G. M. RICHMOND.

Machine for Preparing Feathers for Dusters.

No. 196,828. Patented Nov. 6, 1877.

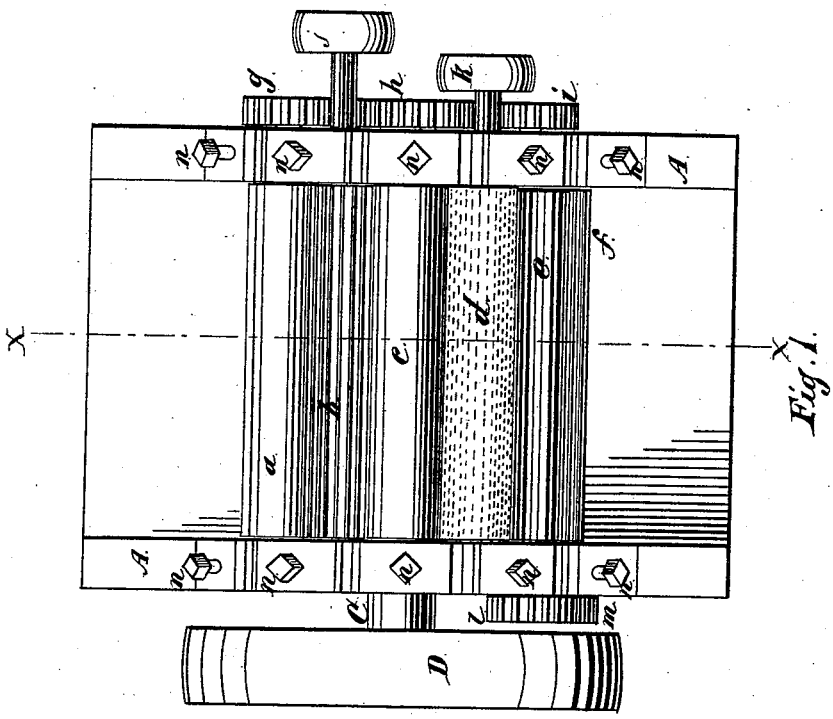

Fig. 1.

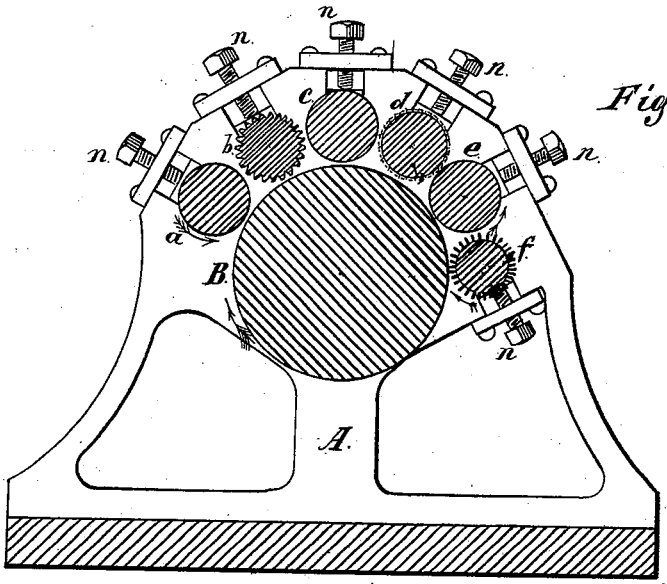

Fig. 2.

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UNITED STATES PATENT OFFICE.

GILBERT M. RICHMOND, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN MACHINES FOR PREPARING FEATHERS FOR DUSTERS.

Specification forming part of Letters Patent No. **196,828**, dated November 6, 1877; application filed October 3, 1877.

To all whom it may concern:

Be it known that I, GILBERT M. RICHMOND, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Machines for Removing Pith from Feathers, of which the following is a full description, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view; Fig. 2, a section at *x* of Fig. 1.

In manufacturing dusters from turkey-feathers it is customary to split the feathers, removing the inside of the stem, but leaving a large portion of the pith adhering to the feathers. This pith becomes dry and hard, and interferes with the elasticity of the feather. The pith is also liable to break, and at the point of fracture the feather itself will break. It is therefore desirable that all or nearly all of the pith be removed from the stem of the feather.

