



(22) Date de dépôt/Filing Date: 1997/04/21

(41) Mise à la disp. pub./Open to Public Insp.: 1998/10/21

(45) Date de délivrance/Issue Date: 2006/03/21

(51) Cl.Int./Int.Cl. *C14B 1/58* (2006.01),  
*B65G 15/02* (2006.01)

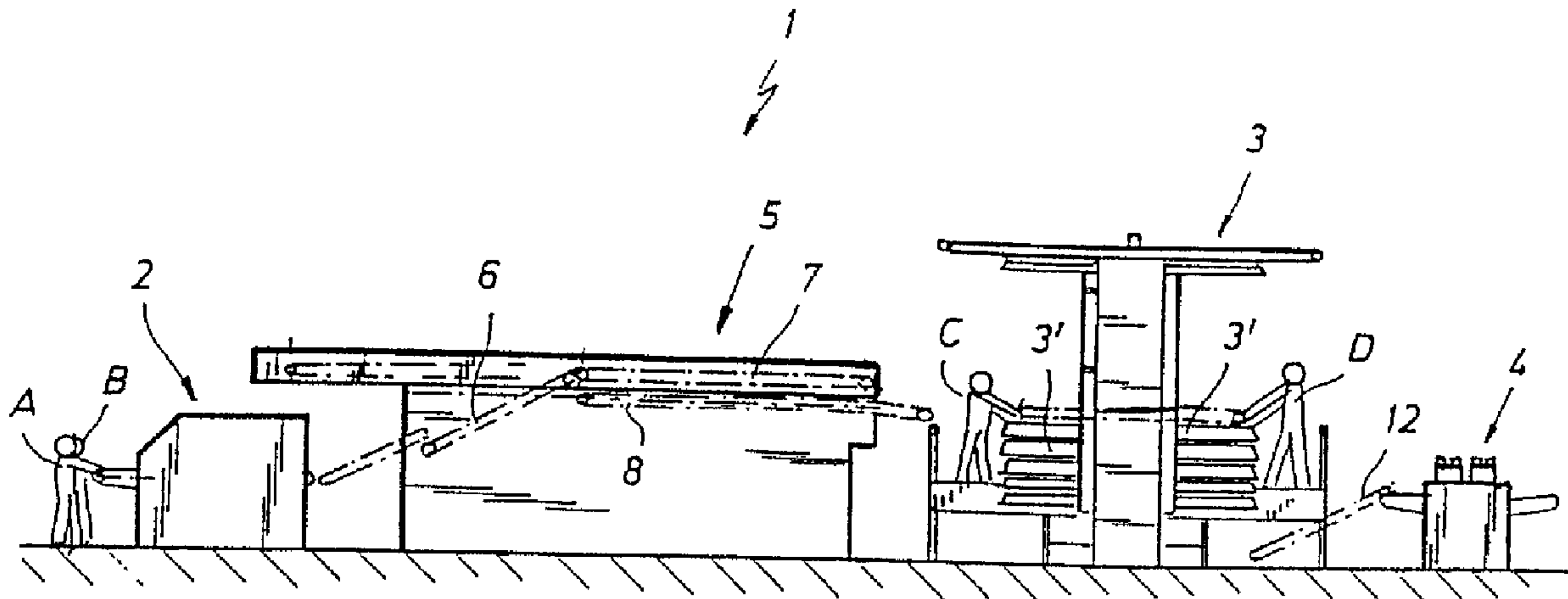
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(54) Titre : LIGNE D'ALIMENTATION SEMI-AUTOMATIQUE EN PARTICULIER POUR LES MACHINES A ESSORER ET A METTRE AU VENT, LES SECHOIRS SOUS VIDE ET LES POSTES DE PALISSONNAGE DE PEAUX INDUSTRIELLES

(54) Title: SEMIAUTOMATIC FEEDER LINE PARTICULARLY FOR SETTING-OUT/DRYING MACHINES, VACUUM-DRIERS, AND STAKERS FOR INDUSTRIAL HIDES



(57) Abrégé/Abstract:

A line for the semiautomatic feeding of industrial hides, particularly for setting-out/drying machines and vacuum driers, includes a loading/unloading device (5, 5') that lies between the unloading section of the setting-out/drying machine (2) and the drying tables (3') of the vacuum drier (3); the device (5, 5') can be actuated on command after spreading the hides (p, p') on each table of the vacuum drier. The loading/unloading device (5, 5') has at least one movable surface (8, 8') and has a translatable direction (V) that lies substantially at right angles to the main dimension of the tables (8) of the vacuum drier (3). The loading/unloading device (5, 5') is of the type with a movable conveyor belt (6) with an unloading end (7) that can be superimposed on the tables of the vacuum drier (3). It is possible to provide a conveyor belt (12) that is interposed between the vacuum drier (3) and an optional percher (4) that is aligned with it.

