June 8, 1937. L. BUCK 2,083,142

APPARATUS FOR CONDITIONING SHEET MATERIAL

Filed Dec. 5, 1934 6 Sheets-Sheet 1

Fig. 1.

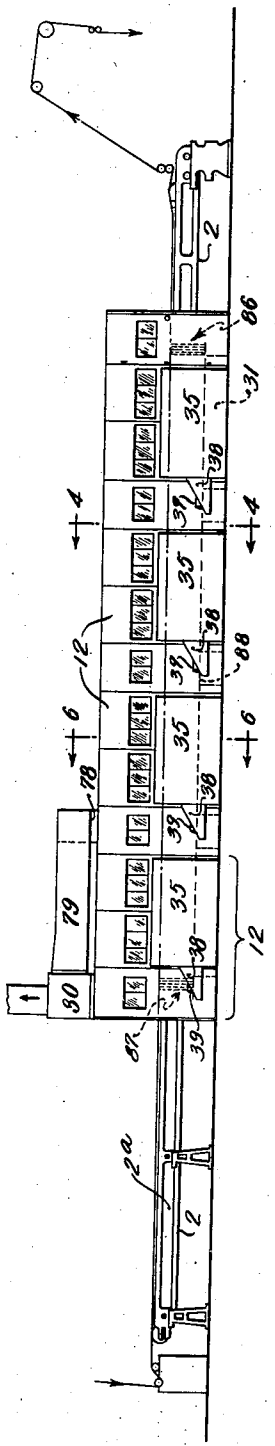
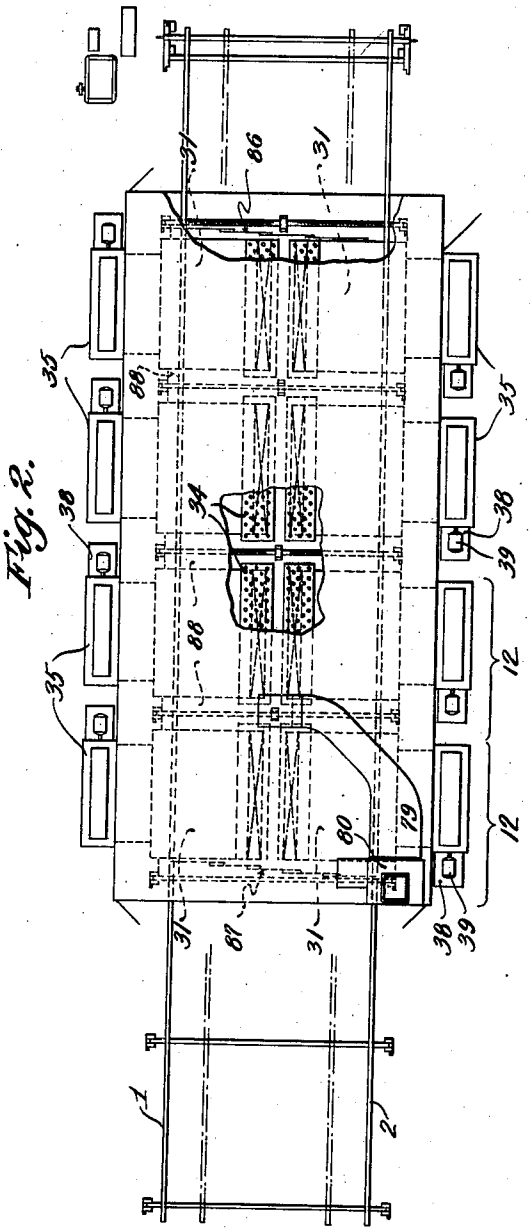


Fig. 2.



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Fig. 3.

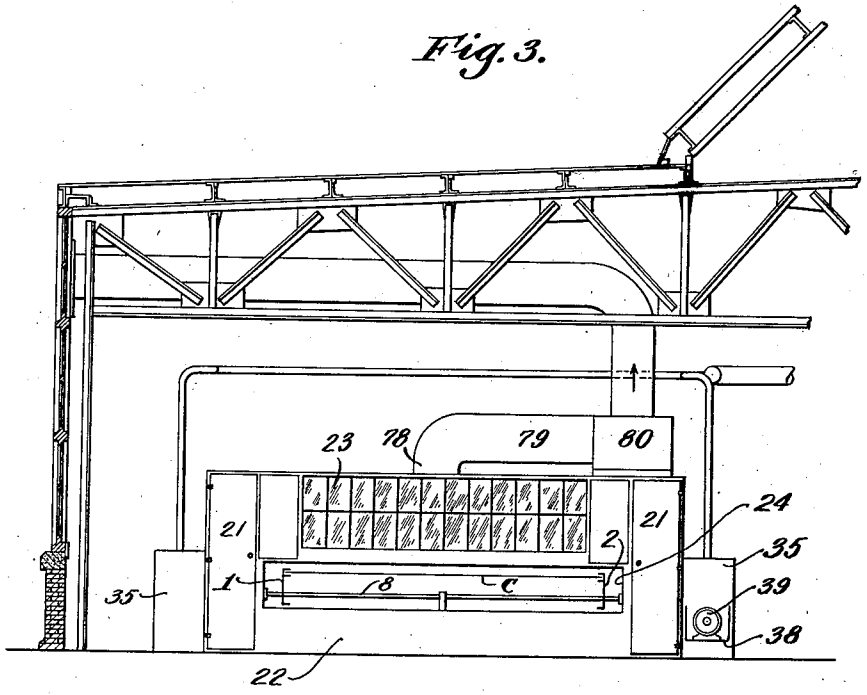
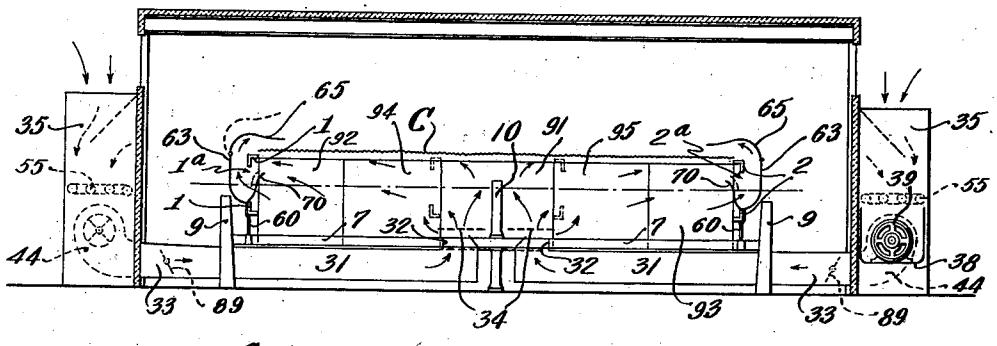


Fig. 4.



