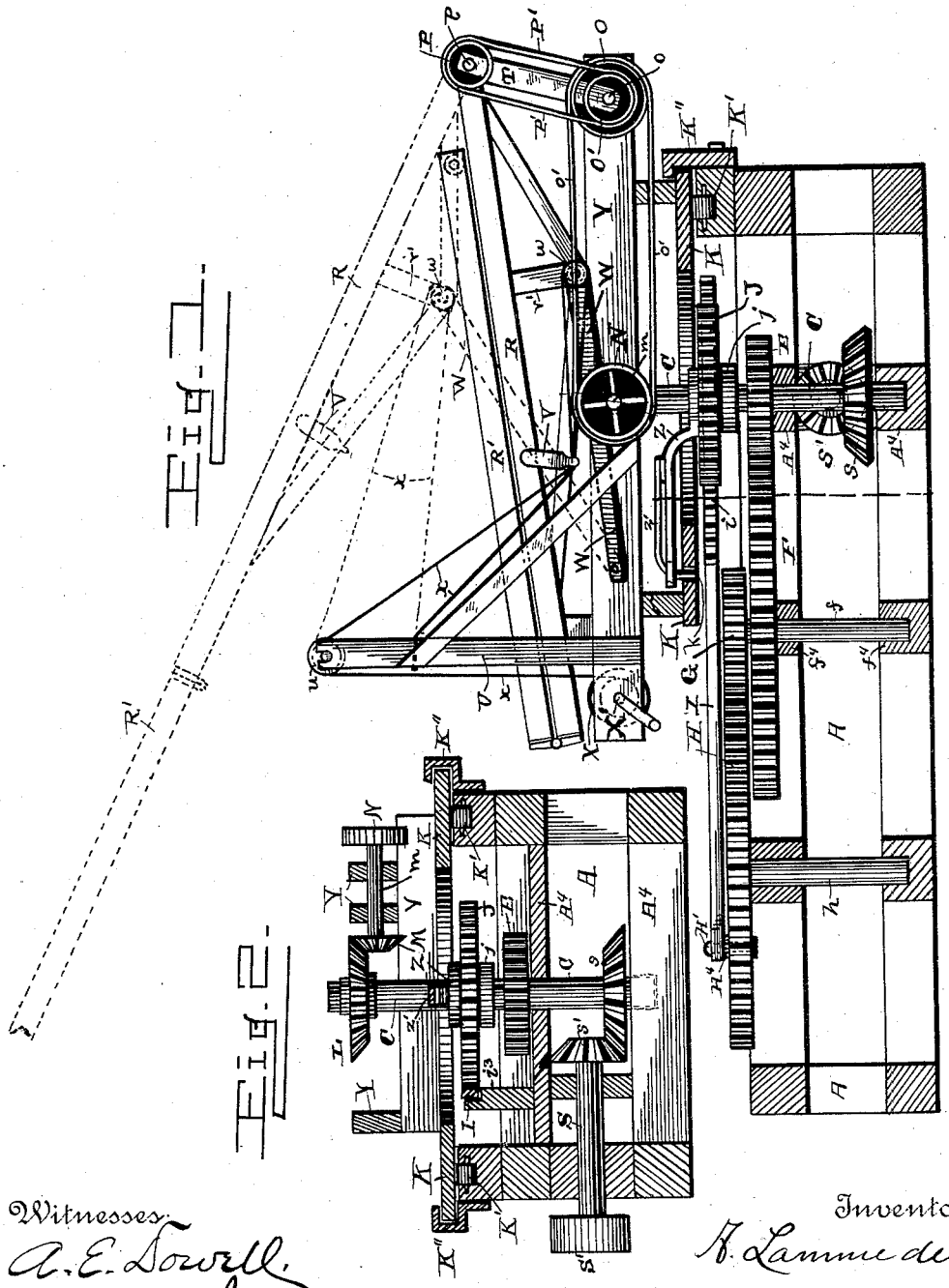
(No Model.) 2 Sheets—Sheet 1.

A. LAMMEDEE.

STRAW STACKER.

No. 385,634. Patented July 3, 1888.



Witnesses.
A. E. Lovell.
F. F. Johnson.

Inventor,
A. Lammedee
By his Attorney
W. A. Alexander

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

A. LAMMEDEE.

STRAW STACKER.

No. 385,634. Patented July 3, 1888.

