June 16, 1931. J. DUNNER 1,809,891

STAGGERED CHANNELED ROLLER FEATHER PLUCKING DEVICE

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Fig. 1.

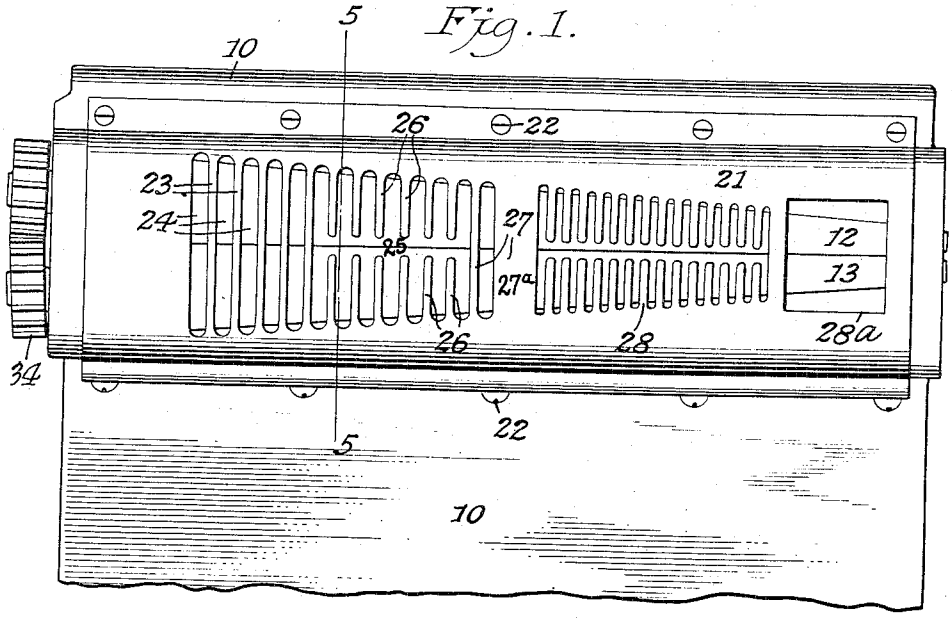


Fig. 2.

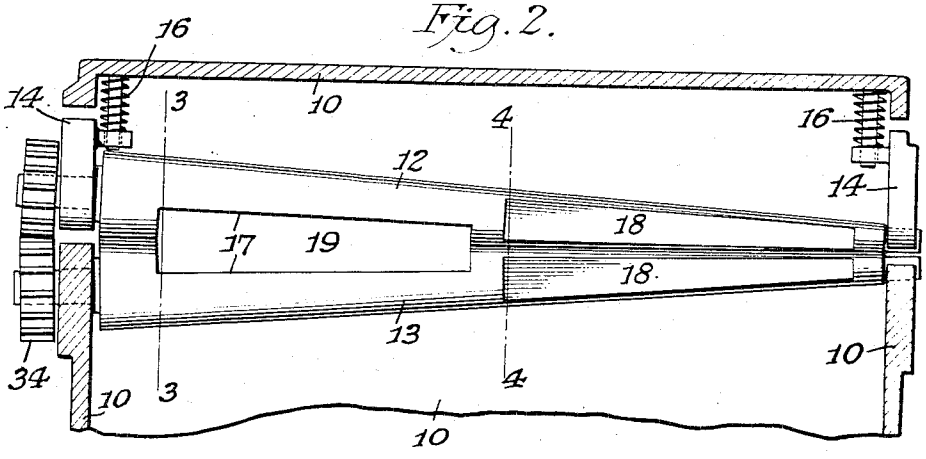


Fig. 3.

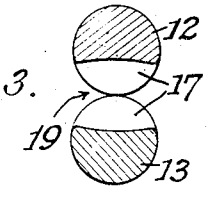
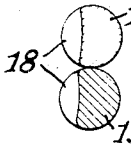


Fig. 4



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STAGGERED CHANNELED ROLLER FEATHER PLUCKING DEVICE

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Fig. 5.

