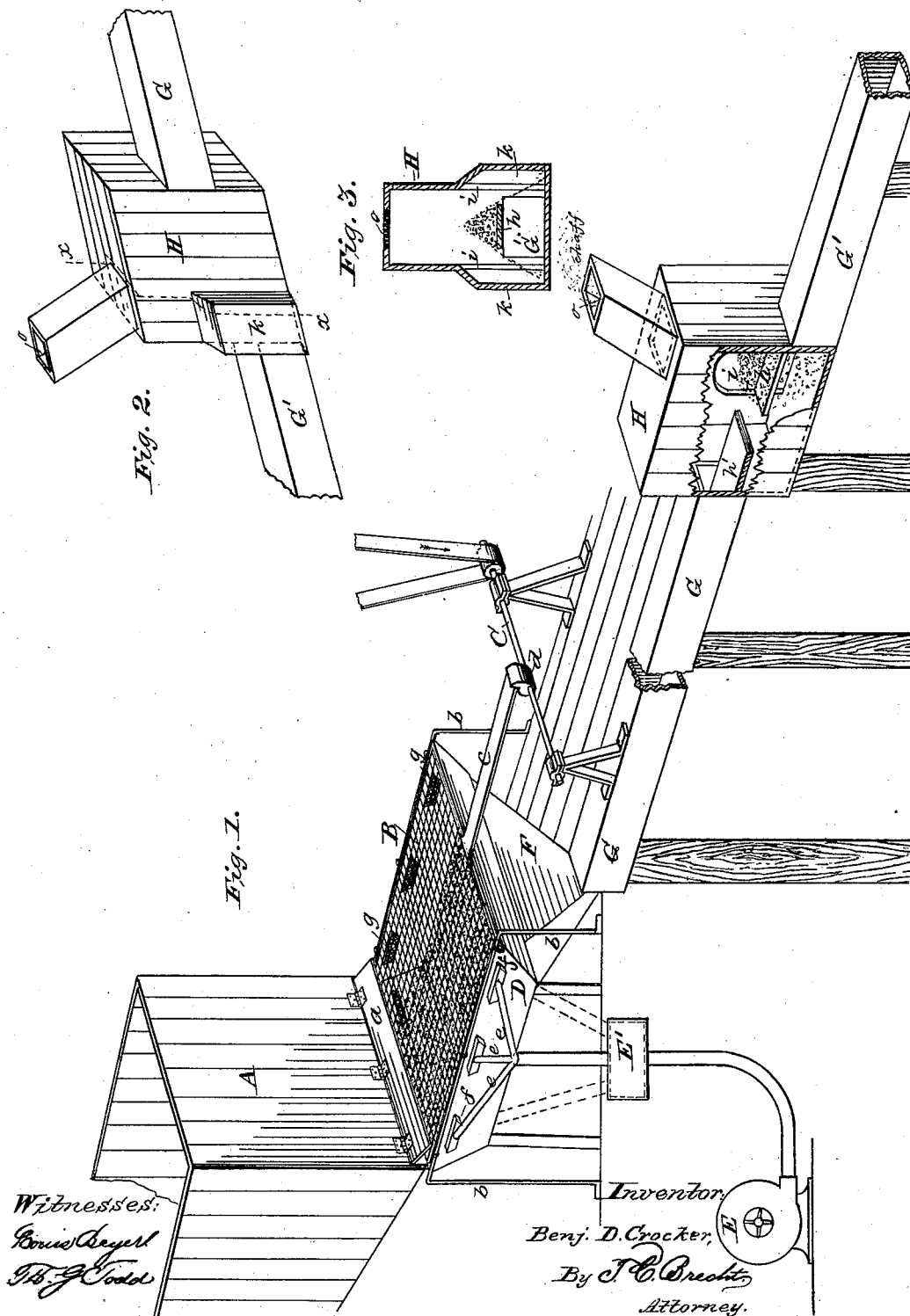


B. D. CROCKER.

GRAIN SEPARATOR AND ELEVATOR FEEDER.

No. 343,364.

Patented June 8, 1886.



Witnesses:  
Benj. D. Crocker  
J. C. Crocker

Inventor  
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Attorney.

(No Model.)

