

R. THOMPSON.

Smut Mill.

No. 30,994.

Patented Dec. 18, 1860.

Fig. 1

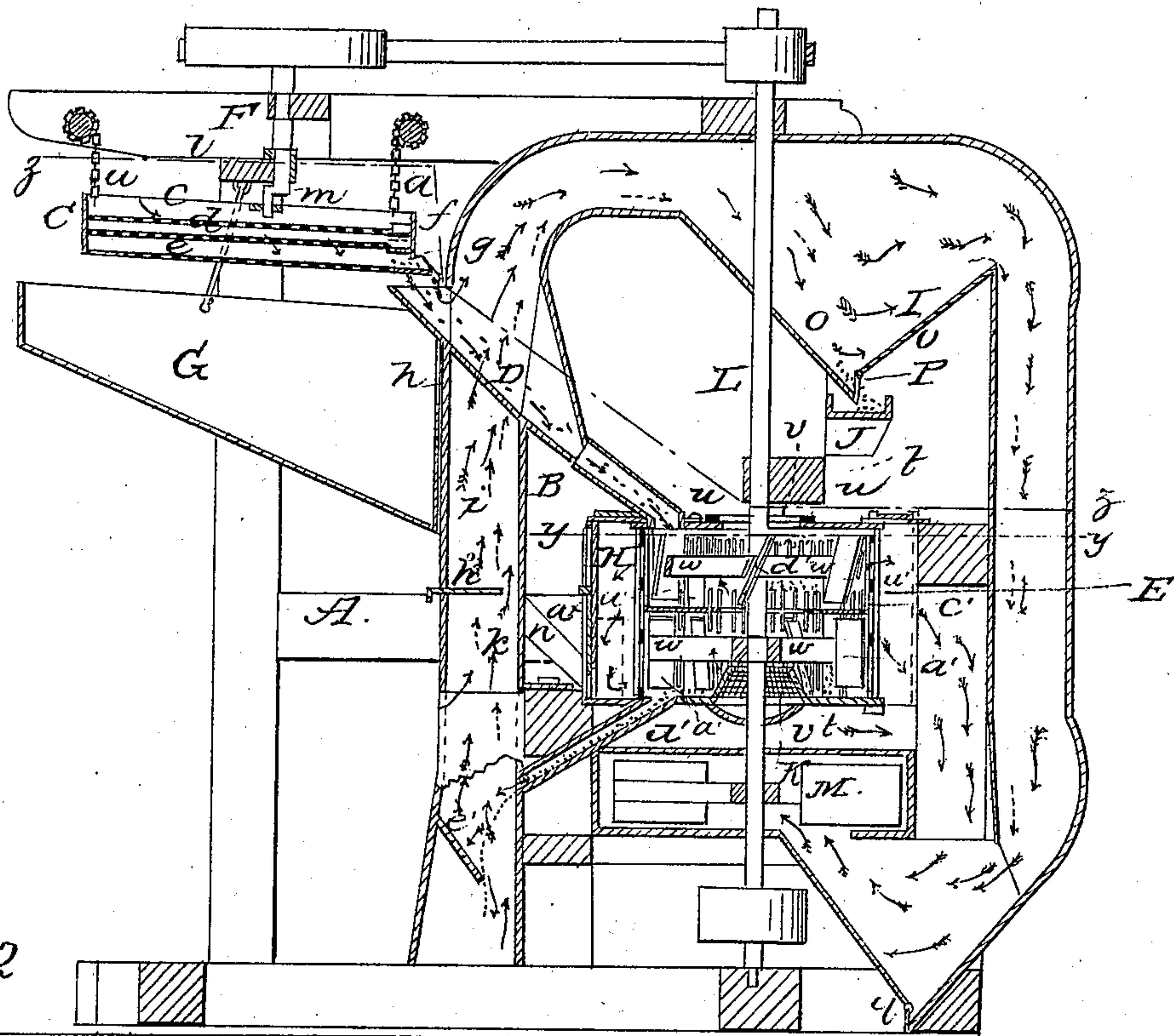


