

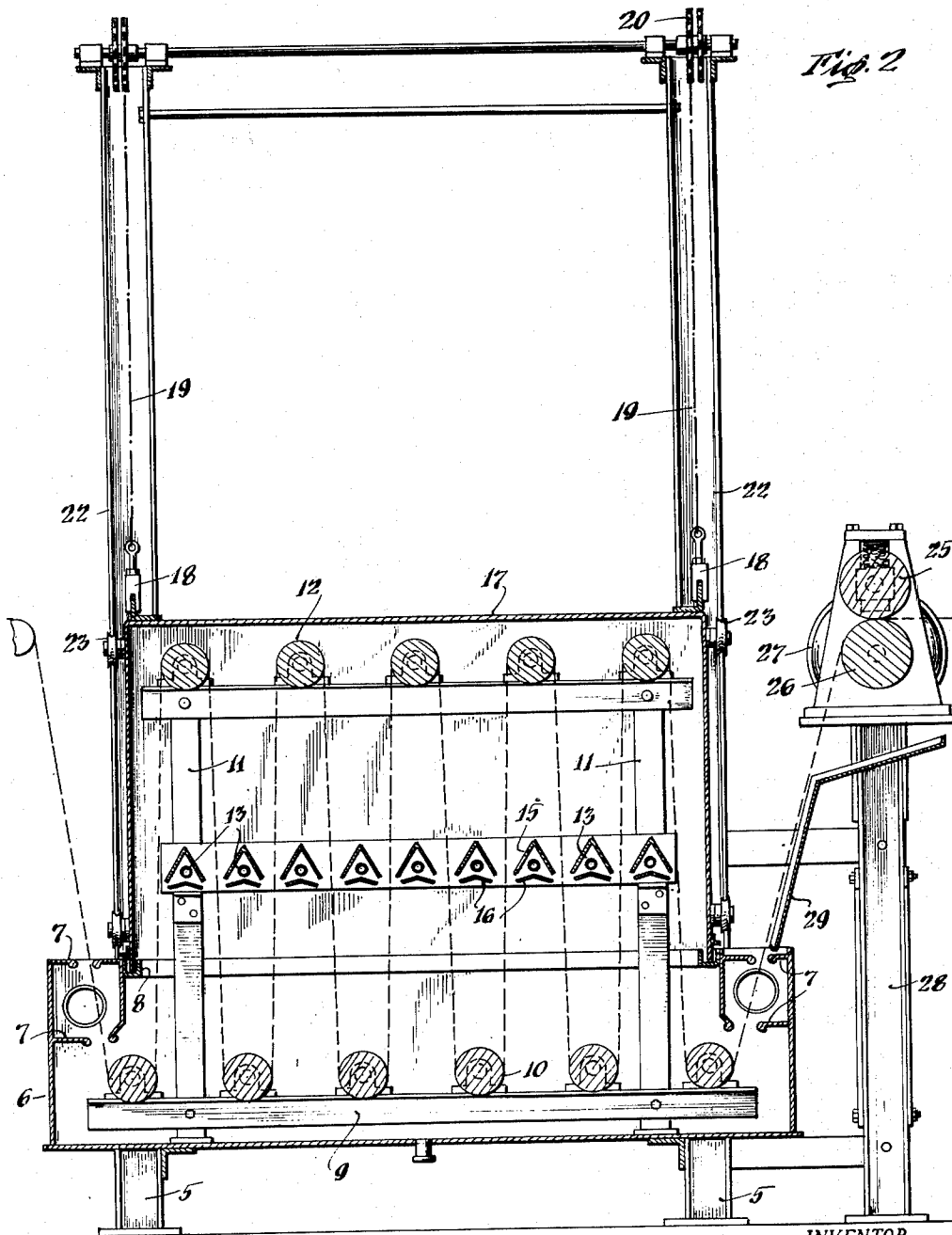
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3 Sheets-Sheet 2



