(No Model.)

J. E. COOK.

STRAW SEPARATOR FOR THRASHING MACHINES, &c.

No. 467,636. Patented Jan. 26, 1892.

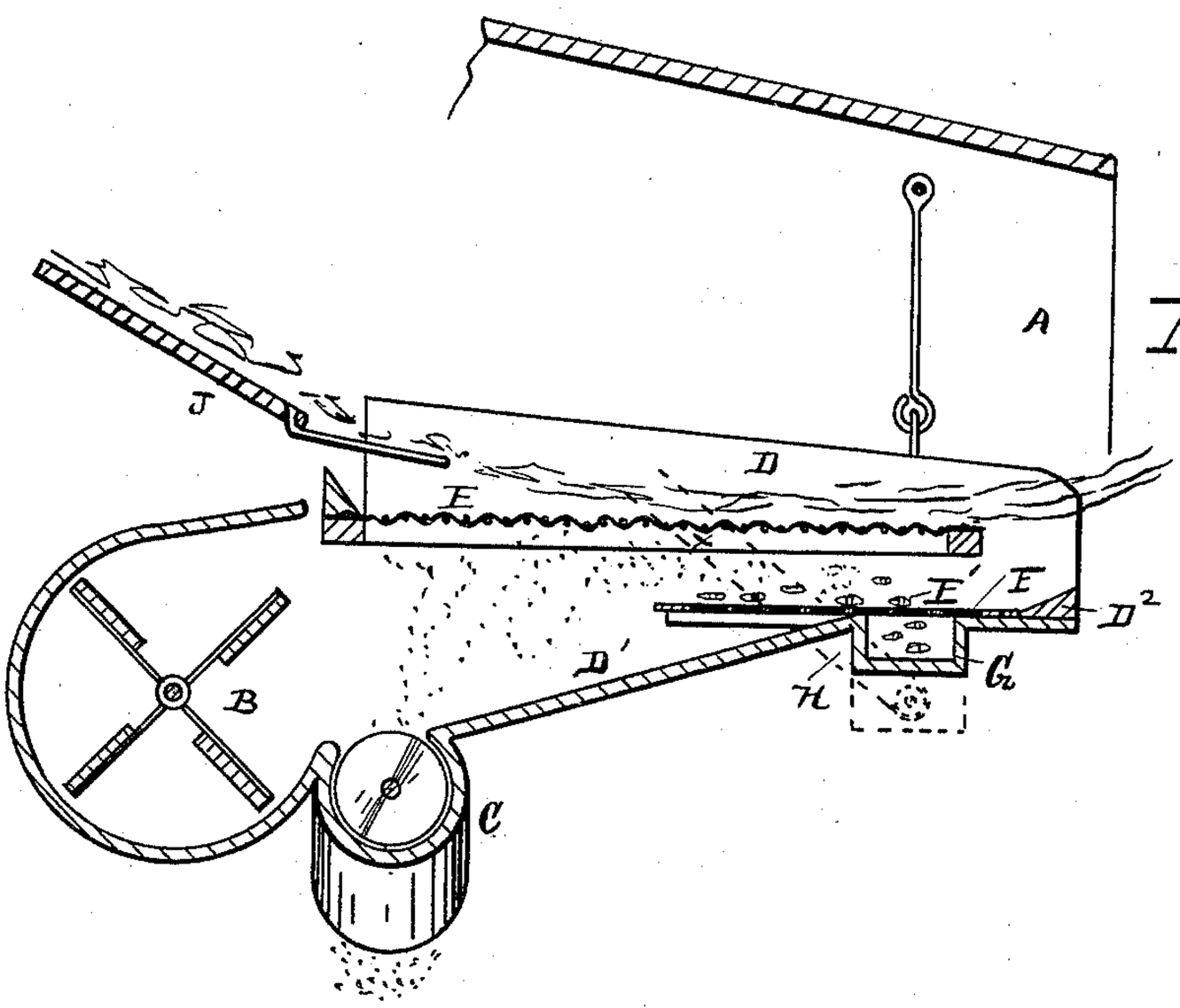

Fig. 1.

