No. 774,935. PATENTED NOV. 15, 1904.

R. W. CHURCHILL.

MACHINE FOR APPLYING COLORING MATTER TO HIDES.

APPLICATION FILED NOV. 30, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

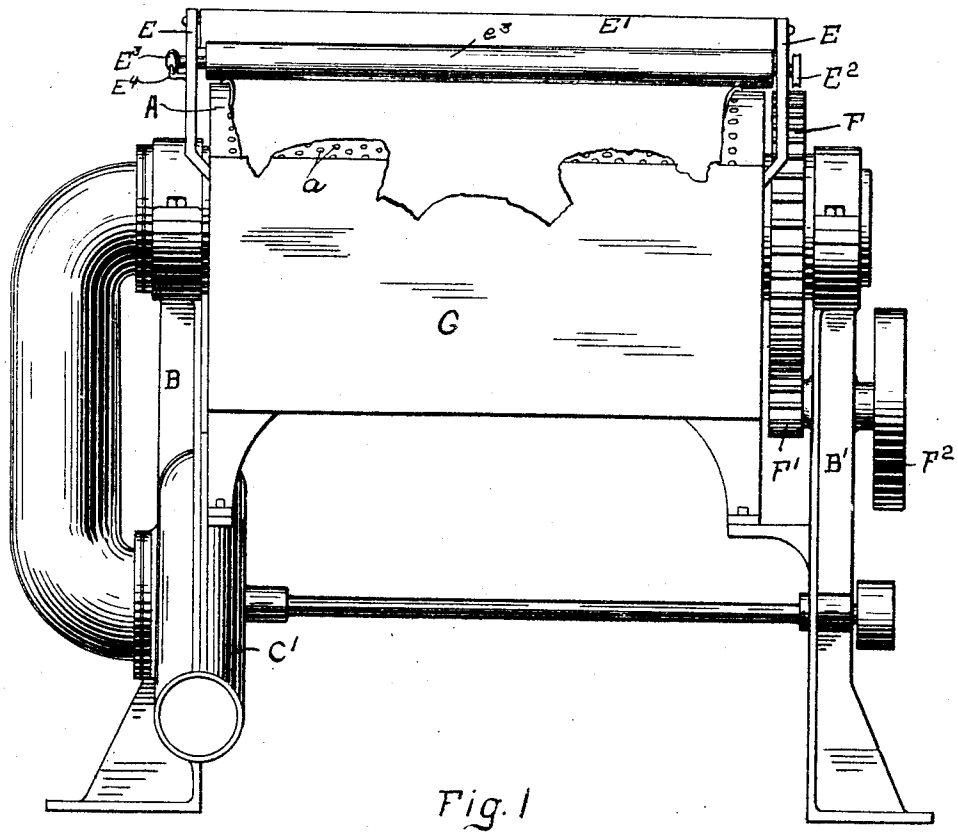


Fig. 1

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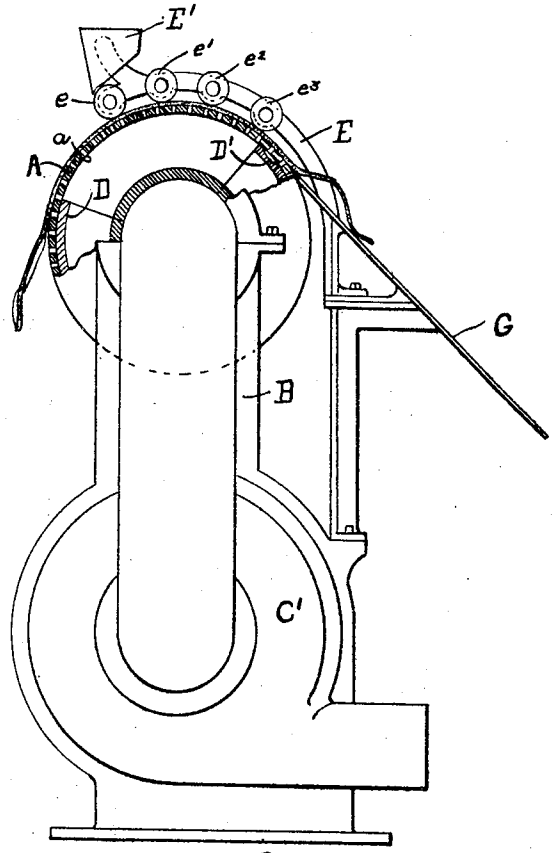


Fig. 2.

