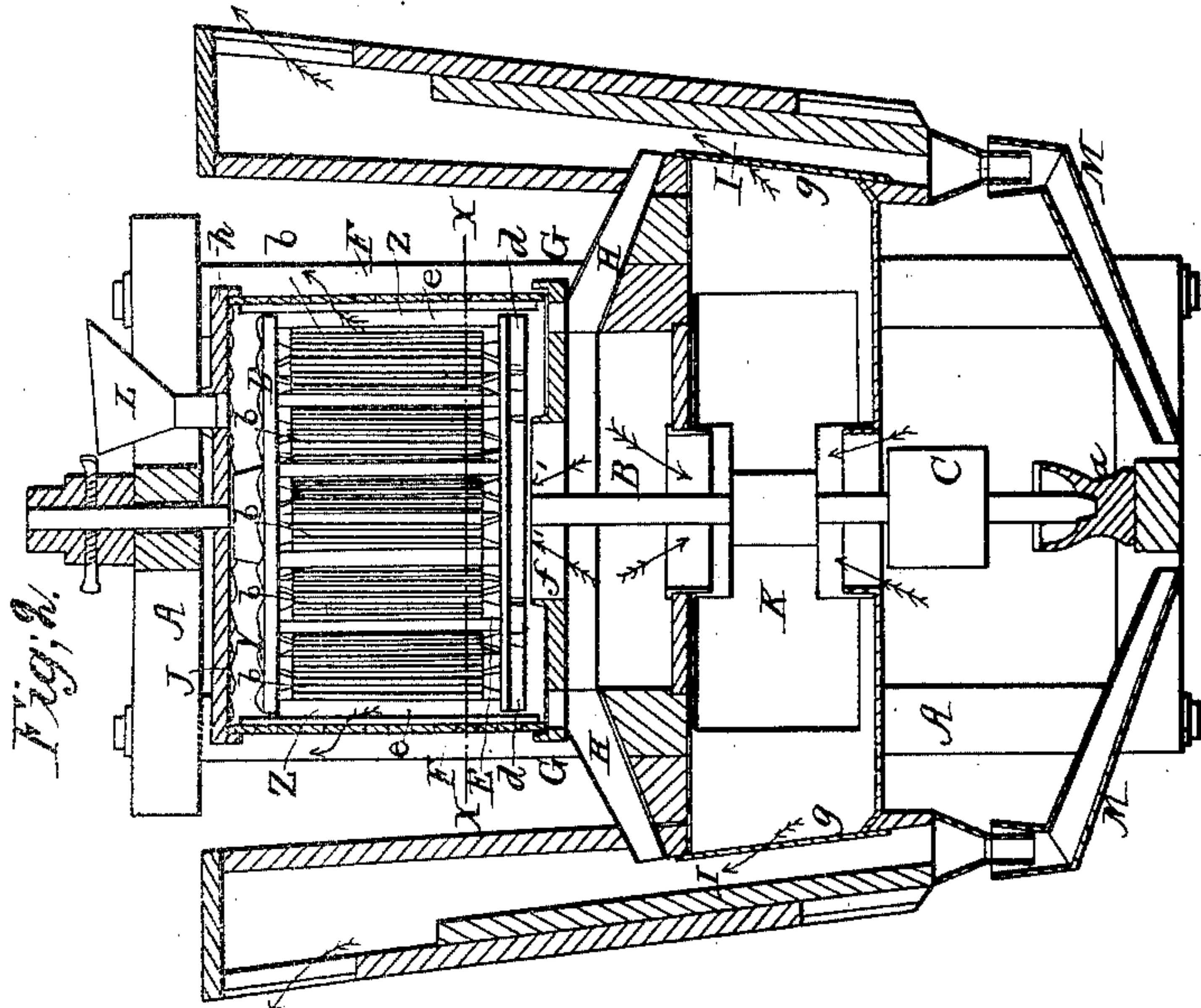


*T. B. Woodward.