

[54] BACON DERINDING MACHINE

[76] Inventor: **Hermann Schill, deceased**, late of Schulstrasse 14, 7601 Goldscheuer, Germany by Hermann Schill, Jr., administrator

[22] Filed: **Feb. 16, 1972**

[21] Appl. No.: **226,683**

[30] Foreign Application Priority Data

Feb. 16, 1971 Germany..... P 21 07 236.6

[52] U.S. Cl. **99/589, 83/4**

[51] Int. Cl. **A22c 17/12**

[58] Field of Search 99/589, 588; 83/4

[56] References Cited

UNITED STATES PATENTS

2,590,747 3/1952 Birdseye 99/589
3,215,179 11/1965 Schill 99/589

FOREIGN PATENTS OR APPLICATIONS

925,450 3/1955 Germany 99/589

Primary Examiner—Willie G. Abercrombie
Attorney—Jacob L. Kollon

[57] ABSTRACT

A bacon derinding machine comprises a knife which is preferably adjustable to different derinding thicknesses and to total derinding of a material to be derinded; a traction roller for conveying the material up to said knife, the arrangement being such that a gap is left between the cutting edge of the knife and the traction roller, and a feed table having a supporting surface which is generally on a level somewhat lower than that of the gap between said cutting edge and said traction roller, the supporting surface of the feed table having within range of its end extending up to a position close to the cutting edge of the knife an end section which extends upwardly and away from the traction roller.