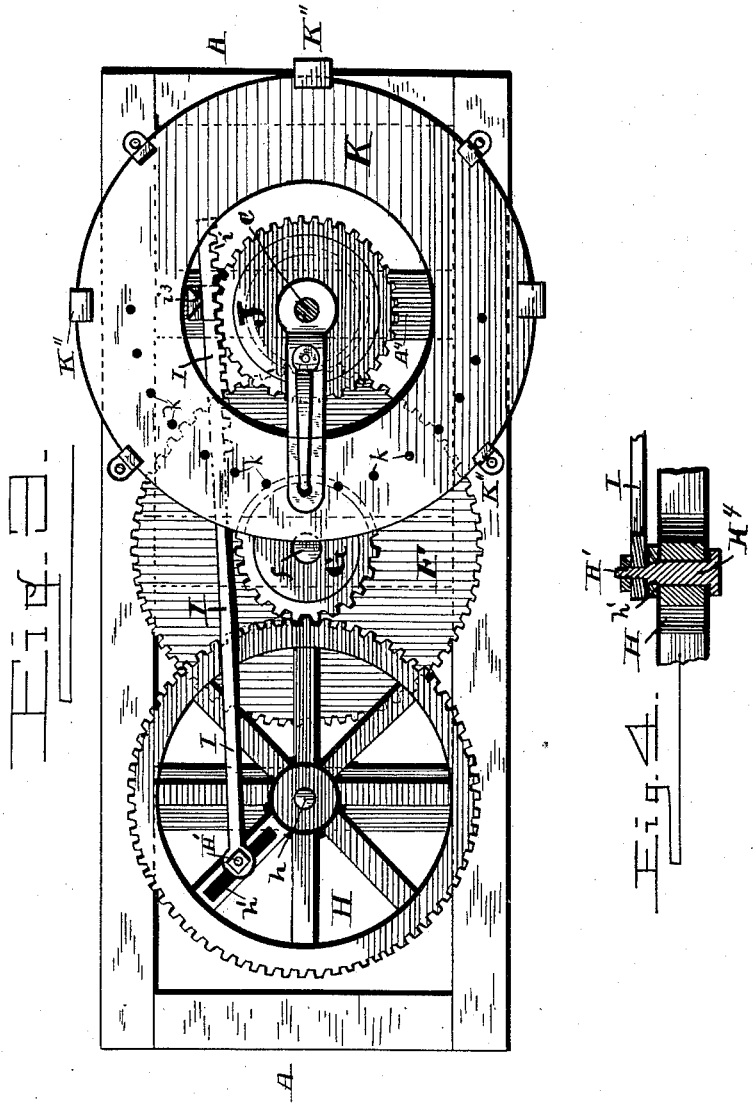


Fig. 1.

Fig. 4.

Witnesses.
A. E. Towell.
L. L. F. Johnson.

Inventor,
A. Lammedee.
By his Attorney
W. Alexander

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

AUGUST LAMMEDEE, OF SOUTH BEND, INDIANA.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 385,634, dated July 3, 1888.

Application filed January 26, 1888. Serial No. 261,997. (No model.)

To all whom it may concern:

Be it known that I, AUGUST LAMMEDEE, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Straw-Stackers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a central sectional side elevation of my improved straw-stacker, showing the carrier folded in full lines and extended in dotted lines. Fig. 2 is a sectional view of Fig. 1 on the line of shaft C. Fig. 3 is a detail plan view of the actuating mechanism, the carrier being removed. Fig. 4 is a detail of the pitman connected to the gear.

This invention relates to improvements in straw or hay stacking machines; and its objects are to provide a machine in which the carrier mechanism can be set to deliver the straw to different points around the actuating mechanism, so as to enable the operator to build a stack without changing the position of the actuating mechanism, to give the carrier a certain predetermined vibrating movement, so as to deliver straw to different points of a stack, and to so construct the carrier-frame that while it can be readily elevated as the stack is being built it will, when so lifted, be shifted backward, so that it will always deliver the straw approximately in the vertical line of the center of the stack. These objects are effected by my present invention, which consists in the novel construction and arrangement of parts hereinafter described, illustrated in the drawings, and concisely stated in the claims hereto appended.

Referring to the drawings by letter, A represents the supporting-frame of the stacker.