*

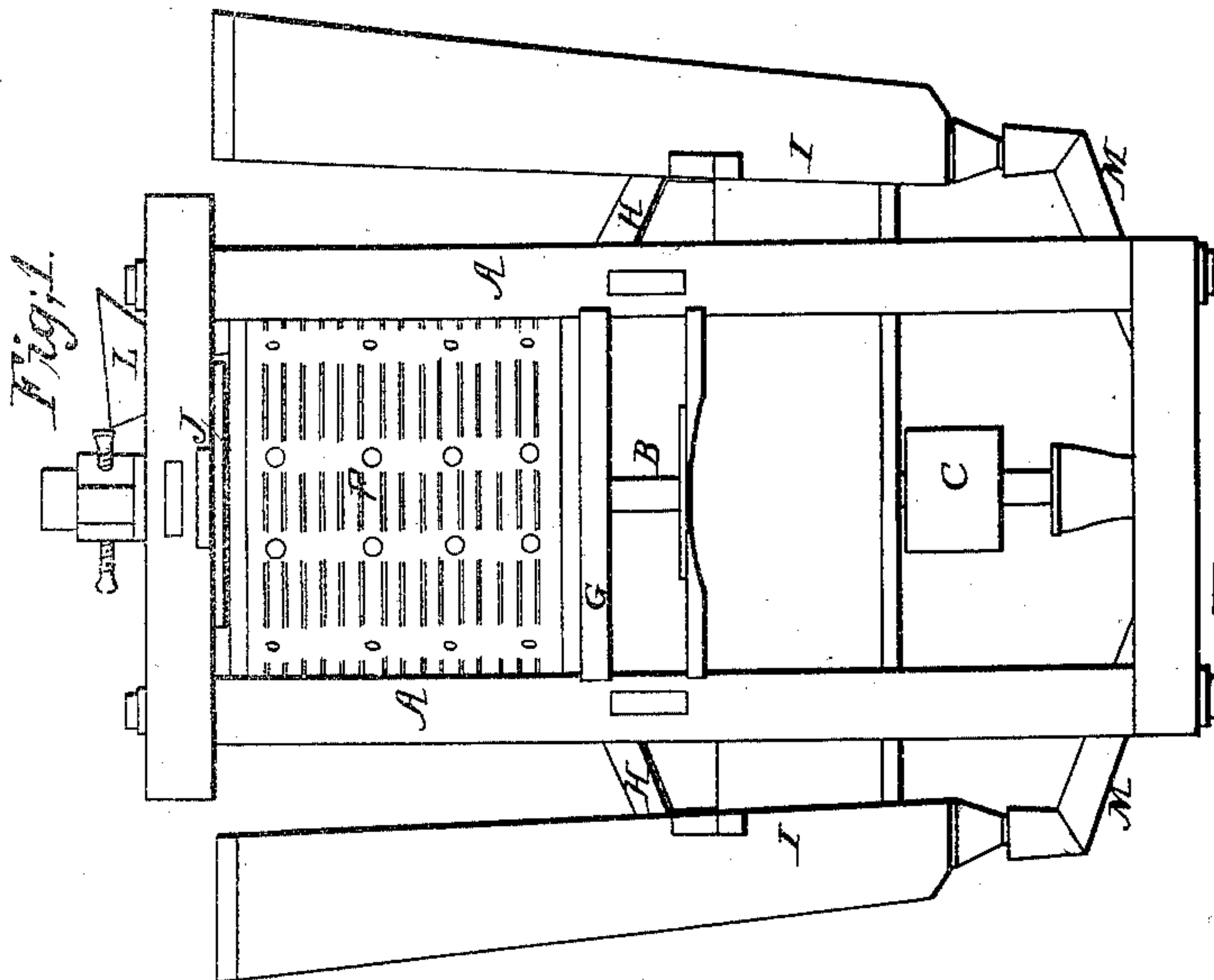
