W. E. ECHTERLING.

GRAIN ELEVATOR.

APPLICATION FILED OCT. 2, 1917.

1,349,948.

Patented Aug. 17, 1920.

2 SHEETS—SHEET 1.

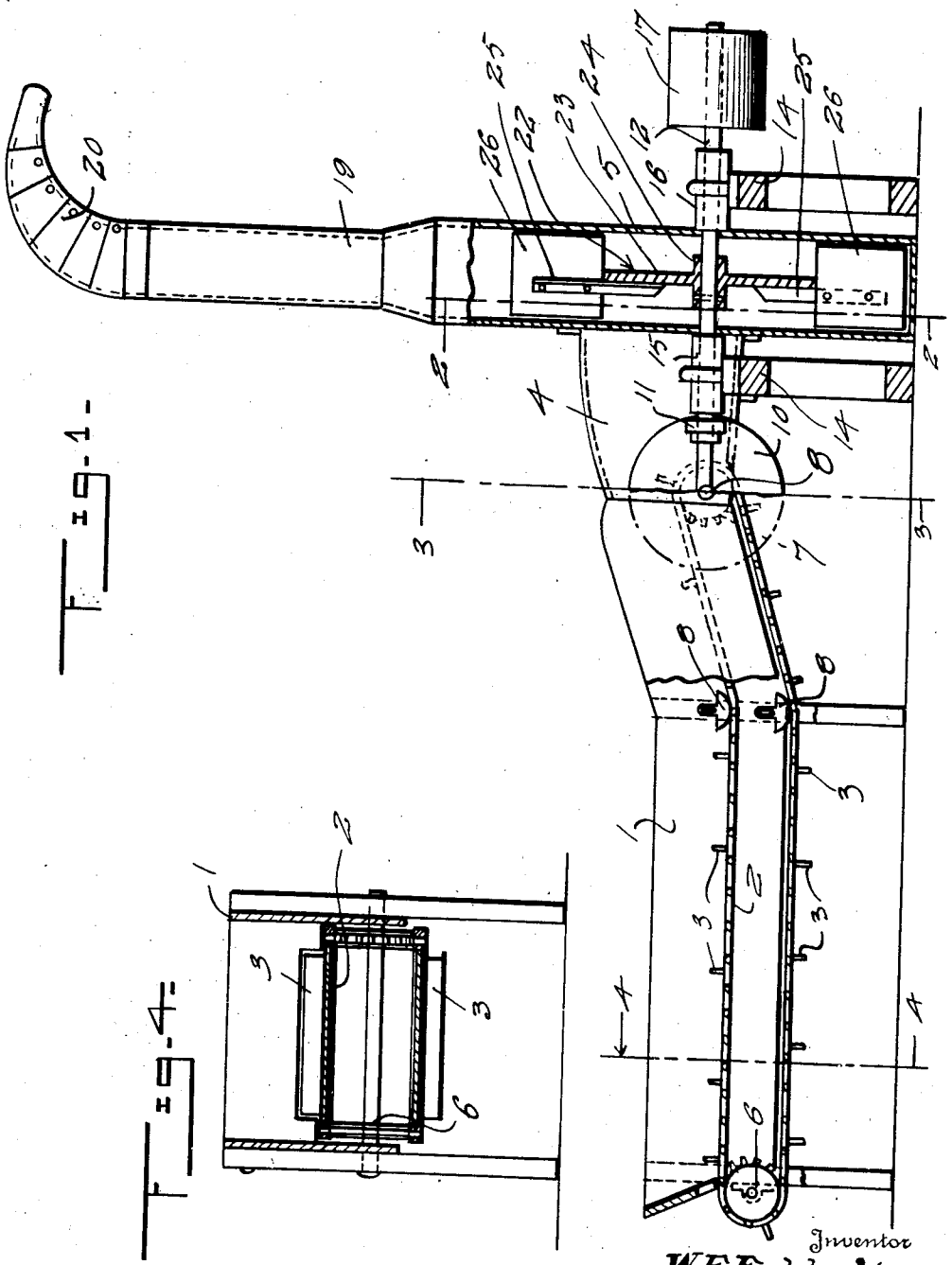


Fig. 1.

Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

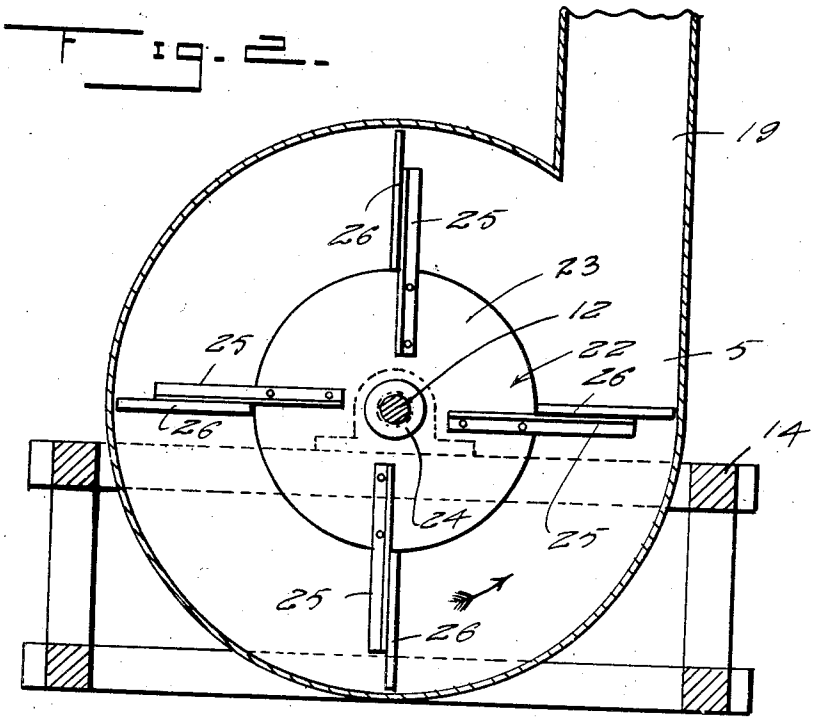
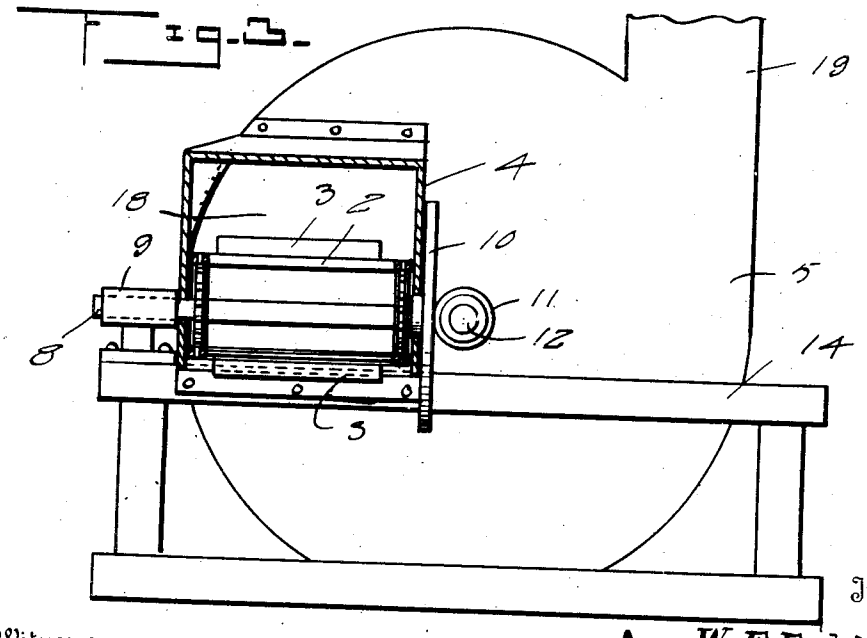


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WALDEMAR E. ECHTERLING, OF CRETE TOWNSHIP, WILL COUNTY, ILLINOIS.

GRAIN-ELEVATOR.

1,349,948. Specification of Letters Patent. Patented Aug. 17, 1920.

Application filed October 2, 1917. Serial No. 194,356.

To all whom it may concern:

Be it known that I, WALDEMAR E. ECHTERLING, a citizen of the United States, residing in the township of Crete, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Grain-Elevators; 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 grain elevators and the primary object of the invention is to provide a grain elevator of the pneumatic type which may be easily constructed at a minimum expense whereby it can be sold for a minimum cost, and one which is also simple in construction and comparatively light of weight, so that it may be transported from one place to another, or conveniently placed in any desired position.

More specifically, the object of this invention is to provide a grain elevator, by means of which the grain may be conveyed directly to any part of a bin or granary thereby eliminating the necessity of manually shoveling the grain in the corners or the portions of the bin remote from the delivery end of the conveyer; and further to provide a conveyer which embodies a blast of air generated by a rotating fan together with the centrifugal force of the fan for blowing the grain to the desired position within the granary or grain bin.

