BEAN & WRIGHT.

Smut Mill.

No. 12,341. Patented Feb. 6, 1855.

Fig. 2.

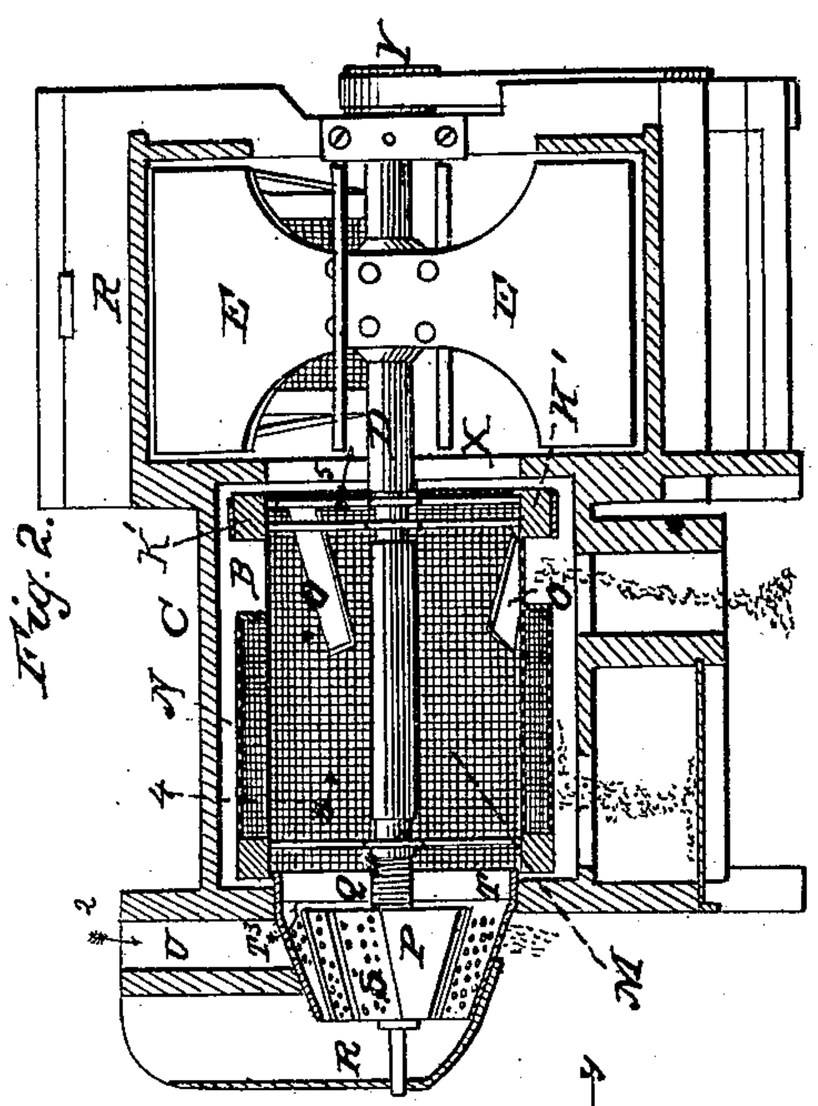


Fig. 4.