S is a transverse shaft properly journaled in frame A near one end thereof and having on its outer end at one side of said frame a drive-pulley, S′, and on its inner end, which extends only to about the center of width of frame A, a bevel-gear, *s′*, which meshes with a bevel-gear, *s*, on a vertical shaft, C, which is properly supported and journaled upon cross-bars A^4 of frame A, as shown.

E designates a spur-pinion on shaft C above bevel-gears *s s′*, which meshes with a large horizontal gear-wheel, F, which is mounted on a short vertical shaft, *f*, properly journaled in cross-bars f^4 of frame A, to the inside of shaft C, and on shaft *f* above the gear F is fixed a spur, G, which meshes with a large gear, H, that is mounted on a short vertical shaft, *h*, journaled in frame A similar to shaft *f*. The gear H has a radial slot, *h′*, in one of its spokes, in which is adjustably engaged the journal-block H^4 of a wrist-pin, H′, as shown in Fig. 4, so that the wrist-pin can be readily adjusted on wheel H to vary the sweep or throw of a pitman, I, connected to pin H′. This pitman extends forward to the shaft C and has formed on its front end, which is supported by a block, i^5, a rack, *i*, which engages with a pinion, J, loosely mounted on shaft C and supported thereon above spur E by a collar, *j*, as shown.

Y designates a rectangular frame mounted above frame A. This frame Y is supported upon frame A so that it can turn freely thereon by an annulus, K, which forms the base-plate of frame Y. This annulus K is supported upon friction rollers K′, properly mounted in frame A.

K″ are retaining clips secured to frame A around the periphery of the annulus K, by which the latter is held down upon its rollers K′.

Shaft C passes centrally through annulus K and has splined upon it within frame Y a bevel-gear, L, that meshes with a bevel-gear, M, on a shaft, *m*, journaled in frame Y, and which shaft bears upon its outer end a pulley, N, hereinafter referred to.

The annulus K has a series of perforations, *k*, in it, as shown, concentric to shaft C.

z designates an arm rigidly secured to the hub of pinion J and standing above annulus K. This arm is provided with a spring-detent, *z′*, which is adapted to be engaged with one of the perforations *k* in annulus K, and thereby cause the frame Y to rotate with pinion J, as is evident.

Upon frame Y is mounted the carrier proper. This carrier consists of a lower section, R, and an upper folding or extension section, R′, which is hinged at one end to the rear of section R, as shown. The section R has journaled in its

rear end the shaft *p*, carrying the usual carrier-belt pulleys, and the section R′ has in its free end a similar shaft and pulleys. Shaft *p* bears on one end, outside section R, the drive-pulley P, which is driven by a belt, P′, from pulley O′ on the end of a shaft, *o*, transversely journaled in frame Y, and which latter shaft is driven by means of a pulley, O, and belt *o′* from pulley N, as shown. Section R is hung upon frame Y by means of the pairs of bars or rods T and W. Rod T is pivotally hung by its lower end upon the shaft *o*, and its upper end is similarly engaged upon shaft *p*. The bar W is pivoted at its rear end upon frame Y and extends backward to and is pivotally connected with downwardly-projecting portions or arms *r′* of section R. In practice two pairs of bars, W and T, are employed on opposite sides of the carrier. The bars W are longer than bars T, for a purpose hereinafter shown.

U designates an upright secured to the rear end of frame Y and rising above the carrier, as shown. Two of said uprights may be employed, if desired—one on each side of the carrier.

x designates a rope or chain secured to the upper end of upright U, and, as is shown in Fig. 1, is passed thence downward and under bracket V, secured to section R near the front end thereof. Thus rope *x* passes forward to and around a pulley, *w*, secured to arm *r′* of section R, the shaft of said pulley forming, if desired, the pivot attachment of the arms T thereto, and from said pulley *w* said rope *x* passes backward under bracket V, up over a pulley, *u*, in the upper end of upright U, and down to a drum, X, mounted on a shaft, X′, properly journaled in frame Y outside of said upright, as shown. The shaft of said drum is provided with a crank by which it can be rotated.