Fig. 2

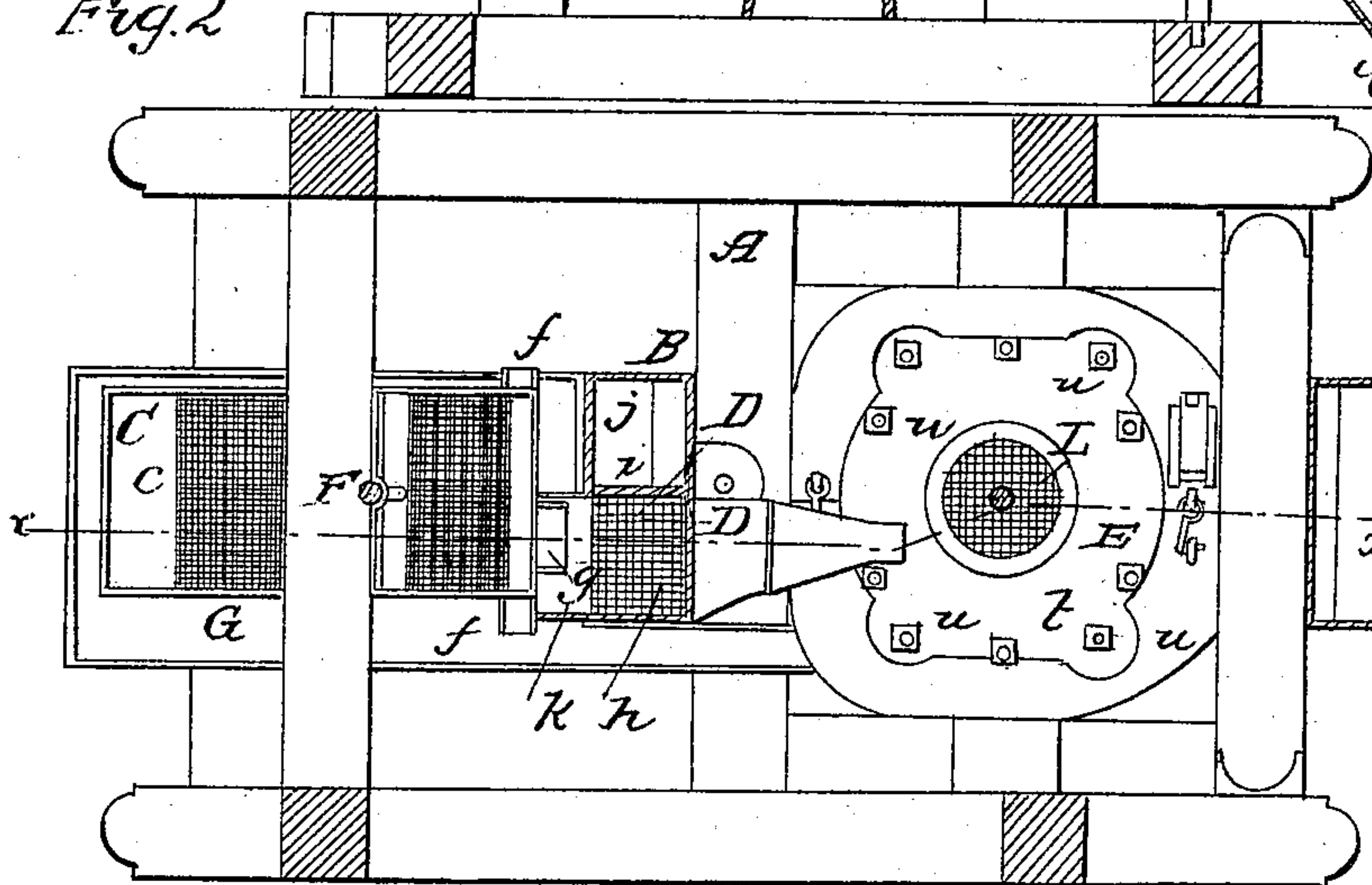
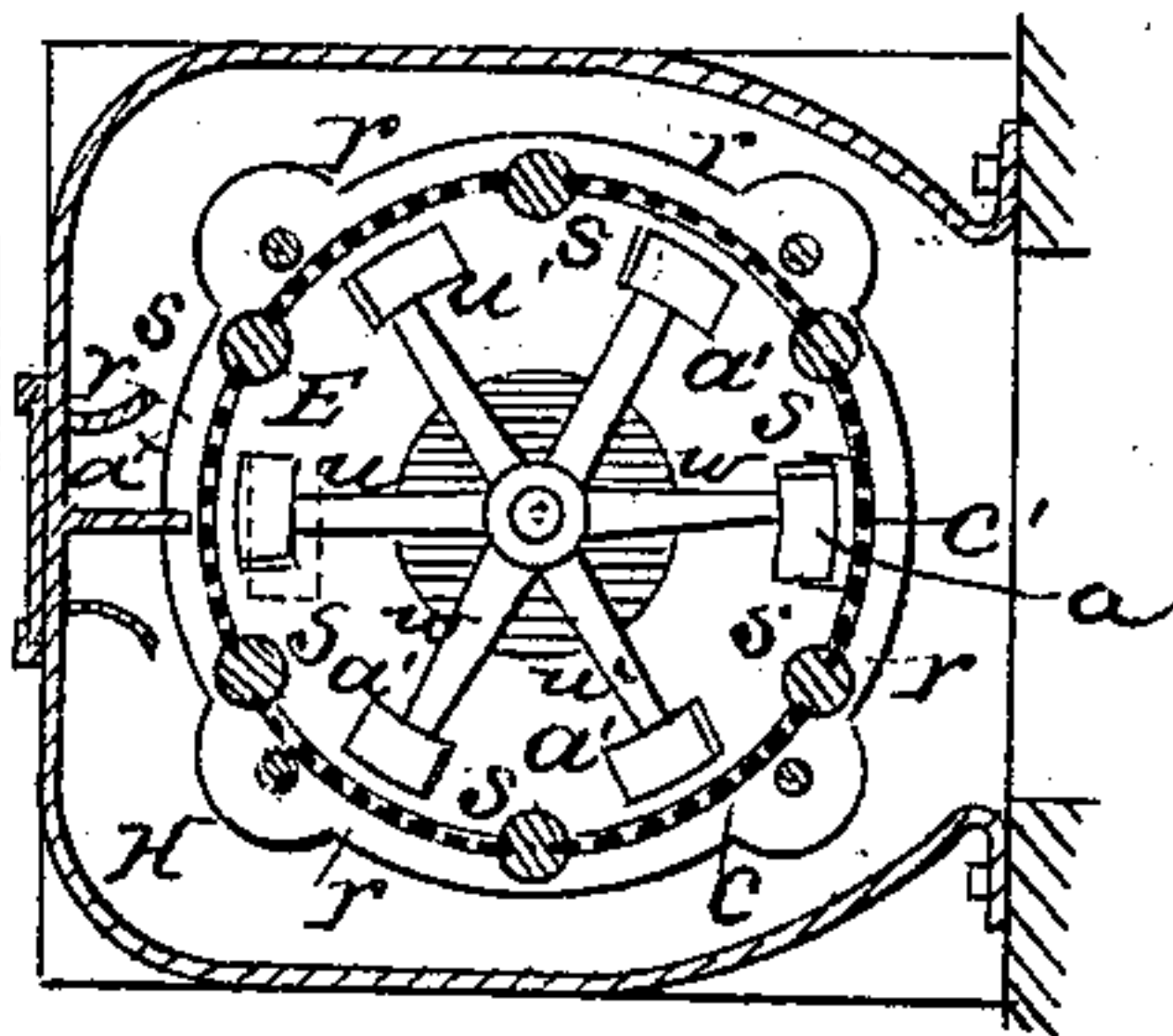


