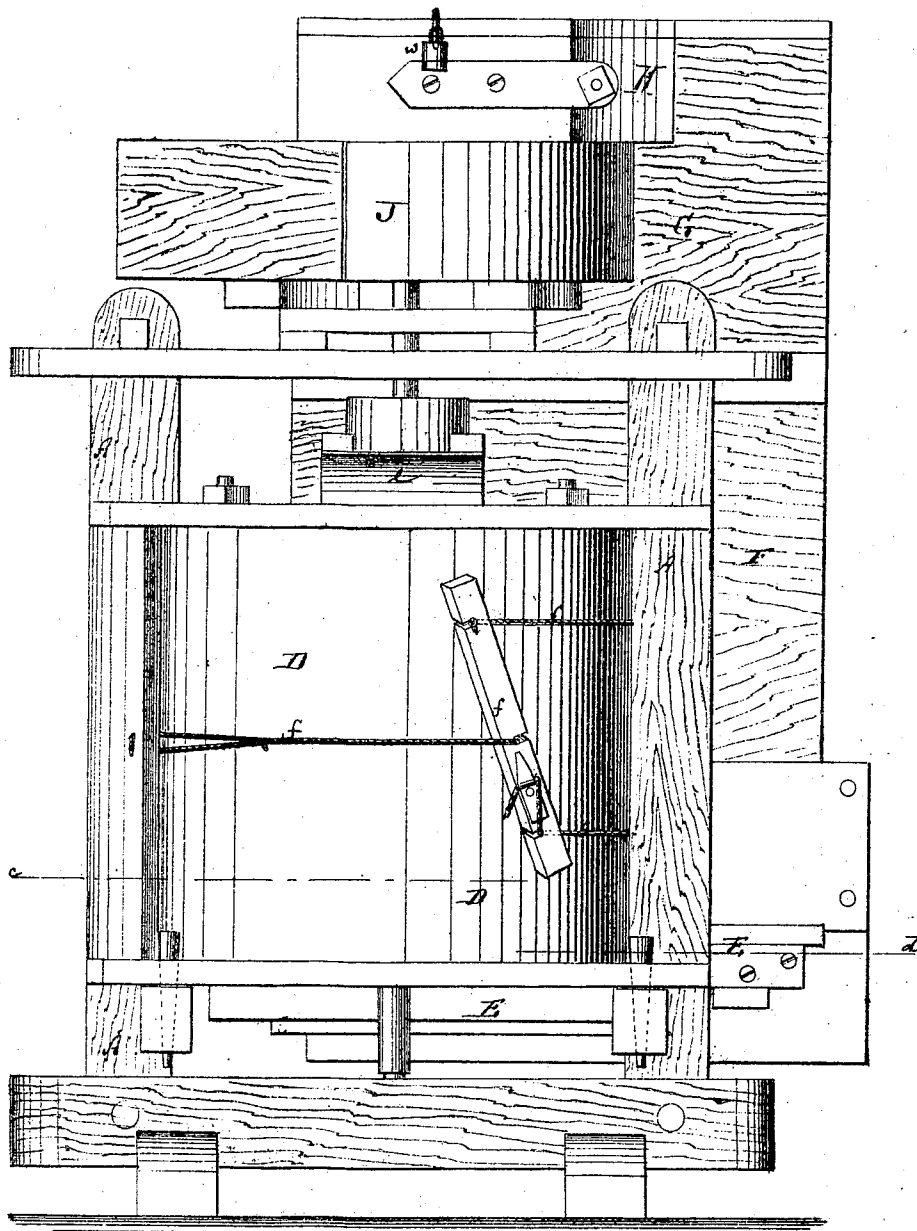


Dan Pease's Smut Mill.

118048

Fig. 1.

