G. S. PECK.

Smut Mill.

No. 8,983.

Patented June 1, 1852.

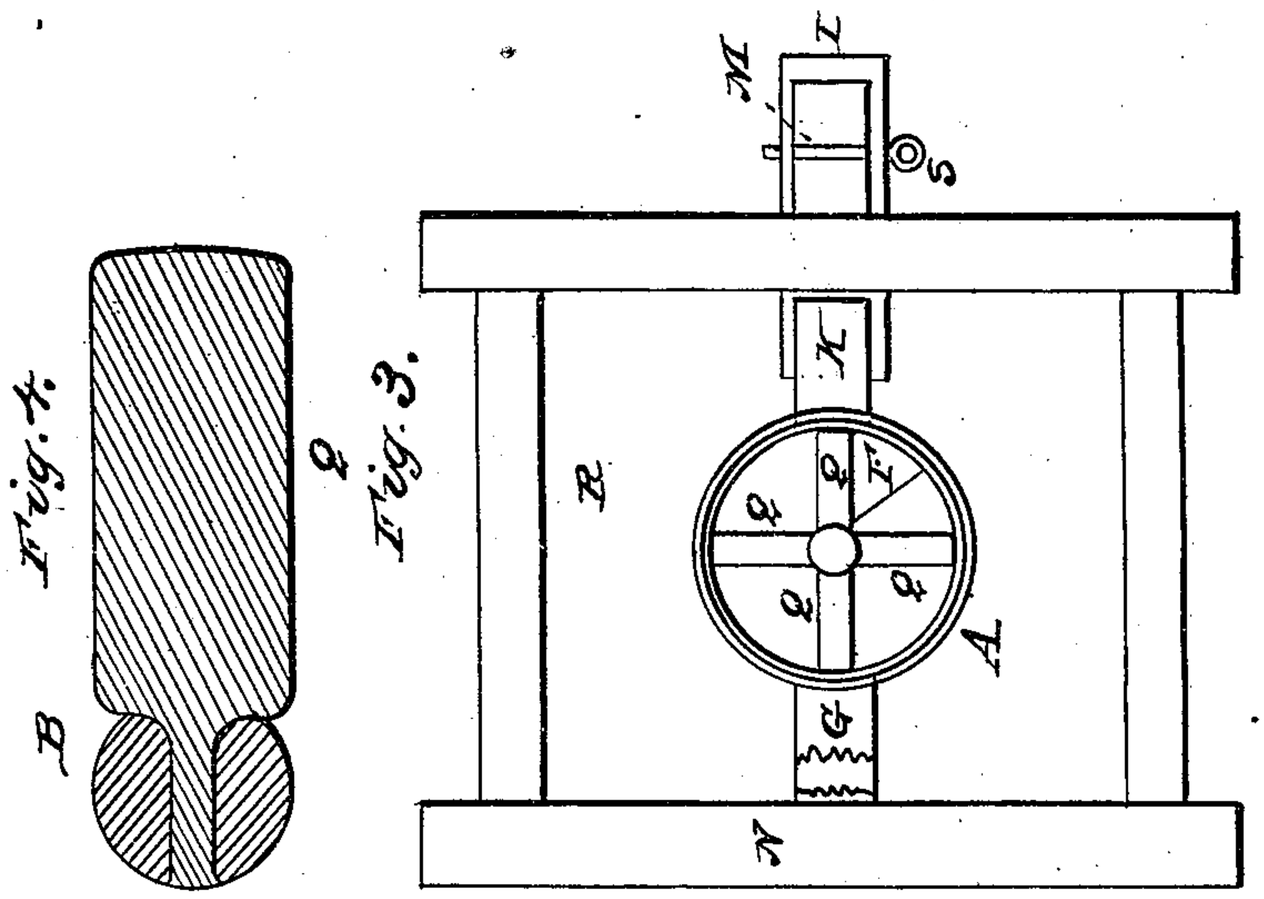


Fig. 4.

Fig. 3.

Fig. 2. Section.

