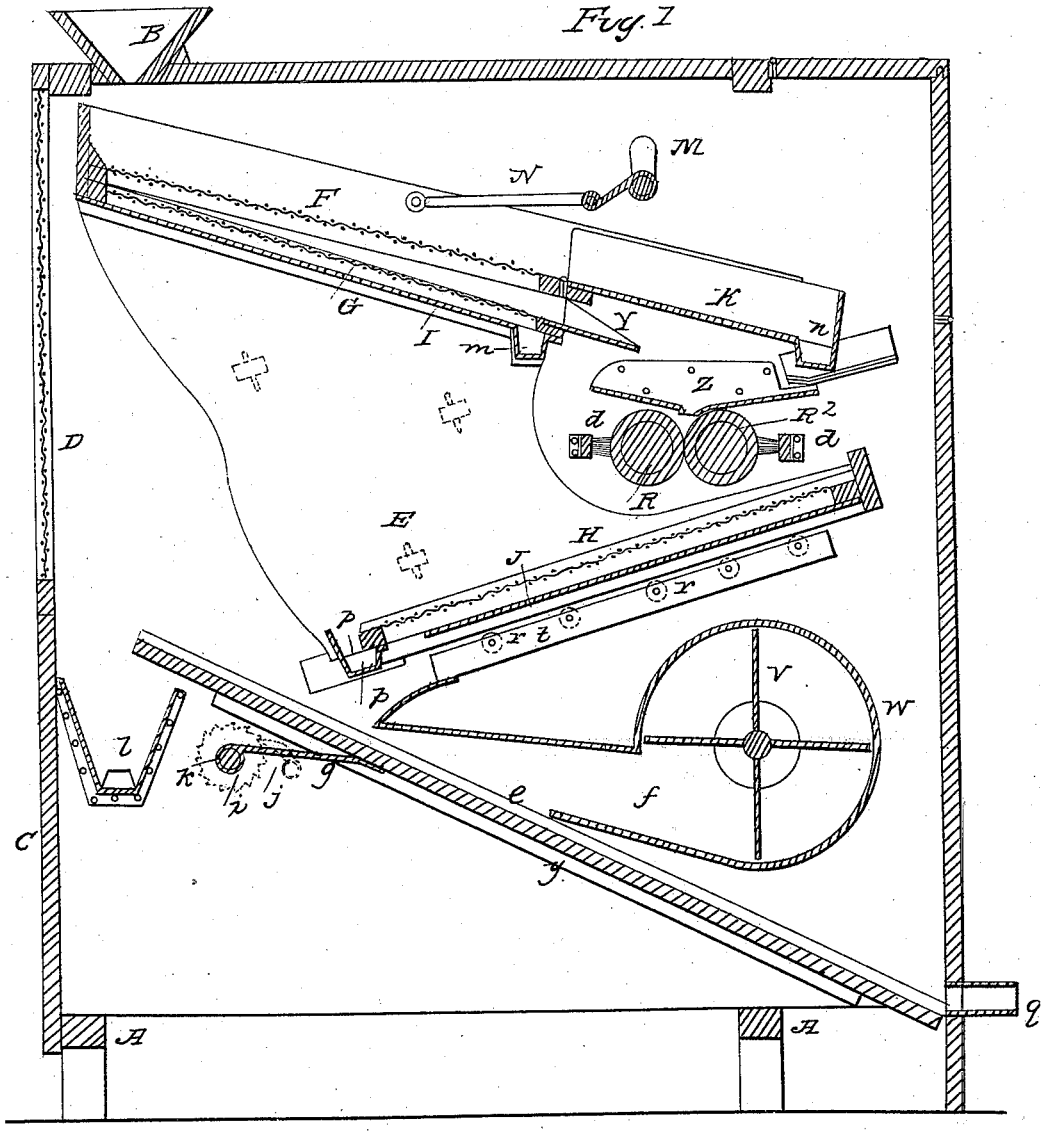
4 Sheets—Sheet 1.

FLICKENGER & KRIM.

Grain Winnower.

No. 2,649. Patented May 28, 1842.