PATENTED AUG 15 1871



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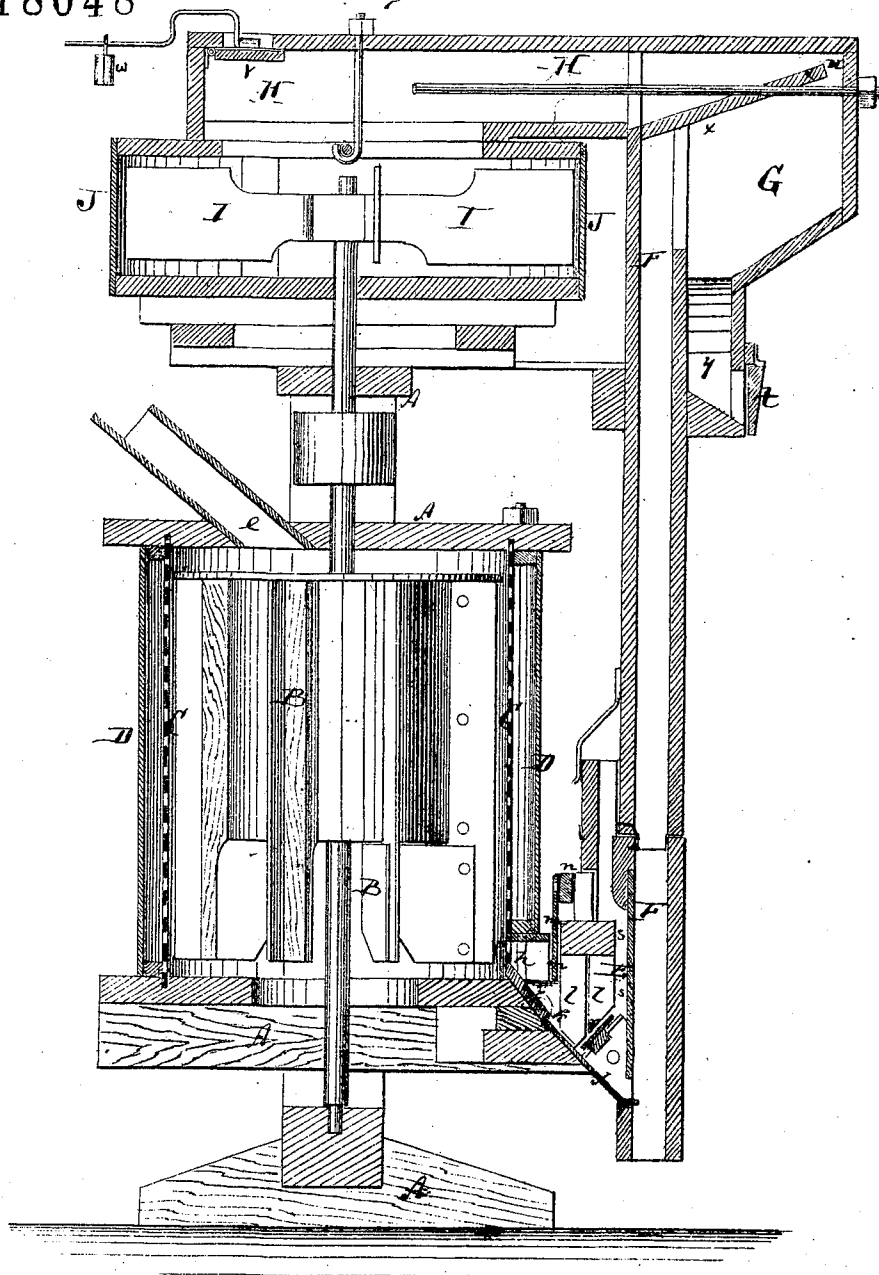
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Fig. 2.



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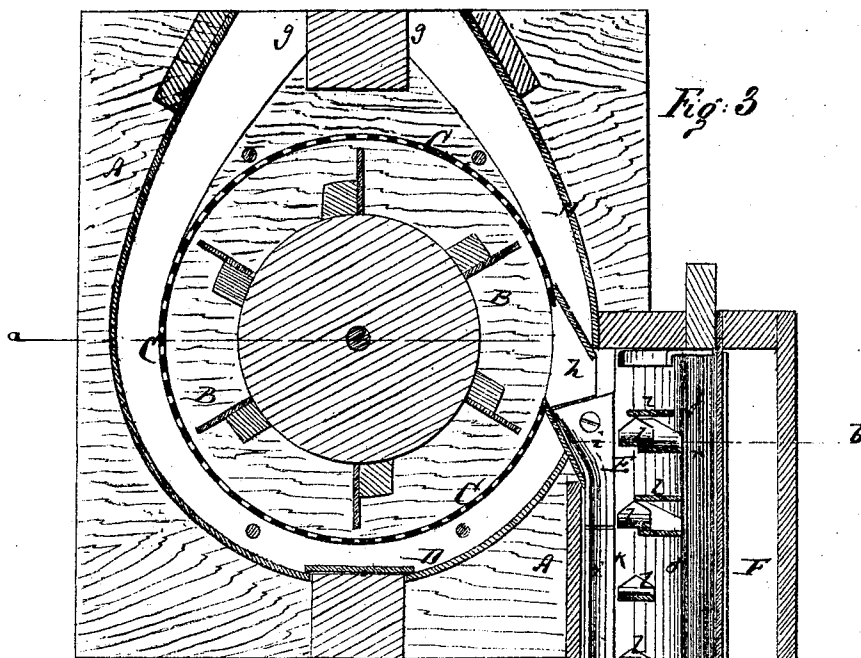