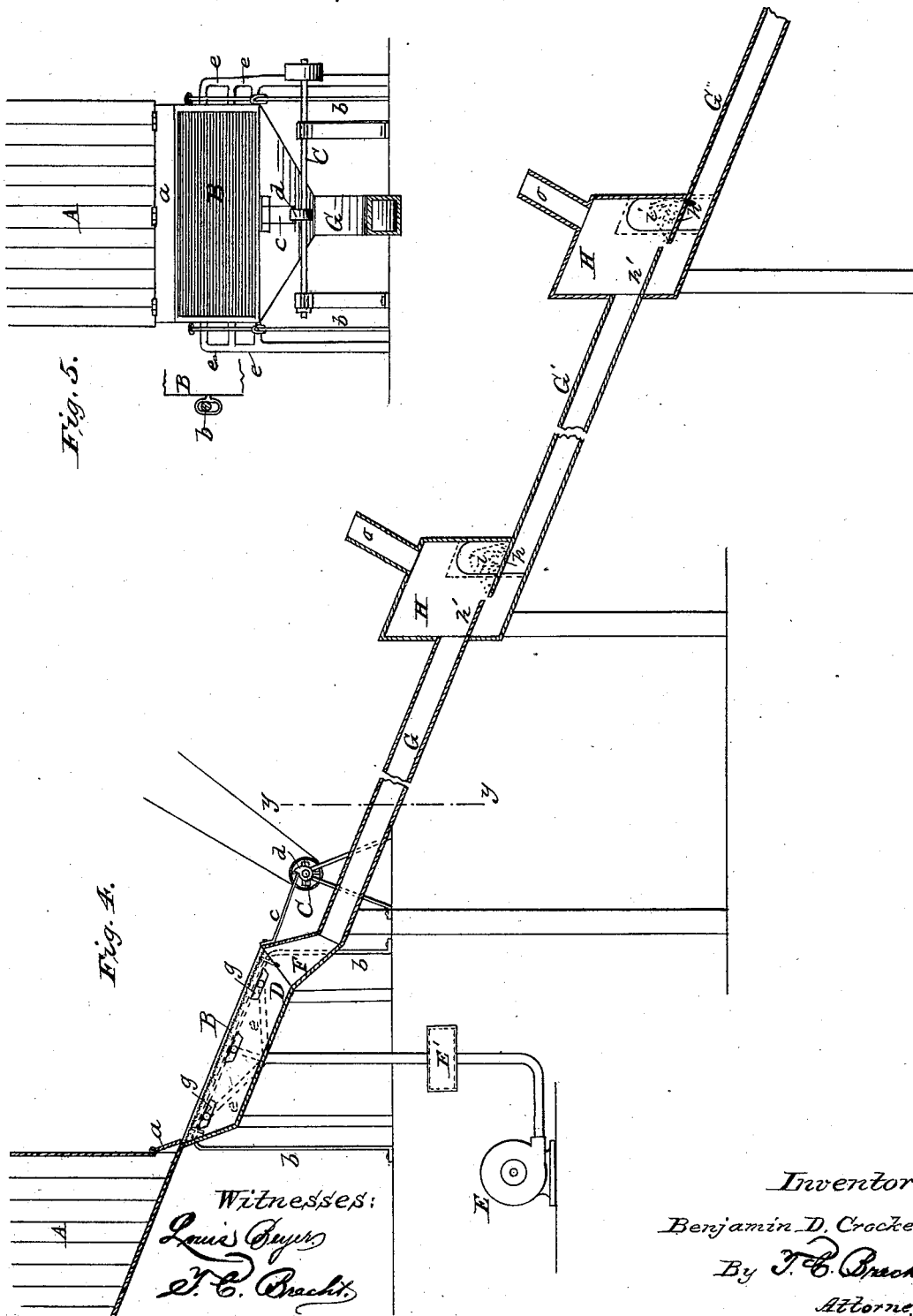
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Witnesses:  
*Louis G. ...*  
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Inventor:  
*Benjamin D. Crocker,*  
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# UNITED STATES PATENT OFFICE.

BENJAMIN D. CROCKER, OF WALLA WALLA, WASHINGTON TERRITORY.

## GRAIN-SEPARATOR AND ELEVATOR-FEEDER.

SPECIFICATION forming part of Letters Patent No. 343,364, dated June 8, 1886.

Application filed July 27, 1885. Serial No. 172,738. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN D. CROCKER, a citizen of the United States, residing at Walla Walla, in the county of Walla Walla and Territory of Washington, have invented certain new and useful Improvements in Grain-Separators and Elevator-Feeders; and I do hereby 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.

My invention relates to improvements in grain-separators, and is especially adapted to elevators; and the objects are to clean and purify the grain from chaff, small straws, smut, dust, and other impurities in a thorough manner by an upward air-current in expansion chambers or boxes arranged at certain intervals along a chute or inclined pipe, through which the grain passes.

The invention consists in the novel construction of certain details and the arrangement of parts, as hereinafter described, and specifically pointed out in the claims, reference being had to the accompanying drawings, and the letters of reference marked thereon.

The same letters indicate the same parts in the different figures of the drawings, in which Figure 1 represents a perspective view of the separator attached to a bin and the chute with one expansion-chamber partly broken away. Fig. 2 is a detail perspective view of the expansion-chamber, showing the side extension-boxes. Fig. 3 is a cross-section of the same on line *xx* of Fig. 2. Fig. 4 is a longitudinal section of the grain-separator, partly in elevation. Fig. 5 is a cross-section, on line *yy* of Fig. 4, through the chute and looking toward the grain-bin.

