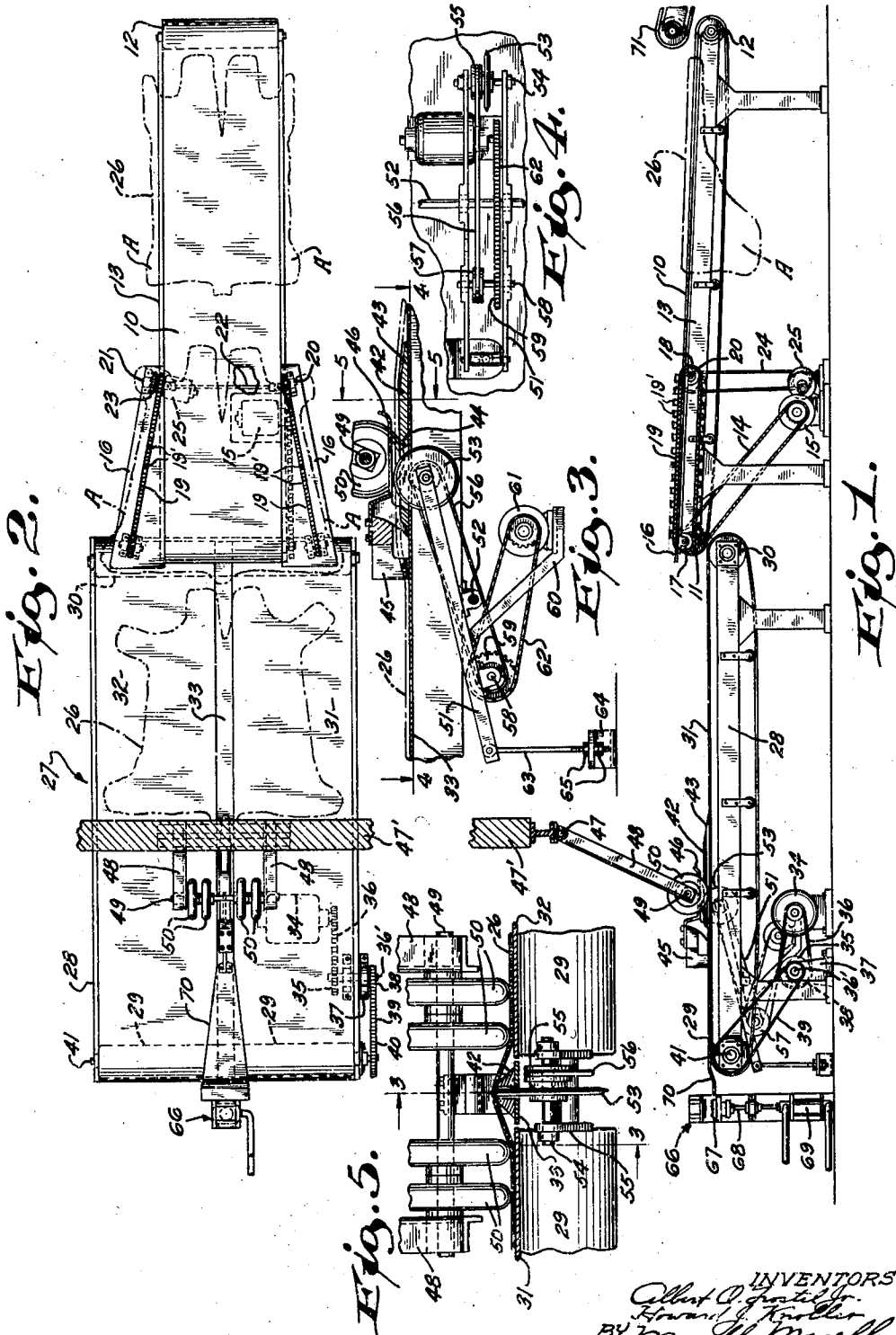


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HIDE SLITTING APPARATUS AND METHOD OF HANDLING
HIDES IN CONJUNCTION THEREWITH
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HIDE SLITTING APPARATUS AND METHOD OF HANDLING HIDES IN CONJUNCTION THEREWITH

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This invention relates to improvements in hide slitting apparatus and method of handling hides in conjunction therewith.