Fig. 3

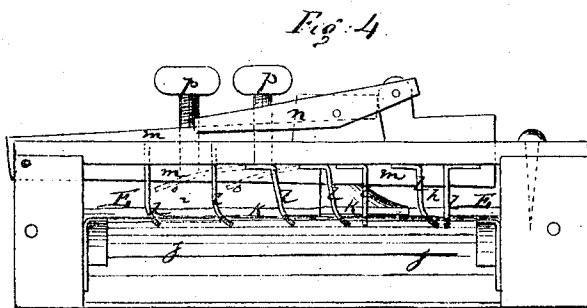


Fig. 4

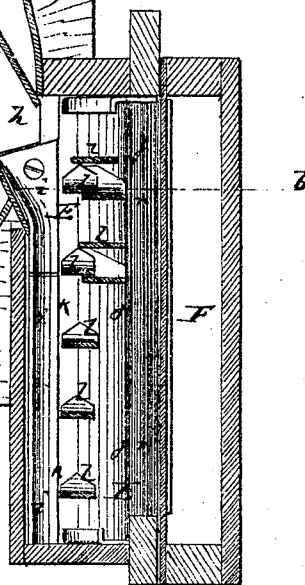


Fig. 5

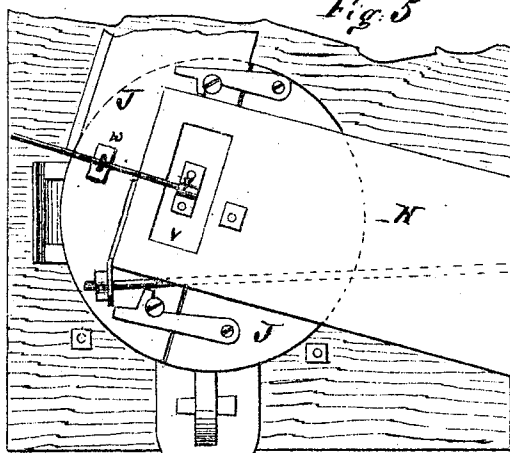


Fig. 6

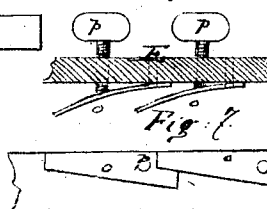
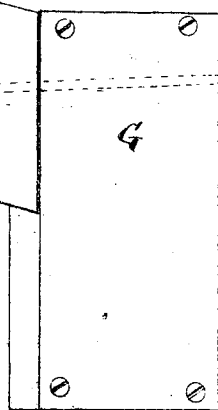


Fig. 7

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UNITED STATES PATENT OFFICE.

DAN PEASE, OF FLOYD, NEW YORK.

IMPROVEMENT IN SMUT-MILLS.

Specification forming part of Letters Patent No. 118,048, dated August 15, 1871.

To all whom it may concern:

Be it known that I, DAN PEASE, of Floyd, in the county of Oneida and State of New York, have invented a new and Improved Smut-Mill; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 represents a front elevation of my improved smut-mill. Fig. 2 is a vertical transverse section of the same on the line *a b*, Fig. 3. Fig. 3 is a horizontal section of the same on the line *c d*, Fig. 1. Fig. 4 is a detail side view of the grain-spreading portion of the mill. Fig. 5 is a plan or top view of the mill. Fig. 6 is a detail longitudinal section of the spreading-springs, and Fig. 7 is a universal plan view of the same.

Similar letters of reference indicate corresponding parts.

My invention consists in improvements in smut-mills, as hereinafter fully described and subsequently pointed out in the claims.

