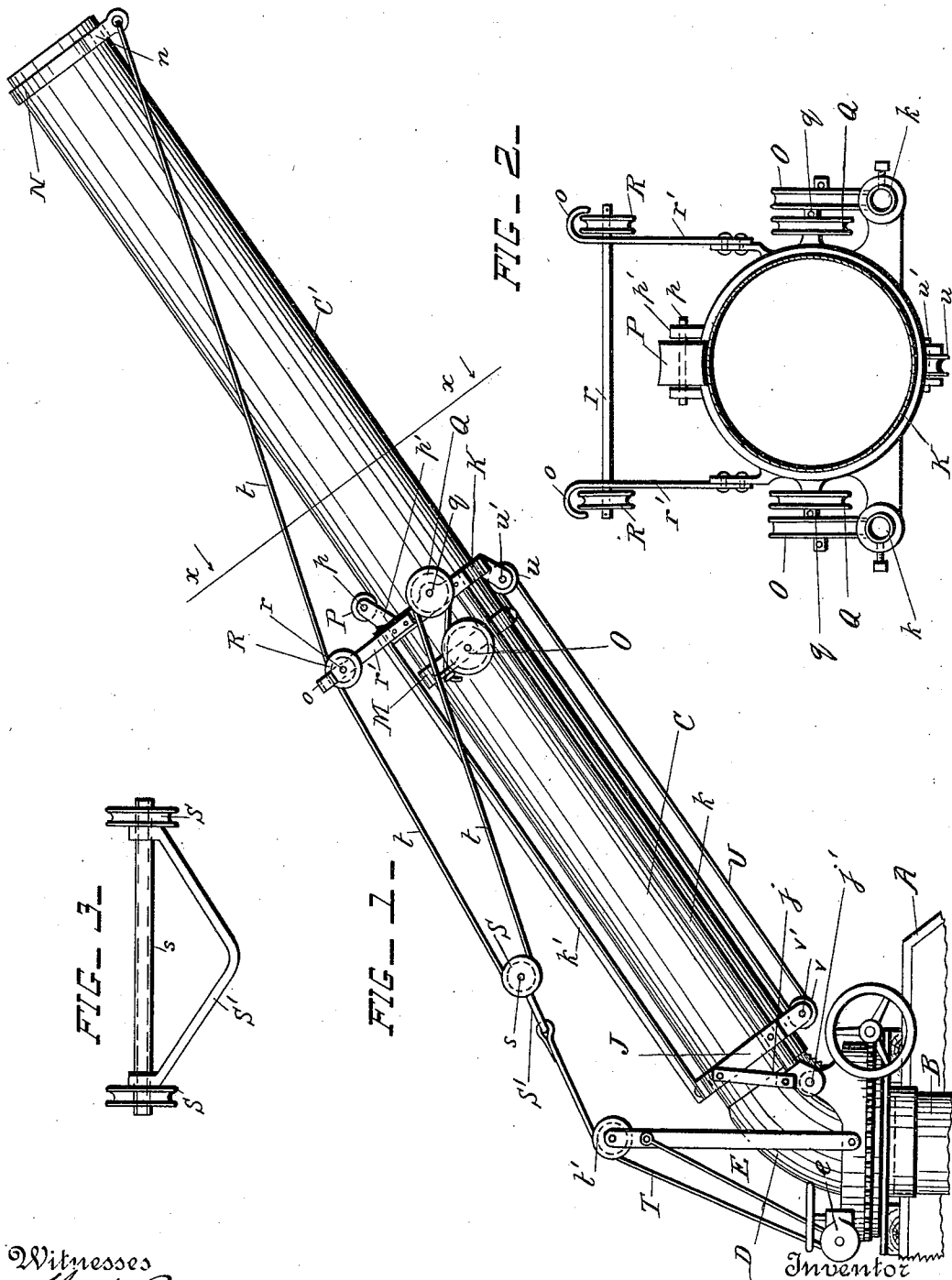


(No Model.)

F. F. LANDIS.
TELESCOPIC STRAW STACKER.

No. 562,227.

Patented June 16, 1896.



Witnesses
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FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

TELESCOPIC STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 562,227, dated June 16, 1896.

Application filed January 23, 1895. Serial No. 535,852. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Telescopic Straw-Stackers; 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.

This invention relates to pneumatic straw-stackers; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed whereby the telescopic discharge-pipe is supported and operated.