In tanneries each hide is customarily received in a bundle tied with a cord and it is customary for large tanneries to receive carloads of such bundles. At the present time it is conventional practice to unload the car manually, cut the cords on the bundles, open up each hide on a table, cut and trim off projecting portions of the opened hides, such as tail and cheek portions, then manually transfer each hide to another table, and then manually slit each hide down the center to form two half sections. These sections are then ready to be classified according to weight. This procedure is slow and tedious, and requires an excessive amount of manpower.

It is a general object of the present invention to provide a method for facilitating the above operation and for rendering the same semi-automatic.

A further object of the invention is to provide improved hide slitting apparatus together with improved means for feeding hides in properly spread-out condition thereto.

A further object of the invention is to provide apparatus as above described including novel means for spreading out the shanks of the hides to thereby prevent them from folding under, thereby insuring that the hides are in properly spread-out condition when they are fed to the slitting apparatus.

A further object of the invention is to provide in hide slitting apparatus, means for bringing about and maintaining a taut condition of the hides when they are engaged by the slitting knife.

A still further object of the invention is to provide slitting apparatus wherein the slitting wheel is mounted in a novel manner so that it may be adjusted as desired without interfering with the drive therefor.

With the above and other objects in view, the invention consists of the improved hide slitting apparatus and method of handling hides in conjunction therewith, and all of its parts and combinations, as set forth in the claims, and all equivalents thereof.

In the accompanying drawing, illustrating one complete embodiment of the preferred form of the invention in which the same reference numerals designate the same parts in all of the views:

Fig. 1 is a side elevational view of the improved apparatus;

Fig. 2 is a plan view thereof, with the dot and dash lines indicating hides in position thereon;

Fig. 3 is an enlarged, fragmentary, sectional view illustrating the slitting mechanism proper and taken approximately on the line 3—3 of Fig. 5;

Fig. 4 is a fragmentary plan view showing the frame for supporting the slitting wheel and taken approximately on the line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary sectional view on an enlarged scale taken along the line 5—5 of Fig. 3.

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Referring more particularly to the drawing, the numeral 10 designates an endless conveyor belt which is movable around rollers 11 and 12 supported on the ends of a frame 13. The roller 11 and endless belt may be suitably driven through a sprocket chain connection 14 with an electric motor 15. Near the outer end of the conveyor 10 are triangular hide spreading wings 16. These wings are in the form of plates having inner edges which are slightly above and in approximate alignment with the edges of the conveyor belt 10. Each wing has sprocket wheels 17 and 18 rotatably supported on its under side around which a sprocket chain 19 or other endless belt or member is trained, there being suitable openings in each plate 16 to permit one stretch of the endless member to travel below the wing while the other stretch travels along the upper surface of the wing, as is clear from Fig. 1. The endless members are in angularly divergent relationship with each other and with the sides of the conveyor belt 10. Projecting from the endless members 19 are spaced lugs 19' which may be a short distance apart, and which are adapted to engage the hair on the hair side of the hide to open out the shanks.

The sprocket wheels 18 are mounted rigidly on short shafts 20 and 21 which are flexibly connected to each other by a cross-shaft 22. The shaft 21 carries a driving sprocket 23 which is driven by means of an endless chain 24 connected with an electric motor 25, as shown in Fig. 1. With this arrangement the downwardly hanging edge portions A (Fig. 1) of hides 26 are guided up into parallelism with the main portion of the hide which is on the conveyor 10, as is indicated in Fig. 2, and the angular endless chains which are moving underneath those portions of the hides which are on the triangular wings 16, aid in spreading these hide portions.

The inner end of the conveyor 10, as well as the inner ends of the wings 16 overhang the ends of another conveyor which is designated generally by the numeral 27. This conveyor includes a frame 28 supporting end rollers 29 and 30. Transversely spaced, parallel, endless belts 31 and 32 travel around the rollers 29 and 30. Between the spaced inner edges of the belts 31 and 32 is a suitably supported longitudinal plate 33 (see Figs. 2 and 5).