A in the drawing represents the frame of the improved smut-mill. B is the rotating drum, working within the stationary cylinder C in the ordinary or suitable manner, with the object of cleaning the grain that is being fed to the cylinder through a hopper, *e*, in its cover. The cylinder is perforated as usually, in order to discharge the dust through its apertures. D is a screen or shell, made of sheet metal or cast, and put around the scouring-cylinder C so as to embrace the same, as is clearly shown in Fig. 3. This shell is made in upright sections, which are drawn together or held in place by a band, *f*, or otherwise. An opening, *g*, is left in the shell for the discharge of the dust. When, hitherto, no such shell was used the dust was spread about, enveloping the entire mill. These objections are overcome by the use of the shell, which conducts all dust to a single opening, where it may discharge into a suitable chamber or receptacle. E is a horizontal conduit for conveying the grain from the bottom of the cylinder to the separating air-current. The opening *h* to this conduit is at one end, as is clearly shown in Fig. 3. The bottom of the conduit is inclined in two sections, *i* and *j*. The upper section *i*, having the end near the opening *h* twisted like a plow mold-board, is somewhat higher than the

other, forming a step or upright edge, *k*, as shown. Close to this edge—that is to say, in line with the same—are suspended from the top of the conduit a series of transverse plates, *l l*, which serve as spreaders, preventing the grain that passes along the incline *i* from rushing in a body or solid stream to the outer end of the conduit. The grain, in its course along the plate *i*, strikes the edges of the spreaders *l*, and is thereby worked apart in the desired manner. The first spreaders are wider, or doubled, as in Fig. 3, than the remainder, to arrest the rebounding grain from the other spreaders and continue the separation beyond the first plate *l*. A pivot-plate, *m*, operated by a lever, *n*, as shown in Fig. 4, is arranged in front of the plates *l*, and can be swung up or down at will to enlarge or reduce the size of the openings vertically between said plates, near the opening *h*. Above the incline *i* are suspended, from the top of the conduit, elastic plates or springs *o o*, shown by dotted lines in Fig. 4 and by full lines in Figs. 6 and 7. These springs can be let up or down by screws *p p*, and cause the grain to strike the partitions *l l* and pass to the separator, thereby producing the desired spread of the grain. If these springs were not used the grain would pass all to one end of the spreader. The springs are narrow at their free ends to fit the narrow bottom of the space in which they work. The lower end of the incline *j* discharges the grain directly into the suction-tube F of the fan. This suction-tube is upright, and connects at its upper end with an enlarged chamber, G, that communicates with a horizontal box, H, below which the fan I is hung in a case, J, all as clearly indicated in Fig. 2. The grain, chaff, and impurities, falling down on the plate *j*, enter the suction-tube F, and are there exposed to the current of air, which lets the grain drop, but elevates the chaff and light impurities. In order to reduce the work of the fan and utilize the current of air escaping with the grain and chaff from the cylinder C, I have placed a slanting plate, *r*, into the discharging-conduit, behind the spreaders *l* and above the incline *j*. A considerable portion of the grain and chaff is, by the said escape-current, carried up the slant *r*, whence the air escapes with the chaff through an opening, *s*, while the grain rolls back to the incline *j*. By this arrangement the current from the scouring-cylinder is utilized, and is also kept clear of the fan-current, so as not to interfere with the same.

The lower ends of the plates *l* are somewhat bent, as shown in Fig. 4, to guide the grain and wind upward toward the elevated plane *r*. The grain in the tube *F* is separated from the chaff and screenings and falls through the open bottom of the tube. The current takes the light matter into the chamber *G*. There it abuts against a plate, *X*, which separates said chamber from the box *H*, and precipitates the screenings, letting them fall into a spout, *Y*, and upon a valve, *t*, whence they can fall out by their own weight. The air, with the chaff, passes through a throat, *u*, into a box, *H*, thence into the fan-chamber *J*, whence it is finally discharged. In the box *H* is a valve, *V*, held closed by an adjustable weight, *w*. It serves to permit an extra supply of air to the fan, should that through the tube be insufficient, and to regulate the force of the current through the tube *F*. The rotary cylinder and the fan may be mounted upon the same shaft, or otherwise arranged in suitable manner.

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

1. The spreader-plates *l l*, arranged in the grain-passage between the scouring-cylinder and separator, as set forth.

2. The adjustable springs *o o*, provided above the incline *i*, and in combination with the plates *l l*, as specified.

3. The combination of the gate *m* with the spreaders *l* and inclines *i j*, substantially as herein shown and described.

4. The conduit *E*, constructed in two longitudinal sections, *i j*, and provided with upright edge *K*, as and for the purpose specified.

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