

# MARSHMAN & FOULKE.

## Smut Machine.

No. 22,128.

Patented Nov. 23, 1858.

Fig. 1.

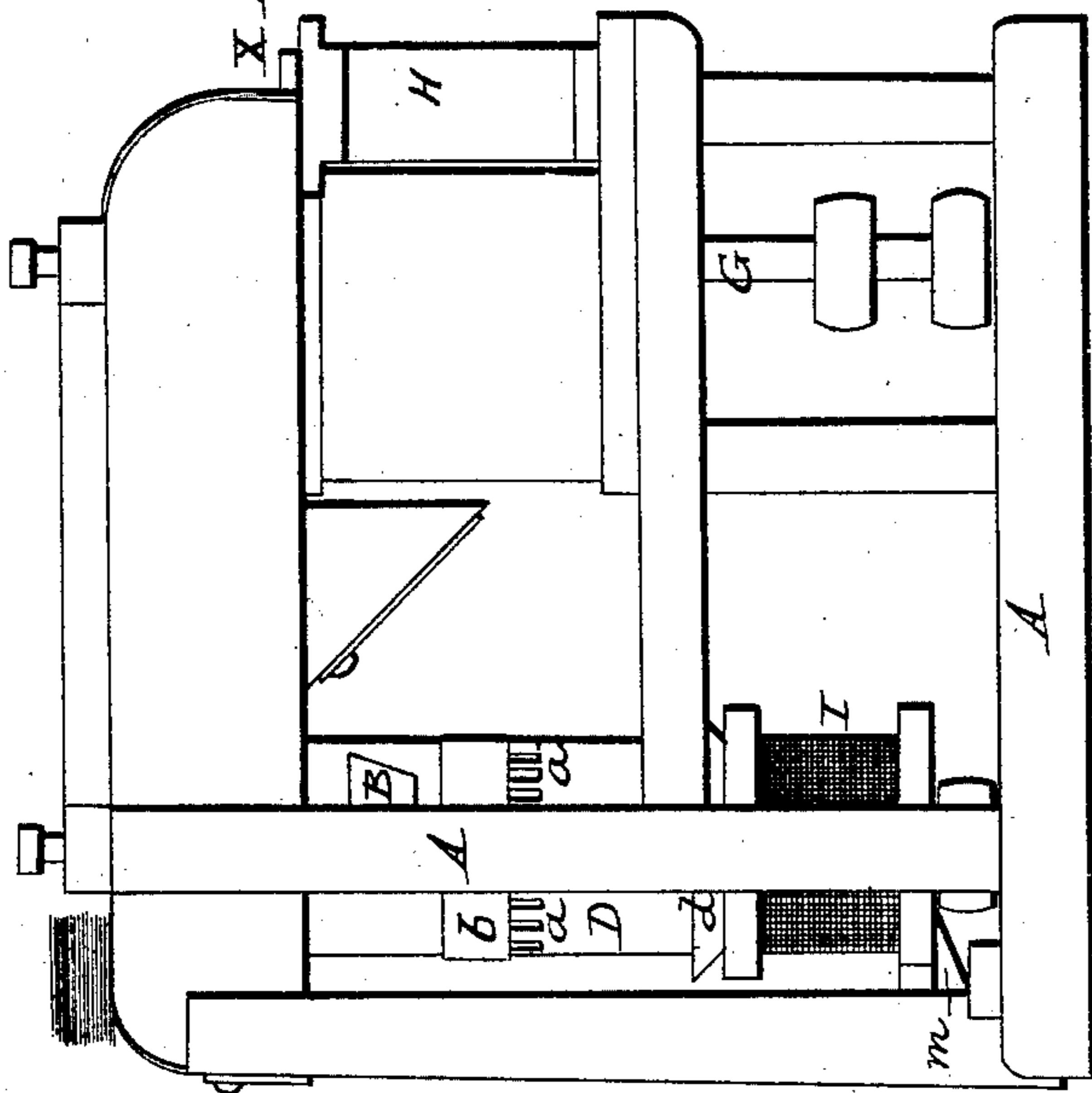


Fig. 2.