SEMIAUTOMATIC FEEDER LINE PARTICULARLY FOR SETTING-  
OUT/DRYING MACHINES, VACUUM-DRIERS, AND STAKERS FOR  
INDUSTRIAL HIDES

ABSTRACT

5 A line for the semiautomatic feeding of industrial hides,  
particularly for setting-out/drying machines and vacuum  
driers, includes a loading/unloading device (5, 5') that  
lies between the unloading section of the setting-  
out/drying machine (2) and the drying tables (3') of the  
10 vacuum drier (3); the device (5, 5') can be actuated on  
command after spreading the hides (P, P') on each table of  
the vacuum drier. The loading/unloading device (5, 5') has  
at least one movable surface (8, 8') and has a translatory  
direction (V) that lies substantially at right angles to  
15 the main dimension of the tables (8) of the vacuum drier  
(3). The loading/unloading device (5, 5') is of the type  
with a movable conveyor belt (6) with an unloading end (7)  
that can be superimposed on the tables of the vacuum drier  
(3). It is possible to provide a conveyor belt (12) that is  
20 interposed between the vacuum drier (3) and an optional  
percher (4) that is aligned with it.

(Ref. Fig. 1)

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SEMIAUTOMATIC FEEDER LINE PARTICULARLY FOR SETTING-  
OUT/DRYING MACHINES, VACUUM-DRIERS, AND STAKERS FOR  
INDUSTRIAL HIDES

5 The present invention relates to a semiautomatic feeder  
line particularly for setting-out/drying machines, vacuum-  
driers, and optionally stakers for industrial hides.

10 It is known that hides that are wet after tanning or dyeing  
processes are sammed and set-out by means of a  
samming/setting-out machine and are then dried by means of  
a vacuum driers to eliminate residual moisture almost  
entirely. Finally, they are stretched in a staker to regain  
their original softness and to increase their surface.

15 In the first samming/setting-out step, normal production  
with two operators is approximately 40÷50 hides per hour.  
In the second vacuum drying step, production with two  
operators is approximately 10 hides per hour. The third  
20 staking step allows to provide an hourly production rate  
that is higher than the above mentioned values even with a  
single operator.

25 Accordingly, approximately 20-22 operators, with  
considerable idle times, are required in order to achieve a  
production of approximately 100 hides per hour.  
Furthermore, the transfer of the hides between the three  
above mentioned machines requires the use of beams that  
must be transferred from one machine to the other, with  
30 considerable wastes of time, energy, and labor.

EP-A-381031 discloses an apparatus for stretching leather

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on a drying surface essentially comprising all the features mentioned in the preamble of the appended claim 1. Although this conventional apparatus may be used to automatically load and unload industrial hides from a drying surface, it  
5 is not arranged between the output of a samming/setting-out machine and the drying tables of the vacuum drier.

US-3,198,513 discloses an automatic stacking apparatus arranged between the output section of a tanning machine  
10 and a supporting horse and comprises a fixed transfer surface and a movable transfer surface located downstream of the first surface adjacent to the horse.

Such an arrangement does not eliminate the time and labor  
15 required for unloading the hides from the horse and loading them on the vacuum drier.

The aim of the invention is to reduce the above mentioned drawbacks, providing a feeder line for setting-out/drying  
20 machines, vacuum driers, and optionally stakers of the substantially automatic type that allows to limit the use of labor and increase the productivity of the apparatus.

A particular object is to provide a system for the direct  
25 and semiautomatic transfer of the hides between the various units of the apparatus, eliminating idle times, caused by the unloading and loading of the hides on a means for picking up the hides and transferring them from one machine to the next, as well as reducing the assigned personnel and  
30 the required energy.

Another object is to provide a semiautomatic line of the

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above mentioned type that has reduced dimensions and allows to optimize space and to use complete facilities even in small tanneries.

This aim, these objects, and others will become apparent hereinafter.