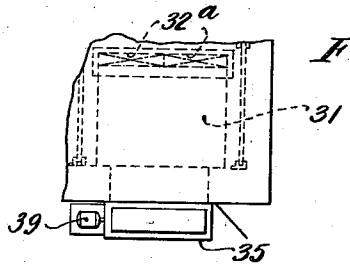


Fig. 2a.

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APPARATUS FOR CONDITIONING SHEET MATERIAL

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Fig. 5.

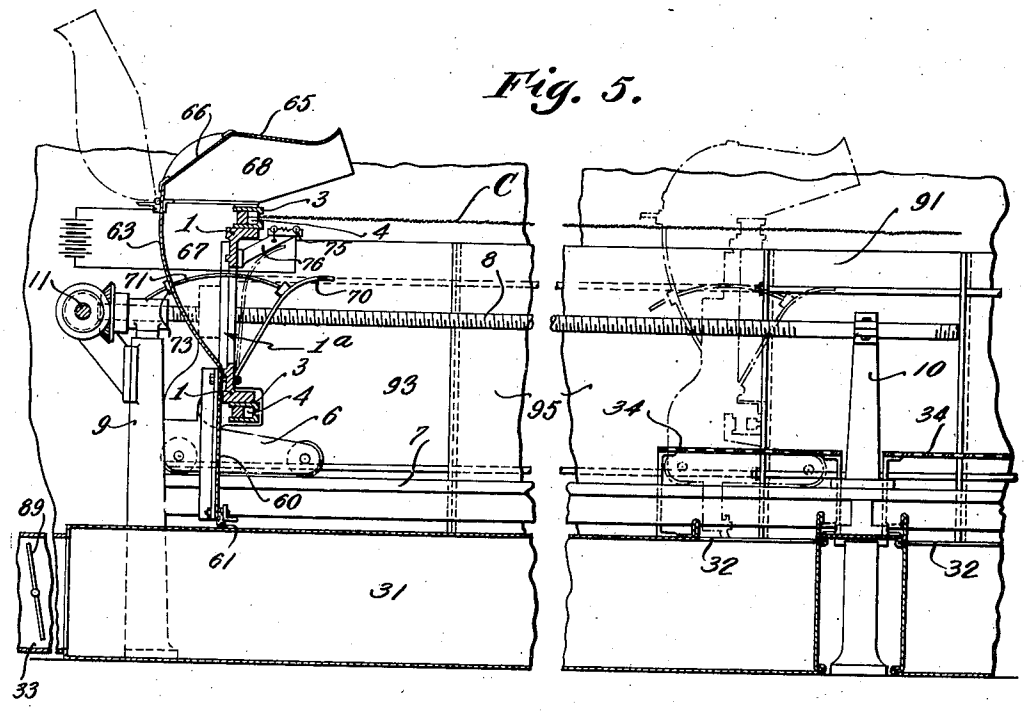
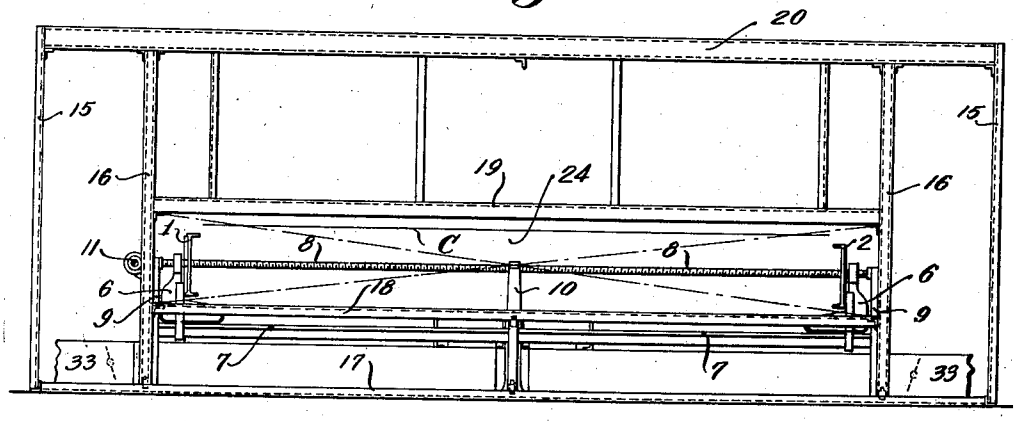


Fig. 6.



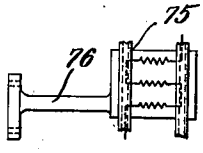


Fig. 10.

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Fig. 7.

