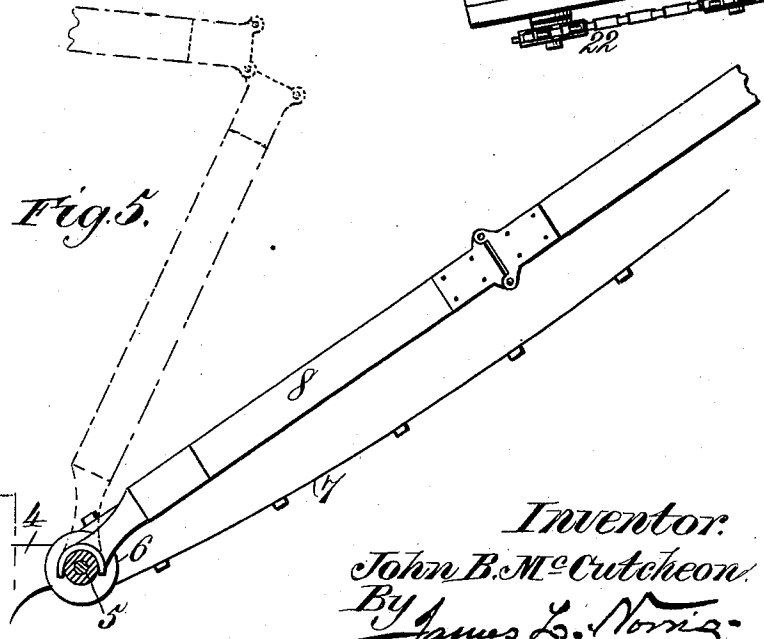


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN B. McCUTCHEON, OF BATTLE CREEK, MICHIGAN, ASSIGNOR TO THE ADVANCE THRESHER COMPANY, OF SAME PLACE.

OSCILLATING STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 618,947, dated February 7, 1899.

Application filed May 16, 1898. Serial No. 680,871. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. McCUTCHEON, a citizen of the United States, residing at Battle Creek, in the county of Calhoun and State of Michigan, have invented new and useful Improvements in Oscillating Straw-Stackers, of which the following is a specification.

This invention relates to an improved oscillating straw-stacker for use with threshing-machines or grain-separators; and the improvements consist in features of construction and novel combinations of parts in the operating mechanism of a straw-stacker whereby the stacker is brought very close to the separator without lengthening the separator-trucks and so that the stacker will be light, yet strong and durable, easily managed, and positive in action.

In the annexed drawings, illustrating the invention, Figure 1 is a vertical longitudinal section of my improved oscillatory straw-stacker. Fig. 2 is a plan view. Fig. 3 is a side elevation. Fig. 4 is a plan with table and pan removed and showing the bolster oscillated to one side. Fig. 5 is a side elevation of the folding stacker.

The reference-numeral 1 designates a portion of the frame of a separator or threshing-machine. At the lower rear part of the separator-frame 1 there is attached a horizontally and rearwardly extended frame 2, having a horizontally-swinging bolster 3 mounted above. The ends of the bolster 3 are provided with rearward-extended bracket-arms 4, having bearings for a transversely-arranged shaft 5, provided with pulleys 6 for driving the endless conveyer-belts 7, that are mounted in a stacker 8, which may be pivotally supported around the bearings of the pulley-shaft.

On the upper side of the frame 2, at its rear end, there is secured a stationary metallic bearing-blate 9 immediately below an oscillatory bearing-plate 10, to which the horizontally-swinging bolster 3 is centrally fastened. One of these bearing-plates is provided with a collar or circular boss 11, engaging loosely in a recess of the other plate in such manner as to center the horizontally-swinging bolster. The bearing-plates 9 10 and bolster 3 are centrally perforated for passage of a vertical shaft 12, on the lower end of which there is a bevel-gear 13, through which said shaft is revolved from a bevel-gear 14 on a horizontal shaft 15, that is driven by means of sprocket-gearing 16 from a shaft 17, having thereon a pulley or band-wheel 18, through which the said shaft 17 is driven by belting from the grain-separator. Near its upper end the vertical shaft 12 carries a bevel-gear 19, meshing with a bevel-gear 20 on a horizontal shaft 21, which connects by sprocket-gearing 22 with the pulley-shaft 5 for driving the endless belts of the stacker.

The oscillatory bearing-plate 10 of the horizontally-swinging bolster 3 is provided with a segment-gear 23, that meshes with a segmental gear 24, carried by an oscillatory arm 25, the rear end of which has a pivot 26 on a cross-bar 27 of the frame 2, that projects from the rear of the separator. In this oscillatory arm 25 there is provided a longitudinally-extended slot 28, in which is loosely engaged a pin 29, projecting from one of a series of holes or recesses 30, that are radially arranged in a worm-wheel 31, mounted on a bar 32 beneath the said oscillatory arm. The worm-wheel 31 is actuated from a worm-gear 33 on a shaft 34, which is geared with the shaft 17, that is driven from the separator. On the shaft 17 there is carried a pinion 35 for driving a gear-wheel 36, journaled on a swinging arm 37, that is pivotally mounted on the shaft 17 or concentric therewith. The gear 36 carries a pinion 38, that normally meshes with a gear 39 on the worm-shaft 34, through which the worm-wheel 31 is actuated in oscillating the stacker 8 or swinging it from side to side to stack the straw in a semicircle. As the wheel 31 revolves it carries around the pin 29, and this being engaged in the slot 28 of the oscillatory arm 25 causes the attached segment-gear 24 to actuate the horizontally-swinging bolster 3 through its segment-gear 23, thus swinging the stacker 8 to the right and left alternately as long as the worm-wheel 31 continues to revolve. By providing the worm-wheel 31 with a radially-arranged series of re-

cesses 30 and changing the position of the pin 29 from one recess to another the throw of the oscillatory arm 25 may be easily varied to limit the swinging movement of the bolster 3, so as to vary the degree of oscillation to be imparted to the stacker. Whenever it is desired to deliver the straw continuously at one spot without oscillating the stacker 8, the arm 37 will be lifted by means of a lever 40, so as to disengage the pinion 38 from the gear 39 of the worm-shaft 34, and in order to lock this lever 40 any suitable detent may be provided.

