

March 2, 1926.

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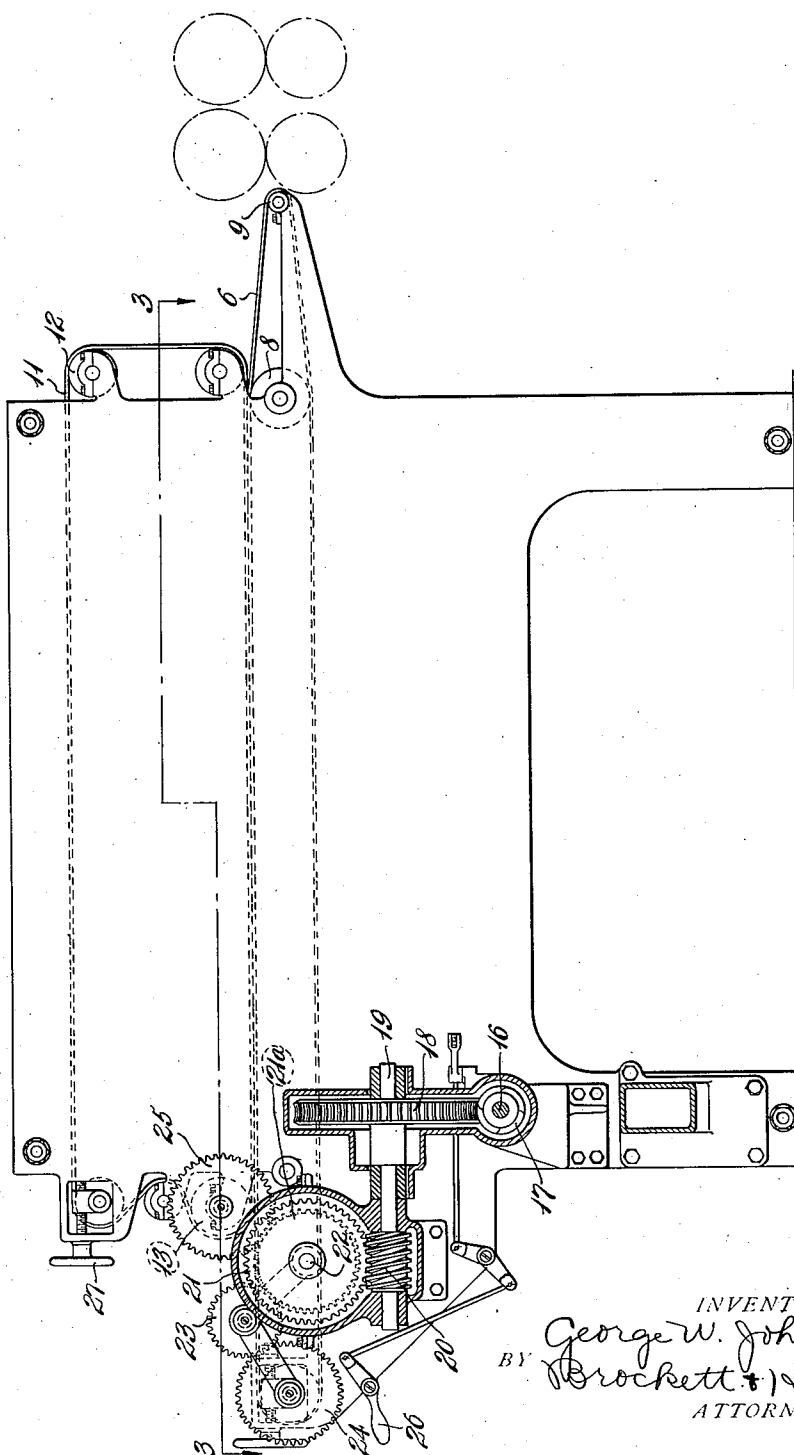
G. W. JOHNSON

COLLAR CONDITIONING APPARATUS

Filed Oct. 5, 1922

4 Sheets-Sheet 1

Fig. 1.



