J. W. KLINE & P. MASON.

GRAIN SEPARATOR.

No. 188,060. Patented March 6, 1877.

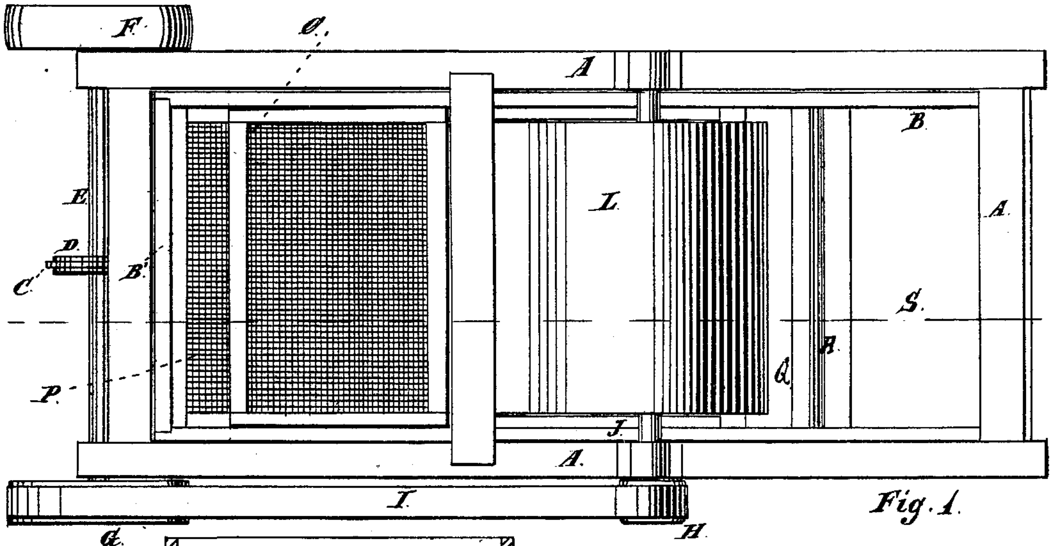

Fig. 1.

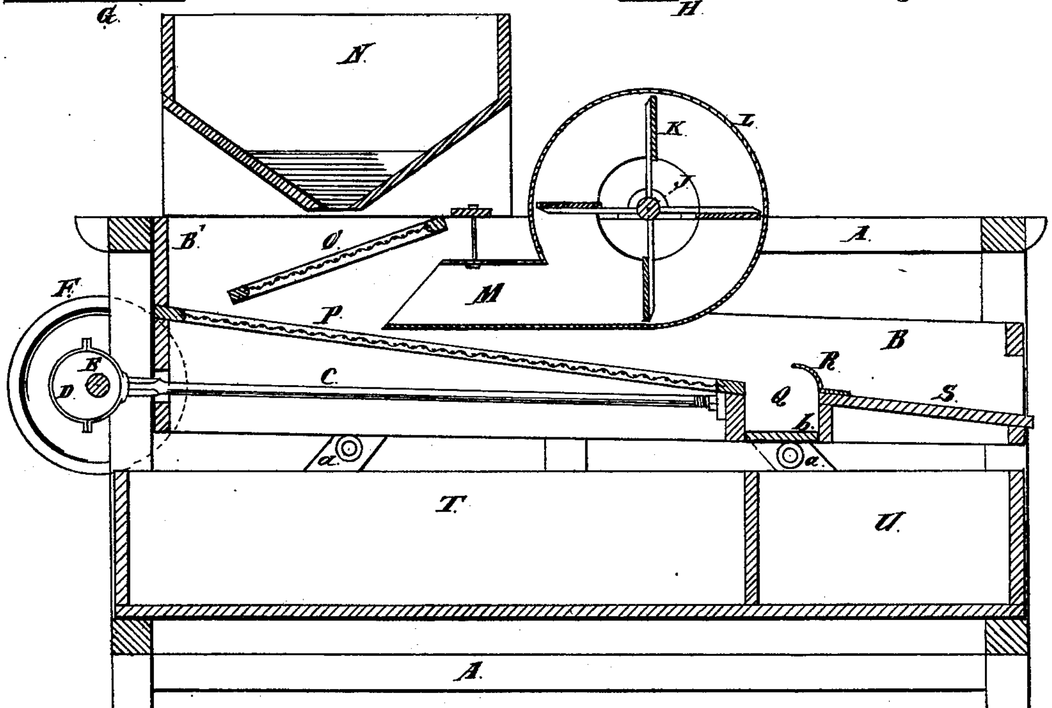

Fig. 2.

Witnesses:

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JOSEPH W. KLINE AND PETER MASON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **188,060**, dated March 6, 1877; application filed October 2, 1876.

To all whom it may concern:

Be it known that we, JOSEPH W. KLINE and PETER MASON, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Coffee-Cleaning Machines, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a top or plan view; Fig. 2, a longitudinal vertical section.

The object of this invention is to provide a machine by the use of which stones, grit, dirt, and other foreign substances will be removed from berry coffee; and its nature consists in locating a fan so that the blast therefrom will pass between two sieves placed at different angles, which sieves are arranged so that they can be shaken; in providing a receptacle at or near the lower end of the under sieve to receive the stone and other heavy substances, and in the several parts and combination of parts hereinafter set forth and claimed as new.