An electric motor 34, suitably mounted on the floor drives a sprocket wheel 35 through the medium of an endless chain 36. The sprocket wheel 35 is rigidly mounted on a shaft 36' suitably journaled in a bracket 37. Another sprocket wheel 38, on the shaft 36', is connected by an endless chain 39 with a sprocket wheel 40 mounted rigidly on the axle 41 for the roller 29, the latter being fast on said axle. Thus, the electric motor 34 serves to drive both of the conveyor belts 31 and 32.

Intermediate the length of the conveyors 31 and 32 the central longitudinal divider plate 33 carries an elongated slitter block 42 (see Figs. 3 and 5), which block is substantially triangular in cross section, as shown in Fig. 5. The front end of the block 42 is tapered downwardly toward the strip 33, as at 43, in Fig. 33. Near the rear end of the block is a knife hole 44 which registers with the knife hole in the metal strip 33. Beyond the block, and supported on the strip 33, is an upstanding support 45 for a finger 46, the latter being spaced above the block 42 and having an upwardly curled forward end as shown in Fig. 3.

Pivotally connected as at 47 to an overhead support 47' are arms 48. The lower ends of said arms carry an axle 49 on which two pairs of rubber tired hold-down wheels 50 are rotatably mounted, one pair being over the conveyor belt 32, and the other pair being over the conveyor belt 31.

Referring more particularly to Figs. 3, 4 and 5, a knife-carrying frame 51 comprising spaced bars is pivotally

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supported to the underside of the frame for the conveyor 27 by means of a pivot shaft 52, as shown in Fig. 4, the frame 51 being rockable on the shaft 52. A circular hide slitting knife 53 is rotatably supported at one end of the frame 51 on a shaft 54. Rigidly mounted on the shaft 54 is a pulley 55 which is connected by an endless belt 56 with a pulley 57 on another shaft 58, said shaft also carrying a rigidly mounted sprocket wheel 59.

Depending from the knife frame 51 and rockable therewith is a seat 60 (see Fig. 3) for an electric motor 61. The motor 61 is connected by an endless chain 62 with the sprocket wheel 59. The outer end of the knife frame 51 is connected by an adjustment bolt 63 with a floor bracket 64. By manipulating the nuts 65 on the bolt 63 the amount which the upper portion of the knife 53 projects through the slot 44 of the slitting block 42 may be adjusted, and this adjustment may be effected without interfering with the drive from the motor 61, because the motor 61 and its seat 60 move with the frame 51 whenever the frame is adjustably rocked on its pivot 52.

At the outer end of the conveyor 27 is hide branding mechanism 66 which includes a branding block 67 mounted on the upper end of a piston 68, the latter being actuated by fluid pressure in a cylinder 69 (see Fig. 1).

An elongated triangular plate 70, preferably having diverging side edges, extends from the support 45 past the end of the conveyor, as shown in Fig. 2 to cover the space between the two conveyor belts 31 and 32 at the discharge end of the conveyor, the outer end of said plate being bent as shown in Fig. 1 to guide hides into a proper position to be operated on by the branding block 67.

Operation

In tanneries each hide is customarily received in a bundle tied with a cord, and it is customary for a tannery to receive a car or truck load of such bundles. These bundles may be thrown onto the preliminary conveyor 71, where the cord may be cut by men standing on each side of the conveyor 71, said men opening out each hide so that by the time the hide arrives at the conveyor belt 10 it is spread out as shown by dot and dash lines at the right-hand end of Fig. 2. Men standing alongside the conveyor 10 pick up the edges of the hide as it is being moved along by the conveyor and quickly slice off tail, cheek and other projecting parts. The rear shank portions designated "A" in Fig. 1 tend to want to fold under. These, however, are picked up from the downwardly hanging position of Fig. 1 by the spreading plates 16, and the lugs 19' of the movable endless members 19 which extend at diverging angles engage the hair on the hairy side of the hides to spread out the shank portions as illustrated by dot and dash lines in Fig. 2 to prevent them from folding under. Thus, the preliminary conveyors arrange and prepare the hides for slitting.