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BY Brockett & Hyde  
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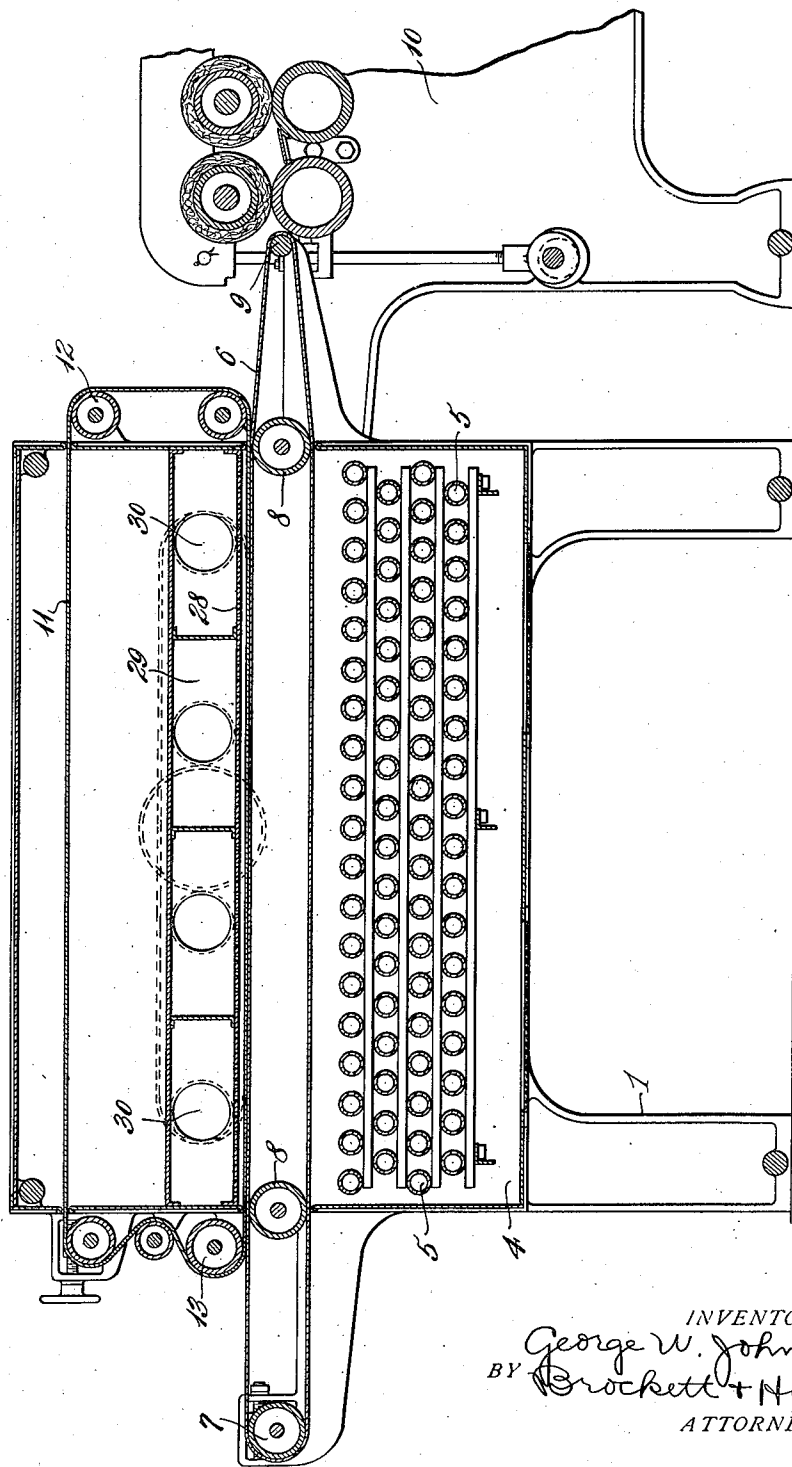
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Fig. 2.



