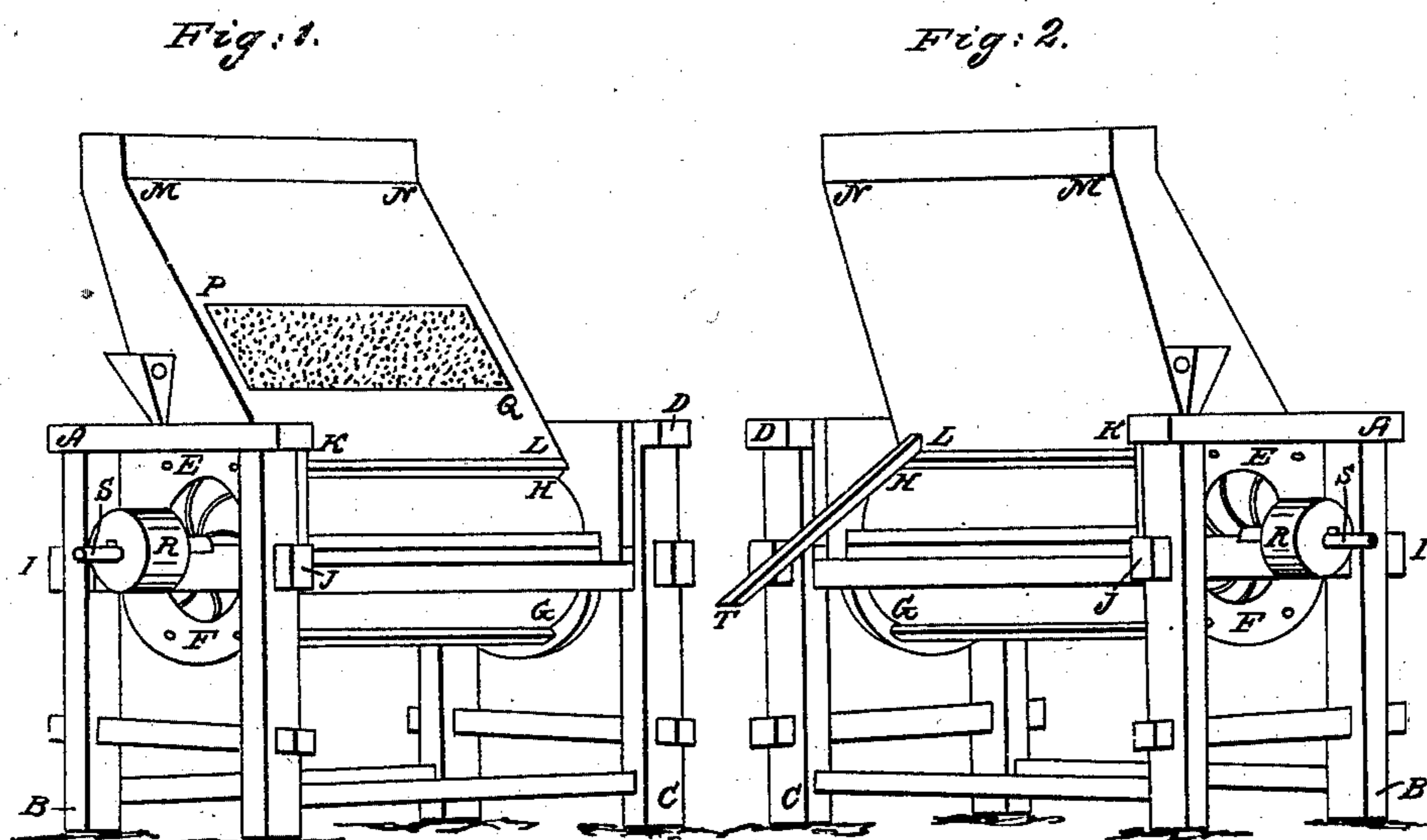
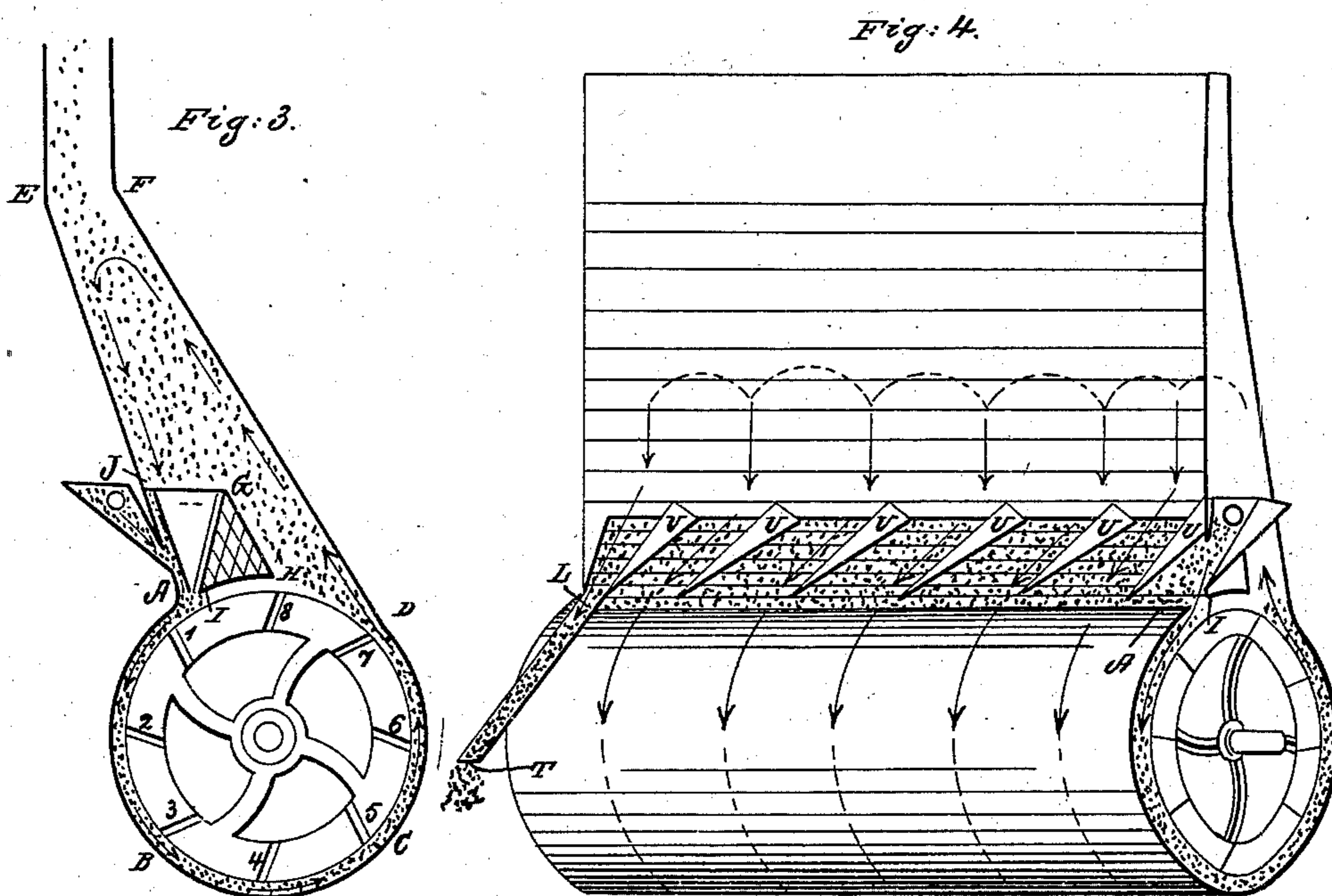


