

No. 744,514.

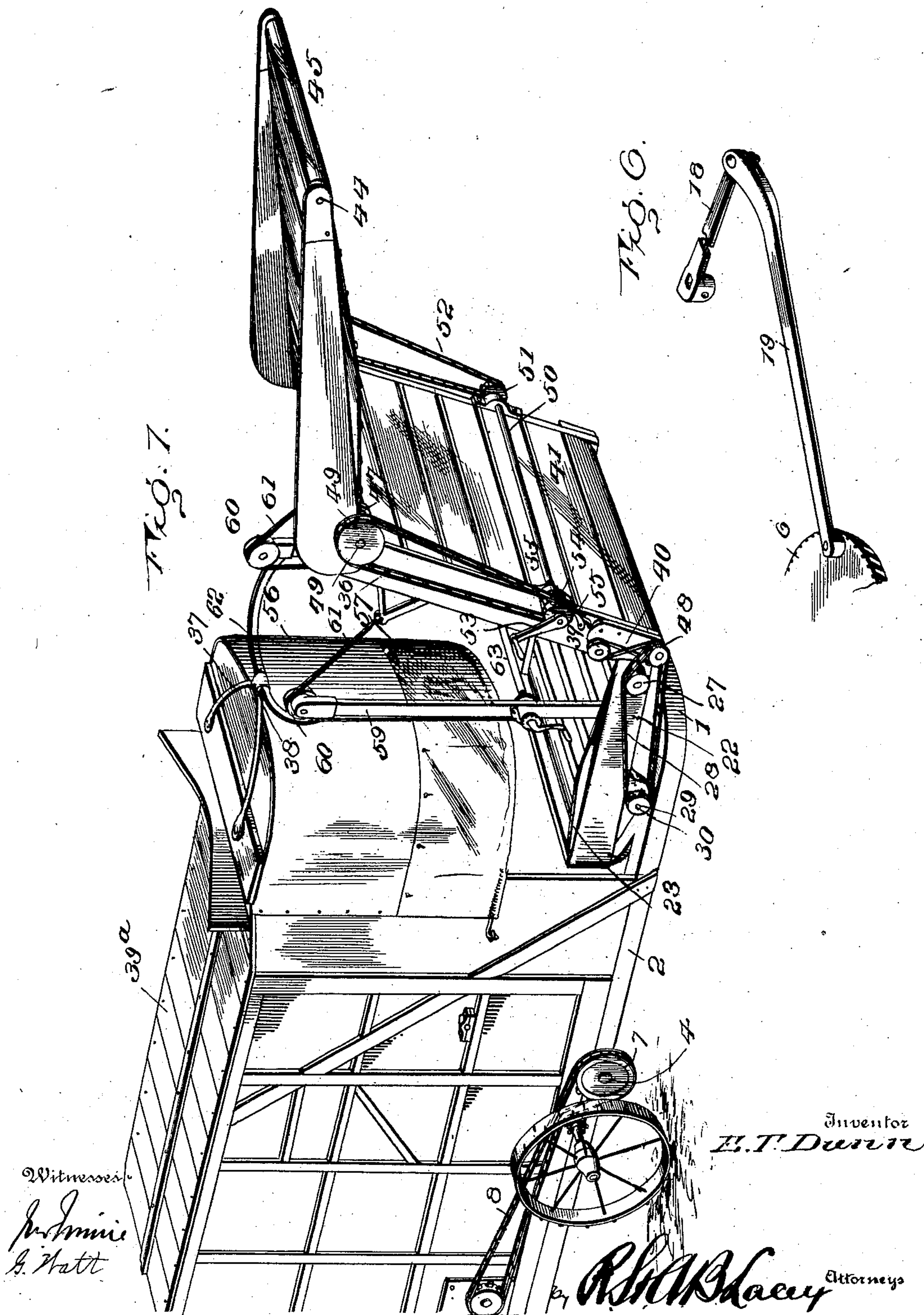
PATENTED NOV. 17, 1903.