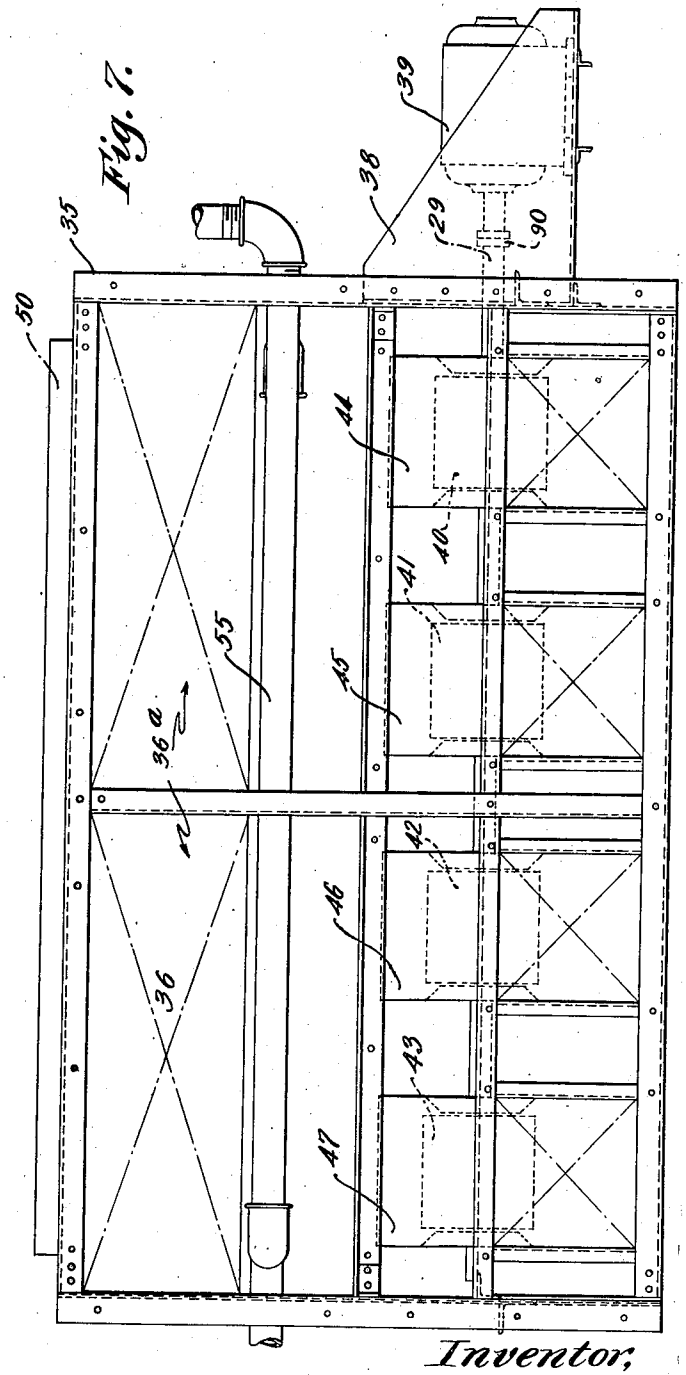
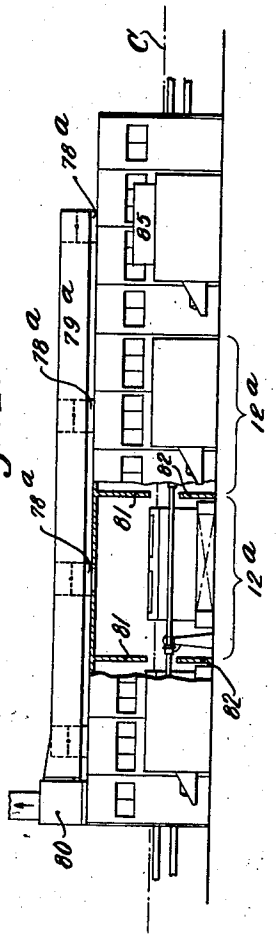


Fig. 11.



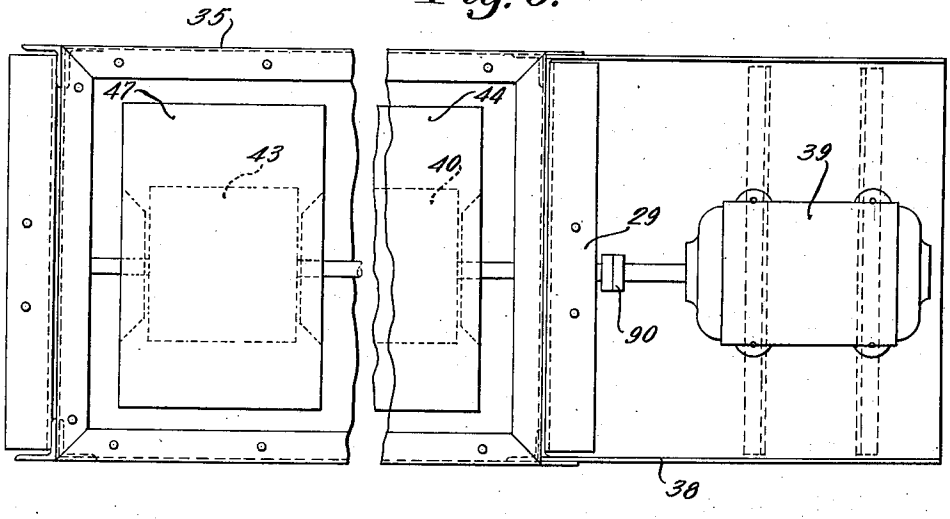
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June 8, 1937. L. BUCK 2,083,142

APPARATUS FOR CONDITIONING SHEET MATERIAL

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Fig. 8.



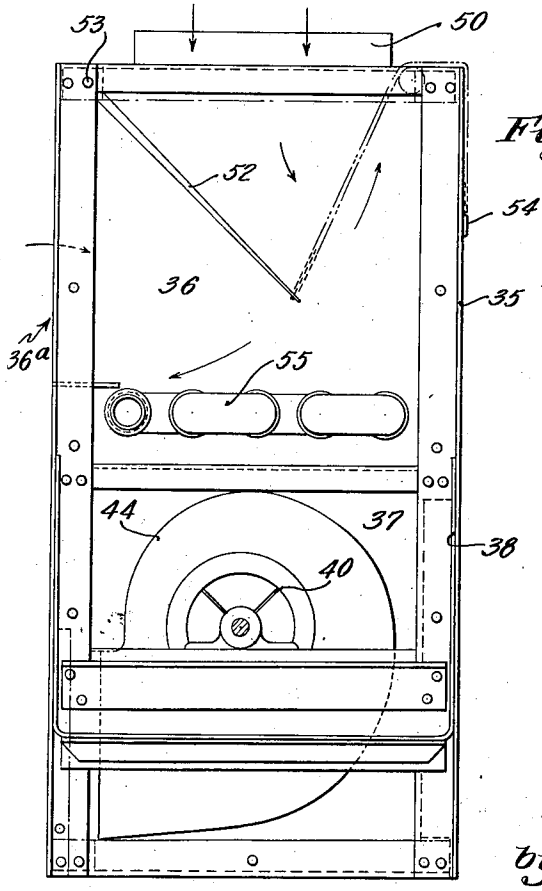
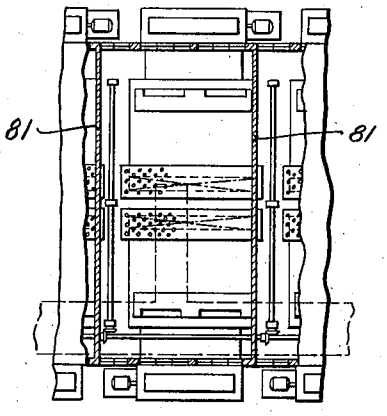


Fig. 9.

