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(71) Applicant: **S.p.A. LUIGI RIZZI & C.**
Via M. Fanti, 88
I-41100 Modena(IT)

(72) Inventor: **Repetto, Silvio**
Via de Fogliani, 12
Modena(IT)

(74) Representative: **Raimondi, Alfredo, Dott. Ing.**
Prof et al,
Studio Tecnico Consulenza Brevetti Piazzale Cadorna 15
I-20123 Milano(IT)

(54) A protecting device for the cylinder with blades in fleshing machines and the like for a tannery, having a movable shield synchronized with the opening of the machine.

(57) In hide processing machines provided with cylinders with blades as, for example, fleshing machines, trimming machines, holding machines or the like, which present a wide opening port, a device is provided, which automatically positions the protecting shield (12) for the cylinder with blades (2) at the opening of the opposing roller (3) for the inserting of a hide and which moves the protecting shield (12) away from the cutting area at the closing of the opposing roller (3) itself.

The positioning is obtained by mechanical means, at a speed which is synchronized with the approaching or moving away speed of the opposing roller (3).

The purpose is that one to prevent accidental contacts of the hands of the operator with the rotating cylinder with blades (2).

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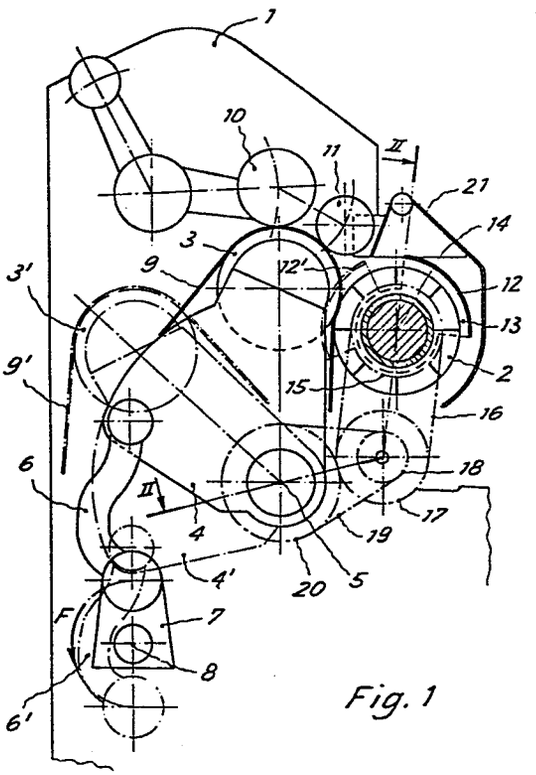

Fig. 1

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A protecting device for the cylinder with blades in fleshing machines and the like for a tannery, having a movable shield synchronized with the opening of the machine

During the processing operations for hide tanning, the fleshing of the hide is effected whilst the same is still fresh after the flaying or after an initial lime pit processing, so that the hide is in very damp conditions, containing compact matter and clots of flesh or fat on the inside. The fleshing of the hide consists in removing or cutting by means of rotating blades said clots or projections and this is done by passing the hide under tension in front of the series of blades, knives or the like generally connected to a rotating roller.

For this operation it is necessary to insert the hide between the cylinder with blades and the opposing roller on which the hide rests. Said operation is generally done manually by moving, by means of a rotation of the respective supporting arms, the said opposing roller away from the cylinder with blades in order to allow the operator to insert the hide.

Since the cylinder with blades is kept in a rotatory motion during this operation in said machines, which present a wide inserting port for the hide, the problem arises to realize an efficacious protection for the operator's hands, during said inserting stage of the hide, from the action of the cylinder with blades, which is rotating.

It is namely necessary that the cutting area be separated from the accessible area by means of a barrier or screen, hereinafter called protecting shield, which should be removed only at the

time of closing the opposing roller towards the cylinder with blades, so pressing the hide to be processed.

These and other problems are solved by the device according to the invention, which provides a protecting shield, the positioning of which is synchronized with the closing and opening movements of the opposing roller which bears the hide to be processed.

Particularly, the self-positioning protecting shield for the cylinder with blades in fleshing machines and the like consists of a shield or screen extending lengthwise according to the working length of the cylinder with blades and having width enough to cover the accesible area of the cylinder with blades itself. The protecting shield is supported by one or several arms pivoting about the axis of the cylinder with blades, at least one of which being connected, by mechanical driving means, with one of the movable arms supporting the opposing roller.

The rotation of the arms supporting the opposing roller of such an angle to move the roller itself away from the cylinder with blades, settling in the opening position, causes the simultaneous rotation of the arm or arms supporting the protecting shield of such an angle to settle the shield itself in a sheltering or protecting position in front of the accesible area of the rotating cylinder with blades.

