SIMPSON & HAYDEN.

Grain Cleaner.

No. 36,676. Patented Oct. 14, 1862.

Fig. 2,

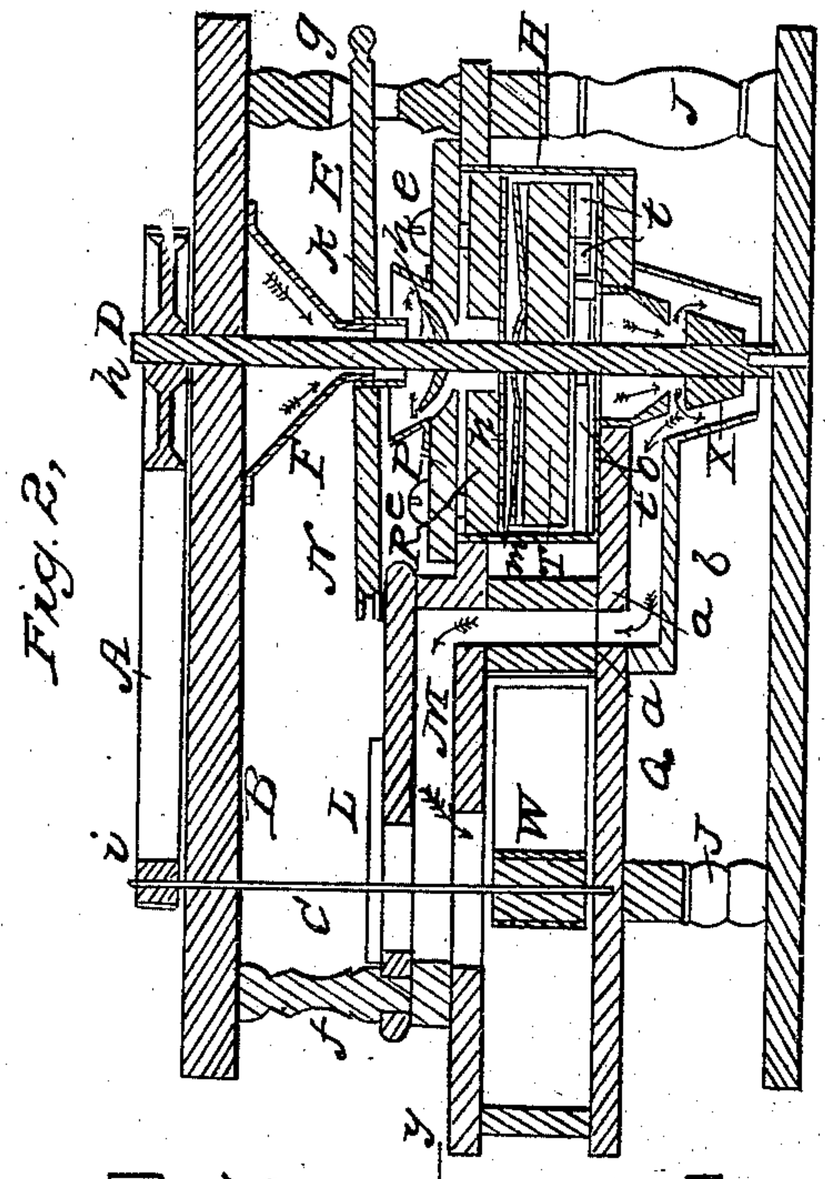


Fig. 4.

