D. CLOW.

Fanning Mill.

No. 4,582. Patented June 16, 1846.

Fig. 4,

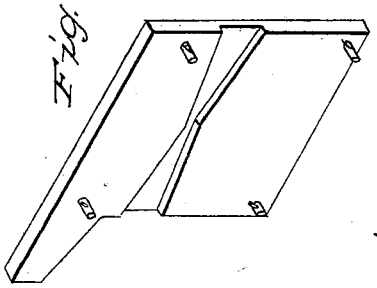


Fig. 2,

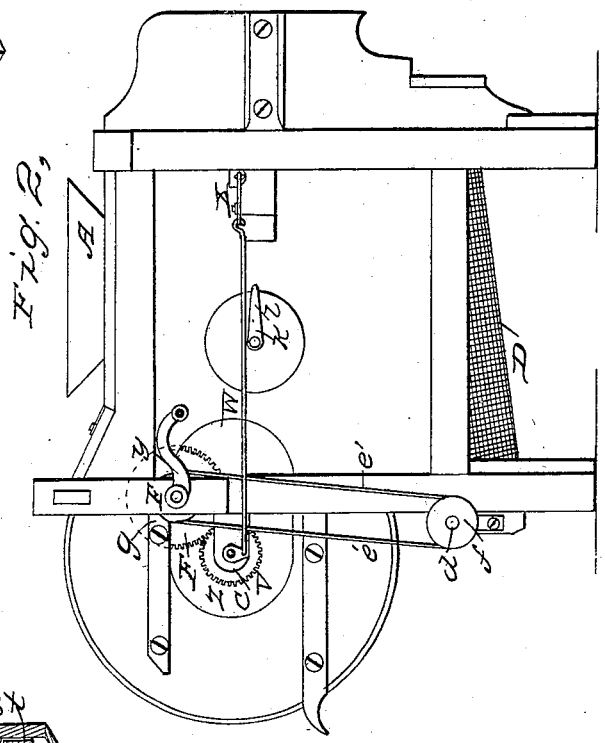


Fig. 1,

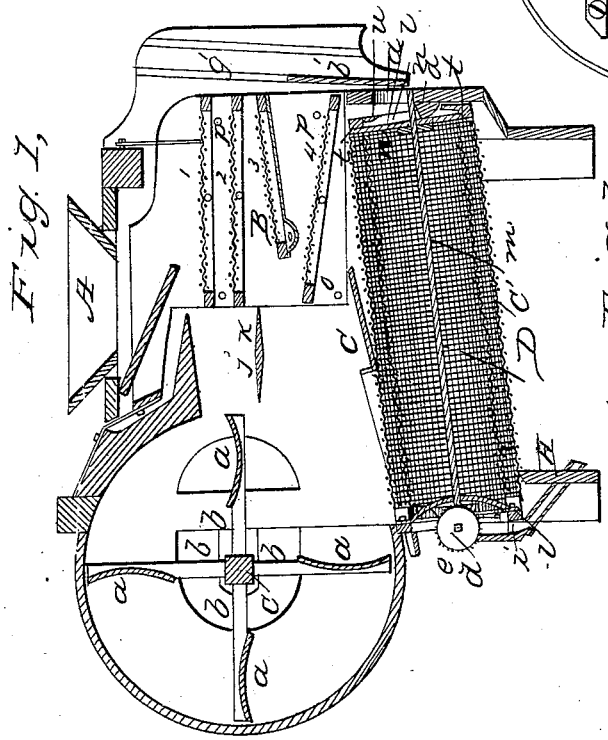
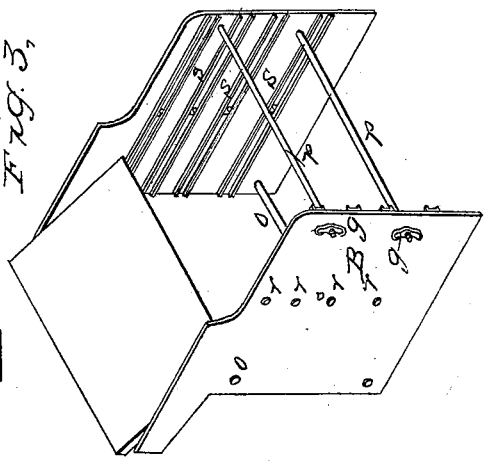


Fig. 3,



UNITED STATES PATENT OFFICE.

DANIEL CLOW, OF PORT BYRON, NEW YORK.

FANNING-MILL.

Specification of Letters Patent No. 4,582, dated June 16, 1846.

To all whom it may concern:

Be it known that I, DANIEL CLOW, of Port Byron, in the county of Cayuga and State of New York, have invented and added sundry improvements to fanning-mills, by the aid of which grain of different kinds can be thoroughly cleaned and separated from every foreign substance.

I denominate my invention Clow's combined rotary and vibrating fanning mill, and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making a part of the specification.

Figure 1, is a vertical longitudinal section through the center of my improved fanning mill; Fig. 2, is a side elevation of the same; Fig. 3, is a perspective elevation of the vibrating shoe, containing the screens; Fig. 4, is a perspective elevation of one of the sides of a vibrating shoe, detached, constructed in a different manner.

The same letters refer to corresponding parts in all the figures.