Fig. 12.



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APPARATUS FOR CONDITIONING SHEET MATERIAL

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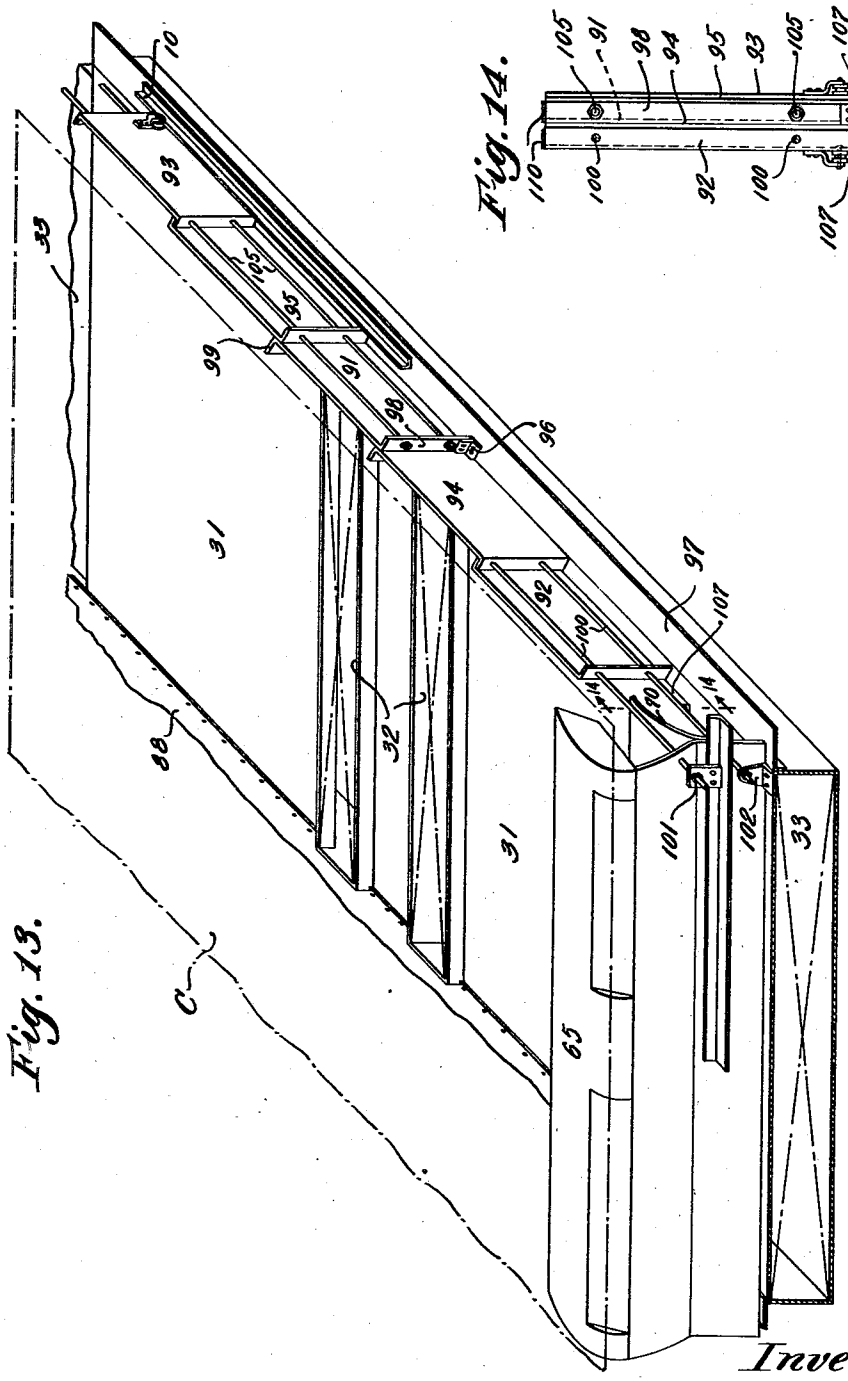


Fig. 13.

Fig. 14.

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Patented June 8, 1937 2,083,142

UNITED STATES PATENT OFFICE

2,083,142

APPARATUS FOR CONDITIONING SHEET MATERIAL

Lucien Buck, Manchester, Conn.

Application December 5, 1934, Serial No. 756,108

8 Claims. (Cl. 34—48)

This invention relates to drying apparatus for use in association with a machine or mechanism for stretching web-like material, for example, a cloth tentering frame.

In my Patent No. 1,717,004, granted June 11, 1929, I have pointed out at length some of the difficulties commonly encountered in tentering such materials as knitted glove silk which may vary greatly in width, and I have disclosed one arrangement including a plurality of nozzles adjustable concomitantly with the relative adjustment of the tenter chains and designed to deliver air from a central supply through a trunk system of ducts at considerable velocity directly against the goods undergoing the tentering operation, certain of the nozzles being designed particularly to direct jets of air forcibly against the selvages of the material so as to insure a thorough drying of the latter.

While the patented arrangement is useful for its indicated purpose, I have found that the use of nozzles with restricted outlets and the use of long restricted or tortuous conduits necessarily occasion obstruction of and friction losses in the air stream, and hence results in a greater consumption of power than is necessary and desirable and an inefficient use and distribution of the heat employed.