The rotation of the arms supporting the opposing roller to approach the opposing roller itself to the cylinder with blades causes the removal, by said mechanical driving means, of the protecting shield from the working area in front of the rotating

cylinder with blades.

In particular, the mechanical driving means can consist of crown gears connected by chains or of gear pairs reciprocally connected, or of a system of connecting rods, cranks, levers or the like, so realized as to supply the required velocity ratio between the rotation of the arms supporting the opposing roller and the rotation of the arm or arms supporting the protecting shield.

It is therefore assured the positioning of the protecting shield in front of the cylinder with blades at the opening of the machine by moving the opposing roller away from the cylinder with blades, as well as the immediate removal of the shield from the protecting position on closing the machine to start the work, without any delay or phase difference in this operation.

A more detailed description of the features of the device according to the invention refers to the accompanying drawings in which:

Figure 1 is a schematic lateral view of a fleshing machine equipped with the protecting shield according to the invention, and

Figure 2 is a sectional view according to line II-II of Figure 1.

The fleshing machine or the like consists of a frame 1 (cut off in Figure 1), bearing the cylinder with blades 2. In front of the cylinder with blades 2, the opposing roller 3 is arranged, supported by the arm 4 rotating about the axis 5. The opposing

roller 3 is movable and it can be moved away from the cylinder with blades 2 by means of the connecting rod 6 and of the crank 7 rotating about the axis 8 according to the arrow F, in order to be settled from the "closed machine" position, shown with a continuous line in Figure 1, to the "open machine" position, shown with a chain in the same Figure 1 and having references with the prime '.

The opposing roller 3 can also be approached to the cylinder with blades 2 by a contrary action of the connecting rod 6 and of the crank 7 in order to settle the machine from the "open machine" position to the "closed machine" position.

The moving away movement is actuated by the operator by known means, non shown, in order to allow the insertion of the hide to be processed 9 on the opposing roller 3, which is in the open position and shown with 3' in Figure 1.

The rollers 10 and 11, which can be moved away from the opposing roller 3 at the opening, co-operate with said opposing roller 3 in the closed position. During the opening of the opposing roller 3, the cylinder with blades 2 remains in rotation. It is then necessary to assure the safety of the operator by arranging a movable protecting shield 12, 12' in the sheltering position (shown with a chain in Figure 1), at the opening of the machine.

The movement of the protecting shield 12, supported by the arm 13, consists of a rotation about the same axis 14 supporting the cylinder with blades 2 and it is obtained, in the embodiment shown in the accompanying drawings, by means of a crown gear 15, connected by the chain 16 to the crown gear 17. The crown gear 17 is integral and coaxial to the crown 18, connected by the

chain 19 to the crown gear 20, having the axis 5 and integral to the arm 4. The gear ratio between the crown 20 and the crown 15 is chosen so that, in correspondence to a rotation of the arm 4 enough to pass from the hide inserting position of the arm 4', shown with a chain, to the working position of the arm 4, shown with a continuous line, in which the opposing roller 3 bearing the hide 9 is positioned against the cylinder with blades 2, the protecting shield 12 can rotate from the protecting position of the shield 12' covering the rotating cylinder with blades 2 to the rest position in which the protecting shield 12 is situated far from the cutting area and enclosed in the covering 21, which covering 21 constitutes an external protection of the cylinder with blades 2. The opening movement of the opposing roller 3 leads at the same time the protecting shield 12 to settle in the protecting position, while the closing movement of the opposing roller 3 leads the protecting shield 12 to settle in a position far from the cutting area, without any delay or phase difference with respect to the motion of the opposing roller 3.

The mechanical driving can be effected by means of a chain, if that be the case a double chain, as shown in Figure 2, according to the dimensioning criteria chosen for the machine. The driving, however, can of course be effected by means of different systems, for example by means of gear pairs having an appropriate gear ratio, providing, if that be the case, for appropriate reversal wheels in order to obtain the desired direction of rotation for the arm 13 supporting the protecting shield 12 according to the rotation of the arm 4 supporting the opposing roller 3, or by means of a system of connecting rods, levers and cranks, appropriately dimensioned, or the like.

The protecting shield, in the illustrated example, consists of a metallic bent element, extending on an about 90° arc, but it can be otherwise shaped, in machines having a different configuration, with the corresponding change of the velocity ratio between the movement of rotation of the arm 4 supporting the opposing roller 3 and the movement of rotation of the arm 13 supporting the protecting shield 12.

It is to be noticed the possible application of the invention to machines different from fleshing machines for the processing of the hides, to which reference has been made, which machines may present similar problems of protection of the working area when they are open.