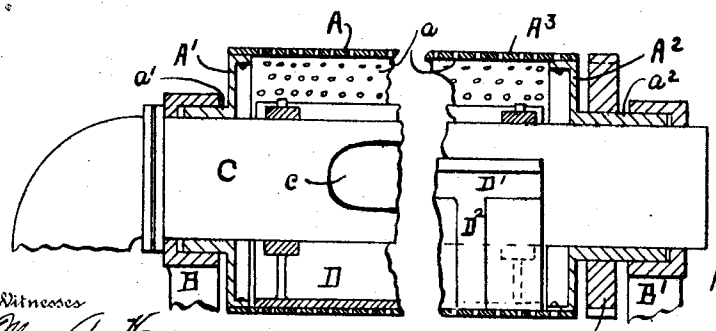


Fig. 3.

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No. 774,935. Patented November 15, 1904.

UNITED STATES PATENT OFFICE.

ROBERT WALLACE CHURCHILL, OF WEST PEABODY, MASSACHUSETTS.

MACHINE FOR APPLYING COLORING-MATTER TO HIDES.

SPECIFICATION forming part of Letters Patent No. 774,935, dated November 15, 1904.

Application filed November 30, 1903. Serial No. 183,118. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WALLACE CHURCHILL, a citizen of the United States, residing at West Peabody, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Applying Coloring-Matter to Hides; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to leather-working machinery, and more particularly to machinery for working blacking or other coloring-matter into the surface of leather.

In the preparation of hides and skins to convert them into leather it is necessary in most cases to impregnate one surface thereof with blacking or some other coloring-matter in order that it may have the proper appearance required for the finished product to be made therefrom.

Heretofore it has been customary to rub the coloring-matter into the leather manually, the operator working upon a small area at a time. Such an operation is necessarily a slow and tedious one, and obviously it is also difficult to secure uniform results thereby.

It has been proposed to perform the coloring operation mechanically; but difficulty has been experienced in holding the leather flat and taut, without pulling and stretching it in some way, until the proper condition is obtained.

The object of the present invention is to provide a machine for mechanically and automatically impregnating the surface of a skin or hide with coloring-matter.

A further object of the present invention is to provide means for flattening a skin or hide, carrying it past the color-applying means, and subsequently releasing it.

Further objects of the present invention will appear in connection with the following description thereof.

To the above ends the present invention consists in the devices and combinations of devices to be hereinafter described, and particularly pointed out in the claims.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine, showing a skin or hide in position. Fig. 2 is a side elevation of the machine, portions thereof being broken away in order to more clearly indicate the internal construction. Fig. 3 is a central cross-section through the cylinders and supports of the machine.

Similar reference characters will be used to designate similar elements throughout the specification and drawings.

Broadly speaking, the invention consists of a rotating cylinder or drum having a perforated periphery, together with means for closing some of the perforations and exhausting the air from said cylinder, the hide being pneumatically held against the cylinder along that portion of its surface in which the perforations remain unclosed.

A is the carrying-cylinder, which is revolubly mounted within bearings in standards B and B′. The entire surface of this cylinder is perforated with closely-spaced holes *a*, which may either be round or in the form of narrow slits extending longitudinally of the cylinder. Any suitable construction may be employed in this cylinder, and in the accompanying drawings there is illustrated a simple and efficient construction consisting of cast ends A′ and A^2, provided with the bearing-bosses *a*′ and a^2, respectively, together with a perforated sheet of metal A^3, secured to the ends A′ and A^2 in any suitable manner.

