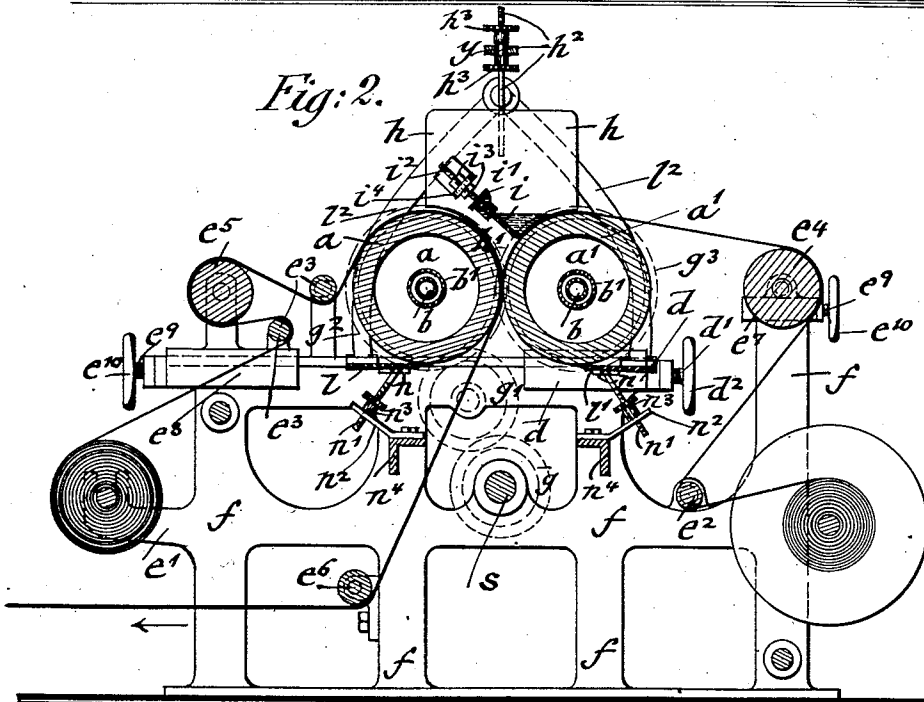
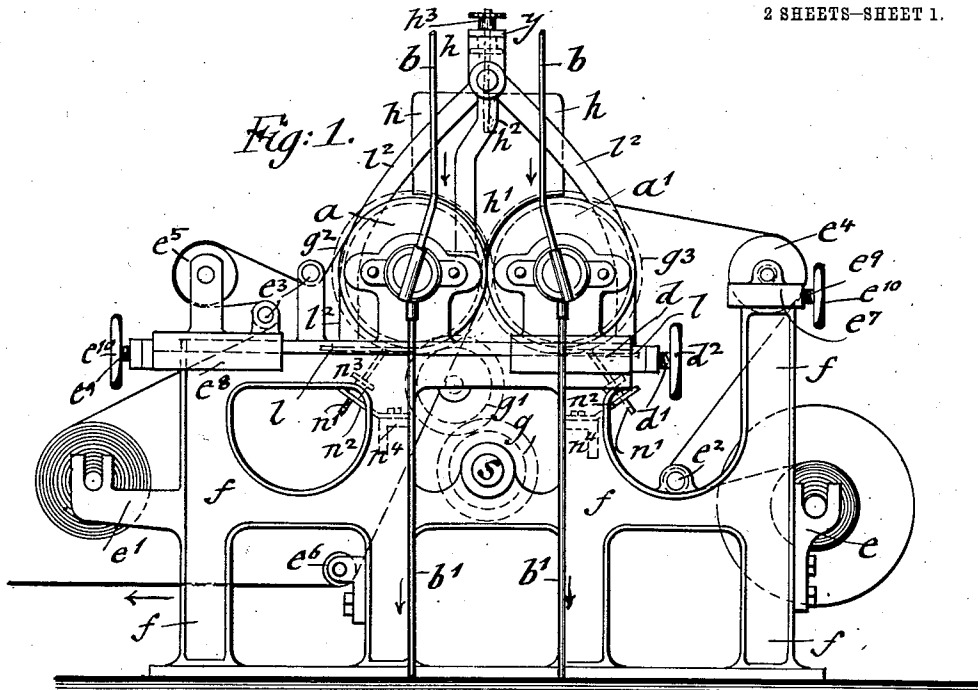


A. LEISEL.
MACHINE FOR DOUBLING FABRICS.
APPLICATION FILED MAY 17, 1910.

1,042,129.

Patented Oct. 22, 1912.