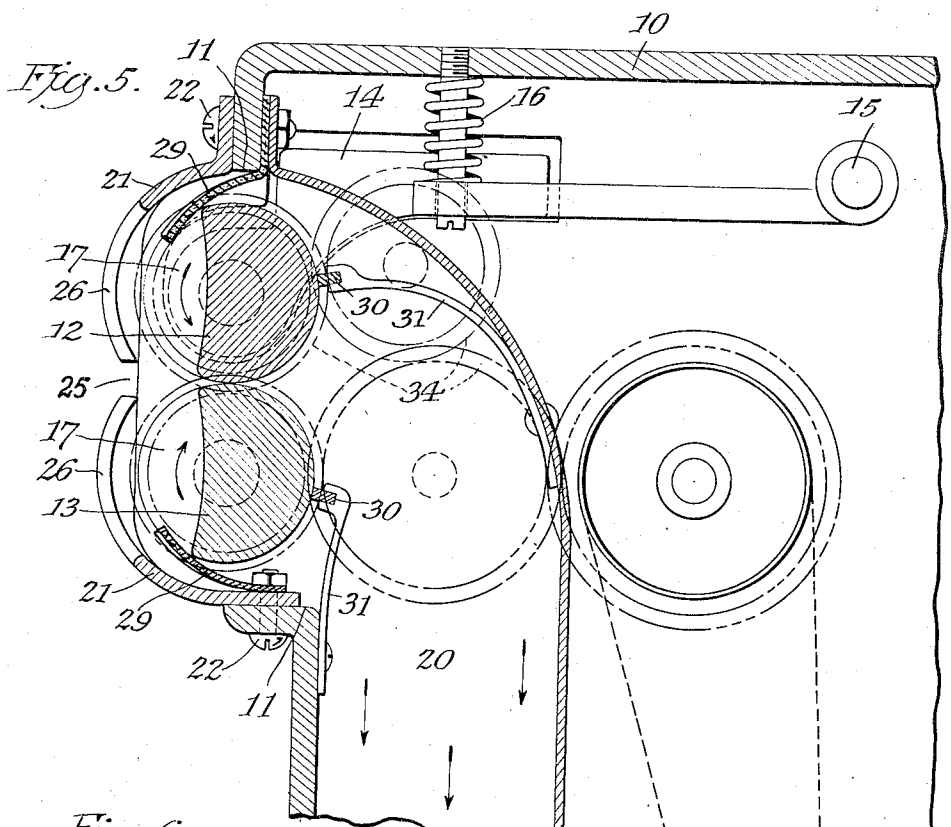


Fig. 6.

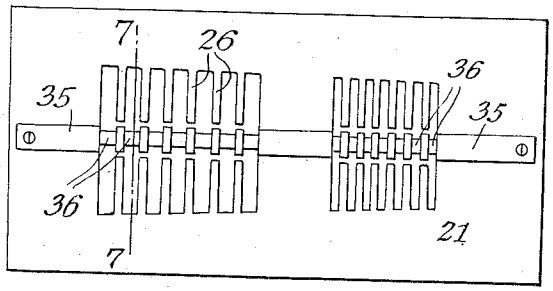


Fig. 7.

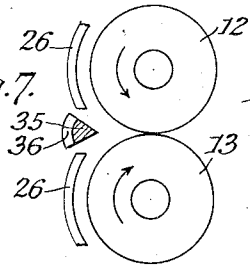
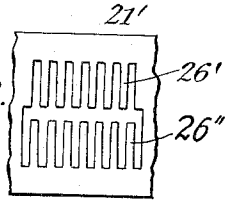


Fig. 8.



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Patented June 16, 1931

1,809,891

UNITED STATES PATENT OFFICE

JULIUS DUNNER, OF NEW YORK, N. Y.

STAGGERED CHANNELED ROLLER FEATHER PLUCKING DEVICE

Application filed October 30, 1929. Serial No. 403,589.

This invention relates to a device or apparatus for de-feathering poultry, fowl, birds and the like, and is an improvement on inventions disclosed in my co-pending applications for Letters Patent, Serial Numbers 248,312 and 276,253, filed January 21, 1928 and May 29, 1928, respectively.

An object of the present invention is to provide a device of the above character which shall perform its work in an effective and expeditious manner and further to provide a construction whereby some of the objections present in apparatus employed for the above purpose are obviated.

