7501X

S. Couillard, Jr.

Wool Cleaner.

Patented Mar. 30, 1833.

Fig: 1.

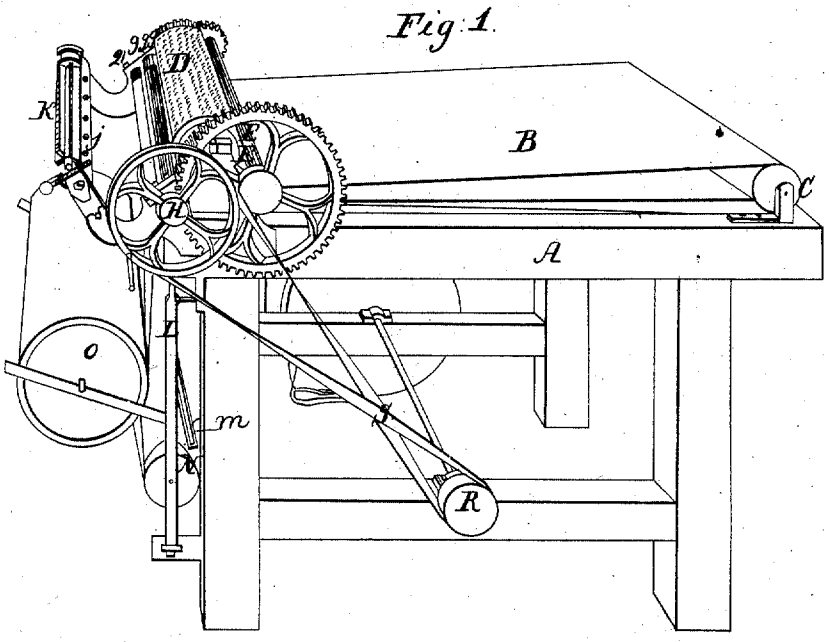
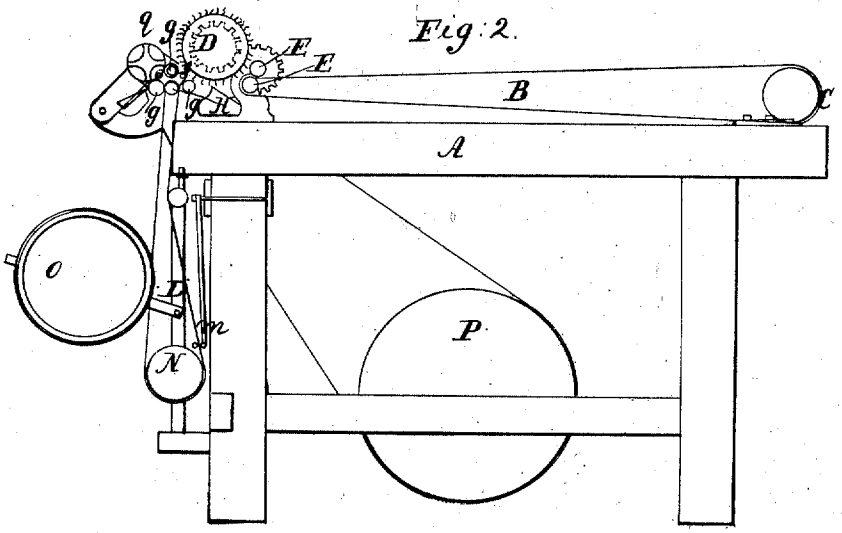


Fig: 2.



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

7501X

Samuel Crockford Junr. of Boston

State of Massachusetts.

Letters Patent.

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Samuel Crockford Jr. himself of his improvement in the Machine for cleaning wool and delanking or separating burrs &c therefrom

To all persons to whom these presents shall come Be it known that I Samuel Crockford Junr. of the City of Boston in the county of Suffolk and commonwealth of Massachusetts, Mechanician have invented and applied to use a new and useful improvement in the art of cleaning animal wool or such like substances, and delinking and separating therefrom the burrs and other foreign materials connected and mingled with said wool, or such like substance in the place or otherwise by extending & straightening the fibres of said wool or such like substance in such a manner as to bring the burrs and foreign materials wholly or principally into the surface of said wool or such like substances thus extending and straightened and then removing said burrs and foreign substances by cutting, linking, shaving, or otherwise from the said surface in accordance with the arrangement and the application and mode of operating the same.