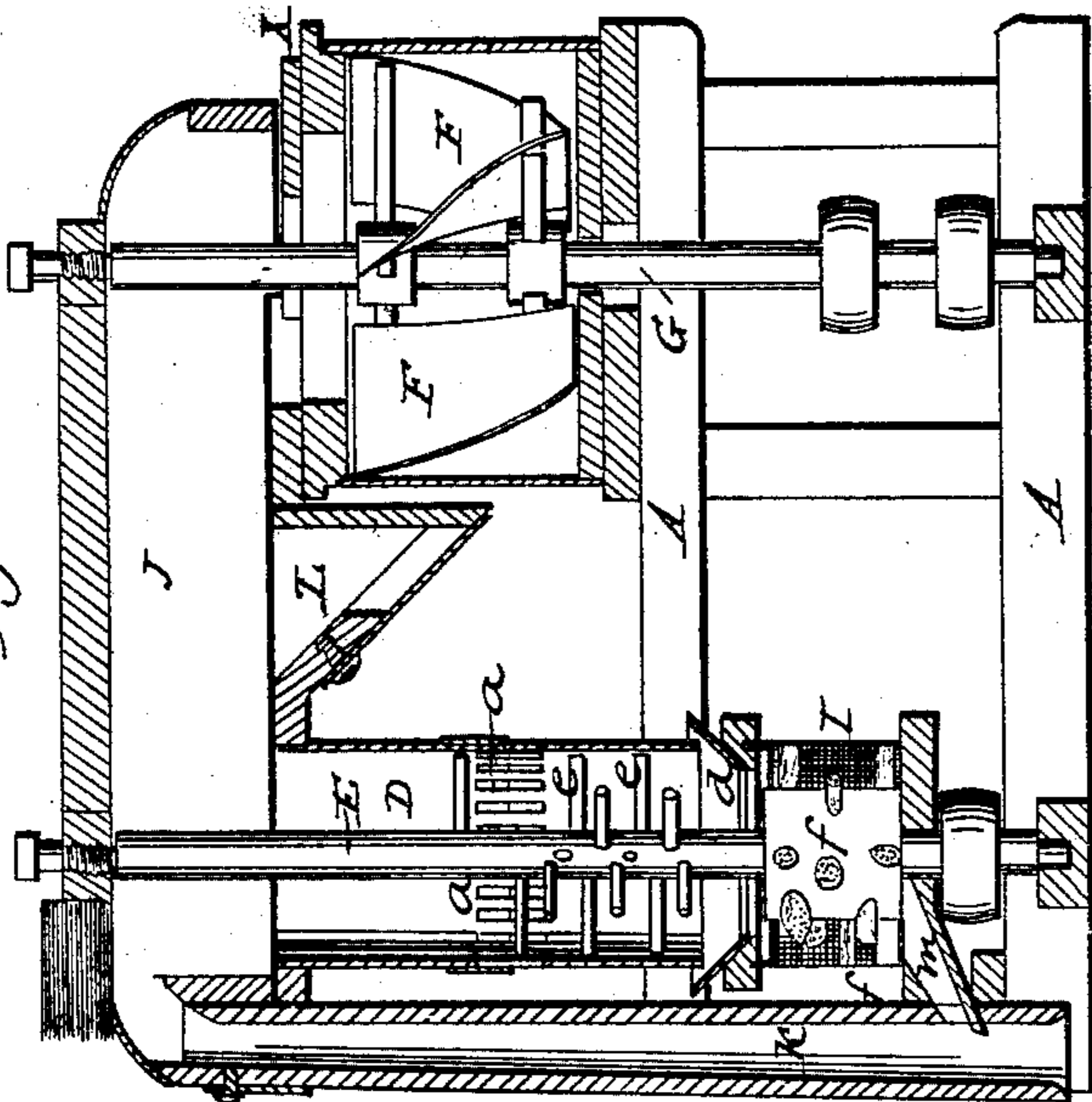