E. T. DUNN.
STRAW STACKER.

APPLICATION FILED JAN. 29, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



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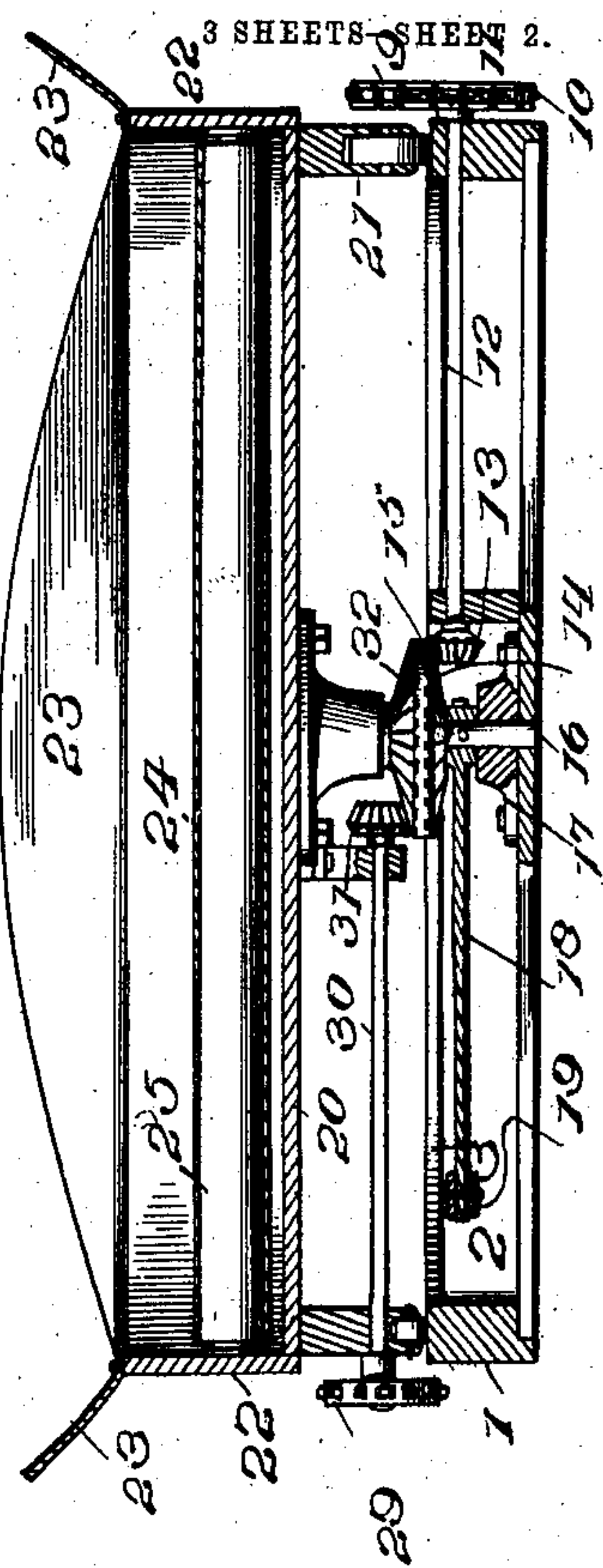
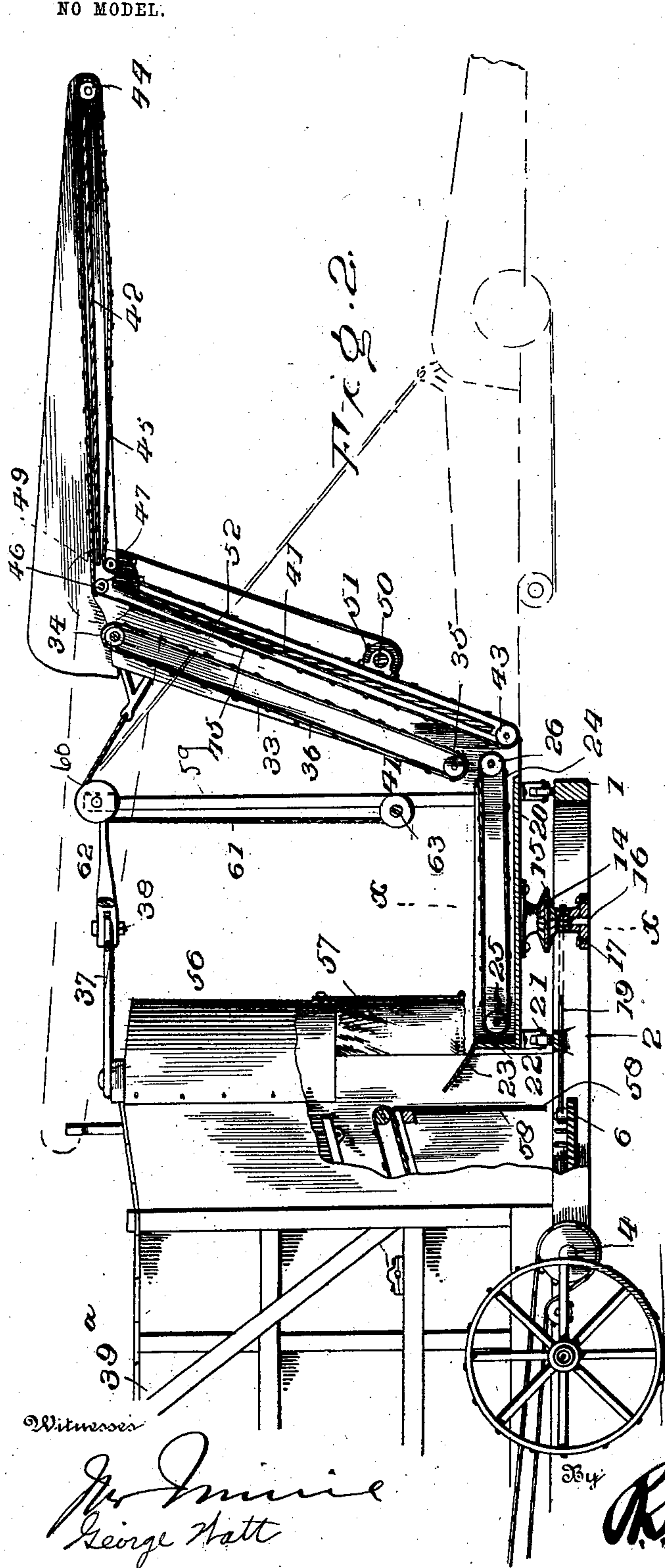


