

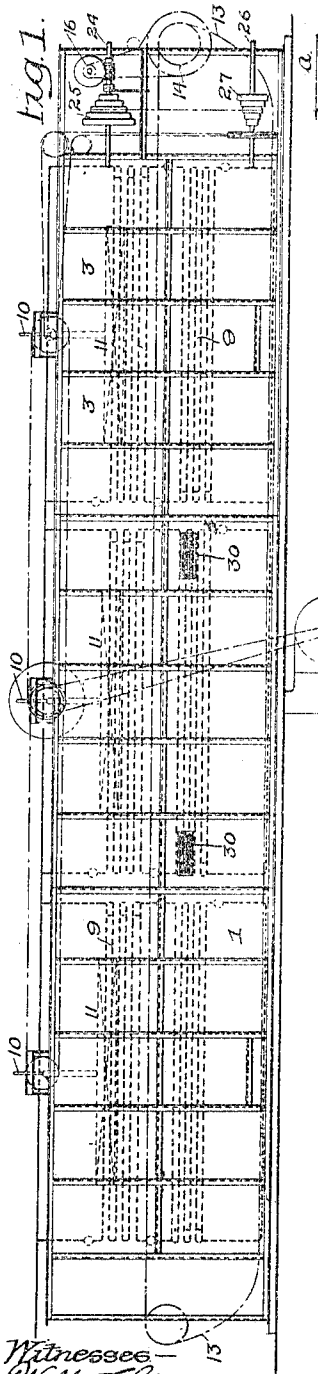
E. B. AYRES.
LEATHER DRIER.

APPLICATION FILED DEC. 27, 1913.

Patented Aug. 4, 1914.

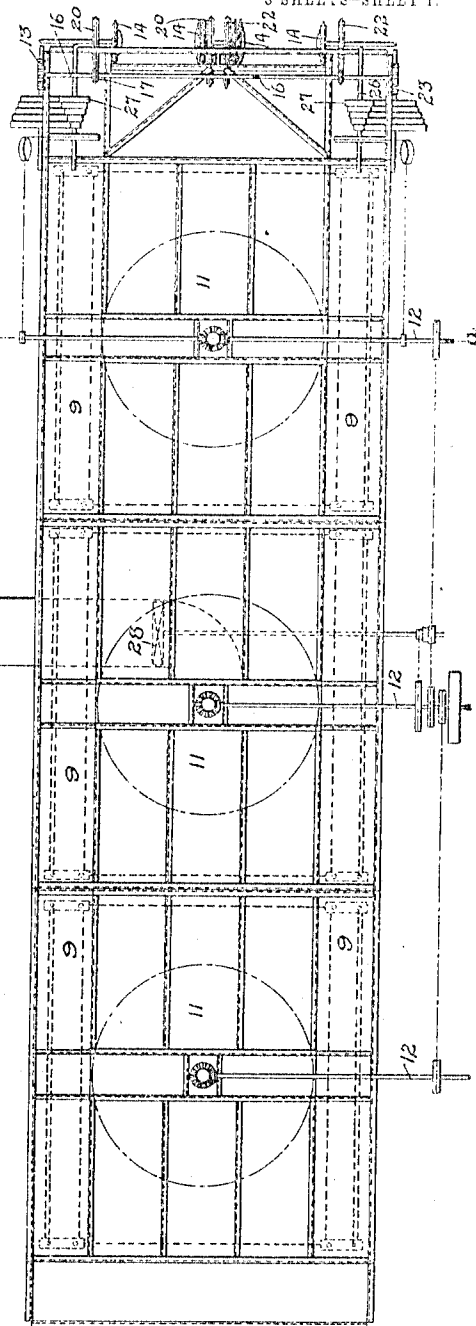
1,106,271.

3 SHEETS-SHEET 1.



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William F. Vase

Fig. 2



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by his Attorney,
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1,106,271.