In the drawings, Figure 1 is a side view of the upper part of a straw-stacker constructed according to this invention. Fig. 2 is a cross-section through the discharge-pipe, taken on the line *xx* in Fig. 1. Fig. 3 is a plan view of the bail for the raising-rope.

A is a portion of the casing of a threshing-machine or separator.

B is the delivery-pipe of the straw-stacker, secured to the casing A.

C is the discharge-pipe, and D is a flexible junction-pipe connecting the pipes B and C.

E is a revoluble standard for supporting the discharge-pipe, and *e* is a winch of any approved construction secured to the standard and adapted to wind up the lifting-rope.

J is a ring secured to the lower part of the discharge-pipe C, and *j* are arms connected to the ring J and pivoted to the lower part of the standard E by the pins *j'*.

The pipe C is formed of telescopic sections, and the upper section C' slides over the lower section.

K is a ring encircling the upper section C', and *k* are bars or tubes secured in bearings on the rings J and K. Two bars *k* are used, and are arranged one on each side of the discharge-pipe near the level of the bottom thereof. The upper portions of the rings J and K are connected by a brace *k'*, preferably formed of angle-iron.

The upper pipe-section C' has a ring M secured at its lower end for the purpose of strengthening it, and N is a ring secured to the upper part of the pipe-section C' and pro-

vided with two similar lugs *n*, projecting laterally from its lower part, one on each side.

O are two rollers which are journaled on pins projecting from the ring M, and running on the bars or tubes *k*.

P is a roller journaled on the pin *p*, carried by the lugs *p'*, projecting from the upper part of the ring K. The roller P bears upon the top of the pipe-section C', and the rollers O support the lower end of the said pipe-section.

Q are two sheaves journaled on pins *q*, projecting one on each side from the ring K.

R are two sheaves journaled on the ends of a long pin *r*, carried by the supports *r'*, the lower ends of which are secured to lugs on the upper side of the ring K. The upper ends of the supports *r'* are bent over and form rope-guards *o* for the sheaves R. S are two similar sheaves journaled on the ends of a bar or tube *s*, and S' is a bail engaging with the bars between the said sheaves.

T is the lifting-rope, one end of which is secured to the middle of the bail S'. The rope T passes over the sheave *t'* at the top of the standard E, and its other end is connected to the winch *e*. Two similar ropes *t* are provided, one on each side of the discharge-pipe. The lower end of each rope *t* is secured to the ring M at the lower end of the upper pipe-section. Each rope *t* passes over the sheaves Q, S, and R, and either has its upper end secured to one of the lugs *n* on the ring N, or else the upper portions of the ropes are passed through holes in the lugs *n* and are connected together under the pipe, so that the two ropes *t* form one continuous rope.

The upper end of the discharge-pipe is provided with a deflector or a deflector-pipe of approved form, which is not shown in the drawings.

U is an endless flexible connection, such as a rope or chain, which is secured to the ring M. The ends of the rope U are carried by sheaves *u* and *v*, which are journaled on pins *u'* and *v'*, carried by lugs on the rings J and K, respectively.

The angle of the discharge-pipe is changed by means of the winch *e* and the lifting-rope T.

The upper pipe-section C' is moved in or out by pulling upon either of the ropes *t*, or by pulling the rope U. The upper pipe-section C' may also be moved in or out by tak-

ing hold of any convenient part of it, such as the ring M, and moving it by hand. When the pipe-section C' is slid in, the upper end of the discharge-pipe is slightly raised, and when the said pipe-section is slid out the upper end of the discharge-pipe is slightly lowered. This angular movement of the discharge-pipe when being telescoped places its pipe-section C' substantially in equilibrium, and the said angular rising and falling movement of the whole pipe is due to the change of the angle of the upper parts of the ropes *t* between the sheaves R and the top of the pipe. The upper parts of the ropes *t* are inclined with respect to the longitudinal axis of the discharge-pipe at an angle which increases in amplitude as the upper section C' of the pipe is slid in. When the parts are in the positions shown in Fig. 1, this angle is about fifteen degrees, and when the pipe-section C' is slid in as far as possible this angle increases to about seventy degrees. The weight of the lower part of the discharge-pipe substantially balances the weight of the pipe-section C' and makes it easy to be slid in or out. The angle of the lower parts of the ropes *t*, between the sheaves Q and the ring M, also changes as the upper pipe-section is moved in or out. This change in the angle of the lower parts of the ropes *t* assists in holding the upper pipe-section in equilibrium, and the said lower parts of the ropes press the rollers O downward upon the bars *k*. The pressure of the rollers O on the bars *k*, together with the pressure of the roller P against the upper pipe-section C', acts as a brake and prevents the upper pipe-section C' from sliding too freely in either direction. The pipe-section C' could also be slid out by pulling the ring K downward in a vertical direction, and the pipe-section C' would slide in by gravity if the lower part of the pipe were pushed up by means of a pole applied vertically under the ring K.