J. HOLLINGSWORTH.
Smut Mill and Grain Scourer.

No. 8,061.

Patented April 22, 1851.



Inventor:

J. Hollingsworth.

UNITED STATES PATENT OFFICE.

J. HOLLINGSWORTH, OF ZANESVILLE, OHIO.

SMUT-MACHINE.

Specification forming part of Letters Patent No. 8,061, dated April 22, 1851; Reissued October 10, 1854, No. 281.

To all whom it may concern:

Be it known that I, JEHU HOLLINGSWORTH, of Zanesville, in the county of Muskingum of the State of Ohio, have invented a new and useful Machine for Scouring Wheat and Freeing it from Smut and other Impurities, which I call a "Smut-Mill and Wheat-Scourer;" and I do hereby declare that the following is a clear, full, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure No. 1 is a front view, Fig. No. 2 is a back view, Fig. No. 3, a vertical section and Fig. No. 4, a back view of the chimney giving in detail the operation of the aprons that conduct the wheat from its receiving to its discharging point.

Figs. No. 1 and No. 2 same letters illustrate the same parts in both figures: A B C D, is the frame in which the machine is adjusted. E F G H, is a horizontal hollow cylinder (4 feet long and 20 inches in diameter) made of wood or iron; the inside surface of said cylinder is coated with pulverized emery, fastened to it by glue or other cement, forming a durable and sharp scouring surface: both ends of said cylinder are open (the diameter of cylinder being 20 inches; the openings at each end would be about 12 inches diameter); over these openings is placed a wire gauze, with meshes small enough to prevent wheat bouncing out, but large enough to allow air to pass freely in. Said cylinder is also open at the top, along its whole length K L, the opening being about 18 inches wide and extending along the whole length of cylinder from point K to L (say 4 feet). Closely fitted to this opening is a wooden chimney M K L N, ascending in an inclined position, and extending to any point desired. Said wooden chimney is wider at the bottom than at the top. Through this concave or hollow cylinder passes a shaft, S, which revolves on bearers or bridge trees at each end of the frame. Hung on this shaft, at each end, inside the heads of the cylinder, is a circular flange; said flanges are secured to the shaft by means of four arms which form an eye, around the shaft; they are seen in Figs. Nos. 1 and 2 at the open ends of the cylinder. There are eight to sixteen iron beaters, 1, 2, 3, 4, 5, 6, 7, 8, Fig. 3 (as may be de-

sired) extending from the flange at one end to the flange at the other end, (the cylinder being 4 feet long) the beaters would be about 3 feet 9 inches long—they are 3 to 4 inches wide; the outer edges of them (when in motion) revolve within $\frac{3}{4}$ to 1 inch distant from the inside surface of concave. The width of the beaters is for the purpose of creating a blast, and the number of them for the purpose of scouring the wheat against the emery surface of the cylinder.