8 Claims, 7 Drawing Figures

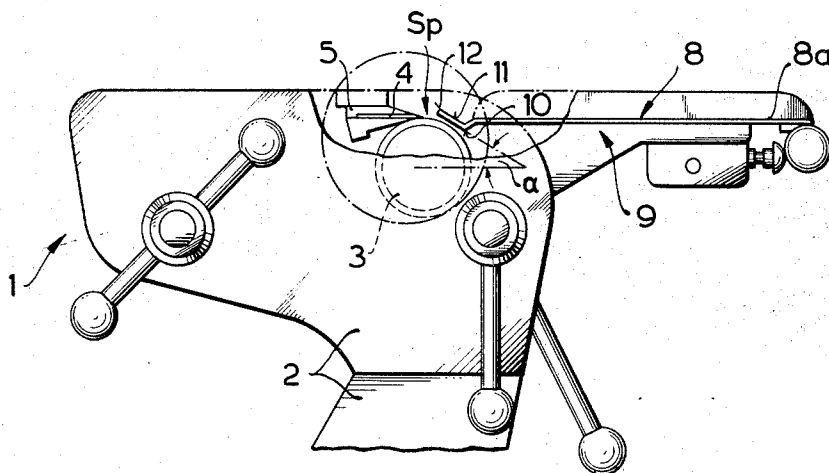


FIG.1

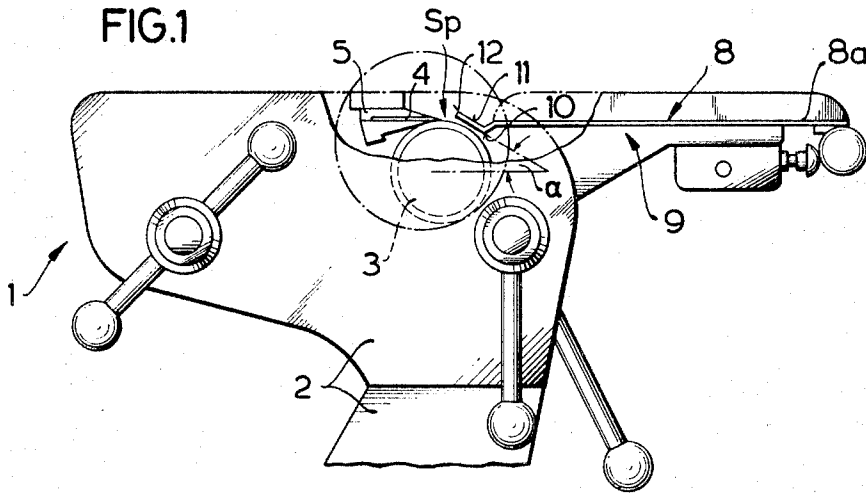


FIG.2

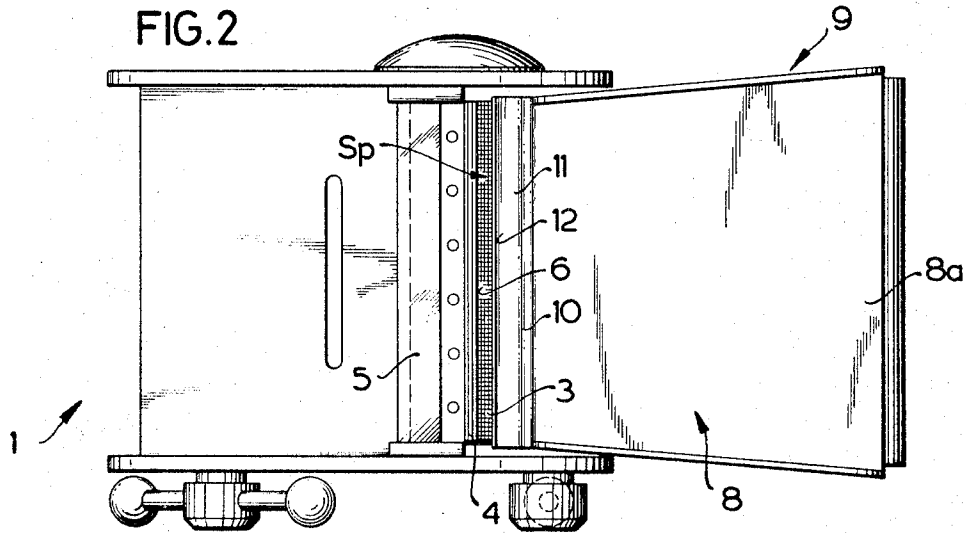


FIG.3

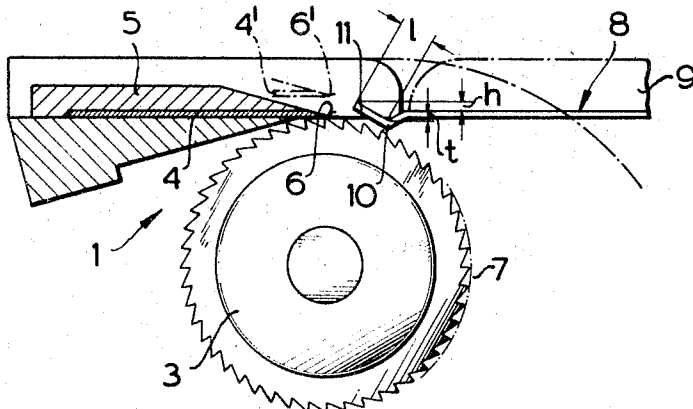


FIG.3a

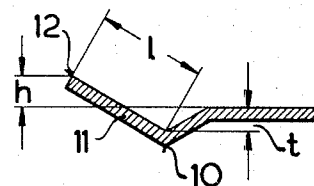


FIG. 4

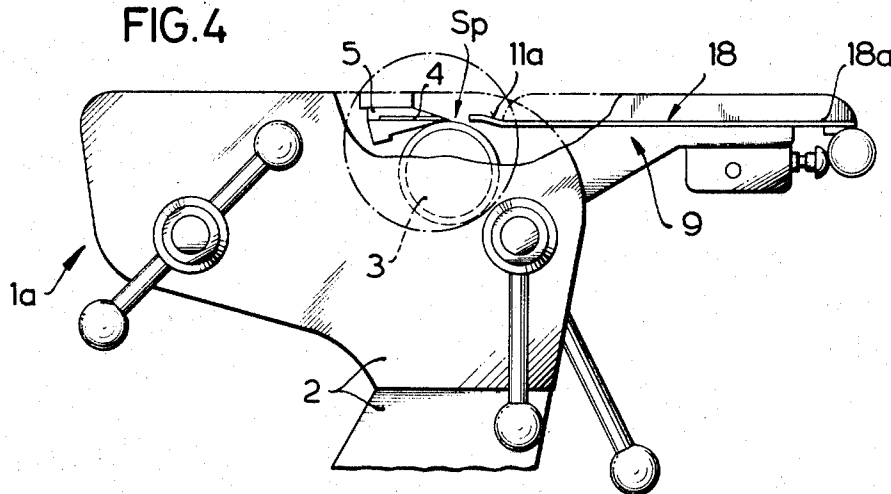


FIG. 5

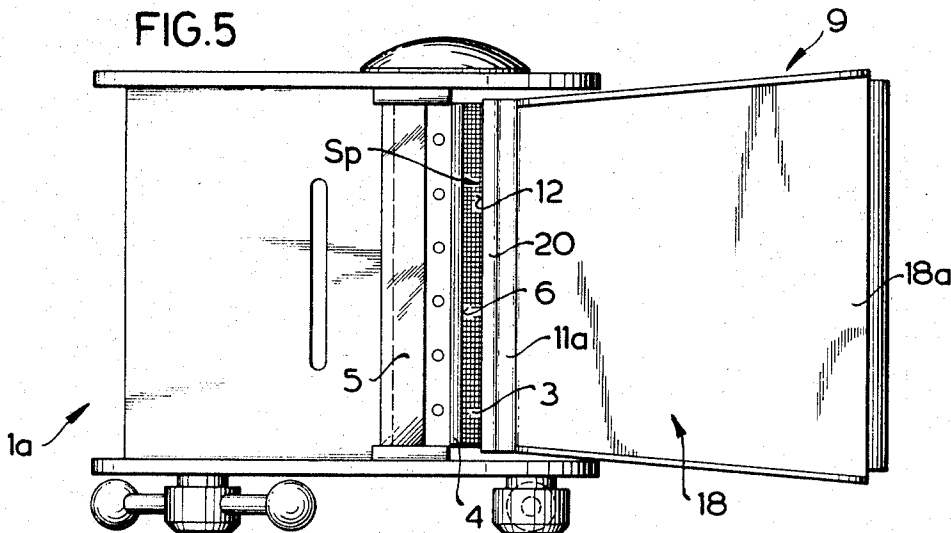
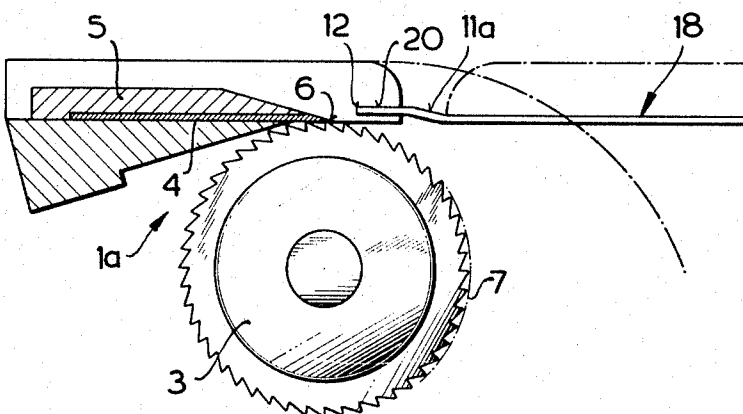


FIG. 6



BACON DERINDING MACHINE

BACKGROUND OF THE INVENTION

This invention relates generally to bacon derinding machines with a knife, a traction roller for carrying the material to be derinded onto the knife, and a feed table having a supporting surfaces which is generally on a level somewhat lower than the gap between the cutting edge of the knife and the traction roller, the material to be derinded being brought within range of the traction roller on the said supporting surface and the knife of the bacon derinding machine being preferably adjustable to different derinding thicknesses or to total derinding.

With known machines of this type the supporting surface of the feed table is plane and substantially horizontal; in front of the traction roller it terminates at a slightly lower level than the edge of the derinding knife thus leaving, between the edge of the supporting surface adjacent to the traction roller and the knife edge, a zone along the traction roller, the size of which is in the region of 30 mm measured in the peripheral direction of the traction roller. These bacon derinding machines operate very advantageously, particularly as regards derinding. However, there is a certain danger that when operating the machine, and in particular when feeding pieces of bacon or the like by hand, parts of the hand or hands of the operator may get within range of the traction roller and the derinding knife. Apart from the fingers, the areas of the ball of the thumb of the operator are particularly endangered. The operator may e.g., feed a piece of bacon which is to be derinded to the traction roller or the derinding knife while at the same time pressing it onto the supporting surface of the feed table, and at the same time introduce the lateral edges of the ball of the thumb within range of the traction roller directly in front of the edge of the derinding knife, e.g., owing to lack of concentration but possibly also because of unfortunate circumstances, so that the traction roller grips parts of the hand drawing them over the derinding knife, which may give rise to considerable injuries.

