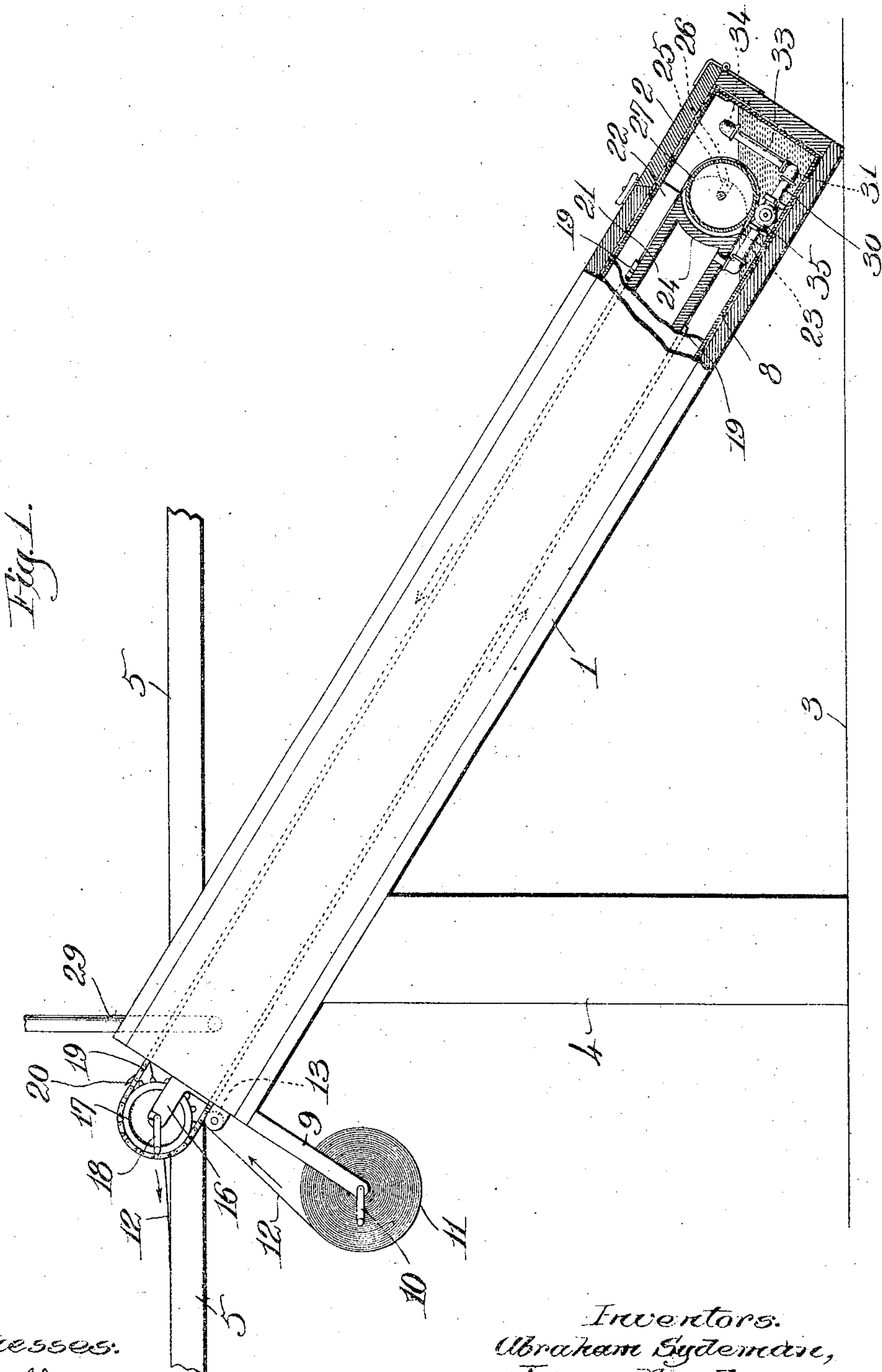


A. SYDEMAN & J. MEADE.
 APPARATUS FOR TREATING COATED TEXTILE FABRICS.
 APPLICATION FILED MAR. 13, 1906.

940,563.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.



