(No Model.) 2 Sheets—Sheet 1.

W. S. BAKER.

STRAW STACKING MACHINE.

No. 389,538. Patented Sept. 18, 1888.

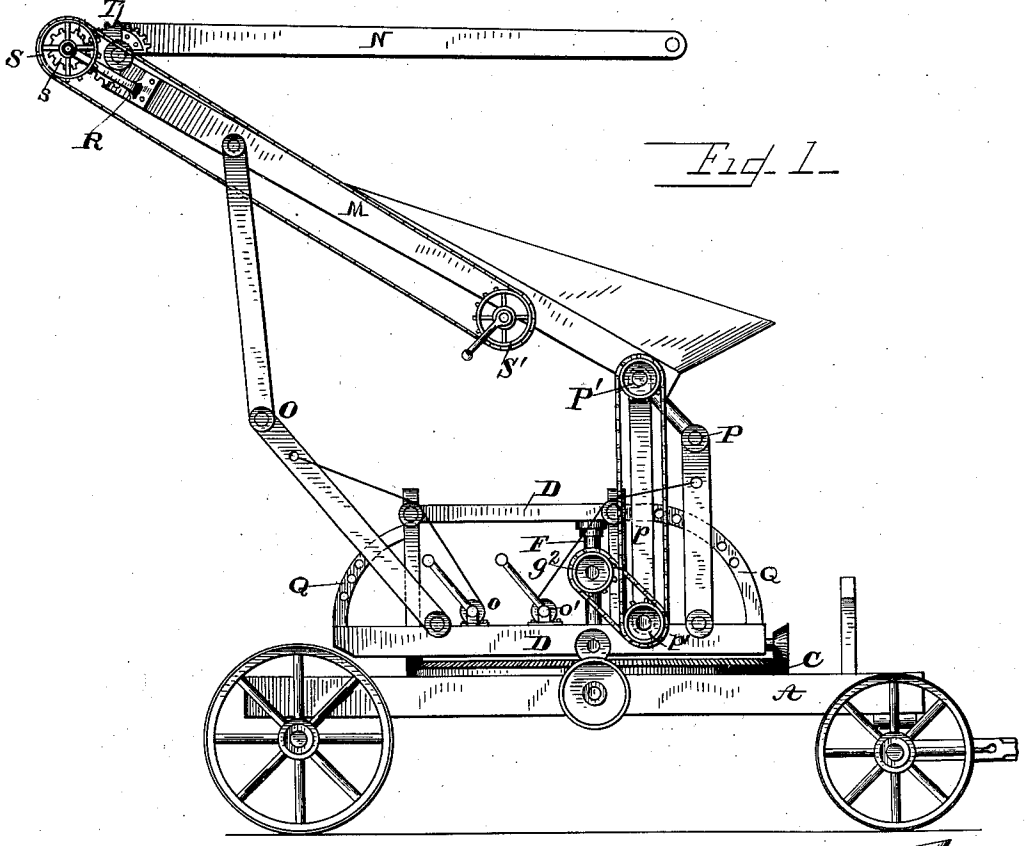


Fig. 1.