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Fig. 3

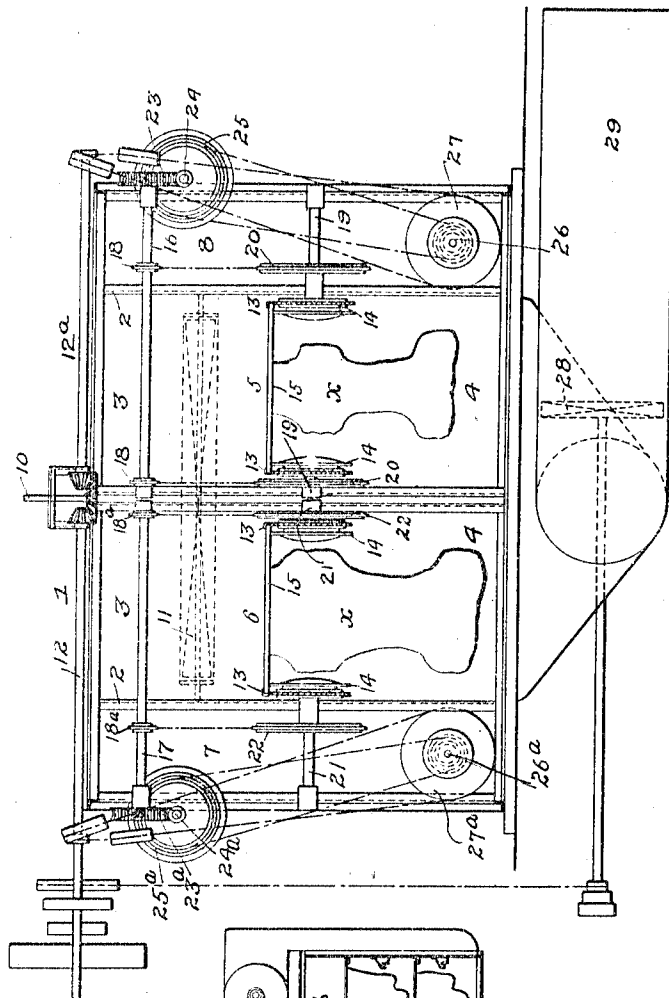
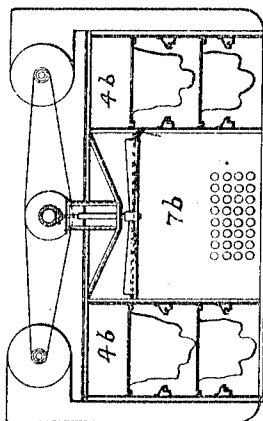


Fig. 7.



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1,106,271.

Patented Aug. 4, 1914.

3 SHEETS-SHEET 3.

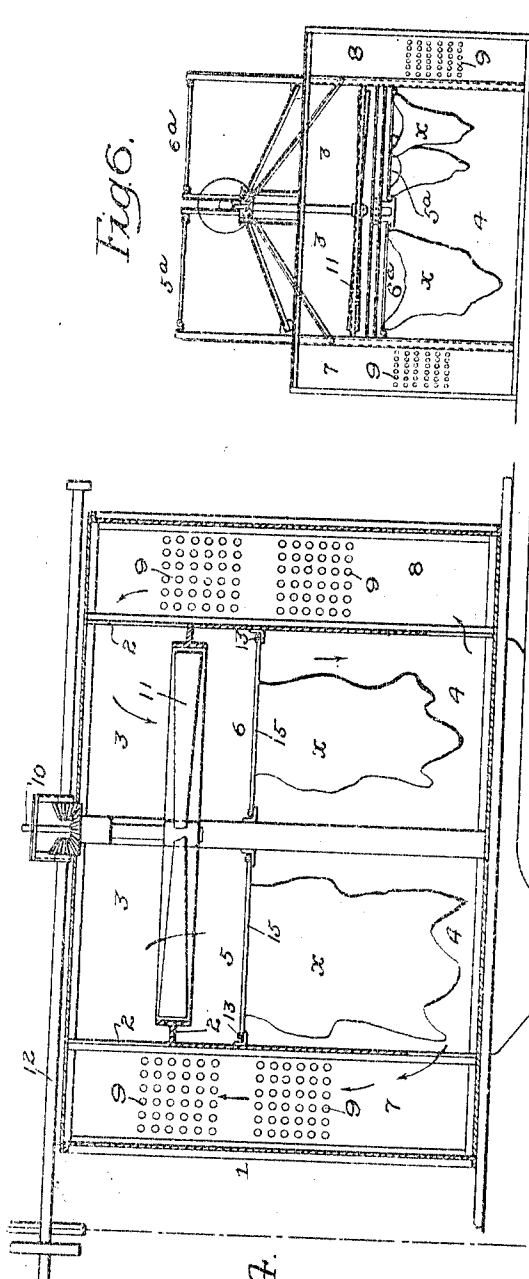


Fig. 4.

