

Oct. 21, 1969

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3,473,244

DEVICE FOR PRESSING ANIMAL SKINS

Filed March 26, 1965

Fig. 1.

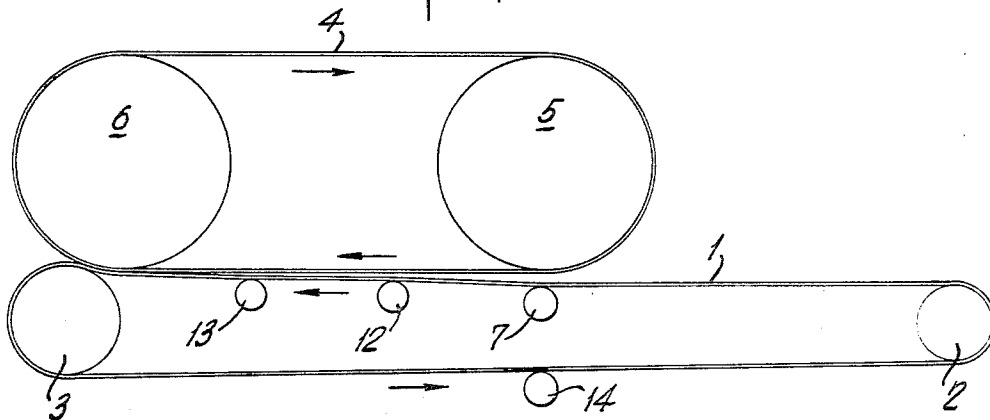


Fig. 2.

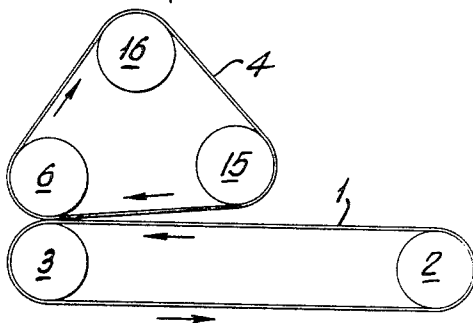
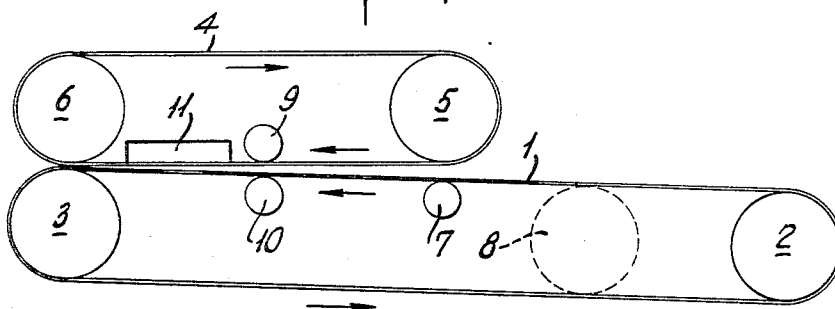


Fig. 3.



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DEVICE FOR PRESSING ANIMAL SKINS

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Filed Mar. 26, 1965, Ser. No. 443,137

Claims priority, application Italy, Oct. 27, 1964,
26,613/64

Int. Cl. D06f 69/02; C14b 17/06; B30b 3/00

U.S. Cl. 38—8

2 Claims

ABSTRACT OF THE DISCLOSURE

The device herein disclosed and adaptable for pressing of animal skins or fells, is composed of two endless belts, trained on opposite rotating sets of rollers. One belt of resilient material, such as rubber is moving in a substantially horizontal plane, while the other belt usually of steel, and mounted above the resilient belt moves in a plane which is inclined. The two belts, therefore, run tangentially into a calendaring zone, the calendaring being done by the nip at two adjacent rollers, one of which is axially fixed, while the other is capable of translational movements against the fixed roller. The pressing of the fell may be effected at right angle to the plane of the horizontal belt in which case the longitudinal axes of the calendaring rollers are vertically in the same plane, or it may be effected in a sliding fashion in which case the said axes of the said rollers are vertically in parallel planes.