Witnesses:
 Thomas J. Drummond
 Walter R. Trott

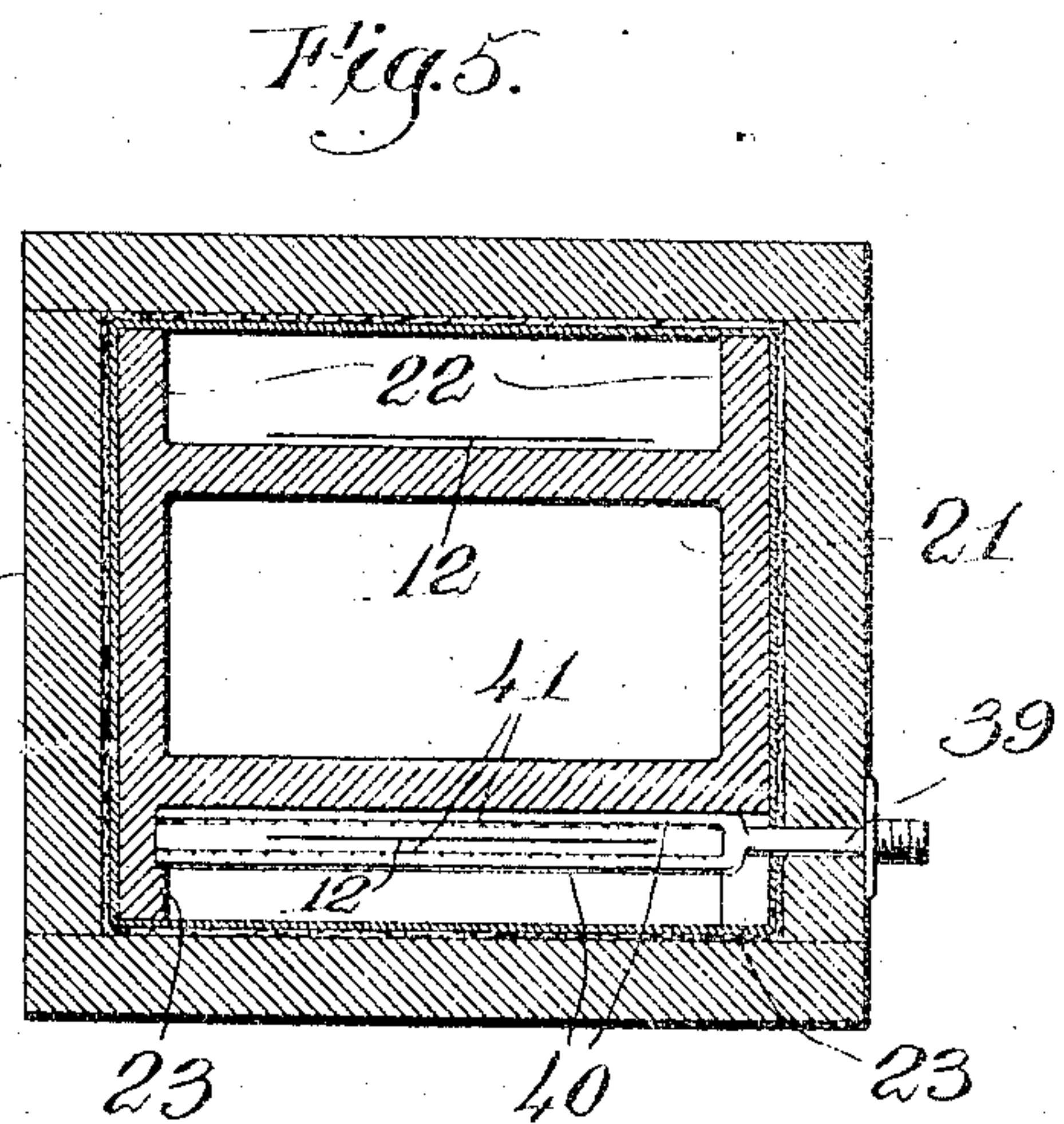