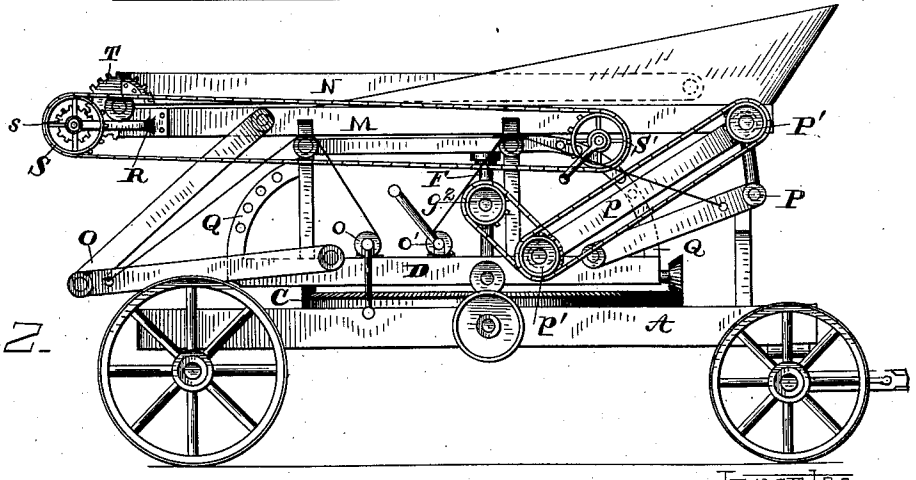


Fig. 2.

Witnesses.
G. A. Tauberschmidt,
L. B. Whitaker

Inventor.
Waterman S Baker
By his attys
Whitaker & Prevost

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

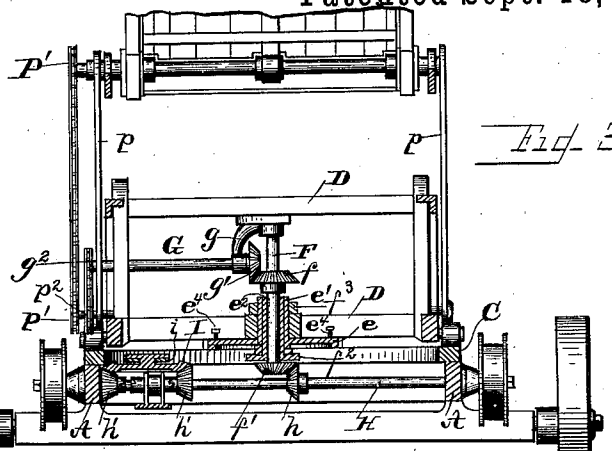


Fig. 4.

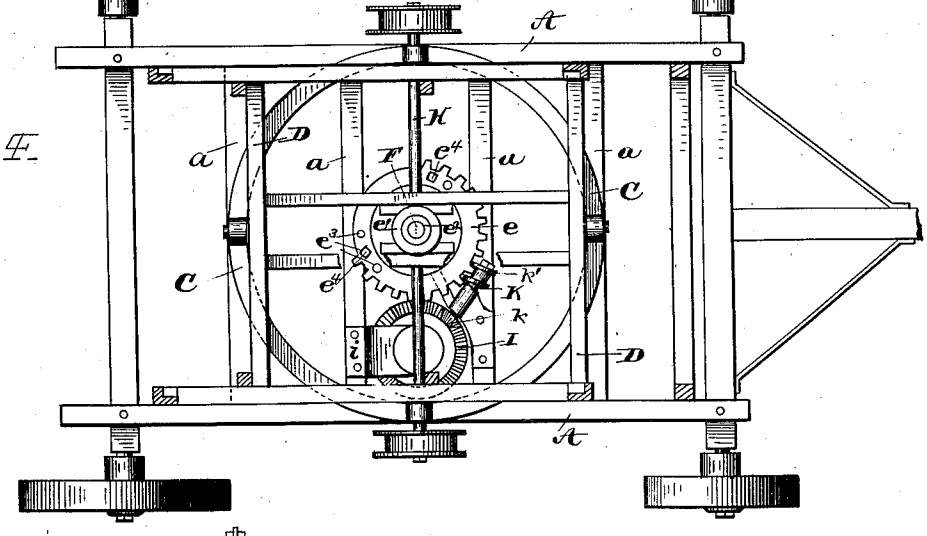


Fig. 5.

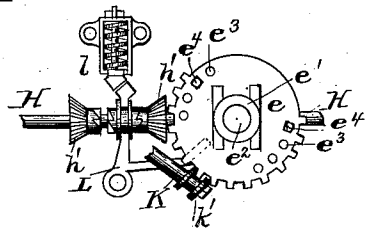
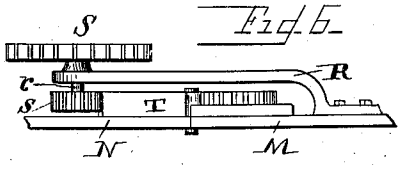


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

WATERMAN S. BAKER, OF RACINE, WISCONSIN, ASSIGNOR TO THE J. I. CASE THRESHING MACHINE COMPANY, OF SAME PLACE.