The present invention relates to a novel device suitable for continuously pressing materials of relatively small thickness and considerable surface area and, more particularly, it relates to a novel device suitable for continuously advancing, stretching, pressing and, if so desired, heating an article of manufacture such as animal fells, cardboards, etc. Most particularly, the invention relates to pressing of animal fells, that is, animal skins, usually free from hair or fur and, generally, often pre-treated with resins and the like.

It is oftentimes necessary, particularly in the processing of paper, cardboard, resin sheets, fabrics, animal fells and the like, to press articles which are nearly sheet-like in area and, often, prepared with coatings of various substances thereon so as to require heating as well as pressing.

According to known techniques, pressing is effected by positioning the article between two parallel planes or surfaces, such as metal aprons, which are caused to approach each other by action of suitable means so as to press against the entire surface of the interposed article. The pressure action is exerted sometimes for a few seconds, some other times even for minutes, particularly if the operational schedule includes a heating step. The movement of the two pressing elements, or at least one of them, is generally achieved by means of a toggle mechanism or by a hydraulically or pneumatically actuated piston.

The operation referred to in the present invention is a delicate one, particularly because the sheet-like article must be laid on the lower plate of the device in such a way as to be smoothly stretched for uniformity of pressing and avoidance of wrinkles which would result in the rejection of the article pressed.

Heretofore it was necessary to spread the article in question that is, the animal fell by slow and obviously expensive manual operation. Furthermore, the pressing step led to the simultaneous loading of all pressure actuating means, thus requiring high inputs of energy to the machine and, therefore, expensive constructions of apparatus. Finally, it should be appreciated that the known

processes are not continuous in their operation, which results in limited production of treated goods and lower returns on the investment.

It is, accordingly, an object of this invention to obviate the heretofore mentioned disadvantages and to provide a device capable of handling the manually or automatically fed sheet-like articles, advancing them to the treating zone thereof, stretching them and holding them in place until the pressing and heating operations are completed.

Furthermore, the device of the invention is capable of pressing continuously strip after strip of limited width so that the total load to the machine is considerably less than that required by devices utilizing movable pressing plates of the type described hereabove.

This lesser mechanical load on the machine is responsible for the very simple construction of the device of the invention and for the high production rate of uninterruptedly pressed and treated articles.

One of the features of the device, according to the invention, consists in the utilization of a first belt of flexible material, suitably rubber, endlessly moved by rollers and of a second belt, suitably of stainless steel, moving planarly above said first belt, said second belt being planarly slightly inclined in respect of said first belt. The steel belt moves in opposite direction to the belt of flexible material. Because of the planarly converging belts, a wedge-like section or zone of tangential contact is created. Any suitable and proper number of rollers are employed in the device of the invention.

Preferably, the device is provided with means for heating the article being moved between the belts. Furthermore, the device presses the article interposed between the belts, while the article retains its perfectly stretched position and advances between the two rollers at the point at which the belts are pressed one against the other.

In one embodiment of the invention the surfaces of the two belts which face each other are substantially horizontal and the pressing rollers are forced one against the other in a substantially vertical direction, that is, in the plane in which their longitudinal axes lie.

In another embodiment of the present invention these mentioned surfaces are still substantially horizontal but the two pressing rollers are forced against each other in a direction considerably inclined with respect to the plane in which their longitudinal axes lie, which produces a time extension of the pressing step.

In other variants of the invention, the upper belt is trained around three, four or even more rollers as it can be seen from the accompanying drawings, in which:

FIGURE 1 represents schematically a first embodiment of the invention in which the rollers press obliquely upon the article that is, the longitudinal axes of rollers 3 and 6 are not in the same vertical plane and the upper belt is guided by two rollers only;

FIGURE 2 represents another embodiment of the invention, in which the pressing step is orthogonally effected (that is at right angle to belt 1) and there are three rollers supporting the upper belt; and

FIGURE 3 shows a different embodiment of the invention, in which a heating plate is provided.