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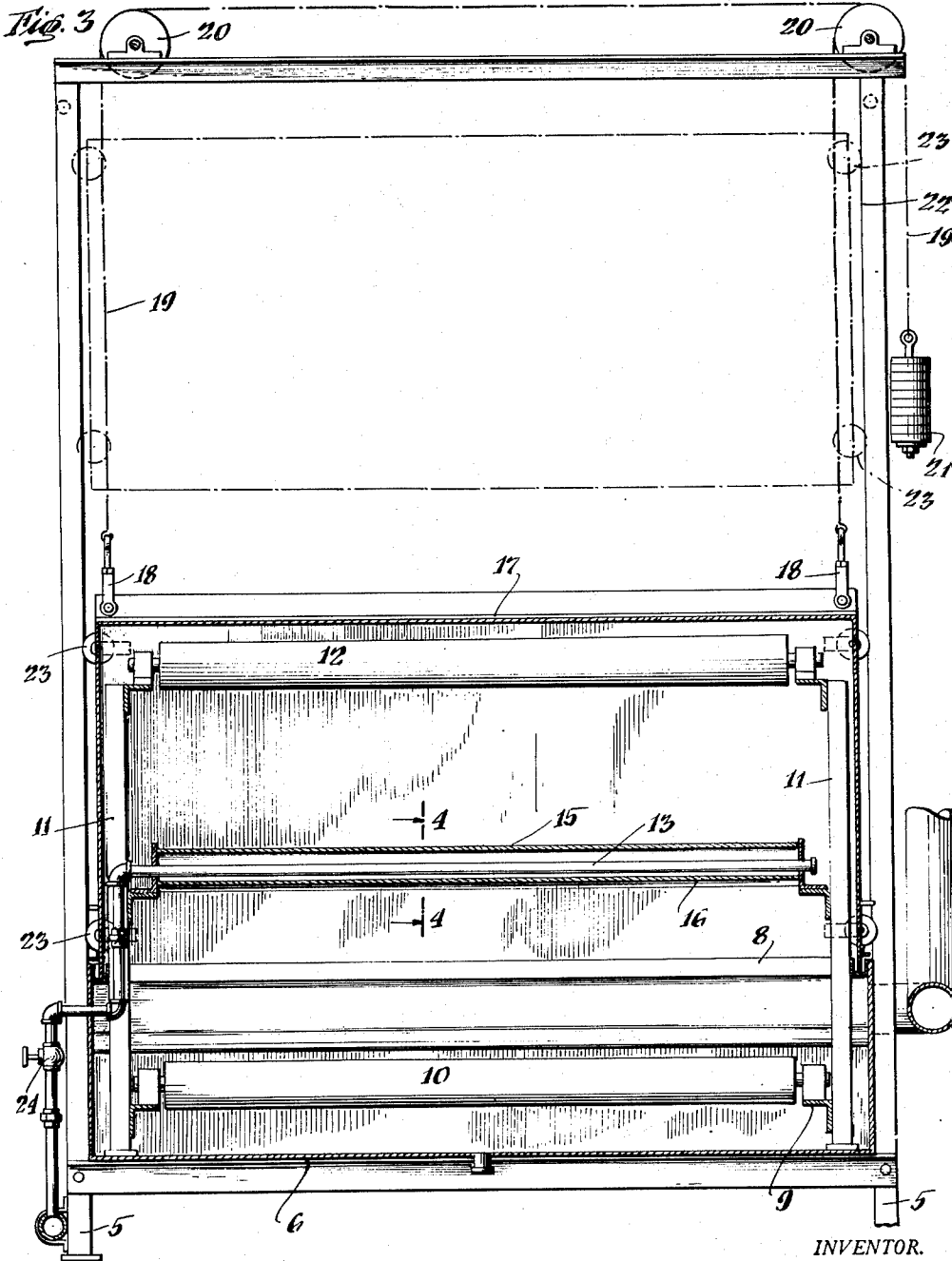
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UNITED STATES PATENT OFFICE

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STEAMING APPARATUS

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4 Claims. (Cl. 68—5)

1 This invention relates to a structurally and functionally improved steaming apparatus and especially apparatus to be used in connection with the treatment of yarn and cloth.