With the foregoing and other objects in view, this invention consists in such novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and claimed.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters designate like and corresponding parts throughout the several views, and in which:

Figure 1 is a side elevation of the improved grain elevator showing part in section,

Fig. 2 is a section on the line 2—2 of Fig. 1,

Fig. 3 is a vertical section on the line 3—3 of Fig. 1, and

Fig. 4 is a vertical section on the line 4—4 of Fig. 1.

Referring more particularly to the drawings, 1 designates a trough or hopper into which the grain to be elevated into the granary or bin is dumped. The bottom of the trough or hopper 1 is formed by the upper run of the conveyer 2. The conveyer 2 is of the usual endless belt type, having a plurality of outwardly projecting flights 3 carried thereby at spaced intervals which engage the grain and carry it along with the conveyer, from which it is dumped into a guiding chute 4 which in turn delivers the grain to the interior of the fan casing 5.

The conveyer 2 travels about sprockets 6 and 7 and it is guided by suitable guide members 8 which are adjustably connected to the interior of the sides of the trough 1. The sprocket 7 is mounted upon a shaft 8^a and this shaft is rotatably supported by suitable bearings 9 and has a friction disk 10 mounted thereon. The friction disk 10 is engaged by a relatively small friction disk 11 which is feathered upon the shaft 12. If it is so desired any ordinary means may be employed for shifting the friction disk 11 upon the shaft 12 for regulating the distance from the center of the disk 10, to the disk 11 for regulating the speed of rotation of the shaft 8^a.

The fan casing 5 is supported by a suitable supporting structure 14, and this supporting structure carries bearings 15 and 16 which rotatably support the shaft 12. The shaft 12 has a power transmitting pulley 17 mounted thereupon through the medium of which any suitable type of prime mover may be operatively connected to the shaft for rotating the shaft 12 and also the shaft 8 for propelling the conveyer 2.

The guiding chute 4 opens into the center of one side of the fan casing 5 through an opening 18 and the grain which is delivered into the fan casing 5 from the guiding trough 4 is blown or forced out of the fan casing through the outlet or blower pipe 19. The blower pipe 19 communicates with the interior of the fan casing 5 at the circumference of the fan casing, as clearly shown in Fig. 2, and as is ordinary in blower fan constructions of this type. A sectional hood 20 is mounted upon the outlet end of the blower pipe 19 and this hood or elbow has its under side open, as is ordinary in construction of elbows or hoods of this nature, and it may be connected to the blower pipe 19 in such a manner that its position with respect to the blower pipe may be adjusted

as desired, for guiding the grain into various parts of a bin. The blower pipe and adjustable hood structure 20 are ordinary in the construction of blower stackers used in connection with wheat or grain separators.

The shaft 12 has the fan structure 22 mounted thereon which is positioned within the fan casing 5. The fan structure 22 includes a disk 23 which has a hub 24, that is mounted upon the shaft 12 for rotation therewith. A plurality of angle irons 25 are attached to the disk 23 and radiate therefrom, having fan paddles or blades 26 attached thereto, which create an air blast for blowing the grain outwardly through the blower or outlet pipe 19.

In the operation of the improved grain elevator the grain is deposited in the trough or hopper 1 upon the upper run of the conveyer 2, and it is carried by this conveyer to the guiding box 4, which guides the grain inwardly into the fan casing 5. The grain will be sucked or drawn into the fan casing by the inlet of air into the fan casing, caused by the centrifugal action of the fan 22. The air blast exiting from the fan casing 5 through the pipe 19, together with the centrifugal force of the rotation of the fan 22, will force the grain outwardly through the pipe 19 and hood 20 into any desired portion of the grain bin or granary into which it is desired to deposit the grain.

Having thus fully described my invention, what is claimed is:—

A grain elevator comprising a blower casing, a blower shaft extended transversely through said casing, supporting means for said shaft, a discharge spout extended upwardly from said casing, a conveyer extended at an angle to said casing, said casing having an entrance opening, a conveyer within said conveyer casing and having end shafts, a comparatively large friction disk mounted on one of said end shafts of the conveyer, a comparatively small friction disk mounted on the blower shaft and adapted to drive the comparatively large disk, said comparatively small friction disk being adjustable transversely of said comparatively large friction disk to vary the speed of rotation thereof, a blower mounted on the blower shaft within the first mentioned casing, said conveyer being adapted to convey material into the blower casing by way of the inlet opening thereof, and a drive wheel mounted on the said blower shaft to be driven from a suitable source of power.

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

WALDEMAR E. ECHTERLING.

Witnesses:

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