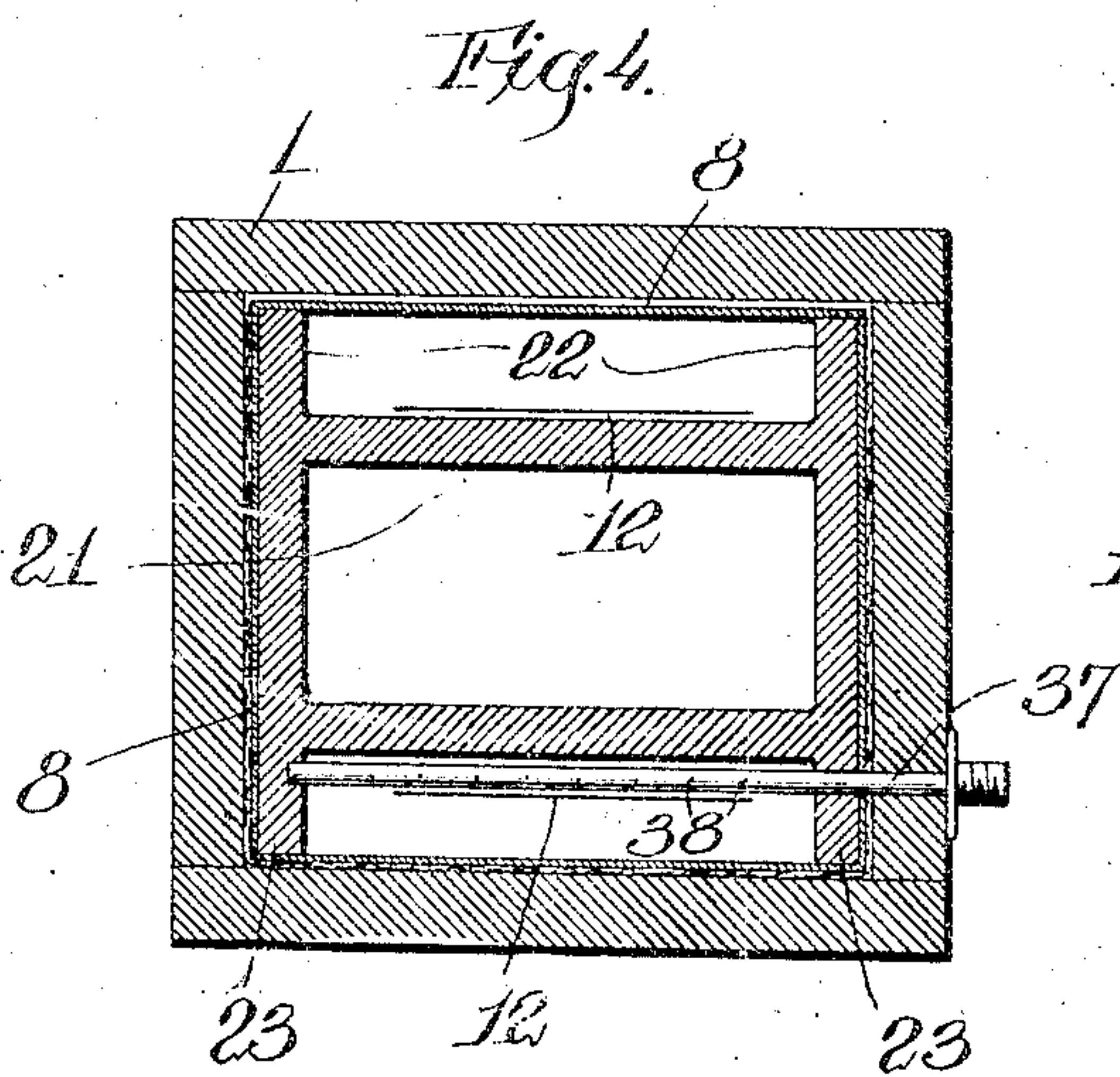
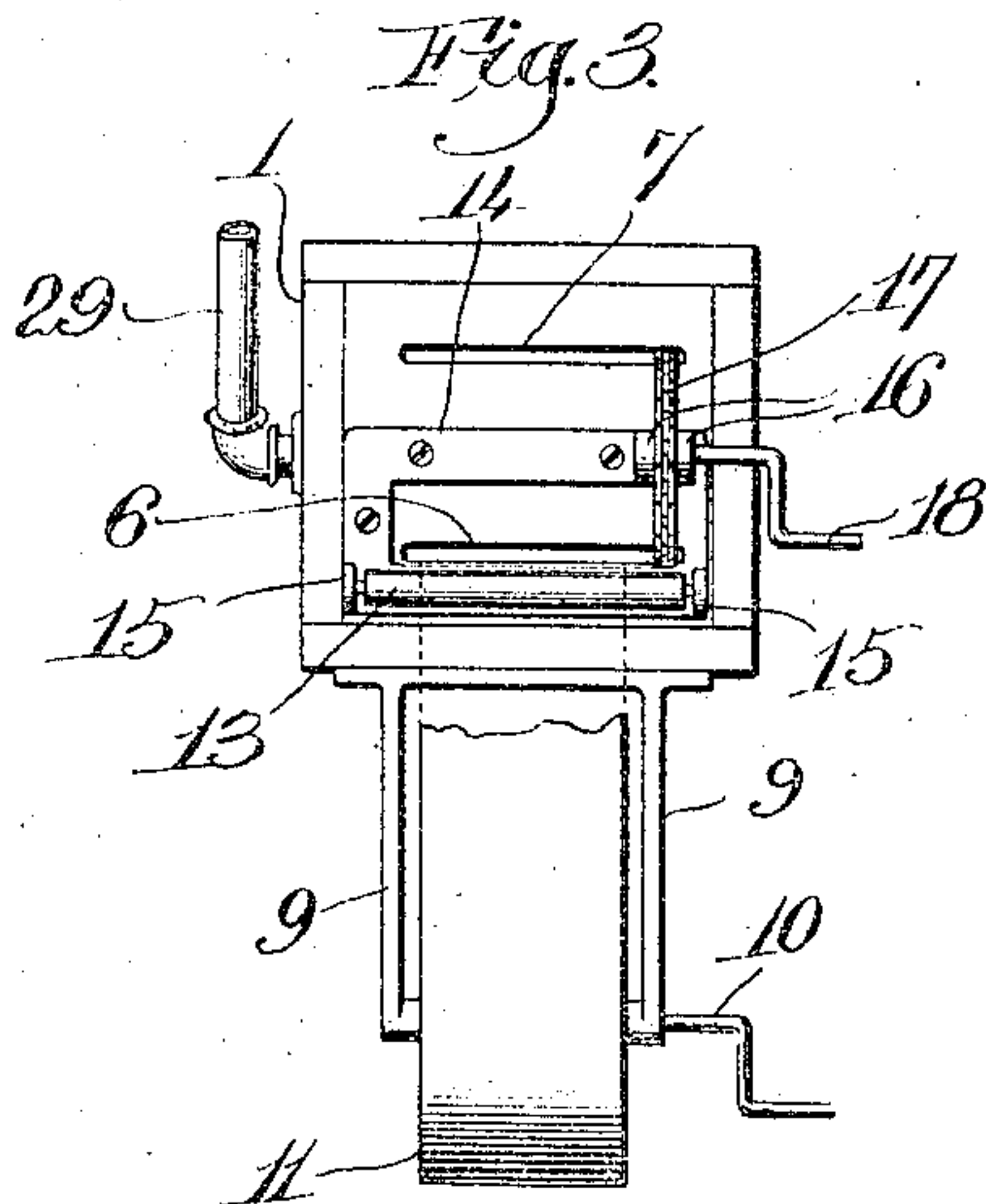
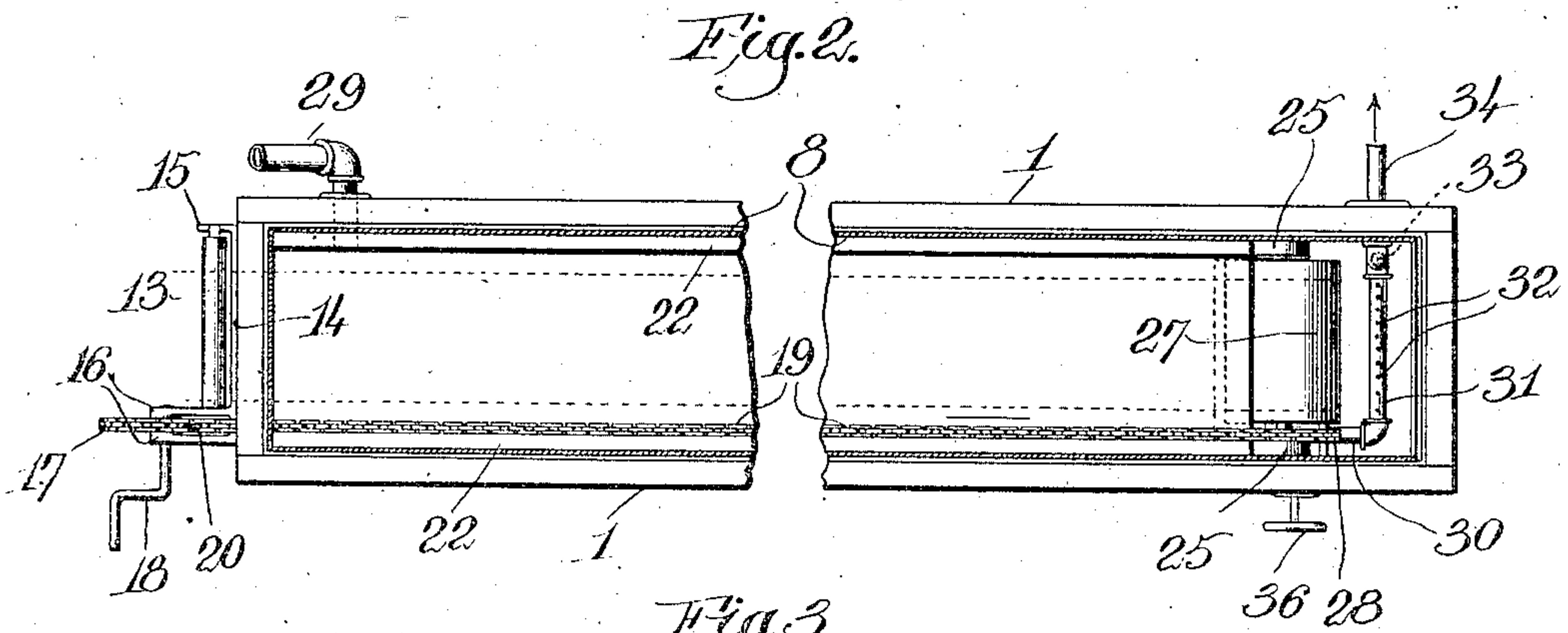
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UNITED STATES PATENT OFFICE.