Fig. 3



WITNESSES
J. W. Coombes
C. Hughes

INVENTOR
Robert Thompson
Per Munnely
Attorneys.

UNITED STATES PATENT OFFICE.

ROBERT THOMPSON, OF EAST DAVENPORT, IOWA.

SMUT-MACHINE.

Specification of Letters Patent No. 30,994, dated December 18, 1860.

To all whom it may concern:

Be it known that I, ROBERT THOMPSON, of East Davenport, in the county of Scott and State of Iowa, have invented a new and Improved Smut and Grain-Cleaning Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical longitudinal section of my invention, the plane of section being indicated by the line *x, x*, Fig. 1. Fig. 2, a horizontal section of the scourer, taken in the plane indicated by *y, y*, Fig. 1. Fig. 3, a horizontal section of the whole machine *z, z*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to effect a more thorough separation than usual by screening, of the large foreign impurities in the grain and also to more thoroughly separate, oats from wheat, the latter grain frequently containing much of the former to the great detriment of the flour manufactured from it.

The invention also has for its object a more thorough separation than usual by a blast, of the light foreign impurities which the grain may contain and also a more thorough cleansing by scouring of smut and other impurities which may adhere to the grain and require to be detached and broken or pulverized.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a rectangular frame which may be constructed in any proper way to support the several parts of the machine.

B, is an inverted U-shaped trunk, which is placed in the frame A, and forms the blast spout of the machine.

In the upper part of the frame A, there is suspended by chains *a*, a shoe C. This shoe is of rectangular form and is suspended by a chain *a*, from each corner, the chains being attached to shafts *b*, in the upper part of the frame A. The shoe C, is provided with three screens *c, d, e*, the upper one *c, d*, being coarse enough to allow wheat to pass through, but the lower one *e*, is fine enough to prevent the wheat from passing through, but allowing small seeds to escape. The upper screens *c, d*, have each a discharge spout

f, at their lower or depressed ends, said spouts projecting from the sides of the shoe. The lower-most screen *e*, is provided with a discharge spout *g*, which projects over the orifice of a grain-passage D, which extends across the blast spout B, and conducts the grain from the screen *e*, into the scouring device E hereinafter described. The bottom of the grain-passage D, where it passes through the spout B has a wire cloth bottom *h*, as shown clearly in Fig. 1. The grain passage D, does not extend across the whole width of the spout B, only about half way—a partition *i* dividing this portion of the screen into two parts *j, k*, and extending up to the grain passage D.