The parts which are herein described and shown, but not hereinafter claimed, are claimed in a concurrent application, filed January 18, 1895, Serial No. 535,387.

I do not claim: a conveyor for a pneumatic straw-stacker comprising a track, a support therefor, telescopic tube-sections, means for supporting one of said sections slidably on the track, a flexible connection attached at both ends to the slidable tube, and means for operating said flexible connection so as to vary the length of the telescopic conveyor.

I do not claim: in a pneumatic straw-stacker, the combination, with the lower section of a discharge-pipe, and the rings or frames secured together and to the said lower pipe-section, of an upper telescopic pipe-section slidably in the outer ring or frame, the sheaves carried respectively by the rings or frames, and an endless flexible connection passing over the said sheaves and having the upper pipe-section attached to it, whereby the said upper pipe-section may be slid in or out.

What I claim is—

1. In a pneumatic straw-stacker, the combination, with a pivoted discharge-pipe formed of telescopic sections; of a lifting-tackle operating to sustain the whole pipe and affording a means for sliding its upper section, said lifting-tackle having its upper end connected to the lower side of the outer end of the said upper section, and inclined with respect to its longitudinal axis at an angle which increases in amplitude as the said upper section is slid in, whereby the said pipe-sections are supported substantially in equilibrium.

2. In a pneumatic straw-stacker, the combination, with a supporting-standard, of bars or arms having their lower end portions pivotally connected with the said standard, a ring or connecting-piece coupling the free ends of the said bars, a lower pipe-section having its lower part supported by the said bars, an upper pipe-section slidable over the lower pipe-section, supports—such as rollers—carried by the lower end portion of the upper pipe-section and resting on the said bars, and a lifting-tackle connected to the said pipe-sections and to the standard, permitting the upper pipe-section to be telescoped and pressing the said supports on the bars, substantially as set forth.

3. In a pneumatic straw-stacker, the combination, with the lower section of a discharge-pipe, the ring J secured thereon, the ring K, and the bars and brace connecting the said rings together; of an upper telescopic pipe-section slidable in the ring K, rollers carried by the lower end of the upper pipe-section and running on the said bars, and a roller carried by the ring K and bearing downward on the upper pipe-section, substantially as set forth.

4. In a pneumatic straw-stacker, the combination, with the lower section of a discharge-pipe, and the rings J and K secured together and to the said lower pipe-section; of an upper telescopic pipe-section slidable in the ring K, a supporting-standard, the sheaves R supported above the ring K, the sheaves Q supported at the sides of the ring K, the sheaves S connected with the top of the standard, and ropes attached to the upper part of the upper pipe-section, passing over the sheaves R, S, and Q, and having their lower ends connected to the lower part of the upper pipe-section, substantially as set forth.

5. In a pneumatic straw-stacker, the combination, with a pivoted discharge-pipe formed of telescopic sections, and a lifting-rope operating to sustain the whole pipe and affording a means for changing its angle; of the guide-sheaves supported above the outer end of the lower pipe-section; and a lifting-tackle affording a means for sliding the upper pipe-section without operating the lifting-rope, said lifting-tackle being connected to the lower side of the outer end of the upper pipe-section, extending across it at an angle, pass-

ing over the said sheaves, and being operatively connected with the said lifting-rope, substantially as set forth.

5 6. In a pneumatic straw-stacker, the combination, with the lower section of a discharge-pipe, the ring J secured thereon, the ring K, and the bars *k* connecting the said rings; of an upper telescopic pipe-section slidable in the ring K, rollers carried by the lower end
10 of the upper pipe-section and running on the said bars, a roller carried by the ring K and bearing downward on the upper pipe-section,

the sheaves Q carried by the ring K, and the ropes *t* passing over the sheaves Q, attached to the ring M, and operating to press the 15 rollers on the said bars, substantially as set forth.

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

FRANK F. LANDIS.

Witnesses:

L. H. LANDIS,

T. S. CUNNINGHAM.