From the conveyor 10 the hides are continuously discharged onto the double conveyor comprising the belts 31 and 32. Here, men on each side of the conveyor center the hide so that its longitudinal center line is approximately over the stationary plate 33, as shown in Fig. 2. In addition, men standing on each side of the conveyor trim off any projecting parts of the front and rear shanks.

Thereafter, the center of the leading edge of the hide is forced upwardly by the tapered part 43 of the slitting block 42, as shown by dot and dash lines in Fig. 3 and as also shown in Fig. 5. Shortly after this takes place the side portions of the hide are engaged by the hold-down wheels 50 which swing to engaging position under the influence of gravity and which tend to pull the hide taut over the slitting block 42 just before the hide is engaged by the rotary slitting knife 53. It is to be noted that the wheels 50 are supported so that they engage the hide shortly before the slitter. By the time the knife engages the longitudinal center of the hide the latter is being stretched over the highest portion of the slitting block 42 and is being held taut so that efficient slitting is performed

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by the knife 53. This knife, of course, severs the hide into two longitudinal half sections. After passing through the slitter the cut edges pass on each side of the support 45 and then on top of the plate 70 which prevents the hide edges from getting tangled in the endless belts as they pass around the roller 29, and which also guides said edges toward the branding device 66. While the two halves are being discharged from the machine, an edge of first one and then of the other hide is guided into the brander, and the block 67 is operated to brand each half section. Thereafter the hide sections are weighed and tossed manually into a selected pile, depending upon weight classification.

The knife 53 may be readily adjusted to protrude a predetermined amount through the block 42 by merely manipulating the nuts 65 on the adjustment bolt. This will cause rocking of the frame 51, and inasmuch as the motor 61 is rockably supported with the frame, such adjustment of the knife has no effect upon the drive from the motor.

From the above it is apparent that a very simple device has been devised for efficiently feeding hides in line formation to a slitting device, the arrangement being such that all of the preliminary trimming operations may be performed while the hides are being conveyed and prior to arrival at the slitting station.

Various changes and modifications may be made without departing from the spirit of the invention, and all of such changes are contemplated, as may come within the scope of the claims.

What we claim is:

1. In a device for slitting hides, two parallel endless conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, a slitting block positioned in said space between conveyors and projecting above said conveyors and having an opening in its top, slitting means including a knife element supported from below to project through said opening in the slitting block, and means on opposite sides of said block engageable from above with portions of the hide which are below the top of the slitting block for stretching the hide taut over the block while it is being slit.

2. In a device for slitting hides, two parallel endless conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, a slitting block positioned in said space between conveyors and projecting above said conveyors and having an opening in its top, slitting means including a rotary knife supported from below to project through said opening in the slitting block, and means on opposite sides of said block engageable from above with portions of the hide which are below the top of the slitting block for stretching the hide taut in inverted V-shape over the block while it is being slit.

3. In a device for slitting hides, two parallel endless conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, a single feed conveyor of less width than the combined widths of said two

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first-mentioned conveyors and having a discharge end positioned adjacent the receiving end of said two conveyors to feed hides thereto, slitting means supported to project into said space between said two first-mentioned conveyors for dividing each hide into two longitudinal half sections, and means on said single feed conveyor for spreading out hide parts which overhang the sides of said feed conveyor before a hide is discharged onto said two conveyors.

4. In a device for slitting hides, two parallel endless conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, a single feed conveyor of less width than the combined widths of said two first-mentioned conveyors and having a discharge end positioned adjacent the receiving end of said two conveyors to feed hides thereto, slitting means supported to project into said space between said two first-mentioned conveyors for dividing each hide into two longitudinal half sections, and means adjacent said feed conveyor including angularly divergent, movable endless members for spreading out hide parts which overhang the sides of said feed conveyor before a hide is discharged onto said two conveyors.

5. In a device for slitting hides, two parallel endless conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, a single feed conveyor of less width than the combined widths of said two first-mentioned conveyors and having a discharge end overlapping the receiving end of said two conveyors to feed hides thereto, slitting means supported to project into said space between said two first-mentioned conveyors for dividing each hide into two longitudinal half sections, a spreading plate projecting from each side of said feed conveyor, and an angularly disposed movable endless member having a stretch movable along the top of each plate to spread out hide parts which overhang the sides of said feed conveyor before a hide is discharged onto said two conveyors, said endless members being in outwardly diverging relationship with each other.

