(No Model.)

F. T. MALLON.

SCREEN.

No. 264,725. Patented Sept. 19, 1882.

Fig 2.

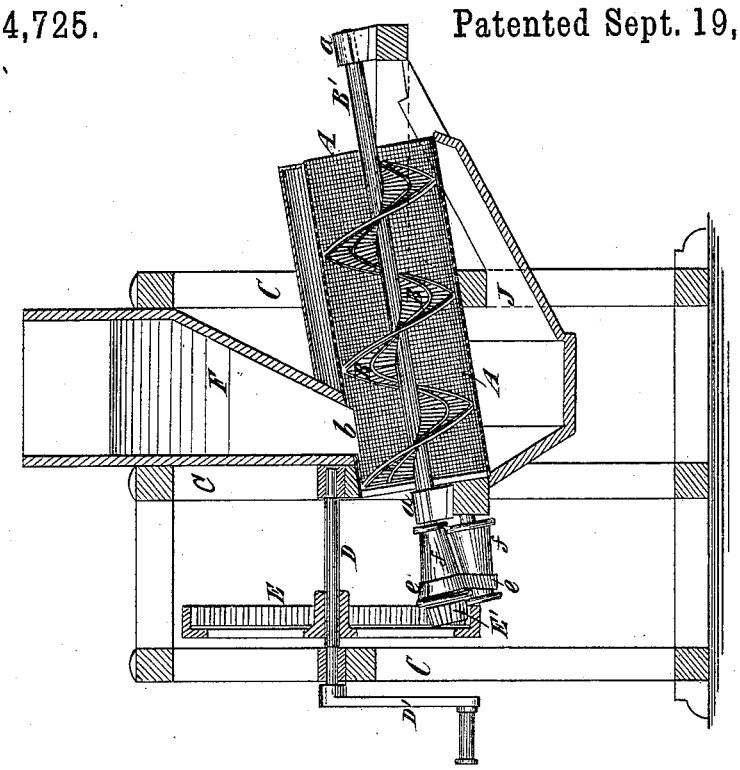
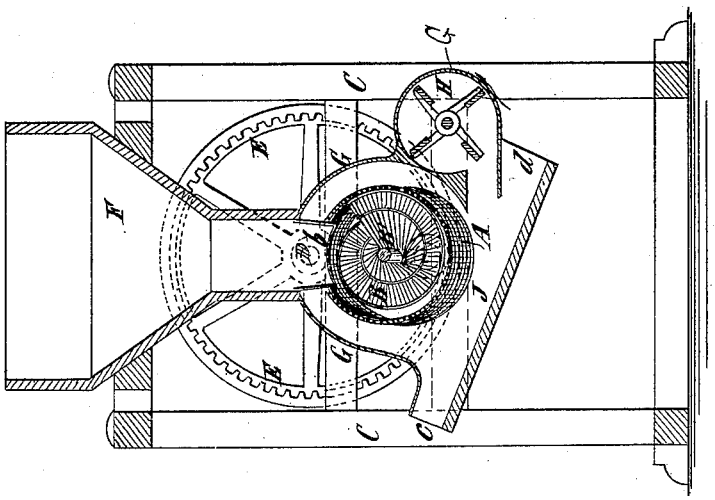


Fig 1.



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UNITED STATES PATENT OFFICE.

FRANCIS T. MALLON, OF PAWCATUCK, CONNECTICUT.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 264,725, dated September 19, 1882.

Application filed April 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS T. MALLON, of Pawcatuck village, in the town of Stonington, county of New London, and State of Connecticut, have invented a certain new and useful Improvement in Screens, of which the following is a specification.

The object of my invention is more especially to provide a more effective screen for cleaning grain and for separating therefrom and from peas, beans, or other vegetable matters all parts of straw, stalks, pods, cobs, or other refuse matters mingled with them.

The invention consists essentially in a screen for cleaning grain and other vegetable matter, combining in its structure a foraminous cylinder having an inlet-opening at one end and an outlet-opening at the other end, and a foraminous worm inclosed within the foraminous cylinder, whereby the refuse substances are fed toward the exit-opening of the cylinder, while the grain or other products can pass through the cylinder and also backward through the worm.