New features are present in the provision of gripping or pulling tapered rollers mounted preferably in pairs having opposite rotation and formed each with two or more side channels arranged at right angles to each other, the corresponding or companion channels of the rollers being in registration once at each turn thereof to form a free air passage through which air may be sucked or drawn inwardly and downwardly to convey plucked feathers through a chute to an appropriate receptacle through the instrumentality of a high speed blower or fan.

Another feature is found in an improved guard or comb plate against which poultry may be pressed and moved along in the plucking operation to avoid direct contact of the body of the fowl with the plucking rollers.

In carrying out my invention, the guard plate which is arranged over the tapered rollers and slightly spaced therefrom is formed with a series of bars widely spaced over the left or larger end of the rollers where the long tough tail and wing feathers of a fowl are plucked or removed and further to the right the said bars are cut to form a central space and comb like teeth to permit of the next shorter breast and back feathers passing through to the gripping rollers and further to the right, closer spaced and shorter teeth are formed to aid in plucking other shorter feathers and finally further to the right is an opening in the guard plate through which portions of the fowl may be passed into contact with the smaller end of the rollers to pluck the down or pin feathers.

I will now enter into a detailed description of the construction and relative arrangement of the parts embraced in the present and preferred embodiment of my invention with reference to the accompanying drawings, in which:

Fig. 1 is a front view of my improved de-feathering machine.

Fig. 2, is a partial sectional front elevation with the guard plate removed.

Fig. 3, is a cross section of the rollers on the line 3—3 of Fig. 2.

Fig. 4 is another cross section on the line 4—4 of Fig. 2.

Fig. 5 is an enlarged fragmentary vertical cross section of the machine taken on the line 5—5 of Fig. 1.

Fig. 6 is a front view of a slightly modified form of guard or comb plate.

Fig. 7 is an enlarged section on the line 7—7 of Fig. 6.

Fig. 8 is a front view of a portion of another form of guard or comb plate in which the teeth are in staggered relation.

Referring now to the drawings, I provide a suitable casing 10 having a front opening 11, in which a pair of plucking rollers 12 and 13 are mounted to rotate in opposite directions.

The roller 13 is mounted in fixed bearings in the frame 10 but the upper roller 12 is mounted in movable bearings in side plates 14, pivoted at 15 to the frame and urged downwardly by pressure springs 16, to permit thick or heavy feathers or bunches of feathers to pass between the rollers without damaging the parts.

Each roller 12—13 is formed with longitudinally extending side channels or cutaway portions 17 and 18 arranged in pairs and at right angles to each other, which register at each revolution of the rolls to collectively form passages 19 (see Fig. 2) through which air may be sucked or drawn to carry plucked or loose feathers backward and down into a chute 20.

Secured to the front of the casing 10 and over the opening 11 and rollers 12 and 13 is a guard or comb plate 21 made fast by screws or other devices 22. This guard and comb plate

is preferably curved to correspond to the arc of the rollers and spaced therefrom as shown in Fig. 5 of the drawings, and as shown in Fig. 1 is formed with a series of bars 23, providing comparatively wide slots 24 through which the heavy tail and wing feathers may be thrust and plucked by the larger and stronger acting ends of the rollers 12 and 13.

As the fowl is passed along to the right over the guard plate a number of the bars are cut centrally to provide spaces 25, thus forming opposingly set comb like teeth 26, permitting the operator to force the fowl nearer the plucking rollers to remove the longer of the breast and back feathers after which the fowl is passed further to the right over a stiffening bar 27, and solid portion 27*a* and then the fowl may be further operated on over the fine tooth comb-like section 28, where the shorter breast and back feathers are removed by the narrower portions of the tapered plucking rollers, after which the fowl is passed further to the right and over a finishing opening 28*a* where the fowl is brought into direct contact with the smallest end diameters of the rollers to pluck the down or pin feathers therefrom.

To prevent sucked in air to pass into the chute 20 from the outer side of the rollers 12 and 13 I provide flexible flaps 29, preferably made of leather, which constantly rest on the periphery thereof and I may also employ scrapers or cleaners 30, of leather, felt or any other suitable material having contact with said rollers 12—13 through spring action supporting plates or arms 31. The rollers may be driven by a motor 32, and belt connections 33 through an appropriate train of gearing 34 as indicated in Fig. 5 and similar to the drive and gearing described in my copendng second application Ser. No. 276,253, mentioned hereinbefore.