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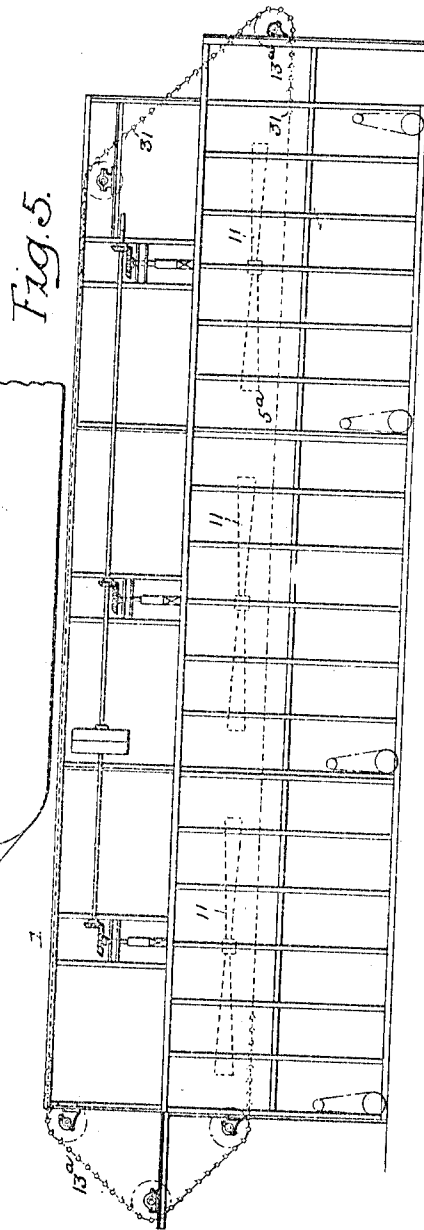
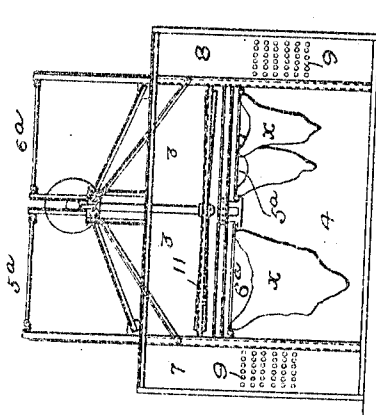


Fig. 5.

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Fig. 6.



UNITED STATES PATENT OFFICE.

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LEATHER-DRIER.

1,106,271.

Specification of Letters Patent.

Patented Aug. 4, 1914.

Application filed December 27, 1913. Serial No. 808,981.

To all whom it may concern:

Be it known that I, ELWOOD B. AYRES, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Leather-Driers, of which the following is a specification.

The object of my invention is to construct a drying machine in which different grades or thicknesses of leather can be dried at the same time. This object I accomplish by arranging two or more conveyers in a casing and driving them at different speeds so that the lighter skins are traversed through the casing at a greater speed than the heavier skins. This object I attain in the following manner reference being had to the accompanying drawings, in which:

Figure 1 is a side view of my improved leather drying machine; Fig. 2 is a plan view; Fig. 3 is an end view looking in the direction of the arrow *a*, Fig. 1; Fig. 4 is a transverse sectional view on the line *a-a*, Fig. 2; Fig. 5 is a side view of a modification of the invention; Fig. 6 is a transverse sectional view of the modification shown in Fig. 5; and Fig. 7 is a transverse sectional view illustrating the circulating chamber placed between two drying chambers.

Referring to the drawings, 1 is the casing of the drier, in the present instance, divided into four longitudinal chambers by partitions 2. Two of these partitions are vertical and one is horizontal. The upper chamber 3 communicates at each side with side chambers 7 and 8 and under the horizontal partition 2 is the drying chamber 4 in which are mounted two longitudinal conveyers 5 and 6, which travel longitudinally in the casing. The heating pipes 9 are arranged in any suitable manner in the side chambers 7 and 8 so as to provide sufficient heat to bring the air in circulation to the proper temperature. There are three fans 11, in the present instance, which are horizontally arranged and mounted on vertical shafts 10. These fans are located in openings in the horizontal partition 2 and they circulate the air in the casing so that there is a constant circulation of air between the skins carried by the conveyers and through the side compartments 7 and 8. The moist air is removed from the center of the machine by means of an exhaust fan 28 connected to a flue 29 and fresh air is admitted at any desirable

point through openings 30. The fan shafts, 55 in the present instance, are geared to horizontal shafts 12 arranged transversely of the machine, but the fan shafts may be driven in any suitable manner without departing from the essential features of the invention. Each of the endless conveyers consists of two chains 13 arranged to travel over sprocket wheels 14 and on these conveyers are placed the sticks 15 from which are hung the skins *z*. The two conveyers are identical in form, but one is driven at a greater speed than the other.