The shoe C, has a cross bar *l*, extending across its upper part and into this cross bar the lever end of a crank *m*, is fitted, said crank being at the lower end of a vertical shaft F, in the upper part of the framing. See more particularly Fig. 1.

Directly below the shoe C, there is placed a hopper G, which catches the small seeds that pass through the screen *e*, the seeds by means of a spout *n*, being conveyed to any proper receptacle or to the interior of the case H, of the scourer.

The upper part of the trunk B, is provided with a chamber or hopper I, as shown clearly in Fig. 1. This chamber or hopper has a double inclined bottom *o, o*, so that its contents will naturally settle toward a flap *p*, at their lower ends as shown clearly in Fig. 1. Just below the flap *p*, there is an incline spout J.

The lower part of one side of the spout B, communicates with a fan box K, and just below the fan box at the lower end of the spout there are doors *q*.

The scouring device E, is formed of a cylinder composed of a series of segment plates *r*, having their edges fitted in grooves in vertical rods *s*, the upper and lower ends of which pass through plates *t, t*, and have nuts *u*, on them the plates *t*, forming the top and bottom of the cylinder and having circular openings at their centers covered by wire cloth *v*. The cylinder formed by the segment plates *r*, is encompassed by the case H, which communicates at one side with the spout B, as shown clearly in Fig. 1.

The segment plates *r*, of the scouring device, are slotted vertically, and through the center of the cylinder, fan box, and also through the upper part of the spout B, a

vertical shaft L, passes. To this shaft L, the fan M, in the box K, is attached. This fan may be constructed in the usual way and therefore does not require a minute description. To the shaft L, and within the cylinder formed of the plates *r*, there are attached horizontal arms *u*, to the ends of which oblique beaters or wings *a'*, are attached.

The cylinder of the scouring device is divided into two compartments by a horizontal plate *b'*, and the two compartments are made to communicate with each other by an opening *c'*. There is a set of beaters or wings *a'*, in each compartment as shown clearly in Fig. 1.

From the lower compartment of the scouring device an inclined spout *d'*, projects and this spout leads into the lower part of one side of the spout B, and within the spout B, at a point a little below the junction of the spout *d'*, with it there is placed an inclined plate *e'*, the object of which will be presently stated.

The operation is as follows: The shaft L, is rotated by any convenient power and from this shaft, motion is communicated to the shaft F, and a curvilinear shake motion given to the shoe C, by the crank *m*. This peculiar motion of the shoe C, is favorable to the separating of oats, sticks and the like from the grain which is fed on the screen *c*, the sticks and oats not being liable to be shaken through screens *c*, *d*, as is the case with the ordinary shake motions on account of the sudden jars and concussions which attend them. The oats, sticks, and other foreign substances too large to pass through the screens *c*, *d*, pass into the spouts *f*, and are discharged from the machine, while the grain which cannot pass through the screen *e*, will be discharged into the grain passage D and in passing over the wire screen *h* is subjected to a blast generated by the rotation of the fan M, said blast being regulated by a slide *h'*, and the loose light foreign substances drawn up the spout B, those which are too heavy to be carried entirely around fall into the chamber or hopper I, and gradually drop into the spout J, by

which they are discharged from the machine. The lighter impurities are drawn down the opposite side of the spout B, and into the fan box K, from which they are expelled by the action of the fan. By opening the doors *q*, all substances too heavy to be drawn into the fan box are allowed to escape. The grain passes through the passage D into the scourer E, and within the cylinder formed by the plates *r*, and there subjected to a scouring action from the beaters or wings *a'*, all smut being detached from the grain and broken. The revolution of the beaters or wings *a'*, generate a blast within the cylinder and the smut is blown through the perforated segment plates *r*, into the space inclosed by the case H, and from thence it is drawn through the lower part of B, into the fan box K, and expelled therefrom. The grain passes from the upper compartment of the scouring device into the lower compartment through the opening *c'*. This arrangement insures a perfect action of the beaters or wings *a'*, on the whole mass of grain. The grain passes from the lower compartment of the scourer down the spout *d'*, into the lower part of spout B, and is there subjected to a second blast from fan M, and is made to strike against an incline plate *e'*, which scatters the grain so that the blast in passing through it acts in the most efficient manner.

The strength of the blast in the case H, may be regulated at any time by means of a slide *a** fitted in its side.

I do not claim the inverted U-shaped spout B, nor any of the other parts herein described when separately considered, but

I do claim as new and desire to secure by Letters Patent—

The arrangement of the divided scouring chamber, beaters *a'*, shaft L, fan M, case H, and spout *d'*, with the spout B, chamber I, treble screened shoe C, grain passage D, hopper G and spout *n*, all as herein shown and described.

ROBT. THOMPSON.

Witnesses:

THOMAS WHITSON,
JOHN B. ROFF.