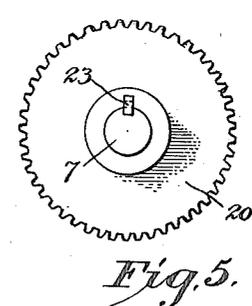
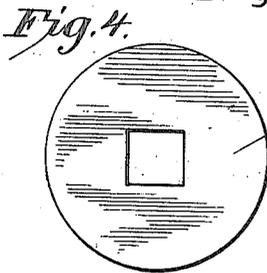
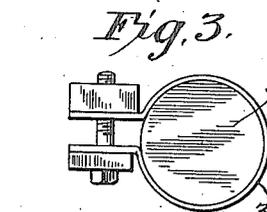
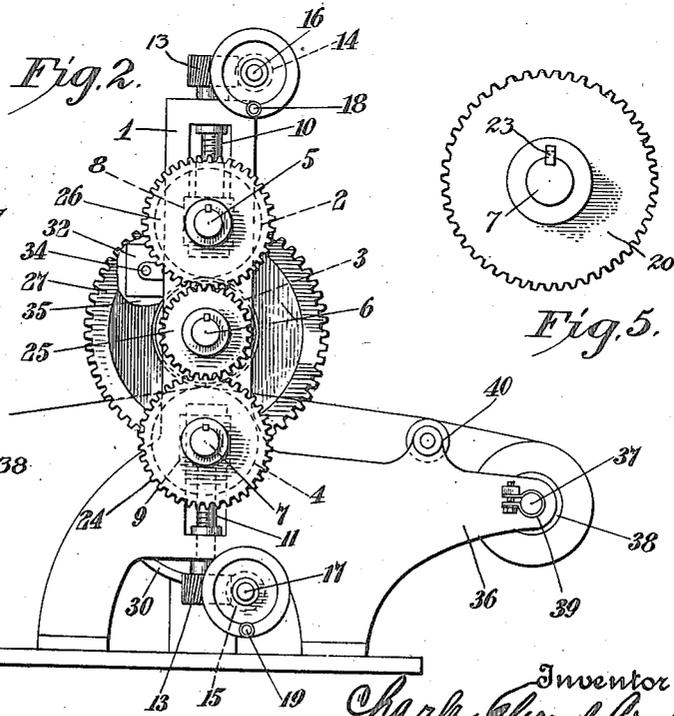
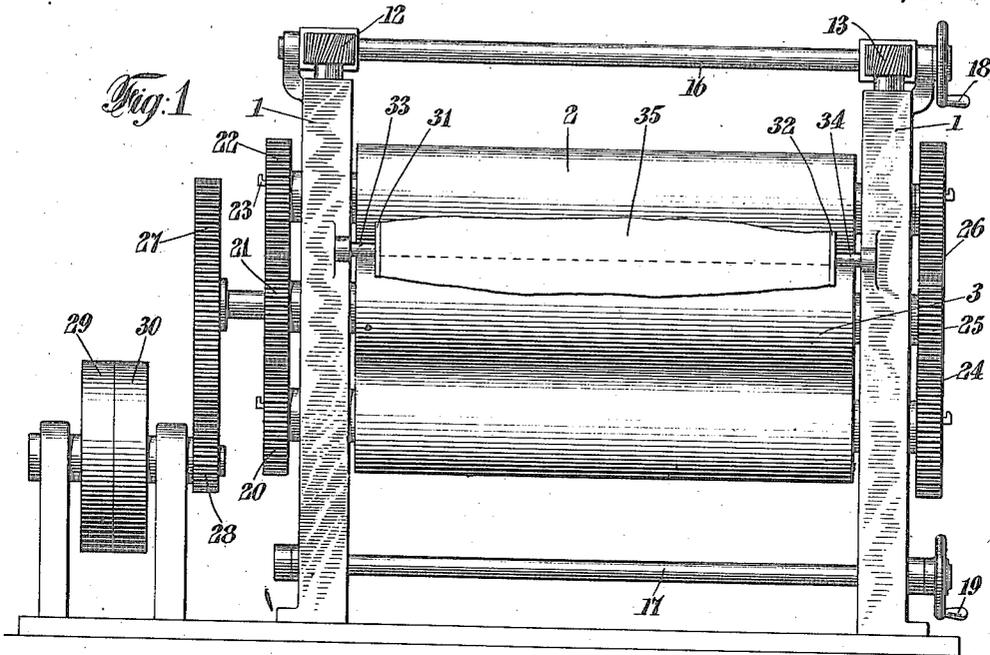