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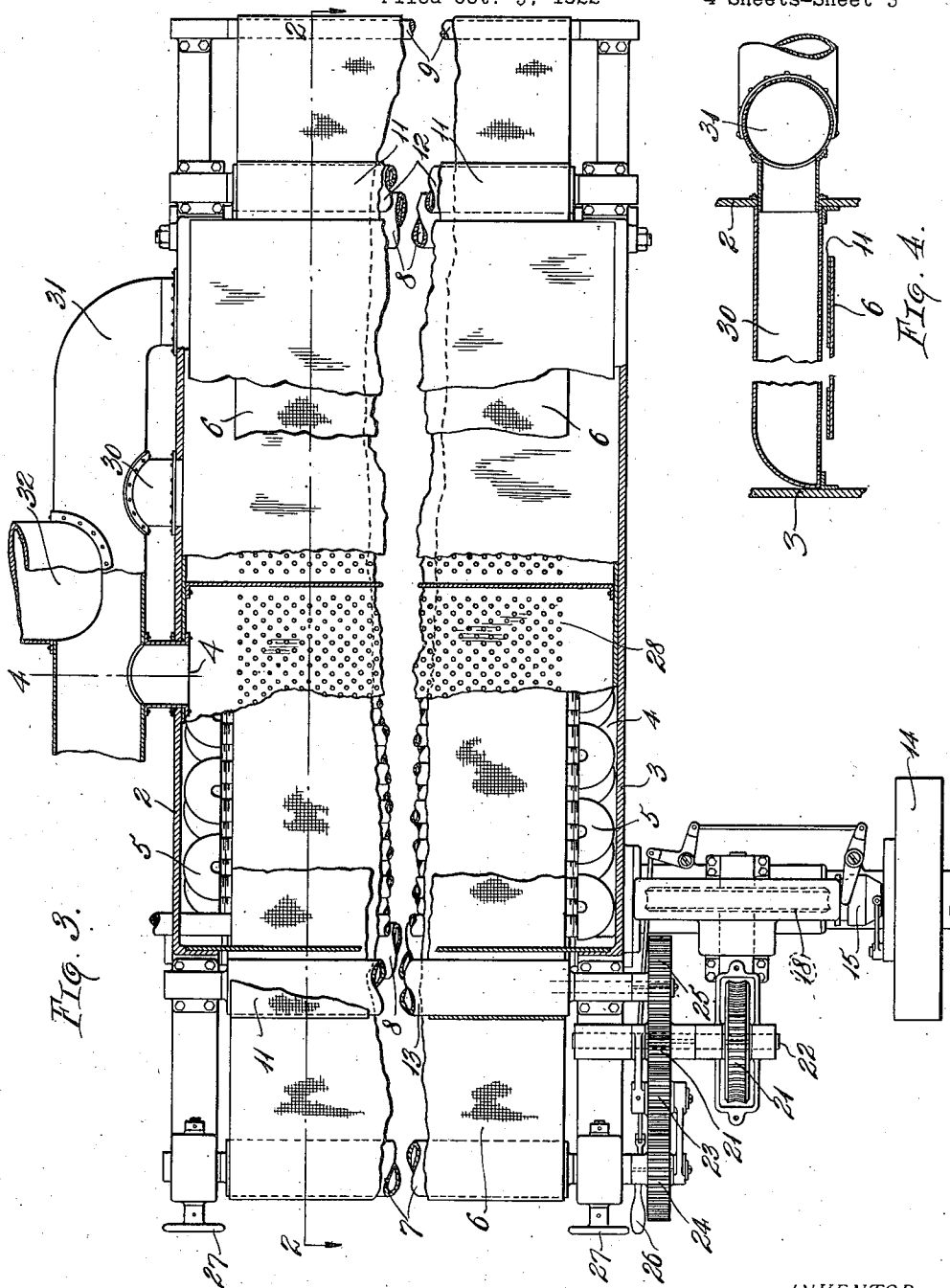


Fig. 3.