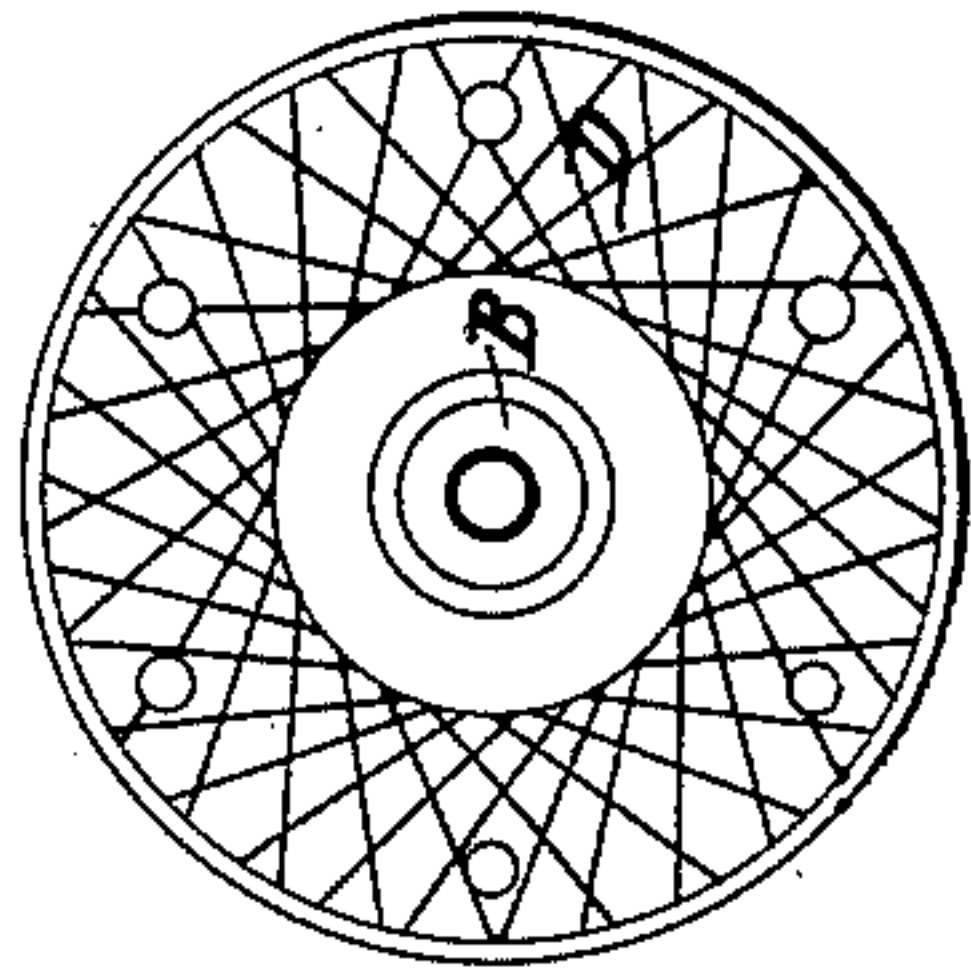
*Snout Mill.*

