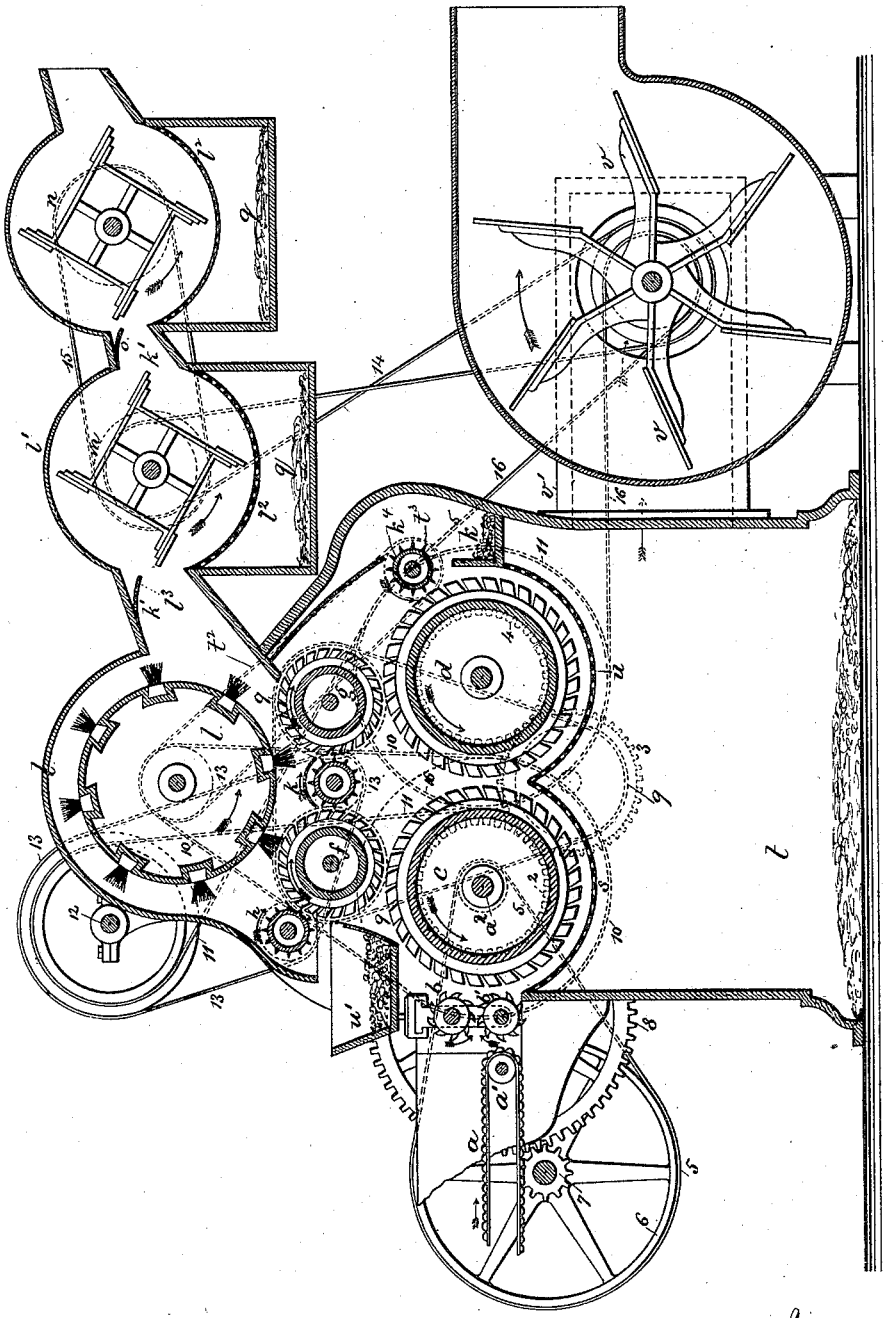
(No Model.)

