

COOPER & DONALDSON.

Grain Riddle.

No. 109,716.

Fig. 1 Patented Nov. 29, 1870.

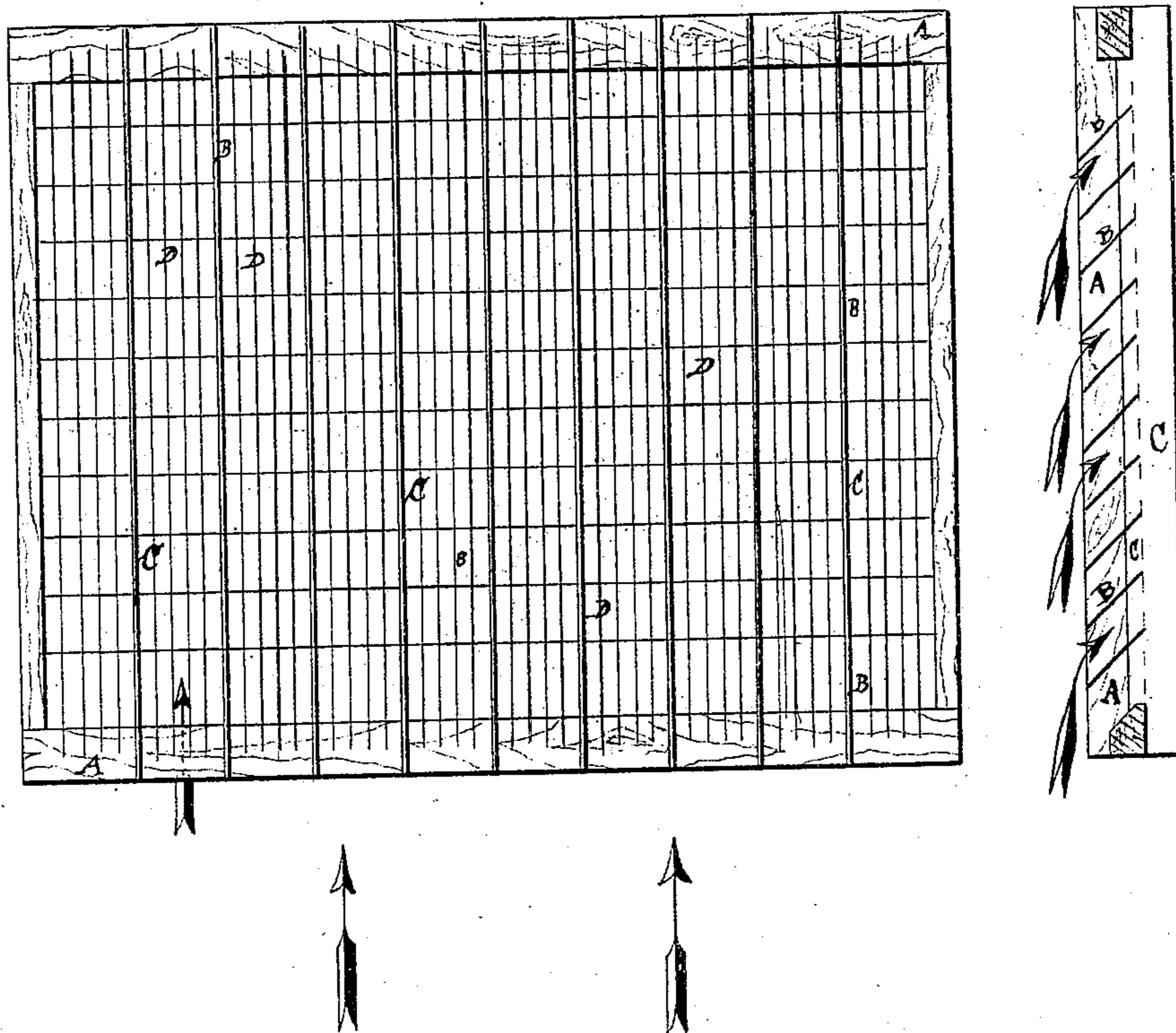
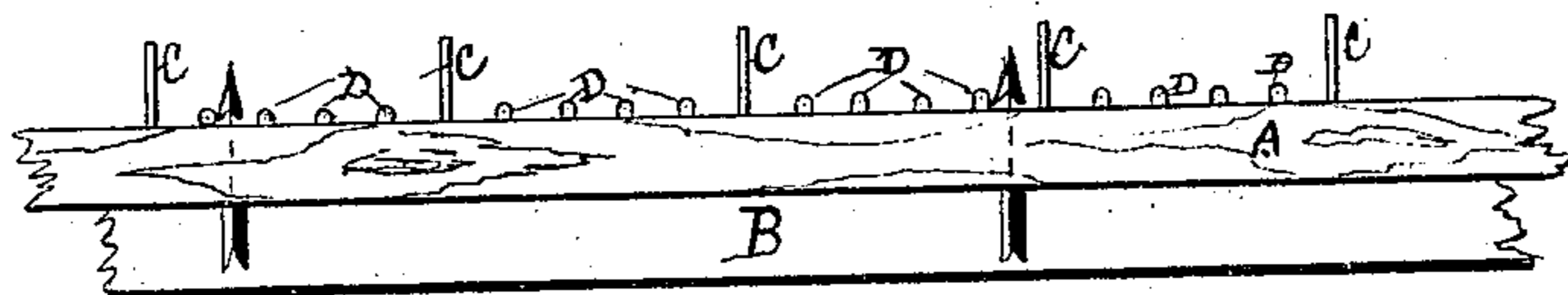