According to the present invention, there is provided a line for the semiautomatic feeding of industrial hides, for a samming/setting-out machine and a vacuum drier having tables, comprising a loading/unloading device actuatable on command to spread the hides on each table of vacuum drier, said loading/unloading device being arranged between an unloading section of a setting-out/drying machine and the tables of the vacuum drier, said  
10 loading/unloading device comprising at least one fixed transfer surface extending from an output section of said samming/setting-out machine, and at least an upper movable surface adjacent to a fixed transfer surface and at least a lower movable surface arranged below said upper movable surface and extending up to the tables of said vacuum drier.

By means of a feeder line according to the invention, considerable time can be saved and therefore high productivity of the apparatus is achieved. The use and fatigue of assigned personnel is reduced and the space  
20 required for apparatus management is reduced to a minimum. Further characteristics and advantages will become apparent from the detailed description of some preferred but not exclusive embodiments of the invention, given by way of non-limitative example with the aid of the accompanying drawings, wherein:

Figure 1 is a side view of a first embodiment of the semiautomatic apparatus according to the invention;

Figure 2 is a top view of the apparatus of Figure 1;

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Figure 3 is a side view of a second embodiment of the semiautomatic apparatus according to the invention;

Figure 4 is a top view of the apparatus of Figure 3.

10 With reference to Figures 1 and 2, the semiautomatic line according to the invention, generally designated by the reference numeral 1, has the purpose of transferring whole or half industrial bovine hides P or P' from a first continuous samming/setting-out machine 2 to a vacuum drier 3 with multiple tables and optionally to a staker 4 with beating plates.

By way of non-limitative example, the samming/setting-out machine can be the continuous-cycle model manufactured and marketed by the Bauce company of Trissino, Vicenza (Italy), under the name PRC4 RA 3200<sup>\*</sup>, whereas the vacuum drier 3 can be of the type with 5-6 working tables 3', manufactured and marketed by the Cartigliano company of Cartigliano, Vicenza (Italy). The staker 4 can be the Syncro 3200 model<sup>\*</sup>, also  
20 manufactured and marketed by the Cartigliano company.

According to the invention, the machines 2 and 3 are appropriately arranged in adjacent positions and are connected by a loading/unloading device 5 that runs from the output section of the machine 2 to the drying tables of the drier 3.

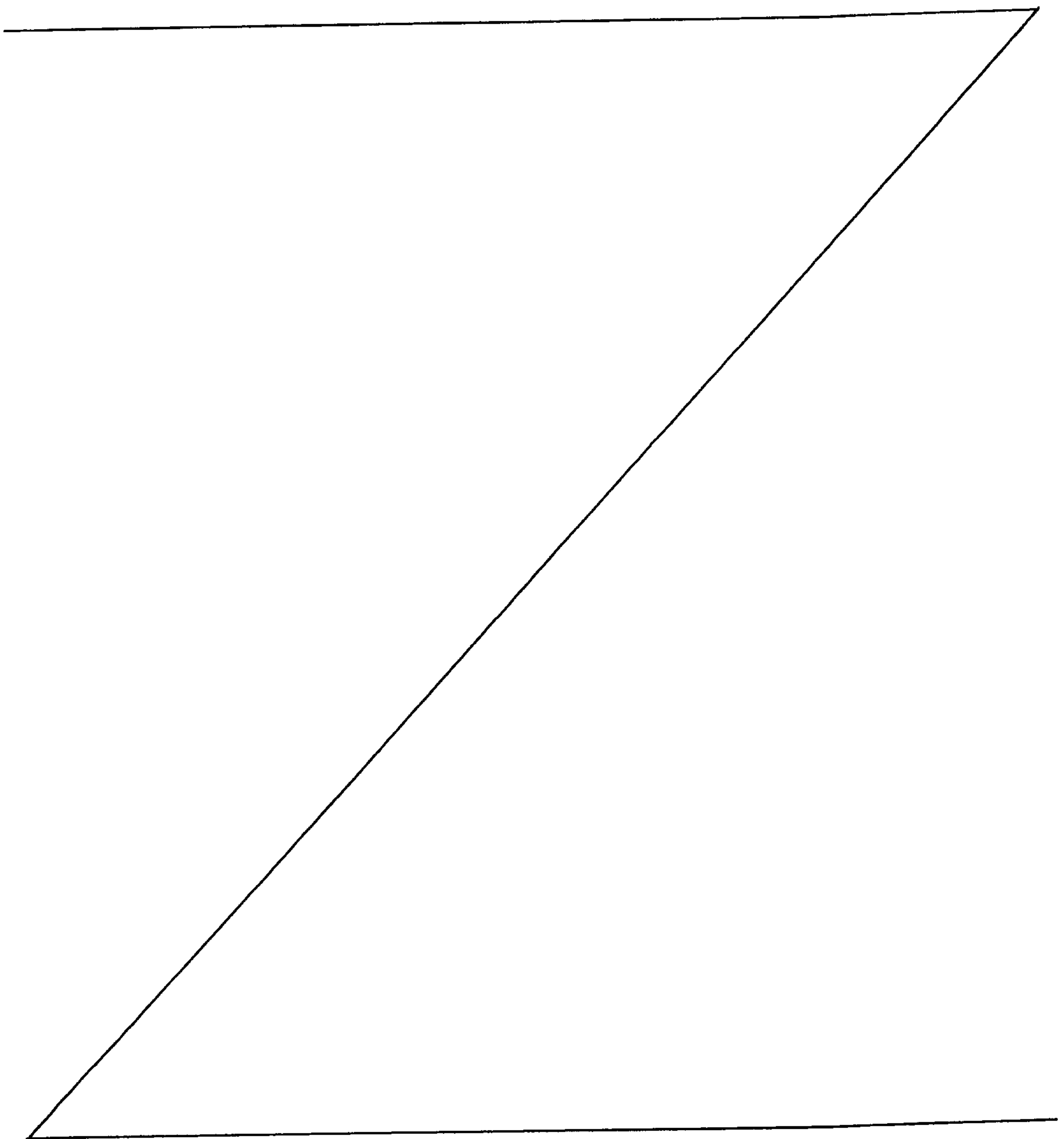
30 In particular, the loading/unloading device 5 includes a supporting structure that supports a fixed transfer surface 6 extending from the output section of the machine 2, an