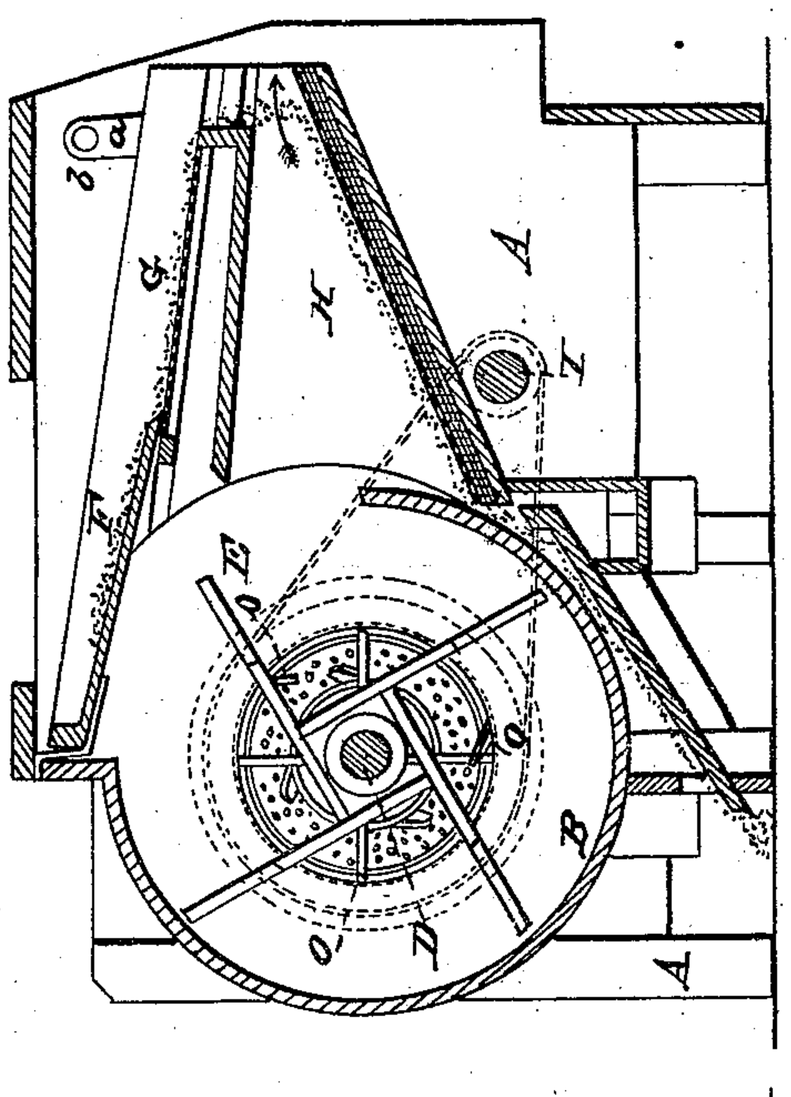


Fig. 1.

