Nov. 11, 1924. 1,514,915

A. LAUKHUFF

SEPARATOR

Filed Aug. 15, 1921

Fig. 3.

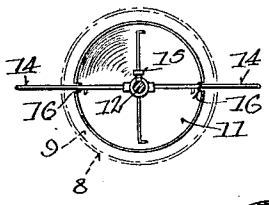
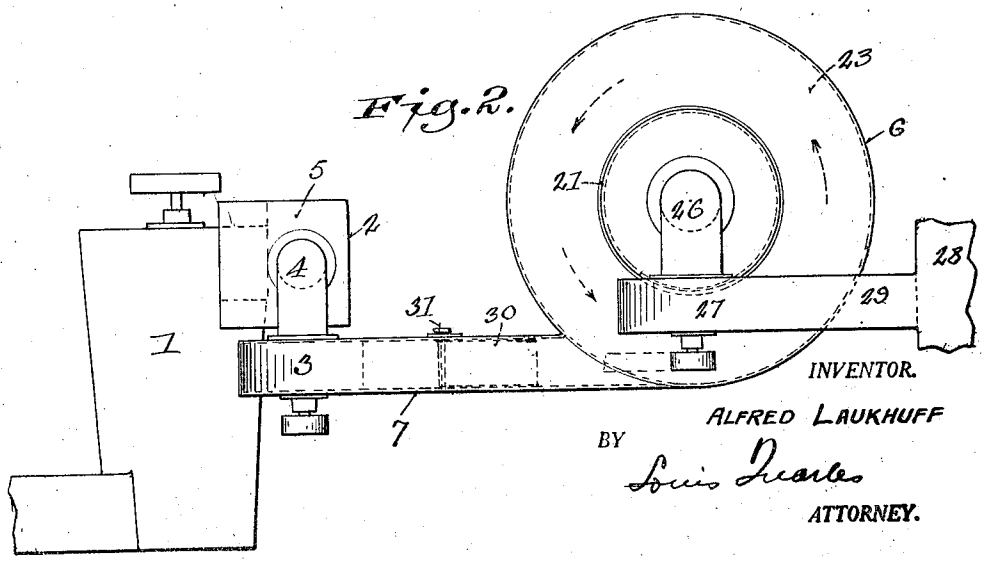


Fig. 1

Fig. 2.



INVENTOR.
ALFRED LAUKHUFF
BY
Louis Deaves
ATTORNEY.

Patented Nov. 11, 1924. 1,514,915

UNITED STATES PATENT OFFICE.

ALFRED LAUKHUFF, OF SHOREWOOD, WISCONSIN, ASSIGNOR TO ALBERT O. TROSTEL, OF MILWAUKEE, WISCONSIN.

SEPARATOR.

Application filed August 15, 1921. Serial No. 492,264.

To all whom it may concern:

Be it known that I, ALFRED LAUKHUFF, a citizen of Germany, residing in the village of Shorewood, county of Milwaukee, and State of Wisconsin, have invented a certain new and useful Improvement in Separators, of which the following is a specification.

This invention relates generally to improvements in separators and more specifically to that type of separator in which air current and centrifugal action are employed to effect the separation.

The main objects of the invention are to provide means for more effectively separating light materials from a mass, to provide an auxiliary separation of the heaviest material, and generally to simplify and improve the construction of machines of this character.

I accomplish these objects by the mechanism illustrated in the accompanying drawings which form a part of this specification and which show a construction particularly adapted for separating fine light hair from a mass of hair and fragments of skin, etc., which are by-products of a hide dehairing machine used in tanneries. This by-product is dried, cleaned and willowed or carded in the usual and well known manner which need not be here described, and then introduced into my improved separator.

In the drawings Fig. 1 is a side elevation of my separator, parts being shown in section; Fig. 2 is a top plan view of the same and Fig. 3 is a section taken on the line 3—3 of Fig. 1, the hopper being shown in dotted lines. Like parts are identified by the same numerals in each of the several views.

The numeral (1) designates a willow from which hair and fragments of skin are drawn into a chamber (2) due to the suction of a fan (3). The velocity of this fan (3) is such that the suction created thereby will draw the bulk of the hair up through the fan intake (4) while heavy particles, such as fragments of skin, will drop into the bin (5) at the lower end of chamber (2), thus effecting an auxiliary separation. The bulk of the hair is now blown by the fan (3) into the cylindrical drum (6) through the fan discharge pipe (7). The material enters the drum (6) tangentially to the periphery thereof and is therefore caused to rotate within said drum as shown by the arrows in Fig. 2. This whirling motion causes the heavier particles to separate from the mass due to centrifugal action, and they fall onto the inverted conical wall (8) at the lower end of the drum (6) from which they are discharged through the opening (9) onto a tray or conveyor (10). The size of the discharge opening (9) is adjusted by raising or lowering a valve member (11) on the shaft (12) which is in axial alignment with the drum (6). A set screw (13) screws the valve (11) to the shaft (12). This valve is made conical as shown so no material will accumulate thereon. Agitating arms (14) are also adjustably secured to the shaft (12) by a set screw (15), the lower end of the valve (11) being slotted at (16) to receive the rods (14). The shaft (12) is rotated by means not shown through a pulley (17) through the transverse shaft (18) and bevel gears (19) and (20).

A tubular member (21) depends from the top of the drum (6) and projects downward therein to a point below the flaring opening (22) from the discharge pipe (7). The member (21) is axially aligned with the drum (6) thus forming an annular chamber (23) between its wall and that of the drum.

The tubular member (21) confines the whirling material within the chamber (23), the heaviest particles moving adjacent the wall of drum (6) and the lightest particles adjacent the wall of tube (21). As the materials gradually drop due to their weight in their circular movement, the heavier particles such as coarse hair and fragments of skin are discharged through the opening (9) as above described, while the lighter particles, such as fine hair, pass around the lower edge (25) of the tube (21), and are drawn upward through the passage (26) by the suction of a fan (27). The light hairs then pass into the fan (27) and are conveyed into a storage bin (28) through a discharge pipe (29). The fan (27) is adapted to be driven at different predetermined speeds by a variable speed motor or any other suitable mechanism not shown, and the position of valve (11) adjusted so that the suction created by the fan (27) may be varied to give the desired results. The flaring opening (22) is provided with

a deflector (30) the position of which may be varied by manipulating a handle (31) on a pivot (32). The purpose of this deflector is to subject the mass to more or less centrifugal action by directing it into the chamber (23) at a higher or lower level. The bin (5) is provided at its bottom with doors (33) for the purpose of discharging the material which may have accumulated within said bin.

Minor details of construction and arrangement of parts may be made without departing from the spirit and scope of this invention as defined in the following claims:

I claim:

1. In a separator, the combination of a separating chamber having an inlet at its upper end and a conical walled outlet at its lower end, a revoluble agitator extending into said outlet and adjacent the wall thereof, and a valve controlling said outlet and revolving with said agitator.

2. In a separator, the combination of a separating chamber having an inlet at its upper end, and a conical bottom provided with an outlet, a revolving conical valve controlling said outlet and a revoluble agitator in the outlet between said valve and the wall of said chamber.

3. In a separator, the combination of a separating chamber having an inlet at its upper end and an outlet at its lower end, a revoluble conical valve member adjustably mounted in said outlet to vary the effective area of discharge therefrom, and movable means for preventing clogging of the material in the space between said valve and the wall of said outlet.

ALFRED LAUKHUFF.