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upper movable surface 7 arranged adjacent to the fixed transfer surface 6 and a movable lower surface 8, arranged below the upper movable surface 7 and extending up to the drying tables of the machine 3.

Surfaces 6 and 7 have a translatory direction V that is substantially parallel to the translatory direction of surface 8.



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The fixed transfer surface 6 is inclined with respect of the horizontal plane and is preferably formed by two rows of annular bands 9. Annular bands 9 are stretched by end tensioning rollers which are mutually transversely offset, are symmetrical with respect to the centerline and diverge slightly to spread the hides during advancement thereof.

Movable surfaces 7 and 8 are mutually parallel and substantially horizontal and are approximately as wide as half the major dimension of tables 3. Furthermore, surfaces 7 and 8 are formed by respective series of annular belts 10, 11 that are stretched by end tensioning rollers that are transversely offset.

The upper surface 7 is mounted on a truck which is movable with respect to the supporting structure along the same direction V to unload the hides P, P' onto the movable lower surface 8.

The movable lower surface 8 is mounted on an additional truck that can move with respect to the supporting structure along the direction V to transfer the hides P, P' onto one half of the tables 3'.

The translatory direction V of the movable lower surface 8 lies at right angles to the major dimension of the tables 3' of the drier 3, as shown in dashed lines in Figure 2.

Optionally, a belt conveyor 12 may be arranged after the vacuum drier 3, for transferring the hides to the staker 4.

During use, two operators A and B insert the separated or

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superimposed hides P or P' in the machine 2, for samming and setting out, reducing residual moisture to approximately 50% of the total.

5 The two operators C and D that are located on the lateral platforms of the machine 3 actuate the device 5 to transfer the hides P, P' that are accumulated on the movable lower surface 8 onto the table. Then they can pick up and spread the hides, distributing them easily and quickly on the  
10 table 3'.

In optimum conditions, drying with the vacuum drier will allow to reduce residual moisture to approximately 7%.

15 Assuming that the spreading time for each individual hide is approximately 20 seconds and that the drying time is approximately 4-6 minutes, it is possible to calculate a theoretical hourly capacity of approximately 100 hides with only four operators, two working at the machine 2 and two  
20 working at the drier 3, considerably increasing the productivity of the apparatus.

Furthermore, the energy required to transport the beams and lift trucks will be reduced, and the continuous operation  
25 of the machines will be optimized, considerably reducing the footprint of the line.

The embodiment shown in Figures 3 and 4 differs from the preceding one in a few structural characteristics of the  
30 loading/unloading device 5' and its relative position with respect to the vacuum drier 3.

