

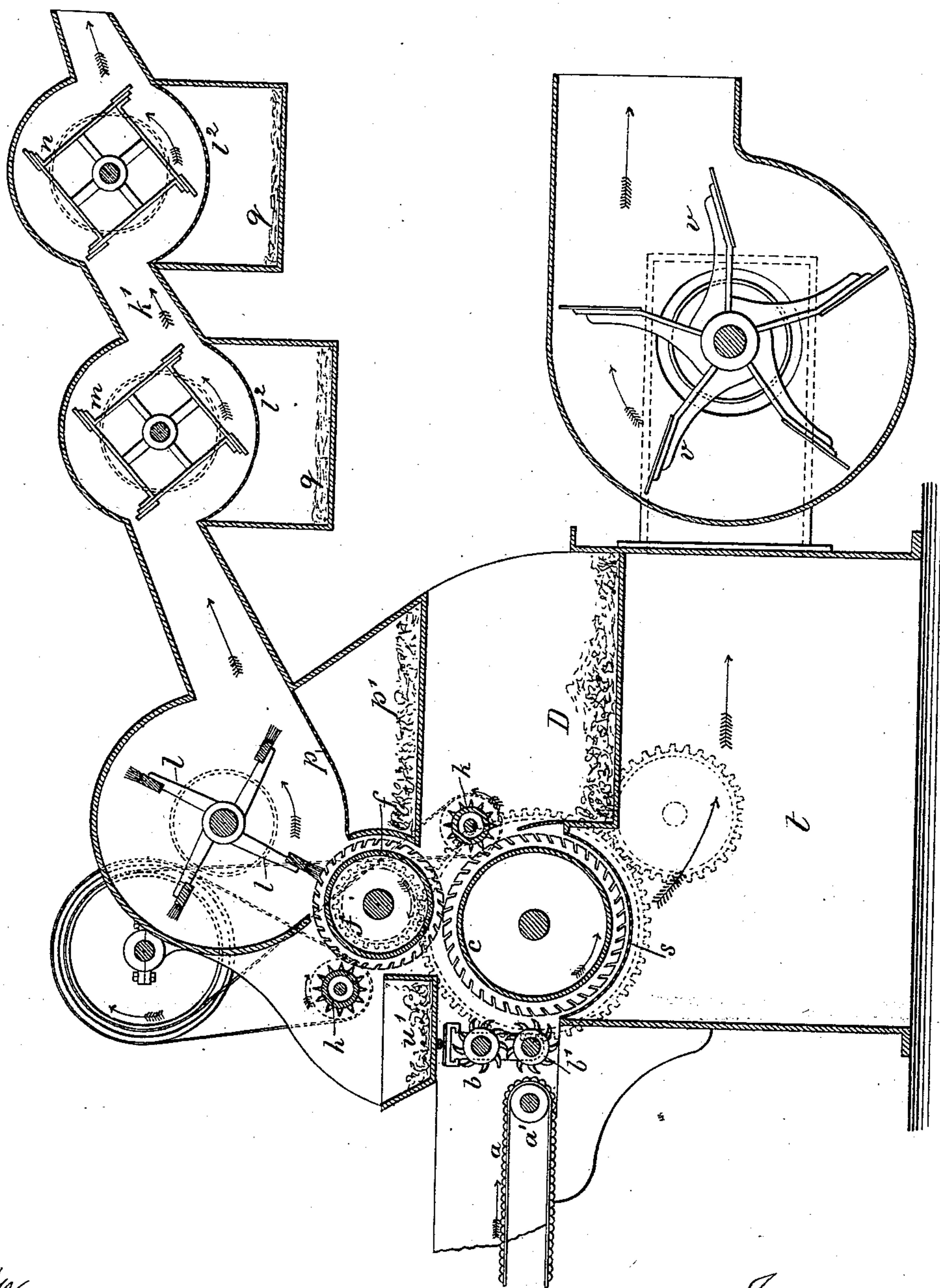
(No Model.)