C. E. ARNOLD.
 PROCESS OF PRODUCING ARTIFICIAL LEATHER.
 APPLICATION FILED SEPT. 3, 1914. RENEWED JULY 9, 1917.

1,257,665.

Patented Feb. 26, 1918.



Witnesses:
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UNITED STATES PATENT OFFICE.

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PROCESS OF PRODUCING ARTIFICIAL LEATHER.

1,257,665.

Specification of Letters Patent.

Patented Feb. 26, 1918.

Application filed September 3, 1914, Serial No. 859,963. Renewed July 9, 1917. Serial No. 179,557.

To all whom it may concern:

Be it known that I, CHARLES ELWOOD ARNOLD, of Wilmington, in the county of Newcastle and in the State of Delaware, have invented a certain new and useful Improvement in Processes of Producing Artificial Leather, and do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates particularly to an improvement in the methods of producing coated fabrics, but more especially woven fabrics carrying a coating or layer of a nitrocellulose composition.

The object of my invention is to produce a product of this kind in which the layer of nitrocellulose composition carried by the fabric will be very effectively and securely anchored on the fabric, and in which the coating composition will adhere in an effective manner to the fabric.

While my invention is capable of being carried out in many different ways, for the purpose of illustration I shall describe only one way in which it may be carried out, and while, furthermore, it may be carried out in connection with any desired form of apparatus, for the purpose of illustration I have shown only one form of apparatus in the accompanying drawings, in which—

Figure 1 is a front elevation of a machine which may be used in connection with my process;

Fig. 2 is a side elevation of the same;

Fig. 3 is an end elevation in detail of a shaft on which the fabric is carried when being fed into the machine;

Fig. 4 is an end elevation of one of the wooden shuttles used for carrying the fabric; and,

Fig. 5 is an end elevation of one of the gears.

In the drawings I have shown a machine having a main frame 1, in which there are carried three rolls 2, 3 and 4. These rolls 2, 3 and 4 are carried upon shafts 5, 6 and 7, respectively. The shaft 6 of the middle roll 3 is maintained in a fixed position in the main frame 1. The shafts 5 and 7, however, are supported in vertically movable boxes 8 and 9, which are adapted to be adjusted by means of screws 10 and 11, supported in the main frame 1 and having worm wheels 12 and 13 on their ends which mesh with worms 14 and 15, carried by two

shafts 16 and 17, and adapted to be operated by handles 18 and 19. The shafts 5, 6 and 7 carry, near one end thereof, gears 20, 21 and 22, which are keyed to the shaft by means of removable keys 23, said gears 20, 21 and 22 being all of the same size. Upon the other end of the said shafts 5, 6 and 7, are carried gears 24, 25 and 26, the gear 25 being smaller than the gears 24 and 26, and said gears being keyed to their respective shafts in a similar manner to the gears 20, 21 and 22. Only one of these sets of gears is used at a given time. When the gears 20, 21 and 22 are used the keys are removed from gears 24 and 26, and when the gears 24, 25 and 26 are used the keys are removed from the gears 20 and 22. The gears 20, 21 and 22 are used when it is desired to have the rolls 2, 3 and 4 moved at the same speed, and the gears 24, 25 and 26 are used when it is desired to have the top and bottom rolls move slower than the middle roll. The central shaft 6 is extended at the one end of the machine so as to carry a large gear 27, which meshes with a small gear 28 having at one end thereof a tight pulley 29 and a loose pulley 30. Guide plates 31 and 32 are supported upon rods 33 and 34 from the main frame 1, said guide plates 31 and 32 fitting against the adjacent faces of the rolls 2 and 3 to retain a body of plastic material 35 in place thereon. Near the bottom the main frame 1 supports in a pair of arms 36 a shaft 37 adapted to receive a wooden bobbin 38 carrying a roll of fabric such as cloth to be provided with a coating. A friction band 39 extends around the shaft 37, so as to retard the unwinding of the fabric and therefore maintain it taut. From the shaft 37, the fabric is fed over a guide roll 40, supported in the arms 36. The fabric may then be smeared in any suitable manner with a sticky cementing coat of a nitro-cellulose composition to aid in obtaining satisfactory anchorage, although this cementing coat is not essential. From this point the fabric passes between the rolls 3 and 4, where it receives a thin coating of plastic material from the body of a plastic nitro-cellulose composition 35. After a thin coating has been applied in this manner, the coated fabric is subsequently run through the machine in the same manner, and a second coating of plastic applied. The fact that two thin plastic coatings are ap-