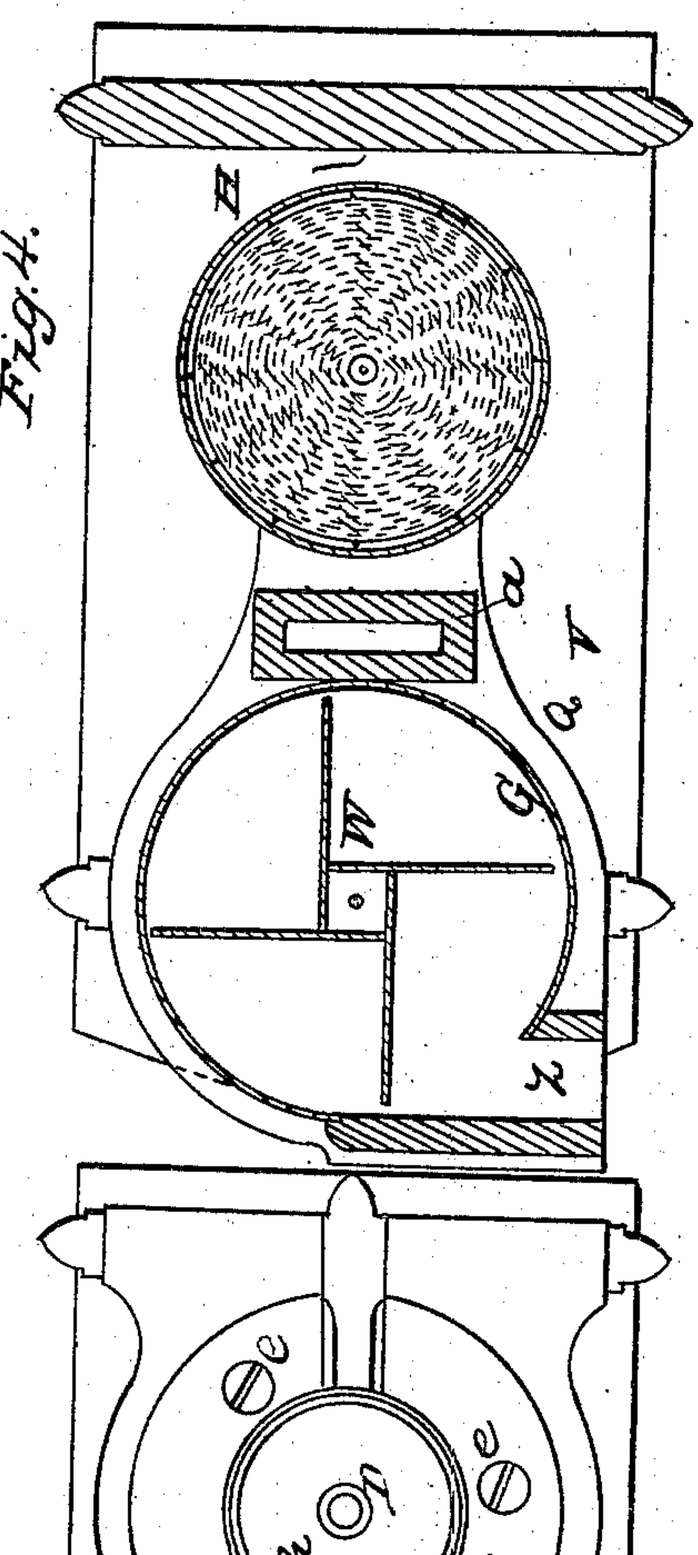


Fig. 1,

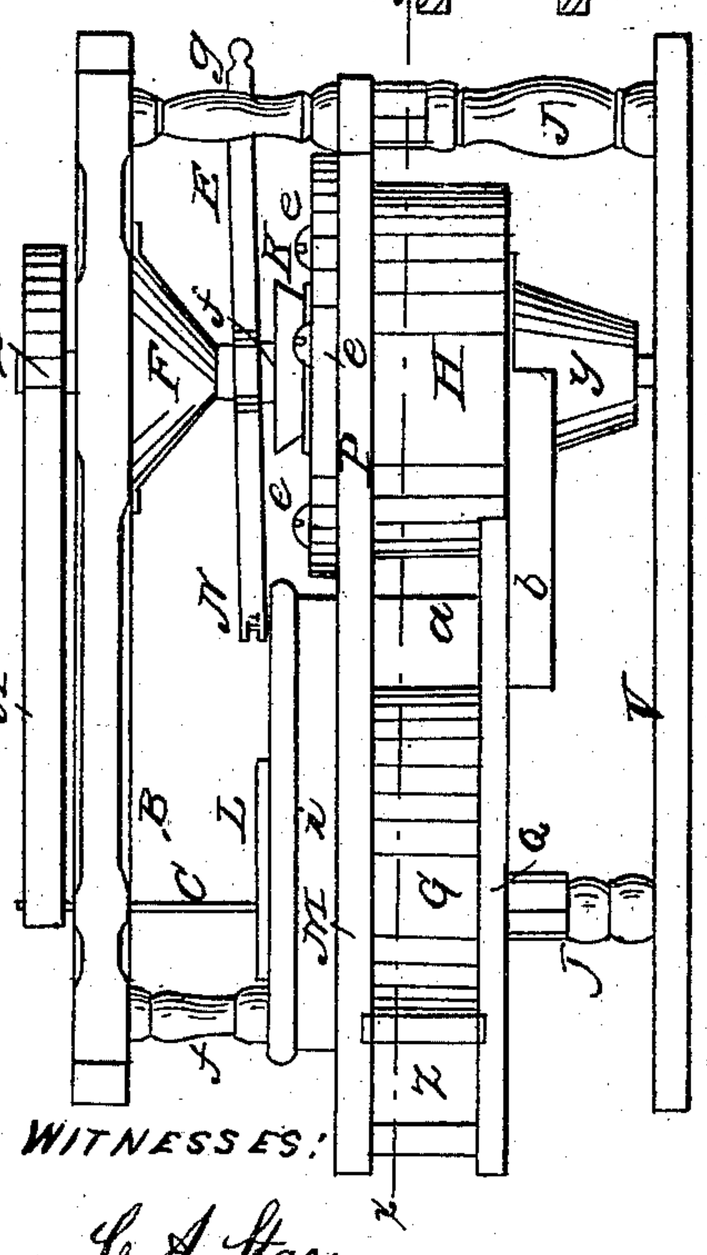


Fig. 5,

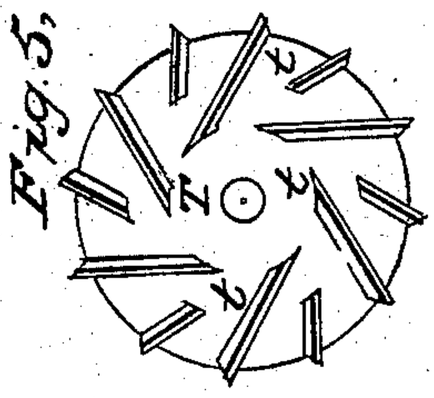
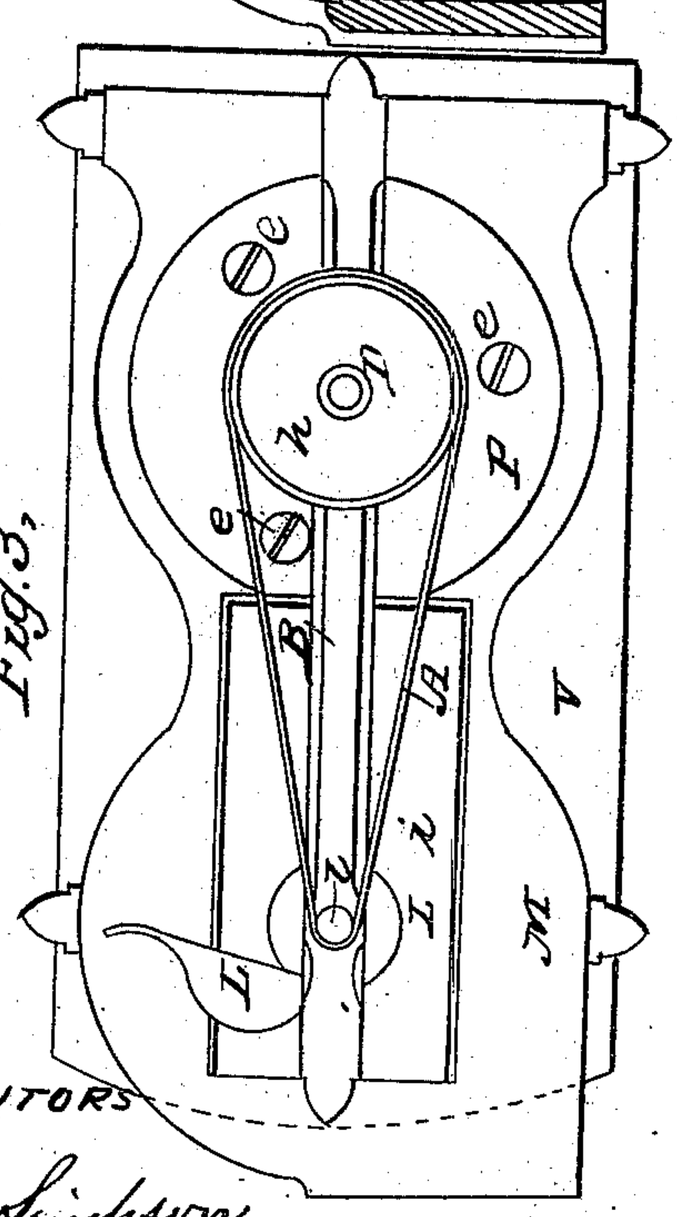


Fig. 3,



WITNESSES:

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JOHN SIMPSON AND WILLIAM HAYDEN, OF TECUMSEH, MICHIGAN.

IMPROVEMENT IN GRAIN-CLEANERS.

Specification forming part of Letters Patent No. **36,676**, dated October 14, 1862.

To all whom it may concern:

Be it known that we, JOHN SIMPSON and WILLIAM HAYDEN, of Tecumseh, in the county of Lenawee and State of Michigan, have invented new and useful Improvements on Machines for Cleaning and Smutting Grain Preparatory for Grinding and for Cleaning and Hulling Buckwheat; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1 is a side elevation of our invention. Fig. 2 is a vertical section of the same, taken through the shafts C and D. Fig. 3 is a plan of the same. Fig. 4 is a horizontal lower section, taken through the line *x y*. Fig. 5 is a detached view of the lower surface of T, see Fig. 2, showing arrangement of beaters attached thereto.

