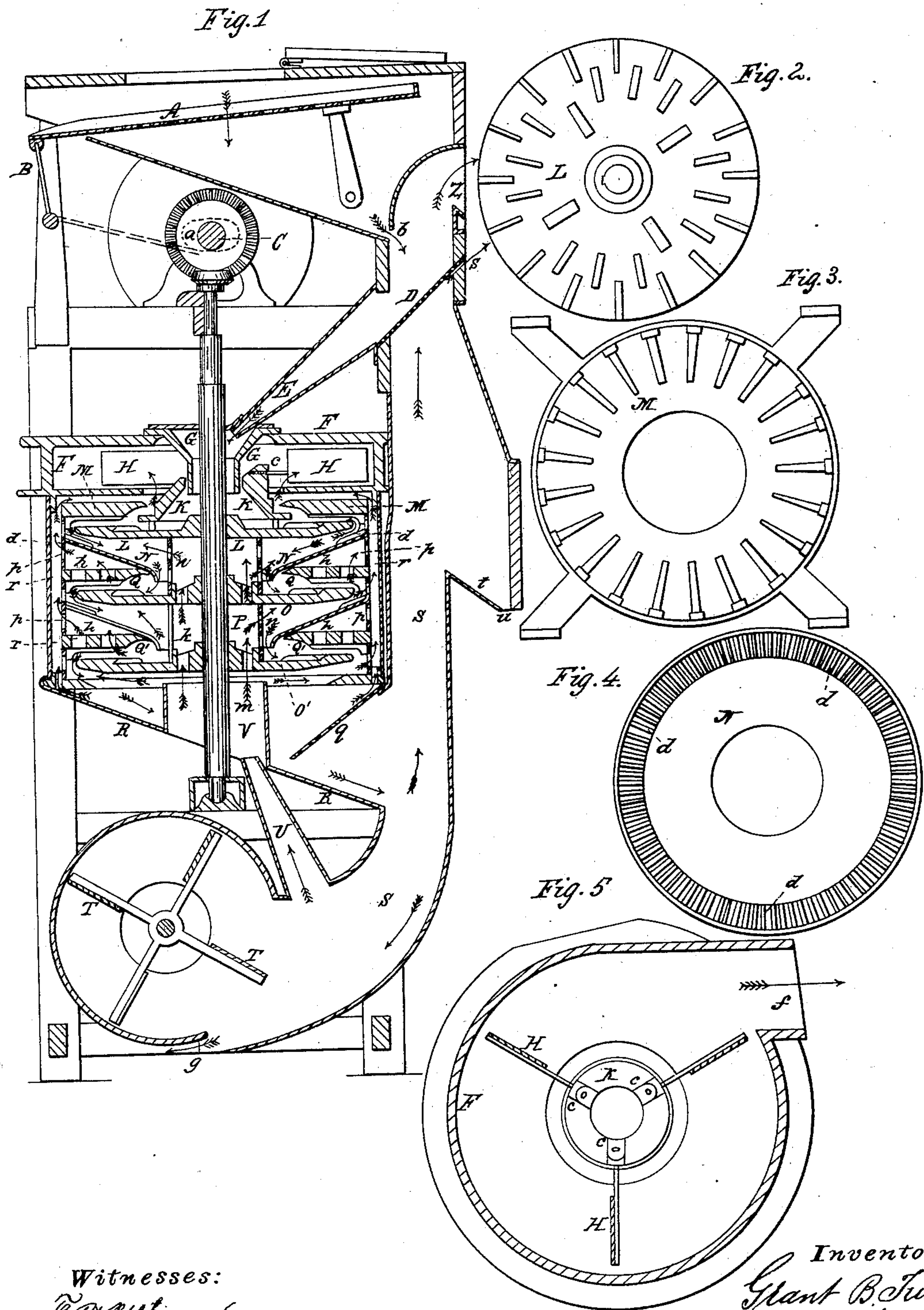


G. B. TURNER.

Smut Machine.

Patented May 1, 1860.

No. 28,117.



Witnesses:
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UNITED STATES PATENT OFFICE.

GRANT B. TURNER, OF CUYAHOGA, OHIO.

SMUT-MACHINE.

Specification of Letters Patent No. 28,117, dated May 1, 1860.

To all whom it may concern:

Be it known that I, GRANT B. TURNER, of Cuyahoga, in the county of Summit and State of Ohio, have invented certain new and useful Improvements 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 had to the accompanying drawings, in which—

Figure 1, represents a vertical central section through said smut machine. Figs. 2, 3, and 4, represent top views of the scouring plates and disks. Fig. 5 represents a horizontal section through the suction fan case of the machine.

