E. Smith.

Rag Dressing Mach.

No. 1,782. Patented Sept. 10, 1840

Fig: 1.

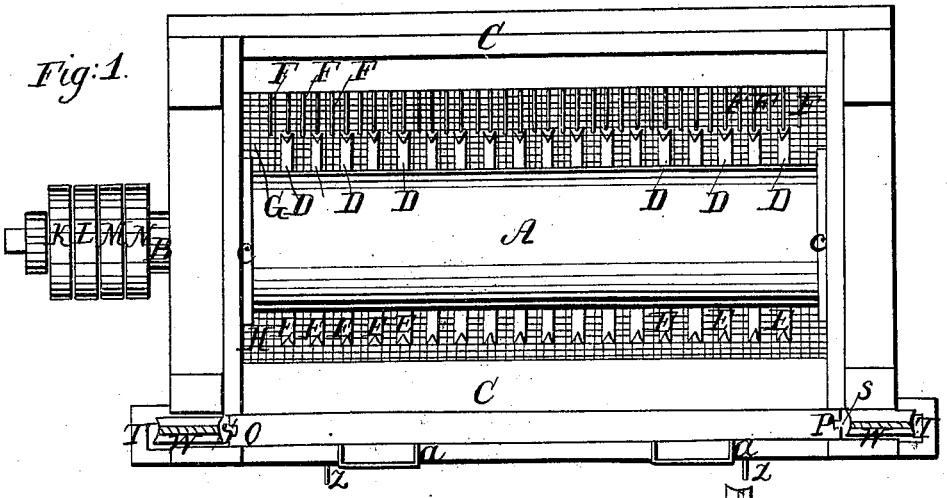


Fig: 2.

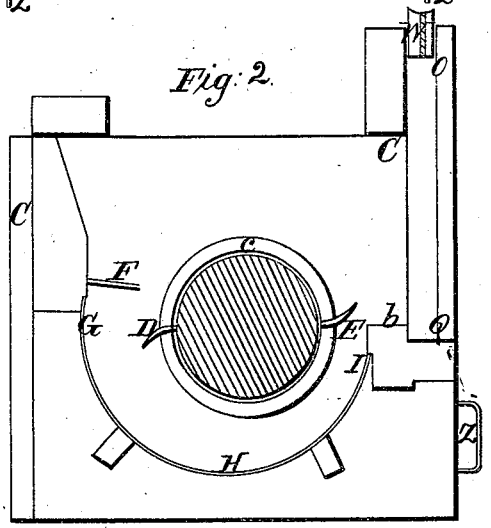
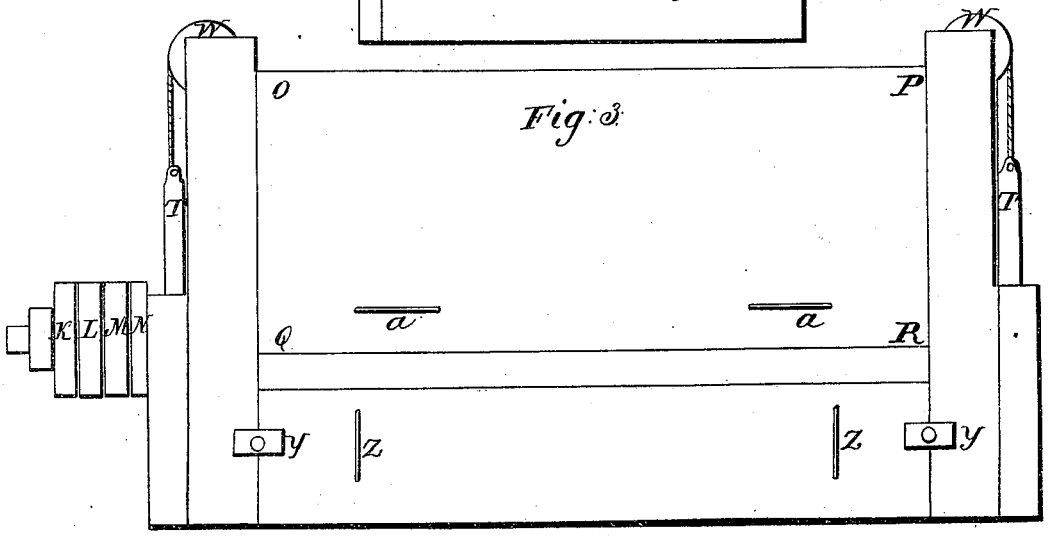


Fig: 3.



UNITED STATES PATENT OFFICE.

EMERY SMITH, OF NORTH SUDBURY, MASSACHUSETTS.

MACHINE FOR DRESSING COTTON WASTE OR RAGS PREVIOUS TO THEIR BEING OPERATED ON BY THE CUTTING AND DUSTING MACHINERY.

Specification of Letters Patent No. 1,782, dated September 10, 1840.

To all whom it may concern:

Be it known that I, EMERY SMITH, of North Sudbury, in the county of Middlesex and State of Massachusetts, have invented a new and useful improvement in machinery for dressing cotton waste and rags previous to the same being reduced by the cutting-machines and subjected to the action of the common dusters.

The said improvement, the principles thereof and manner in which I have contemplated the application of the same, by which it may be distinguished from other inventions, together with such parts or combinations, I claim to be my invention, and for which I solicit Letters Patent, I have herein set forth and described, which description taken in connection with the accompanying drawings herein referred to forms my specification.

