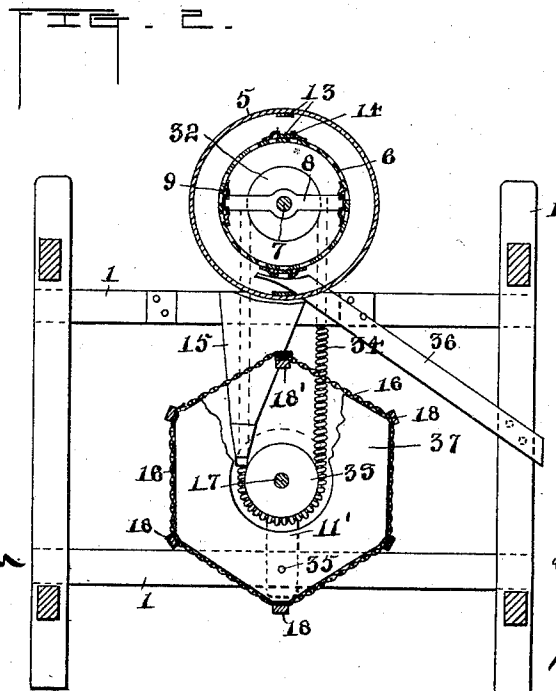
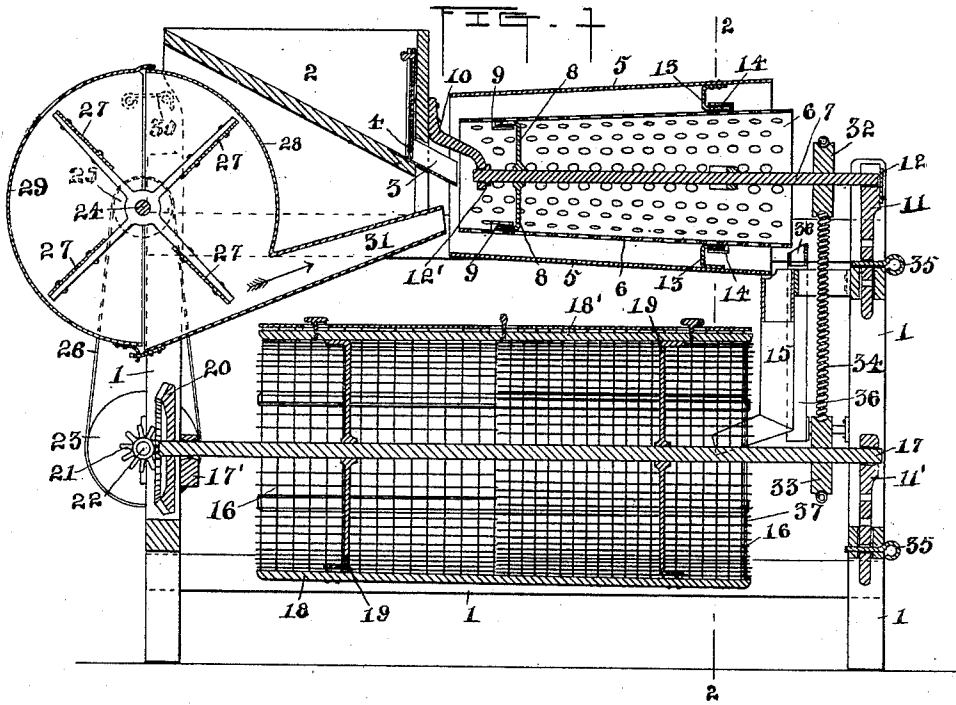


(No Model.)

C. WENDEL.
WINNOWING MILL.

No. 460,274.

Patented Sept. 29, 1891.



WITNESSES

Arch. M. Catlin
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UNITED STATES PATENT OFFICE.

CARL WENDEL, OF GROTON, SOUTH DAKOTA.

WINNOWER-MILL.

SPECIFICATION forming part of Letters Patent No. 460,274, dated September 29, 1891.

Application filed May 1, 1891. Serial No. 391,309. (No model.)

To all whom it may concern:

Be it known that I, CARL WENDEL, a resident of Groton, in the county of Brown and State of South Dakota, have invented certain new and useful Improvements in Winnowing-Mills; 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 pertains to make and use the same.

The invention has for its object the improvement of winnowing-mills; and it consists in the construction hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal vertical central section. Fig. 2 is a transverse section on line 2 2 of Fig. 1, the view looking toward the right.

Numeral 1 indicates a frame, in the upper part of which is a hopper 2, provided with a spout 3. 4 is a slide adapted to close said spout.

5 and 6 are approximately cylindrical tubes, the inner one of which has a perforated wall and a screen. It is supported on axis 7 by means of arms 8. These tubes, or so-called "cylinders," as well as cylinder 16, to be hereinafter described, are each shaped like the frustum of a cone, and each has its largest diameter toward its delivery end, so that while its axis is horizontal, or nearly so, the lower inner surface of the cylinder-wall will be inclined downwardly toward the discharge. The arms 8 are fast on the axis, and have their outer ends bent at right angles to their length, forming hooks adapted to engage sockets 9, formed on the interior of the cylinder-wall. There are two or more pairs of these arms arranged at an angle to each other. The inner end of the axis has a bearing in a bracket 10, and the outer end in an adjustable post 11.

12 is a plate on the post, and 12' a collar on the axis adapted to prevent endwise motion of the same in its bearings.

