Oct. 13, 1942. P. A. SPERRY 2,298,906

CLOTH-TREATING APPARATUS

Filed Nov. 16, 1940

Fig. 1.

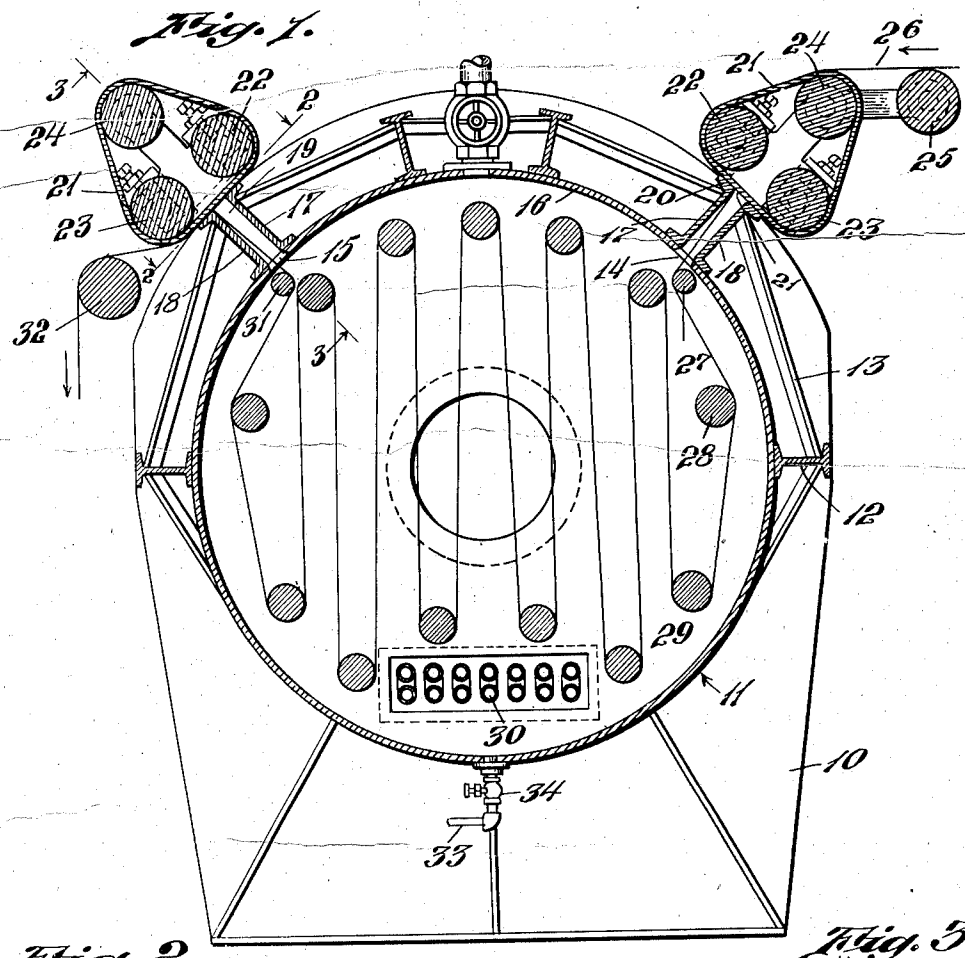


Fig. 2.

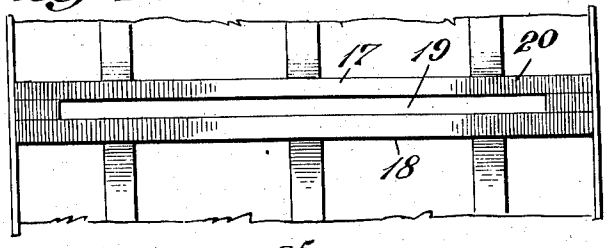


Fig. 3.

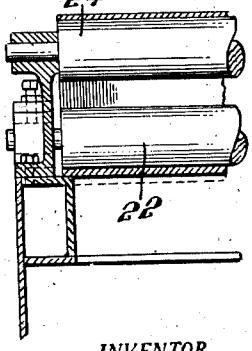
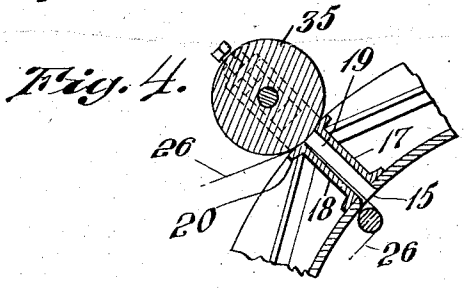


Fig. 4.



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CLOTH-TREATING APPARATUS

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Application November 16, 1940, Serial No. 365,974

3 Claims. (Cl. 68—5)

This invention relates to a cloth-treating apparatus to be used in the finishing of textile fabrics where the pressure in the treating chamber is above atmospheric pressure. The apparatus is of that type for the continuous passage of the work through the apparatus and the invention centers about a seal for the chamber for the entrance into and exit from the chamber for the work.

One of the objects of the invention is the provision of a seal for a chamber which is maintained at a pressure substantially above atmospheric pressure with an arrangement so that the work may enter and leave the chamber without the escape of the contents of the chamber into the atmosphere.

A more specific object of the invention is to provide dry mechanical means for providing this seal with small friction upon the cloth.

A still more specific object of the invention is to provide a surface which will travel with the work and yet also provide a seal for the opening through which the work passes.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a sectional view through my improved apparatus;

Fig. 2 is a view on substantially line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 1; and

Fig. 4 is a section similar to Fig. 1, showing the exit opening with a modified form of closure for the opening.