Fig. 4.

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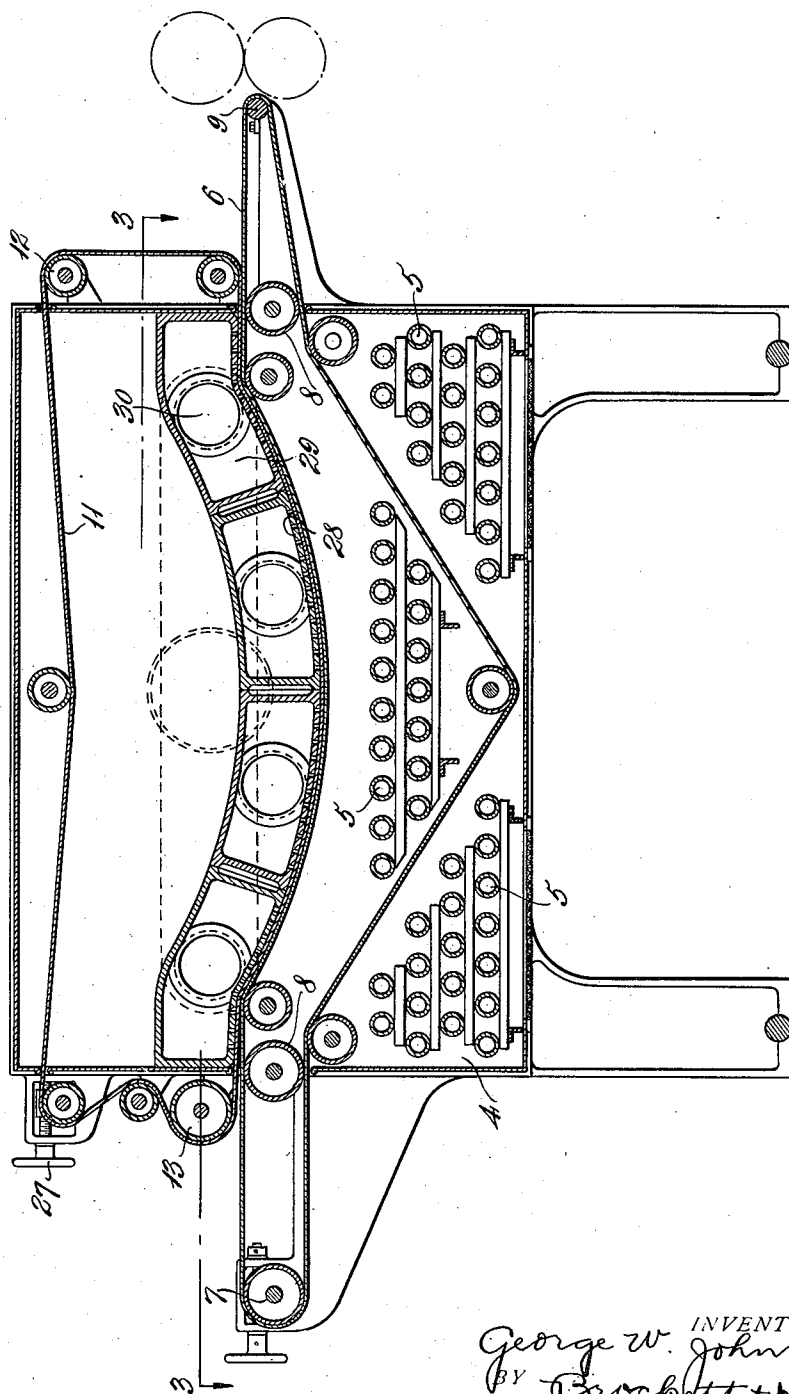


Fig. 5.

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## UNITED STATES PATENT OFFICE.

GEORGE W. JOHNSON, OF CINCINNATI, OHIO, ASSIGNOR TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

## COLLAR-CONDITIONING APPARATUS.

Application filed October 5, 1922. Serial No. 592,620.