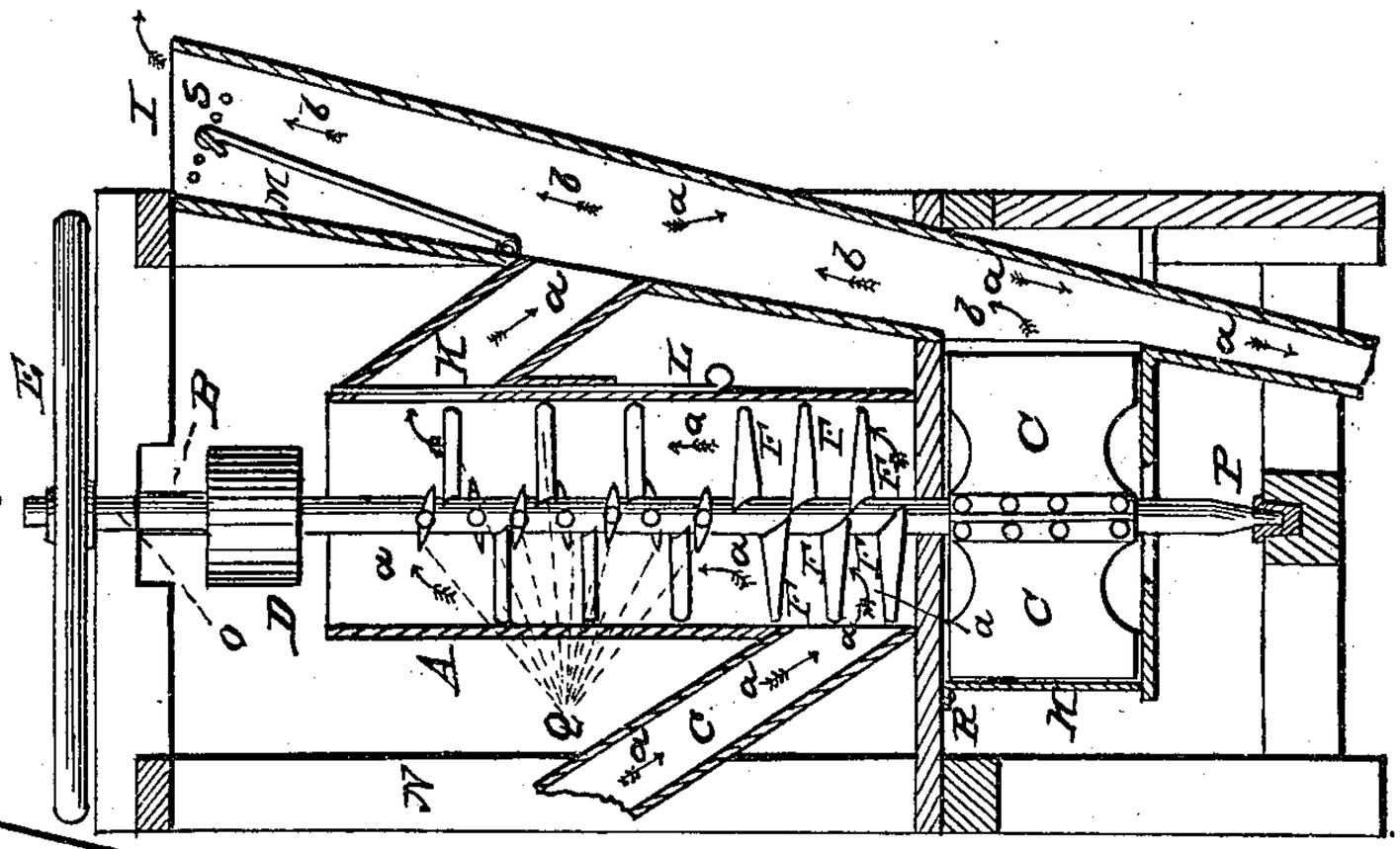
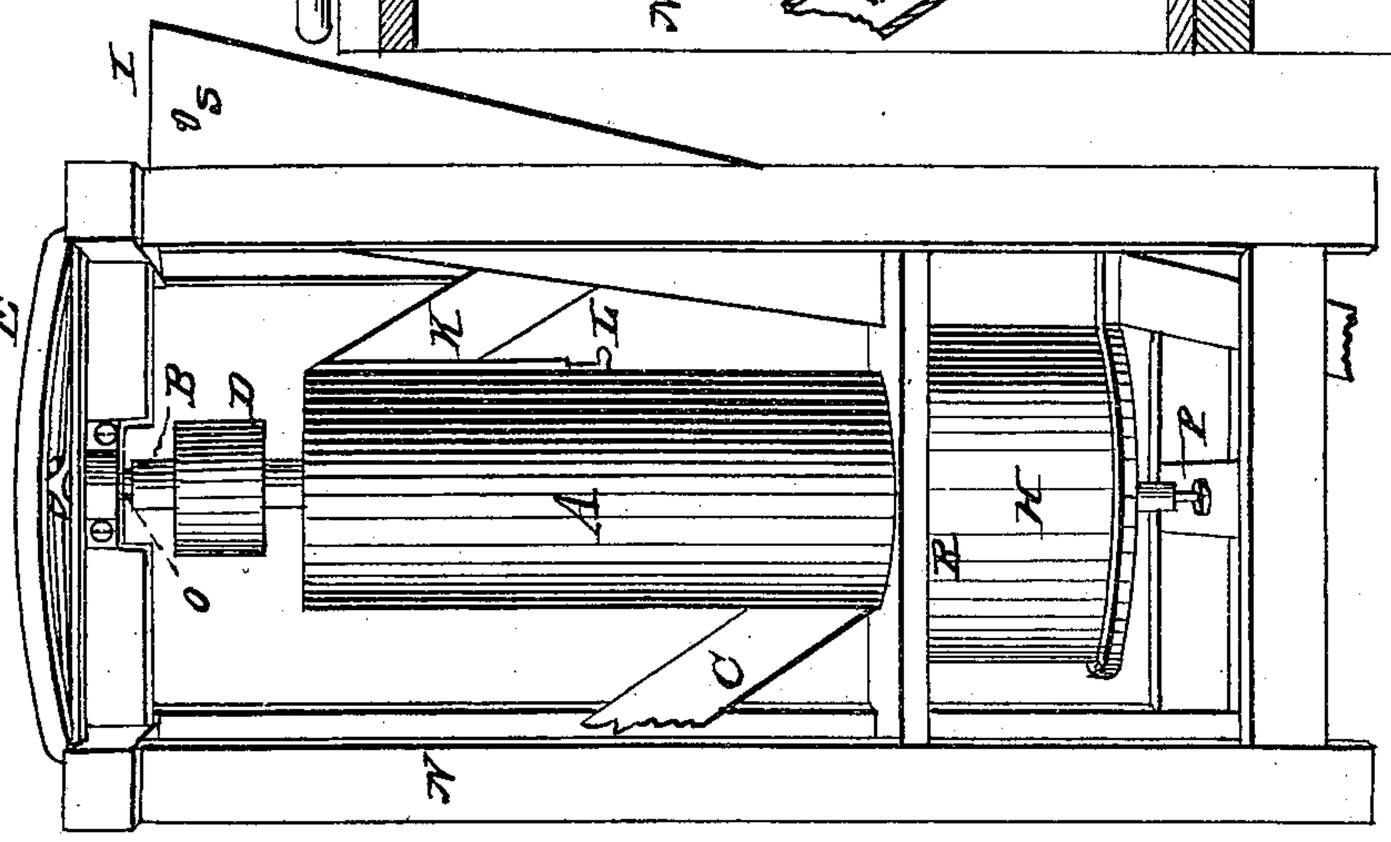


