Feb. 3, 1931. C. J. HOFSTETTER 1,790,749

STEAM BOX

Filed July 3. 1929

Fig. 1

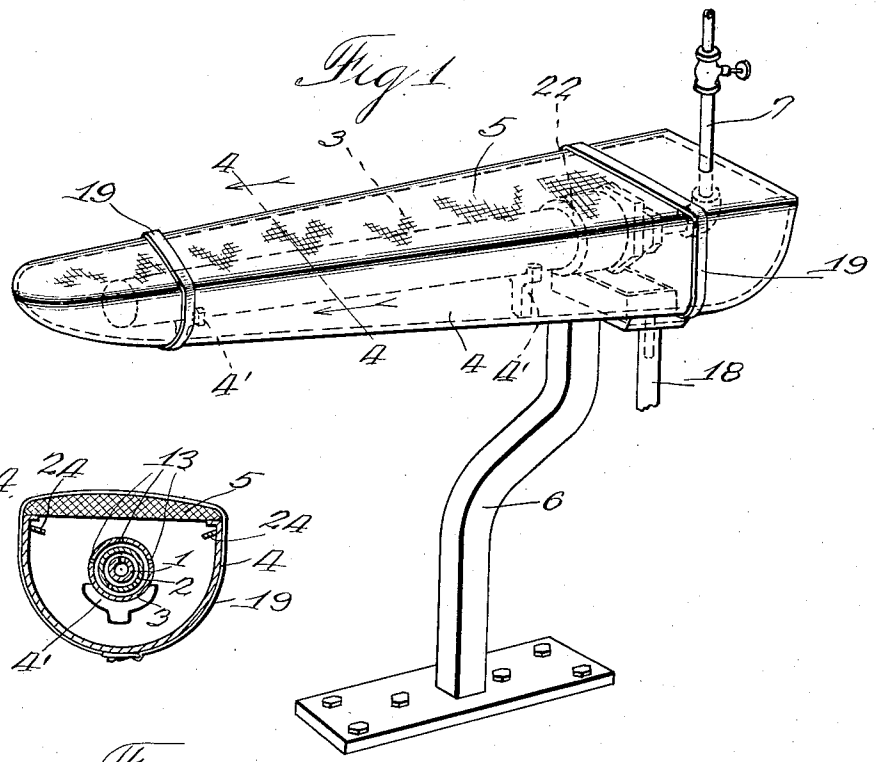


Fig. 4

Fig. 2.

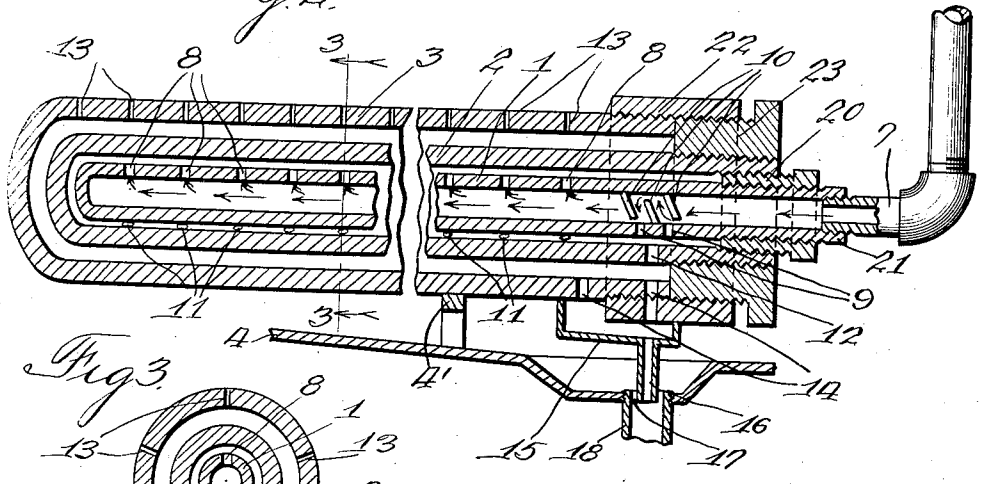
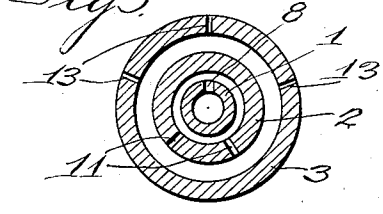


Fig 3.



Inventor.

CHARLES JOSEPH HOFSTETTER.

Witness:

David S. Ragnussan.

By: Jones, Addington, Ames & Seibold.

Attys.

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UNITED STATES PATENT OFFICE

CHARLES JOSEPH HOFSTETTER, OF ARLINGTON HEIGHTS, ILLINOIS

STEAM BOX

Application filed July 3, 1929. Serial No. 375,646.

My invention relates to a steam box construction for use in dry cleaning.