For the accomplishment of the purpose or purposes aforesaid, and [illegible] — what the principle of said invention and the means whereby I accomplish the object aforesaid & the manner [illegible]

with the mode of operating the same, may be therein
& set forth, in general terms as follows (viz)

First by causing the wool or such like substance
to pass or be drawn from a feeding belt, suitable for the
same, this and between two or more fluted ribbed or flown
rollers, properly fixed & arranged for the purpose in order
that said wool or such like substance may be presented
on the side of such rollers as fixed & arranged oppo-
site to that where it enters between them, to a brother
cylinder hereinafter described, in an uniform, regular, and
gradual manner by this be better prepared for subsequent
operations

Second by causing said wool or such like substance
to pass or be drawn over upon or against a receiving
ribbed or brother cylinder or cylinders, roller or rollers,
band or bands between or against the same or any
such like cylinder or cylinders roller or rollers, band or
bands, two or more armed with teeth or otherwise
properly fixed & arranged for the purpose - so that said
wool or such like substance while in the process of
passing or being drawn as aforesaid is extended
elongated, or drawn into a much thinner sheet or
layer, and the fibres of said wool or such like
substance in a degree straightened and laid parallel
to each other while the burrs or foreign matters
connected and entangled with the said wool or such
like substance are loosened and presented on the surface
or surfaces of said wool or such like substance, which
will be by this operation in a measure drawn, combed
out, cleaned and freed from said burrs and other foreign mat-
ters, as well as from knots and tufts,

Third, by causing this wool or such like sub-
stance so freed by the above first and second or other

rollers, or rollers, band or bands, as above mentioned or to, their between or against two or more drawing rollers, ribbed, fluted, or plain properly connected with a band belt or apron, & fixed and arranged for the purpose, so that said wool or such like substance while in the process of passing or being drawn as aforesaid by the comparative velocity in the rotation of said drawing rollers may receive a greater degree of elongation & be presented in a thinner sheet or layer and the fibres of said wool or such like substance be the more straightened, and lain more parallel with each other — At the same time the aforesaid sheet or layer of said wool or such like substance shall be during the process of passing or being drawn as aforesaid thro' & between the said drawing rollers so arranged as aforesaid, drawn, stretched or tightly held around one or more of said drawing rollers. and the ends of the fibres of the same arranged in consequence of the comparative shortness of the distances between the nips, bites or pinches, of said drawing rollers — Thus the burrs or other foreign matters connected and commingled with said wool or such like substance, are loosened and presented on the surface or surfaces of the same in such a manner as to be easily detached & taken wholly off by scraping cutting, pinching, drawing or striking or otherwise operating on or against them while the wool or such like substance thus tightly held is in the process of passing or being drawn thro' among, over or upon the said drawing rollers or rollers & the belt or apron connected therewith arranged as aforesaid

Thirdly, the carding said wool or such like

substance, before being [illegible] as aforesaid to the process

of passing or being drawn as above described to be fixed also cleared of burrs and other foreign materials by the means of any scraper, fluteroller, sucker, beater, or blower, one or more which shall revolve against or otherwise act upon or against said burrs or other foreign materials so that said work or such like substance may pass or be drawn in a sheet or layer on to a receiving cylinder suitably fixed and arranged for the purpose or be otherwise taken away in a desired manner and cleaned state & in a good condition for the subsequent operations of the manufacturer

And also I have herein declared that I have specified my said invention to use yet this declaration is not to be taken to mean public use, but merely that use which is necessary for experiment and trial without which my said invention could not have been produced and completed.

These may be considered to be the general principles of my invention aforesaid in the art of cleaning animal wool & such like substances and of detaching and separating therefrom burrs and other foreign materials connected and mingled with the same in the fleece or otherwise & of delivering said wool & such like substances in a clean and highly improved state ——— But the nature of my said invention & the manner in which the principles aforesaid are accomplished with the mechanical contrivances used thereto, & the modes in which the machinery or the parts thereof are arranged, applied & made to operate in order to clean and fleece the wool or such like substances in the condition above mentioned may further be better understood by reference to the drawings hereto annexed Marked A, & which

[illegible] are to be taken and considered as a part of this my specification.

A. is this figure represents a strong quadrangular frame made of wood or any other suitable material) of sufficient length and width to receive at the same time a whole flock of wool of such quantity as circumstances may require, B. is a feeding cloth on which the wool or such like substance to be operated upon is placed; it is made of canvas or other suitable material for the purpose and passes around an iron roller C. & around the lower of the two feeding rollers B. E.