P, Q, is a glass plate inserted in the front of the chimney (seen only in Fig. No. 1) to show the action of the wheat when the machine is in operation. R is a pulley, fastened to the shaft S. It is driven by a strop, and makes from 4 to 500 revolutions per minute.

O is a hopper that conducts the wheat into the machine.

L T is a spout (Fig. No. 2) through which it is discharged out of it, in a clean condition, to any point desired.

Fig. No. 3, a vertical section, or end view of the cylinder-wooden chimney: A, B, C, D, is an end view of the cylinder, showing it open at the top from A to D. A E F D, is an end view of the chimney fitted to the opening, at top of concave. H I G is an end view of a solid division or partition in the chimney which extends from one end of the chimney to the other (say 4 feet); it will be seen the end view of this partition forms a triangle H I G, its base H I keeping the curve of the cylinder; the side H G running parallel to D F (the line D F is obtained by drawing from the point D, a line at right angles to the face of the beaters). H G is from 9 to 12 inches, the third side G I, extends from G to I, a point about 1 inch distant from A the point at which the opening in top of concave commences, so that this partition H I G in the chimney fills up nearly one half the opening, the point H being about 9 inches from one side of the opening D, and the other point I, being about 1 inch distant from A the other side of the opening in the concave. O, is a hopper, that conducts the wheat into the cylinder, through the small open space, existing between A, the point at which the concave ends, and the point I at which the partition in the chimney, begins. From point G draw a horizontal line G J to the back of chimney, then J I G

will represent a vacant area extending the whole length of the chimney, the top of said area being about 6 to 8 inches wide and the bottom about an inch, (the distance 5 between A and I). Suppose the wheat entered in the hopper O, following the direction of arrows, it will be seen, by the action of the beaters, 1, 2, 3, 4, 5, 6, 7, 8, (end views of which are seen in this figure), the 10 wheat is driven around the concave to the point D, where it is liberated, and is thrown by centrifugal action up the chimney (at right angles with the face of the beaters). When overcome by its own gravity, it falls 15 on the back of the chimney into the vacant area J I G, the bottom of which area conducts it again through the small open space into the concave, where it is driven around again and passes up the chimney, falls 20 back again through the vacant area, at the back of the chimney, and thus continues until it has reached the discharging end; at each revolution the smut is broken, wheat scoured, and driven (at the exact instant it 25 is disengaged) up and out of the chimney, it (the smut, dust, white caps, &c.) being lighter than wheat (which falls back) is carried by a strong blast out of the top of chimney; for by the same action of the 30 beaters, that scours the wheat, there is a strong blast generated; the air for said blast entering at the open ends of the concave, and the vent being up through the chimney, this machine operating as a powerful fan, as well as a thorough wheat 35 scourer, at the same time, and without any increase of power.

The manner of conducting the wheat from the receiving end of the machine to 40 its discharging point, is seen in this Fig. No. 3. In the area J I G, is hung a number of aprons U (made of sheet iron); they are hung on a wire, which rests on the top of the partition at G and its other end 45 passes through the back of the chimney at J. The apron fills the area J I G, and being hung only at points G and J, is movable; and can be given any desired inclination, as seen in Fig. No. 4. In this figure O is the 50 hopper at which the wheat enters into the

cylinder, following the arrows from the point A, the wheat is forced around the concave and up the chimney and falls into the area upon the first apron U; it is inclined, 55 so when it has reached the bottom of the apron (at which point it again enters the machine) it has advanced several inches, more or less, according to the inclination given to the apron—thus it goes from one apron to another until it falls on the last 60 one, which instead of conducting it into the cylinder, conveys it into a spout, L, T, fitted to the bottom of the last apron U, through which spout it is carried to any place desired. 65

In all smut mills heretofore patented, the difficulty has been not so much in scouring off the impurities, as in discharging them at the moment they are disengaged, particularly the smut. All machines have 70 failed in a greater or less degree in this important particular. The striking difference between other machines and the one herein described consists: In the thorough and instant discharge of all impurities the moment 75 they are disengaged, the large opening in the top of concave affording an unobstructed and ample vent to a strong blast that carries out all impurities. Said blast is created by the same power and means that scour the 80 wheat, making this machine within itself, not only a perfect wheat scourer, but at the same time a most effective and extensive fan.

Having thus fully described my invention, 85 what I claim therein as new and desire to secure by Letters Patent, is—

The manner herein described of scouring and freeing wheat of smut and other impurities, by throwing up the grain onto the 90 inclined face of a chimney fitted to an opening along the top of the concave, in combination with the inclined apron U, for transferring the grain from end to end of the cylinder that it may be discharged 95 as set forth.

JEHU HOLLINGSWORTH.

Witnesses:

A. B. STOUGHTON,
WM. STEPHENS.