2 SHEETS-SHEET 1.



Witnesses:
John Murtagh
L. J. Murphy

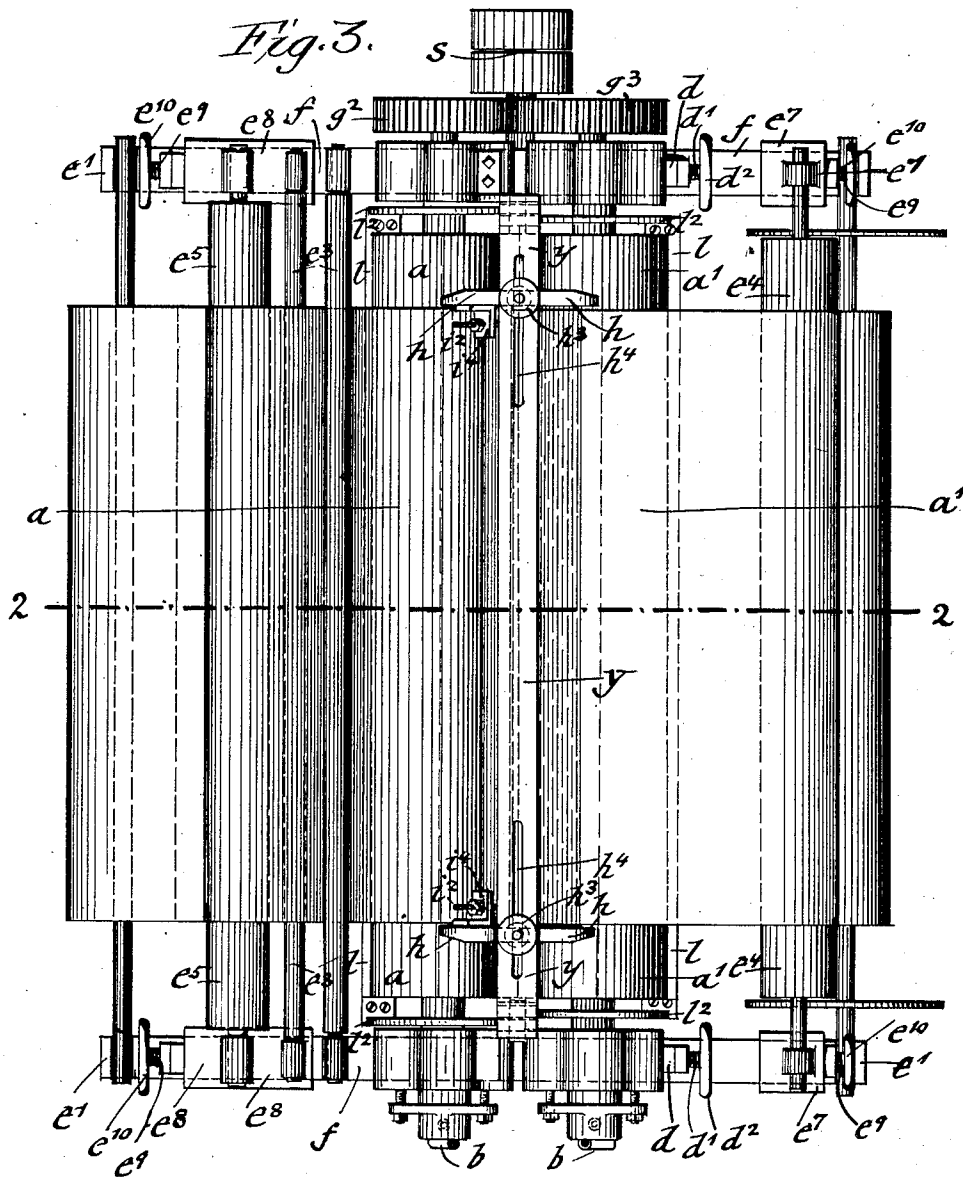
Inventor
Albert Leisel
By his Attorneys
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James L. Taylor

UNITED STATES PATENT OFFICE.

ALBERT LEISEL, OF NEWARK, NEW JERSEY, ASSIGNOR TO E. I. DU PONT DE NEMOURS POWDER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF NEW JERSEY.

MACHINE FOR DOUBLING FABRICS.

1,042,129.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed May 17, 1910. Serial No. 561,821.

To all whom it may concern:

Be it known that I, ALBERT LEISEL, a citizen of the United States of America, residing in Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Doubling Fabrics, of which the following is a specification.