The principal objects of the present invention are to overcome the aforementioned deficiencies and to provide a fabric conditioning apparatus which is of simple design and of economical construction; which is reliable and efficient in operation, by reason of larger volumes and more effective air application; which permits flexibility of control over conditions, heretofore not available on this type of work, to conform to the weight and character of material to be conditioned; and which may be readily applicable to tenter frames of variable width and operable without adjustment of the fabric conditioning apparatus, proper, to condition fabric of any desired width for which the frame is designed.

More specific objects are to provide a fabric conditioning apparatus wherein the amounts of air and/or heat employed may be easily and accurately regulated; to provide means whereby air or other drying and/or conditioning fluid at a relatively low velocity and pressure becomes effective for conditioning the material, thus reducing the power consumption to a minimum; to provide apparatus wherein air or other treating fluid at different temperatures or pressures may be employed at different points or zones lengthwise of the tenter frame in accordance with the requirements of the particular conditions; to provide apparatus wherein the delivery of the treating fluid at any selected point or zone in the length of the fabric may be stopped or varied without effecting the flow at other points; to provide, if desired, means for subjecting the fabric to the action of a cooling medium prior to its leaving the tentering frame, thereby to reduce its temperature to a point suitable for later steps in the finishing process; and to provide apparatus wherein the air or other treating fluid at a relatively low temperature is so uniformly distributed over the area of the material under treatment as effectively to dry and/or condition the latter, thus reducing the requisite heat supply to a minimum.

Further objects relate to the operation and construction of my improved apparatus and will be apparent from a consideration of the following description and accompanying drawings which exemplify different embodiments of the invention chosen for the purpose of illustration.

In the drawings:

Fig. 1 is a diagrammatic side elevation, on a small scale, of a conditioning apparatus constructed in accordance with the present invention, the apparatus being shown in association with a conventional pin-type cloth tentering frame;

Fig. 2 is a plan view of the apparatus shown in Fig. 1;

Fig. 2*a* is a fragmentary plan view showing a wind box of modified construction;

Fig. 3 is a diagrammatic end elevation of the apparatus shown in Fig. 1, illustrating its arrangement in a mill building of standard type;

Fig. 4 is a diagrammatic vertical section to larger scale substantially on the line 4—4 of Fig. 1;

Fig. 5 is a vertical section, on a larger scale than Fig. 4, showing one side of the tenter frame and the associated control apparatus;

Fig. 6 is a vertical section substantially on the line 6—6 of Fig. 1 and illustrating a desirable arrangement of the framework for supporting the parts of the conditioning apparatus;

Fig. 7 is an enlarged side elevation illustrating a preferred construction of an air-treating unit with its side wall removed;

Fig. 8 is a plan view of the unit shown in Fig. 7 with the top wall removed;

Fig. 9 is an end elevation of the unit shown in Fig. 7 with the end wall removed;

Fig. 10 is a fragmentary plan view of an aux-

iliary heating element which may be used for drying out the selveges of the fabric;

Fig. 11 is a diagrammatic side elevation on a small scale, with parts broken away and shown in section, of a conditioning apparatus of modified construction;

Fig. 12 is a fragmentary horizontal section of the apparatus shown in Fig. 11;

Fig. 13 is a fragmentary isometric view of one end of the apparatus showing the telescoping end plates; and

Fig. 14 is an enlarged section on the line 14—14 of Fig. 13.

My improved conditioning apparatus is herein illustrated as applied to a cloth tentering apparatus of conventional construction, comprising parallel frame members 1 and 2 which, as shown in Fig. 5, carry guides 3 which support the tenter chains 4 for movement longitudinally of the apparatus. Each of the frame members 1 and 2 are provided with elongate openings 1^a and 2^a (Fig. 4), the utility of which is hereinafter set forth. The tenter chains support the cloth C in stretched condition at substantially the level indicated in Figs. 3 to 6, and are driven at the same linear speed by means of any conventional driving mechanism which may be disposed at either end of the frame. Each of the frame members is mounted on a plurality of trucks or carriages 6 disposed in series longitudinally of the frame, the carriages being mounted on transversely extending tracks or rails 7, each being movable inwardly and outwardly by means of a shaft 8 having left and right threads and journaled in uprights or pedestals 9 and 10 disposed along each side and in the center of the apparatus, respectively, as shown in Fig. 5. The screw shafts along each half of the apparatus are geared to a longitudinally extending adjusting shaft 11 which is operative to move all the carriages of the apparatus inwardly or outwardly at the same time, thereby varying the effective width of the apparatus so as to accommodate cloth of any desired width.

In accordance with the present invention the major portion of the tentering apparatus, intermediate its receiving and delivering ends, is enclosed within an elongate housing, as shown in Figs. 1 to 3. Since a tentering frame is often very long, usually extending through several bays or sections of the mill, and as it is sometimes desirable to subject the cloth to different successive treatments, I prefer to construct my apparatus in the form of a plurality of sections 12 (Figs. 1 and 2) arranged in series extending along the frame and which individually or collectively define one or more treating zones. Where the housing comprises a plurality of sections, as is preferred, their adjacent ends may be disposed contiguously to one another,—the individual sections collectively constituting the entire housing structure as shown in Figs. 1 to 3. However, if desired, the different sections may be spaced apart or arranged in spaced groups, so as to provide separate treating zones spaced from each other. In either case, the construction of the several sections may be substantially the same and accordingly it is only necessary to describe one of such sections in detail, together with such modifications as may be desirable.

Each section comprises a skeleton framework consisting of vertically extending structural elements 15 and 16 disposed on each side of and spaced from the uprights 9 of the tenter frame, and a plurality of horizontally extending structural elements 17, 18, 19 and 20 which, on the exposed ends of the front and rear sections, may be arranged in series above and below the line of travel of the tenter chains, as shown in Fig. 6. The ends of the front and rear sections are provided with doors 21 hinged to the elements 15, and panel members 22 and 23 secured to the horizontally extending elements 17, 18 and 19, 20, respectively, thus defining a transverse horizontal opening 24 through which the tenter frame and associated parts extend, as illustrated in Fig. 3. The top and side panels are secured to the framework in any appropriate manner, each side panel being provided with a horizontally extending opening adjacent to its base. If desired, a bottom panel may be provided to form a complete closure about the tentering apparatus.

