

No. 717,465.

Patented Dec. 30, 1902.

A. A. STELTING.
PNEUMATIC STACKER.

Application filed Aug. 6, 1902.

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

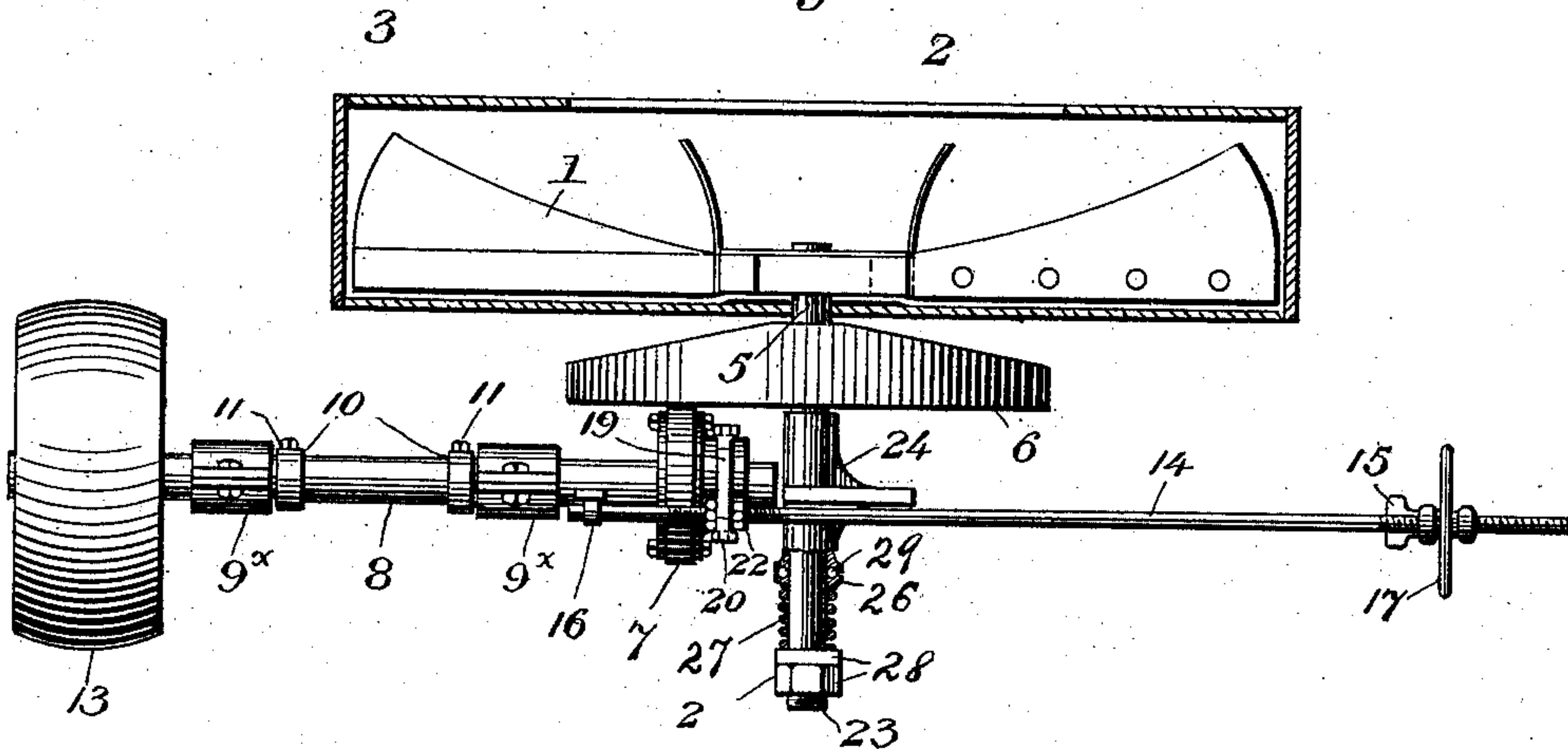
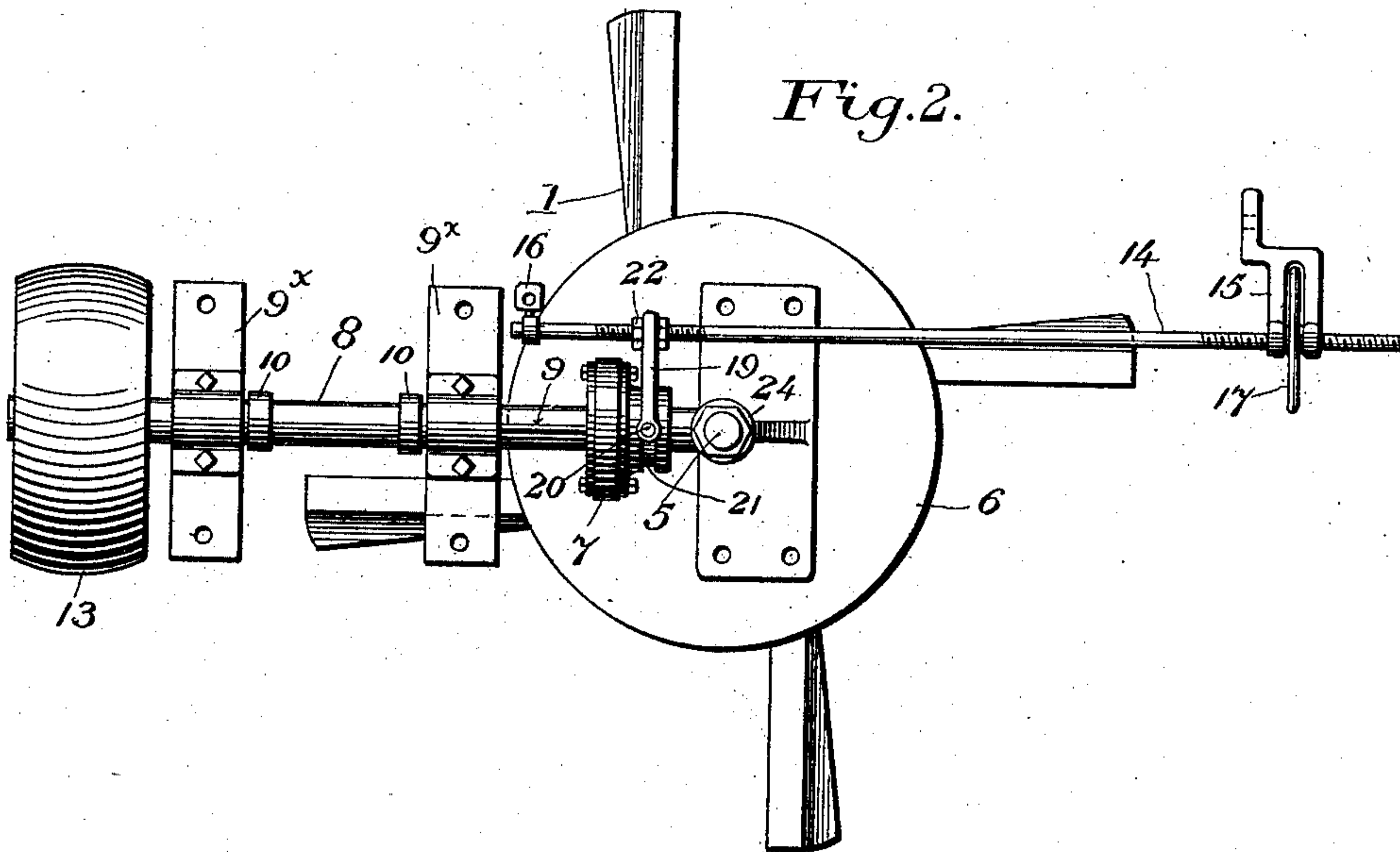