Claims:

1. A self-positioning protecting device for the rotating cylinder with blades in machines for hide processing, in particular in fleshing machines, trimming machines, holding machines or the like, characterised in that it consists of a protecting shield or screen extending lengthwise according to the working length of the cylinder with blades and having width enough to cover the accessible area of the cylinder with blades itself, the protecting shield being supported by one or several arms rotating about the axis of said cylinder with blades, at least one of which arms is connected, by mechanical driving means, with one of the movable arms supporting the opposing roller keeping the hide against the cylinder with blades, so that the rotation of the arms supporting the opposing roller of such an angle to move the opposing roller itself away from the cylinder with blades (opening movement) causes the simultaneous rotation of the arm or arms supporting the protecting shield of such an angle to settle the protecting shield itself in a protecting position in front of the accessible area of the cylinder with blades, while the rotation in the opposite direction of the arms supporting the opposing roller simulatenously moves the protecting shield away from the working area of the rotating cylinder with blades.

2. A device according to claim 1, characterised in that the mechanical driving means consist of crown gears connected by chains, which realize the required gear ratio between the rotation of the arms supporting the opposing roller and the rotation of the arm or arms supporting the protecting shield.

3. A device according to claim 1, characterised in that the

mechanical driving means consist of gear pairs reciprocally connected such as to have the required gear ratio between the rotation of the arms supporting the opposing roller and the rotation of the arm or arms supporting the protecting shield.

4. A device according to claim 1, characterised in that the mechanical driving means consist of a system of connecting rods, cranks and levers such as to realize the required velocity ratio between the rotation of the arms supporting the opposing roller and the rotation of the arm or arms supporting the protecting shield.

5. A protecting device for the cylinder with blades in fleshing machines and the like for a tannery, substantially as described and illustrated for the specified purposes.

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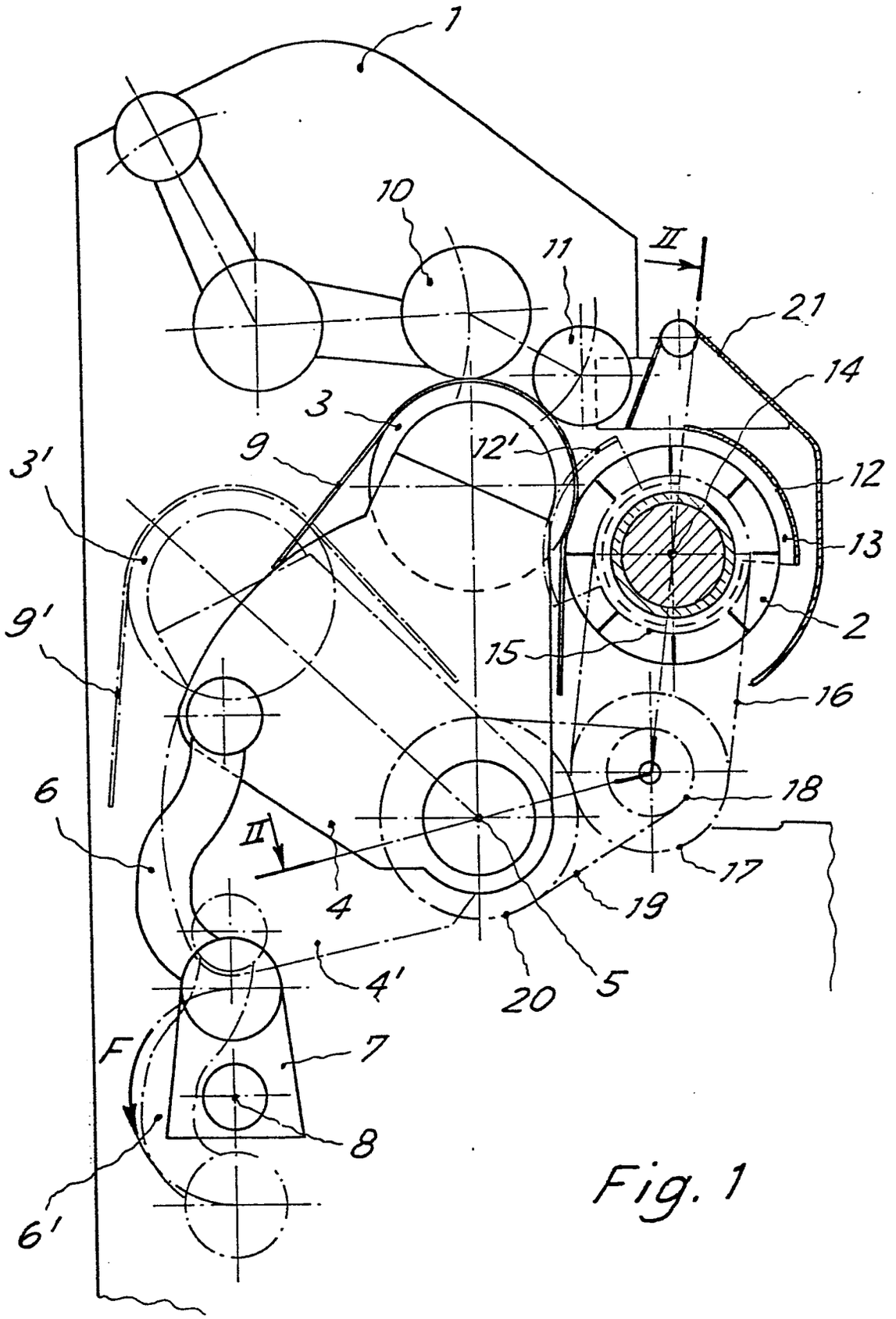