Fig. 3.

Witnesses

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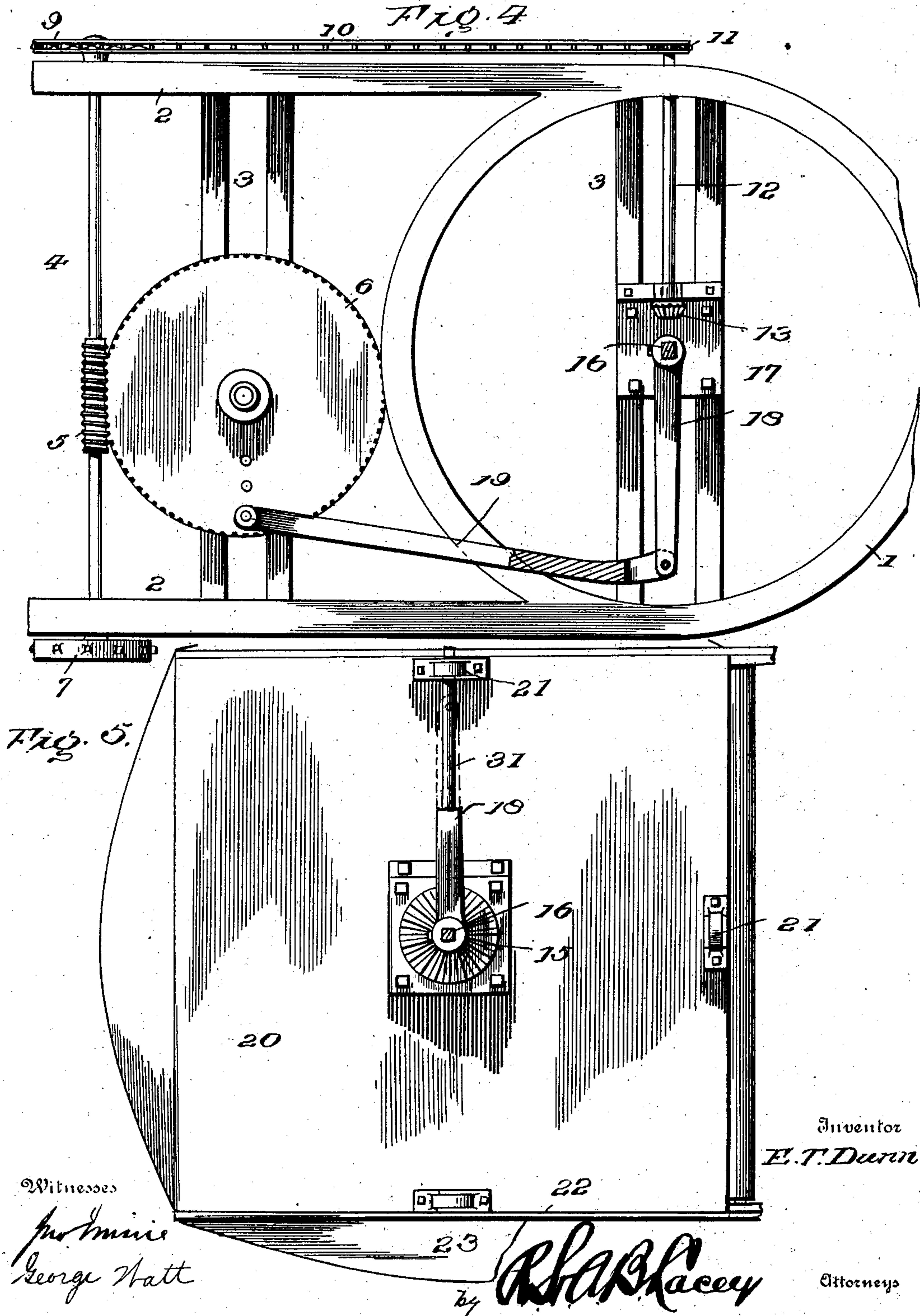
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

EARL T. DUNN, OF LEWIS, IOWA.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 744,514, dated November 17, 1903.

Application filed January 29, 1903. Serial No. 141,047. (No model.)

To all whom it may concern:

Be it known that I, EARL T. DUNN, a citizen of the United States, residing at Lewis, in the county of Cass and State of Iowa, have invented certain new and useful Improvements in Straw-Stackers, of which the following is a specification.

This invention aims to devise novel instrumentalities for automatically swinging the elevator of a stacker from side to side for equal distribution of the straw over a given space, operating means for driving the elevator, and mechanisms for raising and lowering the outer section of the elevator or folding the same upon the separator or into compact form, as required.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the improved straw-stackers in operative relation. Fig. 2 is a central longitudinal section, the dotted lines showing an adjusted position of the stacker. Fig. 3 is a transverse section about on the line X X of Fig. 2, showing the parts on a larger scale. Fig. 4 is a top plan view of the base supporting the stacker. Fig. 5 is a view of the stacker-platform as seen from the bottom side. Fig. 6 is a detail perspective view of the means for imparting an oscillatory movement to the stacker.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The stacker is adapted to be applied to a separator of any design or make and comprises a supporting-base of such formation as to be readily applied and fitted to the separator for which the stacker is designed. As illustrated, the base is provided at its outer end with a track 1, upon which the stacker is mounted to oscillate so as to distribute the straw over a given space. The track 1 is

