

Grain Separator.

Patented Oct. 13, 1868.

Fig: 1.

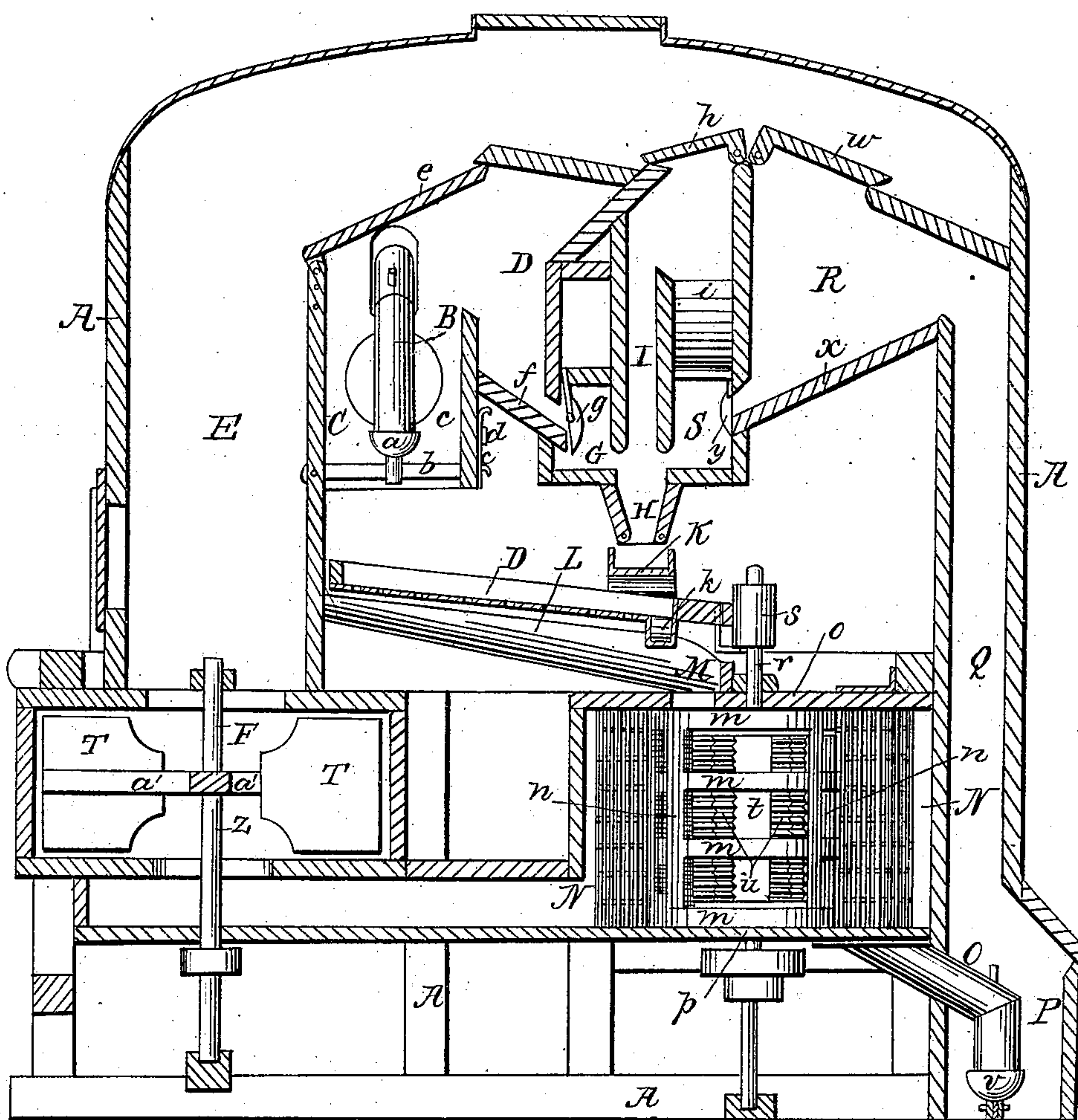
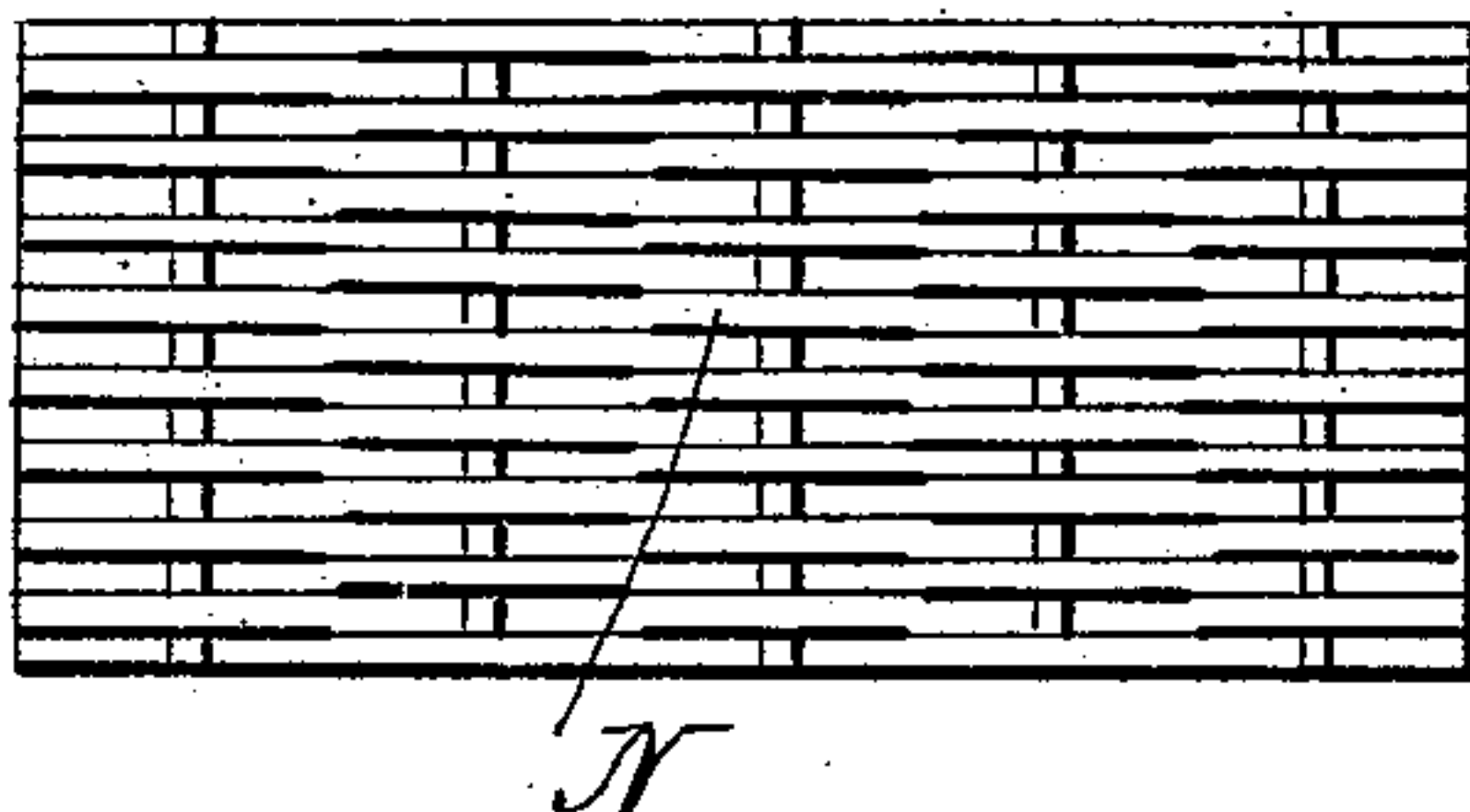