*N<sup>o</sup> 11,800.*

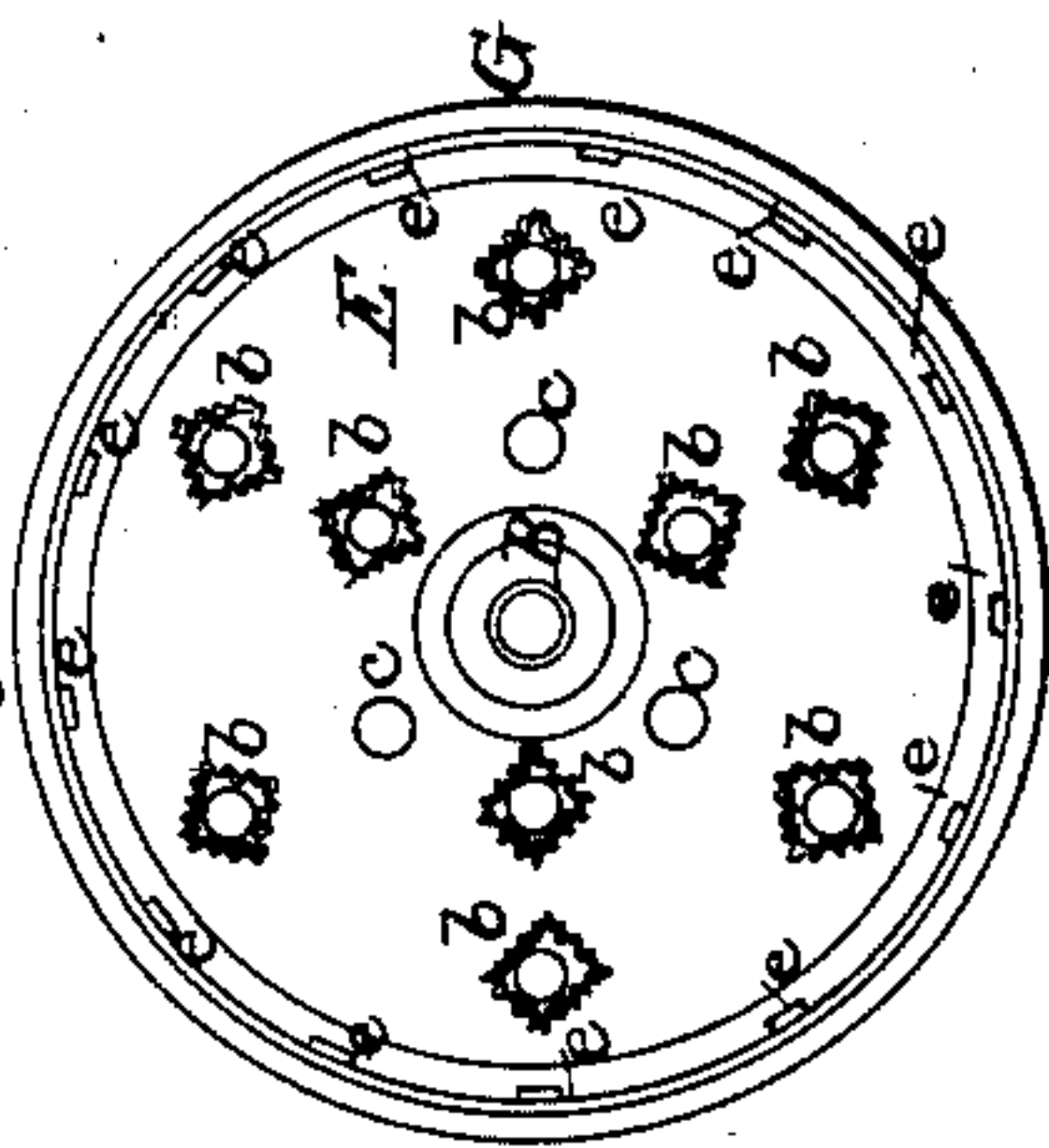
*Patented Oct 10, 1854.*



*Fig. 4.*



*Fig. 3.*





# UNITED STATES PATENT OFFICE.

THOMAS B. WOODWARD, OF KENSINGTON, PENNSYLVANIA.

## SMUT-MACHINE.

Specification of Letters Patent No. 11,800, dated October 10, 1854.

*To all whom it may concern:*

Be it known that I, THOMAS B. WOODWARD, of Kensington, in the county of Philadelphia and State of Pennsylvania, have  
5 made a certain new and useful Improvement in Smut-Machines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being  
10 had to the annexed drawings, making a part of this specification, and in which—

Figure 1, is an external view of the machine in elevation; Fig. 2, is a vertical section of the open screen or curb, fan case, and  
15 wind passages, the ventilating cylinder, fan and shaft not being bisected; Fig. 3 is a horizontal section of the ventilating cylinder and screen, or curb, taken at the line X, X, Fig. 2; Fig. 4 is a plan or top view  
20 of the upper disk of the ventilating cylinder.

To enable others skilled in the art to make and use my invention, I will proceed to describe fully its construction and operation.

A, represents the frame of the machine,  
25 having a vertical shaft B, in the center on which is placed the driving pulley C, Figs. 1, and 2, the shaft being stepped at (a). On this shaft B, is placed the ventilating revolving cylinder formed by bolting or securing  
30 in any proper manner the fluted columns (b) between the two horizontal disks or heads D, E, see Fig. 2. There are nine columns represented in the drawings but I do not confine myself to any particular number. Six columns are placed about equal  
35 distances apart near the edges of the two disks or heads, and the other three are placed nearer the center of the heads or disks. By referring to Fig. 3, an exact idea  
40 will be formed of the manner in which the columns are constructed and placed in the cylinder. The columns are about square and are each composed of two angle plates, 1 and 2, corrugated, ribbed, or fluted, as represented. The sockets in the plates D and  
45 E for the reception of the columns, keep the two parts of each column together in the proper relative position. One angle of the square of each column faces outward; this is  
50 so arranged that the columns as the cylinder revolves will create a blast and also act more efficiently upon the grain. The columns may be constructed of chilled cast iron. The upper disk or head D, has grooves cut in its  
55 upper surface or face, the grooves being so

arranged as to form diamond shaped projections, in Fig. 4. The grooves are represented by straight lines. The lower disk or head E, has three circular openings (c) (c) (c) through which air passes into the cylinder.  
60