A reduction of this danger by simple feeding from the supporting surface up to a point directly in front of the cutting edge is not practicable, since a certain free zone of the traction roller must remain in front of the knife edge, in particular for starting the cut but also for transportation of the material to be derinded, into which zone the traction roller pulls the material to be derinded. Also from the point of view of starting the cut, certain minimum space requirements have to be fulfilled directly in front of the derinding knife. This applies in particular to derinding of partly dried bacon, in which case the material to be derinded must usually be pressed by hand to a point close to the traction roller.

In order to avoid these disadvantages a bacon derinding machine has also already become known, which is provided with a feed face for the material to be derinded, which is inclined at a downward angle towards the traction roller. This design of the derinding machine does not, however, result in the required reduction of the danger of accidents. There still remains a relatively wide open zone along the traction roller directly in front of the knife edge, and, in particular, there is still the danger that the operator's hand can easily slip sideways away from the material to be derinded, when feeding the said material to be derinded,

thus coming within range of the traction roller directly in front of the derinding knife. This known design has also additional disadvantages, the main disadvantage being that the material to be derinded is fed towards the derinding knife or the traction roller co-operating with the latter at a disadvantageous angle, in particular as regards starting of the cut. This applies particularly to partly dried bacon. A further disadvantage of the above-mentioned design of the feed face consists in the fact that cleaning of the machine is made more difficult, as a result of which the operating personnel is inclined either to clean the machine in the area of the feed table less well or to desist entirely from attaching a fitment which comprises the feeding face, on the feed table.

SUMMARY OF THE INVENTION

To avoid these disadvantages it is the object of the invention to provide a machine for derinding pieces of bacon, meat or other material to be derinded, in which, on the one hand, the risk of accidents is considerable reduced, while, on the other hand, the operation of the above-mentioned bacon derinding machine undergoes no impairment or no significant impairment. In particular, the latter should apply also to derinding of partly dried bacon, total derinding and bacon derinding machines or the like, in which the knife can be adjusted to different derinding thicknesses.

To attain this object the present invention provides a bacon derinding machine which comprises a derinding knife with a cutting edge and preferably arranged to be adjustable to different derinding thicknesses and to total derinding of a material to be derinded; a traction roller for conveying said material up to said knife, the arrangement being such that a gap is left between said cutting edge and said traction roller, and a feed table having a supporting surface on which the said material is conveyed within range of the traction roller, and which is generally on a level somewhat lower than that of the gap between said cutting edge and said traction roller, said supporting surface of the feed table having within range of its end extending up to a position close to the cutting edge of the knife an end section which extends upwardly and away from the traction roller.

The end section pointing upward and away from the traction roller and hence also from the knife greatly favours the situation, in which the hand or the hands of an operator, if they slip from the piece of bacon within range of the traction roller and carry out a movement not desired by the operator, is or are led from this part of the feed table over the traction roller.

The end of the supporting surface, at least if the knife is in its operating position for derinding, may preferably reach at least to about the level of the cutting edge of the derinding knife and may advantageously reach somewhat beyond this level.

A specially advantageous further development consists in the fact that the supporting surface viewed in the direction in which the material to be derinded is fed has a slanting portion shortly before its end facing the traction roller, and an end section located in an approximately tangential direction in relation to the traction roller joins the said slanting portion, said end section being at a small distance from the traction roller and leaving only a small gap between its free edge and the cutting edge of the knife. In this manner an end region

of the stopping face is brought about which is relatively wide viewed in the direction in which the material to be derinded is fed and which has an end zone pointing upward and away from the knife edge. This is well suited to lift a slipping hand over the free zone of the traction roller and possibly also over the edge of the knife so that injuries can be avoided, at least to a large extent.