Fig: 2.



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P. N. RECKER AND JOSEPH RECKER, OF DAYTON, OHIO.

Letters Patent No. 82,989, dated October 13, 1868.

IMPROVEMENT IN GRAIN-SEPARATORS.

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, P. N. RECKER and JOSEPH RECKER, of Dayton, in the county of Montgomery, and in the State of Ohio, have invented certain new and useful Improvements in Grain-Separators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in the general arrangement of a grain-separator, in such a manner that the grain will be cleaned and separated from all dirt, chaff, &c., by several distinct and separate currents of air passing through the mill, which currents may be regulated at will; also in the manner of regulating the quantity of grain both to enter the mill and to be discharged therefrom.

In order to enable others skilled in the art to make and use our invention, we will now proceed to describe its construction and operation.

In the annexed drawings, forming part of this specification, A represents the body or frame of the separator, which can be made of any size or dimensions required.

The grain is poured into the tube B by means of a hopper, funnel, or other suitable device, attached to the same on the front side of the mill. The end of this tube is in the chamber C, above the riddle D, and the discharge of the grain from said tube is regulated by means of the valve *a*, said valve being secured to a cross-bar or rod, *b*, pivoted at one end, and raised or lowered by a slotted bar, *c*, at its other end, a screw, *d*, passing through the slot therein, into the frame A, so that the bar *c* may slide up and down on the same, thereby opening or closing the end of the tube B, according as the valve *a* is lowered or raised.

The bottom of the chamber C being open, the grain discharged from the tube B falls down on the riddle D, but as a current of air constantly passes up through said chamber, some of the dust, chaff, and other stuff generally mixed among the grain will be carried upwards into the chamber D, and the lighter part thereof, at least, pass around the valve *e*, down through the chamber E, and out through the drum F.

That part which is not carried around said valve will fall down on the inclined board *f*, and, through the opening at the side thereof, covered with the valve *g*, pass into the chamber G, where it is again subjected to another current of air coming up through the open bottom of the hopper H, and part of it carried upwards through the passage I, and through the opening closed by valve *h*, into the upper part of the mill, and down through the chamber E, the same as the other.