Fig. 2



Witnesses

David P. Smith  
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Inventor's  
Matthew M. Cooper,  
James W. Donaldson,  
By C. M. Smith their atty

# United States Patent Office.

MATTHEW M. COOPER AND JAMES W. DONALDSON, OF FAIRFIELD, CALIFORNIA.

Letters Patent No. 109,716, dated November 29, 1870.

## IMPROVEMENT IN RIDDLES FOR SEPARATING GRAIN.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that we, MATTHEW M. COOPER and JAMES W. DONALDSON, of Fairfield, in the county of Solano and State of California, have invented an Improved Riddle for Separating Grain; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Our invention relates to that class of grain-separators used at the tail end of a thrasher to receive the grain, headings, chaff, straw, &c., coming from the cylinder, and, by the aid of the blast from the thrasher-fan, separates the grain from its lighter and more bulky impurities; the object being to provide a device that shall be lighter and less bulky than the machines hitherto used for the purpose.

This invention consists of a screen or riddle so constructed as to complete the separation above referred to at one operation, and consequently accomplishes the object not only by obviating the necessity of employing a number of screens or riddles instead of a single one, but also reduces the amount of framing required to inclose said screens, the device being so constructed that with a sufficiently strong blast no motion of the riddle itself is necessary; consequently the machinery hitherto employed to give motion to the screen and riddle is not required in connection with our invention.

In the annexed drawing—

Figure 1 is a plan of an improved riddle embodying our invention.

Figure 2 is a longitudinal section of the same.

Figure 3 is an edge view of a portion of the front, on an enlarged scale.

Like letters refer to like parts in all of the figures.

A is a rectangular frame, to which all the other parts are firmly secured.

B are inclined planes made of sheet metal, extending transversely across the inside of the frame, and serve to intercept the blast and direct its course upward through the screen, as shown by the arrows.

C are longitudinal plates or partitions, also formed of sheet metal, serving to divide the blast into currents and prevent the formation of eddies above the screen.

D are wires, stretched longitudinally across the top of the screen-frame at such a distance apart as to admit of the passage of the grain through between them.

When in operation, the riddle must be so placed that the grain, straw, chaff, &c., from the cylinder of the thrasher will fall upon the upper surface near the forward end, and so incased that the blast from the thrasher-fan must find its way up between the inclined planes as shown by the arrows, and set either horizontally or inclined, to correspond to the force of the blast and to the wet or dry condition of the grain.

It will be obvious that when the riddle is so adjusted and arranged, the blast would lift and toss about the headings, chaff, and straw, carrying them always toward and off the tail end; but the grain, being heavy, and presenting less surface to the blast, would drop down between the inclined planes into a suitable receptacle below, and the separation required be thus effected at one operation and with a single screen.

Should the blast be very light, some shaking or jarring of the riddle will facilitate the separation.

The screen surface, being formed of longitudinal wires only, offers no opposition or impediment to the passage of the straw along said surface.

We are aware that separators have been provided with frames having inclined planes similar to the ones herein described, in combination with longitudinal rods instead of with the longitudinal plates or partitions C formed of sheet metal, of our invention. But the rods so employed offer much more obstruction to the upward passage of the air than the plates, and do not effect the object designed by our invention.

Therefore we do not claim broadly the employment of the inclined plane, neither do we claim as new the employment of screens formed of longitudinal wires only; but

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

The riddle herein described, consisting of the frame A, the inclined planes B, the longitudinal plates or partitions C, and the longitudinal wires D, when combined and arranged to operate substantially as described, and for the purpose set forth.

In witness whereof, we have hereunto set our hands and seals.

MATTHEW M. COOPER. [L. S.]  
JAMES W. DONALDSON. [L. S.]

Witnesses:

O. W. M. SMITH,  
H. S. TIBBEY.