The panels may comprise any suitable insulating material such for example as cork, wadding or the like, interposed between sheets of metal, the several panels being united by connections of any appropriate type well known to those skilled in the art. If desired, the panels may include transparent portions, as shown in Figs. 1 and 3, so as to admit light to the interior of the housing.

Each of the sections also comprises one or more air-conditioning units, and as here shown a pair of such units is provided for each section, each unit being of substantially the same construction and located in corresponding positions relative to both the section and the tenter frame, as indicated in Figs. 2 and 4. As illustrated more clearly in Fig. 5, each unit comprises an air or wind box 31 located below the path of travel of the cloth C and extending substantially halfway across the maximum width of the tentering apparatus between the tracks 7. The air box is provided with an elongate discharge opening 32 arranged to discharge air or other treating fluid freely upward into the space below the surface of the cloth C, as indicated by the arrows in Fig. 4. Each opening 32 extends longitudinally of the tenter frame between the vertical planes of the positions of nearest approach of the tenter chains, as indicated in Figs. 4 and 5. If desired, a plurality of openings 32^a may be provided, as shown in Fig. 2*a*, in which case the openings are preferably disposed in longitudinal alignment.

In order to prevent the air from being discharged against the under surface of the cloth C in the form of a solid jet, perforated diffusion plates 34 are disposed above the openings 32 so that a substantial portion of the air is deflected laterally, as indicated by the arrows in Fig. 4.

In order to permit a unit arrangement of simplified construction, each wind box 31 is connected to a conduit 33 (Fig. 4) which extends between the uprights or pedestals 9 and 10 outwardly through an opening in the adjacent side panel of the section. Each such conduit is provided with a control damper 89 and leads to the lower part of a box-like, substantially air-tight, casing 35 juxtaposed against the side wall of the section, as shown in Figs. 1 to 4. Each casing 35, as shown in Figs. 7, 8 and 9, is divided into an upper compartment 36 and a lower compartment 37, the compartments, if desired, being separated by a perforated partition. One of the end walls of the casing 35 is provided with an outstanding bracket 38 (Fig. 7) which supports an electric motor 39. This motor is connected through a flexible coupling 90 to a shaft 29 which extends lengthwise through the casing 35, being mounted to turn in appropriate bearings carried by the casing, and on this shaft a plurality of

fans or blowers 40, 41, 42 and 43 are mounted. Each fan has an individual casing 44, 45, 46 and 47, respectively. Preferably, these fans are of the centrifugal type, taking in air through a central opening and discharging it peripherally into a duct connected with the respective conduit 33.

The side wall of each casing 35 is provided with a pair of inlet openings 36a (Fig. 7) which register with similar openings in the side wall of the housing when the casing is positioned as shown in Figs. 1 to 4, thus providing a communication between the interior of the housing and the upper compartment 36 of the casing which permits a part of the air or other treating fluid to be withdrawn from the housing.

The top wall of the casing is provided with an elongate inlet opening for admitting fresh air or other treating fluid to its interior and, if desired, this opening may be provided with an air filter 50 (Fig. 9). A damper 52 is hinged at 53 to swing inwardly toward the opening 36a, as shown in Fig. 9, and this damper is provided with a counterweight 54 by means of which the position of the damper may be regulated. The damper 52 is operative not only to regulate the flow of fresh air or treating fluid through the inlet opening in the top of the casing, but also to regulate the amount of air or treating medium to be withdrawn from the interior of the housing. For example, the damper may be positioned so that the openings 36a are completely closed, in which case there is no recirculation of air from the housing, or the damper may be positioned so as completely to close the inlet opening in the top of the casing, in which case substantially all the air or treating fluid is recirculated. Thus, by adjusting the position of the damper the desired amount of fresh air and recirculating medium may be admitted to the compartment 36. A bank of heating or cooling coils 55 is disposed in the lower part of the upper chamber 36 so that air or other treating fluid admitted through the inlet passes around the coils where it is either heated or cooled before being drawn into the lower compartment by the blowers or fans 40, 41, 42 and 43.

Referring to Fig. 5, a depending wall 60 is secured to the outer side of each of the lower tenter frame members 1, the lower end of the wall terminating just above the top wall of the wind box, and a strip of flexible packing material 61, secured to the lower edge of the wall 60, engages the top wall of the wind box, and prevents the escape of air from between the end of the wall 60 and the top of the wind box without interfering with the movement of the carriages. Curved shields 63 are secured to each of the lower tenter frame members below the openings 1a and 2a, the shields extending upwardly and outwardly in spaced relation to the adjacent tenter chains to a point above the plane of the cloth C. Baffles 65 are hinged to the upper end of the shields 63 and are provided with inwardly directed wall portions, each of which, if desired, may include a pane of glass 66. The walls 60, shields 63 and baffles 65 extend throughout the length of the section and both the shields 63 and baffles 65 are provided with end walls 67 and 68, respectively, and serve to deflect the air inwardly toward the top of the cloth, the end walls 67 and 68 preventing the escape of any substantial amount of air about the ends of these members. As the dampers 65 are hinged to the shields 63, they may be arranged to any desired position, thus permitting the effective width of the air passage between the upright walls and the plane of the cloth to be varied so as to attain the desired flow of air above and on top of the cloth.

Relief dampers 70 having an upwardly and inwardly curved upper end are pivotally secured at their lower end to the inner side of the lower tenter frame members just below the openings 1a and 2a, and an arcuate adjusting rod 71 is secured to the outer face of each of the relief dampers with its free end extending outwardly through openings in the shields 63, as shown in Fig. 5. By means of the rod 71, the position of each relief damper may be adjusted so as to vary the effective width of the air passage in the frame openings 1a and 2a beneath the selvage of the cloth C, and each relief damper may be secured in any desired adjusted position by means of a set screw or the like carried by a collar 73 on the free end of each rod.

In order to insure the thorough drying out of the selvages of the cloth C, auxiliary heating means may be disposed beneath the selvages of the cloth, and to this end an electrical heating element 75, extending longitudinally to any desired distance, may be mounted on brackets 76, the brackets being secured to the inner faces of the upper frame members as shown in Fig. 5.