STRAW-STACKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 389,538, dated September 18, 1888.

Application filed May 24, 1888. Serial No. 274,904. (No model.)

To all whom it may concern:

Be it known that I, WATERMAN S. BAKER, a citizen of the United States, residing at Racine, in the county of Racine and State of Wisconsin, have invented certain new and useful Improvements in Straw-Stacking Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to portable stackers, and has for its object to provide improved means for raising and lowering the stacker, for imparting a swinging or oscillating motion to the same, and when a folding carrier is employed to provide a construction for controlling the folding portion of the same in all positions.

I have illustrated my invention in the accompanying drawings, which form a part of this specification, and said invention is fully disclosed in the following description and claims.

In the drawings, Figure 1 is a side elevation of a straw-stacker embodying my invention. Fig. 2 is a similar view showing the parts folded for transportation. Fig. 3 is a transverse section of the machine, with part of the elevating apparatus broken away. Fig. 4 is a top view with the elevating devices removed. Figs. 5 and 6 are detail views of parts of the mechanism.

The main frame of the machine consists of the longitudinal bars A A and cross-bars *a a*, and this frame is preferably supported upon wheels constituting a truck for transporting the stacker from place to place. The cross-bars of the frame *a a* give strength to the same and serve to support a curved track, C. A frame, D, of any preferred construction, is mounted upon rollers, which engage the track C, and upon this frame is mounted the elevating apparatus. I may prefer to use a beveled track and to employ beveled rollers in connection therewith; but any other form of track and rollers may be employed.

In the center of frame D, preferably upon the lower portion of the same, is mounted the segment *e*, which is secured rigidly to the frame by bolts or other preferred means. The segment is cast integrally with or rigidly secured to a vertical sleeve, *e'*, through which passes another sleeve, e^2, which serves as a bearing for the vertical shaft F, and is held in position by a flange, f^2, at its lower end and a collar, f^3, which engages the other end above segment *e*. The upper end of shaft F is journaled in a bearing supported on the upper part of the frame D, and said shaft is provided with the bevel-gears *f* and *f'* above and below the sleeve *e'*. A shaft, G, extends transversely of the machine, and has one end journaled in a bracket-bearing, *g*, and the other on a suitable part of frame D. This shaft is provided with a bevel-gear, *g'*, which engages the gear *f* on shaft F. The opposite end of shaft G is provided with a sprocket-wheel, g^2, which transmits motion imparted to the shaft to the endless carrier of the stacker by means hereinafter described.

A shaft, H, is journaled on some part of the main frame of the machine, and is provided on each end with a band-pulley to receive motion from some convenient source. Upon this shaft, near the center of the machine, is mounted the bevel gear-wheel *h*, which engages the bevel-gear *f'* and imparts motion to the vertical shaft F. Upon some portion of the shaft H are loosely mounted two oppositely-located gears, *h' h'*, both engaging one face of a bevel gear-disk, I, supported upon the main frame by means of the bracket *i*.

Between the bevel-gears *h' h'* is a suitable clutch, which engages a feather on the shaft H and turns with the shaft, but is movable longitudinally of the same. This clutch is adapted to engage either of the bevel-gears *h' h'* and turn the disk I in either direction, as desired. The opposite face of disk I is also provided with gear-teeth, which engage a gear, *k*, on one end of a shaft, K, which is mounted on a bracket secured to the frame. A worm, *k'*, is secured to the other end of shaft K, having its threads engaging the teeth of segment *e*.

