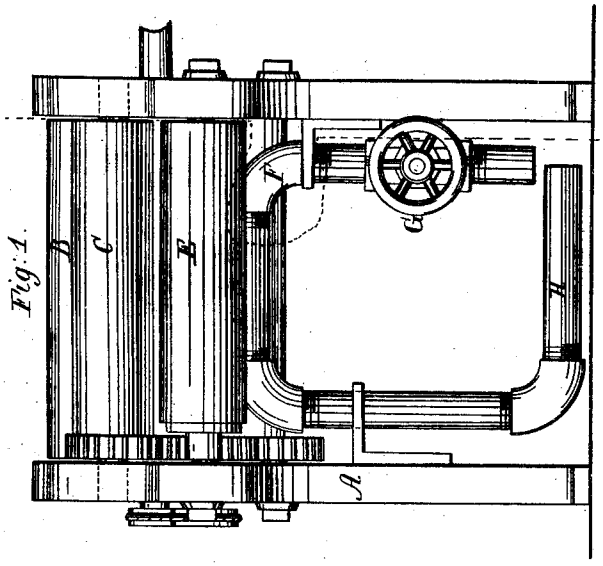
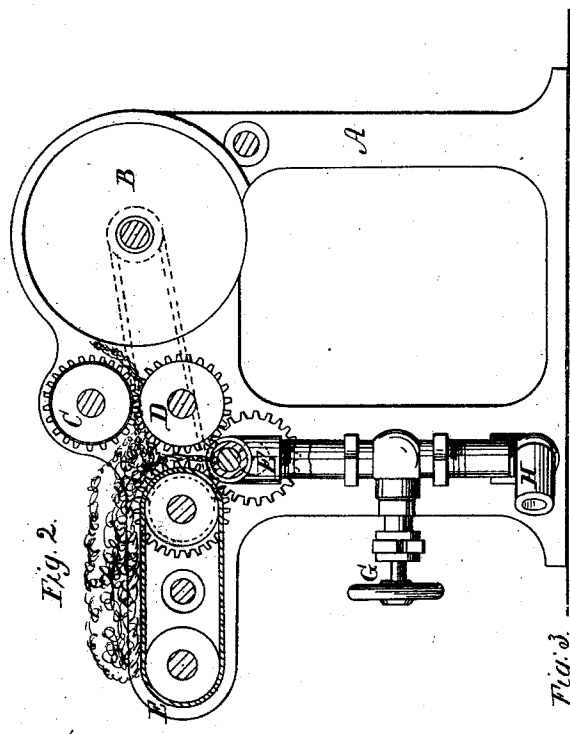
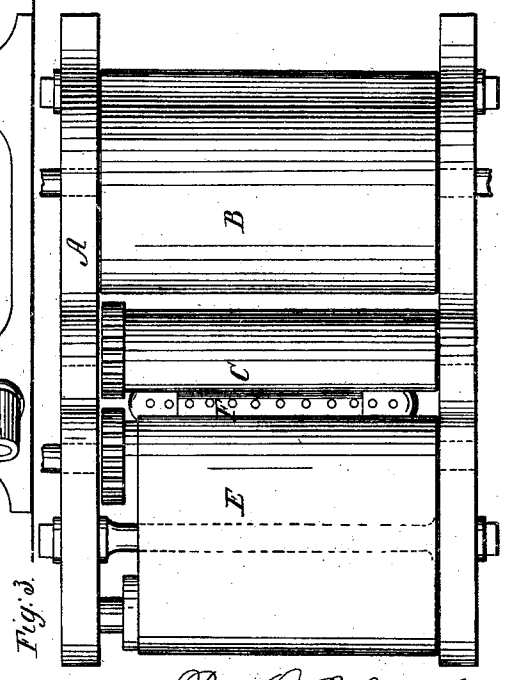
P. S. Haines.

Carding Mach.

No. 55,490. Patented Jun. 12, 1866.







Witnesses;

Wm. E. Lyon

E. F. Topliff

Inventor; P. S. Haines

by Munn & Co

Attorneys

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

P. S. HAINES, OF NEWBURG, NEW YORK.

IMPROVEMENT IN APPARATUS FOR TREATING WOOL FOR PICKING, CARDING, &c.

Specification forming part of Letters Patent No. **55,490**, dated June 12, 1866.

To all whom it may concern:

Be it known that I, P. S. HAINES, of Newburg, in the county of Orange and State of New York, have invented a new and useful Improvement in Treating Wool; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a front view of a carding-machine to which my improvement is applied. Fig. 2 is a cross-section. Fig. 3 is a plan view.

Similar letters of reference indicate corresponding parts.

