No. 665,766. Patented Jan. 8, 1901.

F. WEVER.

MACHINE FOR STEAMING AND SMOOTHING TUBULAR FABRICS.

(Application filed Jan. 13, 1900.)

(No Model.)

Fig. 1.

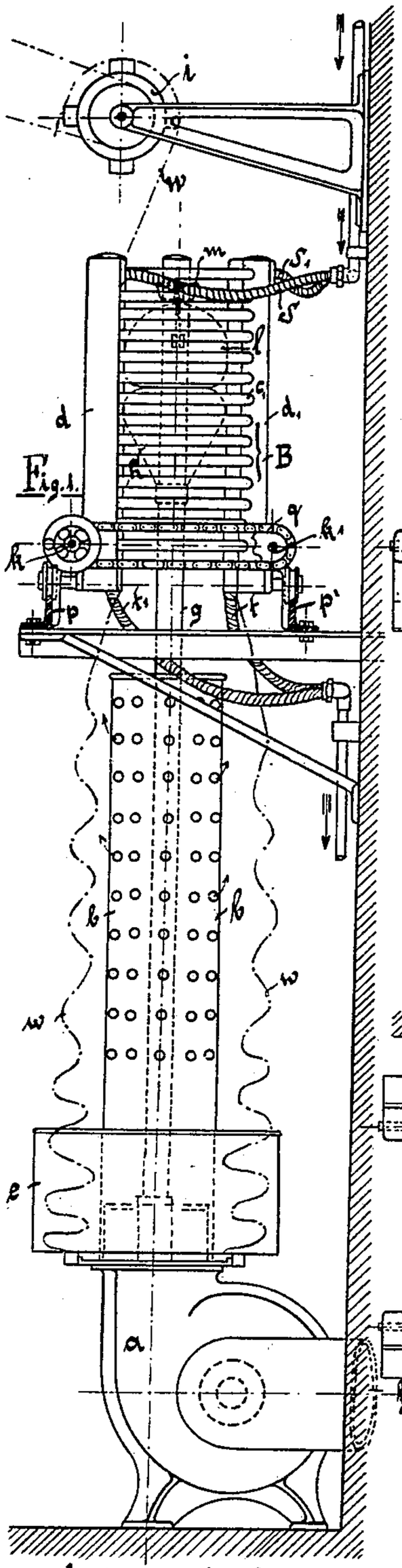

Fig. 2.