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The fixed inclined surface 6' and the movable upper one 7' have an advancement and translatory direction T that is substantially parallel with respect to the longer dimension of the tables 3' of the drier 3.

5

The lower surface 8' is substantially as wide as the longer dimension of the tables 3', and is mounted on a truck that can move along a direction V that lies at right angles to the direction T and to the longer dimension of the tables 3'.

10

In this case, the second surface 7' moves to the right or to the left in Figure 4 to unload the hides P, P' onto the two halves of the underlying surface 8', and the underlying surface moves along the direction T to deposit the hides P, P' onto the tables 3' of the drier 3.

15

During use, two operators A and B can insert in the machine 2 the hides to be stentered and dried partially. These hides are transferred from the inclined surface 6' of the device 5' onto the movable surface 7', and from there onto the lower movable surface 8'. The two operators C and D that are assigned to the drier 3 can activate the translatory motion of the movable lower surface 8', so as to unload the hides P, P' directly onto the two facing halves of the tables 3', then they spread them accurately before starting the drying cycle.

20

25

The machine according to the invention is susceptible of numerous modifications and variations, within the scope defined in the accompanying claims. All the details may be replaced with technically equivalent elements; the materials may be different according to the requirements.

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**REVENDICATIONS**

1. Line for the semiautomatic feeding of industrial hides, for a samming/  
setting-out machine and a vacuum drier having tables, comprising a loading/  
unloading device actuatable on command to spread the hides on each table of  
vacuum drier, said loading/unloading device being arranged between an  
unloading section of a setting-out/drying machine and the tables of the vacuum  
drier, said loading/unloading device comprising at least one fixed transfer  
surface extending from an output section of said samming/setting-out machine,  
10 and at least an upper movable surface adjacent to a fixed transfer surface and  
at least a lower movable surface arranged below said upper movable surface  
and extending up to the tables of said vacuum drier.
2. Line, according to claim 1, wherein said fixed surface  
is inclined with respect to said upper movable surface.
3. Line, according to claim 2, wherein said upper movable  
surface and lower movable surface are mutually parallel and  
substantially horizontal.  
20
4. Line according to claim 3, wherein said fixed surface  
and said movable upper surface have a translatory direction  
that is substantially parallel to a translatory direction  
of said movable lower surface.
5. Line according to claim 3, wherein said fixed surface  
and said movable upper surface have a translatory direction  
that lies substantially perpendicular to a translatory  
direction of said movable lower surface.

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6. Line according to claim 1, wherein said fixed and movable surfaces are formed by series of annular bands that are stretched by tensioning rollers and are mutually transversely offset.

7. Line according to claim 6, wherein said fixed surface are formed by two sets of anular bands that are slightly diverging with respect to the centerline of the surface to spread the hides.

10

8. Line according to clam 1, comprising a conveyor interposed between said vacuum drier and a staker that is arranged downstream of this vacuum drier.