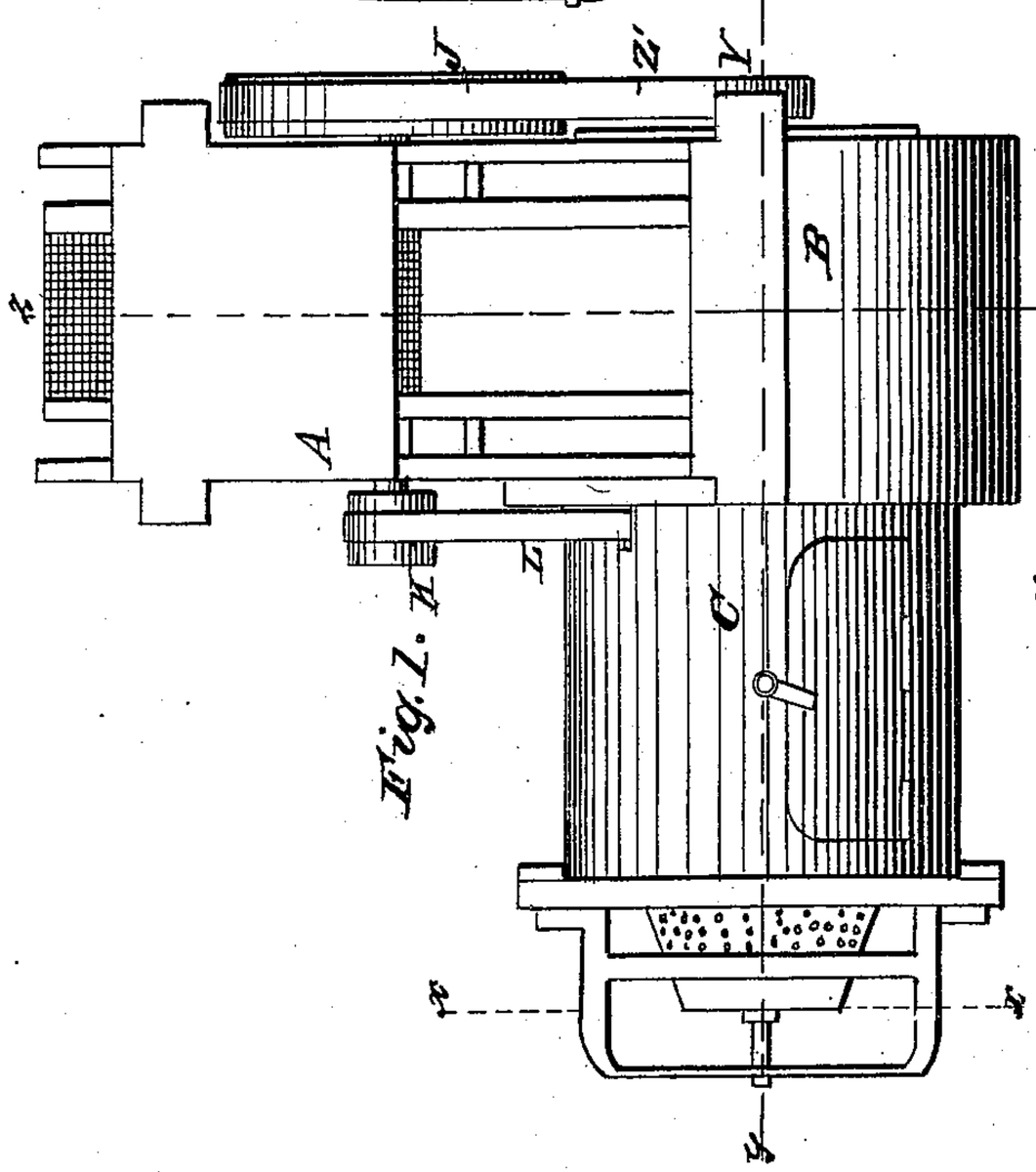
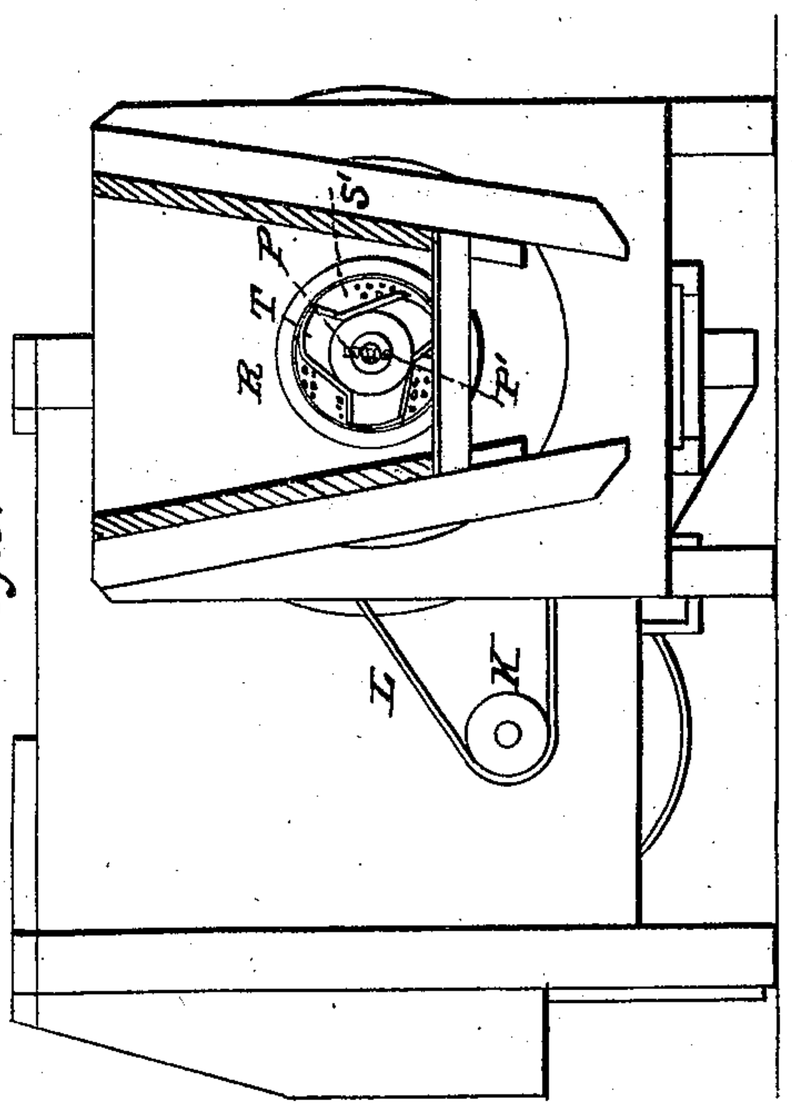


Fig. 3.



UNITED STATES PATENT OFFICE.

JOHN BEAN AND BENJN. WRIGHT, OF HUDSON, MICHIGAN.