6. In a device for slitting hides, plural endless conveyor means on which a longitudinally extending hide is adapted to be supported, means for driving said conveyor means to move hides therewith, a feed conveyor of less width than the combined widths of said first-mentioned conveyor means and having a discharge end positioned adjacent the receiving end of said first-mentioned conveyor means to feed hides thereto, slitting means associated with said first-mentioned conveyor means, and means on said feed conveyor including angularly divergent movable endless members for spreading out hide parts which overhang the sides of said feed conveyor before the hide is discharged onto said first-mentioned conveyor means to be slit.

7. In a device for slitting hides, plural endless conveyor means on which a longitudinally extending hide is adapted to be supported, means for driving said conveyor means to move hides therewith, a feed conveyor of less width than the combined widths of said first-mentioned conveyor means and having a discharge end positioned adjacent the receiving end of said first-mentioned conveyor means to feed hides thereto, slitting means associated with said first-mentioned conveyor means, a spreading plate projecting from each side of said feed conveyor, and an

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angularly disposed movable endless member having outwardly projecting lugs and having a stretch movable along the top of each plate to spread out hide parts which overhang the sides of said feed conveyor before the hide is discharged onto said first-mentioned conveyor means, said endless members being in outwardly diverging relationship with each other.

8. In a device for slitting hides, two parallel conveyors which are transversely spaced a relatively short distance from each other so that one side of a longitudinally extending hide is adapted to be supported by one conveyor and the other side of the hide by the other conveyor while the longitudinal center line of the hide lies along and over the space between conveyors, means for driving said conveyors simultaneously at the same speed to move the hides therewith, an elongated slitting block positioned in the space between conveyors which block is of progressively increasing height to raise the portion of a hide passing thereover a progressively greater distance above the conveyors as the hide advances, said block having an opening in its top, slitting means including a knife element supported from below to project through said opening in the slitting block, and means on opposite sides of said block engageable from above with portions of the hide to press said portions against the conveyors so that the portion of the hide between said means is stretched taut over the block in inverted V-shape while it is being slit, the knife opening being in the highest portion of the block so that the hide is stretched its maximum while it is being slit.

9. In a device for slitting hides, plural endless conveyor means on which a longitudinally extending hide is adapted to be supported, means for driving said conveyor means to move hides therewith, a feed conveyor of less width than the combined widths of said first-mentioned conveyor means and of less width than a hide and having a discharge end positioned adjacent the receiving end of said first-mentioned conveyor means to feed hides thereto, means on said feed conveyor for elevating hide parts which overhang the sides of said feed conveyor into horizontal position before said hide is discharged onto said first-mentioned conveyor means to be slit, and slitting means positioned on said first-mentioned conveyor means to engage and slit the hides after they have been spread out thereon.

10. In a device for handling hides, endless conveyor means on which a longitudinally extending hide is adapted to be supported in horizontal position, means for driving said conveyor means to move hides therewith, a feed conveyor of less width than said first-mentioned conveyor means and of less width than the hide and having a discharge end positioned adjacent the receiving end of said first-mentioned conveyor means to feed hides thereto, and means on said feed conveyor for elevating hide parts which overhang the sides of said feed conveyor into horizontal position before said hide is discharged onto said first-mentioned conveyor means.

References Cited in the file of this patent

UNITED STATES PATENTS

1,504,130	Macbeth	Aug. 5, 1924
1,817,929	Pfeiffer	Aug. 11, 1931
1,894,850	Carlson	Jan. 17, 1933
1,959,418	Fourness	May 22, 1934
2,039,831	Page	May 5, 1936
2,048,361	Stevens	July 21, 1936
2,573,292	Yost	Oct. 30, 1951
2,585,834	Pocock	Feb. 12, 1952
2,732,013	Huch	Jan. 24, 1956
2,741,308	Meyer	Apr. 10, 1956

FOREIGN PATENTS

724,513	France	Apr. 28, 1932
645,840	Great Britain	Nov. 8, 1950