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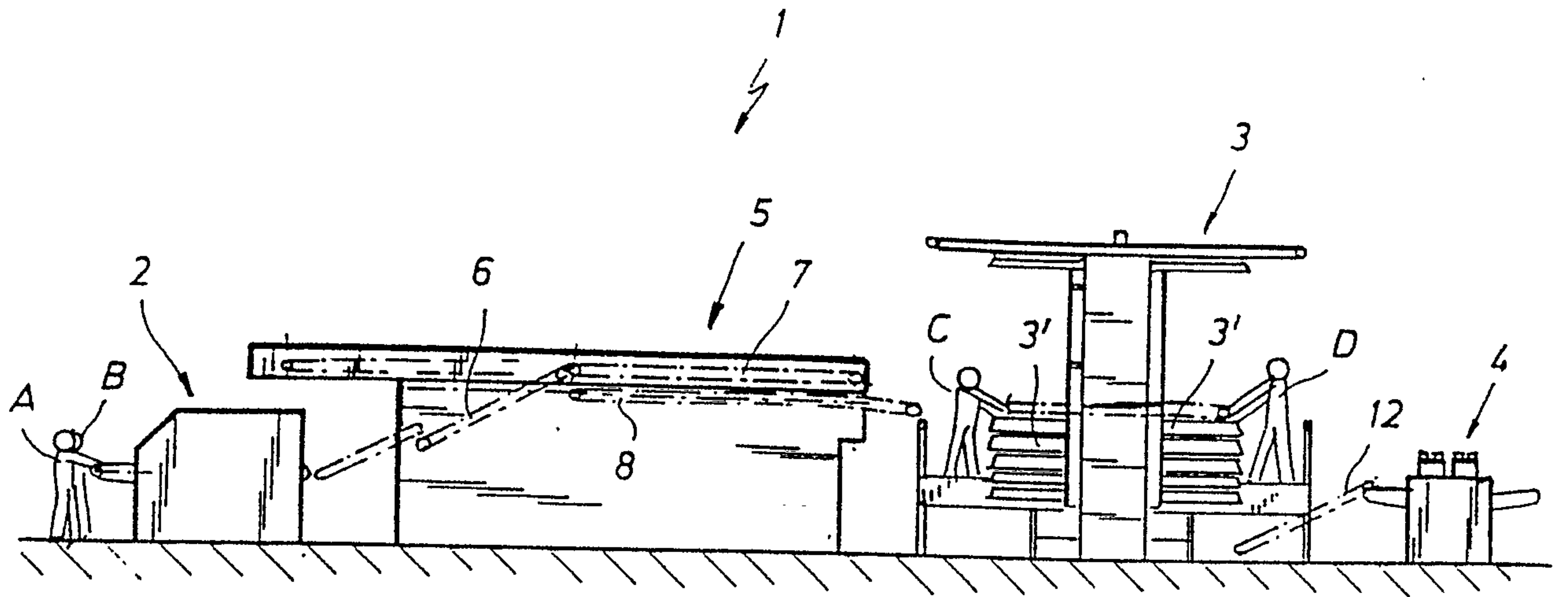