ABRAHAM SYDEMAN AND JAMES MEADE, OF STOUGHTON, MASSACHUSETTS.

APPARATUS FOR TREATING COATED TEXTILE FABRICS.

940,563.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed March 13, 1906. Serial No. 305,905.

To all whom it may concern:

Be it known that we, ABRAHAM SYDEMAN and JAMES MEADE, citizens of the United States, and residents of Stoughton, county of Norfolk, State of Massachusetts, have invented an Improvement in Apparatus for Treating Coated Textile Fabrics, of which the following description, in connection with the accompanying drawing, is a specification, like numerals on the drawings representing like parts.

This invention relates to an apparatus, or machine, for placing adhesive coated fabric in suitable condition for application to leather or other material, such as is used in the manufacture of inner soles for shoes.

The apparatus is particularly designed for treating that class of adhesive coated fabrics in which the coating has its tacky or sticky qualities due to the presence of gutta percha, or rubber gums used in the rubber coating trade for producing adhesive coating. In this class of adhesive coated fabrics the coating is normally dry and non-adhesive, so that the fabric can be rolled up without sticking together and can be held without difficulty. This adhesive coated fabric is employed in the manufacture of inner soles for shoes where a comparatively thin and cheap leather is reinforced by a layer of fabric cemented thereto. Types of such inner soles are known as the "Sleeper", one form of which is described in patent to Sleeper No. 563,083, granted June 30, 1896, and the "Gem" described in patent to Cole No. 575,460, granted January 19, 1897.

The present invention places the adhesive coated fabric in condition for application to the base of the inner sole by the use successively of moisture and heat. The moisture has two functions, viz., to render the textile portion of the adhesive coated fabric very pliable, so that if in some cases the same is somewhat stiff in its normal state, the same is temporarily made pliable; and, viz., to temper the coating of the fabric, such tempering having no objectionable effect upon the coating so far as concerns its adhesion to the base of the inner sole, or other material, but the moistening prevents the coated face from sticking to the fingers of the operative, or to machines subsequently employed. The heat applied after the moistening softens the adhesive coating so that it will readily adhere to the base of the inner sole, or other material to which it is applied,

and maintains this tacky or sticky condition for a sufficient time to enable it to be thus applied. Any superfluous moisture on the fabric is also removed by the heat as the moistened fabric travels through the apparatus. As a result, when the adhesive coated fabric emerges from the apparatus of this invention the fabric portion is in flexible or pliable condition, the coating is properly softened, and is tempered sufficiently to prevent undue stickiness. These results are secured by an apparatus, the preferred form of which comprises, a support for a roll of the adhesive coated fabric positioned beneath the work-table where the fabric is to be applied to the inner sole or other material; a reservoir of heated water in lower position, means for guiding the strip of fabric from the roll into the reservoir of water, a rotatable guide mounted to travel through the reservoir, an inclined, metallic chest or heater extending from a point adjacent the rotatable guide to a point adjacent the work-table so that the roll of fabric will be deflected by the rotatable guide onto the inclined chest with its adhesive side upward and after traversing the chest will arrive at the work-table, and means for supplying steam to the interior of the chest, and means for conducting the exhaust steam from the chest to the reservoir to heat the water therein. Preferably, the chest, reservoir, and rotatable guide are inclosed in a suitable casing.

The various novel features of our invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a side elevation and partial section of an apparatus for treating coated fabric, embodying one form of our present invention; Fig. 2 is a top plan view thereof, centrally broken out, and with the top or cover of the casing omitted; Fig. 3 is a left-hand end elevation thereof; Figs. 4 and 5 are transverse sections, enlarged, of modifications of our invention, to be described.

Referring to Fig. 1 an elongated, box-like casing 1, preferably rectangular in cross-section, and having at its lower end a hinged cover portion 2, is arranged at a considerable inclination, and supported by framing 3, 4, a horizontal work table 5 being provided adjacent the upper end of the casing.

The upper end of the casing is provided with slit-like apertures 6, 7, Fig. 3, for the

entrance and exit, respectively, of the fabric to be treated, and preferably the casing is lined with heat-insulating material 8 of any suitable character, the lower end, at least, of the casing being made water tight to form a reservoir in this embodiment of our invention.

A bracket 9 depending from the upper end of the casing, Figs. 1 and 3, is adapted to support the journal 10 of the roll of coated fabric which is to be treated, said roll being indicated at 11, the web 12 passing upward from the roll and over a guide-roll 13 into the casing through the inlet 6. The roll of adhesive coated fabric is thus supported beneath the work-table in a convenient position and out of the way of the operative.

A plate 14 secured to the upper end of the casing has ears 15 in which the journals of roll 13 are mounted, and a second pair of ears 16 support the shaft of a sprocket 17, its shaft being bent to form a crank handle 18, the diameter of the sprocket being such that the upper and lower runs of a sprocket chain 19 run easily through the apertures 7 and 6 respectively, the chain forming an endless carrier and traversing the casing 1 near one side wall thereof. The chain has an attached prong or hook 20, see Fig. 1, for a purpose to be described hereinafter.