Fig. 2.



Witnesses

F. J. Elmore.
N. Curtis Hammond.

Inventor

Albert A. Stelling

By

H. A. Bliss
Attorney

No. 717,465.

Patented Dec. 30, 1902.

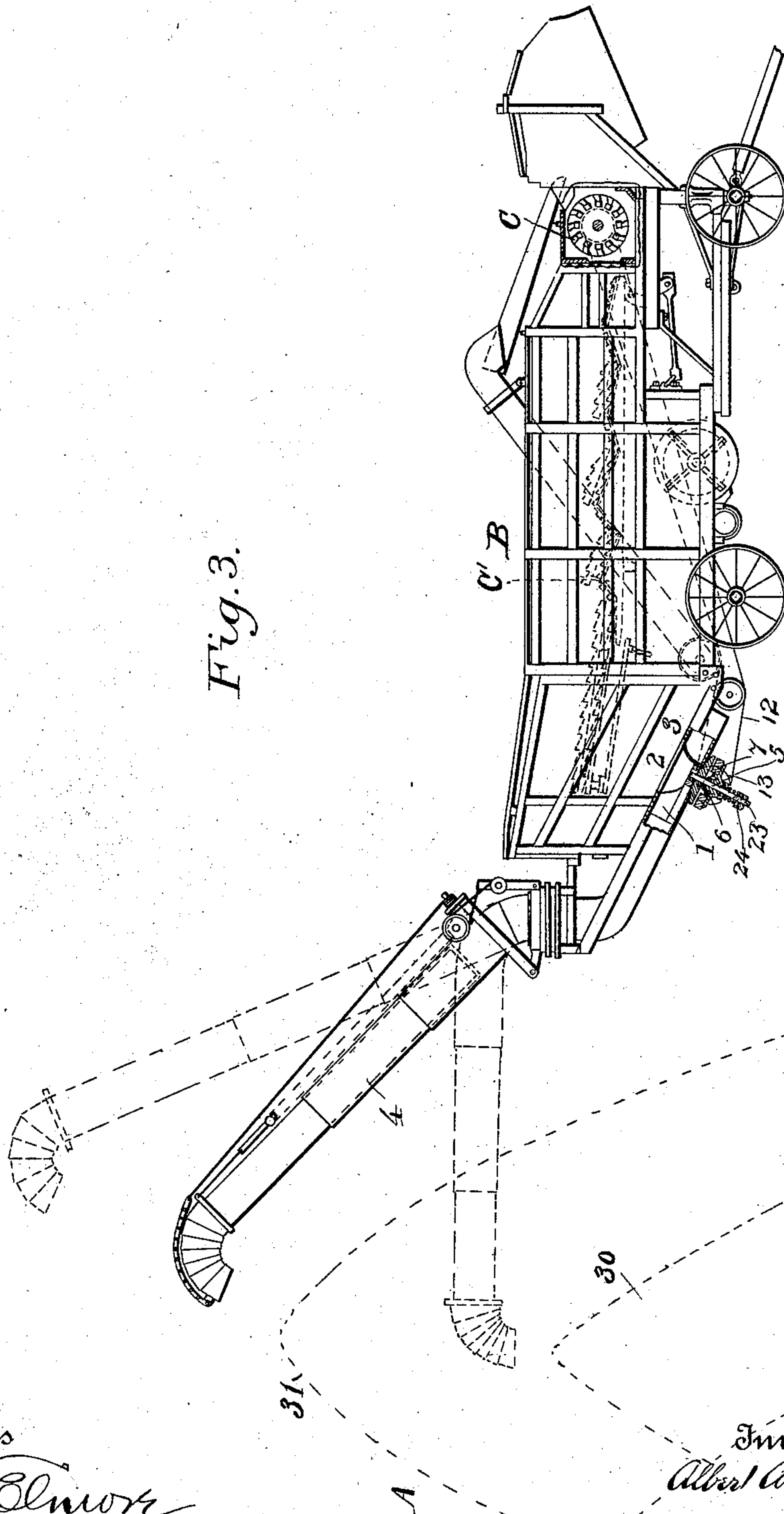
A. A. STELTING.
PNEUMATIC STACKER.

(Application filed Aug. 6, 1902.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.



Witnesses
D. J. Elmore
H. Curtis Lammond

Inventor
Albert A. Stelling
by *H. H. Bliss*
Attorney

UNITED STATES PATENT OFFICE.

ALBERT A. STELTING, OF MADISON, WISCONSIN.

PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 717,465, dated December 30, 1902.

Application filed August 6, 1902. Serial No. 118,675. (No model.)

To all whom it may concern:

Be it known that I, ALBERT A. STELTING, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to pneumatic stackers for threshing-machines; and it consists more particularly in means for changing the speed of the stacker-fan relative to the speed of the threshing-cylinder or other mechanism of the threshing apparatus.

Heretofore difficulty has been experienced where the threshing-cylinder was driven with that speed which was necessary for securing the best result under the existing conditions of the grain being threshed from blowing the straw harder than was necessary—as, for instance, at the tops of stacks or where the grain was dry—or, on the other hand, from delivering the straw with less force than was necessary for the best results. By my present invention I obviate all such difficulties and enable the threshing mechanism to be driven at that speed best under the circumstances and also the stacker-fan to be driven at the proper speed, according to the conditions of the straw or the height, location, or condition of the stack, and, furthermore, I am able to vary such relative speed as any change in conditions may render necessary.