The supporting frame of my improved fanning mill, is constructed in the usual manner.

My first improvement consists in giving the face of the wings *a*, *a*, of the fan, a concave form, for the purpose of adding to the strength of the blast, without increasing the revolutions of the fan. *b*, *b*, are the arms, and *c*, is the shaft of the fan.

My second improvement is the introduction of a regulator J, between the fan, and the vibrating shoe B, for the purpose of guiding and directing the current of wind from the fan, on to whichever screen in the vibrating shoe that may be desired in cleaning different kinds of seeds or grains. The whole blast may be thrown on to the upper, or on to the lower screen, or the greater portion on to one and the remainder on to the other. The regulator *i*, is constructed of a plank, having its edges beveled to a point. *k*, is the shaft or journal on which the regulator is vibrated. *l*, is a lever for moving and indicating the position of the regulator *j*.

My third improvement consists in the manner of constructing the shoe B, and securing the screens 1, 2, 3, 4, in the same, in such a manner that their position can be easily adjusted. I generally construct the sides of the shoe of metallic plates, and connect them to each other by rods *o*, *o*, and *p*, *p*; on one end of the rods *p*, *p*, I place screw nuts *q*, *q*. To the inner sides of the shoe I secure adjustable metallic groove plates *s*, *s*, by rivets *r*, *r*, passing through their centers; the groove plates *s*, *s*, receive the screws 1, 2, 3, 4, which are firmly fastened in any desired position by the action of the screw nuts *q*, *q*, on the ends of the rods *p*, *p*, forcing the sides of the shoe against them. By this arrangement the screens can be placed in a horizontal position, or at any angle of inclination that may be desired, to suit the different kinds of seeds or grains to be cleaned. When I construct the sides of the shoe of wood, I make the grooves for the reception of the screens of the form represented in Fig. 4, of the accompanying drawings, viz., at their centers they closely embrace the sides of the frames of the screws, and are enlarged each way from this point to their ends; by which form I am enabled to place the screws in any position desired, and firmly secure them by means of screw bolts *p*, *p*, as in the other modification of the shoe, with metallic sides.

My fourth improvement consists in placing a double rotary cylindrical screen in the fanning mill, under the shoe B, extending in an inclining position longitudinally from rear to front. The double rotary screen consists of two cylindrical screens C and D, placed concentrically the one within the other, secured to annular heads *t*, *t*; which heads are secured to a shaft *m*, by the arms *n*, *n*. The grain is first acted upon by the vibrating screens 1, 2, 3, 4, in the usual manner, and from these it is conducted into the rear or highest end of the inner rotary screen D. The inner screen D, is coarse, and the outer screen C, is of fine texture. The meshes in the inner screen D, are of such a size that they will allow the grains of wheat or rye to pass through them, on to the outer screen C; and retain every coarser substance. The meshes in the outer screen C, are just fine enough to retain the kernels of wheat or rye, and allow the cockle and every smaller substance to pass through them as the screen is revolved. The rotary motion of the double screens and their inclined position, carries the grain forward on the screen C and discharges the same through the enlarged meshes or openings at its front end, in the front side of the division board H, thoroughly cleaned and separated from every foreign substance. The same motion

carrying forward the coarser substances in the inner screen D, and discharges them into the spout *i*, which conducts them to the rear of the division board H, under the mill. The double cylindrical screen is revolved by a bevel cog wheel *e* on a horizontal shaft *d*, working into a bevel wheel *h*, on the shaft *m;* the shaft *d*, is driven by a band *e'*, connecting the pulley *f*, on the same, with the pulley *g*, on the main driving shaft E.

c' is a nut on the shaft *m*, for stretching the double screen C, D.

y, is a crank on the driving shaft E.

F, is a cog wheel on the driving shaft E, working into and communicating motion to the cog wheel Z, on the fan shaft *c*.

v, is a crank on the fan shaft *c*, which communicates a vibratory movement to the shoe B, through the medium of the connecting rod *w*, and elbow *x*, constructed in the usual manner.

l, is a lever for operating the regulator *j*, and indicating its position.

b', is a guide board passing across the rear end of the mill, sliding in grooves *g'*, in the sides of the mill.

The grain after being acted upon while passing through and over the vibrating screens 1, 2, 3, 4, in the shoe B, in the usual manner, is discharged from the screen 4, into the space between the cross board *h'*, and the guide board *b'*, and passes through the aperture *a'*, in the cross board *h'*, over the spout *d'*, into the cylindrical screen D. On the rear annular head *t*, of the double screen cylindrical there is a flange *u*, projecting inward, which prevents the grain from falling out at the rear end of the same. When it is not necessary to pass the grain through the double cylindrical screen, the vibrating screen 4, is inclined forward, which throws the grain on to the apron G, which conducts it to the front of the mill.

Having thus fully described the construction and operation of my improvements to the fanning mill, what I claim therein as new and desire to secure by Letters Patent, is—

The adjustable groove plates *s*, *s*, for confining the screens to the sides of the shoe B, and in combination therewith, the manner of securing the screens firmly in any desired position by the rods *p*, *p*, and screw nuts *q*, *q*, substantially in the manner and for the purpose herein set forth.

DANIEL CLOW.

Witnesses:
Z. C. Robbins,
J. W. Thayer.