S. R. PARKHURST.

MACHINE FOR OPENING AND CLEANING WOOL.

No. 309,978.

Patented Dec. 30, 1884.



Witnesses
J. Staib
Harold Ferrell

Inventor:
Stephen R. Parkhurst
per Lemuel W. Ferrell
any

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. 309,978, dated December 30, 1884.

Application filed October 1, 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
5 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, a machine is shown in which the wool is
10 opened by teeth that are upon cylinders, and which move in opposite directions at the place where the wool is taken from one cylinder to another, and there are two steel ring-toothed cylinders, two beaters, and a brush to remove
15 the wool from the two cylinders.

I find that with some kinds of wool it is not advantageous to have the teeth that are acting upon the same wool moving in opposite directions.

20 In my Patent No. 302,669 two cylinders are shown as acting to open the wool before presenting the same to the beaters.

The present invention is an improvement upon the machines for opening and cleaning
25 wool heretofore patented by me, and the said improvement is made for simplifying the machine and rendering the same less expensive. In my present machine the wool or fiber is opened out by toothed cylinders moving at
30 gradually-accelerated speeds, the teeth of which at the points of contact with the wool move in the same direction as the wool itself; but the surface-speed of the first cylinder is greater than that of the feed-rollers, and of the
35 second cylinder greater than that of the first, and the wool is turned and exposed upon both surfaces to the action of strippers, and then taken off by a delivery-brush and passed over gratings to cause the dust and particles of foreign substances to be blown out, so that the
40 wool is opened and cleaned without injury to the fiber, and with a comparatively slow motion, the wool not being cut or injured as in the ordinary wool-picking machine.

45 In the drawing I have represented my improved machine as in a vertical section. The feed-apron *a* is endless and passes around two rollers, one of which is shown at *a'*, and such apron will usually be made of slats. The feed-
50 rollers *b b'* are made with hooked teeth, that

hold the wool as it is fed through the same. These parts are the same as those in my aforesaid patent. The combing-cylinder *c* is composed of steel rings or strips with underent
55 teeth upon a metallic or other cylinder, and driven at such a speed that its teeth move about sixteen times as fast as the teeth of the feed-rollers; hence there is a combing and opening action between the teeth of the cylinder *c* and the teeth of the feed-rollers. The
60 wool is carried down beneath the cylinder *c*, and between the same and the concave segmental screen *s*, which, while preventing the wool falling off the teeth of the cylinder, allows burrs and dust to fall through into the
65 close box *t* between the frames of the machine and below the said cylinder *c*, and from this box *t* the atmosphere is exhausted by the fan *v*, as in my aforesaid patent, to produce a current of air through the grating to convey away
70 dust from the wool. The wool is carried up by the teeth as they ascend at the back of the cylinder *c*, and here there is a stripper, *k*, revolving in the direction of the arrow and acting to spread the locks of wool upon the teeth
75 of the said cylinder *c*, and thereby open such locks, and at the same time strip off the burrs and foreign substances and deliver them into the burr-box *D* which is provided for their reception.
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Above the cylinder *c* is a second steel-toothed cylinder, *f*, which is rotated by suitable power in the direction represented by the arrow, and the speed of movement is such that the teeth travel about twice as fast as the teeth of
85 the cylinder *c*; but they are moving in the same direction at their points of contact; hence the wool is opened and straightened at the same time that it is drawn off the teeth of the cylinder *c*, and the portion of the wool
90 that was next to the cylinder *c* is now the outer portion on the cylinder *f*, and as it is carried up it is exposed to the action of a second stripper, *h*, which spreads the wool still more upon the cylinder *f*, and at the
95 same time knocks off burrs and other foreign substances into the receptacle *u'*.