S. R. PARKHURST.

MACHINE FOR OPENING AND CLEANING WOOL.

No. 302,669. Patented July 29, 1884.



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UNITED STATES PATENT OFFICE.

STEPHEN R. PARKHURST, OF MONTCLAIR, NEW JERSEY, ASSIGNOR TO EMILY R. PARKHURST, OF SAME PLACE.

MACHINE FOR OPENING AND CLEANING WOOL.

SPECIFICATION forming part of Letters Patent No. 302,669, dated July 29, 1884.

Application filed July 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN R. PARKHURST, of Montclair, in the county of Essex and State of New Jersey, have invented an Improvement in Machines for Opening and Cleaning Wool and other Fibrous Substances, of which the following is a specification.

In Letters Patent No. 238,709, granted to me March 8, 1881, there is shown and described a machine for opening and cleaning wool in which the wool is taken from the feed-rollers by a hooked-tooth opening-cylinder, the teeth of which subject the wool to an opening and cleaning operation, and there is a second hooked-tooth opening-cylinder revolving in the same direction as the first, that subjects the fiber to a second opening and cleaning operation before the fiber is taken off by the combing-cylinders *f* and *g* shown therein. In practice I have found that the wool lodges in the space between the hooked teeth and the surface of the cylinder, and prevents the teeth acting effectively, and this wool has to be removed by hand. I have discovered that steel-toothed rings are best adapted for the cylinders *c* and *d* shown in said patent, as they are not liable to become clogged with the wool, and act very effectively in opening and straightening the locks thereof, and in loosening the dirt, burrs, and other foreign substances mixed therewith, and I use in connection with the second opening-cylinder a stripper that beats out the dirt and the greater part of the burrs carried up by said second cylinder.

In the drawing I have represented a vertical section of my improved machine, and the parts are lettered and numbered to correspond with similar parts shown in my said patent, and a reference is hereby made to said patent for a more detailed description of the parts that are herein only incidentally mentioned.

a is the feeding-apron that conveys the wool or other fiber to the toothed feed-rollers *b b'*, and from said feed-rollers the wool is taken by the first opening-cylinder, *c*. The teeth of this cylinder are formed by the serrated or notched periphery of steel rings clamped upon said cylinder, with washers between the rings. The cylinder *c* revolves in the direction indicated by the arrow, so as to carry the wool down, and I prefer to revolve this cylinder so that it will have a surface-speed of about twice that of the feed-rollers. Thereby the first opening and cleaning operation as the cylinder takes the wool from the feed-rollers will be gradual and the fiber not injured.

The cylinder *d* has steel-toothed rings, the same as the cylinder *c*, and revolves at the same speed. It also revolves in the same direction as the cylinder *c;* hence the adjacent surfaces of the cylinders *c* and *d* move in opposite directions, and the teeth of the cylinder *d* open the locks of wool on the cylinder *c*, and also remove part of the wool from the cylinder *c*. The teeth of the cylinder *d* carry the wool downward as they pull it from the teeth of the cylinder *c;* hence the surface of wool that was next the surface of cylinder *c* is brought on the outside as the wool is carried away by the cylinder *d*, thereby giving opportunity for the dirt that has been loosened to fall away.

There is a grating, *s*, below the cylinders *c* and *d*, over which the wool passes as carried along by said cylinders, and dirt dislodged from the wool by the action of said cylinders falls through the grating into the receptacle *t;* but the burrs and other foreign substances too large to pass through the grating *s* are carried up with the wool by the second cylinder, *d*, and are knocked off by the stripper k^4 into the receptacle k^5. This stripper also opens and spreads the locks of wool on the cylinder *d*.

The blower *v* keeps up a constant exhaust action in the receptacle *t* and case of the machine through the trunk *v'*, and thereby draws down into said receptacle the dust that is separated from the wool.