The invention consists in the parts and combinations thereof hereinafter set forth.

In order to make the invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect without limiting my improvements to the particular details of construction illustrated.

In said drawings, Figure 1 is a transverse vertical sectional view showing a stacker-fan, a speed-changing mechanism therefor, and so much of a threshing-machine as is necessary for an understanding of the invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a side view, partly in section, of a threshing-machine embodying the invention.

Referring to the drawings, 1 indicates the stacker-fan, in this instance arranged in a

substantially horizontal position and adapted to take in through its upwardly-turned eye straw from the straw-chamber 2 of the threshing-machine B, a portion of the latter being indicated at 3. The straw so received is delivered by the fan to the stacker-duct 4, through which it passes upward in the usual manner to the point of delivery for forming a stack A or for other purpose. Said fan is fixed on a driving-shaft 5, and on the latter is also fixed a friction-wheel 6, of suitable material. This wheel or disk 6 is frictionally engaged on its outer or lower surface by a friction-pulley 7, of the same or of different material, as will best serve the purpose of a good driving contact between said disk and pulley, the pulley being connected with a driving-shaft 8 in such manner as to be rotated thereby. In the construction shown this connection comprises a longitudinal groove 9 in the shaft, engaged by a spline on the pulley in a well-known manner to allow the longitudinal adjustment of the pulley on the shaft, while its driving connection is maintained. The shaft 8 is mounted in bearings 9^x, attached to the frame of the threshing mechanism, and is held from longitudinal movement by collars 10, fixed on the shaft by set-screws 11. The shaft 8 is adapted to receive power from any suitable part of the threshing mechanism by a belt 12, engaging a pulley 13 fixed on said shaft. The shaft 8 is arranged more or less transversely of the disk 6, as illustrated, so that the adjustment of the pulley 7 longitudinally on said shaft will carry the pulley toward or from the center of the disk 6. When the pulley is adjusted nearer to said center, the fan will be run at a higher speed relative to that of the cylinder or threshing mechanism, and when it is adjusted outward toward the periphery of the disk 6 the speed of the fan 1 will be relatively lessened. By such adjustment all necessary conditions in properly threshing the straw and in properly stacking it can be met. It will be understood that the invention is not limited to the use of a disk 6 with a flat friction-surface, but the parts 6 and 7 may be of cone shape; but I believe the arrangement shown, all things considered, to be most advantageous.

The adjustment of the friction-pulley 7 may be accomplished by various means. I have

shown for this purpose a transverse shifting rod 14, arranged substantially parallel with the shaft 8 and mounted in bearing-brackets 15 and 16, which will be attached to the 5 thrasher-frame.

17 is a hand-wheel having an internal screw-thread engaging the corresponding thread 18 on the end of the rod 14, said wheel being held from longitudinal movement by the 10 bracket 15.

19 is a yoke fixed on the rod 14 and engaging the pulley 7 in such manner that it is adapted to shift and control its longitudinal position on the shaft 8 without interfering 15 with its rotation. Such connection may consist of pins 20, carried by the arms of the yoke 19 and fitting in a peripheral groove 21 in the hub of the pulley 7 or screwed into a ring fitting in said hub, as will be readily understood. The yoke 19 may be adjustable on 20 the shaft 14, as by being confined between adjustable nuts 22, screwed on said rod.

During the operation of the friction members 6 and 7 it is desirable that they be held 25 together with a proper degree of pressure and that means be provided for regulating said pressure. To this end I provide such pressure causing and regulating means comprising a screw-threaded extension 23 of the shaft 30 5, supported by a bracket 24 on a fixed part of the thrasher-frame. At the outer side of the bracket 24 is a loose collar 26 on the extension 23, beyond the said collar a spring 27, and beyond the latter one or more set-nuts 35 28, screwed on said extension. It will be seen that by the adjustment of the nuts the spring 27 may be put under more or less tension and caused to draw the shaft 5 and its disk 6 with 40 more or less force against the disk 7, thus determining the engaging pressure of the parts 6 and 7. The opposing ends of the bracket 24 and collar 26 are formed with proper bearing-surfaces for a set of antifriction-balls 29.