In the drawings, A represents the main frame; B, the secondary or shaker frame; C D, the pitman and and eccentric for shaking the frame B, and the parts connected therewith; E, the main or driving shaft; F G H, the pulley-wheels; I, the belt running over the wheels G H for driving the fan; J, the fan-shaft; K, the fan; L, the fan-case; M, the opening or passage for the air from the fan; N, the hopper; O, the upper sieve; P, the lower sieve; Q, the box or receptacle for stones and other heavy substances; R, the stop or guard to check the flow and prevent the stone from passing out of the receptacle Q; S, the table or platform on which the coffee is received after the foreign substances are removed; T, the box or receptacle for catching the dirt, grit, and other small substances; U, the box or receptacle into which the contents of the box Q are emptied; *a*, the wheels on which the secondary frame B travels, and by which it is supported; *b*, the movable bottom of the box Q.

The frame A is made of wood or other suitable material, and, as shown, is of considerable length, but it may be made of any form desired. On the inner side of this frame A are located, at suitable distances apart, wheels *a*. These wheels support the secondary frame B, which frame is placed inside of the upper portion of the frame A. This frame B fits in the frame A sidewise, but has sufficient end play to allow it to travel back and forth on the wheel *a*. This movement of the frame B, and the parts connected therewith, is accomplished by means of the rod or pitman C, which is attached to the frame in any suitable manner at one end, and at the other is connected with the eccentric D on the shaft E. The shaft E is operated from the pulley F, and in the other end of this shaft E is another pulley, G, over which and the pulley H on the shaft J the belt I passes for driving the fan. The fan K is located on top of the frame A in the case L, which case is provided with an opening, M, for the passage of the air. The hopper N is secured to the top of the frame A, and is made of any suitable form that will not check the blast. The sieves O P are secured to the sides of the frame B, and are arranged on different angles, as shown in Fig. 2, so that at the front end they approach each other, leaving a small space between them for the passage of the coffee and heavy foreign substances onto the sieve P from the sieve O. Between these two sieves the air-passage M opens, as shown in Fig. 2, so that the blast of air will strike beneath the sieve O and force or blow the light substances off from that sieve before they can pass onto the sieve P. By locating the sieves low down in the frame B, or by projecting the frame up at B′, as shown, a heavy blast can be applied without forcing the coffee over or out of the machine.

At the lower end of the sieve P is located the box or receptacle Q for the stones and other heavy substances which pass down the sieve P with the coffee. It is separated from the table S by the guard or stop R, which prevents the stones from passing over, but permits the coffee to pass over it onto the table, and from thence out. This box is provided with a movable bottom, *b*, so that when the box is full the contents can be dumped into the receptacle U. The receptacles T U are formed from a single box or receptacle having a partition. They are placed in the lower portion of the frame A, below the secondary frame B. The portion T of the receptacle receives

the grit and other fine substances, which are shaken from the coffee on its passage down the sieves, while the portion U is for the heavier substances, which enter the receptacle Q.

In operation, power is applied to the pulley F by any suitable means, and through the shaft E motion is given to the pulleys G H and belt I for driving the fan K. At the same time the frame B, with the sieves O P, receptacle Q, and table S connected therewith, are moved back and forth, by means of the rod C and eccentric D, on the shaft E. The coffee falls from the hopper N onto the sieve O, where it receives a blast of air from the passage M, which blows away all the light substances. From the sieve O it passes onto the upper end of the sieve P, and thence through the opening between the sieves, down the sieve P. During its passage down this sieve the grit and other fine substances not removed by the air-blast will be forced or pass through the sieve by the shaking movement of the frame B. As the coffee and heavier foreign substances reach the end of the sieve P they will fall into the receptacle Q. This receptacle at first fills up with coffee to the top of the stop R, and the stones and other foreign substances, being the heaviest, will seek the lowest position, as the frame is shaken, and force the coffee out and over the guard or stop R onto the table S, from whence it passes into a suitable vessel or other receptacle.

By placing the stop R as shown, the flow of the coffee and other substances is checked at that point, allowing them to fall into the receptacle Q. The table S might be raised above the plane of the lower end of the sieve P, forming a stop, in which case the stop R can be dispensed with.

When the receptacle Q is full of stones and other foreign substances the contents can be dumped into the box U by means of the movable bottom *b*.

By this arrangement of devices all foreign substances will be effectually removed from the coffee, so that when it is discharged upon the table S it will be perfectly cleaned.

Some coffee-berries will pass with the stones into the receptacle U. These are easily saved by dumping the contents into water, when the dried berries will float.

What we claim as new, and desire to secure by Letters Patent, is as follows:

1. In a coffee-cleaning machine, the combination of the shaking-frame, carrying fender-board B′, and sieves O P, arranged to approach each other, with the fan J, having blast-spout M, arranged to deliver its blast directly beneath and against sieve O, substantially as specified.

2. The shaking-frame B, carrying the inclined screen P, the depressed receptacle Q, and the elevated stop R, for catching and holding the heavy foreign matters, arranged and operating as set forth.

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