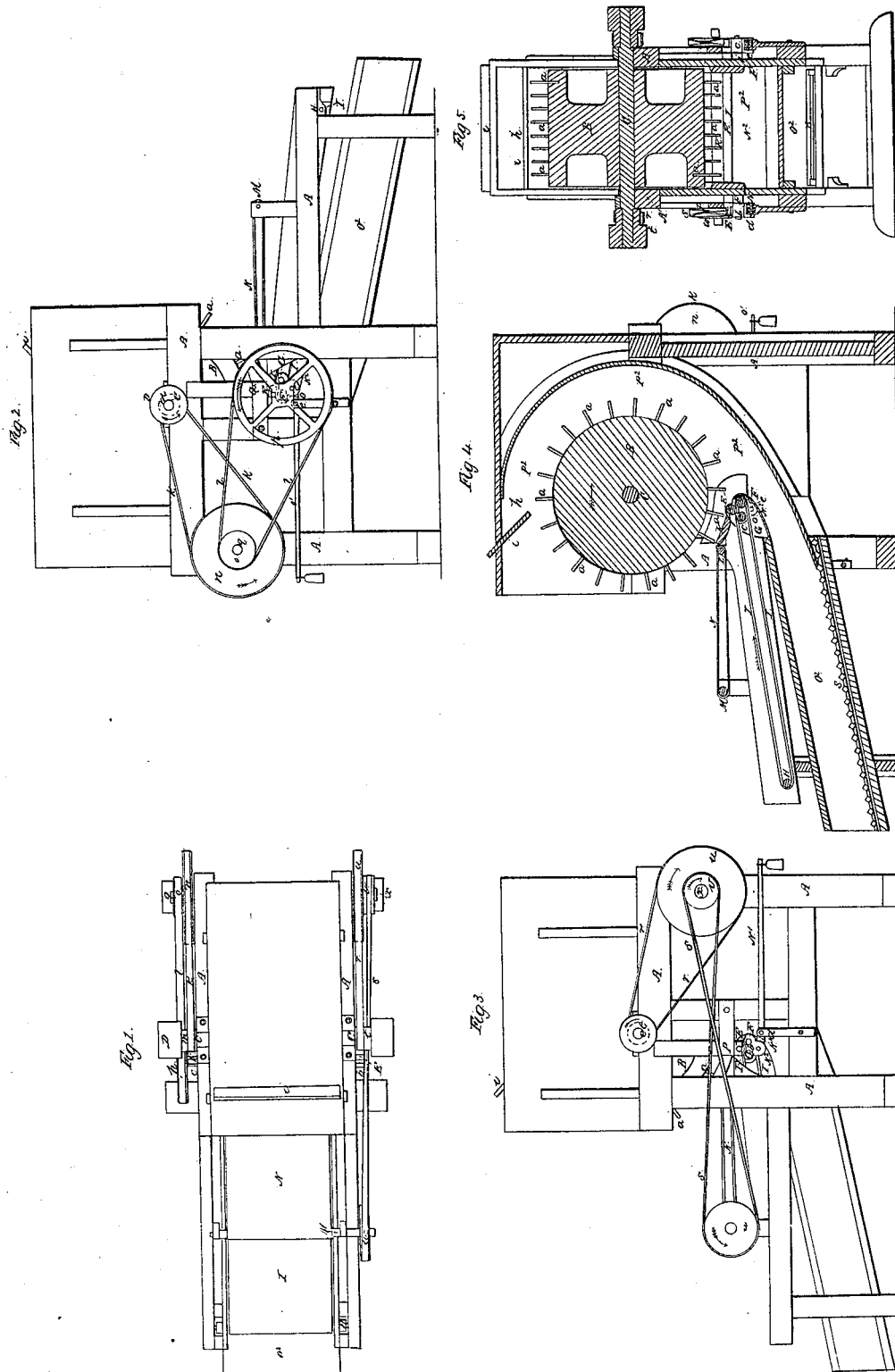


W. W. GRANT.
MACHINERY FOR CLEANING FLAX AND HEMP.

No. 7,139.

Patented Mar. 5, 1850.



UNITED STATES PATENT OFFICE.

WILLIAM W. GRANT, OF PROVIDENCE COUNTY, RHODE ISLAND.

IMPROVEMENT IN MACHINERY FOR DRESSING HEMP AND FLAX.

Specification forming part of Letters Patent No. 7,139, dated March 5, 1850.

To all whom it may concern:

Be it known that I, WILLIAM W. GRANT, of the county of Providence and State of Rhode Island, have invented a new or Improved Machine for Cleaning either Flax or Hemp; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

Of the said drawings, Figure 1 denotes a top view of my said machine. Fig. 2 is an elevation of one side of it. Fig. 3 is an elevation of the opposite side. Fig. 4 is a vertical longitudinal and central section of it. Fig. 5 is a vertical and transverse section of it, taken through the axis of the toothed cylinder, to be hereinafter described.

The operative parts of the mechanism are supported by a frame, A, suitably made.

A cylinder or drum, B, is arranged on the upper part of the frame A, and on a horizontal shaft, C, sustained by suitable boxes. This cylinder may be about two feet in diameter, and should have its curved surface studded with strong teeth *aa*, &c., which should project about two and one-half inches therefrom, and have all their outer ends or points nicely ground, and terminating in the curved surface of a cylinder, or, in other words, so that each point or outer end of each tooth of the series shall be at the same radial distance from the axis of the cylinder B. A driving-pulley, D, is fixed on the shaft of the cylinder B, motion being imparted to the said cylinder thereby and by means of an endless belt running upon the said pulley and a driving-drum suitably placed and operated.