Fig. 1



4 Sheets—Sheet 2.

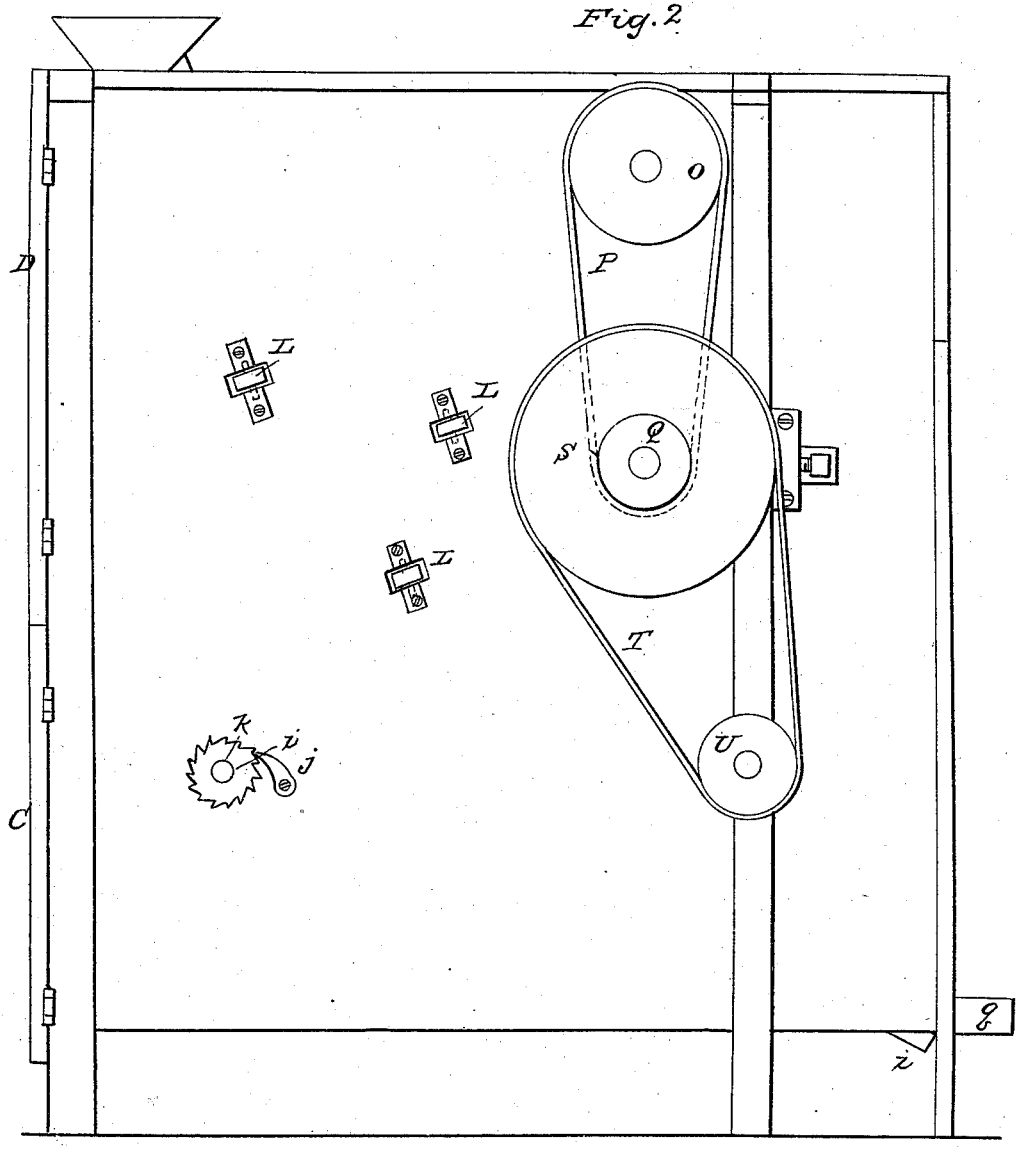
FLICKENGER & KRIM.

Grain Winnower.

No. 2,649.

Patented May 28, 1842.