The object of this invention is to facilitate the picking and carding of wool, and also to facilitate its treatment or disintegration by any other machines as well as by means of pickers and carding-machines.

It consists in applying to wool, just as it is fed to or as it enters the machine which is to disintegrate or card it, fine jets or currents of steam, superheated or not, as preferred by the operator.

The effect of this application is to dissolve any vegetable or other adhesive substances which are present in the wool, and to soften earthy matters which may be therein, and to make the wool more pliant and tractable, so that the fibers can be separated with comparative ease and can be carded with greater rapidity and safety to the staple than is done without my invention.

Some kinds of wool are brought to market in a very unclean condition, being put up along with burrs and fragments of vegetable growth, with earthy matter of an adhesive character, which becomes incorporated with the mass of the wool, and with refractory mineral or earthy matter which injures the machinery through which the wool passes. In manufacturing some of the coarser kinds of woolen fabrics it has been customary to feed such wool directly to the carding-machine without previously deviling or picking it to separate foreign matters. But the carding-machine is not able to separate such foreign matters from the wool, unless it comes away in the form of an almost impalpable dust, which fills the card-room, to the injury of the health of the workmen. That part of the foreign matters which is not separated in the process of carding remains in the wool, to the injury of the fabric made up therefrom; and, besides that, the teeth of the cards receive more or less damage from clogging with the dirt and from the refractory character of some of it.

My invention enables the manufacturer of woolen goods to use such unclean wool and to apply it directly to a carding-machine, and yet to avoid the difficulties and overcome the objections above mentioned.

My invention is here shown applied to a carding-machine; but it can be applied in connection with any mechanical device for disintegrating wool and straightening its fibers.

A designates the frame of a carding-machine, and B designates the main carding-cylinder. C D are burring or other rollers, which in this instance are placed next to the main cylinder and between it and the feed cloth or apron E. Below the feed-apron I introduce a steam-pipe, F, which has a valve, G, to control the volume of steam passing through it. This steam-pipe is carried upward to the line which divides the apron from the rollers C D, along which division-line, but below the level of the top of the apron, it extends from side to side of the machine the whole width of the apron, and thence is bent downward toward the floor, where it joins a water-pipe, H. The horizontal portion of steam-pipe F is perforated along its upper side with fine holes, which may be more or less numerous, according to the amount of wool fed to the carding or other machine. As the wool leaves the apron it becomes saturated with the steam, which, in its divided state, acts in a uniform manner upon it, penetrating all parts of it before it is straightened or otherwise acted on by the burring or other rollers of the machine, and dissolving any adhesive foreign substances which may be present in it; also moistening the dust therein, so as to prevent it from passing into the atmosphere; also making the wool more pliant and yielding by raising its temperature, so that its fibers are easily separated from each other and from burrs and other foreign substances.

By means of this invention I am able also to effect a great saving in oil, which hitherto has been supplied in great quantities to bring the wool to a proper condition to be worked, and also in a great measure to preserve the cards from injury and wear.

The steam-pipe F may be connected with a steam-supply pipe, which may supply steam to all the carding-machines on a floor, and the water-pipe H may be joined to another pipe which shall receive the water of condensation from the steam-pipe F of all the cards or other machines to which the invention is applied on the same floor.

It will be observed that in the arrangement of the steam-pipe F here shown the water of condensation will not be driven into the wool, because such water will be in the lower side or bottom of the pipe, and will be driven down toward the left-hand side, where it will run off into the water-pipe H, so that only steam in divided currents will reach the wool. The water of condensation will be carried away continuously as fast as it is formed, so that no interruption will take place in the delivery of the steam to the wool.

When burring-rollers are dispensed with and the wool is delivered to the main cylinder, either directly or through the interposition of small fancy or dandy rollers, the apron is of course brought up to the main cylinder or to such small rollers, and the perforated pipe that delivers the steam is placed on the line of separation between the end of the apron and the main cylinder or such small rollers.

By means of my invention I am able to secure to the wool the advantage of being suddenly charged and saturated with steam at the moment before it is seized by the teeth of the carding-machine and before the steam has become condensed, one object which I have in view in the arrangement and location of the steam-pipe being to prevent the wool from being charged with water, either by condensation of the steam therein before it enters the carding-machine, or by being wetted with water of condensation from the apparatus itself.

I claim as new and desire to secure by Letters Patent—

The perforated steam-pipe F, constructed and located as described, and continued beyond the line of its perforations, and connected to a water-pipe to run off the water of condensation continuously, substantially as set forth.

P. S. HAINES.

Witnesses:
M. M. LIVINGSTON,
C. L. E. TOPLIFF.