Underneath the toothed cylinder B are a set of three feed-rollers, E F G, arranged with respect to one another, as seen in Fig. 4. The two lower ones, F G, have their journals supported by boxes *b c*, jointed respectively upon the short arms of two levers, N' O', which turn respectively on fulcras at *d e*. The journals of the upper roller turn in bearings made in the lower end of two stationary bars or pieces of wood or metal, P Q; the whole being seen in Figs. 2 and 3. An endless feeding-apron, I, is made to extend between the roller E and the two rollers F and G, and to be supported by and pass around rollers F and H, as seen in Fig. 4.

Below the cylinder B and in front of the roller E is what I term the "concave" K, which is a

hollow piece of wood or metal, having its upper surface curved to agree or nearly agree with the curve of the points of the teeth of the cylinder B. It should be firmly fixed to the frame A, and brought up as near to the roller E and the teeth of the cylinder B as it can be without obstructing their revolutions.

An endless wash-apron, N, running over and supported by two rollers, L M, is arranged with respect to the concave K as seen in Fig. 4.

A shield or piece of sheet iron or metal, N, extends partially around the roller F, and so as to cover or protect the endless apron I where it passes around the same. This shield commences at or near the top of the roller, and from thence curves partially around the roller and over the apron and down to the top of the trunk or delivery-box O', as seen in Fig. 4. The width of the box is equal or about equal to the length of the toothed cylinder B. It proceeds or opens from the lower part of a chamber, P', or wind-space, which is made to surround the cylinder B, as seen in Fig. 4. This wind-space is open at the front, or at *h*, and has a sliding register or gate, *i*, adapted to it in such manner as to enable a person to regulate the admission of air into the space, a current thereof being produced by the rapid rotation of the cylinder in the direction denoted by the arrow therein in Fig. 4.

The delivering trunk or box O' may or may not be provided with a grate, S, over its bottom, as seen in Fig. 4, and the said box may be made to extend in an inclined direction and to the distance beyond the endless aprons, as seen in the drawings.

The feed-rollers and their apron are put in revolution by two endless bands, *k l*, and four pulleys, *m n o p*. The first band passes around the pulley *m*, fixed in the shaft of the cylinder B. It also passes around the pulley *n*, which is joined to the pulley *o*, and turns on one common axis, *q*, with it. The other endless band, *l*, proceeds from around the pulley *o* to and around the pulley *p*, fixed on the shaft of the feed-roller F, the whole being as seen in Figs. 1 and 2. The other or waste apron, N, is put in revolution by means of two endless bands, *r s*, and four pulleys, *t u v w*, disposed as seen in Figs. 1 and 3—that is to say, the pulley *t* is fixed on the shaft of the cylinder B. From and around this pulley the endless bar *r* passes to and about the large pulley *u*, which is fixed

to the pulley *v*, and turns on the same axis, *x*, with it. The band *s* is a crossed band. It passes around the small pulley *v*, and thence around the pulley *w*, fixed on the shaft of the roller *M*. The lower feed-rollers, *F G*, are pressed upward or toward the roller *E* by means of weights hung on the long arms of the levers *N' O*.

In some of the Western States flax as well as hemp is raised for the sake of the seed thereof, and for this purpose, when it is in a proper state, it is spread out on a floor and trampled or trod by horses or cattle, the seed being then or afterward separated from the fibrous material. The flax or hemp or fibrous material so trampled is mixed with a ligneous matter and more or less with extraneous substances, which it becomes desirable to separate from it before it can be conveniently used or spun. My machine is destined to operate in flax or hemp in such a state and under such circumstances, and for the purpose of rendering useful an article which is now generally thrown away as worthless or of very little value.

Without the shield *N* applied to the endless apron, and so interposed between it and the teeth of the cylinder *B* as to prevent them from injuring it during the revolutions of the cylinder, the apron would shortly become torn or cut, so as to require renewal, also to prevent the journals of the rollers from winding up with the waste or lint. In the operation of the machine the mixture of hemp or flax, sticks, and foreign matters to be separated therefrom is placed or spread on the apron *I* while the latter is in motion. By the said apron

it is carried between the rollers *F G* and the roller *E*, and in passing outward or from between the two rollers *E* and *F* it is presented to the action of the cylinder *B*. This separates the fibrous material from the sticks or woody matter, and throws the latter over the concave *K* and upon the apron *N*, from whence it is to be removed by hand or in any other proper way. The current of air produced by the revolution of the cylinder *B* impinges on the stuff as it proceeds from between the rollers *E F*. In so doing it blows out the loose dirt and much foreign matter and throws it down into and through the trunk *O*.

Having thus described my invention, what I claim is—

1. The combination of the toothed cylinder *B*, the wind-passage *P*², the trunk *O*², the endless apron *I*, the set of feed-rollers *E F G*, the concave *K*, and the waste-apron *N*, the whole arranged and made to operate together substantially in manner and for the purpose as above set forth.

2. In combination with the feed-apron, its roller *F*, and toothed cylinder *B*, the protecting-shield *N*², the same being for the purpose of protecting the apron from injury and wear, as specified, also to protect the journals of the rollers from winding up with waste or lint.

In testimony whereof I have hereto set my signature this 22d day of September, A.D. 1849.

WM. W. GRANT.

Witnesses:

W. W. UPDIKE,
A. H. MANCHESTER.