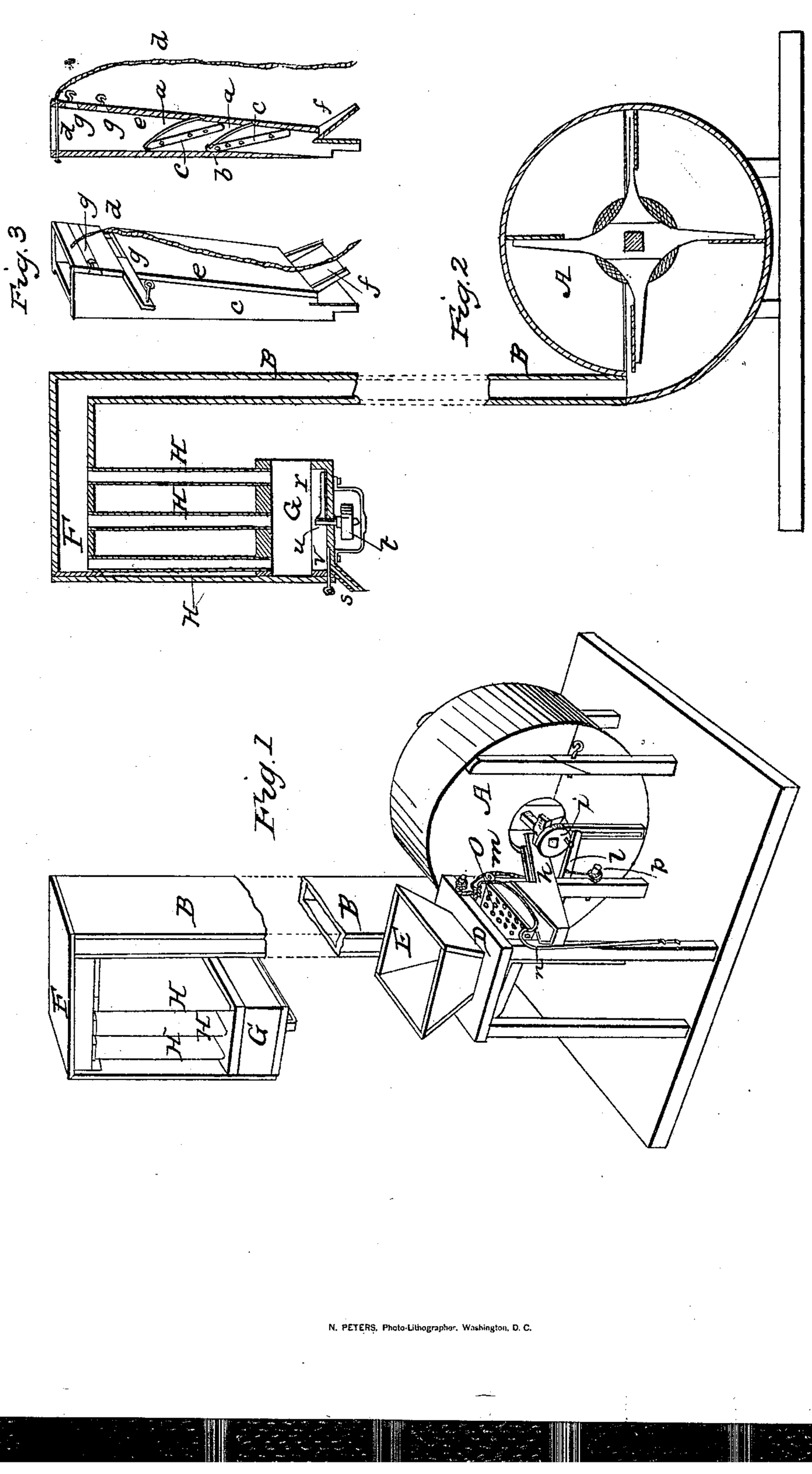
WHITE & BUNDY.

Grinding Mill.

No. 7,828. Patented Dec. 10, 1850.



UNITED STATES PATENT OFFICE.

JESSE WHITE AND JONATHAN BUNDY, OF BARNESVILLE, OHIO.

ELEVATING, COOLING, AND CONVEYING FLOUR.

Specification of Letters Patent No. 7,828, dated December 10, 1850.