It will be understood that various forms of 45 speed-changing mechanisms may be employed interposed between the stacker-fan which delivers the straw and the threshing-cylinder C or mechanism which sets the straw in motion and delivers it to said fan without departing 50 from the spirit of my invention, the latter comprising a straw-threshing or other straw-supplying mechanism, a straw delivering or stacking fan, power-transmitting mechanism which causes the supplying mechanism and 55 fan to run together, and means for changing the speed of said fan relative to that of the threshing or supplying mechanism. In the construction shown the cylinder C constitutes the initial straw-supplying mechanism 60 and the straw-conveying table C', of known construction and operation, furnishes a means for delivering the straw to the chamber 2 and fan 1.

The invention further relates to changing 65 the elevation or inclination or length of the stacker or straw-delivering device or duct,

with a corresponding change in the speed of the fan. Thus when the straw-stack is of low elevation, as indicated by dotted lines at 30 in Fig. 3, less fan power and speed are necessary for the conveyance of the straw to a 70 relatively low height. As the stack grows—say to the height shown at 31—greater speed of the fan is necessary for the proper delivery of the straw, so when the straw is wet and 75 heavy the speed of the fan should be greater than when it is dry and light; but in all these cases the fan is driven from a prime motor, (not necessary to be herein shown,) such as a traction-engine, whose speed it is not feasible or advisable to change to regulate the fan 80 as the above-mentioned conditions arise or change or whose speed is governed by the required average speed for the best results in threshing of the threshing-cylinder with 85 which the prime motor is ordinarily connected to drive it. By my improvements the speed of the stacker-fan can be modified as required irrespective of any change in the speed of the prime motor. The speed of the fan may also be 90 temporarily increased to give an air-pressure that will blow out wads of straw with which the duct has been wholly or partially obstructed.

What I claim is— 95

1. In a pneumatic stacker, the combination of a straw-supplying mechanism, a stacker-fan, means for delivering the straw to and from said fan, power mechanism acting to cause said straw-supplying mechanism and fan to 100 run together for their successive action on the straw, and means for changing the speed of said fan relative to that of said straw-supplying mechanism, substantially as set forth.

2. In a pneumatic stacker, the combination 105 of the threshing-cylinder, the stacker-fan, means for conducting the straw from said cylinder to the fan, a stacker-conduit leading from the fan, power mechanism connecting the threshing-cylinder and the fan and causing them to run together in their action upon 110 the straw, and means for changing the speed of said fan relative to that of the threshing-cylinder.

3. In a pneumatic stacker, the combination 115 of a stacker-fan, mechanism for actuating the same, straw-delivery means arranged to cause the straw to be acted on by the blast from said fan, said delivery means being adjustable to different elevations, and a speed- 120 changing device for the fan comprised in said actuating mechanism and operable independently of the speed of any prime motor which may be employed, whereby the speed of the fan may be regulated according to the elevation of said straw-delivery means, substantially as set forth. 125

4. In a pneumatic stacker, the combination of an inclinable stacker-duct, a stacker-fan adapted to force straw therethrough, and actuating means for the fan comprising a speed- 130 changing device operable independently of

any prime motor to regulate the speed of the fan according to the inclination of the duct, substantially as set forth.

5 In a pneumatic stacker, the combination of a longitudinally-extensible stacker, a fan adapted to supply an air-blast to the straw conveyed by said stacker, and actuating means for the fan comprising a speed-changing device operable independently of any
10 prime motor to regulate the speed of the fan according to the length of the stacker, substantially as set forth.

6. In a pneumatic stacker, the combination of a straw guiding and delivering device, a
15 fan adapted to supply an air-blast to the straw conveyed by the said delivery device, said fan being arranged at an angle to a vertical position, a transverse shaft, power-trans-

mitting devices connected with said transverse shaft, and a speed-changer interposed 20 between said transverse shaft and the fan, substantially as set forth.

7. In a pneumatic stacker, the combination of an air-blast conduit, a fan for supplying air thereto, means for delivering straw to be 25 acted on by said blast, and speed-changing mechanism for regulating the speed of the fan and the force of said blast, substantially as set forth.

In testimony whereof I affix my signature 30 in presence of two witnesses.

ALBERT A. STELTING.

Witnesses:

J. N. STEBBINS,
WM. HELM.