preferably of circular form and preferably forms a part of the base, which comprises in its construction side bars 2 and cross-bars 3. A transverse shaft 4 is journaled in bearings applied to the rear portion of the base and is provided intermediate of its ends with a worm-gear 5, which is in mesh with a horizontally-disposed gear-wheel 6, mounted upon a vertical spindle. A drive-pulley 7 is applied to one end of the shaft 4 and receives motion from a driven part of the separator by means of a drive-belt 8. A sprocket-wheel 9 is applied to the opposite end of the shaft 4 and is connected by means of a sprocket-chain 10 with a sprocket-pinion 11, applied to the outer end of a shaft 12, transversely arranged near the outer end of said base and provided at its inner end with a bevel-pinion 13, in mesh with bevel cog-gearing 14, applied to the lower side of an idler 15, loosely mounted upon the vertical spindle 16, pendent from the platform of the stacker and journaled in the bearing 17, applied to the front portion of the base, said spindle 16 being concentric with the track 1. An arm 18 is secured to the spindle 16 and is connected by a pitman 19 with the gear-wheel 6, so as to transmit motion from said gear-wheel to the base of the stacker for oscillating the latter. The pitman 19 has adjustable connection with the gear-wheel 6 to vary the amplitude of oscillation of the stacker according to the space to be occupied by the stack.

The platform 20 is provided at a central point with the spindle 16, which is mounted in the bearing 17, and said platform is mounted to travel upon the track 1 and is provided with rotary supports 21 to reduce the friction to the smallest amount possible. The platform 20 is preferably of rectangular shape and is provided with inclosing sides 22, from the upper edges of which project guards 23 to catch any straw or grain that may escape and direct the same inward upon the platform, so as to be received upon the carrier 24, arranged thereover. The carrier 24 consists of an endless apron mounted upon rollers 25 and 26 at opposite ends of the platform. The shaft of the roller 26 projects at one end and receives the pulley 27, to which motion is imparted by means of a drive-belt 28 from a corresponding pulley 29, applied to the outer end

of a shaft 30, journaled in bearings pendent from the platform 20 and having at its inner end a bevel-pinion 31 in mesh with complementary bevel-gearing 32, applied to the upper side of the idler 15.

A holder coöperates with the inner or upright portion of the elevator 45 to prevent the wind from blowing the straw or grain therefrom and consists of an endless apron or belt 33, mounted at its ends upon rollers 34 and 35, journaled to the side pieces 36 of the first section 41 of the stacker. A pulley 39 is secured to an extension of the shaft or journal of the roller 35 and is connected by a crossed belt 40 with the pulley 48, applied to an extension of the shaft of the roller 43, whereby the holder or endless belt 33 is driven from the elevator 45 and in an opposite direction, so that the proximal portions or runs of the parts 33 and 45 travel in the same direction—that is, away from the separator toward the stack.

The stacker proper comprises sections 41 and 42, pivotally connected at their adjacent ends, whereby the outermost section 42 is adapted to be raised and lowered and to be folded upon the separator, as indicated by the dotted lines in Fig. 2. Rollers 43 and 44 are applied to the extreme ends of the sections 41 and 42 and support an elevator 45, the upper and lower portions of which pass over direction-pulleys 46 and 47, applied to the sections adjacent to their pivotal ends. Each of the sections 41 and 42 is provided with side pieces to prevent the wind from blowing the grain sidewise therefrom. The bottoms of the sections 41 and 42 are closed, so as to support the straw passing thereover. The elevator 45 may be of any structural type commonly employed in machines of this character and preferably consists of endless straps or chains connected by toothed cross-bars. The first section 41 of the stacker is pivotally connected to the platform and is normally inclined upwardly and away from the separator. A pulley 48 is applied to the shaft or extended journal of the roller 43 and receives motion from the drive-belt 28, by means of which the elevator is operated.

