2 Sheets--Sheet 1.

JOHN H. DE FORCE.

Improvement in Grain-Cleaners.

No. 127,680. Patented June 11, 1872.

Fig. 1.

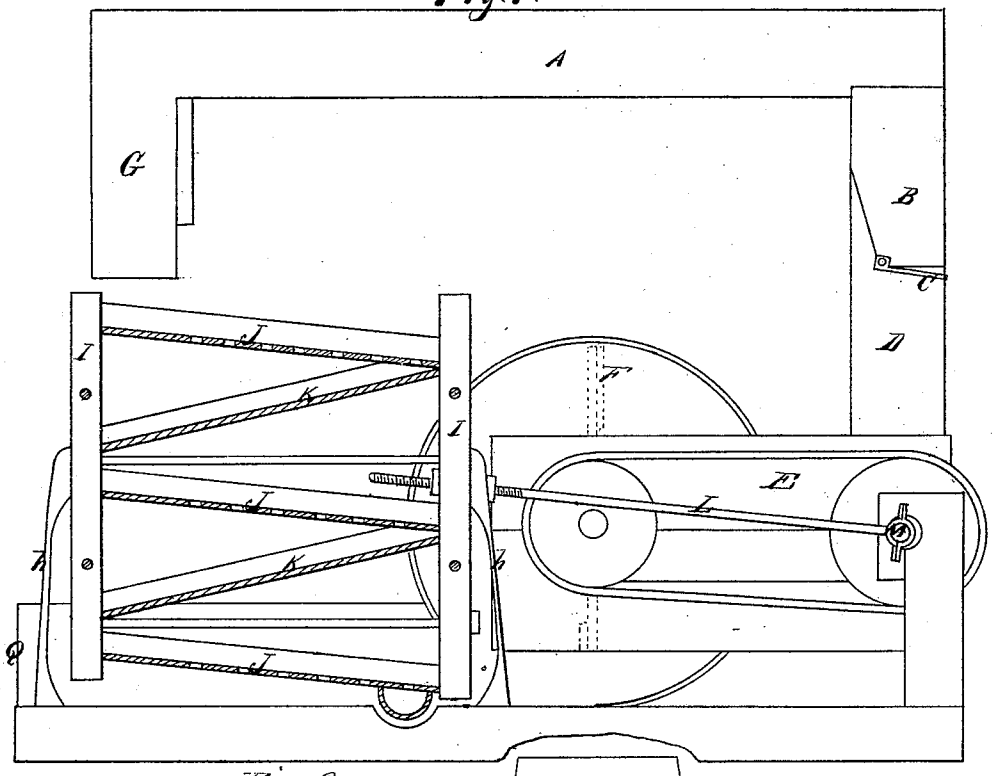
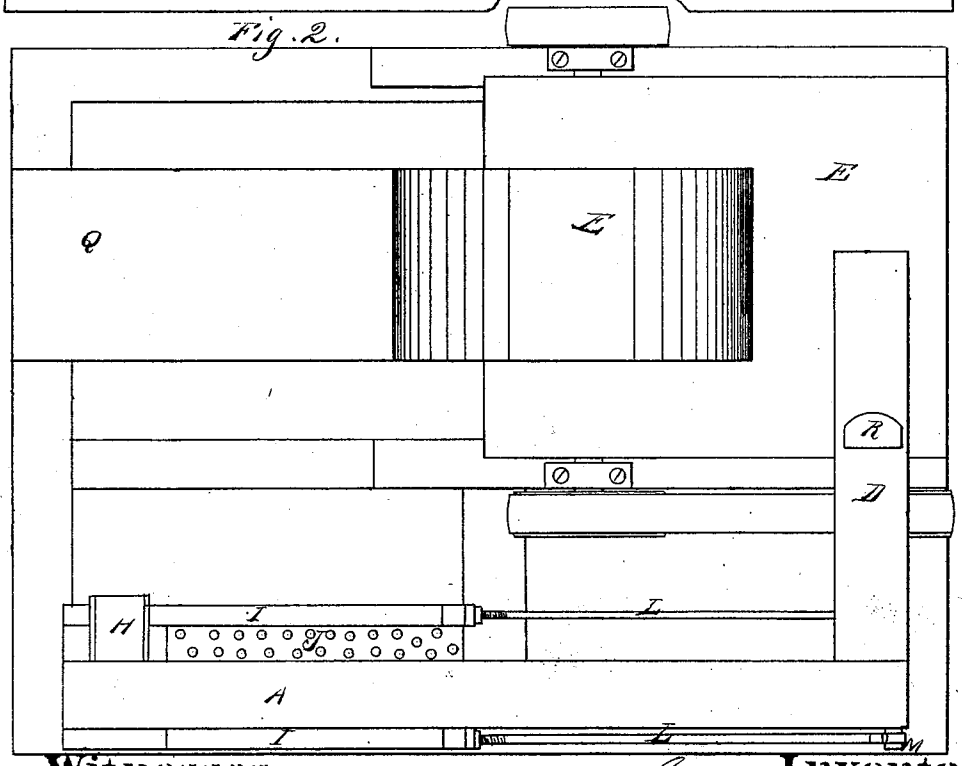