BRIEF DESCRIPTION OF THE DRAWINGS

Two embodiments of the invention will now be described by way of example and with reference to the accompanying drawings, in which:

FIG. 1 is a partial side view of a bacon derinding machine in the region of the knife, the traction roller and the feed table;

FIG. 2 is a plan view thereof;

FIG. 3 is a side view, on an enlarged scale, of a detail of FIG. 1;

FIG. 3a is a side view, on an enlarged scale, of a detail of FIG. 3;

FIG. 4 is a partial side view of a somewhat modified design of the feed table;

FIG. 5 is a plan view of FIG. 4, and

FIG. 6 is a side view, on an enlarged scale, of a detail of FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 to 3a show a machine for the removal of rind, skin or the like from pieces of bacon, meat or the like, subsequently referred to as bacon derinding machine 1 which has a pedestal 2 in which a traction roller 3 is supported, above which there is a derinding knife 4 that is mounted in a retainer 5. The latter can be adjusted along a given curve so that the cutting edge 6 of the knife 4 is at a more or less large distance from the envelope circle 7 of the traction roller 3. This adjustment facility promotes or enables cutting differently thick rinds, as well as starting the cut and total derinding. FIG. 3 shows by dash and dot lines the knife 4 and its cutting edge 6 in positions 4' and 6' slightly further away from the traction roller 3. Hence, the cutting edge 6 can pass through different positions, between a lower position shown by full lines in FIG. 3 and the position 6' shown by dash and dot lines, and it may possibly go even beyond this position 6'.

By "total derinding" experts will understand that not only the rind is separated from the bacon but also a certain thin layer of bacon attached to the rind is separated.

Mounted on the side of the feed roller 3 from which the material to be derinded is fed, is a feed table 9 carrying a supporting surface 8 which has a somewhat slanting portion 10 within the area of its ends facing the traction roller 3, which slanting portion 10 is followed in the direction of feed by an end section 11 located in approximately tangential direction in relation to the traction roller 3. The end section 11 is at a small distance from the traction roller 3 and reaches so far that only a relatively small gap Sp remains between its free edge 12 and the cutting edge 6 of the knife 4. Owing to this end section 11 which faces upward and away from the traction roller 3 and operator's hand slipping from the bacon or carrying out, for some other reason, an uncontrollable movement towards the range of the traction roller 3 directly in front of the cutting edge 6 of the knife 4 is so guided in a direction away from this

externally accessible and free zone of the traction roller 3 and possibly also from the cutting edge that the fingers or the ball of the thumb or other parts of the hand of the said operator can no longer or only under particularly unfavourable circumstances get within the range of the knife or even within the range of the traction roller and the knife. The end section 11 of the supporting surface 8 of the feed table 9 guides such a hand movement away from the danger zone. For this end section 11 to be capable of extending over a length sufficient for the said deflecting function in the direction of the deflecting movement — corresponding approximately to the direction in which the material to be derinded is fed —, while, on the other hand avoiding any unfavourable derinding conditions due to the cutting edge of the knife 4, the supporting surface 8 has before the start of the end section 11 the slanting portion 10 which extends at an incline in relation to the portion 8a of the supporting surface which is remote from the traction roller 3, as has been mentioned above. It has proved advantageous for the vertical height t (c.f. FIG. 3a) of the slanting portion 10 of the supporting surface 8 to amount to about 3 to 10 mm in respect to the portion 8a of the supporting surface which is remote from the traction roller 3. In addition, a length l of the end section 11 amounting to about 20 to 28 and preferably about 24 mm has proved advantageous. The gap Sp between the free edge 12 of the end section 11 and the cutting edge 6 of the knife 4 should amount in the normal derinding position of the knife 4 to about 12 to 18 mm. With the above design narrowing of the gap Sp is possible to about half the gap width hitherto usual in the case of machines with flat feed table supporting surfaces, without any practically noticeable impairment of the operation of the bacon derinding machine 1. In FIG. 1 and FIG. 3 the knife 4 is shown by full lines in the normal derinding position, i.e., in its lower position. In this position of the knife 4, the free edge 12 of the end section 11 of the supporting surface 8 reaches slightly above the level of the cutting edge 6 of the knife 4, i.e., by the distance h , e.g., approximately 1 millimetre.

The above preferred embodiment of the invention in accordance with FIGS. 1 to 3 offers amongst others the following advantages:

If an operator's hand slips, the said hand, and in particular the ball of the thumb and the fingertips, is to a large extent protected; at the same time any impairment of the operation of the bacon derinding machine is from a practical point of view avoided. In addition, the feed table 9 and/or its supporting surface 8 can easily replace, in the case of machines already in operation, the generally horizontal table plate hitherto in use; at the same time however, it is made certain that this entire table plate is secured to the bacon derinding machine 1 in such a manner that the operator cannot remove it easily. In practice it cannot be removed by the operator without putting the machine out of operation. Removal of elements which prevent accidents owing to carelessness is thus impossible. The embodiment shown in, and described by reference to, FIGS. 1 to 3a, is particularly advantageous for total derinding or in the case of partly dried bacon, since the hitherto most favourable method of operation is maintained. FIG. 3 also shows that in the upper position 6' of the cutting edge 6, e.g., with total derinding, a very high degree of protection is likewise achieved. Since the free edge 12 of