Fig. 2



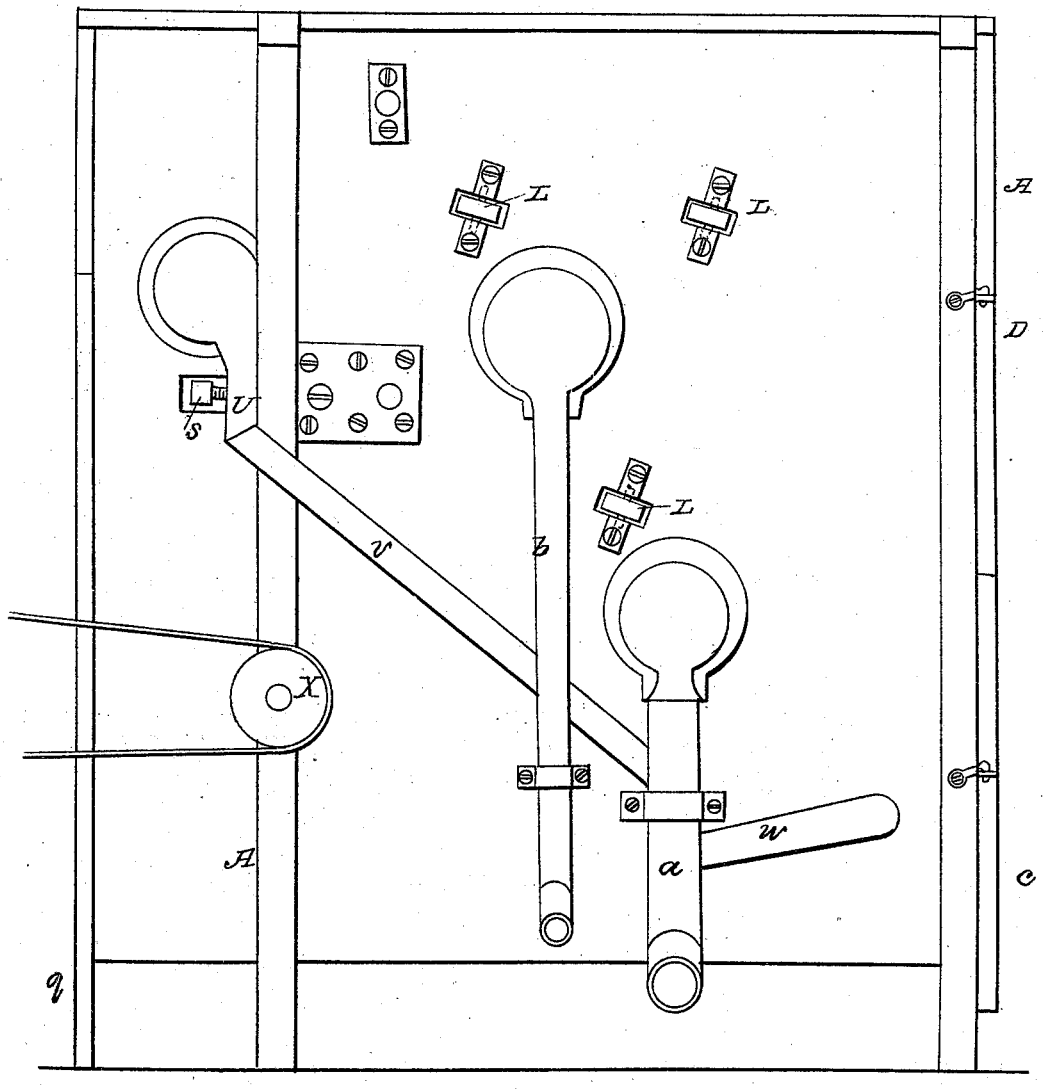
4 Sheets—Sheet 3.

FLICKENGER & KRIM.

Grain Winnower.

No. 2,649. Patented May 28, 1842.