As the walls 60, shields 63, baffles 65, relief dampers 70 and the auxiliary heating elements 75 are carried by the tenter frame members 1 and 2, each assemblage is bodily movable as a unit toward and away from the center of the tentering apparatus, as indicated by the broken lines of Fig. 5, and after the tenter frame is adjusted for any desired width of cloth, the baffles 65 and dampers 70 may be adjusted in the manner previously described so that the flow of air under the cloth C may be regulated to suit the requirements of the particular type of cloth under treatment.

In order to build up and maintain a pressure in the plenum chamber beneath the fabric and prevent any appreciable loss of air or other treating medium between the several units or sections and at the end of the front and rear sections, both the bottom and ends of the plenum chamber are substantially closed. To this end plates 88 (Fig. 2) may be secured to the top edges of the adjacent wind boxes between each pair of pedestals 9 and 10, thus spanning the gap beneath the rail 7 and between adjacent units and providing a continuous floor or bottom for the plenum chamber.

The ends of the plenum chamber are closed by telescoping walls or partitions, designated generally by the numerals 86 and 87 (Figs. 1 and 2), each of which, as shown more clearly in Figs. 13 and 14, comprises a central partition 91, end partitions 92 and 93, and intermediate partitions 94 and 95. The central partition 91 is rigidly secured by angle irons or brackets 96 to a flange 97, which is fixed to the end walls of the wind boxes 31. The central partition is provided with a pair of flanges 98 and 99, the flange 98 extending forwardly and the flange 99 extending rearwardly. One end of a pair of spaced guide rods 100 is secured to the flange 99, and the opposite ends of these guide rods are secured to suitable supports, such as brackets 101 and 102 carried by and movable with the side frames and associated parts. In like manner a second pair of spaced guide rods 105 is secured to the flange 98 and the frame members and associated parts on the opposite side of the apparatus.

The partitions 92 and 93 are provided with flanges having aligned openings through which the guide rods 100 and 105 pass, and their lower ends may be provided with rollers which run on rails 107 mounted on the wind boxes 31, as shown in Fig. 14. The intermediate partitions 94 and 95 are provided with flanges having openings through which the guide rods pass, the guide rods supporting these intermediate partitions for movement toward and away from each other. The outer flanges of the intermediate partitions overlap the inner flanges of the end partitions, as shown in Fig. 13, and the body portions of each of the flanges are relatively offset so that they may be slid along the guide rods from a "nested position" wherein they are juxtaposed to both sides of the central partition 91, to an extended position where they extend transversely across the entire width of the plenum chamber. The end partitions 92 and 93 are fastened in any suitable manner to the adjacent side frames so as to close the corners of the plenum chamber, as seen more clearly in Fig. 5, and as these end and intermediate partitions are movable with the side frames and associated parts, they provide a complete closure for the ends of the plenum chamber irrespective of the relative positions of the side frames, and hence permit sufficient pressure to be built up to force the hot air or other treating fluid through the entire area of the fabric covering the plenum chamber. If desired, the horizontal edges of each of the partitions may be provided with felt rubbing strips 110, as shown in Fig. 14.

In order to discharge spent air accumulating in the upper part of the housing, one or more exhaust outlets may be provided, and to this end the front section is preferably furnished with an exhaust duct 78 (Fig. 1) so that the flow of spent air is from the rear section toward the front section. The exhaust duct 78 is connected by a conduit 79 to an exhaust fan 80 which may lead to a stack extending through the roof of the mill.

The operation of my apparatus is as follows: With the dampers 52 regulated to permit the desired flow through the inlet openings of the casings 35 and the baffles 65 and relief dampers 70 adjusted in accordance with the contemplated requirements of the cloth C, the blowers 40, 41, etc. and the exhaust fan 80 are set in operation. The blowers draw fresh air through the filters 50 and/or the recirculated air through the openings 36a (depending upon the adjustment of the dampers 52) into the upper part of the casing 35 and around the coils 55 where it is either heated, cooled, or otherwise conditioned. With the volume control damper 89 adjusted for the fabric to be treated, the conditioned air is then discharged into the wind boxes of each section and the air thus discharged passes through the openings 32 from the wind boxes into the plenum chamber beneath the fabric and, striking against the perforated diffusion plates 34, is broken up into a multitude of small streams and directed against the under surface of the cloth C. A portion of the air filters through the cloth, but the remaining portion is deflected outwardly and sets up a high degree of turbulence beneath and adjacent to the selvages of the fabric. Since the major portion of the air discharged from the plenum chamber necessarily has to escape through the passages defined by the relief dampers 70, shields 63 and baffles 65, flowing outwardly, it is evident that, regardless of the width to which the tenter frame is adjusted, the body and selvages of the fabric will be impinged upon and conditioned by the outwardly flowing air streams. As previously noted, the drying action of the air may be supplemented by the electrical heating element 75 which assures a thorough drying of the selvages through the application of radiant energy in addition to the reheating of the air in the vicinity of the selvages. After the air has passed from around the selvages of the fabric it may be directed inwardly and/or upwardly by the baffles 65, and if desired the dampers may be so adjusted that the air is directed inwardly so as to impinge upon the upper surface of the fabric before escaping to the upper part of the housing or section.

In Figs. 11 and 12 I have shown a slightly modified construction wherein each of the sections 12a is separated by vertically extending partitions or walls 81 and 82 above and below the path of travel of the cloth C, the lower partitions 82 preferably being of the same or similar construction as the telescoping partitions 86 and 87, previously described, so that their length may be varied concomitantly with the frame members. Each section is preferably provided with a damper controlled exhaust duct 78a which is connected by a common conduit 79a to the exhaust fan 80. With this construction and arrangement each of the sections constitutes, in effect, an individual treating zone having one or more air conditioning units which may be of the same type and construction as those previously described.

In dealing with certain types of material, for example, glove silk and rayon, in which the material is subjected to a finishing process subsequent to the tentering and in which process it is essential that the cloth be cooled, I find it desirable to furnish the conditioning units of one or more of the rear sections with cooling means so that the cloth delivered from the tentering apparatus is cooled sufficiently immediately to undergo the subsequent treatment. To this end, the conditioning units of the front section may be provided with heating coils and those of the rear section with cooling coils.