plied in this manner enables the first coating of plastic material to be pushed into the interstices of the fabric more effectively to produce improved anchorage. The second plastic coat is applied to give the desired thickness. If it is attempted to obtain the total thickness desired by the application of only one coating the coating may be so thick that the rolls do not push it into the fabric sufficiently to give good anchorage. My invention involves the novel idea of applying first a rather thin coating which thoroughly penetrates the fabric and then applying a coating of any desired thickness.

The nitrocellulose compositions applied to the fabric may be of any suitable kind which is of such a nature that they will harden or dry after leaving the machine.

While I have described my invention above in detail, I wish it to be understood that many changes may be made therein without departing from the spirit of my invention.

I claim:

1. The process of producing coated fabrics which comprises applying to the fabric by pressure to cause incorporation therewith a relatively thin coating of a plastic containing nitrocellulose and then applying thereto by pressure another coating of a composition containing nitrocellulose.

2. The process of producing coated fabrics which comprises applying to the fabric a coating of a cementing material, then before this coating has been allowed to dry applying a relatively thin coating of plastic containing nitrocellulose, and then applying thereto another coating of a composition containing nitrocellulose, said second and third coatings being applied to the fabric by pressure.

3. The process of producing coated fabrics which comprises applying to the fabric by pressure with calender rolls to cause incorporation with said fabric a relatively thin coating of a plastic containing nitrocellulose and then applying thereto by pressure with calender rolls another coating of a composition containing nitrocellulose.

4. The process of producing coated fabrics which comprises applying to the fabric a coating of a cementing material, then before this coating has been allowed to dry applying a relatively thin coating of plastic containing nitrocellulose, and then applying

thereto another coating of a composition containing nitrocellulose, said second and third coatings being applied to the fabric by pressure with calender rolls.

5. The process of producing coated fabrics which comprises applying to the fabric by pressure to cause incorporation therewith a relatively thin coating of a plastic containing nitrocellulose and then applying thereto by pressure another coating of a plastic composition containing nitrocellulose.

6. The process of producing coated fabrics which comprises applying to the fabric a coating of a cementing material, then before this coating has been allowed to dry applying a relatively thin coating of plastic containing nitrocellulose, and then applying thereto another coating of a composition containing nitrocellulose, said second and third coatings being applied to the fabric by pressure, the first plastic coating being subjected to pressure before applying the subsequent coating.

7. The process of producing coated fabrics which comprises applying to the fabric a coating of a cementing material, then before this coating has been allowed to dry applying a relatively thin coating of plastic containing nitrocellulose, and then applying thereto another coating of a composition containing nitrocellulose, said second and third coatings being applied to the fabric by pressure with calender rolls, the first plastic coating being subjected to pressure before applying the subsequent coating.

8. The process of producing coated fabrics which comprises applying to the fabric a coating of a cementing material, then before this coating has been allowed to dry applying a relatively thin coating of plastic containing nitrocellulose, and then applying thereto another coating of a composition containing nitrocellulose, said second and third coatings being applied to the fabric by pressure, the first plastic coating being subjected to pressure before applying the subsequent coating.

In testimony that I claim the foregoing I have hereunto set my hand.

CHARLES ELWOOD ARNOLD.

Witnesses:

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HAMILTON BRADSHAW.