*To all whom it may concern:*

Be it known that I, GEORGE W. JOHNSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Collar-Conditioning Apparatus, of which the following is a specification.

This invention relates to improvements in conditioning apparatus for use in laundering collars and the like preparatory to their introduction into an ironing machine.

The regular laundering process includes the steps of washing, extracting, starching, drying, moistening and pressing, all preliminary to the final step of ironing. According to the present invention, this process is shortened by omitting and modifying some of the steps, namely, the steps of drying, moistening and pressing.

Accordingly, the objects of this invention are to provide an improved apparatus in which laundry, such as collars and the like, may be properly conditioned immediately after the starching of the work and immediately preceding the introduction of the work into an ironing machine; to provide means for liberating and removing a certain portion of moisture contained in the work so as to present the work to the ironing machine with the proper degree of moisture; to provide vacuum means for removing the moisture liberated from the work and at the same time reduce the temperature of the work preparatory to its introduction to the ironing machine.

Other objects will appear from the following description and claims when considered in connection with the drawings.

Fig. 1 shows my improved device in side elevation; Fig. 2 is a longitudinal section taken on line 2—2 of Fig. 3; Fig. 3 is a horizontal section taken on the line 3—3 of Fig. 1; Fig. 4 is a detail sectional view taken on line 4—4 of Fig. 3; and Fig. 5 is a transverse sectional view showing a modified form of device.

The main casing which is supported upon the standards 1 comprises the side walls 2 and 3 and suitable end walls, the heating coils 5 being enclosed in the heating chamber 4 which forms the lower part of the casing. The endless belt 6 extends through the heating chamber above the heating coils

5 and is driven by means of the roll 7. The belt 6 extends about idlers 8 which are so positioned as to close the openings at the points where the belt extends through the casing. The idler 9 is also provided and is positioned at a point close to the receiving-end of the ironing machine, indicated in a general way by reference numeral 10. Another endless belt 11 extends about the idlers 12 and is driven by means of the roll 13. The lower stretch of this second belt travels in contact with the upper stretch of the belt 6 so as to constitute a means for conveying the work through the casing, the work being received at the left-hand side of the machine and delivered to the ironing machine at the right.

The means for driving the belts comprises a pulley 14 which may be operated from any suitable source of power and which has a clutch connection 15 with the shaft 16. Fixed upon the shaft 16 is the worm 17 which meshes with the gear 18 mounted upon the shaft 19. The worm 20 fixed upon the shaft 19 meshes with and drives the gear 21 which in turn is fixed upon the shaft 22. The pinion 23 meshes with and is driven by the gear 21<sup>a</sup> on shaft 22 and in turn drives the gear 24, which is fixed upon the shaft of the roll 7 for driving the same. The gear 25 meshes with the gear 21 and is fixed upon the shaft of the roll 13 so as to drive the same. The clutch 15 is controlled through lever connections by the operating handle 26. The tautness of belts 6 and 11 may be regulated by means of screws 27 which are mounted in suitable brackets and are adapted to engage the bearings of the rolls at the two ends thereof.

Extending across the casing and just above the lower stretch of the upper belt, I have provided a perforated plate 28 which constitutes a partition between the lower heating chamber and the upper part of the casing. This plate 28 serves also as the bottom wall of a plurality of vacuum chambers 29 each of which is provided with an outlet communicating with the manifold 31. The vacuum connection 32 is provided for the manifold as a suction means for removing the moisture which is liberated from the work which is introduced directly from the starcher and is subjected to the heat of the casing. The belts are of porous fabric so

as to permit the necessary circulation for such treatment.

According to Fig. 5, I have so arranged the parts as to extend the lower stretch of the lower belt between the heating coils which are divided into sections, and have provided a curved path for the upper stretch of the lower belt and the lower stretch of the upper belt, the vacuum chambers being given the same curved configuration. In this way more intimate and effective relation is established for the heating of the belts and the work and consequently for the removal of moisture from the work.