In connection with dry cleaning, after the fabric has been cleaned, it is desirable to subject it to the action of steam for the purpose of restoring the sheen to the fabric, such as silks, velvets and the like. In subjecting the fabric to the action of the steam, it is highly desirable that the steam should contain just the right amount of moisture. If too much moisture is present in the steam the fabric becomes spotted and often the cleaning operation has to be repeated from the beginning. On the other hand, if there is too little moisture in the steam the effect on the fabric is not all that could be desired in the way of restoring the sheen and brilliance to the fabric.

My invention has for its object to provide a construction which will cause the steam which is used to act on the fabric to contain just the right amount of moisture to give the desired sheen to the fabric without causing it to become spotted.

A further object is to provide a construction of this character which can be made cheaply and which will be easy to assemble.

Further objects will appear from the description and claims.

In the drawings, in which an embodiment of my invention is shown—

Figure 1 is a perspective view showing a steam box embodying my invention;

Fig. 2 is an axial section through the nested steam chambers through which the steam flows before it is delivered to the outer box or casing;

Fig. 3 is a section on the line 3—3 of Fig. 2; and

Fig. 4 is a section on the line 4—4 of Fig. 1.

Referring to the drawings in detail, the construction shown therein comprises three elongated perforated steam chambers, 1, 2 and 3, one within the other, through which the steam flows in a tortuous path and in which the moisture of condensation is separated from the steam, an elongated outer casing 4 containing these chambers, and having lugs 4′ to support said chambers, a cover or pad 5 over the upper part of the casing 4, which cover is penetrable by steam, so that a fabric placed on this cover will be subjected to the action of the escaping steam, and a support 6 on which the casing 4 and the steam chambers are mounted.

Before describing in further detail the construction, the operation will be briefly outlined. Steam at a suitable temperature and pressure is suplied to the innermost chamber 1 through the supply pipe 7. From this innermost chamber the steam flows through a series of openings 8 along the upper side of the chamber into the second steam chamber 2, the moisture of condensation escaping through the drain openings 9 in the lower side of the chamber 1. A series of baffles 10 in the path of the steam flow facilities the precipitation of the moisture of condensation.

From the second steam chamber 2 the steam flows through a series of openings 11 along the lower side into the outer steam chamber 3, the moisture of condensation flowing out through the drain opening 12 which is located substantially underneath the drain openings 9 in the inner steam chamber 1.

From the outer steam chamber the steam flows through a series of openings 13 along the upper side of the outer chamber, being delivered adjacent the penetrable cover 5 for the casing, the steam penetrating this cover and acting on the fabric which is placed upon the upper side of the cover. The moisture of condensation escapes from this outer chamber through the openings 14 in the lower side thereof into a drip pan 15 having a discharge pipe 16 in line with the discharge opening 17 in the outer casing, a suitable discharge pipe 18 being provided which will conduct the water of condensation to any suitable point of discharge.

The cover for the casing may be detachably secured to the casing in any suitable manner as by means of a pair of straps 19 embracing the cover 5 and casing 4 and detachably secured in any suitable manner.

The connection between the inner steam chamber 1 and the intermediate steam chamber 2 may be effected by means of a bushing 20 threaded internally and externally, the bushing being screwed onto the end of the in-

ner steam chamber 1 and threaded into the end of the intermediate steam chamber 2. The end 21 of the inner steam chamber 1 may be shaped to fit a wrench to facilitate screwing the supply pipe 7 into the end of the chamber 1 and this wrench-engaging portion may be made small enough so that the bushing 20 may be slipped on over this wrench-engaging portion and screwed onto the threaded portion of the chamber.

The intermediate chamber 2 may be secured to the outer chamber 3 by means of an internally threaded sleeve 22 screwed into the end of the outer chamber, and a bushing 23 threaded externally and internally and threaded inside of the sleeve 22, the end of the intermediate chamber being threaded and screwed inside of this bushing 23.

Within the casing 4 and extending completely around the same is a flange 24 which is spaced below the upper edge thereof and which inclines slightly downwardly. This flange serves to deflect downwardly and return to the bottom of said casing any water which may be discharged through the lateral openings 13 into the chamber 3, thus preventing this water from contacting with and unduly wetting the cover or pad 5.

It will be seen that this construction provides a tortuous path for the steam in its flow through the three steam chambers, the steam flow being first upwardly from the inner chamber 1 through openings 8 to the intermediate chamber 2, thence downwardly through the intermediate chamber and through the openings 11 in the lower side of the intermediate chamber into the outer chamber 3 from whence it flows upwardly and out through the openings 13 in the upper side of the outer chamber into proximity to the penetrable cover 5 of the casing. I have found in practice that it is of advantage to have the openings in the three chambers through which the steam passes progressively smaller to serve to progressively arrest the flow of the steam. Thus openings 8 would be largest and openings 11 and 13 progressively less in diameter as shown in Fig. 3.