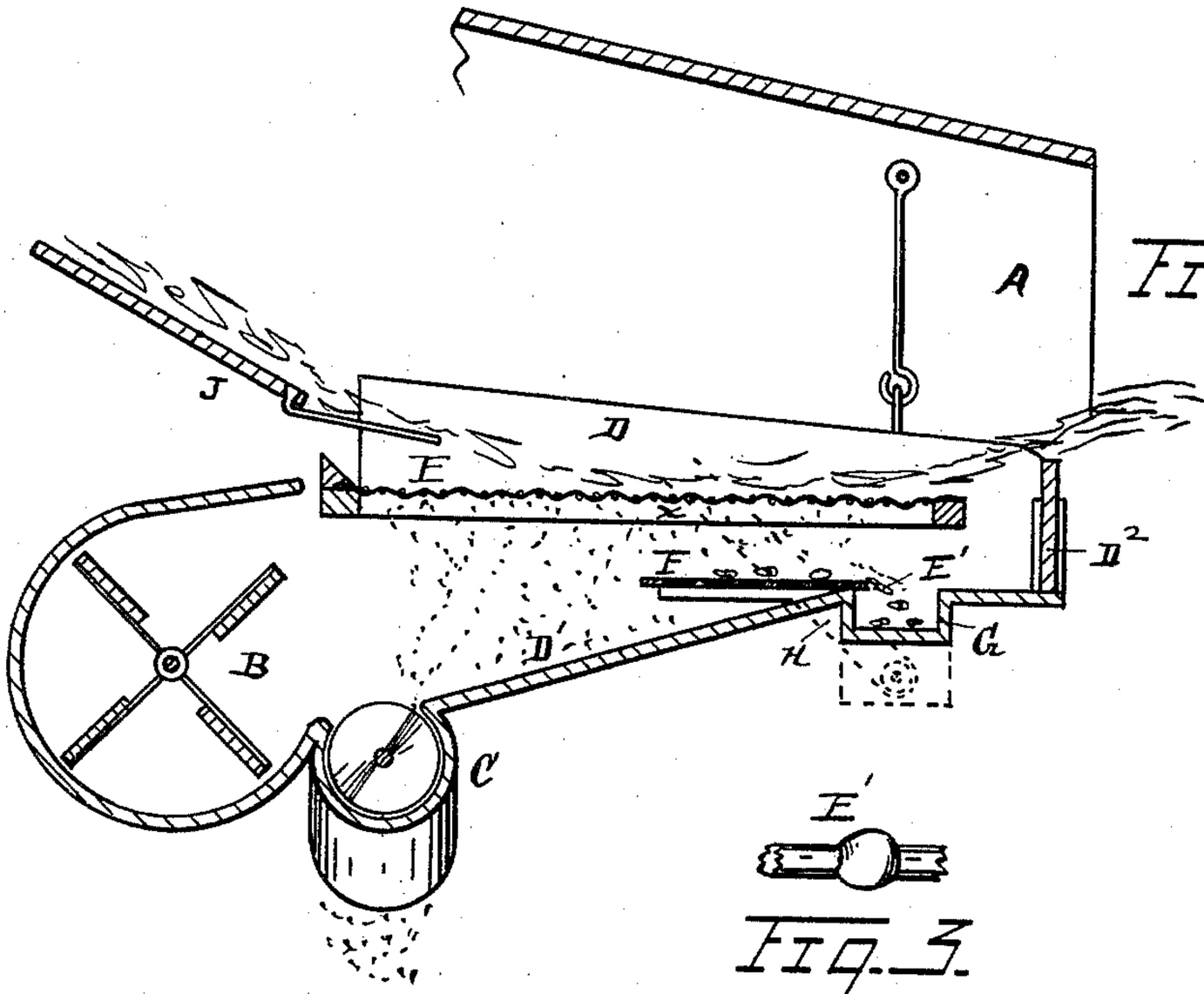

Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

JOSEPH E. COOK, OF NORTHVILLE, MICHIGAN, ASSIGNOR OF ONE-HALF TO ELIJAH VRADENBURG, OF SAME PLACE.

STRAW-SEPARATOR FOR THRASHING-MACHINES, &c.

SPECIFICATION forming part of Letters Patent No. 467,636, dated January 26, 1892.

Application filed September 30, 1891. Serial No. 407,216. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. COOK, a citizen of the United States, residing at Northville, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Straw-Separators for Thrashing-Machines, &c.; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object a novel straw-separator for thrashing-machines, &c.; and it consists of the combinations of devices and appliances hereinafter specified and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through a portion of a thrashing-machine embodying my invention. Fig. 2 is a similar view showing a modification of the device. Fig. 3 indicates a butt of straw.

Owing to the operation of certain insects in the grain and to their increasing numbers, especially during the last two or three years, great difficulty has been experienced in properly separating the straw from the grain in thrashing. The insects are found lodged and packed into the butts of the straw, which is rendered very brittle thereby, in consequence of which the straw breaks into numerous pieces or fragments of various lengths, many of which are so weighted by the insects that they cannot be properly blown out by the operation of machines in common use. Neither are the construction and operation of the screens hitherto employed in said machines found adapted to remove such pieces and fragments of straw from the grain; but thrashers are finding them in great quantities passing, in consequence of their weight and length, through the ordinary screens into the grain, and it has been found quite impossible prior to my invention to overcome the difficulty. The disadvantages and dissatisfaction of such results are apparent, as, moreover, the difficulty of effectually separating such pieces of straw is also found in attempting to clean the grain for market by means of ordinary fanning-mills.