In Fig. 6 of the drawings there is shown another form of guard plate employing a bar 35 extending across the teeth 26 of the comb and having grooves 36, registering with the spaces between said teeth.

Fig. 7 is a fragmentary section of the construction shown in Fig. 6 and indicates the role of the bar 35 which is to divide the feathers and guide them upwardly and downwardly around the same to the meeting line of the rollers where they will be caught, removed from the body and then carried away when the channel 19 will be formed between the rollers on their rotation and the air suction given a free action.

In Fig. 8 the upper teeth 26′ and lower teeth 26″ of the guard plate 21′ are arranged in staggered relation, this construction indicating a slight modification over the arrangement of the main figures.

My experience has been that this latest improvement in my feather plucking device is conducive to far superior results to those obtained by the two earlier forms thereof, described in the mentioned co-pending applications. I attribute this mainly to the improved form, action and selective use of the comb plate described herein and to the concentration of the air current on the point of operation due to the staggered channels in the rollers.

It is also to be understood that changes and variations may be made in the parts and combination of parts of this invention and I desire to reserve my rights to any and all such changes as are within the spirit of the invention and the scope of the appended claims.

What I claim as new, is:

1. In a de-feathering machine, a pair of tapered contacting rollers each having a plurality of longitudinal channels at an angle to each other and arranged in opposite pairs, each pair at some time during a revolution of the rollers being in registration to provide successively formed air passages, for the purpose set forth.

2. In a de-featherng machine, a pair of tapered contacting rollers each having a plurality of channels at an angle to each other and at different points along its longitudinal surface, each channel at some time during a revolution of said rollers being in registration with its companion in the opposite roller to provide successive air passages along the length of said rollers, for the purpose set forth.

3. In a de-feathering machine a pair of tapered rollers each having a number of channels along its length and out of alignment one with the other, but in cross alignment with the companion channels in the opposite rollers, a guard plate spaced from said rollers, and having slots forming bars and teeth and means for driving the rollers.

4. In a de-feathering machine a pair of tapered rollers having a number of companion channels, the channels of each roller being at different radial angles, a guard plate having spaced bars and teeth graduating in length corresponding to the taper of said rollers and means for driving the rollers for the purpose set forth.

5. In a de-feathering machine, a set of tapered rollers each having a number of longitudinal channels arranged at an angle to one another, but in alignment with companion channels in the opposite roller to intermittently form air passages between said rollers, a guard plate arranged in front of said rollers and slightly spaced therefrom and being formed with spaced bars, teeth and a door, said bars and teeth being gradually reduced in length corresponding to the taper of said rollers, and means for driving the rollers.

6. In a de-feathering machine as set forth in claim 5, damper flaps arranged to pre-

vent air being drawn into said machine around the outside of said rollers.

7. In a de-feathering machine having a casing with a front opening, a pair of rotatable rollers in said casing back of said opening and means to cause an air current to pass through said opening into and through said casing, a guard plate applied in front of said opening and slightly spaced from said rollers, said plate having opposingly set teeth on the two sides of a central opening therein, said opening being in alignment with said rollers.

8. In a de-feathering machine as set forth in claim 7, the ends of said teeth being bent inwardly to generally follow the curve of the rollers and providing inwardly rounded upper and lower margins for said central opening.

9. In a de-feathering machine as set forth in claim 7, the ends of said teeth being bent inwardly to generally follow the curve of the rollers and providing inwardly rounded upper and lower margins for said central opening, and a bar secured along said central opening, being narrower than the width of said opening, to guide the feathers upwardly and downwardly around said bar into and through said opening.

10. In a de-feathering machine having a casing with a front opening and a pair of rotatable rollers in said casing back of said opening and means to cause an air current to pass through said opening into and through said casing, cooperating channels in said rollers to intermittently form air passages between said rollers, scraper bars resiliently pressed against the rear of said rollers, being adapted to be cleaned by the air current when said passages are formed.

11. In a de-feathering machine, a pair of contacting rollers each having a plurality of longitudinal channels at an angle to each other and arranged in opposite pairs, each pair at some time during a revolution of the rollers being in registration to provide successively formed air passages, for the purpose set forth.

Signed at New York, in the county of New York, and State of New York this 19th day of June, 1929.

JULIUS DUNNER.