With this construction, the proper percentage of moisture is obtained so that the fabric is not subjected to too much moisture which would cause it to become spotted but is subjected to sufficient moisture to restore the sheen.

The construction is such also as will be observed that no steam coils or return steam pipes to steam trap or boiler are necessary. A device of the construction here disclosed may therefore be set up and used in practically any tailor shop or cleaning plant no matter how small.

While I have shown but one form of my invention, various forms will be obvious to those skilled in the art and consequently this invention is to be limited only by the scope of the appended claims and the prior art.

I claim:—

1. A steam box construction for use in connection with dry cleaning comprising a steam box having a cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, comprising a conduit within the steam box having jet openings directed to deliver steam jets adjacent the upper edges of the box and an inclined flange in said box adjacent the upper edge thereof for deflecting moisture downwardly and away from said cover.

2. A steam box construction for use in connection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam adjacent said penetrable cover to be supplied therethrough to act on the fabric, said steam box having a drain opening in its lower side for the water of condensation, and said elongated chamber having an exhaust opening in its lower side substantially in alignment with the drain opening in the steam box whereby the exhaust through said opening will facilitate the draining both of the chamber and of the steam box.

3. A steam box construction for use in connection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam adjacent said penetrable cover to be supplied therethrough to act on the fabric, said steam box having a drain opening in its lower side for the water of condensation, and said elongated chamber having an exhaust opening in its lower side substantially in alignment with the drain opening in the steam box whereby the exhaust through said opening will facilitate the draining both of the chamber and of the steam box, said chamber having a discharge pipe leading from the exhaust opening in the chamber to the drain opening in the steam box to exert an injector action in the drain opening.

4. A steam box construction for use in con-

nection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam and having an exhaust opening in its lower side for the water of condensation and a baffle in said chamber in the path of the steam for directing the steam toward said exhaust opening to facilitate draining of the chamber.

5. A steam box construction for use in connection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam adjacent said penetrable cover to be supplied thereto to act on the fabric, said steam box having a drain opening in its lower side for the water of condensation and said elongated chamber having an exhaust opening in its lower side substantially in alignment with the drain opening in the steam box whereby the exhaust through said opening will facilitate the draining both of the chamber and of the steam box, a second elongated chamber surrounded by said first chamber having downwardly directed jet openings for delivering steam to said first chamber and having an exhaust opening substantially in alignment with the exhaust opening in the first chamber, and a third elongated chamber surrounded by said second chamber having a series of openings along its upper side for delivering jets of steam to said second chamber and having an exhaust opening in its lower side for the water of condensation substantially in alignment with the exhaust opening of the second chamber.

6. A steam box construction for use in connection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam adjacent said penetrable cover to be supplied thereto to act on the fabric, said steam box having a drain opening in its lower side for the water of condensation and said elongated chamber having an exhaust opening in its lower side substantially in alignment with the drain opening in the steam box whereby the exhaust through said opening will facilitate the draining both of the chamber and of the steam box, a second elongated chamber surrounded by said first chamber having downwardly directed jet openings for delivering steam to said first chamber and having an exhaust opening substantially in alignment with the exhaust opening in the first chamber, and a third elongated chamber surrounded by said second chamber having a series of openings along its upper side for delivering jets of steam to said second chamber and having an exhaust openings in its lower side for the water of condensation substantially in alignment with the exhaust opening of the second chamber, and a baffle in said third chamber adjacent its exhaust opening for directing the steam toward said exhaust opening to facilitate drainage.

7. A steam box construction for use in connection with dry cleaning comprising a steam box having a penetrable cover through which the steam penetrates to act on the fabric to restore the sheen, and means for supplying steam to said box and separating the moisture of condensation to prevent too much moisture from reaching the fabric, said means comprising an elongated chamber in said steam box having a series of openings along its upper side for delivering jets of steam adjacent said penetrable cover to be supplied thereto to act on the fabric, said steam box having a drain opening in its lower side for the water of condensation and said elongated chamber having an exhaust opening in its lower side substantially in alignment with the drain opening in the steam box whereby the exhaust through said opening will facilitate the draining both of the chamber and of the steam box, a second elongated chamber surrounded by said first chamber having downwardly directed jet openings for delivering steam to said first chamber and having an exhaust opening substantially in alignment with the exhaust opening in the first chamber and a third elongated chamber surrounded by said second chamber having a series of openings along its upper side for delivering jets of steam to said second chamber and having an exhaust opening in its lower side for the water of condensation substantially in alignment with the exhaust opening of the second chamber, said first chamber having a discharge pipe leading from its exhaust opening on the drain opening of the steam box to exert an injector action in the drain opening.

In witness whereof, I have hereunto subscribed my name.

CHARLES JOSEPH HOFSTETTER.