Fig. 3



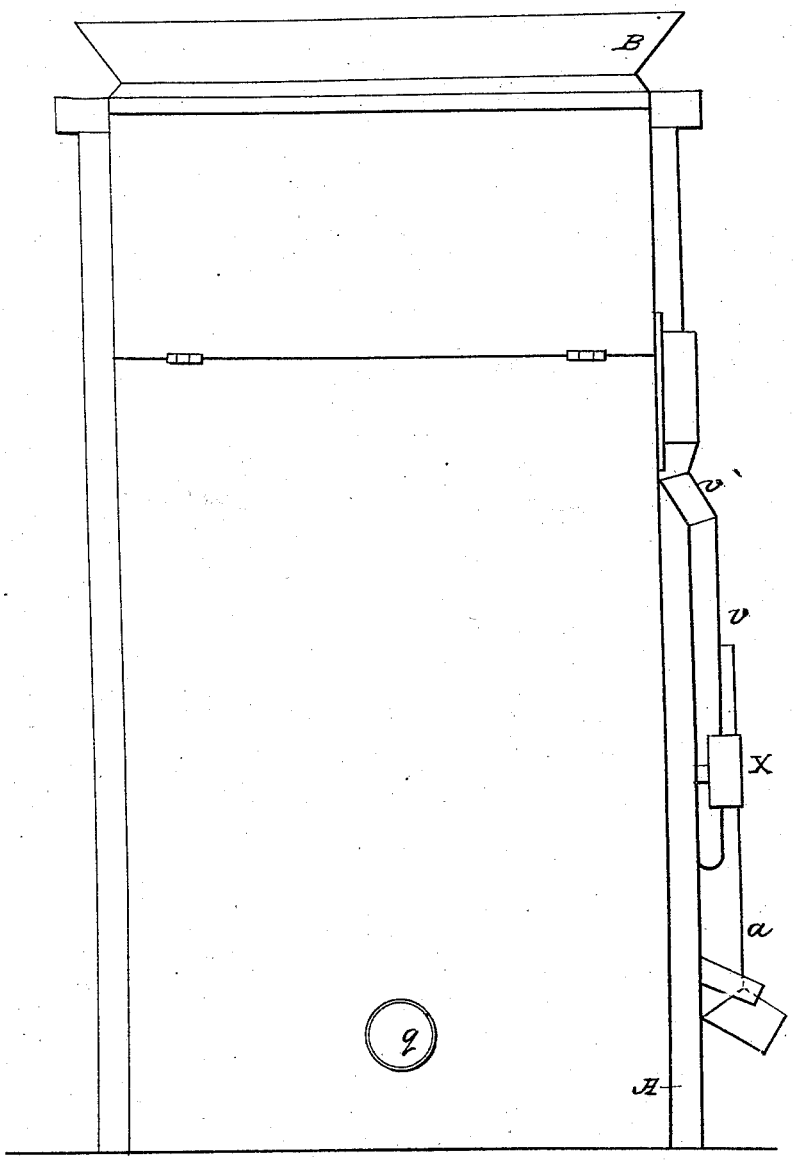
4 Sheets—Sheet 4.

FLICKENGER & KRIM.

Grain Winnower.

No. 2,649. Patented May 28, 1842.

Fig. 4



UNITED STATES PATENT OFFICE.

DANIEL FLICKINGER AND SEBASTIAN KRIM, OF HANOVER, PENNSYLVANIA.

MACHINE FOR CLEANING GRAIN OF GARLIC.

Specification of Letters Patent No. 2,649, dated May 28, 1842.

To all whom it may concern:

Be it known that we, DANIEL FLICKINGER and SEBASTIAN KRIM, of Hanover borough, York county, and State of Pennsylvania, have invented a new and useful Machine for Cleaning Grain of Garlic, Smut, Cockle, Cheat, and other Foreign Substances, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a vertical longitudinal section of the machine. Fig. 2 right side of the machine showing the pulleys. Fig. 3 left side of ditto showing the spouts. Fig. 4 end elevation.

Similar letters refer to corresponding parts.

The frame A for containing and supporting the several parts of the machine is made of suitable size, strength, and material: for an ordinary machine say about 5 feet long—2 feet wide, and 5 feet high, being composed of four posts united transversely at bottom by two parallel cross timbers and at top by two transverse caps, and longitudinally by the boards composing the sides—covered at top by a horizontal board in which the feeding hopper B is placed—the back end being closed by boards part of which is secured firmly and part by hinges to enable the operator to have access to the interior of the machine, the front end being closed by two hinged doors C, D, the lower one C solid, and the upper one D of wire gauze to allow a free passage of the wind from the fan and at the same time to prevent the escape of the chaff, and the bottom being closed by the inclined adjustable board hereafter described.