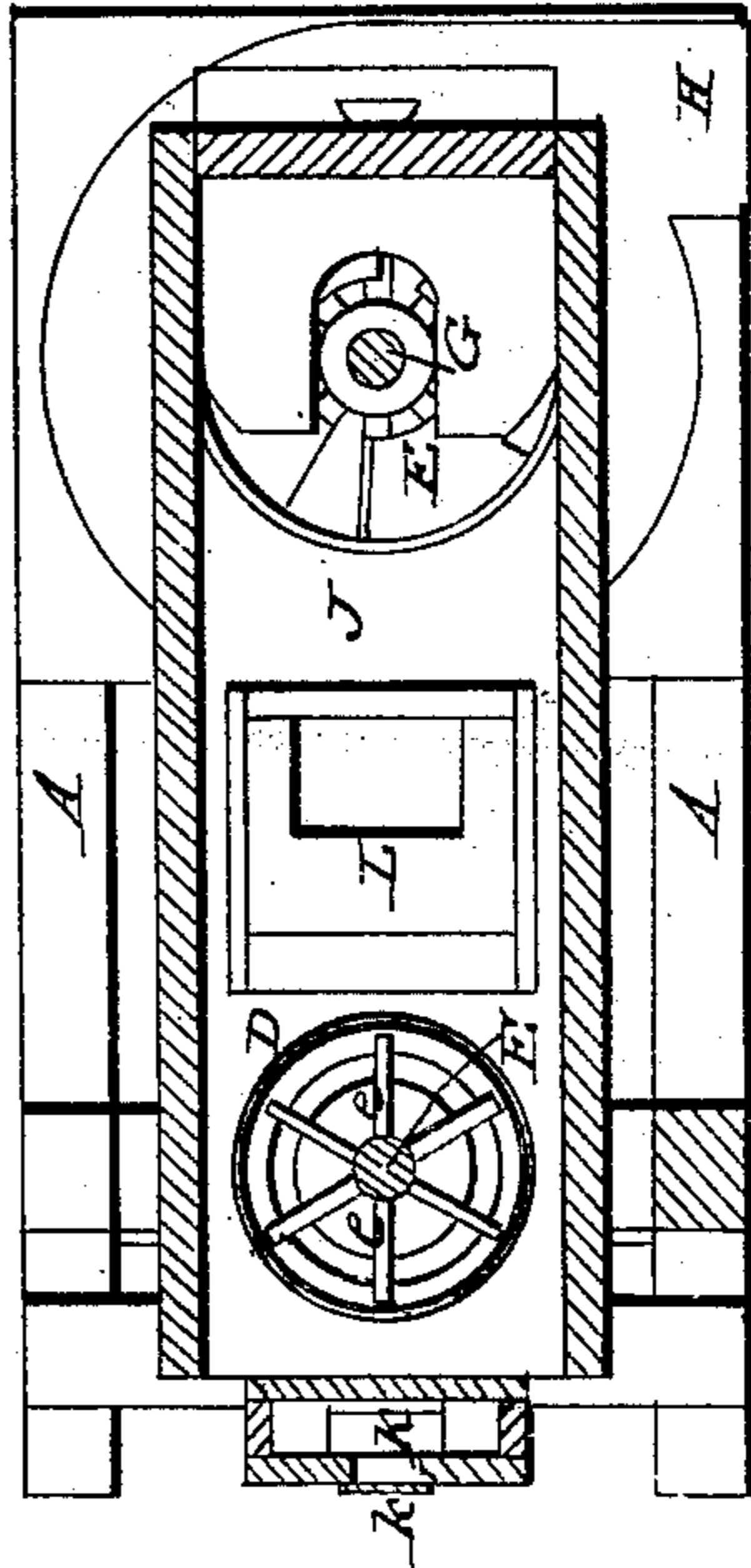