As herein stated, the outermost section 42 of the stacker is susceptible of adjustment at its outer end, and in order to effect this result the following instrumentalities have been devised, the same consisting of sprocket-wheels 49, rigidly attached to opposite sides of the section 42 in coaxial alinement with its pivotal connection with the section 41, shaft 50, journaled in bearings applied to the section 41 within convenient reach of the ground, sprocket-pinions 51, secured to opposite ends of the shaft 50, sprocket-chains 52, connecting the sprocket-pinions 51 with the sprocket-wheels 49, and means for imparting movement to the shaft 50 and for holding the same in an adjusted position. For convenience a crank-handle 53 is applied to one end of the shaft 50 and a ratchet-wheel 54 is secured to

said shaft and coöperates with a pawl 55 applied to the section 41. Upon turning the shaft 50 the sprocket-chains 52 are moved and effect a turning of the section 42, so as to raise or lower the outer end thereof or to fold said section upon the separator, as hereinbefore stated.

A protector is applied to the rear end of the separator 39^a to direct the straw and grain upon the carrier 24 and to prevent the wind scattering the same. This protector is of rounded form and comprises an upper section 56, of metal, and a lower section 57, of canvas or textile. A deflector 58 is located at the rear of the lowermost straw-carrier of the separator and preferably consists of a canvas or textile apron and serves to prevent straw and grain from being carried backward upon the gear-wheel 6 and insures its delivery upon the carrier 24 or the adjacent guard 23.

A separator being equipped with a stacker attachment constructed in accordance with this invention is adapted for operation in the following manner, and the straw delivered from the separator is received upon the carrier 24 and is confined thereon by the holder or endless apron 33 and delivered to the elevator 45, by means of which the straw is carried upward and rearward and delivered upon the stack. The stacker being oscillated through the intervention of the mechanism herein described distributes the straw evenly upon the stack throughout the length of space occupied thereby. The idler 15 being mounted in coaxial alinement with the center of oscillation of the stacker does not interfere in the least with the oscillatory movements thereof and at the same time permits of driving the several parts 24, 33, and 45 at any and all stages of movement of the stacker, as will be readily comprehended.

The frame of the elevator is composed of jointed sections and is pivoted to the platform in any substantial manner to admit of adjustment to meet existing conditions. The pivotal or hinge connection of the elevator-frame with the platform is in coaxial alinement with the roller 43. To admit of adjustment of the elevator-frame the following means have been devised, the same consisting of an upright frame 59, secured at its lower end to the platform 20, so as to turn therewith, and provided at its upper end with direction-pulleys 60 for the operating ropes or cables 61 to pass over. A stay 37 is secured to the frame of the separator and extends rearward therefrom and is pivoted at 38 to a corresponding stay 62, secured to the upper portion of the frame 59, thereby admitting of said frame turning with the platform 20 and stacker. The pivotal connection 38 between the stays 37 and 62 is in vertical alinement with the spindle 16, as indicated most clearly in Fig. 2, whereby binding is obviated and the stacker permitted to oscillate freely. The stays 37 and 62 are of approximately bow shape

and are pivotally connected intermediate of their ends. The frame 59 may be of any substantial construction and comprises uprights suitably braced. A windlass 63 is journaled to the lower portion of the frame 59, and one end of the ropes or cables 61 is attached thereto, so as to wind thereon to effect a raising of the stacker. Obviously, by turning the windlass to admit of the ropes or cables unwinding therefrom the stacker may be lowered at its outer end, as indicated by the dotted lines in Fig. 2. The windlass 63 is held in the required position by the usual ratchet and pawl cooperating therewith, so as to fix the adjusted position of the stacker. The other end of the ropes or cables is attached to the section 41 of the elevator-frame near the pivotal connection therewith of the section 42.

20 Having thus described the invention, what is claimed as new is—

In a stacker, the combination of a base, a

stacker mounted for oscillatory movement upon said base and having a pendent journal, an arm secured to said journal, an idler 25 mounted upon the journal, a shaft journaled to the platform of the stacker and in mesh with said idler and adapted to transmit motion to the elevator of the stacker, a second shaft journaled to the base and likewise in mesh with said idler, a gear-wheel journaled upon the base and connected by pitmen with the arm of the aforementioned journal, and a power-driven shaft in mesh with said gear-wheel and connected with the shaft journaled 35 to the base for transmitting motion thereto, substantially as set forth.

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

EARL T. DUNN. [L. S.]

Witnesses:

JAMES H. GRANT,
B. C. HARRIS.