

C. W. NICHOLS.  
TREATING FEATHERS.

No. 192,594.

Patented July 3, 1877.

Fig. 1

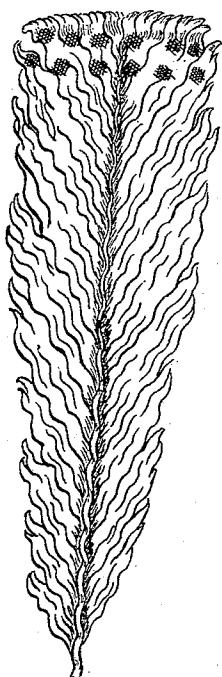


Fig. 2

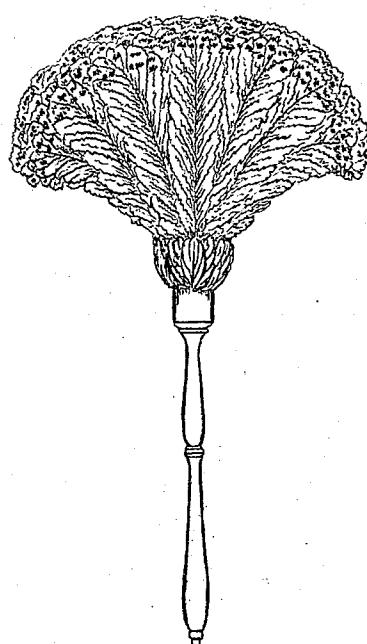
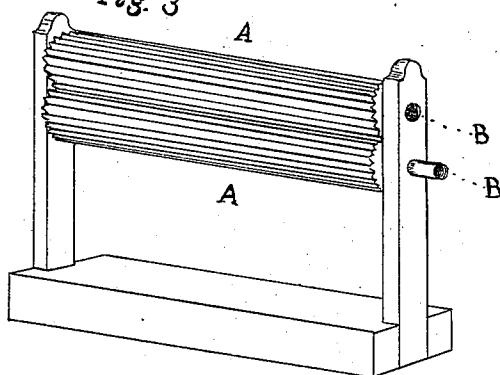


Fig. 3



Inventor.

Clarence W. Nichols -

Witnesses:

Geo. Bond -  
H. P. Bond.

# UNITED STATES PATENT OFFICE.

CLARENCE W. NICHOLS, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN TREATING FEATHERS.

Specification forming part of Letters Patent No. 192,594, dated July 3, 1877; application filed December 29, 1876.

*To all whom it may concern:*

Be it known that I, CLARENCE W. NICHOLS, of the city of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Process for Treating Feathers, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an enlarged view of a crimped or corrugated feather; Fig. 2, an elevation of a completed brush, and Fig. 3 an isometric perspective view of a crimping-machine or fluter.

The object of my invention is to increase the flexibility of dusting-brushes made from coarse feathers, and to disconnect the fibers of the feathers so that they will not adhere to each other, and thereby increase the dusting ability of the brush and diminish its solidity; and its nature consists in fluting or corrugating the feathers by passing them between hot fluted or corrugated rollers prior to making them into brushes.

In the drawings, A represents two fluted or corrugated rollers mounted in a suitable frame. These rollers are made hollow, and are kept heated by inserting hot irons into them through hollow axles or openings B, and they are turned by the application of a crank, or by other suitable means.

The device shown is designed for a small factory; for a large one the rollers may be heated by steam or hot water. The feathers may be heated in fluting without splitting the stems, as the fiber will be separated and the stems made more flexible; but, in order to produce the best results, the stems should be split and the inner portion with the pith removed or partly removed, so as to leave the fiber with the enamel or back. The heating softens the enamel and renders it more pliable, and also causes the corrugations to remain. This action of the corrugations causes the fiber to spread, so as to give the feathers a greater dusting ability, and thereby increase their utility, requiring less stock to make a completed brush. The main fibers of the feathers have on their sides or edges smaller fibers, hooks, or projections, which cause the main fibers to adhere to each other, or to cling together, so that after being separated they will again adhere together when brought in contact. The heat of the rollers is suffi-

cient to curl up or destroy the action of these small or secondary fibers, so that the main fibers will not adhere together again, but stand out separately in varying directions. The heat of the rollers also destroys the tendency of the fibers to cling together, and causes them to spread apart, so as to improve the action of the duster. The heating process also destroys moth-eggs that may be in the feathers, and, by heating the enamel, I am enabled to turn the enamel of the feathers outward, which gives the brush a better finish and makes it more durable.

The feathers are made into brushes in the usual way or ways, and the completed brush, when the feathers are treated in the manner herein described, is improved in flexibility, durability, softness, and expansion, and the adherence of the fibers to each other being destroyed their spread is largely increased, thereby increasing the dusting ability or utility of the dusters or brushes.

For the simple purpose of preventing the adhesion of the fibers to each other, the fluting of the hot or heated rollers is not necessary, and even hot plates may be used, and the passing of the stems between fluted rollers renders them pliable to a certain extent, and prevents them from lying against each other when made into brushes.

I do not claim the passing of entire feathers between rollers for the purpose of crushing the stems; nor do I claim splitting them, or removing the interior pith; but

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

1. The process of preparing feathers by passing them between heated surfaces, substantially as described.

2. The process of preparing feathers by passing the feathers between rollers, corrugated or fluted, substantially as specified.

3. The process of preparing feathers for dusters or brushes by removing the inner portion of the stems and passing them between heated fluted rollers, substantially as and for the purpose specified.

CLARENCE W. NICHOLS.

Witnesses:

O. W. BOND,  
H. F. BRUNS.