Fig. 1.



UNITED STATES PATENT OFFICE.

G. S. PECK, OF EAST SMITHFIELD, PENNSYLVANIA.

SMUT-MACHINE.

Specification of Letters Patent No. 8,983, dated June 1, 1852.

To all whom it may concern:

Be it known that I, G. S. PECK, of East Smithfield, Bradford county, and State of Pennsylvania, have invented a Machine for Cleaning Buckwheat and other Grain, which machine as I hereinafter claim combines certain new and useful improvements in its construction and operation, of which the following is a full and accurate description.

In the annexed drawings, Figure 1 exhibits an elevated external perspective view of said machine, Fig. 2, a vertical cut section of the frame, cylinders, feeding, and discharging spouts, and blower, and an elevated perspective of the shaft, spiral elevator, and rubbers, or knives, all of which parts are designated by their respective letters of reference in said drawings throughout. Fig. 3 is a top view of the machine with the central top cross rail, and fly-wheel omitted. Fig. 4 exhibits an enlarged face view of one of the knives as attached to the main shaft.

The principal parts of said machine (which are all shown in Fig. 2) are designated by the following letters of reference: the elaborating cylinders, A; driving shaft, B; blower, C; pulley, D; fly wheel, E; elevator, F; feeding spout, G; blowing cylinder, H; dust spout, I; return spout, K; discharging gage, L; regulating valve, M; frame, N; upper shaft journal, O; step of ditto, P; rubbers, Q; floor, R; check pin, S.