But in carrying it up through the passage I, some of it may be too heavy to pass all the way up through the said opening; this will then fall down on the inclined plane *i*, and out through a spout on the rear side of the mill.

That part of the chaff which is too heavy to be carried away by this second current of air, will pass down through the hopper H, on to the spout K, and out on the front side of the mill.

The riddle D is inclined, and consists of a perforated plate, through which the grain passes, and falls into a circular-shaped plate, L, and into the hopper M, but straws, sticks, &c., cannot pass through the riddle, but fall out through the spout *k*, which is fastened to the end of the riddle, and out on the rear side of the mill.

The hopper M opens into the smut-mill, in which the grain is cleaned. This smut-mill consists of circular bars, *m m*, which run horizontally, and, with the perpendicular bars *n n*, form a stationary frame between the wooden top *o* and bottom *p*, which frame is enclosed by wire netting, N.

The bars *m m* and *n n* are flat or square on the outside, but bevelled inwards on the inner side, thus making them of triangular shape, so that the grain, in passing down on the inside, cannot remain on the horizontal bars, but is thrown off inwards.

The wire netting is made in several pieces of square wire interwoven on rods, one of which pieces is shown in fig. 2, and these pieces placed perpendicularly on the outside of the bars, and form a better scouring-surface than if made of round wire.

The object of having the wire netting in several pieces is, that when the corners of the wires are worn out, these pieces may be turned upside down, then the outside changed to the inside, and that again turned upside down, thus lasting a long time, and saving a great deal of expense.

Through the centre of the smut-mill is a shaft, *r*, which rests in the bottom of the frame A, and runs up through the top of the smut-mill, having on its upper end an eccentric-wheel, *s*, against which the end of the riddle D rests, so that when said shaft revolves, this wheel shakes the riddle, thus assisting the grain to pass through the same.

On the shaft *r*, inside of the smut-mill, is a solid wooden cylinder, *t*, extending nearly from the top to the bottom thereof, and one or more corrugated boards, *u u*, are placed perpendicularly on and along said cylinder, which boards thus give additional scouring-surface for the grain.

The grain having been scoured and cleaned by the action of the corrugated boards *u u* and the wire netting N, passes out through the tube O, which extends from the bottom, *p*, into the chamber P, on the side of the separator, and then extends downward. The discharge of the grain through this tube is regulated by means of the valve *v* in the end thereof, said valve being operated in the same manner and by the same means as the valve *a* at the end of the tube B.

The bottom of the chamber P being open, any dust, &c., that may yet remain, and pass out with the grain, is carried upwards by a current of air through the passage Q, and into the chamber R, some of it passing

around the valve *w* into the upper part of the mill, and down through chamber *E*, the balance falling on the incline board *x*, and passes, through the opening closed by valve *y*, into the chamber *S*, where it meets the same current of air already described as passing up through the passage *I*, or falls out through the hopper *H*.

The valves *e*, *h*, and *w*, being all pivoted, and provided with keys on the front side of the mill, can be placed at any angle over their respective openings, so that the different currents of air may be regulated at will.

Under the chamber *E* is the drum *F*, which contains a fan, consisting of a shaft, *z*, arms, *a' a'*, and wings, *T T*, which, being turned by means of a belt running from a pulley on the lower end of the shaft *r* to another pulley on the lower end the shaft *z*, draws the currents of air, and with them the dust, &c., down through the chamber *E* into the drum, and forces it out through an opening in the side thereof.

Having thus fully described our invention—

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

1. The triangular-shaped horizontal bars *m m*, and perpendicular bars *n n*, constructed as described, and forming a frame, to be covered with wire netting, for the purpose of scouring grain, substantially as and for the purposes herein set forth.

2. The wire netting *N*, when constructed in sections,

or otherwise, of square wire, and used substantially as and for the purposes herein set forth.

3. The arrangement of the valve *a*, rod *b*, slotted bar *c*, and screw *d*, for the purpose of regulating the discharge of grain out of a tube, substantially as and for the purposes herein set forth.

4. The arrangement of the chamber *D* with valve *e* and valve *g*, covering the entrance to the chamber *G*; constructed as described, and operating substantially as and for the purposes herein set forth.

5. The arrangement of the hopper *H*, passage *I*, and valve *h*, constructed as described, and operating substantially as and for the purposes herein set forth.

6. The arrangement of the passage *Q*, chamber *R*, with its valve *w*, and the valve *y*, covering the entrance to the chamber *S*, constructed as described, and operating substantially as and for the purposes herein set forth.

7. The arrangement of the chambers *C*, *D*, *G*, *Q*, *R*, and *S*, passage *I*, and the hopper *H*, carrying the different currents of air through the chamber *E*, and into the drum *F*, substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing, we have hereunto set our hands, this day of , 1868.

P. N. RECKER.

JOSEPH RECKER.

Witnesses:

WM. H. SIGMAN,
DENIS REGAN.