Fig. 3.



# UNITED STATES PATENT OFFICE.

H. MARSHMAN AND C. F. FOULKE, OF CARLISLE, IOWA.

## SMUT-MACHINE.

Specification of Letters Patent No. 22,128, dated November 23, 1858.

*To all whom it may concern:*

Be it known that we, HUGH MARSHMAN, and CHARLES F. FOULKE, of Carlisle, in the county of Warren and State of Iowa, have  
5 invented certain new and useful Improvements in Smut-Machines or Machines for Cleaning Grain, the construction and operation of which we have described in the following specification and illustrated in the accompanying drawings with sufficient clear-  
10 ness to enable competent and skilful workmen in the arts to which it pertains or is most nearly allied to make and use our invention.

15 Our said invention consists first in the peculiar arrangement of certain parts below the beaters, by which a more thorough and efficient action of the blast is obtained upon the grain, as hereinafter described and represented in the drawings. Second in the arrangement of parts described by which an  
20 accelerated motion is given to the upper strata of air in the horizontal trunk, through which the current of air which rises from the casing D, passes, by which a better and more  
25 full separation of the light grains from the chaff and smut is effected as hereinafter more fully set forth.

In the accompanying drawings Figure 1,—  
30 is a side elevation of our improved smut machine. Fig. 2.—is a longitudinal vertical section. Fig. 3.—is a horizontal section showing the parts below the line X, X, as drawn across Figs. 1, and 2.

35 A A is the frame work of the machine.

B is the hopper, from which the grain is fed into the cylinder or casing D, where it comes in contact with the beaters *e*, on the shaft E, and where it is also subjected to  
40 a powerful upward blast produced by the fans F on the shaft G. Immediately after the grain leaves the hopper, it falls into this upward current of air, a portion of which is admitted through the slots or openings *a a*,  
45 and this portion of the current is controlled by the adjustment of the ring *b*. As the grain descends, it is operated upon by the beaters, and as it passes below them, is delivered through the opening *d*, after passing  
50 which, it is driven by the brushes *f*, against the cylinder or wire screen casing I; the elasticity of the brushes and their fibrous nature serving to keep the grain up to the screen, more effectually than the common  
55 beaters would do. As this is the last cleaning action to which the grain is subjected,

before it leaves the machine, it is important that the casing or concave against which it is here forced, should be kept as free from smut and other impurities as possible. To  
60 accomplish this purpose, we make the brushes long enough to operate upon the screening or casing and brush off all the adhering particles, which are immediately carried up by the current of air. The combination of the  
65 wire screen with the brushes is peculiarly adapted to this service, as both possess considerable elasticity, which is important in this arrangement. By this arrangement and construction of parts, we are enabled to keep  
70 the parts with which the grain comes in contact in the final portion of the operation, constantly clean, besides securing a more perfect contact with the wire casing than would be given by the ordinary beaters. 75

The blast of air necessary to remove the light particles, is produced by the spiral fan wheel F, as before stated and the air, and the particles carried with it are discharged through the spout H. The power of this  
80 blast is such as to draw the air into the casing D, at every place where there is an opening to admit it. Just above the opening *d*, the air is admitted below the casing in a partially downward direction, by  
85 which it is made to mingle more effectually with the grain, especially when it is considered that the grain is drawn a little inward in passing through the opening. The upward tendency of the blast inside of the cyl-  
90 inder however, soon turns this entering current to an upward direction, and the inward and upward direction of the air which is coming up through the opening *d*, uniting at this point with the current which is ad-  
95 mitted immediately below the casing D, acts in a peculiarly happy and effective manner in thoroughly separating the light particles from the grain. An additional current is also admitted into the box J,  
100 through the spout K, and this current may be somewhat varied by changing the position of the damper or register *k*.

L, is a box to catch the light grain.

It will be observed that the introduction  
105 of an auxiliary current of air through the spout K, into the upper part of the trunk or box J, has a tendency to give an accelerated motion to the upper strata of air in the box, and this will naturally draw the light par-  
110 ticles into it while the heavy particles will subside into the strata below, and finally

fall into the chess box L, thus producing a better separation of the light grain from the smut and chaff, than would otherwise be obtained; the grain after being cleaned 5 is discharged through the spout *m*.

We are aware that air has been admitted into various parts of grain cleaning machines and may have been in the upper portion of the spout through which the grain 10 is discharged and a part of the blast admitted, but we are not aware that a blast of air has been so arranged on reference to a horizontal trunk through which the chaff and light grains have to pass as to give an 15 accelerated blast in the upper portion or strata of the air in the trunk when compared with the speed of that in the lower portion of said trunk in the manner described by us by which the light grains are 20 more effectually separated as above set forth.

The particular improvements which con-

stitute our said invention, and which we claim as having been originally invented by us are—

1. The combination and arrangement of 25 the casing D, and funnel mouthed opening, *z*, the parts being so arranged in relation to each other as to at the same time give a converging descent to the grain and an inward partially downward blast, 30 through it at that point.

2. The introduction of an auxiliary blast into the upper portion of the horizontal trunk J, as described by which a more perfect separation of the light grain is secured 35 as set forth.

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C. F. FOULKE.

Witnesses:

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ALEXANDER ROBERTS.