The textile treating apparatus here referred to has generally the same objects in view and is of that general type shown in my prior Patent No. 2,170,579, dated August 22, 1939, in which a kier is shown for the continuous passage of work therethrough. The entrance and exit openings of this kier are sealed by a liquid such as mercury, and in order that a liquid be not used and yet there be provided a satisfactory seal for the entrance and exit openings, I have arranged to close these openings by means of a traveling surface such as a belt or roll so that the work may move with the surface of the belt or roll to facilitate passage of the traveling web into and from the treating chamber and yet continuously provide a seal for the chamber; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates suitable supporting structure for a cylinder 11 which is braced by means of I beams 12 and T-shaped angle irons 13. Openings 14 and 15 are provided in the casing 16 of the chamber, one for the entrance to, and the other for the exit from the chamber of the goods. Walls 17 and 18 are provided along the marginal edge of the openings 14 and 15 to provide a mouth 19 with outwardly-extending flanges 20. This mouth is in the form of an elongated slot of a narrow width, being a little greater in length than the width of the web of cloth to be processed and of a width a little greater than the thickness of the cloth to be used.

In order to seal this mouth 19 I have provided a belt 21 and directed its travel by means of rolls 22 and 23 spaced on either side of the mouth 19 so as to cause this belt 21 to extend across in contact with flanges 20 and close the mouth 19 and consequently the opening 14 in the chamber 11. The third roll 24 serves to tighten the belt and may also serve as a means for driving the belt if desired. A suitable idler 25 is also arranged over which the work 26 in its entrance into the chamber passes.

The work 26 extends over this roll 25, thence about the traveling apron 21 over the edge of the wall 17 which is curved on its edge and through the slot 19, and thence about suitable guide rolls 27, 28 and so forth, in the chamber 29. After the web has traveled through the chamber by means of the serpentine path provided by the guide rolls, it extends over the guide roll 31, and thence outwardly through the opening 15 and mouth 19 by being drawn over the edge of wall 18 which is curved on its edge to the other side of the chamber and beneath the belt 21, closing this opening, and thence over the guide roll 32 to some other processing apparatus, or to be packaged.

The treating liquid enters the chamber 11 through conduit 33 controlled by valve 34 at the bottom part of the chamber 11; and the pressure of the chamber is held above atmospheric pressure by a bank of steam pipes 30 passing through the treating liquid and which may discharge steam therein. A conduit for the discharge of steam from the chamber 11 is provided and opens into the chamber at a location diametrically opposite the entrance of the treating liquid conduit into the chamber and has a valve which may be manually actuated to release steam from the

chamber and aid in maintaining a proper desired pressure in said chamber.

In some instances, instead of utilizing the closure shown in Fig. 1, the mouth **19** between the walls **17** and **18** may be closed by roll **35** in which case the flanges **20** will be somewhat arcuate to fit the shape of the roll. This roll **35** will contact with the work **26** as it passes over the edge of the wall **18** and move with the work as it is drawn from the chamber, thus affording a closure of the mouth **19** and consequently the opening **15**, and also serving as an anti-friction contact with the work in its passage from the chamber.

Some resilient mounting may be used to urge the belt **21** or roll **35** toward the flanges **20**, if desired.

This mechanical means of sealing the mouth **19** is found to be sufficiently effective to seal the pressure in the chamber which may be of substantially two atmospheres, while permitting easy entrance of the goods for processing and exit from the chamber.

I claim:

1. A cloth-treating apparatus comprising a sealed pressure chamber for treating the work, said chamber having an entrance and an exit opening therein, a plurality of guide rolls positioned at spaced location in triangular formation about each of said openings with two of said rolls positioned on either side of said opening, an apron having a greater width than the length of said opening passing over each of said plurality of rolls and guided thereby over and into sealing engagement with the edges about said openings and presenting a movable surface to travel with the work as it passes through said openings, and means for applying a tension on one of said rolls to urge the apron thereon towards the edges about the opening sealed thereby.

2. A cloth-treating apparatus comprising a sealed pressure chamber for treating the work, said chamber having an entrance and an exit opening therein with the surface about said opening lying in a flat plane, a plurality of guide rolls positioned at spaced locations in triangular formation about each of said openings with the distal roll of each plurality positioned at a location to be in line with its respective opening, an apron of a greater width than the length of said openings passing over each of said plurality of rolls and guided thereby over and into sealing engagement with the surface and the edges about said openings and presenting a movable surface to travel with the work as it passes through said openings, and means for applying a tension on each of said aprons in a direction to urge the same toward the edges about the openings sealed thereby.

3. A cloth-treating apparatus comprising a cylindrical shaped and sealed pressure chamber for treating the work, said chamber having an entrance and an exit opening therein positioned on opposite sides of a line extending diametrically through said chamber, spaced generally parallel walls extending outwardly from the walls of said chamber adjacent to each of said openings providing a passage from and to each of said openings and with the surface at the edge of said passages lying in a flat plane, a plurality of guide rolls about each of said passages and spaced from each other and positioned in triangular formation with two of the rolls about each passage positioned on either side thereof, an apron passing over each of said plurality of rolls and guided thereby over and into sealing engagement with the said passages and in contact with the flat surface about said passage, presenting a movable surface to travel with the cloth as it passes through said passages from or to said chamber, means on one of each plurality of said rolls for applying a tension on said aprons.

PAUL A. SPERRY.