Like letters in the several parts indicate like parts of the machine. The pink tints in the sectional drawings indicate those parts cut by the plane that may be made of wood.

The object of this invention is to obtain a machine that may be conveniently attached to the curb of a millstone which will scour and clean the grain and prevent the accumulation of moisture, &c.

To enable those skilled in the art to make and use our invention, we will describe its construction and operation.

V represents a part of the curb.

The machine is supported by four pedestals which rest in mortises in the top of the curb.

D is that part of the spindle which would come above the top of the stone.

G and H are two cylinders. G contains a fan, W, and in H is the scouring part of our invention.

M and Q are two horizontal plane-pieces. Q forms the bottom of cylinder G and H, and M the top of cylinder G. There is a round opening in M the size of cylinder H, in which the cylinder is inserted, the top of the cylinder being flush with the upper surface of M.

i is a box on M, which incloses an air-passage from a round opening in M, directly over the center of the fan W, to a rectangular opening over the box *a*. Box *a* incloses an air-passage to a rectangular opening in Q. There is a register, L, in the top of box *i*, by means of which air may be admitted to the fan W, thus governing the draft in the air-passages.

B is a horizontal bar supported by two columns, *f g*. The shaft of the fan C and the spindle D have bearings in the bar B.

A is a belt, which passes around the pulley *h* on the spindle, and the pulley *i* on the shaft of the fan.

The funnel F, attached to bar B, collars, lever E, and saucer *h* constitute what is commonly used and known as a "still-feeder." The bar E is pivoted at N and passes through a slot in the columns *g*.

P is the head of the cylinder H and is attached to M. It has a funnel-shaped opening at its center, the upper orifice of which is surrounded by a metallic funnel, K.

R is an adjustable scourer, pendent from the head P by three set-screws, *e e e*, by which it is held in position, and may be raised or lowered to adapt it to the different kinds of grain. It has a cylindrical opening at the center, and its lower surface is covered with a plate of sheet-iron, *n*, indented in its upper surface, producing a rough lower surface.

T is a scourer attached to the spindle D, the plate *m* of which has a rough upper surface like the lower surface of *n*, and has one circulate and a series of radial indentations. The diameter of T is less than the diameter of the cylinder, and it has attached to its lower surface a series of beaters, arranged similarly to the furrows of a millstone, and projecting beyond the scourer nearly to the cylinder.

o is an iron plate, made rough in the manner above described. Through the plate *o* and through Q is a cylindrical opening, in which is inserted the cylindrical part of a funnel, V.

X is an inverted truncated cone.

Y is a funnel, the sides of which are nearly parallel with the sides of the cone X.

b is a box inclosing an air-passage from the rectangular opening in Q to the funnel Y. The inside of the box embraces one-half the circumference of the funnel, and that part of the funnel which would obstruct the air-passage is cut away. The descending arrows from funnel F indicate the course of the grain. The ascending arrows indicate the air-currents from the funnel Y to the fan W. There is an opening in the cylinder G into the spout Z.

The operation of this machine is as follows: When not attached to the curb, motion is communicated to the machine by means of a belt and an extra pulley on shaft D. When attached to the curb, D is the spindle of the stone, and receives its motion from the bail. It is imparted to the fan by means of pulleys *h* and *i* and belt A. The grain enters funnel E, passes down between the shaft and the funnel into the saucer K. Here the amount delivered to the scourer is regulated by raising and lowering the collars by means of the lever E, thus obstructing or permitting the free discharge of the grain from the saucer. The grain is thrown out centrifugally from the saucer, passes down between the saucer and funnel K, through the aperture in P and R onto the scourer T. The rapid motion of T causes the grain to work toward the circumference between the rough plates *m* and *n*, *m* being in rapid motion and *n* stationary, and the grain is thoroughly scoured. Reaching the circumference of *m*, it drops on the rough plate *o*, where it is caught by the beaters *t t t* and drawn over the plate *o* to the funnel V, through which it falls on the cone X, which, being in rapid motion, causes the grain to be thrown out centrifugally, when, meeting the current of air produced by the fan, it is freed from all refuse matter and drops into the eye of the stone. The cone X, obstructing the funnel, causes the air to enter the funnel from all directions over the top of the stone, and from the eye, thus preventing the accumulation of moisture about the curb. All refuse matter is carried by the air-currents through the air-passage into the cylinder G and spout Z.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The cone below the saucer by which the separation of the grain is secured and its even delivery at the moment of its being acted upon by the current of wind, exposing the largest surface both of the grain and impurities to the action of the current of the wind.

2. The combination of the several parts, as above described, in the manner and for the purpose indicated, in connection with the curb-spindle and stones of an ordinary flouring-mill, as well as attached to other machinery, like an ordinary smutter.

3. The double-surface scourer indented from the opposite surface.

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