According to this invention, the starched work which is received directly from the starcher is introduced into the left-hand side of the conditioning apparatus, as viewed in the present drawings, and is carried between the overlying stretches of the endless belts so as to be exposed to the heat of the heating chamber and eventually delivered to the ironer on the right. Since the belts are made of porous material, such as canvas or the like, the heat is permitted to freely pass through the belts and to liberate a certain degree of moisture from the work. This released moisture is drawn off by means of the suction which at the same time reduces the temperature of the work so as to be more easily handled in the ironing machine.

Thus it will be seen that I have devised an improved apparatus for placing starched work in proper condition to be introduced into the ironing machine, and have in this way shortened the ordinary laundering process.

What I claim is:—

1. A laundry conditioning apparatus comprising a casing having a heating chamber in the lower part thereof, means for conveying starched work through said heating chamber, a perforated plate extending across said casing and providing a chamber above the path of the work, and suction means located above said plate and adapted to remove moisture released from the work and to reduce the temperature of the work.

2. A laundry conditioning apparatus comprising a casing having a heating chamber in the lower part thereof, means for conveying starched work through said heating chamber, a perforated plate extending across said casing above the path of the work, a plurality of vacuum chambers located above said plate, and a manifold outlet connection for said vacuum chambers, whereby the moisture released from the work is removed and the temperature of the work is reduced.

3. A laundry conditioning apparatus comprising a casing having a heating chamber, means for conveying starched work through said heating chamber, a perforated plate extending across said casing and providing a chamber on the opposite

side of the path of work from said heating chamber, and suction means arranged to remove the moisture released from the work by drawing the same through said perforated plate.

4. A laundry conditioning apparatus comprising a casing, means for conveying starched work through said casing, a perforated plate extending across said casing and co-operating with said conveying means so as to constitute a guiding means for the work in its path of travel, and means for removing moisture from the work by withdrawing the same through said perforated plate.

5. A laundry conditioning apparatus comprising a casing, means for conveying starched work through said casing apertured means co-operating with said conveying means so as to guide the work in its travel through the casing, and means for providing a current of air through said apertured means so as to remove moisture from the work.

6. A laundry conditioning apparatus comprising a casing, means for conveying starched work through said casing, a manifold air connection to the inside of the casing and having an apertured wall past which the work is moved, and means for freeing moisture from the work and removing the same out through said manifold connection.

7. A laundry conditioning apparatus comprising a casing, a porous belt for conveying starched work through said casing, apertured means co-operating with said belt so as to guide the work in its travel through the casing, and means for providing a current of air through said belt and apertured means so as to remove moisture from the work.

8. A laundry conditioning apparatus comprising a casing, foraminous means for conveying starched work through the casing, comparatively rigid apertured means extending in close proximity to said foraminous conveying means, and means for forcing air through said conveying means and apertured means so as to remove moisture from the work, said parts being so constructed and arranged that said apertured means serves to prevent undue movement of said conveying means out of a predetermined path.

9. A laundry conditioning apparatus comprising a casing, foraminous belts extending through said casing and arranged to feed starched work through the casing by engaging opposite sides of the work, comparatively rigid apertured means extending in close proximity to said belts, and means for forcing air through said belts and apertured means so as to remove moisture from the work, said parts being so constructed and arranged that said apertured means

serves to prevent undue movement of the engaging portion of the belts out of a predetermined path.

5 10. A laundry conditioning apparatus comprising a casing, means including an endless belt for conveying starched work through said casing, heating means arranged in said casing between the stretches of the belt and in intimate relation to the path of  
10 travel of the work, and means for removing moisture from the casing.

11. A laundry conditioning apparatus

comprising a casing, means including an endless belt for conveying starched work through said casing, heating means arranged in said casing on both sides of one of the stretches of the belt and in intimate relation to the path of travel of the work, and means for removing moisture from the casing. 15

In testimony whereof I hereby affix my signature. 20

GEORGE W. JOHNSON.