By properly timing the speed of rotation of the different parts it will be found that when the wool passes by the stripper *h* it will
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be in a good open and clean condition, and entirely uninjured by the action of the machine, because the wool, instead of being torn apart by rapidly-moving teeth, is pulled partially apart by slowly-moving teeth, and as the wool becomes more open the speed of the teeth acting on the same is increased, and the wool is pulled off the cylinder *c* from heel to point of the teeth; hence the wool is more completely opened, and the foreign substances fall or are thrown out, and the wool is uninjured. An ordinary delivery-brush might be used to remove the wool from the cylinder *f*, but I find a great advantage in combining with the revolving brush *l* and blower the grating *p* and dirt-box *p'*, because the brush-blower, revolving much faster than the cylinder *f*, draws the wool off the teeth of said cylinder, still further opening it, and the wool is rubbed over the grating near one end of it, and then the air that is blown off from the fans of the blower causes the wool to leave the brushes *l* and pass over the grating or screen, and the dust is blown and rubbed out of it into the box *p'*, and the screen also rubs off the wool, particles of foreign matter as the wool passes over the screen. I also use the revolving beaters *m n*, the trunk *k'*, and the screens *l'* beneath the revolving beaters, and above the boxes *q*, substantially as in my aforesaid patent No. 238,709, and for the same purpose, so that the locks of wool are exposed to nine cleaning and opening operations: first, between the feed-rollers and the cylinder *c*; second, in passing along over the grating *s* between that and the cylinder *c*; third, when passing beneath the stripper *k*; fourth, when passing from the cylinder *c* to the cylinder *f*; fifth, when passing beneath the stripper *h*; sixth, when being taken by the brush *l* off the teeth of the cylinder *f*; seventh, when passing over the grating *p*; eighth, when passing over the grating *l'* by the action of the beater *m*, and, ninth, when passing over the grating *l'* by the action of the beater *n*. These operations are all performed without either part running at a speed that will either injure the fiber or risk the production of sparks from particles of sand or foreign matter or fire from friction, thus effectually lessening or removing the risk of fire, which with the ordinary picker is a

source of constant danger, and the wool is in an uninjured condition; and I remark that it is preferable to set the machine so that small portions of wool will sometimes be knocked off with the burrs into the boxes, and to run this with the burrs alone and periodically through the machine a second time to save the wool. The steel teeth of the cylinders *c* and *f* are formed by diagonal incisions into the edge of a steel ring that is placed upon the cylinder, or into the edge of a steel strip that is wound up and secured to the cylinder, with spaces between one convolution and the next, the peripheries being dressed off smoothly.

I claim as my invention—

1. The combination, with the steel-toothed cylinder *c*, of the toothed feed-rollers *b b'*, the steel-toothed cylinder *f*, and the strippers *k h*, and burr-boxes, substantially as set forth.

2. The combination, with the feed-rollers *b b'* and steel-ring-toothed cylinder *c*, of the grating *s*, the dust-box below the grating, an exhaust-fan, the burr-box above the dust-box and adjacent to the grating, and the stripper *k* above the burr-box and at the opposite side of the cylinder *c* to the feed-rollers, substantially as set forth.

3. The combination, with the feed-rollers *b b'*, cylinder *c*, and stripper *k*, of the toothed cylinder *f*, stripper *h*, delivery-brush blower *l*, and a grating, *p*, and receptacles for dust and burrs, substantially as set forth.

4. The combination of the toothed feed-rollers *b b'*, cylinder *c*, and grating *s* with the exhaust-fan *v*, the stripper *k*, the steel-ring-toothed cylinder *f*, the stripper *h*, the brush-blower *l*, the grating *p*, and the respective receptacles for dust and burrs, substantially as set forth.

5. In combination with the toothed cylinder *f*, a stripper, *h*, and burr-box at one side thereof, a dust-box at the other side, a grating, *p*, over said dust-box, a blower, *l*, above the cylinder *f* and revolving close to the grating *p*, and a trunk, *k'*, substantially as set forth.

Signed by me this 21st day of September, A. D. 1883.

S. R. PARKHURST.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.