Fig. 2.



Witnesses

A. J. Dewey.

S. G. Borne

Inventor

John H. De Force

by his attorneys

Dewey & Co

2 Sheets--Sheet 2.

JOHN H. DE FORCE.

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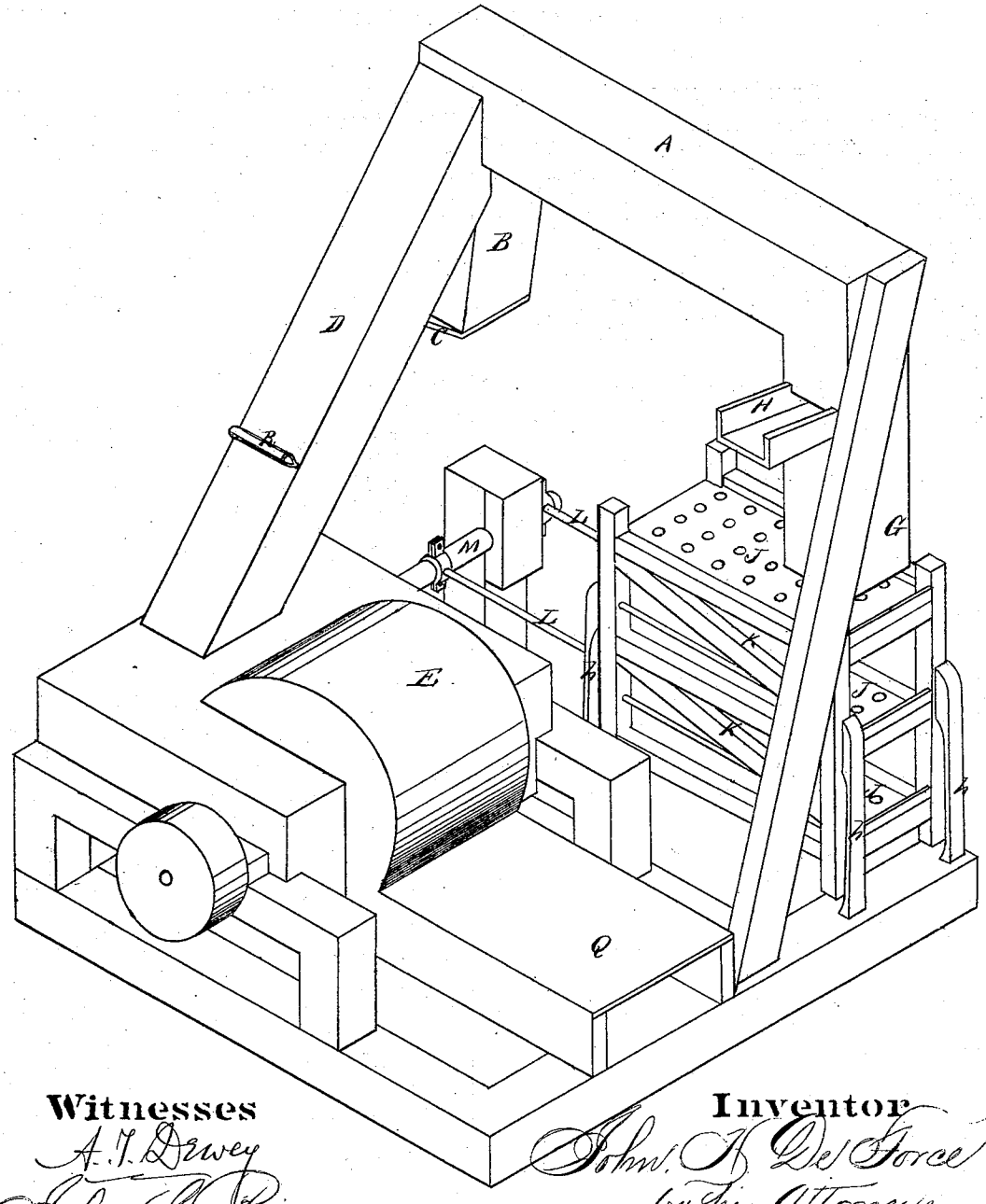

Witnesses

A. J. Dewey

John. L. Boone

Inventor

John H. De Force

by his Attorneys

Dewey & Co

UNITED STATES PATENT OFFICE.