The form and combination of the above named parts, and arrangement of the same, is as follows. The frame N, is made nearly in a square form, with four posts connected by cross rails, in the usual manner, two of which rails are placed centrally at the top and bottom of said frame, and support the shaft B. Said frame is elevated about twice the diameter of its base, being some 4 feet in height and 2 ft. in diameter or square. About one foot up from the bottom of said frame is placed the floor or platform R, which extends across the whole area of said frame, and is supported by the intermediate cross rails of the same. Upon this floor stands the hollow sheet iron cylinder A, said floor forming a close bottom to the same, near to which bottom the feeding spout G, fixed on an angle of about 45 degrees, enters the side of said cylinder, vertically through the center of which and the floor R, is placed the driving shaft B, supported by the step P, and journal O. Spirally around said shaft, commencing near the floor, is fixed the screw formed elevator F, forming about two turns around said shaft, on an angle of, say 10 degrees with the same, see Fig. 2. Immediately above the elevator, the knives, or rubbers Q, are fixed, by means of shanks, or otherwise, to said shaft with their blades set, and ranging in a similar spiral course with the elevator, so as not to retard its action in performing their office which is confined to rubbing and cleansing the grain from all impurities that may adhere to the kernels, and to reducing the earthy matter combined, to dust, which may be thrown out by the blower as hereinafter described. Said knives somewhat resemble oar blades, (see Fig. 4 face view) the outer extremities of which, and that of the elevator, sweep close to the internal periphery of the cylinder A, which is perforated with vertical slots similar to the case of a tin lantern.

Immediately under the floor R, and secured to the under surface of the same, is placed the blower case H, made as usual in a cylindrical form, somewhat larger than A in diameter, and of sufficient depth to contain the blower C, which is also made on the ordinary plan of fan blowers and is fixed upon, or near the bottom end of the shaft B. One side of the blowing cylinder opens into, and near the bottom end of the dust spout I, which spout is partially inclined, from a vertical position and supported at its upper end, (which is larger than its bottom) by one of the cross rails of the frame N. The opening in the upper end of said spout through which the dust &c. is discharged is lessened, or enlarged, at pleasure, by means of the regulating valve M, the lower end of which is hinged to the inside of said spout. Consequently as the upper end of said valve is inclined to, or from, the opposite side (where it is secured by the check pin S,) the area of the discharging orifice is regulated, as before mentioned. From near the top of the cylinder A descends the return spout K, on about the same angle, but reverse to that of I, into which its lower end is inserted, about midway from its ends. At the junction of the spout K with the cylinder A is placed the sliding gage L, which regulates the discharge of grain from A, through K, into I.

The fly wheel E, and pulley D, may both or either be fixed upon the upper or lower end of the shaft B, as preferred.

Mode of operation: The machine being put in motion by means of a band or otherwise the grain the course of which is indicated by the arrows *a* is discharged from a hopper, or other reservoir through an ordinary screen for removing the gravel and other heavy material, from which it passes through the spout G, into the bottom of the cylinder A, up through which it is raised nearly in a solid mass, by the spiral F as fast as supplied, until checked by the height, and consequent weight of the column in said cylinder, which is regulated to a proper working point by the gage L, as previously explained, from thence it passes down through K, into I, where its descent is opposed by the ascending blast from the blower C, which reverses the course of the light and spurious grain, chaff &c., and discharges it out from the upper end of I, as before stated, and as shown by the arrows *b*, which also exhibit the course of the blast from the blower, while the greater specific gravity of the perfect grain polished, and separated from its impurities, resists the ascending blast, through which it falls into the hopper or other receptacle, made close, so as to prevent any downward escape of the blast and consequent deposit of impurities with the grain.

In the parts of the above described machine, abstractly considered, there is little apparent novelty, but in their combinations, and practical results, demonstrable novelty combining utility is decidedly apparent, which I will briefly explain. In the first instance, the elevator, as regards the length and angle of its spiral, is proportioned with due regard to the speed of motion required, both for the blower and the rubbers, to perform their respective offices, the whole being fixtures upon one and the same shaft, as previously specified. 2nd. The peculiarity of raising the grain nearly in a solid, and a vertical column, by means of the spiral, up through the cylinder, enables the rubbers to perform their work more effectually, with less power, and wear of machinery, than where the grain is thrown by rapidly revolving beaters, in a scattered state through the machine, and where an expensive amount of extra power is absorbed by the inertia, friction, atmospheric resistance &c., with the consequent wear and breakage of parts added, which forms a serious objection to the numerous machines made on the projectile plan now in use, especially for cleaning buckwheat, which in consequence of the form, and levity, of its kernel, cannot be projected and operated upon by beaters. like heavier grain unless partially confined as in my arrangement, where every kernel of grain though kept in motion by the rubbers is opposed and operated upon, by every contiguous kernel, in its circuitous course, up through the elaborating cylinder as above described.

What I claim and desire to secure as my invention in the above described machine is—

The arrangement in which the grain is fed in at, or near the bottom of the cylinder A, through which it is elevated by means of spirally inclined beaters, and discharged through the passage, or spout K, in combination with the ascending blast from the fan or blower C, the same being arranged, and operated, essentially as above set forth and described.

G. S. PECK.

Witnesses:
S. R. Crane,
H. M. Hale.