Within the casing we have mounted an elongated metallic chest or heater containing a steam chamber 21, the top and bottom being separated from the top and bottom of the casing by parallel flanges or guides 22, 23, which are in practice continuations of the sides of the chest, as clearly shown in Figs. 4 and 5, the external width of the chest, and the distance between the edges of the upper and lower guides being such that preferably the chest fits snugly into the casing. Said chest does not extend to the lower end of the casing, however, but terminates at about the free edge of the lid 2, see Fig. 1, the lower end of the chest being concaved at 24 and having its sides extended at 25 and slotted at 26 to form bearings for the journals of a roll or drum 27 forming a rotatable guide, a portion of the periphery fitting into the concave end 24 of the chest.

A sprocket 28 is mounted on one of the journals of the guide-roll at one end thereof, see Fig. 2, over which sprocket passes the sprocket chain 19, so that by turning the handle 18 the chain or carrier 19 can be made to travel in the casing, said carrier in practice traveling adjacent the inner faces of one of the guides 22 and the corresponding guide 23, see Fig. 2.

In Fig. 1 the coated fabric 12 is shown by a heavy black line at the lower end of the casing.

The fabric is passed into the casing with its coated face downward, and runs beneath the chest or heater between the guides 23

and up over and around the rotatable guide 27, and thence onto the top of the chest between the guides 22, the uncoated face of the fabric traveling upon the top of the chest. The fabric upon reaching the lower end of the casing passes through the reservoir of water at the lower end of the casing, whereby the fabric portion is rendered pliable and the coating is properly tempered. The rotatable guide turns with the lower portion of its periphery in this reservoir so that the fabric is guided directly from the reservoir by the rotatable guide onto the top of the chest or heater. The latter is heated to a sufficiently high temperature to soften the outer or exposed coated face of the fabric, and the heating medium herein employed is steam, introduced into the chamber near its upper end by an inlet pipe 29, Figs. 1, 2 and 3, from any suitable source of supply. The fabric is drawn through the casing and out onto the work table 5 as it is needed, the coated face uppermost, the fabric having been rendered pliable by the water and the coating having been rendered soft and tacky by the heat, it being manifest that the extensive path traversed by the fabric in the casing gives ample opportunity for a thorough softening of the coating. The chest or heater extends in an inclined direction upwardly from the rotatable guide to a position adjacent the work-table so that the adhesive coated fabric in passing over the steam chest in being heated is directed in its travel by the chest to a position on the work-table where it is to be used. Thus, the travel of the fabric to secure the necessary treatment is at the same time utilized for presenting it at the desired position for use upon the work-table. As the fabric is withdrawn from the casing upon the work-table the inner soles or other articles to be reinforced are pressed down upon the coated face of the fabric and firmly adhere thereto, the fabric being cut or severed thereafter in such manner as may be most convenient. The coating retains its tackiness for some time after it has cooled, unless tempered, so that in subsequent handling it will stick to the hands or to mechanism provided to act upon the reinforced articles, but the application of moisture tempers the coating, and obviates this tendency, the moisture having no objectionable effect upon the coating so far as concerns its adhesive action on the article to be reinforced.

The moisture for rendering the fabric pliable and tempering the coating is supplied by the water in the reservoir formed in the lower end of the casing in the embodiment of the invention illustrated. The water of condensation from the steam chest is herein made use of. A pipe 30 leads from the lower end thereof at one side into the casing, adjacent the bottom thereof in the

space beyond the rotatable guide 27, and is turned transversely across the casing at 31, Fig. 2, and is provided with a series of fine perforations 32, through which the water of condensation passes from the chamber into the lower end of the casing. This water collects in sufficient quantity, as shown in Fig. 1, to contact with the fabric as it passes from the bottom of the chest or heater onto and up around the rotatable guide 27, so that the fabric is moistened and the already softened coating tempered. Any superfluous moisture on the fabric is removed by the heat as the moistened fabric travels along the top of the inclined chest to the outlet 7, and as the fabric emerges the coating is properly softened while tempered sufficiently to prevent undue stickiness.

In order to maintain the water at the proper level in the reservoir formed in the lower end of the casing the outlet pipe is turned up at 33, to the height desired for the water level, and then carried out through the side of the casing, at 34, Fig. 2. It will be obvious that the water will rise in the upturned portion 33 of the pipe to the same level as the main body of water in the casing, and as the level rises by accession of water from the chamber it will flow out through the extension 34. Consequently a constant level is maintained in the reservoir, and at the same time the condensate from the heating chamber is vented, forming a proper outlet therefor and maintaining it at the desired temperature.

As the casing is entirely closed except for the slit-like apertures 6 and 7 there is practically no escape of steam or vapor into the room in which the apparatus is used, and the operation thereof is conducted without discomfort and with great convenience to the operator.

The cover 2 can be opened at any time if any disarrangement occurs, or if the openings 32 should become clogged.

A valve is provided at 35, Fig. 1, operated by a handle 36 outside the casing, Fig. 2, to regulate the flow from the chamber.