In Fig. 5 I have shown my preferred construction for accomplishing the automatic engagement and disengagement of the clutch with the beveled gears *h' h'*, to move the disk I in opposite directions, and which is as follows: I preferably provide an angular lever, L, having one arm engaging the clutch in a well-known way and the other arm extending beneath the segment *e*. The segment is pro-

vided with two series of apertures, e^3, adjacent to the extremities of the toothed portion of the segment, and these apertures are adapted to receive pins e^4, which will engage the arm of the lever L and throw the clutch into engagement with one or the other of gear-wheels h' h'. I may provide a suitable spring-catch, as shown at l, to lock the lever when moved into position to bring the clutch into engagement with either of the said gears. By adjusting the pins e^4 in the holes in the segment the extent of the movement of the disk I and the stacker in one direction before reversing its movement may be regulated as desired.

The carrier is in the main of ordinary construction, and the frame of the same consists of two sections, M and N, joined together by a hinge-connection. These sections are supported in such a manner as to be capable of being folded to occupy small space, and may be easily and quickly placed in position for use and adjusted to deliver the straw at any convenient height.

The part M of the carrier is connected to the frame D by the links or standards p p and the toggle-levers O and P. The lever O is attached to the rear portion of part M, and is somewhat longer than lever P, to give the requisite slant to the carrier. Upon the lower portion of part M is journaled a shaft, upon which the endless apron of the carrier runs, and motion is imparted to this shaft by means of a chain passing over a sprocket-wheel, P', on the end of the shaft, and a similar wheel, p', on a shaft mounted upon the frame D. The link or standard p on this side of the machine extends from one of these shafts to the other and is journaled on the same, while the link or standard at the other side is journaled at its upper end to the shaft of wheel P', and at its lower end to the main frame at a point corresponding to the lower journal of the other link or standard. These two devices serve to support the carrier when in position, and also serve to keep the sprocket-wheels the same distance apart in all positions. Upon the same shaft which carries the sprocket-wheel p' is mounted the wheel p^2, which receives motion from sprocket-wheel g^2 on shaft G. Upon some part of the frame D are mounted two drums or windlasses, o o'. Cords or chains extend from the lower member of the toggle-levers O and P to said drum, and cranks or other suitable means are provided for rotating the drums to wind or unwind the cords or chains, and thereby raise or lower the carrier; or I may employ any other preferred means for accomplishing this result.

It will be understood that toggle-levers O and P are provided on both sides of the machine to insure firmness. In order to secure the carrier in any desired position I may provide the quadrants Q at each side, which are constructed with apertures to receive pins, which will engage corresponding apertures in the toggle-lever; or they may be notched and the toggle-levers provided with spring-pawls, as preferred.

The part N of the carrier is folded upon the part M for transportation or when not in use, and I prefer to provide means for raising and lowering the end of the same from a point adjacent to the ground. The part N is provided on each side with a gear-segment, T, which is pivoted to the part M by a bolt passing through the center of the segment. The part M of the elevator is provided with brackets R, which extend beyond the edge of the segment, and in the free ends of these brackets are mounted the short shafts r, which carry the sprocket-wheels S and the pinions s, the latter of which engage the teeth of the segment T. On some part of the elevator M, at a point convenient to the ground, is journaled a shaft having a sprocket-wheel, S', on either side of the machine, and chains connect the sprocket-wheels S and S'. The wheels S' may be provided with a suitable actuating device whereby they may be rotated, and by communicating motion to pinions s the part N of the carrier may be raised into operative position and folded again when desired. The upper extremity of the carrier is provided with a shaft, around which the endless apron passes in the usual manner.

The operation of the device is as follows: The stacker is placed in position in rear of the thrasher. The drums o o' are then rotated and the part M of the elevating apparatus raised into the desired position. The shaft carrying the sprocket-wheels is then caused to turn and the part N placed in operative condition. The shaft H is then supplied with power from some convenient source, which will cause the carrier-apron to move through the intervention of counter-shafts F and G and the chain and sprocket-gearing before described. At the same time, the clutch being in engagement with one of the bevel-gears h', motion will be imparted through the gear-disk I and worm to the segment e, which will move the entire frame D on its supporting-rollers and cause the end of the carrier M N to swing laterally. When the segment has moved a certain distance, the trip-pin, which rests in one of the apertures e^3, will engage the arm of the lever L and force the clutch into engagement with the opposite bevel-gear, h', thereby reversing the movement of disk I and segment e, and causing the end of the carrier to swing in the opposite direction. The operation of the carrier and actuating devices is automatic and needs no attention from the attendant after the machine is started. When not in use, the carrier may be folded by reversing the operation before described, and will occupy little space.