5

the edge section 11 of the supporting surface 8 and the cutting edge 6 in its position 6' are close to one another, the gap between the cutting edge 6 and the free edge 12 of the end section 11 is so narrow that it is no longer possible to insert one's fingers into the range of the traction roller 3. If the cutting edge 6 is in an intermediate position between its lower position and position 6', it is at a lower level than the free edge 12, whereby however the gap between the cutting edge 6 and the free edge 12 is enlarged. Owing to the lower position of the cutting edge 6 and because of the angle of rise α of the end section 11 amounting to about 30° (FIG. 1) a high degree of protection is ensured also in that case.

In the somewhat modified embodiment shown in FIGS. 4 to 6 a bacon derinding machine 1a is provided with a supporting surface 18 of which the end section 11a near the traction roller 3 and at a short distance therefrom is slightly bent upwards, whereupon it continues in the form of a zone 22 brought up to the traction roller 3 approximately horizontally or parallel to the direction of the portion 18a of the supporting surface 18 which is remote from the traction roller 3, as can be seen particularly clearly from FIG. 6. Also in this case it is brought about by the design of the end section 11a which is directed upwards and away from the traction roller that slipping hands, the movement of which is momentarily not controlled by the operator, are guided away from the traction roller 3 and the derinding knife 4. The approximately horizontal zone 20 (FIG. 6) following the end section 11a keeps the gap between the free edge 12 of the horizontal zone 20 of the supporting surface 18 and the cutting edge 6 of the knife 4 small. For newly slaughtered bacon or bacon to be totally derinded also this is suitable and offers improved protection against accidents while being very simple to manufacture.

This invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects illustrative and not restrictive.

What is claimed is:

1. A bacon derinding machine comprising

a. a derinding knife with a cutting edge and preferably arranged to be adjustable to different derinding thicknesses and to total derinding of a material to be derinded;

b. a traction roller for conveying said material up to said knife, the arrangement being such that a gap is left between said cutting edge and said traction roller, and

6

c. a feed table having a supporting surface on which the said material is conveyed within range of the traction roller, and which is generally on a level somewhat lower than that of the gap between said cutting edge and said traction roller, said supporting surface of the feed table having within range of its end extending up to a position close to the cutting edge of the knife an end section which extends upwardly and away from the traction roller.

2. A bacon derinding machine in accordance with claim 1, wherein the end section of the supporting surface has its free edge located at least approximately on the level of the cutting edge of the knife but preferably higher, at least if the knife is in the working position for derinding.

3. A bacon derinding machine in accordance with claim 1, wherein the end section of the supporting surface has at a short distance in front of the traction roller an upwardly directed incline followed in the direction towards the traction roller by an approximately horizontal zone which preferably extends in a plane parallel to that of the portion of the supporting surface which is remote from the traction roller.

4. A bacon derinding machine in accordance with claim 1, wherein the supporting surface viewed in the direction in which the material to be derinded is fed has a slanting portion shortly before its end facing the traction roller, and an end section located in an approximately tangential direction in relation to the traction roller joins the said slanting portion, said end section being at a small distance from the traction roller and leaving only a small gap between its free edge and the cutting edge of the knife.

5. A bacon derinding machine in accordance with claim 4, wherein the gap between the free edge of the end section and the cutting edge of the knife when in derinding position amounts to about 12 to 18 mm.

6. A bacon derinding machine in accordance with claim 4, wherein the end section has a length of about 20 to 28 mm, preferably approximately 24 mm.

7. A bacon derinding machine in accordance with claim 4, wherein the vertical height of the slanting portion of the supporting surface amounts to about 3 to 10 mm in respect of the portion of the supporting surface which is remote from the traction roller.

8. A bacon derinding machine in accordance with claim 1, wherein the end section of the supporting surface extending upwardly and away from the traction roller rises at an angle of about 20° to 50°, preferably about 30°, in relation to the horizontal.

* * * * *

55

60

65