As is well appreciated it is common practice in the yarn and cloth industry to develop or oxidize dyes by passing the yarn or cloth subsequent to dyeing through a steam chamber. Within the latter rolls are provided for guiding the cloth or yarn. Steam is admitted while the yarn or cloth passes through the chamber. It has been customary to furnish entrance doors on each side of the chamber so that if any entanglement or trouble develops within the latter the operator may obtain access through these doors. The opening is normally closed by the doors and is also used for threading up the yarn or cloth at the beginning of the treating operation.

Where cloth is being treated or developed, complications do not ordinarily occur in the passage of the cloth through the steamer. However, when yarn is being treated, there is always the possibility of a break occurring. Under these circumstances the broken ends of the yarn will lap up on the carrier rolls. When this occurs the operation of the machine must be immediately interrupted and access must be obtained to the mechanism within the chamber so that the yarn may again be properly passed over the rolls and emerge from the chamber. That chamber is under a high temperature and filled with steam vapors. Therefore it has been necessary to open the doors and frequently use a blower to cool off the interior of the chamber before it has been possible to repair and correct the damage. Such procedure has resulted in delay and expense.

It is an object of the invention to furnish a steaming apparatus the parts of which may readily be manipulated to permit access to the interior of the steam chamber so that any severance or rupturing of the yarn or cloth or any improper feeding of the same may be corrected with only minimum delays.

A further object is that of furnishing a structure which, when correction has been made, will permit of an immediate re-initiation of the desired cycle of operation.

A still further object is that of furnishing an apparatus of this nature which will embody relatively few parts each individually simple and rugged in construction such parts being capable of ready assemblage to furnish a unitary structure operating over long periods of time with freedom from all difficulties.

With these and other objects in mind reference

2 is had to the attached sheets of drawings illustrating one practical embodiment of the invention and in which:

5 Fig. 1 is a plan view of the apparatus with certain of the parts broken away to disclose underlying construction;

Fig. 2 is a sectional side view taken along the lines 2—2 and in the direction of the arrows as indicated in Fig. 1;

10 Fig. 3 is a transverse sectional view taken along the lines 3—3 and in the direction of the arrows as also indicated in Fig. 1; and

15 Fig. 4 is a somewhat enlarged transverse view of a portion of the apparatus and taken along the lines 4—4 and in the direction of the arrows as indicated in Fig. 3.

In these views the reference numeral 5 indicates a base or supporting portion upon which a casing or receptacle 6 is mounted. The latter 20 may terminate in inwardly extending trap or baffle portions 7 which are spaced from each other as shown especially in Fig. 2. The inner upper edge of the receptacle or box 6 is conveniently defined by channel member 8. Within this receptacle or box a framework 9 may be disposed. 25 This framework mounts adjacent its lower end a series of rolls 10. Vertical standards 11 may form a part of the framework and mount adjacent their upper ends rolls 12. Intermediate these two series of rolls steam pipes 13 may be disposed. These, as shown especially in Fig. 4, 30 may be formed with perforations or slots 14 and deflectors 15 and 16 may substantially enclose them.

35 A cover 17 is furnished which is complementary to the receptacle or box 6 and has its lower edge resting within the trap provided by the channel 8. Suspension devices 18 may be secured to the cover 17 and in turn attached to wires or cables 19 passing over pulleys 20 and which cables have counterweights 21 secured to their outer ends. 40 The pulleys 20 are supported adjacent the upper ends of standards 22 which are coupled to the framework of the machine. With a view to properly guiding the parts the cover 17 may mount rollers 23 which ride along the rail portions defined by the edges of the standards 22. Accordingly, all movements of the cover will be confined to a vertical path.

45 Each of the pipes 13 may have associated with it valves 24 for individually controlling the volume of steam passing from the manifold into the same. Feeding rolls 25 and 26 may be disposed beyond the exit end of the machine. Intermediate that exit end and these rolls a shield 29

may be mounted; the several parts being conveniently supported upon an auxiliary portion 28 of the machine frame.