The vibrating shoe E containing the inclined sieves F, G, H for separating the grain from the foreign substances and the inclined conductors, boards, or plates I, J, placed below the sieves G, H, for conducting the cheat, the garlic, the cockle &c. to the side spouts *a*, *b*, and for conducting the grain to the fan and the hinged conductor K and trough *n* for conducting the large garlic to one of the side spouts *v* is composed of two boards E placed nearly as far apart as the width of the space between the two side boards of the frame between which the shoe moves being connected together by cross bars, said shoe moving longitudinally over onto friction rollers *r* arranged in inclined timbers *t* fastened to the inner side of the frame below the shoe and against other rollers L whose axes are inclined arranged in inclined mortises in the sides of the machine—by means of a crank shaft M to which the shoe is connected by a connecting rod N at top—said crank shaft extending through the sides of the machine having on its outer extremities a pulley *o* around which passes a band P leading to a pulley Q on the shaft of one of the pressing or crushing rollers R′ the other roller R^2 being turned by the friction of roller R′—a large pulley S being put on the axle of the first mentioned roller R′ around which passes a band T leading to a small pulley U on the axle of the fan V which is arranged below the rollers R′ R^2 surrounded by a scroll case W except the opening for the tangential tube *f* the driving pulley X being on the other end of the fan shaft at the opposite side of the machine.

The upper sieve F through which the wheat, the small garlic, cockle and cheat and the smut are to pass and over which the large garlic is to be conducted to the upper inclined spout *v* outside the frame is composed of meshes of wire sufficiently large for the purpose intended and arranged in the shoe near the top thereof at an angle of about 10 or 15 degrees with a horizontal plane extending about two-thirds the length of the shoe the remaining third being occupied by the hinged conductor *k* and transverse trough *n* before mentioned arranged at the same angle of inclination with said sieves. The hinged conductor is a plate arranged at the same angle as said sieve F and hinged to the lower cross bar of the frame thereof turned up at the sides to prevent the escape of the grain &c. and bent at the lower edge and formed into an inclined trough *n* which leads transversely into the mouth of the inclined spout *v* for conveying away the small garlic, cockle &c. said mouth being inside the frame at the rear of the shoe.

The second sieve G through which the cockle, small garlic and cheat pass and over which the wheat and garlic which are as large as the wheat pass to the rollers R′ R^2 is composed of wire meshes smaller than those of the upper sieve F and is arranged in the shoe below the sieve F at an angle of about 15 or 20 degrees and is of the same length and breadth—a chute or conductor Y being arranged at the lower extremity of the sieve G and on the same line at the same

inclination for conducting the wheat and garlic to the hopper Z placed over the roller R′ R². The conductor Y is a plate secured to the bottom of the frame of sieve G and turned up at its sides forming flanges which are fastened to the sides of said frame and of sufficient width to extend nearly to the middle of the hopper Z over the rollers R′ R². The hopper Z is composed of two inclined plates in the manner hereinafter described.

An inclined conductor I is placed below the sieve G about an inch therefrom for conducting the cockle, cheat and small garlic to the lower edge of the same where the conductor is formed into a trough *m* having an inclination toward the side of the machine through which it extends and leads into a vertical side conducting pipe *b* on the outside of the machine which conducts the said substance to a receiver—the aforesaid conductor I being nailed to the bottom of the frame of the sieve G leaving a space of about an inch between the said conductor and the screen. The aforesaid trough *m* is made in a similar manner to trough *n*,—before described.

The rollers R′ R², between which the wheat and garlic are passed together, without altering the size of the former or injuring it and at the same time flattening and increasing the length and breadth of the latter for the purpose of preventing it passing through the meshes of the sieve H while the wheat passes through them, are composed of wood covered with gum elastic—or india rubber arranged transversely and parallel—with their surfaces touching, or nearly touching, as they revolve—the axle of one of the rollers turning in permanent boxes and the axle of the other roller turning in sliding boxes made adjustable by horizontal screws *s* for setting the rollers nearer to or farther from each other to correspond with the size of the garlic and wheat to be passed between them, in the manner hereinafter described.

Two transverse brushes *d d* for brushing off the grain and garlic from the surfaces of the rollers are arranged in the frame against the surfaces of the rollers. These brushes are parallel and secured to the insides of the frame by flanges on the ends of the stocks of the brushes screwed or bolted to the frame.