16, 17 are two driving shafts which are located at one end of the machine and on the shaft 16 are two sprocket wheels 18. Drive chains pass around these sprocket wheels and around sprocket wheels 20 on the shaft 19 so as to drive the conveyers and on the shafts 19 are the sprocket wheels 14 of the conveyers 5. On the outer end of the shaft 16 is a worm wheel 23 which meshes with a worm on the shaft 24 on which is a stepped pulley 25 and on the shaft 26 is a stepped pulley 27 so that the shaft 16 can be driven at any speed desired by changing the belt. The shaft 26 can be driven from any source of power and, in the present instance, it is driven from the shaft 12^a geared to the fan shaft, as shown by dash and dot lines, Fig. 3, illustrating the belt.

The conveyer 6 is driven from the shaft 17 on which are two sprocket wheels 18^a and belts pass from these sprocket wheels around sprocket wheels 22 on the shafts 21 on which the sprocket wheels 14 of the conveyer 6 are mounted. On the outer end of the shaft 17 is a worm wheel 23^a with which meshes a shaft 24^a and on this shaft is a stepped pulley 25^a and on the shaft 26^a is a stepped pulley 27^a, the shaft 26^a being driven from a fan shaft 12. By arranging the belts on the belt pulleys 25 and 27, and 25^a and 27^a the conveyers 5 and 6 can be driven at different speeds, according to the character and thickness of the skins being dried.

I have shown in Figs. 1, 2, and 3, an endless conveyer in which the return run of the conveyer travels under the carrying run, and, in fact, travels over the floor of the drier. The conveyers may be arranged in any manner desired.

In Figs. 1 and 3, the sticks 15 are carried

by chains and may either be attached to the chains or, preferably, loosely mounted thereon. The skins can either be attached to the bars by clips or other fastenings or can be placed over the bars which are traversed from one end of the drying chamber to the other. An operator at the feed end of the machine places one bar after another, with the skins thereon, on the conveyer chains, then another operator at the discharge end of the machine removes the bars from the conveyer.

In Figs. 5 and 6, I have illustrated another form of conveyer in which the return run travels over the top of the casing. The conveyers illustrated at 5^a and 6^a each consists of two side chains 13^a having bars 31 with pins or hooks projecting a given distance apart and the skins supported by these bars are carried from the feed end to the discharge end of the machine.

In Fig. 5, I have illustrated a modification of the invention in which the heating chamber 7^b is at the center and the conveying chambers 4^b are at each side. The fans are directly above the heating chamber so as to cause the air to circulate through the central heating chamber and the side conveying chambers. The conveyers in these chambers can be driven at different speeds and in this instance there are two conveyers in each chamber.

By the above apparatus I am enabled to dry skins of different thicknesses. The skins to be dried are of varying size and thickness and heretofore it has been the common practice to dry all of these skins in one drier. Consequently, the travel of the machine had to be regulated to dry the thickest and largest skins and in many instances the thin and small skins were over dried.

By my improved drier an operator can place the thin and small skins in one chamber and the thick and large skins in the other chamber. It naturally takes a greater length of time to dry the thicker and larger skins and the conveyer carrying them is driven at a slower speed than the conveyer carrying the small and thin skins. When these different skins are removed from the opposite end of the apparatus, they are all properly dried.

I claim:

1. The combination in a drier for skins, of

a casing having a drying chamber and a heating chamber therein; a circulating fan for circulating heated air through the chambers; two conveyers in the drying chamber; means located on the conveyers from which the skins to be dried are hung transversely to the direction of movement of the conveyers; and means for driving one conveyer at a greater speed than the other.

2. The combination of a casing; two longitudinal conveyers located therein; means for heating the air in the casing; means for circulating the air; two driving shafts located at one end of the machine, one shaft being arranged to drive one conveyer and the other shaft being arranged to drive the other conveyer; and change speed mechanism for driving each shaft so that the speed of the two shafts can be varied at will in order to change the speed of travel of each conveyer.

3. The combination of a casing having a longitudinal drying chamber and heating chambers at each side of the drying chamber; a circulating fan for causing the air to circulate through the chambers; two conveyers in the drying chamber; means for suspending skins from the conveyers; independent means for driving each conveyer; and change speed mechanism for each driving means so that the speed of travel of the conveyers can be independently regulated.

4. The combination in apparatus for drying skins, of a casing having a longitudinally arranged drying chamber; heating chambers at each side of the drying chamber; a series of circulating fans arranged above the drying chamber for circulating the air through the drying chamber and the heating chambers; means, located near the center of the casing, for admitting fresh air; an exhaust fan communicating with the center of the casing for withdrawing the moist air; two conveyers located in the drying chamber; means for independently traversing the conveyers through the casing; and means from which the skins are suspended from the conveyers.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ELWOOD B. AYRES.

Witnesses:

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WM. A. BARR.