When it is desired to introduce a new strip of fabric into the casing the endless carrier 19 is used, the hook 20 thereon being thrust into the leading end of the strip of fabric, at one edge. The handle 18 is then turned and the sprocket 17 is revolved, causing the carrier to traverse the casing, taking the fabric with it and finally bringing its end out through the aperture 7, after which the hook is withdrawn, the carrier thereafter being out of action till another strip must be introduced. Of course the leading end of a fresh strip may be pinned or temporarily attached to the end of a strip nearly used, if desired, and in such case the carrier is not used. By having the carrier, however, the long casing may have a perma-

nent cover for the greater part of its length, so that it is readily kept tight.

Instead of tempering the softened coating by the means described a pipe 37, Fig. 4, may be let in through the casing and extended beneath the chamber, as shown in Fig. 4, said pipe having perforations 38 for the discharge of a spray of water or wet steam upon the fabric 12 as it passes thereunder, but this form will have little or no effect upon the fabric itself to moisten it and render it pliable unless the water reservoir, which is shown in Fig. 1, be also employed. In Fig. 5 we have shown a branched pipe 39, the branches 40 having perforations 41, and in this case the fabric passes between the branches, so that the moistening medium is directed through both sets of perforations. When the form shown in Fig. 4 is used it is preferable to employ wet steam as the moistening or tempering medium, in order that the coated face may be thoroughly moistened, but with the modification shown in Fig. 5 either wet steam or water can be used.

Having fully described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. An apparatus for treating adhesive coated fabric comprising, a work-table, a support for a roll of fabric beneath the work-table, a water reservoir below said support, a rotatable guide mounted above the reservoir with its periphery passing there-through, a hollow steam chest extending from said rotatable guide in an inclined direction to a position adjacent said work-table, means for supplying steam to said chest, and means for conducting the exhaust steam from the chest to the reservoir.

2. An apparatus for treating adhesive coated fabric adapted to be placed beneath a work-table and comprising, a support for a roll of fabric, a water reservoir below said support, a rotatable guide mounted above the reservoir with its periphery passing therethrough, and an inclined heater extending from adjacent the said rotatable guide to a position adjacent the work-table, whereby the coated fabric after passing from the roll through the reservoir will be deflected by the rotatable guide onto the heater and will be guided by the heater upwardly to the work table and will pass directly from the heater to the work-table.

3. An apparatus for treating adhesive coated fabric, comprising, a work-table, a support for a roll of fabric beneath the work-table, a water reservoir below said support, a rotatable guide mounted above the reservoir with its periphery passing therethrough, means for guiding the fabric from the roll on the support to the reservoir, a hollow steam chest extending from adjacent said rotatable guide to a position

adjacent the work-table, means for supplying steam to said chest, and means for conducting the exhaust steam from the chest to the reservoir.

5 4. In apparatus of the class described, an elongated casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated heater within the casing the fabric passing along the bottom, 10 around one end, and over the top of the heater, with its coated face out-turned, means to raise the temperature of the heater to soften the coating, and means within the casing to moisten the fabric before it 15 emerges from the casing to temper the softened coating.

5. In apparatus of the class described, a casing apertured for the entrance and exit of the fabric to be treated, a metallic heater 20 within the casing and around which the fabric passes with its coated face exposed, means to introduce steam into said heater, to raise the temperature thereof, and means to temper the coating of the fabric by the 25 water of condensation collecting in the casing.

6. In apparatus of the class described, a casing apertured for the entrance and exit of the fabric to be treated, an elongated, 30 metallic chest having a closed chamber within the casing and around which the fabric passes with its coated face exposed, means to introduce steam into said chamber to heat the chest and thereby soften the coating of the fabric, means to direct the condensed steam from the chamber onto the 35 fabric to moisten the same, and an outlet for such condensate from the casing.

7. In apparatus of the class described, a 40 casing apertured for the entrance and exit of the fabric to be treated, an elongated, metallic chest having a closed chamber within the casing and around which the fabric passes with its coated face exposed, means 45 to introduce steam into said chamber to heat the chest and thereby soften the coating of the fabric, and a pipe leading from the bottom of the chamber into the casing and thence from the latter, said pipe being 50 extended across the casing at a predetermined height and having perforations through which water of condensation passes from the chamber to the casing, to moisten the fabric as it passes therethrough.

55 8. In apparatus of the class described, an elongated casing apertured at one end for the entrance and exit of the fabric to be treated, said casing being inclined longitudinally, a metallic chest having a closed chamber 60 within the casing, having longitudinal guides at top and bottom to direct the fabric as it passes around the chest with its coated face exposed, a guide-roll for the fabric, at the lower end of the chest, means to introduce 65 steam to the chamber to heat the chest

and thereby soften the coating, and means to discharge water of condensation from the chamber into the lower end of the casing, to moisten the fabric and temper the softened coating thereof as the fabric passes 70 therethrough.