E. E. are two feeding rollers of about one inch and half diameter, but may be varied in size according to the state of the wool or other such substance — I make use of only two feeding rollers — but more may be used if thought necessary. The surfaces of these two rollers is ribbed or fluted, in order that burrs & foreign materials in the wool may not be too much broken & flattened down by passing between them & also with a view the better to retain and hold back the wool, and convey it more gradually to the toothed cylinder D.

D. is a cylinder about six inches diameter armed with teeth which project from its surface from three to four eighths of an inch. These teeth are some one eighth to one eighth of an inch in diameter pointed and bent something in the manner of the letter S. & set in the cylinder about one fifth of an inch apart. But the form, size, and position of the cylinder as well as of the teeth with which it is armed may be varied according to the quality and condition of the wool to be operated upon ——— This cylinder is placed on the side of the feeding rollers E. E. opposite to that where the wool enters between them and so near them that the teeth of the same may take the wool as near the finish as bite of the rollers B. E. as possible. f. f. f. f. f. are drawing rollers or a combination or a combination of drawing rollers (as seen in fig 2.) connected with a band belt or apron H. extending the whole length of them ——— The rollers f. f. f. are of the same size or nearly so as one of which is shown and some of them may be so, if thought expedient ——— These three drawing rollers f. f. f. are placed and

revolve on their intermediate or axes in their usual manner of working — And the drawing rollers 1. 2. are of a similar size and arrangement as those intermediate upheld by the belt or apron I. By the belt or apron the rollers 1. 2. are alone kept in their proper position and made to revolve — while by the elasticity of the belt or apron I. they are allowed to recede more or less so as to admit the passage of knots or other irregularity of greater or less size —

The drawing rollers g. g. g. as seen in fig 2. are about one inch and a half in diameter & the small drawing rollers 1. 2. about one half inch in diameter & arranged as there represented, but the size of the same may be varied as could as the arrangement & number in same degree, and still effect the same purpose,

H. Is an intermediate shaft connected with suitable pinions pulleys and gearings for driving the machinery

I. Is an endless belt or apron made of canvas or some other suitable material, and passing around a large roller, of it, and around and among the combination of drawing rollers g. g. g. 1. 2.

J. is called the preventer made of iron, steel or other material suitable for the purpose — It is in the form of a thin plate or knife & so placed that one edge of the same is parallel to the surface of the outward small drawing roller 2. & in contact with the belt or apron I, which passes over the roller 2 — The preventer is from one to two inches in width extending the length of the roller & from one sixteenth to one eighth of an inch in thickness but may be varied in its dimensions as may be convenient — One side of the preventer J. in contact with the belt or apron I. is filed or worn down to a blunt edge while the other edge or back is firmly fixed by screws or otherwise to a strong piece of iron steel or other suitable material which gives it strength and stability —

The preventer J. may be placed stationary or the position in which it is imbedded & opposite or it may be so fixed that it can be readily thrown back as seen in fig 4.

K. is the beater or clipper it may be made of wood iron or

any material suitable for the purpose, It is a cylinder with projections or wings the outward edges of which are filed or formed transversely with the axis of the cylinder and making alternately different angles with the same, ——— This beater or clipper is so placed that the projections or wings as it revolves may come in contact with the burrs and other foreign materials as near the blunt edge of the percussion f: as possible ——— It may be made square or in other forms or otherwise contrived to effect the same purpose,

L L a piece of iron or other suitable substance, near the bottom of which the belt or apron rolls on N. runs on its axis ——— at the upper end of L there is a screw and nut suited for shortening, or lengthening the same, (the lower end being movable up and down,) and thus the belt or apron I, is loosened or strained.

M, represents the guides or regulators of the belt or apron, I.

N. is a large roller for the belt or apron I.

O. is a large cylinder for the purpose of receiving the wool, or such like substance from the belt or apron I, in a clean state in the form of a sheet; this caps or otherwise rolled around the same.

P is a pulley around which a band passes and connects it with another pulley q: on the shaft of the beater or clipper K, which it serves to drive ——— q is the pulley & the shaft of the beater or clipper K, ——— R, is the pulley around which the band S, passes connecting it with another pulley on the shaft H, which with suitable gearings is the main driver of the machinery ——

The foregoing is a description of the mechanical contrivances and machinery which I make use of in my said invention & for accomplishing the purposes herein before mentioned all of which with the application and arrangement of the same may be further illustrated and better understood by a brief account of the mode of operation as follows to wit.