Since under some conditions it is desirable to have the cloth emerge from the tentering frame with a definite moisture content and since it is not always easy to dry the material to just the desired moisture content, the cloth may first be dried out so as to remove substantially all the moisture and then the desired moisture may be restored by passing the fabric through a moist atmosphere whose relative humidity corresponds to the desired moisture content. To this end, the rear section or sections may be provided with suitable humidifying apparatus 85 (Fig. 11) which may be conveniently located on the top of the casings 35 and connected to their inlet openings so as to discharge the humidified air into their upper compartments 36. If desired, the coils 55 within the compartments 36, may be used either to warm or to cool the humidified air so that the desired temperature may be maintained within the section or zone.

While I have shown and described different desirable embodiments of the invention it is to be understood that the present disclosure is for the purpose of illustration only and that various changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described, may be made without departing from the spirit

and scope of the invention as set forth in the appended claims.

I claim:

1. In combination with a cloth tenter frame comprising a pair of tenter chains relatively adjustable toward and from one another to accommodate cloth of different widths, a conduit having a discharge opening disposed between the vertical planes of nearest approach of the chains, and deflector means movable with the respective chains as the latter are adjusted toward and from each other, said deflector means being operative to constrain a drying medium, delivered from said discharge opening to move laterally outwardly in contact with a surface of the cloth and then inwardly around the selvages of the cloth.

2. In combination with a cloth tenter frame comprising a pair of tenter chains relatively adjustable toward and from one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, a bottom wall for said chamber having a discharge opening therethrough at a point situated between the vertical planes of nearest approach of the chains, side walls for the plenum chamber, each side wall being movable with one of the chains respectively as the latter are adjusted toward and from each other, means adjustable concomitantly with said chains for preventing escape of drying medium from the ends of said plenum chamber, each side wall being provided with a deflector element spaced outwardly from the respective chain and operative to guide drying medium flowing laterally outwardly in contact with one surface of the cloth around the selvage of the cloth and inwardly at the other side of the cloth.

3. In combination with a cloth tenter frame comprising a pair of tenter chains relatively adjustable toward and from one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, a wind box defining the bottom wall of said chamber, said wall having a discharge opening therethrough at a point situated between the vertical planes of nearest approach of the chains, side walls for the plenum chamber, each side wall being movable with one of the chains respectively as the latter are adjusted toward and from each other, each side wall being disposed substantially in the vertical plane of one of the chains respectively, telescoping means between the side walls adjacent to the ends of said chamber to prevent endwise escape of air from said chamber, and deflector means extending outwardly from said side walls in spaced relation to the chains and defining outlets for said chamber about the selvages of the cloth.

4. In combination with a cloth tenter frame comprising a pair of tenter chains relatively adjustable toward and from one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, a plurality of wind boxes defining the bottom wall of said chamber, each box having a discharge opening at a point situated between the vertical planes of nearest approach of the chains, side walls for the plenum chamber, said side walls being relatively movable with the chains as the latter are adjusted toward and from each other, each side wall being disposed adjacent to the vertical plane of one of the chains respectively, one edge of each side wall being adjacent to the horizontal wall, and the opposite edge of each side wall being spaced from the plane of the cloth to provide an air passage between such edge and the cloth, and deflector means extending outwardly from said latter edges of the side walls in spaced relation to the respective chains and thence to points inwardly of the respective selvages and spaced from the opposite side of the cloth, and means providing end walls for said chamber and preventing endwise escape of air therefrom.

5. In combination with a cloth tentering frame having a pair of tenter chains relatively adjustable toward and from each other to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, said chamber having a substantially continuous bottom wall extending longitudinally of the tenter frame and laterally to points outwardly beyond the vertical planes of the greatest relative recession of the chains, and substantially vertical end and side walls arranged to move concomitantly with each chain as the latter is adjusted relatively toward and from the other, the lower edge of each vertical wall being disposed closely adjacent to said bottom wall, the latter having a discharge opening intermediate the vertical planes of nearest approach of the chains, means for discharging air through said opening, and a deflector secured to the opposite edge of each side wall and extending outwardly in spaced relation to the corresponding chain and terminating at a point at the opposite side of the plane of the cloth.

6. In combination with a cloth tentering frame comprising a pair of tenter chains relatively adjustable toward one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, said chamber having a bottom wall spaced from said cloth and provided with an opening at a point intermediate the vertical planes of nearest approach of the chains, upright side and end walls arranged to move with each chain as the chains are adjusted toward and from each other, the lower edge of each upright wall being adjacent to said bottom wall, flexible packing interposed between each upright wall and the bottom wall substantially to prevent escape of air between said walls without substantially interfering with relative movement of the upright and bottom walls, a deflector secured to the upper part of each side wall and extending outwardly and upwardly in spaced relation to the corresponding chain to a point above the plane of the cloth, and an adjustable damper arranged to vary the effective width of the air passage between the upper edge of each upright wall and the plane of the cloth.

7. In combination with a cloth tentering frame comprising a pair of tenter chains relatively adjustable toward one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, said chamber having a bottom wall spaced from the plane of the cloth and provided with an elongate opening at a point intermediate the vertical planes of nearest approach of the chains, upright side and end walls arranged to move with the chains as they are adjusted toward and from each other, the lower edge of each upright wall being adjacent to the bottom wall, and a deflector secured to the upper part of each side wall and extending outwardly and upwardly in spaced relation to the corresponding chain to a point above the plane of the cloth and thence inwardly and over the cloth.

8. In combination with a cloth tentering frame comprising a pair of tenter chains relatively adjustable toward one another to accommodate cloth of different widths, a substantially horizontal plenum chamber beneath the plane of the cloth, said chamber having a bottom wall provided with an opening at a point intermediate the vertical planes of nearest approach of the chains, upright side and end walls arranged to move with the chains as they are adjusted toward and from each other, the lower edge of each upright wall being adjacent to the bottom wall, a deflector secured to the upper parts of each side wall and extending outwardly and upwardly in spaced relation to the corresponding chain to a point above the plane of the cloth and thence inwardly and over the cloth, and an adjustable damper hinged to the upper portion of each side wall and operative to vary the effective area of the air passage between the top of the wall and the cloth.

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