I have illustrated my devices for oscillating the carrier in connection with a folding carrier; but it will be obvious that these devices are equally applicable to other forms of carriers and in other ways.

I do not desire to be limited to my exact

constructions, as the same may be varied to a considerable extent without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. A stacker, substantially as described, provided with toggle-levers connected with the carrier at two points at different distances from an extremity of the same for elevating it.

2. A stacker, substantially as described, provided with a toggle-lever connected with the forward end of the carrier, and a toggle-lever connected to the carrier intermediate its ends.

3. The combination, with the supporting-frame of the stacker, of links or standards pivoted to the frame and to the carrier, a toggle-lever connected to the frame and to the carrier near the forward end of the latter, and a toggle-lever connected to the frame and to the carrier intermediate its ends, substantially as described.

4. The combination, with the supporting-frame of the stacker, of links or standards pivoted to the frame and carrier, a toggle-lever connected to the frame and to the carrier near the forward end of the latter, a toggle-lever connected to the frame and to the carrier intermediate its ends, drums or windlasses mounted on the said frame, and cords extending from said drums to the lower members of said toggle-levers, substantially as described.

5. The combination, with the supporting-frame of the stacker, provided with apertured segments, of the carrier, a toggle-lever connected with the forward end of the carrier, a toggle connected to the carrier intermediate its ends, and pins fitting the apertures of the segments, substantially as described.

6. The combination, with the main frame, of a carrier and its supporting-frame pivotally mounted thereon, a gear-segment connected with said carrier-supporting frame, a driving-shaft on the main frame provided with two loose pinions, a gear-disk engaging both of said pinions, a shaft having a pinion at one end engaging said gear-disk, and a worm at the other engaging with the said segment, and a clutch for locking either of the said pinions to the main shaft, substantially as described.

7. The combination, with the main frame, of a carrier and its supporting-frame pivotally mounted on said main frame, a gear-segment provided with pins projecting from one face connected with the carrier-frame, a driving-shaft on the main frame provided with two loose pinions, a gear-disk engaging toothed pinions, a shaft having a pinion at one end engaging said gear-disk, and a worm at the other engaging said segment, a clutch for alternately locking said pinions to the main shaft, and a bell-crank lever having one arm extending in the path of the pins on the said segment, and the other connected with the said clutch, substantially as described.

8. The combination, with the folding carrier, of a gear-sector rigidly secured to one part of the carrier, and a pinion secured to the other part of the carrier and engaging said sector, substantially as described.

9. The combination, with the folding carrier, of a gear-sector rigidly secured to one part of the carrier, a shaft mounted in bearings secured to the other part of the carrier provided with a sprocket-wheel, and a pinion in engagement with the said sector, a sprocket near the lower end of the carrier, and a chain connecting the two sprocket-wheels, substantially as described.

10. The combination, with the folding carrier, of a gear-sector rigidly secured to the upper part of the carrier, an arm attached to the lower part of the carrier and extending beyond the end of the lower part, and a pinion mounted on said arm and engaging the gear-sector on the upper part, substantially as described.

11. The combination, with the folding carrier, of a gear-sector rigidly connected to the upper part of said carrier, the said upper part being pivoted to the lower part through the center of said sector, a shaft provided with a pinion in gear with the said sector mounted on the lower part of the carrier, and sprocket-gear for operating said shaft and pinion, substantially as described.

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

WATERMAN S. BAKER.

Witnesses:
CHARLES H. LEE,
JESSE WALRATH.