The primary object of my invention is to construct a machine by means of which the pith can be effectually and rapidly removed from the feather. By the use of the machine which I have constructed the inside of the stem from which the pith has been removed can be polished and the feather straightened, in addition to the removal of the pith, thus fully preparing the split feather for manufacture into dusters.

My machine, complete for accomplishing all of the objects stated, consists of seven rollers set into a suitable iron frame, each roller being about one foot in length.

In the drawings, A represents the iron frame in which the rollers are journaled. B is a wooden roller mounted upon a steel shaft, C, which runs in suitable bearings. This roller is six inches in diameter. D is a driving-pulley on one end of the shaft C. Upon the other end of the shaft, and on the outside of the frame, is a gear-wheel about six inches in diameter, by means of which the rollers *a c e* are driven.

a is a wooden roller, two inches in diameter, upon a steel shaft. This roller is used, in connection with the roller B, for feeding the feather to the machine. These two rollers *a* B serve the purpose of holding the feather and preventing its being drawn too rapidly through the machine by the roller *b*. *a* B, being feed-rollers, run in opposite directions.

b is a steel roller, one and one-half inch in diameter. This roller is grooved in such manner as to provide a series of rather sharp edges, extending lengthwise of the roller, the action of which removes the pith. *c* is another wooden roller, the same as *a*, and for the same purpose. *d* is another steel roller, one and one-half inch in diameter, having a smooth face, which is to be provided with some polishing material, such as sand-paper, emery-paper, or cloth; or this roller might be made entirely of emery. *e* is another wooden roller, like *a* and *c*. *f* is a grooved steel roller, one and one-half inch in diameter.

The rollers *a b c d e* all move in the same direction, while the roller *f* moves in the opposite direction.

g h i are gear-wheels upon the rollers *a c e*, which engage with the gear-wheel before mentioned upon the shaft C. *j k* are pulleys upon the shafts of the rollers *b d*, by means of which they are driven. *l* is a gear-wheel upon one end of the shaft of the roller *e*, and opposite to the wheel *i*. This wheel engages with a similar wheel, *m*, upon the shaft of the roller *f*, and drives it.

The rollers *a*, *c*, *e*, and *f* should have, in use, about one hundred revolutions per minute, while the rollers *b* and *d* should have about three thousand revolutions per minute.

The large roller B may be in fixed bearings; but the other rollers, *a*, *b*, *c*, *d*, *e*, and *f* should be in adjustable bearings.

n are screws, by means of which these rollers can be adjusted.

In use the split feathers are to be fed to the machine between the rollers *a* B, the feather end first and the pith side of the feather up. These feed-rollers *a* B will carry the feather along, and it will pass beneath the grooved roller *b*, which, rotating very rapidly and being properly adjusted, will remove nearly all of the pith from the stem. The feather will be carried forward by the roller *c* under the roller *d*, which will remove any particles of pith which may remain, and polish the inside of the stem. The feather will then pass beneath the roller *e*, and will pass between the two rollers *e f*, which revolve in opposite directions.

Feathers usually curve inward. The office of the rollers *e f* is to straighten them or curve them in the opposite direction, so that, when made into dusters, they will curve outward.

The rollers *d* and *f* are not a necessity, and a machine without them would be valuable and somewhat efficient; but they are very useful in a complete machine.

More than one feather can be run through the machine at the same time, the feathers being placed side by side.

I have given the sizes which I deem desirable for a full-sized machine. Of course, these may be somewhat varied, and the capacity may be increased by increasing the length of the rollers.

It will be seen that a complete machine performs three operations: first, that of removing the pith, or the greater portion thereof; second, that of polishing the inside of the stem; and, third, that of straightening the feather.

In making the roller *b* I do not limit myself to the exact construction shown and described. Various forms might be used to accomplish the object. For example, the roller might be provided with a large number of small sharp points, which would remove the pith; but I prefer the form first described, as it is more easily made, and is equally as efficient.

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

1. The rollers B and *a*, in combination with the roller *b*, for removing the pith, all constructed and operating substantially as and for the purpose set forth.

2. The rollers B, *a*, *c*, and *e*, in combination with the roller *b*, for removing the pith, and polishing-roller *d*, all constructed and operating substantially as and for the purposes specified.

3. The fluted roller *f*, in combination with the rollers B, *a*, *c*, and *e*, roller *b*, for removing the pith, and polishing-roller *d*, substantially as and for the purposes set forth.

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Witnesses:
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