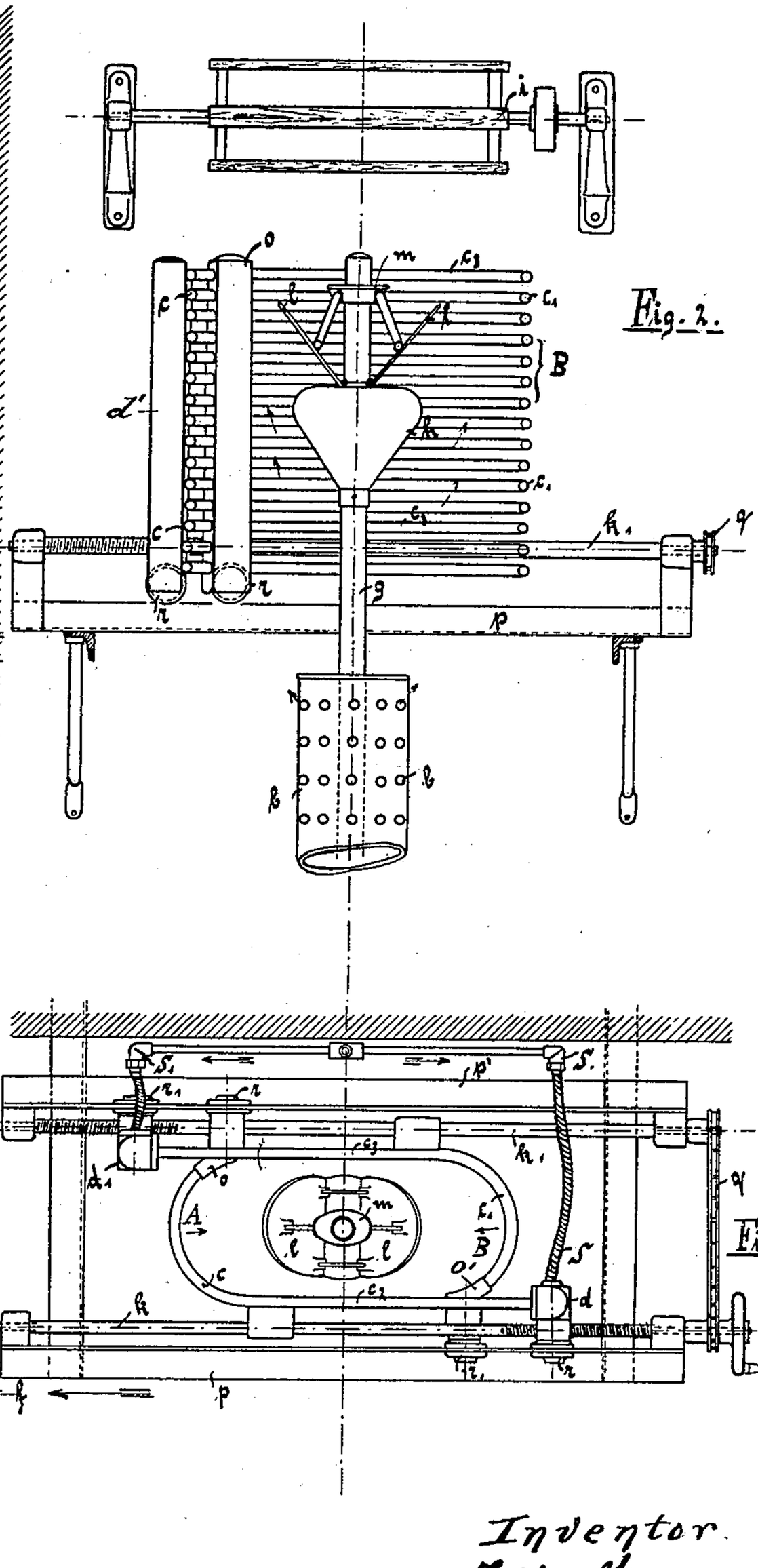

Fig. 3.

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FRITZ WEVER, OF STUTTGART, GERMANY.

MACHINE FOR STEAMING AND SMOOTHING TUBULAR FABRICS.

SPECIFICATION forming part of Letters Patent No. 665,766, dated January 8, 1901.

Application filed January 13, 1900. Serial No. 1,381. (No model.)

To all whom it may concern:

Be it known that I, FRITZ WEVER, a subject of the Emperor of Germany, residing at Stuttgart, Kingdom of Würtemberg, Empire of Germany, have invented a new and useful Improved Apparatus for Finishing Tubular Fabrics, of which the following is a specification.

This invention relates to the art of finishing fabrics, with particular reference to tubular fabrics, either woven or knitted.

The object of the invention is to provide an apparatus in which the fabric is first steamed from the inside and then smoothed on the outside before it passes on the reel or other storage device.

With this object in view an apparatus embodying my invention comprises means such as a perforated cylinder, over which the previously-moistened fabric is drawn and from which a current of air under pressure is forced into the fabric, thus distending it, in connection with a chamber having heated surfaces, through which chamber the fabric is drawn and so arranged that the pressure of the heated gases will press the said fabric against said surface as it is drawn through the same to a roll, whereby the fabric is ironed or finished. My invention also comprises means for adjusting said chamber to adapt itself to various sizes of fabrics and in such other details of construction and arrangement, separately or in combination, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 shows an apparatus embodying my invention in my preferred form of construction and arrangement. Fig. 2 is a front elevation through the middle of the apparatus. Fig. 3 is a top plan view of the structure below the winding-reel.

Throughout the several views the same characters designate the same parts.

e represents a cylindrical casing connected with a fan or blower *a*, that receives hot air from any suitable source through a pipe *f*.

The cylinder *b*, preferably perforated substantially throughout its length, extends upwardly from the casing *e* and has its upper end closed.

The tubular fabric *w* is previously moistened and put on over the cylinder *b* and rests mostly in the casing *e*. The upper end, however, is secured to a suitable reel *i*, that winds it up slowly in a flat form. A post *g* extends outwardly from the casing *e* and has an enlarged form *h* for the purpose of diverting the air in order to distend the tubular fabric, and upon the form are two or more flaps or blades *l*, linked to a collar *m*, that tends to force them outwardly to further divert the air to distend the fabric tube. The fabric in the casing *e* passes slowly upwardly around the cylinder and opposite its perforations, the hot air from the blower *a* passing out of the apertures in the cylinder *b* tending to partially distend the fabric and also form steam from the moisture in the fabric.

Surrounding the enlarged form *h* is a casing formed of two members A and B. These members are constituted of steam-pipes and arranged in the form of a coil. On a suitable framework is secured a track *p p'* and also two shafts *k k'*. To a pair of hollow posts *o* and *d'* are secured the extremities of tubes *c* c^2, the portion *c* being curved and the portion c^2 being straight. To another pair of posts *o'* and *d* are secured the extremities of similar tubes *c'* c^3, having the curved portion *c'* and the straight portion c^3. At the bottom of each of these posts is a wheel, which wheels run on the tracks *p* and *p'*. In the lower end of these posts are screw-threaded apertures, in which revolve threaded portions of the shafts *k k'*. These shafts are connected by the sprocket-chain *q*, and consequently rotate simultaneously, and thus the curved parts *c* and *c'* of the members A and B, respectively, can be made to approach or recede simultaneously.

The coils A and B are supplied with steam through flexible pipes S S', which is led away by other flexible pipes *t t'*.