To all whom it may concern:

Be it known that we, JESSE WHITE and JONATHAN BUNDY, of Barnesville, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Machines for Elevating, Conveying, and Cleaning Grain and for Elevating, Conveying, and Cooling Flour and Meal; and we do hereby declare the following is a full, clear, and exact description of our improved apparatus, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 represents a view in perspective of our apparatus applied to the elevation and cooling of flour; Fig. 2 is a vertical section of the same through the middle of the fan; Fig. 3 is a view in perspective and Fig. 4 a section of the wheat head to be used when grain is to be elevated and cleaned.

Our invention consists in effecting any one or all the operations of elevating, conveying and cleaning grain, and of elevating, conveying and cooling flour and meal, by means of a current of air produced artificially with sufficient velocity to carry the grain or flour along with it through the tube or other channel through which it is forced.

In the apparatus represented in the accompanying drawing the current of air is produced by means of a centrifugal fan A, whose wings also act as beaters to scour the grain and pulverize the smut.

A trunk B, is adapted to the fan-case to convey the grain in any required direction. In the example represented in the drawing the trunk proceeds vertically from the fan case to the apartment in which the grain is to be delivered. The trunk here terminates in an enlarged cap or head (Figs. 3 and 4). This cap is fitted within with inclined racks or ladders C which are hinged at their lower extremities to the sides of the head, their upper extremities being pressed by springs *a* against one of the faces *b* of the head. This face is not fixed but is hinged at its lower extremities to the side pieces *c* and is fitted at its upper extremity with a cord *d*, by means of which it can be drawn toward the opposite face *e* so as to diminish the space between the two. The lower extremity of the head is fitted with a spout *f*, for the discharge of grain, and its upper extremity is fitted with sliding doors *g*, *g*, for the discharge of the lighter portions of the impurities carried upward by the blast.

A hopper frame D is erected at the side of the fan to support a hopper E, in which the grain to be elevated, conveyed, or cleaned is introduced; from this hopper the grain is fed to the eye or opening of the fan case by means of a shoe *h*, to which a vibratory motion is communicated by a pin *i* projected from a disk *k* on the fan shaft, and acting through the intervention of a shaking lever *l* and cord *m;* the shaking is effected in part by a spring *n* which draws the shoe in one direction while the pin draws it in the other. The shoe is fitted with a riddle *o* by means of which the larger impurities which are mingled with the grain are removed before it enters the fan.

The grain to be cleaned and elevated is placed in the hopper E and is fed therefrom it by the shoe *h* into the eye of the fan, which is put in rapid motion by means of a belt encircling a belt pulley secured to its shaft. The grains entering the eye are beaten by the wings of the fan and are carried upward, with the air drawn in at the eye, through the trunk to the head Fig. 3. The ascending grain here striking against the bars of the racks C are deflected from their direct course, while at the same time the velocity of the air is checked by the enlargement of the head, thus allowing the cleaned grain to fall at the side whence it is discharged by the spout *f;* the lighter particles are still carried upward, and as the currents of air are weakened by the continued enlargement of the head, are discharged according to their respective densities through openings in the face *e*, while the finest particles are carried through the open top of the head. The velocity of the air in the head is varied by changing the position of the movable face *b* which is drawn toward the fixed face *e* to contract the space and thus increase the velocity of the air in the head; the opposite effect is produced by drawing it from the fixed face, and thus increasing the space through which the air passes.

The rate at which the grain is fed to the fan is varied by limiting the stroke of the shaking lever; this is effected by means of a cord *p*, which is tightened or slackened by turning a pin to which it is secured.

When this apparatus is applied to the cooling and elevating of meal from the stones, a head such as is represented in Figs. 1 and 2, is applied to the air-trunk B.

This head consists principally of two chambers F and G, connected by one or more air bags H; the latter are thin and broad in order to afford a large surface through the perforations of which the air can escape while the meal is retained and is conducted to the lower chamber G. The latter is also constructed with perforated sides and its bottom is fitted with a scraper *r* by which the flour is collected and discharged through a spout *s*. The scraper is driven by a belt encircling a belt pulley *t* secured to its shaft *u*, and the spout *s* should be fitted with a valve *v* by means of which the aperture is contracted to such an extent as will barely discharge the meal without allowing the escape of air.

The meal to be cooled and elevated is fed directly into the eye of the fan and is carried upward by the current of air produced. In these examples I have represented the air trunk as proceeding vertically from the fan case, but it may be sloped in any direction to convey the substances laterally from the fan.

What we claim as our invention and desire to secure by Letters Patent is—

The method of elevating, conveying and cooling flour or meal by passing it by means of a blast through an air trunk and head constructed substantially as herein set forth.

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Witnesses:
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