Referring now to FIGURE 1 of the drawings, the device of the invention is composed of belt 1, preferably of rubber, endlessly moving counterclockwise and trained around rollers 2 and 3, one of which rollers at least is a driving roller moved by a variable motor, for example. The planes of the axes of rollers 2 and 3, parallel to each other, are substantially horizontal. Above belt 1, there is a second belt 4, preferably of stainless steel, which moves in a direction opposite to belt 1. The lower portion of belt 4 is slightly inclined with respect to the upper portion of belt 1, so that the region therebetween has a wedge-like configuration. The wedge-like configuration has its maxi-

mum height near roller 5 while it slopes practically to contact at a point intermediate rollers 5 and 6, so that the article, for example a fell, is retained in position between belts 1 and 4.

Additional rollers 7, 12, 13, 14 assist in properly positioning belt 1. Roller 6 is fixed in its vertical plane and is preferably heated inside. Roller 3 is not lying in the vertical plane which passes through the axis of roller 6, and can controllably move both vertically and in the direction of advance of belts 1 and 4.

The operation of the device may be best described by illustratively using an animal skin or fell as the given article to be pressed. The fell is laid on belt 1 at a point near roller 2. The fur side of the fell faces upward. The method of loading the machine varies depending on the requirement, that is, the operation may be manual in the event the device of the invention is the only machine available, or it may be continuous in the event the felts are conveyed mechanically to and from the presser. The rotational movement of belt 1 leads the fell in the wedge-like calendering zone between belts and the action of the steel belt eliminates bumps and wrinkles and causes the fell, as it is subjected to gradually increasing pressure between belts 1 and 4, to become smooth.

Thus, the formation of folds and distortions is avoided, because the fell is advanced to the rollers 5 and 6 perfectly smooth.

While advancing, the fell may be heated by hot plates 11 or other means. Finally, the movement of one roller against the other causes pressing and glazing of the fell, which is ultimately removed from the device as a finished pressed product.

It has been stated hereabove that in FIGURE 1, the pressing of roller 3 on roller 6 occurs while roller 3 moves in the direction of movement of the fell. This was found to be quite desirable in certain operations, due to the gradual pressing action obtained. Conversely, FIGURE 2 shows rollers 3 and 6 fixedly positioned in the vertical plane of their longitudinal axes which causes a considerably shorter pressing operation. Furthermore, the presence of three guiding rollers 6, 15 and 16 allows a wider or more open path between the belts. This combination of rollers appears to be preferable when the belt has a considerable thickness.

Finally, FIGURE 3 shows the pressing action of rollers 3 and 6 at right angle with respect to belt 1 and there are provided auxiliary rollers 7, 8, 9 and 10 as well as heating plate 11. Obviously, it should be understood that the device of the invention lends itself to many a varia-

tion without departing from the scope and the spirit of the invention.

What is claimed is:

1. A device for pressing animal skins which comprises a first belt having an upper run to receive the animal skins thereon, a lower run and first and second end portions connecting said upper and lower runs of said first belt; first and second spaced rollers supporting the first and second end portions respectively of said first belt for movement of the upper run thereof along a substantially linear path; a second belt having a lower run in confronting relationship to the upper run of said first belt to define an elongated, wedge-like calendering zone therebetween, an upper run and first and second end portions connecting said lower and upper runs of said second belt; and first and second spaced rollers supporting the first and second end portions of said second belt respectively for movement of the lower run thereof along a substantially linear path in the same direction and at substantially the same speed as the upper run of said first belt, said respective second rollers of both said belts being positioned in substantially the same vertical plane and in close proximity to each other, said first roller of said second belt being positioned in a vertical plane intermediate the vertical planes of said first and second rollers of said first belt, the vertical spacing between said respective first rollers of both said belts being greater than the vertical spacing between said respective second rollers of both said belts to provide a linear, inclined path of movement for the entire lower run of said second belt with respect to the entire confronting portion of the upper run of said first belt whereby the animal skins carried by the upper run of said first belt are subjected throughout the length of the calendering zone to a uniformly increasing pressure by the lower run of said second belt.

2. The device in accordance with claim 1 including heating means adjacent the calendering zone.

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U.S. Cl. X.R.

69—41; 100—153