The cylinder 5 is supported upon cylinder 6 by means of arms 13, which are provided with bent ends adapted to fit into the sockets 14, made fast on the exterior of the inner cylinder.

By the above-described construction provision is made for removing the sieve 6 and

substituting another. To do this the cylinders and their shaft are lifted from the bearings, whereupon the exterior cylinder 5 can be slipped endwise and the arms 13 withdrawn from the socket 14 and the cylinders separated. The sieve 6 can then be removed in like manner from the arms 8 and another substituted, and the cylinder 5 then replaced and the whole put in place for use.

15 is a spout fixed near the end of cylinder 5 and leading to the interior of a wire-cloth cylinder or hexagon 16, located below. Said cylinder is supported on an axis 17, which has one bearing in a post 11' and another in a cross-beam 17' of the frame. The "cylinder," so called for convenience, is a hexagon, and consists of wire-cloth secured upon longitudinal bars 18, supported at the ends of radial arms 19, fast on the axis 17. The wire-cloth is attached to or wound upon these bars, and has its edges preferably bound with sheet metal, overlapped, as indicated in Fig. 2, and fastened together by thumb-screws, which pass through the overlapped edges and into an underlying bar 18', as shown in Fig. 1. This bar is arranged upon the inside of the screen for the purpose of lifting the contents of the cylinder as the latter is revolved and causing said contents to fall upon the bottom of said cylinder as said bar is carried up by the revolution. The hexagonal form of the screen or sieve tends to prevent its contents from sliding to the bottom as uniformly as would be the case in a true cylinder, and it aids in agitating the contents thereof. The wire-cloth on the half of the cylinder next the spout has a finer mesh than that next to the discharging end of the same, one having preferably nine and the other eight meshes to the inch. The purpose of this is to provide for separating small seeds from the grain at one end of the screen or cylinder and larger seeds at the other end. To fasten the wire-cloth on the arms 19, the bars 18 are riveted or otherwise secured to the same and to the arms, the wire fabric being held between the bars and arms, as shown. These fastenings may be made removable, and thumb-screws are suitable for the purpose.

20 denotes a bevel-gear on the axis 17, extended beyond its bearing in bar 17'. Said gear meshes with and is driven by a bevel-

pinion 21 on shaft 22. A pulley on said shaft is denoted by 23.

24 denotes a shaft journaled in the frame and provided with a pulley 25. A belt or cord is denoted by 26.

27 27 indicate the wings of a fan, of which 23 is the axis.

28 denotes the fixed part of the fan case or box, and 29 a hinged part, and 30 a hook for securing said hinged part in a closed position. The fan-shaft extends through the casing at the joint between the two parts thereof.

31 is the throat of the fan-case leading to the end of cylinder 6 at a point just below the spout 3, and is contracted to concentrate the blast upon the falling grain and chaff.

32 and 33 are pulleys fast on their respective shafts 7 and 17, and 34 is an endless band of spirally-disposed wires surrounding the pulleys 32 and 33.

The posts 11 and 11' are adjustably supported in slots in the frame by means of pins 35, adapted to pass through the bars of the frame at right angles to the same and to the posts located in the slots, or said pins may pass through the posts and rest upon the top of the frame-bar. Several holes are provided in each post, so that the relative distance of the cylinder-shafts can be varied at will and so that various degrees of inclination may be given to them as found desirable in practice. The opposite bearing of the shaft 17 is rounded or beveled, as shown in bar 17', (see Fig. 1,) to permit a slight vertical movement of said shaft by means of the pin and post 11'. The coiled-wire driving-band automatically adjusts itself to said adjustment of the shafts 7 and 17. By these means suitable inclination may be given to the sieves to suit various kinds and conditions of grain.

All parts of the improved mill are constantly open to free inspection and are easily accessible, and it is adapted for grains and seeds of all kinds, the detachability of the screens and the elastic belt and the adjustability of the shafts all contributing to this end.

In operation the material to be winnowed is put in the hopper and the fan operated in usual manner. Straw, chaff, and light sub-

stances will be blown entirely through the screen 6, while the grain, seeds, and heavier objects fall through the perforation in cylinder 6 and are conveyed by the spout 15 into the cylinder 16, in which the small seeds and then the larger are separated, as above stated, while the grain is carried down to the laterally-discharging delivery end of the said cylinder.

36 denotes a spout arranged under the lower end of cylinder 6 to receive "white-caps" and like matters that are too large to pass through the perforations in sieve 6 and too heavy to be blown out of the mill. This spout discharges laterally, as best shown in Fig. 2. The spout 15 conveys the grain to cylinder 16. 37 is a plate partially filling the end of said cylinder and adapted to prevent grain from escaping at the end nearest the spout 15.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. The combination of the approximately cylindrical tube 5, provided with arms 13, the similarly-shaped screen 6, and the shaft 7, having arms 8, the screen being provided with sockets adapted to receive said arms 8 and 13, whereby both the tube and screen are made removable, substantially as set forth.

2. The combination of the shaft 7 and its pulley, the shaft 17 and its pulley, two screens, one on each shaft, the belt made of endless coiled wire, and the adjustable bearings 11 and 11' for said shafts, substantially as set forth.

3. The combination of the shaft 7 and its pulley, the shaft 17 and its pulley, two screens, one on each shaft, the belt made of endless coiled wire, and the adjustable bearings 11 and 11' for said shafts, the shaft 17 having the beveled bearing at its end opposite to bearing 11', substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CARL WENDEL.

Witnesses:

W. I. ERWIN,
L. H. NEFF.