The straw and chaff from the grain-separator are received in a semicircular pan or tray 41, attached to a table 42, that is supported on bracket-arms 43, secured to the upper side of the horizontally-swinging bolster. In the pan 41 there are two horizontally-traveling sweeps 44, attached to an endless sprocket-chain 45 and operating to push the straw and chaff onto the conveyer that is arranged in the oscillatory stacker. By means of these sweeps 44 the pan or tray 41 is kept free from chaff, and this refuse material is deposited onto the conveyer and carried into the stack instead of being dropped on the ground beneath the machine. The endless sprocket-chain 45 is arranged to travel around the base of a shield 46, that occupies a position at about the center of the pan. The base of this shield 46 is perforated to permit the passage of sprocket-wheels 47, on which the chain 45 is mounted. One of these sprocket-wheels 47 is on a shaft 48, that is extended below the pan 41 and is provided with a sprocket-wheel 49, which connects by a sprocket-chain 50 with a sprocket-wheel 51 at the top of the vertical shaft 12, from which the sweeps 44 are thus actuated. The shield 46 protects the sprocket-wheels 47 and central part of pan 41 from deposits of chaff and straw.

Through the adjustable arrangement of the gears 36 and 38 the shafts 17 and 34 can be at once connected or disconnected for operating the worm-wheel 31 or discontinuing its operation, according to whether it is desired to oscillate the stacker. By adjusting the pin 29 to vary its distance from the axis of the worm-wheel 31 the revolutions of said wheel may be made to oscillate the arm 25 to a greater or less degree, and thus through the segmental gears 23 24 the horizontally-swinging bolster 3 may have any extent of movement required for oscillating the stacker 8 through an arc of the desired extent. Thus the straw and chaff can be delivered to the straw-stack at any desired angle, right or left.

The vertical shaft 12 serves through its connected gearing for actuating the pulley-shaft 5, that drives the conveyer-belts or apron of the straw-stacker, and also the sweeps 44, that push the chaff and straw from the semicircular pan 41 onto the conveyer for delivery to the straw-stack.

It is preferable to construct the stacker 8 in folding sections, as usual, so that it can have any desired length and be capable of being folded back onto the grain separator or thresher when not in use.

The direct attachment of the straw-stacker to the separator avoids any material lengthening of the machine and permits a positive and easy action of the several operative parts.

What I claim as my invention is—

1. The combination with a horizontally-swinging bolster, and a straw-stacker mounted on said bolster, of a segment-gear secured to the bolster, an oscillatory arm provided with a longitudinal slot and carrying a segment-gear engaged with the bolster-gear, a worm-wheel carrying a pin engaged in the slot of said oscillatory arm, and a worm-shaft for driving the worm-wheel, substantially as described.

2. The combination of a horizontally-swinging bolster having a segment-gear secured thereto, a straw-stacker mounted on said bolster, an oscillatory arm provided with a longitudinal slot and carrying a segmental gear engaged with the bolster-gear, a worm-wheel having a series of radially-arranged recesses, a pin interchangeably inserted in one of said recesses and engaged in the slot of the oscillatory arm, and a worm-shaft for driving the worm-wheel, substantially as described.

3. The combination of a frame having a bearing-plate on its top, a horizontally-swinging bolster having on its under side a bearing-plate provided with a segment-gear and centered on the bearing-plate of said frame, a straw-stacker mounted on the bolster, an oscillatory arm provided with a longitudinal slot and carrying a segment-gear engaged with the bolster-gear, a worm-wheel carrying a radially-adjustable pin engaged in the slot of said oscillatory arm, and a worm-shaft for driving the worm-wheel, substantially as described.

4. The combination of a horizontally-swinging bolster having a straw-stacker mounted thereon, an oscillatory arm provided with a longitudinal slot, segmental gearing connecting said arm with the horizontally-swinging bolster, a worm-wheel carrying a pin engaged in the slot of the oscillatory arm, a worm-shaft for driving the worm-wheel, a gear-wheel on said worm-shaft, a driven shaft provided with a pinion, a swinging arm carrying a gear-wheel and a pinion adapted to mesh, respectively, with the pinion of said driven shaft and with the gear of the worm-shaft, and a lever for adjusting said swinging arm, substantially as described.

5. The combination of a horizontally-swinging bolster having mounted thereon a straw-stacker provided with conveyer mechanism, bracket-arms secured to said bolster, a table attached to said bracket-arms, a pan or tray mounted on said table to receive straw and chaff from a grain-separator, sweeps mounted in said pan to push the chaff onto the conveyer devices of the stacker, sprocket-gearing for

actuating said sweeps, and a vertical shaft mounted through the center of the horizontally-swinging bolster and geared with the sprockets that actuate said sweeps, substantially as described.

6. The combination of a horizontally-swinging bolster having a straw-stacker mounted thereon, a semicircular pan or tray mounted on said bolster to receive chaff and straw from a grain-separator, sweeps mounted in said pan to convey the chaff to the stacker, an endless sprocket-chain to which said sweeps are attached, sprocket-wheels for driving said chain, and a shield for said sprocket-wheels, substantially as described.

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

JOHN B. McCUTCHEON.

Witnesses:
A. G. HIGHAM,
R. R. SPENCER.