This invention relates to an improved machine for doubling fabrics by which two different fabrics, such as leather, imitation leather, mohair and the like, can be united with a backing layer of cotton or other fabric by means of a waterproof cement so as to be capable of resisting wear and the influence of the atmosphere; and for this purpose the invention consists of a machine for doubling fabrics which comprises a pair of heated rolls, means for feeding two separate fabrics to and over said rolls, upright abutments near each end of the heated rolls, an inclined adjustable doctor arranged adjacent to one of the heated rolls, and adjustable scrapers arranged at the under-side of the rolls and held in contact therewith for removing any adhering cement from the surface of said rolls.

The invention consists further of certain details of construction, such as the suspension of the scrapers and the adjustment relatively to the heated rolls, and other details of construction, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side-elevation of my improved machine for doubling fabrics, Fig. 2 is a vertical longitudinal section of the same on line 2, 2, Fig. 3, and Fig. 3 is a plan-view of the improved machine.

Similar letters of reference indicate corresponding parts throughout the figures.

Referring to the drawings, a , a^1 are two tubular rolls which are heated by means of live steam admitted to the interior of the rolls by steam supply-pipes b connected with one end of the rolls and carried off by suitable exhaust-pipes b^1 at the same end. The heated roll a is supported in stationary bearings of a supporting frame f , while the heated roll a^1 is supported in bearings of horizontally adjustable slide-rests d which are guided on the frame f , so that the roll a^1 can be adjusted closer to or farther away

from the stationary roll a for providing for the different thicknesses of the fabrics to be united. The adjustment of the movable roll a^1 is accomplished by means of screws d^1 provided with hand-wheels d^2 that act on the slide-rests of the roll a^1 . The rolls a , a^1 are rotated at the same speed and in opposite direction to each other from a driving shaft s , which is supported in suitable bearings in the side-standards of the frame f below the rolls, and intermediate driving gear-wheels g , g^1 and gear-wheels g^2 , g^3 on the rolls a , a^1 . The two layers of fabric to be united are wound up on reels the shafts of which are supported in bracket-bearings e , e^1 at opposite ends of the frame f and conducted over suitable guide-rods e^2 , e^3 and adjustable tension-rolls e^4 , e^5 to the heated rolls a , a^1 and then between the same in downward direction over a guide-roller e^6 to a suitable conveyer (not shown) by which the doubled fabrics, after they are united by the rolls a , a^1 , are conducted off. The bearings of the tension-rolls e^4 , e^5 are adjustable by means of slide-rests e^7 , e^8 which are acted upon by screws e^9 having hand-wheels e^{10} so as to apply a regulated tension to both layers of fabric. Near the ends of the heated rolls a , a^1 are located vertical abutments h , the lower ends of which extend by arc-shaped tapering portions h^1 into the angular space between the rolls, the arc-shaped portions being arranged close to the surface of the rolls. The abutments h are suspended by hanger rods h^2 and screw and jam nuts h^3 from a transverse yoke y having vertical end-portions which are attached to the side-standards of the frame f , the top-portion being provided with slots h^4 for permitting the lateral adjustment of the hanger-levers h^2 of the abutments over the rolls, either closer together or away from each other, according to the width of the fabrics to be doubled. The abutments h , h^1 serve to hold the liquefied waterproof cement that is supplied to the fabrics in the trough formed between one of the fabrics passing over the roll a^1 , the lower portions of the abutments h and an inclined doctor i , which is supported on a transverse bar i^1 that is connected by inclined screw-posts i^2 and screw-nuts i^3 to angular brackets i^4 attached to the inner sides of the abutments, as shown clearly in

Fig. 2. The ends of the bar i^1 and the ends of the doctor i are passed through slots and incisions in the abutments h, h^1 , the ends of the doctor being tightly fitted into said incisions by means of suitable packing for preventing any leakage of the liquid cement. The inclined screw-posts i^2 permit the adjustment of the doctor i to the thickness of the fabric which passes over the roll a^1 , also the regulation of the thickness of the layer of cement to be supplied to the fabrics, and lastly the taking up of the wear of the doctor. The waterproof cement is supplied to the fabrics in heated and liquid condition so as to be spread uniformly over the surface of the ingoing fabrics, and is then firmly united with the face-fabric and its backing fabric by the pressure exerted thereon during their passage between the heated rolls, the two layers, after being doubled up or united, being then conducted off below the rolls by passing over the roller e^6 at the lower part of the frame f .