While the present invention is of especial value in connection with the treatment of yarns it will be understood that cloth may also be treated by passing through the same.

When the machine is to be operated it will, of course, be understood that the cover 17 is raised; this being readily accomplished incident to the counterweighting which is preferably employed. With the cover raised access may readily be had to the various rolls 10 and 12. Therefore, the yarn ends may be threaded through the opening defined by the trap or baffle portion 7 and so in a tortuous path between the rolls 10 and 12. After passing over the final roll the yarn or cloth may be passed between the baffles or traps 7 adjacent the rear or exit end of the machine past the shield guide 29 and so between rolls 25 and 26. With the cover now lowered so as to provide a substantially enclosed space, steam may be admitted by manipulating the valves 24. With the motor 27 operating the roll will draw the yarn or cloth through the machine and distribute it towards the points desired. As is apparent with the yarn or cloth dyed, such passage through the steam chamber will serve to oxidize the dye.

The foregoing operation may be continued indefinitely. However, should a break occur in the yarn, then upon the operator becoming cognizant of this fact, the motor 27 may have its operation interrupted. With the flow of steam to the pipes 13 also interrupted, the cover 17 may now be raised. As will be apparent, such raising may be by manual effort. If desired, however, a power drive could be employed. In any event immediate access is obtained to the entire interior of the steam chamber and the rolls and contents of the same are exposed to the open air. Accordingly, an operator will not have to resort to the use of a blower or to other time-consuming expedients in order to permit of the interior of the chamber being cooled to an extent sufficient such that corrections may be made. Rather, these corrections may be accomplished with facility. When completed, the cover is simply lowered and the proper cycle of operations again initiated.

Thus, among others, the several objects of the invention as specifically aforementioned are achieved. Obviously, numerous changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as outlined by the claims.

I claim:

1. A continuous cloth and yarn steamer comprising in combination a base, a framework fixed with respect to said base, rolls supported solely for rotation by said framework, steam-supplying pipes mounted by said framework, a steam chamber providing member enclosing said framework, rolls and pipes and means for bodily elevating said member to completely expose said framework and rolls.

2. A continuous cloth and yarn steamer comprising in combination a base, a framework fixed with respect to said base, rolls supported solely

for rotation by said framework, steam-supplying pipes mounted by said framework, a steam chamber providing member enclosing said framework, rolls and pipes, said member providing a lower edge, a channel-shaped part mounted by said base and receiving said edge to substantially seal said steam chamber incident to the accumulation of liquid condensate within said channel part to a point above the lower edge of said member and means for bodily elevating said member and shifting its lower edge from said channel part to completely expose said framework and rolls.

3. A continuous cloth and yarn steamer comprising in combination a base, a framework fixed with respect to said base, rolls supported solely for rotation by said framework, steam-supplying pipes fixed against movement with respect to said base, a steam chamber providing member enclosing said framework, rolls and pipes, said member providing a lower edge, a channel-shaped part mounted by said base and receiving said edge to substantially seal said steam chamber incident to the accumulation of liquid condensate within said channel part to a point above the lower edge of said member, means for bodily elevating said member and lifting its lower edge from said channel part to completely expose said framework and rolls, said base extending beyond said chamber-providing member to furnish entrance and exit ends for said steamer, baffle portions connected to said base and disposed at points adjacent which the latter is extended and said baffle portions providing between them passages through which cloth and yarn may enter and emerge from said base and chamber.

4. A continuous cloth and yarn steamer comprising in combination a base, a framework fixed with respect to said base, rolls supported solely for rotation by said framework, steam-supplying pipes fixed against movement with respect to said base, a steam chamber providing member enclosing said framework, rolls and pipes, rail portions extending upwardly from said base, wheels mounted by said member and co-operative with said rail portions to confine said member to movements along a substantially vertical path, and suspension means connected to said member and supported by said rail portions for shifting the former along the latter.

EVAN V. QUINN.

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