Fig. 1

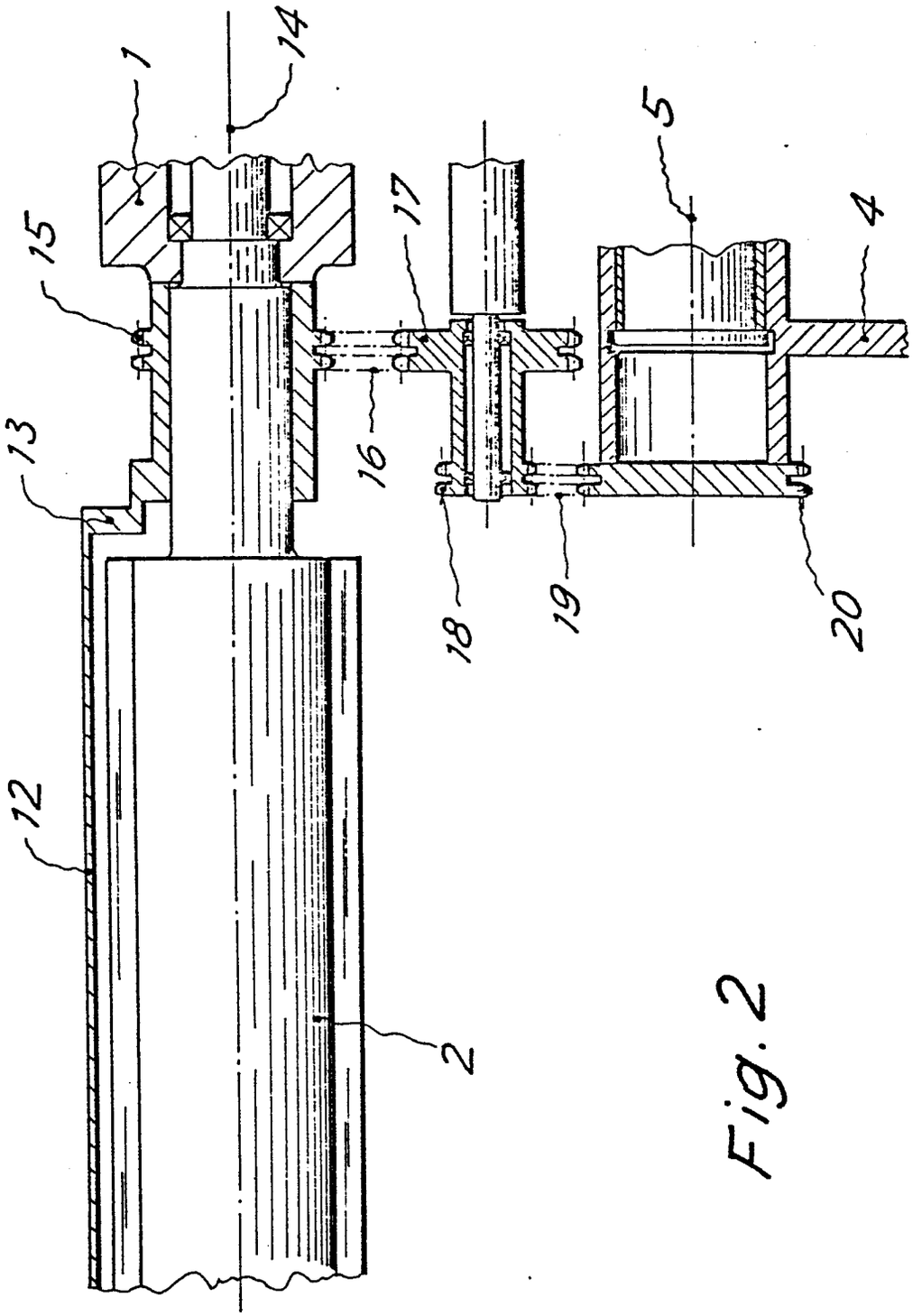

Fig. 2