The wool is taken from the cylinders *c* and *d* by the steel-toothed burring-cylinders *f* and *g*, and I prefer that these latter have each a surface-speed of six to the surface-speed two of the cylinders *c* and *d*, so that the wool will be laid in a thin sheet upon the burring-cylinders *f* and *g;* and in consequence of the adjacent surfaces of cylinders *f* and *c* and *g* and *d* moving in the same direction and their teeth standing as shown, the wool is turned, and the surface of wool that was underneath upon the cylinders *c* and *d* is uppermost upon the burring-cylinders *f* and *g*.

The strippers *h* and *k* act in the usual manner to spread and open the locks of wool and to beat out the dirt and burrs from the wool; but, as before remarked, the greater part of the burrs is removed by the stripper k^4. This stripper k^4 might be dispensed with when operating upon fiber not containing burrs.

It is to be understood that I do not limit myself to the surface-speed herein given for the cylinders and feed-rolls.

The delivery-brush *l*, for taking the wool off the cylinders *f* and *g*, the trunk *k*, case *l'*, deflectors l^2 and *o*, beaters *m n*, and grating l^5 are the same as in my said patent. Separate dirt-receptacles, *q*, however, are shown for the beaters *m n*. The gearing, pulleys, and belts for driving the various moving parts of the machine are also the same as in my said patent, except that I provide a belt, l^2, and pulley, l^3, for driving the stripper k^4.

The steel teeth of the cylinders *c d* may be formed upon the edges of wire wound upon the cylinders, or such teeth may be inserted in a strip, as in card-clothing.

The cylinders *d* and *g* and beater *k* might be dispensed with and the beater k^4 act with the cylinder *c*, the other parts of the machine remaining the same. In my aforesaid Patent No. 238,709 the rows of hooked teeth upon the cylinders *c d* operate in a different manner to the toothed steel rings in my present application, because said hooked teeth act intermittently and do not spread the wool out upon a large surface of teeth, as in the present instance; hence the wool passes through in the form of locks instead of thin layers. In my Patent No. 47,976 the apparatus is single. It is adapted to carding the wool instead of opening the locks for removing burrs, and it is not combined with brushes and screens, as in my present invention. I do not therefore herein claim either of the elementary devices, as they have before been used by me. My present invention relates to the devices in combination for opening and burring the locks of wool and removing foreign substances without injury to the fiber.

I claim as my invention—

1. The combination, with the steel-toothed burring-cylinders *f* and *g* and strippers *h k*, of the toothed ring-cylinders *c d*, acting with the burring-cylinders *f* and *g*, and the stripper k^4, acting with the cylinder *d*, and the feed-apron *a* and feed-rollers *b b'*, substantially as set forth.

2. The combination of a pair of toothed feeding-rollers, *b b'*, a toothed ring-cylinder, *c*, acting to open the wool as delivered from the feed-rollers, a second toothed ring-cylinder, *d*, taking wool from the cylinder *c*, a stripper, k^4, acting with the cylinder *d*, a grating beneath the cylinders *c d*, steel-toothed burring-cylinders *f g*, acting, respectively, with the cylinders *c* and *d*, and a brush to remove the fiber from the cylinders *f* and *g*, substantially as specified.

3. The combination, with the steel-toothed burring-cylinders *f g* and strippers *h k*, of the toothed ring-cylinders *c d*, acting with the cylinders *f* and *g*, respectively, to open the wool, and the feed-apron *a* and feed-rollers *b b'*, as set forth.

4. The combination, in a machine for removing foreign substances from wool or other fiber, of a feeding-belt, toothed feed-rollers, two toothed ring-cylinders, a stripper acting with the second opening-cylinder, two steel-toothed burring-cylinders and strippers, a delivery-brush, and a beater to act in succession upon the wool and open, brush, and clean the same, substantially as set forth.

Signed by me this 25th day of July, A. D. 1883.

S. R. PARKHURST

Witnesses:
HAROLD SERRELL,
CHAS. H. SMITH.