Below the rolls a, a^1 and in contact with the lower circumference of the same are arranged scrapers l, l^1 which extend across the full length of the rolls, said scrapers being held in close contact with the surface of the heated rolls so as to remove any traces of cement that should be pressed through minute openings or the meshes of the fabric onto the surface of the same, or that portion of the cement that should run over the edges of the fabric passing over the roll a^1 , so that the surface of the rolls is kept absolutely cleared of even the slightest traces of cement and thereby the surface of the doubled-up fabric kept perfectly clear of cement. The scrapers l, l^1 are supported on two pairs of hangers l^2 that are pivotally united at their upper ends and suspended from the vertical portions of the yoke y and riveted or otherwise attached at their lower ends to the extreme ends of the scrapers l . For preventing the bending of the scrapers midway between their ends and holding them in contact with the heated rolls throughout their length, supporting plates n are employed which press on the underside of the scrapers and which are adjustably supported by means of inclined screw-posts n^1 and screw-nuts n^3 on inclined brackets n^2 , the lower parts of said brackets being supported on angular bars n^4 extending transversely between the upright side-standards of the frame f , as shown in Fig. 2. By adjusting the threaded posts n^1 of the supporting plates n slightly higher or lower on the brackets n^2 , the middle portion of the scrapers can be accurately adjusted to the lower surface of the heated rolls. The cement that is removed by the scrapers from the surface of the rolls is collected in a suitable receptacle (not shown) at the lower part of the frame and returned from time to

time to the trough-shaped space between the fabric on the heated rolls a^1 and the doctor i , or it may be mixed with a new quantity of cement and supplied therewith into said trough-shaped space, which latter acts in the nature of a hopper for supplying the waterproof cement to the fabrics to be doubled or united.

Any suitable fabrics may be doubled by the machine, such as artificial leather and mohair and a suitable backing, which are used for the upholstering and the tops of automobiles. Any other fabrics which have to be waterproofed at the same time so as to resist the influence of the atmosphere can be united by the machine. As the heated rolls heat up the fabric and the cement used for uniting the same, and as a uniform pressure is exerted on the fabrics as they are passing through the rolls, they are uniformly doubled and at the same time dried to a considerable extent, so that no further artificial drying is necessary. The properly backed and doubled fabrics are wound up on a reel and ready for immediate shipment and use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A machine for doubling fabrics, comprising a pair of rotatory heated rolls, means for guiding two layers of fabric from opposite sides to and over said rolls, upright abutments at opposite ends of said rolls, the lower ends of which extend into the space between said rolls, means for suspending said abutments, and an inclined doctor supported on said abutments in proximity to one of said rolls.

2. A machine for doubling fabrics, comprising a pair of rotatory heated rolls, means for guiding two layers of fabrics from opposite sides to and over said heated rolls, upright abutments at the ends of said heated rolls, whereof the lower ends extend into the space between said rolls, means for adjusting said abutments to the rolls, an inclined doctor supported on said abutments in proximity to one of said heated rolls, and means for adjusting said doctor relatively to said heated roll.

3. A machine for doubling fabrics, comprising a pair of rotatory heated rolls, means for guiding two layers of fabric from opposite sides to and over said rolls, upright abutments having lower tapering ends extending between said heated rolls, a transverse yoke for suspending said abutments, means for adjusting the abutments vertically from and laterally to said yoke, an inclined doctor supported on said abutments in proximity to one of said rolls, and means for adjusting the doctor relatively to said roll.

4. A machine for doubling fabrics, com-

prising a pair of rotatory heated rolls, one roll being stationary and the other adjustable, means for guiding two layers of fabrics from opposite sides to and over said heated rolls, an inclined doctor arranged in proximity to one of said rolls, upright abutments at the ends of the heated rolls provided with curved tapering portions at their lower ends, extending between said rolls, scrapers at the lower parts of the heated rolls, and means for holding the scrapers in contact with the lower surface of said rolls.

5. A machine for doubling fabrics, comprising a pair of rotatory heated rolls, one roll being stationary and the other adjustable, means for guiding two layers of fabrics to and over said heated rolls, an inclined doctor arranged in proximity to one of said rolls, upright abutments at the ends of the heated rolls and extending downwardly between the same, scrapers arranged in contact with the lower parts of the heated rolls, hanger-rods for supporting said scrapers, and means for supporting the scrapers at an intermediate point of their

length for holding them tightly against the lower surface of the heated rolls.

6. A machine for doubling fabrics, comprising a pair of rotatory heated rolls, one roll being stationary and the other adjustable, means for guiding two layers of fabrics from opposite sides to and over said heated rolls, an inclined doctor arranged in proximity to one of said rolls, upright abutments at the ends of the heated rolls extending between the same, scrapers contacting with the lower parts of the heated rolls, curved hangers attached to said scrapers and suspended at their upper ends, a transverse yoke for supporting the upper ends of said hangers, and means for supporting the scrapers at points intermediately between their ends.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

ALBERT LEISEL.

Witnesses:

PAUL GOEPFEL,
FANNIE FISK.