FIG. 1

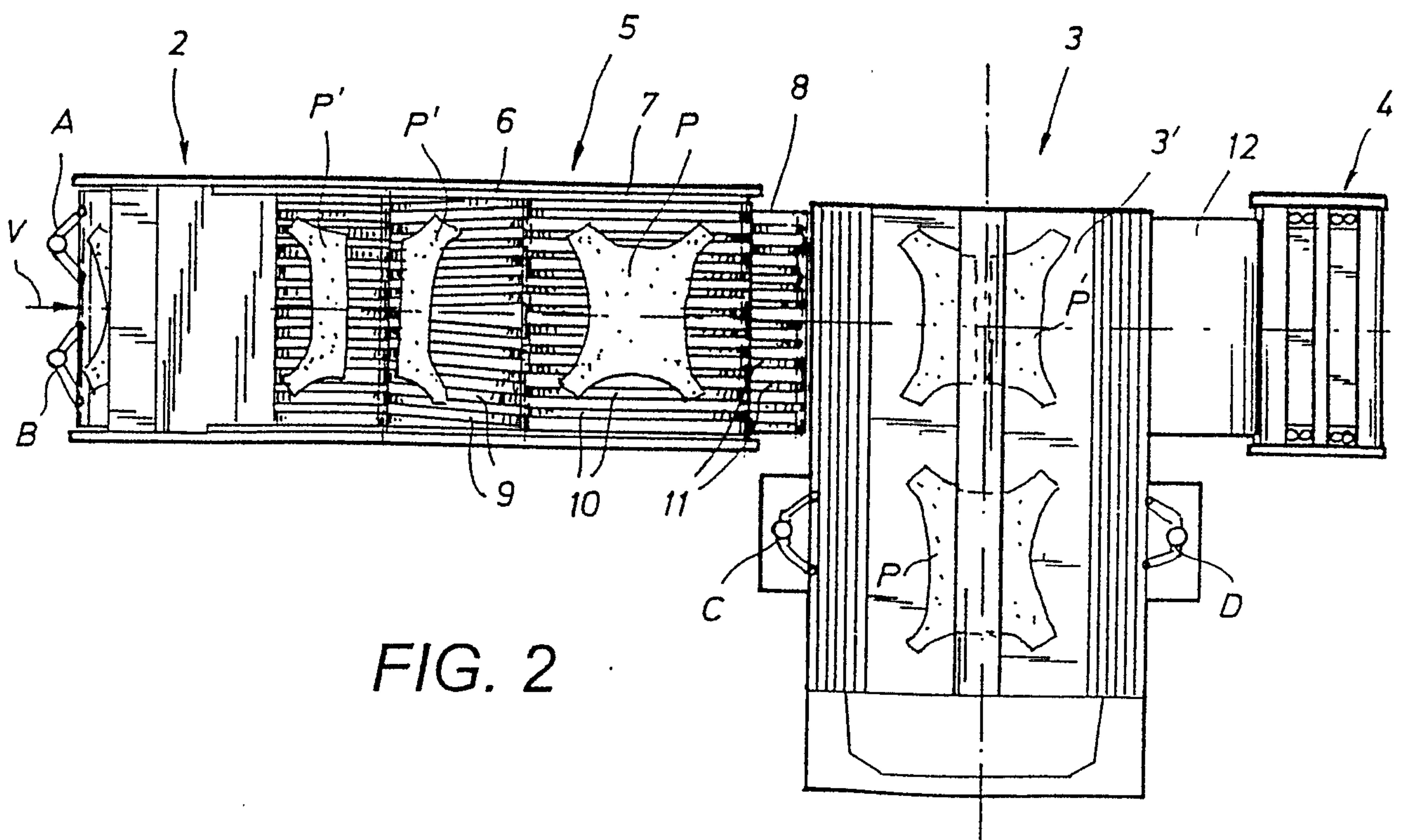


FIG. 2

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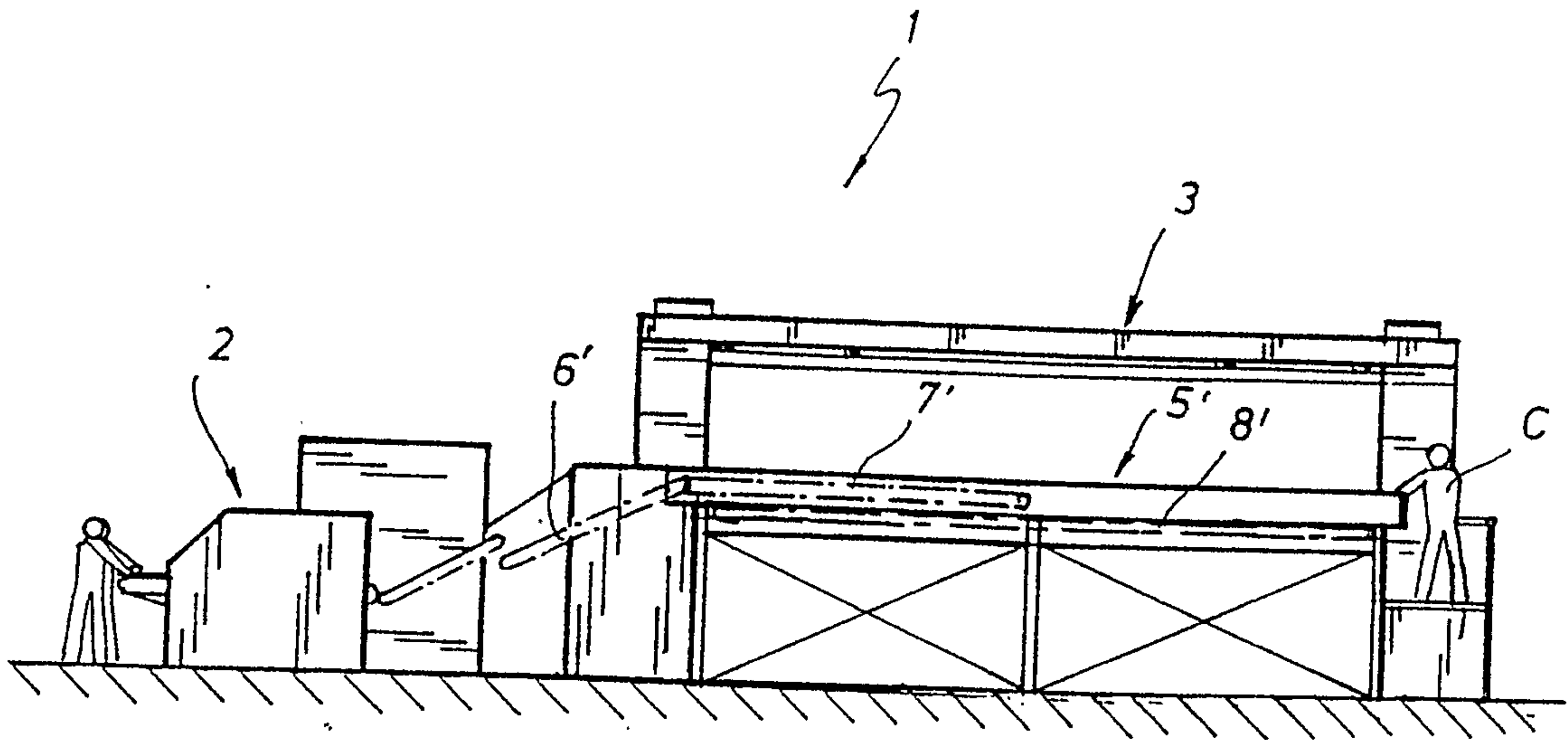