In operation the carrier-sections are unfolded, and power is transmitted from shaft S through shafts C and *m*, by means of their geared connections, to pulley N, and from thence to the carrier-belt, as described. Motion is also transmitted to frame Y through the intermediate gearing from pinion E on shaft C to loose pulley J thereon, and from thence through arm *z* and its detent *z′* to annulus K on said frame. It will be observed that pinion J is caused to alternately rotate in opposite directions as pitman I is reciprocated, and the amount of rotation thereof is regulated by the distance of crank-pin H′ from the center of gear H. The intermediate gearing between shaft C and pinion J makes the movement thereof sufficiently slow to vibrate frame Y slowly back and forth to an extent determined by the setting of crank-pin H′. Frame Y can be turned to various angles relatively to frame A by disengaging the detent on arm *z* from annulus K, and after setting the said frame at the proper angle can be vibrated by then engaging said detent with the proper opening *k* of annulus K. It will be seen that the vibrations of the frame Y cause the carrier to swing slowly back and forth, and that it is adapted to build a stack in the arc of a circle having the shaft C as the center.

In building the stack it becomes necessary to raise the rear end of the carrier as the stack increases in height, and this is done by means of the rope *x* and drum X. As the rope *x* is tightened it draws section R slowly backward, and, owing to the different pivotal points and lengths of bars T and W, the bars W will raise the rear of the carrier faster than the bars T will elevate the front end, and as the carrier is elevated it is necessarily drawn rearward, being supported by said bars. By reason of this construction the rear end of the carrier may be always approximately vertically above the center line of the stack, and it is impossible for it to be otherwise when the parts are properly adjusted to each other. This is a very important feature, for where the carrier turns horizontally on a fixed pivot its outer end is necessarily retracted as it is elevated, causing the straw to fall toward the side of the stack nearest the machine. My invention overcomes this objection and delivers the straw at all times, whether elevated or depressed, approximately over the center line of the stack, as is obvious.

Having described my invention, I claim—

1. In a straw-stacker, the combination of the main frame, a vertical shaft, and a loose gear-wheel on said shaft with the carrier mounted on said main frame, the arm secured to said gear-wheel provided with a detent adapted to adjustably engage with an annulus supporting said carrier, the pitman engaging said gear-wheel and adapted to impart alternate rotary movements thereto, and the gearing for actuating said pitman from said shaft, all constructed and arranged substantially in the manner and for the purpose described.

2. The combination of the main frame, its vertical shaft carrying a loose gear-wheel, and the carrier adjustably mounted on said frame with the toothed pitman-rod engaging said loose gear-wheel, the gear-wheel actuating said rod and driven by intermediate gearing from said shaft, and the mechanism, substantially as described, for driving the carrier-belts from said shaft, all constructed and arranged substantially in the manner and for the purpose described.

3. The main frame A, having vertical shaft C, the carrier-frame Y, having an annulus, K, and adjustably mounted in frame A, and the mechanism consisting of pitman I, driven from shaft C, driving-pinion J, and arm *z*, having detent *z′*, arranged, substantially as described, for transmitting vibratory movements to frame Y from shaft C, in combination with the carrier-section R on frame Y, adjustably secured thereon by bars T and W, the ropes for elevating said section, and the mechanism, substantially as described, for driving the carrier-belts on said section from shaft C simultaneously with but independently of the movement of frame Y, substantially as described.

4. The combination of the main frame A, the vertical shaft C, loose gear J thereon, and gear-wheel H, driven by said intermediate gearing therefrom, with the carrier-frame Y, its annulus K, the arm *z*, fixed to gear J, provided with a detent adapted to be adjustably engaged with said annulus, and the toothed pitman driven by gear H and driving the gear J, all constructed and arranged substantially in the manner and for the purpose described.

5. The combination of the main frame A, shaft C, gears E and L, and loose gear J, having an arm, *z*, provided with a detent, *z'*, and the gears F G H, the supporting-shafts and pitman I, with the carrier-frame Y, having annulus K, provided with openings *k*, and the carrier-sections adjustably mounted on said frame Y, all constructed and arranged substantially in the manner and for the purpose described.

6. The combination of the frame A, its shafts *h*, *f*, and C, and the intermediate gearings on said shafts, the loose gear J on shaft C, driven by a pitman connected to a gear on shaft *h*, and having an arm, *z*, provided with a detent, *z'*, with the frame Y, having annulus K, mounted on rollers on frame A, the carrier-sections R R', bars T and W, hinging section R to frame Y, the uprights U, drum X, and rope *x*, all constructed and arranged substantially in the manner and for the purpose described.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

AUGUST LAMMEDEE.

Witnesses:
JAMES DU SHANE,
JEANIE ANDERSON.