My invention is calculated and adapted to effectually remedy this difficulty and to provide a straw-separator which may be applied to any ordinary thrashing-machine, and which will thoroughly separate and remove such straws from the grain, leaving the grain free and clean therefrom.

I carry out my invention as follows:

A represents a portion of any ordinary thrashing-machine.

B is any customary fan; C, a conveyer for conveying the grain from the machine.

D is a shaking-shoe provided with a screen E.

D′ is the base-board upon which the grain falls from the screen E and by which it is directed to the conveyer C.

My invention contemplates more particularly in providing the shoe D with a perforated sheet-metal screen F, located beneath the rear end of the screen E. Customarily the rear end of the screen E is made of coarser mesh than the forward end thereof, so that the lighter grain and straw will be shaken rearward upon said sieve—say to about the point *x*—without difficulty; but from about said point to the rear extremity of the screen E the trouble above mentioned arises on account of the butts of straw E′ being so weighted that, instead of being carried or blown over the rear end of the screen E, they fall through into the grain. To prevent this result and keep the butts of straw from falling through into the grain, I interpose my improved screen F. This latter screen is preferably made narrow, extending beneath the rear end of the screen E from about the point *x* rearward, so as to catch the straws falling through the rear end of the screen E without interfering with the cleaned grain falling from the forward end of said screen E and its passage to the conveyer.

The screen F is located at a little distance below the screen E—six inches, for instance—leaving room therebetween for the blast from the fan to pass freely, in consequence of which the butts of straw are so directed as to strike flat instead of endwise upon the screen F.

The latter screen may be made of sheet metal perforated with larger orifices toward the rear than toward the forward part thereof, and so presents a smooth surface, upon which said butts are shaken rearward in a reclining position over the smaller perforations in the front portion of the screen until they reach the larger perforations toward the rear, where the perforations are made of sufficient size to allow the butts of straw to drop therethrough. Beneath the coarser or larger perforations of the screen F toward its rear extremity I provide a receiver G, located at a suitable angle, into which the butts of straw drop. A carrier (indicated at H) of any desired construction is provided to carry the butts of straw from the receiver G either back into the thrasher, in case any grain should have passed thereto with the butts of straw, or to the customary straw-carrier, as may be desired.

The receiver G may be suitably located in the shaking-shoe D by terminating the base-board D′ forward of the rear end of the straw-screen E and interposing said receiver between its rear extremity and the rear of the shoe. The rear of the shoe may be provided with a cross-piece D^2 to prevent too easy passage of the straw butts over the rear end of the screen F and prevent any grain from passing over.

The straw-separating screen F may extend forward to a little distance over the rear edge of the base-board D′ and reach rearward across the receiver G, as in Fig. 1, the portion of the screen thereabove having coarse perforations, as above described. As shown, however, in Fig. 2, the screen F might have perforations of uniform size or of any size desired and terminate at its rear extremity toward the forward side of the receiver G, so that the straw butts will be shaken over the rear edge of said screen F without passing therethrough and drop into the receiver G.

J denotes the apron carrying the grain and straw to the screens.

By a separator of this description I am enabled to effectually screen out the butts of straw, as above described, from the grain.

The great utility of the invention has been amply tested.

While I have shown and described my invention as applied directly to a thrashing-machine, it is evident that it is adapted also for use in fanning-mills and thrashing-machine attachments or recleaners, and I would have it understood that I contemplate such uses as coming within the scope of my invention.

The operation of the device will now be understood. The grain and straw falling upon the screen E is carried rearward toward the coarser portions of said screen, some of the grain falling upon the board D′ and some, together with the weighted straw butts, upon the smooth perforated screen F. The straw butts, as above specified, tend to fall from the screen E in a horizontal position, owing to the blast of air between the screens, prostrate upon the screen F, which, being smooth, carries them rearward in a prostrate condition, their position preventing their passage through the finer perforations, while the grain readily passes therethrough upon the board D′, the straws working their way over the rear of the screen F or through its coarser perforations, if employed, into the receiver G. The straw butts are thus effectually freed from the grain.

What I claim as my invention is—

In a straw-separator, the combination of a shaking-shoe, a screen E, a fan, a conveyer, a base-board located beneath the screen E, leading to said conveyer, and a straw-separating screen F, located beneath the rear end of the screen E and extending at its forward extremity over the rear of said base-board, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

JOSEPH E. COOK.

Witnesses:

WM. H. AMBLER,

MARY L. AMBLER.