9. In apparatus of the class described, an elongated casing apertured at one end for the entrance and exit of the fabric to be treated, said casing being inclined longitudinally, a metallic chest having a closed chamber 75 within the casing, having longitudinal guides at top and bottom to direct the fabric as it passes around the chest with its coated face exposed, a guide-roll for the fabric, at 80 the lower end of the chamber, means to introduce steam to the chamber to heat the chest and thereby soften the coating, means to discharge water of condensation from the chamber into the lower end of the casing, to 85 moisten the fabric as it passes therethrough, and means to vent such water from the casing while maintaining a constant level therein.

10. In apparatus of the class described, an 90 elongated casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated, heated chest within the casing, means to guide the fabric along the bottom and around one end of said chest 95 and back along its top, to soften the coating, and means to engage the leading end of a strip of the fabric and traverse it around the chest to the exit opening in the casing.

11. In apparatus of the class described, an 100 elongated casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated, heated chest within the casing, means to guide the fabric along 105 the bottom and around one end of said chest and back along its top, to soften the coating, an endless carrier movable around the chest and provided with a hook, and means to operate said carrier, the lower and upper 110 runs thereof traversing the entrance and exit openings in the casing, respectively, the leading end of the strip of fabric when engaged by the hook traversing the casing to position the fabric around the chest.

12. In apparatus of the class described, an 115 elongated closed casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated chest within the casing and elevated above the bottom thereof, the fabric with its coated face exposed passing 120 longitudinally around the chest, a rotatable guide at the farther end thereof to direct the fabric from the bottom to the top of the chest, means to heat the chest to soften the coated face of the fabric, and means to 125 apply moisture to the fabric before it reaches the top of the chest, whereby said fabric coating is tempered and surplus moisture eliminated as the fabric traverses the top of the chest.

13. In apparatus of the class described, an elongated closed casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated chest within the casing and elevated above the bottom thereof, the entering fabric passing along the bottom of the chest with its coated face exposed and returning over the top of the chest to the exit aperture, a rotatable guide at the farther end of the chest, to direct the fabric from the bottom to the top thereof, the coated face being softened by the heat of the chest, means to heat the latter by introducing steam thereinto, and means to cause water of condensation from the chest to contact with and moisten the fabric before it reaches the top of the chest on its way to the exit aperture.

14. In apparatus of the class described, an elongated closed casing apertured at one end for the entrance and exit of the fabric to be treated, an elongated chest within the casing and elevated above the bottom thereof, the entering fabric passing along the bottom of the chest with its coated face exposed and returning over the top of the chest to the exit aperture, a rotatable guide at the farther end of the chest, to direct the fabric from the bottom to the top thereof, the coated face being softened by the heat of the chest, means to heat the latter by introducing steam thereinto, and means to discharge water of condensation from the chest into the casing to form a moistening bath through which the fabric passes.

15. In apparatus of the class described, a work-table, an inclined, closed, elongated casing with its upper end adjacent the work support and its lower end formed into a water reservoir, the said casing being apertured at its upper end for the entrance and exit of a strip of adhesive coated fabric, means within the casing to guide the fabric from the entrance end through the reservoir, whereby the fabric is moistened and tempered, an elongated heater within the casing extending from the reservoir substantially to the exit aperture for heating and rendering adhesive the coating of the fabric as it passes from the reservoir to the exit aperture.

16. In apparatus of the class described, an

inclined, elongated casing, apertured at the upper end for the entrance and exit of the fabric to be treated, an elongated heater within the casing having one end adjacent the said apertures and the lower end adjacent the lower end of the casing, means for heating the heater internally, and means for supplying water to the lower end of the casing beneath the heater, whereby the fabric in its travel through the casing passes through the water and then over the heater to the exit aperture.

17. An apparatus for treating adhesive coated fabric adapted to be placed beneath a work-table and comprising, a water reservoir, a rotatable guide mounted above the reservoir with its periphery passing there-through, a hollow steam chest extending from adjacent said rotatable guide in an inclined direction to a position adjacent said work-table, and means for guiding the fabric into the reservoir, the said rotatable guide directing the fabric onto the steam chest and the steam chest during the heating of the fabric guiding it into a position for utilization upon the work-table.

18. An apparatus for treating adhesive coated fabric adapted to be placed beneath a work-table and comprising, a water reservoir, a rotatable guide mounted above the reservoir with its periphery passing there-through, a hollow steam chest extending from adjacent said rotatable guide in an inclined direction to a position adjacent said work-table, means for guiding the fabric into the reservoir, the said rotatable guide directing the fabric onto the steam chest and the steam chest during the heating of the fabric guiding it into a position for utilization upon the work-table, and means for supplying steam to said chest and means for conducting the exhaust steam from the chest to the reservoir.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses.

ABRAHAM SYDEMAN.
JAMES MEADE.

Witnesses:

JOHN C. EDWARDS,
MARGARET A. DUNN.