Passing into the cylinder A is a pipe C, provided with an opening *c*. This pipe serves as the inlet or suction pipe of a pump or blower C′. The pipe C is illustrated as extending through both standards B and B′, and being thus rigidly mounted it serves to support a cylinder-sector D. This sector extends into close proximity with the interior of the cylinder A, although it need not fit the cylinder perfectly. The purpose of the sector D is to close the openings along a portion of the carrying-cylinder, and the arc of the sector may accordingly be varied in different instances, so that a greater or lesser number of these openings may always remain unclosed.

It will be seen that when the hide is laid upon the cylinder the blower or pump when in operation will exhaust the air from the interior of the cylinder and will cause the external atmosphere to flatten out the hide and press it closely into contact with the cylinder throughout that portion not controlled by the sector D.

Adjacent the carrying-cylinder and opposite the sector D there is located a color-applying apparatus, which consists of a suitable frame E, carrying a fountain E′ of coloring material and series of rolls or rubbers $e\ e'\ e^2\ e^3$, so arranged that they do not quite touch the surface of the cylinder, but near enough for them to bear upon the hide which is to be operated upon. These rollers and rubbers are rotated in any suitable manner, as by means of a rapidly-moving belt passing over pulleys E^2 at one end of each rubber, and as the rubbers are rotated they are reciprocated axially in any suitable manner, as by means of a cam E^3 at the opposite end of the rubbers, which engages a fork E^4, fixed to the frame E.

The boss a^2 at one end of the cylinder A carries a gear-wheel F, engaging with a pinion F′, mounted on one end of a shaft having a bearing in the standard B′ and carrying the driving-pulley F^2. When power is applied to the pulley, the carrying-cylinder is slowly revolved upon its axis.

The operation of the machine is as follows: One end of the hide is laid upon the slowly-revolving carrying-cylinder at a point immediately adjacent the color-applying mechanism and the pump or blower is started, partially exhausting the air from the interior of the cylinder and causing the skin or hide to be flattened against the surface of the cylinder and to be held against the cylinder while it is beneath the color-applying mechanism. As the carrying-cylinder revolves different sets of perforations pass from the cover of the sector, thereby permitting the skin or hide to become attached progressively to the surface of the cylinder. As there is no reason why that portion of the hide which has passed the color-applying mechanism should remain secured to the cylinder, the sector D begins to cover the openings in the cylinder at a point beneath that portion, and the hide is consequently detached from the cylinder in the same manner that the attachment occurs. This detachment is facilitated by means of an inclined table G, which comes almost into contact with the carrying-cylinder at a point beyond the color-applying means, causing the hide to ride down over the table. The release of the hide is further rendered certain by means of a groove D′, extending longitudinally along the sector D and having a branch groove or grooves D^2, these grooves admitting the external air to pass beneath the hide and to relieve the pressure. During the passage of the hide beneath the rolls and rubbers they are rotated and reciprocated at a high rate of speed, rubbing the coloring-matter rapidly and effectually into the surface of the flattened hide.

While I have described in detail a particular mechanism for carrying into effect the present invention, yet it is to be distinctly understood that the present invention is not limited to such details of construction, since it contemplates, broadly, a double cylinder against which the skin or hide is held by pneumatic pressure while the color is being applied thereto.

Having described my invention, I claim as new and desire to protect by Letters Patent of the United States—

1. In a machine of the character described, a stationary cylinder-sector, a perforated cylinder surrounding said sector, means for exhausting the air from said cylinder in order to hold a skin thereon, a coloring-applying mechanism arranged adjacent said cylinder and opposite said cylinder-sector for applying coloring-matter to a skin at a point where it is held against the cylinder and while it is so held, substantially as described.

2. In a machine of the character described, a stationary cylinder-sector, a movable perforated cylinder surrounding said sector, means for exhausting the air from said cylinder, a rotating and axially-reciprocating rubber arranged adjacent a portion of the cylinder opposite the cylinder-sector for applying coloring-matter to a skin at a point where it is held against the cylinder and while it is so held, substantially as described.

3. In a machine of the character described, coloring-applying rubbers, a revolving perforated cylinder for carrying a skin beneath said rubbers and means for partially exhausting the air from said cylinder whereby the skin is flattened and held taut along the line which is being operated upon by the rubbers, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT WALLACE CHURCHILL.

Witnesses:
HENRY LAW,
FRANK. DEMING.