FIG. 3

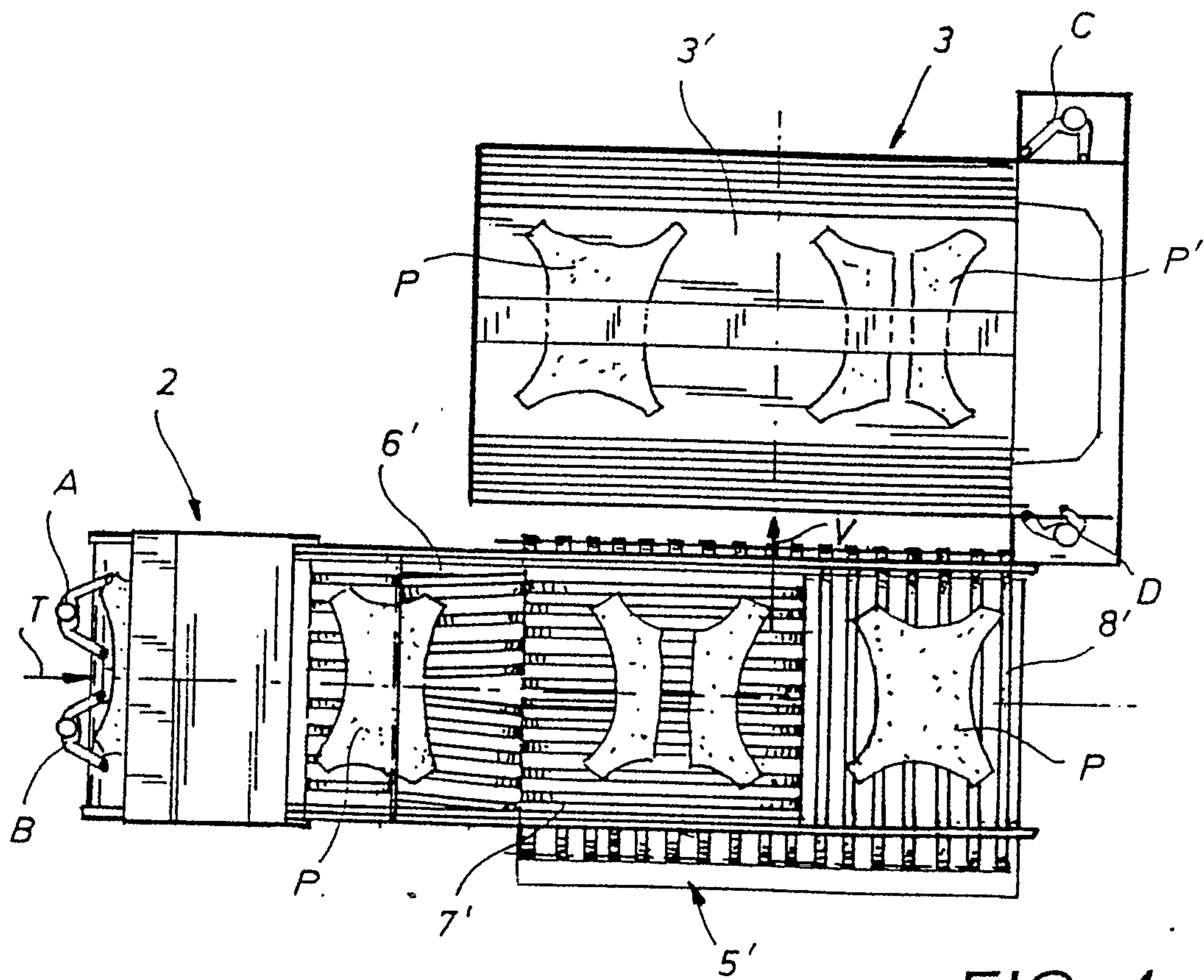


FIG. 4