SMUT-MACHINE.

Specification of Letters Patent No. 12,341, dated February 6, 1855.

To all whom it may concern:

Be it known that we, JOHN BEAN and BENJN. WRIGHT, of Hudson, Lenawee county, and State of Michigan, have invented a new and useful Improvement in Grain-Separating and Smut-Machines; and we do hereby declare that the following is a full, and exact description thereof.

This invention relates to an improvement in that description of machine which finishes the separation of the smut and other impurities from the grain by causing the air in its ingress to the fan to be drawn through the smut scourers and revolving screens.

The nature of the improvement above adverted to consists in supplying air to the fan of a separator, the shoe of which is arranged in connection and at right angles with a smut machine, by causing said air to pass through the smut scourers, on its way to the fan, as hereinafter specified. By having the air go through the smut scourers and revolving screens it assists the purifying operations.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation, reference being had to the annexed drawings, forming a part of this specification, in which—

Figure 1, is a top view of our improvement. Fig. 2, a side sectional elevation through lines Y Y, Fig. 3, an end sectional elevation through lines X X, Fig. 4 a side sectional elevation through lines Z Z.

Similar letters of reference indicate the same parts.

A, frame of separator, B, fan case of same; C, screen case, D, main shaft, upon which the fan E and revolving screens M N are attached. G, primary sieve, H, secondary sieve, I, driving wheel shaft, J, K, pulleys upon same, L band from K to screen pulley K′, O lifters on the interior of screen M, P smut cone, P′, fastening pin of same, Q spiral spring on shaft D, which adjusts the smut cone, R grain receiving box, S, grinding blades on the cone R, T, shell of the smut cone P; U, air entrance, V, dirt box, W seed exit.

Our separating apparatus is arranged much in the usual manner. The grain falls from the hopper upon the inclined receiving board F, down which it passes on to the primary sieve G, whence it falls on the secondary sieve H, and thence to the ground, the chaff being separated and blown out in direction of arrow 1. The driving wheel shaft I, extends through the separator where it has a pulley K, which gives motion, by band L and pulley K′, to the screens M N. The shaft D, extends through both the separator and the smut apparatus but the screens do not turn with the shaft, they merely have bearings upon it, their speed being much slower than that of shaft D. After the grain has been passed through the separator, it is placed in the receiving box R, the bottom of which is inclined (as shown in Fig. 2,) to be operated upon by the smut cone, P.

The smut cone P is solid, its periphery being furnished with spirally arranged grinding blades, S between which and the shell T, the grain is scoured, and the smut pulverized. The shell T and the grinding blades S are perforated with small holes, through which the air, entering at U, finds its way, into the screen M, to the fan E, carrying with it the chaff or light dust, and discharging the same at the mouth of the separator in direction of arrows 1. Arrows 2, 3, 4, 5, show the direction of the air in its ingress to the fan.

The cone P has the same rapid movement as the shaft D, with which it turns; being secured thereon by pin P′. The shaft D is slotted so as to admit pin P′, and thus allow a lateral movement of the cone P, during its rotation.

Q is a spiral spring wound around the shaft D, which serves to push cone P into contact with its shell T, and rendering the cone self adjusting; for when the grain between the shell and cone blades S, becomes wedged, or when the passing grain contains no smut, the cone recedes from its shell, and permits the free inward passage of the grain, without injuring it by unnecessary scouring. The smut dirt passes through both the revolving screens M, N, and falls into the dirt box V. A portion of the grain is carried along in the space between the lower parts of screens M N, and emerges at the exit place W. Any grain remaining in the coarse screen M, which the adherence of chaff or smut prevented from falling between the screens, is carried along until it reaches the lifters O, which carry it up to the top of the screen, whence it falls to the bottom, and so on, until, by frequent plunges against

the bottom of the screen the foreign substances are broken off, and carried into the fan, while the grain passes through the exit place W.

We do not claim as our invention the leading of a draft through the smut scourers and revolving screens irrespective of the manner of effecting the same, but,

What we do claim as our invention and desire to secure by Letters Patent, is—

Supplying air to the fan of a separator, the shoe of which is arranged in connection and at right angles with a smut machine by causing said air to pass through the smut scourers and revolving screens of said smut machine, on its way to the fan as herein described and for the purpose set forth.

JOHN BEAN.
BENJA. WRIGHT.

Witnesses:
E. AMES,
W. H. COGSWELL.