In the smut machines in which the scouring apparatus consists of a series of horizontal scouring plates and disks, which latter are secured to, and turn on a vertical shaft, it has been found to be a great improvement to use a suction fan for the purpose of drawing the dust and finer impurities upward, and to discharge them from the machine, this suction fan is aided in its operation by a fan blower which forces a blast upward, and through the scouring apparatus which latter is thus between the two fans, which work in conjunction with each other. The difficulties in using this arrangement consist in feeding the grain through the fan case of the suction fan, and in the fact that the blast from the lower fan prevents the free discharge of the grain from the scouring apparatus; my invention relates to improvements by which these difficulties are obviated, and it also relates to the peculiar construction of the scouring plates, and disks by which the operation of scouring is greatly facilitated.

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

The grain to be scoured is fed to the screen A, which is vibrated by the shaker B, the latter being operated by the cam *a*, which is secured to the main shaft C. The grain and the finer impurities pass through the screen A, while the coarser impurities pass off at the lower end of said screen. The grain passes in the direction of the red arrows through the passage *b*, down on to the sieve D, through which the finer impurities pass, while the grain slides down the spout E, and into the hopper G. The circular flange

of this hopper rests on the top plate of the fan case F, which contains the horizontal fan H.

K represents the hub of this fan; it is of a conical shape, and the wings H, are secured to its projections *c*. The hub K, is secured to the upper scouring disk L, in such a manner that a space is left between the two, through which the grain can pass on to the scouring disk L, which is secured to the shaft P, where by the revolution of said disk, it is subjected to the first scouring operation by the action of the scouring surface of the disk L, against that of the stationary plate M. Thus it will be seen that the grain passes from the funnel E, through the stationary funnel G which extends down into the revolving hub K, of the suction fan H, without in the least obstructing the operation of said fan or meeting any obstacles in its passage down to the disk L; the grain, by its centrifugal force passes over the edge of the scouring disk L, and down on to the stationary disk N, where it is thrown against the scouring surface *d*, of said disk, and thence drops down in the direction of the red arrows, on to the second scouring disk O, which is also secured to the shaft P, by which it is acted upon in a similar manner, as by the disk L; the stationary plates Q and Q', against which the disks O, and O' operate are perforated with a number of holes *h*, so that while the grain is being operated upon between these disks, it is thrown back and forth through said holes—but as it cannot escape in any other direction, it will necessarily fall back through said holes; the effect is that the single grains are thrown with great power and velocity against each other, and are effectually scoured by the friction against their own surfaces; the grain eventually passes over the edges of the scouring disk O' and down the inclined board R, into the blast trunk S of the machine. During this time, while the grain is undergoing the operation of scouring, the fan H, being secured to the disk L, is turned with great velocity and creates a blast which passes from below upward into the fan case F, and which escapes at its mouth *f*.

The action of this blast on the grain and dust in the scouring apparatus is facilitated by the fan T, which forces a blast up into the blast trunk S, which partially passes up

into the trunk U, and thence into the trunk V, whence it enters the scouring apparatus; the passage of the blasts through said scouring apparatus, are indicated in the drawings
5 by the blue arrows; it will be seen that it strikes first the lower face of the scouring disk O' where part of it passes through the holes *m*, which are in the center part of the disks O' and O, and into the spaces *h*, which
10 are inclosed by cylindrical screens *n*, the perforations of which are sufficiently small, as to prevent any grain from passing through them, the dust which passes through them, is carried outward by the central blast,
15 passes around the edges of the plates *o*, and *o'* and through the holes *h*, of the plates Q, and Q', and partly through the perforations of the screens *p*, into the spaces *r*, and passing around the plates M, escapes into the fan
20 case F, and out through its mouth *f*, carrying out all the dust and fine impurities. The scoured grain and white caps, etc., pass down the inclined board R, and are protected in their descent against the blast of the
25 fan T, by the inclined screen *q*, the white caps are carried up into the wind trunk S, and escape through the passage *s*, while the

other heavier impurities drop down on to the inclined board *t*, and escape through the aperture *u*, and the light impurities which
30 drop on the screen D, from above are carried out through the passage Z, and the heavier scoured grain eventually passes out through the opening *g*.

Having thus fully described the nature of
35 my invention, what I claim therein as new, and desire to secure by Letters Patent is:

1. The holes *h*, in the stationary scouring plates Q and Q' for the purpose of causing the grain to pass up and down through them,
40 and thus to facilitate the operation of scouring by attrition between the grain, as well as the rubbing surfaces, substantially in the manner herein described.

2. I also claim the additional scouring
45 face *d*, on the disks N, when the same is used in combination with the stationary and revolving scouring plates, substantially in the manner, and for the purpose herein described.

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Witnesses:

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