JOHN H. DE FORCE, OF HEALDSBURG, CALIFORNIA.

IMPROVEMENT IN GRAIN-CLEANERS.

Specification forming part of Letters Patent No. 127,680, dated June 11, 1872; antedated June 7, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, JOHN H. DE FORCE, of Healdsburg, county of Sonoma, State of California, have invented an Improved Grain-Cleaner; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

My invention relates to a grain-cleaner of novel construction, which is intended more particularly to be used in mills for the purpose of thoroughly cleaning wheat previous to its being ground into flour. My invention consists of a peculiarly-constructed pipe or spout through which air is drawn by a fan.

The grain is delivered into a vertical spout at the end of the spout or pipe opposite the fan, so that the chaff and lighter grains will be drawn by the suction produced by the fan through the pipe, while the heavier and larger grains, on account of their superior specific gravity, will fall down upon a series of separating plates or screens, where the cheat and barley are separated from the wheat.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawing forming a part of this specification, in which—

Figure 1, Sheet 1, is a side elevation. Fig. 2, Sheet 1, is a plan view. Fig. 3, Sheet 2, is a perspective view.

A represents a horizontal pipe or spout, which, when the apparatus is employed in a flouring-mill, can be placed above the second floor. Depending from one end of the spout A is a short perpendicular spout, B, the lower end of which is closed by a valve, C. An inclined spout, D, connects with the perpendicular spout B, and has its opposite or lower end communicating with a closed box, E, which may be on the lower floor, in which the suction-fan F is operated. At the end of the horizontal spout A, opposite the perpendicular spout B, is another perpendicular spout, G, into which the grain is fed through a small spout, H. Directly below the vertical spout G is a frame-work, I, in which two or more inclined perforated plates or screens, J, are placed one above another, so that all of them will incline in the same direction. Between each two of these screens is an oppositely-inclined plate, K, which receives the grain from the screens and carries it to the higher or upper end of the inclined screen below it. The frame I, with its inclined perforated screens, is given a slight oscillation or jarring by means of rods L, which extend to a shaft, M, and are attached to it by means of eccentrics. Wooden springs *h* serve to carry the frame back and forth as the rods L actuate it. The fan F is revolved inside of the closed box E so as to draw a current of air through the spouts or pipes G A D, and by the suction produced carry away the dust and light particles. The air, dust, and chaff are driven out of the closed box E through the spout Q. The draught or suction through the pipe can be regulated by a damper, R, which works across the passage through the inclined spout D.

The operation of my apparatus is as follows: The fan being set in motion the air is drawn through the spouts or pipes G A D. The grain is then allowed to pass down the feed-spout H into the vertical spout G, where it meets the current of air. The light grains, dust, chaff, and light foreign particles are drawn up through the pipe G and along the pipe A until it reaches the vertical pipe B, where the light grains will be deposited upon the valve C, which, when a sufficient weight has been deposited upon it, will open automatically and discharge continuously as long as the operation is kept up. The dust and chaff follow on down the inclined spout D, and are driven out through the spout Q. Returning to the grain, which, on account of its greater specific gravity, will resist the current of air and fall down the spout G, it will be seen that it will be received upon the upper perforated screen J. The shaking of the frame I will cause the grains of wheat to pass through the perforations and fall upon the inclined aprons K, which convey it to the next lower screen, while the cheat and barley will pass over the

lower ends of the screens, so that by the time the grain has passed over all of the screens a perfect separation is accomplished.

Various arrangements of the pipes or spouts can be employed for accomplishing the same purpose; but

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

The arrangement, in a grain-cleaner, of the inclined aprons K and perforated screens *j*, actuated by the rods L, in combination with the spouts G, A, B, and D, and suction-fan F, all operated substantially as described.

In witness whereof I have hereunto set my hand and seal.

JOHN HAZELTON DE FORCE. [L. S.]

Witnesses:
THOMAS H. MERRY,
MORRIS PECK.