B. F. ELLIOTT.
Grain-Ventilator.

No. 206,096. Patented July 16, 1878.

Fig. 3.

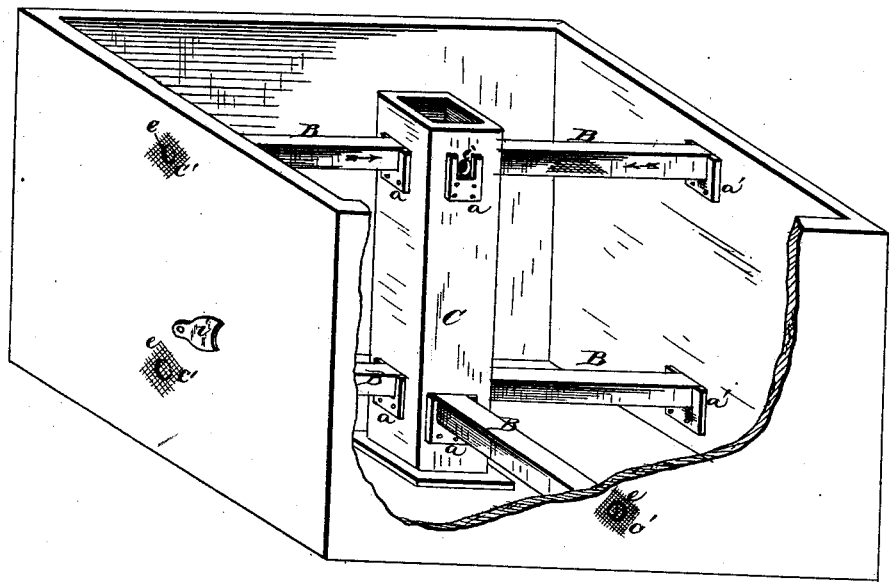

Fig. 1.

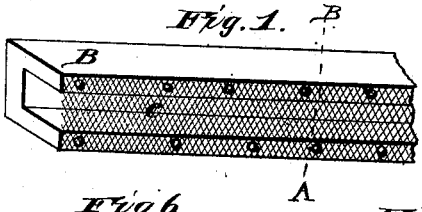

Fig. 2.

Fig 6.

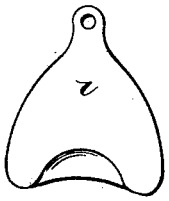

Fig. 4.

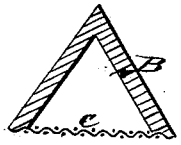

Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

BENJAMIN F. ELLIOTT, OF CEDAR RAPIDS, IOWA.

IMPROVEMENT IN GRAIN-VENTILATORS.

Specification forming part of Letters Patent No. **206,096**, dated July 16, 1878; application filed March 9, 1878.

To all whom it may concern:

Be it known that I, BENJAMIN F. ELLIOTT, of Cedar Rapids, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Grain-Ventilators, of which the following is a specification:

My object is to so construct ducts or channels for air-passages in grain-ventilators that they cannot fill or clog with grain, and the air be thus obstructed, and also to so arrange them in the bins as to secure the most perfect ventilation of the whole mass by gaining a free circulation of pure air, and facilitating the escape of the heated air and noxious gases to which all grain is subject, the whole being easily and cheaply made, durable in its character, and removable at pleasure.

In the accompanying sheet of drawings, Figure 1 represents a bottom view of the duct; Fig. 2, a cross-section of same, taken in the line A B; Fig. 3, the ducts arranged in a bin; Figs. 4 and 5, different forms of ducts; and Fig. 6, a movable cap, closing over external holes to exclude moisture.

The detail of the ducts is shown by B, Figs. 1, 2, and 3. It may also conform to the outline of Figs. 4 and 5, and be made of either wood or metal, as desired. The general form thereof is not the gist of this invention.

For the purposes of this application the quadrangular outline has been preferred, as it is simple and cheap in construction, and contains more air-space than the V-shaped channel, at the same time being best adapted to the mode of arrangement herein described. It consists of a channel or trough made of three boards, fastened together to form parallel sides and a flat bottom. To the free edges of this trough is fastened a screen of wire-gauze or other porous material. This excludes the grain and prevents choking of the ducts, while at the same time admitting air or bad gases from the grain.

Thus constructed, the ducts may be placed in the granary disconnectedly, and in any desired position—horizontal, inclined, or vertical—and may be used in corn-cribs either with or without the screen, the ears not being liable to clog the same. When thus used, they are placed across or lengthwise of the crib, the open side down and the ends reaching nearly to the sides or ends. A passage for air is thus made through the whole bulk, which communicates with the outside through the openings between the boards. Not being fastened in any way, the duct is free to settle with the corn, according as it is naturally inclined.

Fig. 2 shows the application of the same to bins of small grain. A represents the bin in the ordinary cubical form. A part of the front is cut away to show the arrangement of the ducts. C is a flue or stand-pipe, placed vertically at or near the center of the bin. If desired, the foot may be secured in place by strips inclosing same, as indicated in the cut. This flue is provided on its sides and bottom with recessed supports *a a*, which hold the ends of ducts B, and communicates with the outside through holes *e e* in the wall of the bin. Similar supports, *a' a'*, are also attached to the inner sides of the bin, corresponding in height and distance from either side of the bin to those on the stand-pipe or flue. Like holes, *e'*, are provided here for the admission of outside air.

The holes in both pipe C and sides of bin A are covered with a screen, *c*, similar to that on the ducts. By this precaution the grain is prevented from escaping when the ventilator is removed.

To guard against the access of rain to the grain in the case of bins exposed to the elements, a movable button or cap, *i*, is attached to the outside thereof, so as to be shut over the hole when desired. A hollow on its under and inner side, as shown in Fig. 6, permits of the entrance and escape of air.

Thus constructed, the apparatus is ready to be set up. This is very quickly done by placing the flue C upright in its place and the ducts B in their sockets or supports *a a'*, as represented in Fig. 3. When so set up, it is self-supporting, the flue being braced from all sides. To remove it is the labor of a moment, being only to lift out the pieces.

It will be seen that by this arrangement of parts a very general ventilation is given to the entire body of grain, the ducts radiating in all directions from a common center. The main pipe acts as a flue, which, in connection with the outer holes, creates more or less draft. By this means the natural tendency of the bad

air at the bottom to rise and impregnate the whole mass of grain, [illegible] turned to good account by diverting it into numerous channels through which it [illegible]s.

If thought desirable, the flue may be made higher and the draft thereby materially increased.

The cheapness of my invention constitutes a peculiar advantage over kindred devices now in use. Being made in the simplest manner and of inexpensive elements, the cost of manufacture is reduced to the minimum.

Another important point of superiority is found in its portable character.

When from any cause it is desirable to remove the ventilator from the granary or bin, the operation is easily and quickly performed, without the inconvenience and delay of withdrawing screws, bolts, or nails.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of ducts B, screen *c*, flue C, and supports *a a'*, substantially as and for the purpose specified.

2. The combination of flue C and ducts B with the outside walls of the bin, having holes *e*, provided with screen *c'*, substantially as and for the purposes set forth.

3. The combination of bin A, having holes *e* and screen *c'*, with ducts B, having screen *c*, and flue C, having holes *e'*, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as mine, witness my hand this 23d day of February, A. D. 1878.

BENJAMIN F. ELLIOTT.

Attest:

R. H. GILMORE,

J. M. ST. JOHN.