The invention further consists of certain other features of construction and combination of parts which will be fully hereinafter explained, and pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical section of a machine for grain-cleaning or analogous uses containing my improved screen, which is there shown in transverse section; and Fig. 2 represents a similar section of the machine, taken longitudinally of the screen.

Similar letters of reference designate corresponding parts in both the figures.

A designates a cylindric screen composed of reticulated, perforated, or foraminous material, and which, as here shown, is arranged at a considerable inclination, and is closed at the lower end and open at the upper end.

B designates a spiral screen, made in the form of a worm or screw, arranged in the screen A, and formed of reticulated, perforated, or foraminous material, secured upon a shaft, B′, which is adapted to rotate in bearings *a* in the frame C of the machine.

D designates the driving-shaft of the machine, which may be rotated by a crank, D′, if the machine is to be worked by hand, or by a belt and pulleys if the machine is to be operated by power; and upon the shaft D is an internal gear-wheel, E, which engages with and operates a pinion, E′, on the shaft B′ of the spiral screen. Near the lower end of the screen is the inlet-opening *b*, which forms the outlet of a hopper, F, wherein the grain or other material to be cleaned may be placed, and from which said material is fed into the screen. The grain or other material entering the cylindric screen is constantly stirred by the rotary spiral screen B, which is rotated in a direction adapted to carry the material upward and out at the open higher end of the screen, and all the larger particles—such as straw, pods, stalks, or other refuse matters—are so carried upward and discharged at the open end of the cylindric screen A, while the grain, peas, beans, or other like products constantly fall back through the meshes or perforations of the spiral screen B, and are finally discharged through the meshes or perforations of the cylindric screen A. The grain or other screened products fall from the cylindric screen A into a box or receptacle, J, inclined downward toward the lower end of the screen, as shown in Fig. 2, and at such lower end provided on one side with an opening, *c*, and thence inclined toward an opposite opening, *d*, as shown in Fig. 1.

The cylindric screen A is inclosed by a stationary casing, G, which also contains a fan-blower, H, and as the screened products fall from the screen A they are subjected to a blast of air, which carries the dust, dirt, and light refuse off through the exit-opening *c*, while the screened and cleaned products pass downward and out of the exit-opening *d*.

The blower H may be driven from the shaft B′ of the spiral screen B by means of a belt, *e*, passing over reversely-coned pulleys or drums *f*, and by shifting the belt the speed of the blower may be adjusted so as to produce a blast sufficient to carry away the refuse without carrying away the grain or other valuable product.

The belt *e* may be automatically shifted, and the speed of the blower thereby regulated, by means of a rotary speed-governor which I have invented, and which forms the subject of another application for Letters Patent.

It will be seen that by my improved screen I prevent the valuable products from being

carried out with the refuse by allowing such products to pass backward through the spiral screen, while the refuse is moved constantly and positively forward and discharged at the exit-opening.

Although my improved screen is very advantageous for vegetable products, it may be used for screening gravel, coal, and any other materials which have been screened in cylindric screens or screens of other kinds.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A screen for cleaning grain combining in its structure a foraminous cylinder having an inlet-opening at one end and an outlet-opening at the other end, and a foraminous worm inclosed within the foraminous cylinder, said members operating substantially as and for the purpose described.

2. In a grain-cleaning screen, the combination, with the inclined foraminous cylinder having an inlet-opening at its lower end and a discharge-opening at its elevated end, of the inclined foraminous worm inclosed within the foraminous cylinder, substantially as and for the purpose described.

3. In a grain-cleaning screen, the combination of the following elements, to wit: a foraminous cylinder having an inlet-opening at one end and a discharge-opening at the other end, a foraminous worm inclosed within said foraminous cylinder, a stationary hopper for delivering the grain directly to the inlet-opening in the cylinder, and a stationary casing inclosing the cylinder, substantially as and for the purpose described.

4. In a grain-cleaning screen, the combination of the inclined foraminous cylinder having an inlet-opening near or at its lower end and a discharge-opening near or at its elevated end, the foraminous worm inclosed within the foraminous cylinder, the hopper for delivering the material directly to the inlet-opening in the cylinder, the stationary casing inclosing the cylinder, and the double-inclined receptacle, substantially as and for the purpose described.

FRANCIS T. MALLON.

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