Figures 1, and 2 represent my machinery, the former being a top view with the cover of the box removed, and the latter a transverse vertical section.

My machinery is to perform the office of dressing the cotton waste preparatory to its being cut up and dusted, by the dusting machine, the same having been always accomplished by hand, it generally requiring the exertions of thirty operatives to do the same work as one of my machines.

The cotton waste or refuse thread, of warp in filling now obtained at factories for the purpose of being converted into paper, are generally must twisted and knotted together and filled with small chips and other foreign matters, for the removal of which hand labors has been heretofore employed to a considerable extent, and for which I now substitute my machinery with great effect and saving of expense.

A cylinder or drum A, Figs. 1, and 2, suitably mounted in a central shaft B, so as to be put in rapid revolution, is surrounded by a rectangular box C C. Two lines of forked wires D D D, and E E E, &c., curved as seen in the drawing are inserted in the cylinder opposite each other, as show in Fig. 2, and are so arranged that each one of the forks or wires D shall be situated in a line, which being produced (perpendicularly to the axis of the cylinder) to the opposite part of the circumference of the same, shall fall exactly between the two opposite wires E E. That is to say, each space between two wires is opposite to a tooth or iron of the other row. The depth of the angular space between the points of each wire is about one-quarter or one-third of the length of the same, and the said space is of a triangular shape as seen in Fig. 1, so as to reduce the prongs to sharp points. A row of strong pointed wires F F F, is arranged in the side of the box projecting therefrom in the rear of the cylinder. The points of the wires F F are placed at a short distance from the extremities or points of the forks D E, so that when the latter revolve they shall not come in contact with the former. There is a wire F, placed opposite each forked tooth D D E E (see Fig. 1), and directly underneath the cylinder A and forked teeth D E is a curved grating of woven wire G H I, Fig. 2, and G H, Fig. 1. This grating of woven wire is curved in a proper sweep, so that the points of the teeth D & E may be at a suitable distance therefrom and not interfere with the same, when the cylinder revolves. The shaft B has four pulleys K L M N affixed thereon, the two interior pulleys L M being fast to the shaft, and the two exterior ones K N playing loose on the same. When the machine is not in action, a belt from the driving power, passes over or around and revolves the loose pulley K. Another and similar belt from the driving power is arranged to revolve the loose pulley N in an opposite direction to the pulley K. Their operations will be described more particularly hereafter.

A portion O P, Fig. 1, O Q, Fig. 2, and O P Q R, Fig. 3, of the front of the box moves in suitable grooves S S, Fig. 1, at each end, and slides up and down, and has balance weights T T, Figs. 1 and 2, attached to cords passing over sheaves W W Figs. 1 and 3 similar to a common window frame.

That part X of the front of the box immediately under the wire grating is capable of being removed at pleasure whenever it becomes necessary to clear out the dirt which collects in the space under the wire grating. It is held in place by common buttons Y Y, Fig. 3, and has suitable handles Z Z by which the operative easily removes it. There are also other handles *a a*, Figs. 1, and 3, in the slide O P Q R, by which the same can be raised. A suitable quantity of cotton waste or rags, if it is desired to dress them, is introduced into

the interior of the machine, through the space *b*, Fig. 2, created by raising the slide O P Q R, and on throwing the belt from the loose pulley K upon the fast pulley L, the cylinder A is put in rapid revolution so that the cotton is seized by the teeth of the forks D E and thrown around and dashed with great force against the wires F F at each revolution of the cylinder, and the extraneous matters adhering to the cotton will be thrown upon the sieve or wire work G H I and pass through the meshes of the same

The peculiar object of giving the angular or forked shape to the teeth D D, E E is to prevent the material from being wound around the surface of the cylinder, for as the points of the forks catch into the threads and as each thread is probably held by two or more points, which immediately succeed each other the thread cannot pass below the inner angle of the fork, or foot of the angular space between the prongs of the same.

After the cotton thread has been sufficiently beaten we change the belt above mentioned back again upon its loose pulley K and likewise change the other belt from the loose pulley N to the fast pulley M, which reverses the motion of the cylinder and as the teeth D E are curved in a contrary direction, to that in which the cylinder revolves, or as seen in Fig. 2, they throw all the cotton towards the space *h*. We then reverse the motion a second time and subject the cotton to be beaten against the wires F F and so on until the same is sufficiently prepared or dressed.

Should there be any chips or knots or extraneous matter of too large size to pass through the meshes of the wires, on raising the slide O P Q R a little, the wind created by the revolution of the cylinder will blow all of them out from underneath the same or through the space thus opened.

In order to prevent the loose threads from working between the ends of the cylinder A and the sides of the box, and winding around the shaft, so as to obstruct its operations I nail a circular strap *c* of sole leather Figs. 1 and 2 to the side of the box so that it shall cover the ends of the cylinder in contact with the box. This effectually prevents the evils above-mentioned.

Having thus described the machinery and its mode of operation I shall now point out such parts of the same which I claim as my invention.

I claim, the cylinder with angular teeth, in combination with the wires F F on the inside of the box and wire grating under said cylinder, the whole being arranged and operating together substantially in the manner above mentioned, and for the purpose of dressing cotton thread or waste previous to its being reduced by the cutting and subjected to the action of the dusting machines.

In testimony that the above is a true description of my said invention and improvements I have hereto set my signature this eighth day of August in the year eighteen hundred and forty.

EMERY SMITH.

Witnesses:
R. H. EDDY,
EZRA LINCOLN, JR.