In the drawings, A represents part of a bin or storage-receptacle for grain of any kind, having at its front end a narrow opening with a regulating-door, *a*, through which the grain passes onto a screen, B. The screen is supported on light flat iron rods *b*, secured to the floor, thus rendering it capable of a slight springing or jarring motion when acted on by the arm *c*, extending to a cam, ratchet, or eccentric, *d*, mounted on the shaft C, operated by a belt and pulley receiving motion from any suitable motive power. As the grain is shaken

by the jarring, the kernels fall through the perforations in the screen into a receptacle or box, D, underneath screen B, and the smut, light dirt, &c., are prevented from passing down with the grain, as they are blown out by an air-blast, which forms a cushion of air beneath said screen in the following manner: A rotary blower, E, supplies a blast of air to the reservoir E', from which it is conducted by suitable pipes, *e*, to small boxes *f* on each side of the receptacle D. On the insides of the boxes *f* are openings covered with wire-netting *g*, which give vent to the volume of air from the blower, and as the sides of the box D flare upwardly the draft has an upward tendency, and, coming from all sides except the lower, it forms an air-cushion underneath the screen, finding exit through the perforations therein. This blast is merely of sufficient power to prevent any light dirt, smut, small straws, dust, &c., from going through the openings in the screen, and to keep them on top of the same until they are carried off the lower end by reason of the jarring motion given by the cam or ratchet. After the grain has been relieved from all impurities that can be thus taken out by screening it falls from the box into a spout, F, whence it may be conveyed to a weighing-bin or to the head of the chute, hereinafter described. The slight blast of air will also assist in drying damp grain.

The chute consists of a series of sections, G G' G'', made of wood or metal, and of the form shown, Fig. 1. It should be inclined at an angle of at least twenty-five degrees. Each succeeding section occupies a lower horizontal plane than the preceding one, and is united thereto by chambers or boxes H, as clearly shown in Figs. 1 and 4. The chambers or boxes H are also made of wood or metal, and vary in dimensions according to the size of the chute. To the lower head of each box H, against which the grain will strike, is attached a narrow strip or shelf, *h*, which is intended to hold a sufficient quantity of wheat or grain to form a pyramid against the lower head of box H, and on which the descending grain falls and breaks its force, preventing any damage to the grain, by reason of striking a hard substance, or any wearing of the lower head of the box H. A space of sufficient size is left between the strip

5 *h* and the end *h'* of the upper section of the chute to insure an exit for all grain that comes down the chute and is stopped by the lower head of the box *H*. Openings *i* are made in the sides of said box, which lead to side boxes, *k*, on the outside thereof, and thence to the next section, *G'*. These boxes are intended to assist the egress of the grain stopped at *h*, so that the exit may not become clogged by a  
 10 backward flow from the pyramid. The grain having been temporarily checked at *h* falls off from the pyramid on each side and passes out at openings *i*, and by means of the boxes *k* enters the section *G'*, continuing its descent to  
 15 the next expansion-chamber, &c. Any chaff, smut, &c., which have descended with the grain pass through the openings *o* or open top by the sudden expansion of air in the chambers *H*, which tends to elevate or raise the  
 20 light dust, chaff, &c., and cause its escape. Any smut, &c., still adhering to the grain will be loosened in passing through the chute by abrasion.

25 I am aware that grain-separators for elevators having inclined chutes in connection with an air-blast are old, and therefore do not claim such, broadly.

30 I do not claim herein the combination of the box having the overflow-openings, the shelf, and the chute; nor the combination, with the chute, the box, and the shelf, of a heap of

grain on the shelf, constituting a cushion to receive the stream of grain, as these combinations have been made the subject of claims in another application, Serial No. 190,209, filed 35 January 29, 1886; but,

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

1. A grain-separator for elevators, comprising a sieve, means for jarring the same, spring-rods upon which the sieve is supported, a blower, air-reservoir and pipes, a receptacle, *D*, spout *F*, and a chute consisting of a series of sections provided with expansion-chambers 40 having openings *i* and side boxes, *k*, all as and for the purpose specified.

2. A grain-separator for elevators, comprising a bin having a door, *a*, receptacle *D*, a sieve, means for jarring the same, spring-rods 50 *b*, a blower, an air-reservoir and pipes, and a chute consisting of a series of sections provided with expansion-chambers having openings *i*, side boxes, *k*, and shelves *h*, upon which the descending grain is received, all as and for 55 the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN D. CROCKER.

Witnesses:

H. M. CHASE,  
 FRANK W. PARKER.