The wool or such like substance in the sheet or skein with the burrs & other foreign matters in another and straight with the same as placed upon the frame which B, from the

fibres as is shown between the feeding rollers E. E. in a greatly
enlarged view at the left by the two fibre cylinders D.

The bottom cylinder D. being caused to run at the feeding
rollers E. E. at such a rate as to carry the fibres of the teased
wool it is acted with a velocity four or five times as great as the
fibres carried by the feeding rollers E. E. The consequence is that the
wool or such like substance being retained or held back by the
feeding rollers E. E. is drawn out into a sheet or layer four or five
times as thin as that presented by the feeding rollers E. E. at the
same time the fibres are straightened and arranged more parallel
to each other, the burrs and other foreign materials are loosened
without being crushed and mixed up with the wool and in a
considerable degree presented on the surface of the sheet of
or other such like substance by this operation is in a degree
combed and cleared out from such snarls & knots without the
the fibres broken,

The next operation of the wool takes place on the side
of the fluted cylinder D. opposite to that where the teeth
of the same take as to carry the wool from the feeding rolls E.
nearly on a level with them,

Here the belt or apron F. passing against and be
the drawing rollers g. g. g. 1. 2. receiving the wool from the
fluted cylinder D. nip as the drawing rollers g. g. g. 1. 2.
are made to revolve both greatly slower than the cylinder D.
the consequence is that the wool is compacted into a soft
thin sheet or layer and the fibres retained parallel to each other
or rendered parallel as possible by the arrangement of the drawing
rollers g. g. g. 1. 2. the two rollers 1. 2. being kept sufficiently
at their cylindrical surface by the belt or apron E. which after
them by its elasticity is enabled to draw the wool to the rollers
g. g. g. 1. 2. at a rate of speed greatly slower than that of the
in consequence the burrs & other foreign matters by the thin
of the sheet or layer of the drawing and feeding of the wool

wool as ordinarily are brought wholly or principally on the surface in a loosened state is to be taken off, while they are allowed by the elasticity of the belt or apron F to pass without being materially broken to the outward small drawing roller 2.

The wool or such like substances being now drawn into a thin sheet or layer the fibres straightened and laid parallel to each other, and the wool lightly held around the outward drawing roller 2, with the burrs and foreign materials principally wholly or principally on the surface in a loosened state the next operation is to remove them from the wool,

This is done by the presenter j, the beater or chopper K, the blunt edge of the presenter j, pressing firmly on the wool lightly held on the small drawing roller, 2, raises the burrs & foreign materials as the wool is passing on under it, while the beater K, revolving with great rapidity comes in contact with & operates upon the burrs & foreign materials, as they are raised by the presenter j, & thus takes them all over the blunt edge of the same — whilst the wool being now effectually cleaned and freed from burrs and foreign materials passes on to the cylinder O or may be taken off by hand or otherwise,

Notwithstanding I have herein described part of machinery and modes of operating which is done upland and for different purposes than those herein mentioned may have been known and used before as well as machinery and modes of operating which are analogous to my said invention; but which may be somewhat varied at the discretion of the operator or mechanic and which a skilful mechanic will readily understand — I hereby nevertheless explicitly declare that what is hereby claimed by me as my invention in the art of cleaning animal wool or hair like substances is the withdrawing & separating therefrom the burrs and other foreign materials and matter and fibres such wool or hair like substances in the fleece or otherwise by extending and straightening the fibres of said wool or such like substances in such a manner as to

from the hands and fingers, leaving wholly or principally on the surface of such hand or such like substance, the cuticle & strengthens, and the securing said hairs & foreign materials by cohering, uniting, pinching, fixing, or sticking them off as herein before described

I also hereby claim the mechanical contrivances and arrangement thereof, with the modes of applying and operating the same, for the accomplishment of the purpose or purposes aforesaid as specified aforesaid or except as herein after mentioned. to wit the arrangement and adaptation of the two small drawing rollers marked on the plan and drawing hereto annexed marked (A.) 1.2. in the combination of drawing rollers. 1.2.3. which are the device & suggestion of said Sawyer of said Boston Mechanician & used in my said invention, by said Sawyer as aforesaid

In testimony that the foregoing is a true specification of said invention in the art of cleaning animal wool or such like substances & the mechanical contrivances & arrangement thereof with the modes of applying & operating the same, as herein described I have hereunto set my hand this 2nd day of March in the year of our Lord 1853.

Witness)
Wm Knapp
Chas Stewart

Samuel Couillard

Dr in part folio

Enld.
Ltr.

(3516 words)