The operation of the device is as follows: The members A and B are widely separated by revolving the shafts *k* and *k'* by the hand-wheel. The previously-moistened tubular fabric is put in the casing *e* and the end is drawn up around the cylinder and opposite its perforations and the enlargement and secured

to the reel. Then the members of the casing are moved toward the fabric until they inclose a space corresponding to the form of the fabric when distended. Then the hot air is forced into the cylinder and passes out of its perforations, partly distending the part of the fabric surrounding the cylinder and forms steam of the moisture in the fabric. Passing upwardly the air is deflected outwardly by the form *h* and the blades, and thereby forces the now steaming fabric, which is being drawn slowly up by the reel, into contact with the heated walls of the casing, producing the effect of ironing.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a cylinder perforated substantially throughout its length, means for drawing a tubular fabric longitudinally along the cylinder and opposite its perforations, means for forcing air out of said perforations to distend and penetrate the fabric and means located outside the tubular fabric for smoothing its distended portion.

2. The combination of a cylinder perforated substantially throughout its length, means for drawing a tubular fabric longitudinally along said cylinder and opposite its perforations, means for forcing air out of said perforations, means located in proximity to the ends of the cylinder for retarding the escape of the air through the tubular fabric and means located outside the tubular fabric for smoothing its distended portion.

3. The combination of a vertically-arranged cylinder perforated substantially throughout its length, a casing at the bottom of said cylinder, a shaft extending upwardly from said cylinder, an enlargement on said shaft, a reel located above said shaft for drawing said tubular fabric upwardly around said cylinder and opposite said perforations, and means for forcing air out of said perforations in said cylinder to distend and penetrate the fabric.

4. The combination of a shaft, means for drawing the tubular fabric over the shaft, means for distending the tubular fabric, and means located outside of the tubular fabric for smoothing it at its distended portion.

5. The combination of a shaft, means for drawing a tubular fabric over the shaft, means for distending the tubular fabric, and a sectional casing located outside of the tubular fabric for smoothing it at its distended portion.

6. The combination of a shaft, means for drawing the tubular fabric over the shaft, means for distending the tubular fabric, and a sectional casing adjustable radially to the shaft and located outside of the tubular fabric for smoothing it at its distended portion.

7. The combination of a shaft, means for drawing the tubular fabric over the shaft, means for forcing air into said tubular fabric, inclined blades hinged to the shaft for diverting the air to distend the tubular fabric, and means for smoothing the tubular fabric at its distended portion.

8. The combination of a shaft, means for drawing the tubular fabric over the shaft, means for forcing air into the tubular fabric, an enlargement on said shaft for diverting the air to distend the tubular fabric, inclined blades hinged to the shaft above said enlargement for further diverting the air, and means for smoothing the tubular fabric at its distended portion.

9. The combination of a shaft, means for drawing a tubular fabric over the shaft, means on the shaft for diverting the air for distending the tubular fabric, means for steaming the tubular fabric before it reaches said distending means, and a heated casing for smoothing the tubular fabric at the distended portion.

10. The combination of a perforated cylinder, a shaft projecting from the end of the cylinder, means for drawing a moist tubular fabric over the cylinder and the shaft, means on said shaft for diverting the air for distending the tubular fabric, means for forcing heated air into said cylinder and through its perforations to steam the tubular fabric, and a heated casing for smoothing and ironing the tubular fabric at the distended portion.

11. The combination of a vertically-arranged perforated cylinder, a shaft projecting upwardly from the end of the cylinder, means for drawing a tubular fabric over the cylinder and the shaft, a casing around the base of the cylinder for containing and moistening the tubular fabric to be treated, means for forcing heated air into the cylinder and through its perforations to steam the tubular fabric, and a heated casing for smoothing and ironing the tubular fabric at the distended portion.

12. The combination of a shaft, means for drawing a tubular fabric over the shaft, means on the shaft for diverting the air for distending the tubular fabric, a sectional casing composed of tubes arranged transversely to the shaft for smoothing the tubular fabric at the said distended portion, means for adjusting said sections radially to the shaft, and means for passing heated fluid through said sections of the tubular casing.

13. The combination of a shaft, means for drawing a tubular fabric over the shaft, means on the shaft for diverting the air for distending the tubular fabric, a sectional casing composed of tubes arranged transversely to the shaft for smoothing the tubular fabric at the distended portion, means for simultaneously adjusting said sections radially to the shaft, and means for passing heated fluid through said sections of the tubular casing.

14. The combination of a vertical shaft, means for drawing a tubular fabric over the

shaft, means on the shaft for diverting the air for distending the tubular fabric, a sectional casing composed of tubes arranged transversely to the shaft for smoothing the tubular fabric at the distended portion, vertical tubular posts connecting the ends of the tubes in the said sections, wheels arranged on the lower ends of the said posts, tracks for carrying the wheeled sections, threaded shafts engaging threaded apertures in said posts for reciprocating said sections, and flexible tubes for conveying heated fluid to and from the tubular sections.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FRITZ WEVER.

Witnesses:
ADOLF SAPPER,
HERMANN WAGNER.