F, is the perforated curb, Figs. 1, 2, and 3, this curb encompasses the cylinder and is perforated with oblong openings, the lower end of the curb rests on the edge of a circular plate G, see Fig. 2, said plate having  
65 a flanch turned up on its edge, the end of the curb being within the flanch the plate G, rests on cross pieces of the frame and has a circular opening f, at its center, there is a  
70 space between the under surface of the lower disk or head E, and the upper surface of the circular plate G, and there are radial arms (d) on the under surface of the disk or head E, which serve to sweep off the grain that  
75 falls on to the plate G, and passes it down the spouts H, H, into the blast spouts I, I; on the upper end of the curb F, there is fitted a circular plate J, which is grooved on its  
80 under surface or face similar to the upper surface or face of the disk or head D, shown in Fig. 4, it will be seen that there is a space between the under surface of the plate J, and the upper surface of the head or disk D, as will be seen by referring to Fig. 2,  
85 there is some space also between the inner surface of the curb and the edges of the heads or disks D, E. On the inner surface of the curb F, are bolted at equal distances apart vertical ribs or projections (e) Figs.  
90 2, and 3.

K, is a horizontal fan inclosed within a suitable case and placed a short distance below the revolving cylinder, the fan is hung  
95 on the vertical shaft B, a blast of air is directed from the fan into each of the blast spouts I, I, a piece of wire cloth or a sieve (g) being placed over the entrances or passages that lead into the blast spouts which  
100 prevent the grain from falling into the case of the fan. See Fig. 2.

The several parts are now described, and the operation of the machine will be shown, the grain is placed in the hopper L, motion  
105 being first given the vertical shaft B, which of course causes the cylinder, and fan to rotate, the grain passes from the hopper through the opening (h) in the plate J, and passes between the plate J and the upper  
110 head or disk D, into a chamber Y the under



surface of the plate J, and the upper surface of the head or disk D, which form the top and bottom of the chamber Y, being grooved as already shown, the grain is scoured, by the rotary motion of the disk D, the dust being loosened and the smut broken, the grain then passes down between the curl F, and the disk D, into a heating chamber z in which the fluted columns (b) act upon the grain throwing it against the ribs or projections (e) from which it rebounds and is again acted upon by the columns, the column as the cylinder rotates creating a blast of air which enters the cylinder through the circular openings (c) (c) (c) see arrows, 1, the blast blowing out the dust and smut through the perforated curb, the grain then falls upon the plate G, from which it is swept by the radial arms (d) into the spouts H, H, the upper ends of these spouts passing through the plate G, and being flush with its upper surface, the grain then enters the blast spouts I, I, the blast from the fan K, cleansing further the grain as it passes through the blast or current of air, the grain is conveyed into the proper receptacle by the spouts M, M, which are attached to the lower ends of the blast spouts.

This smut machine is capable of cleansing wheat, rye, and all kinds of grain that may be cleaned by other machines in use, doing its work in a perfect and effectual manner, the fluted columns facilitate greatly the cleansing of the grain, beating and pulverizing the smut and at the same time creating a blast by which it is driven out of the cylinder, the grain also in passing through the blast created by the fan is further cleansed, and when conveyed into the proper receptacle is deprived of all dust and impurities.

Having thus described my improved smut machine, what I claim therein as new, and desire to secure by Letters Patent, is—

Covering the apertures by which the air is discharged from the fan case into the side pipes, with grates (g) to temper and diffuse the blast, prevent the grain from getting into the fan case and being broken by the fans, and retarding the machine by the friction it produces.

THOS. B. WOODWARD.

Witnesses:

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JAMES WARK,  
ABRAM G. YOUNG.