The hopper Z for conducting the grain and garlic to the rollers is composed of two inclined plates inclining toward each other and fastened to the inside of the frame by having their edges turned up at right angles forming flanges which are nailed to the inside of the frame. They are placed over the rollers a sufficient distance apart to allow the grain and garlic to pass freely to the rollers.

The lower sieve H through which the grain passes to the fan V and over which screen the crushed garlic passes to a transverse inclined trough *p* fastened to the lower end of the frame of the said screen H which conducts it through the side of the frame into a short vertical spout *a* for the collection of the garlic. The meshes of this screen H are the same as those of the upper screen F and is of the same size but inclines in a contrary direction at an angle of about 20 degrees. This trough is made like other troughs and is nailed or otherwise secured to the bottom of the lower cross bar of the frame of the screen H. It inclines to the side of the frame and discharges the crushed garlic into the short spout *a*.

The inclined conductor J for conducting the grain which passes through said screen to the inclined adjustable board *e* is arranged below the screen H and fastened to the frame of the screen, leaving a space of about an inch between them.

The adjustable inclined board *e* for conducting the cleaned grain to the spout *q* at the bottom of the rear end of the machine inclines back in a contrary direction to the conductor J at an angle of about 35 degrees sliding on inclined ways *y* fastened to the inner sides of the frame, being raised on said ways for the purpose of elevating the upper edge of the board in order more effectually to catch the grain by means of a strap *g* fastened to the under side of the board and wound around a transverse axle *k* extending through the side of the frame having on one of its ends a ratchet wheel *i* into which a pawl *j* gears attached to the side of the frame for holding the axle from turning back after the strap is wound upon it, or when the axle is turned in a contrary direction for again lowering the board being brought against a tooth of the wheel for holding it in its required position.

The fan V for creating the blast for blowing away the mashed garlic and chaff is arranged in the rear of the machine between the two conducting boards *d* and *e* and is surrounded by a scroll case W open on the side toward the front having a tangential spout *f* for directing the blast up the inclined board *e* and through the space at the lower end of the conducting board J and the upper part of the board *e*, through which space the grain descends, where it is separated from the chaff, &c., which is blown against the vertical screen D at the front end of the machine and by which it is arrested and conducted to the inclined trough *l* under the upper end of the inclined board *e*, over which end the remaining impurities are blown into said trough *l*, which conducts them to the short vertical spout *a* on the side of the frame through a branch tube *w* into which said trough *l* leads, the cleaned grain being heavier than the garlic and

chaff descends through the blast of wind or current to the inclined board *e* which conducts it to the discharging spout *q*.

The machine may be operated by any convenient power.

The transverse trough *n* at the lower end of the hinged conductor K conducts the large garlic to the inclined spout *v* and by it into the short spout *a*, both arranged outside the machine. The transverse trough *m* at the lower end of the conductor I leads into the vertical pipe *b* outside the machine and is for the purpose of conducting the cockle, cheat, and small garlic to a separate receiver. The trough *p* leads into the short spout *a* for conducting the garlic into said spout *a*. The trough *d* leads into an inclined spout *w* which leads into the short spout *a* for conducting thereto the chaff, garlic, dirt, &c. The spout *q* receives the cleaned grain from the inclined board *e* and conducts it to a receiver outside the machine. The adjustable screws *s* for moving the boxes of the axle of the roller R^2 toward or from the roller R′ for altering the space between said rollers, are operated in the usual manner of such adjustable screws by having two metallic stationary frames and in each a rectangular space in which the sliding box of the axle of the roller R^2 is made to move back and forth by said screws *s*.

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

Separating garlic from wheat by passing the grain and garlic between rollers covered with india rubber or other elastic substance that will mash the garlic and at the same time not injure the wheat but increase the size of the garlic and prevent it from passing through the meshes of the inclined screen through which the grain passes, in th manner before described, or in any other mode substantially the same and in combination therewith the arrangement of the several inclined screens, conducting boards, spouts and tubes as herein set forth.

DANIEL FLICKINGER.
SEBASTIAN KRIM.

Witnesses:
WM. P. ELLIOT,
PETER FLICKINGER.