Sept. 12, 1933. E. S. PEARCE 1,926,402

EXTRACTOR

Filed Oct. 27, 1930

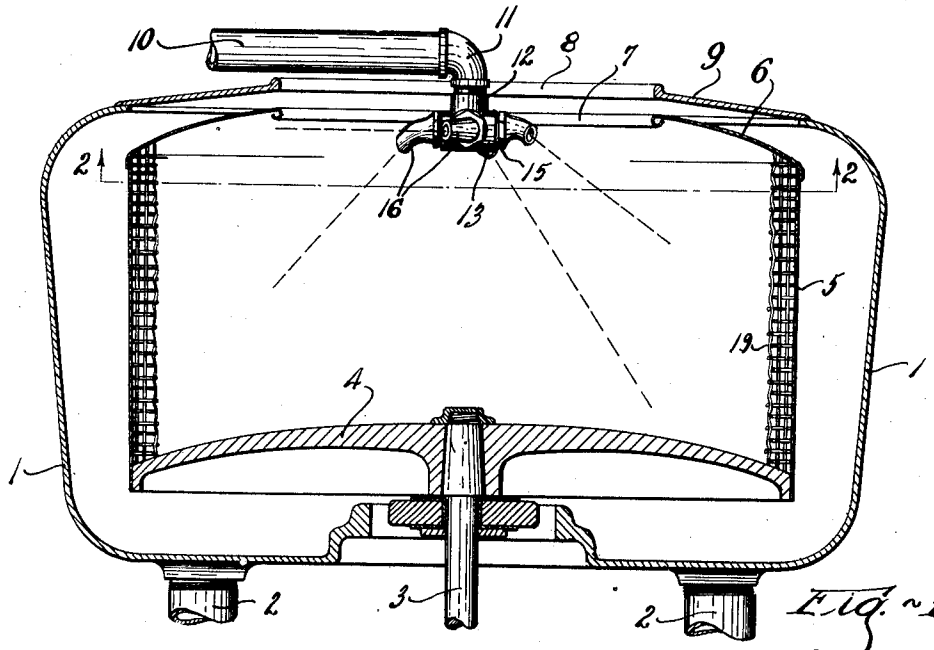


Fig. 1

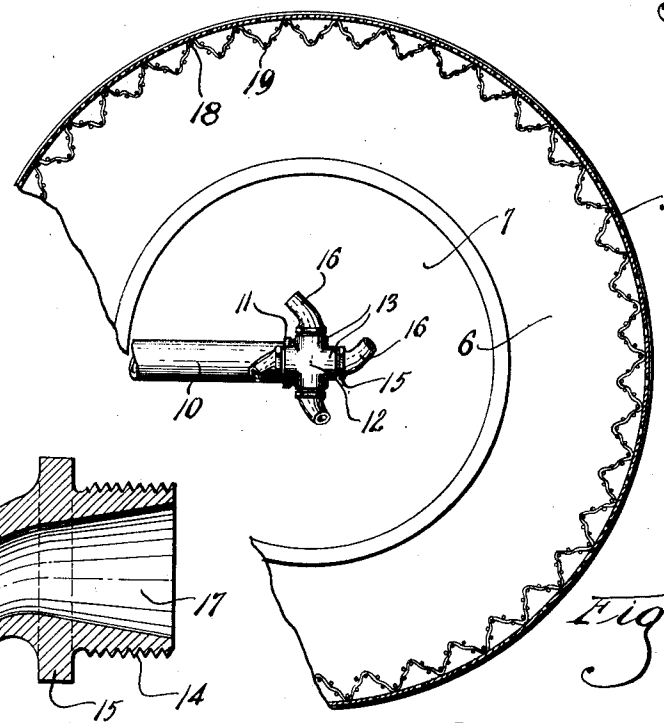


Fig. 2

Fig. 3

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Patented Sept. 12, 1933 1,926,402

UNITED STATES PATENT OFFICE

1,926,402

EXTRACTOR

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Application October 27, 1930. Serial No. 491,504

2 Claims. (Cl. 210—67)

The invention disclosed in this application relates to apparatus of the centrifugal extractor type for treating materials.

It is well known that centrifugal extractors by their effect upon the materials possess great merit by reason of the centrifugal effect upon the treating medium or liquid, causing it to circulate through the material where it is sufficiently porous or open to permit such action. The extracting operation however, as usually carried on, possesses one disadvantage in that the material and the treating medium under the effect of centrifugal force tends to move out to the periphery of the basket or revolving container with sufficient force to cause the material to plug or otherwise close the openings in the outer wall of the basket and then become packed or matted to the extent of preventing free circulation of the treating medium through the material. Another disadvantage resulting from the use of these extractors as treating devices resides in the fact that heretofore no means has been provided for uniformly distributing the treating medium or liquid around and uniformly throughout the height of the breast of material.

The object of this invention therefore is to provide an extractor with a means such as a reticulated undulating wall at the periphery of the basket for preventing undue matting of the material at the periphery and to provide the maximum area of exit for the treating medium at this point.

A further object is to provide at the center of the basket a distributing means which will not only distribute the treating medium uniformly around the basket to avoid interference with its balance but also to uniformly distribute the material from the bottom to the top so that all horizontal cross sections of the material will be treated alike.

The invention is well exemplified in the arrangement set forth in the following description, drawing, and claims.

Referring to the drawing, Fig. 1 is a vertical sectional view of an extractor constructed according to my invention; Fig. 2 is a sectional view of the basket on the line 2—2 of Fig. 1; and Fig. 3 is a detailed view of one of the nozzles.

In the arrangement shown 1 represents an extractor curb provided with the usual drain 2. This curb is supported upon the usual frame, not shown, and receives the extractor basket.

The basket structure comprises an extractor shaft 3 mounted in bearings in the curb frame in any approved manner and secured to a basket bottom 4. Secured to this bottom is a reticulated side wall 5 extending up and carrying around its top edge a suitable basket flange 6 having an opening 7 at the center thereof. This opening 7 is substantially the size of the opening 8 in the curb and is closed by an extractor cover 9, which may be of the usual construction.

Supported above the extractor in any suitable manner, not shown, is a treating medium inlet pipe 10 provided with an elbow 11 receiving a hollow hub 12 provided with four internally threaded integral fittings, indicated at 13. Each of these fittings receives one of a plurality of nozzles which are identical in construction. Each of these nozzles comprises a threaded shank 14 adapted to be screwed into one of the internally threaded fittings 13, a stop flange 15 and a curved nozzle portion 16. These nozzles turn off at about the angularity of the usual 45° fitting. Each nozzle is provided with a tapered opening 17 gradually decreasing in size toward the outlet. These nozzles are arranged in their fittings so that they project their streams in the direction of rotation and at different angles, one serving a zone at the bottom, and the others serving other zones from the bottom to the top, so that the aggregate supply of treating medium is uniformly distributed throughout the height of the breast of material in the extractor.

In conjunction with the distributor the basket is provided with an inner fluted or corrugated lining providing valleys, indicated at 18, and ridges, indicated at 19. A suitable material for the purpose is wire mesh in the form of a strip folded transversely back and forth to provide the fluted arrangement. It is of sufficient length so that it supports itself within the extractor basket and engages the inner surface of the peripheral wall 5.

This fluted inner reticulated lining with its vertical ridges and valleys supports the material in such a way as to prevent undue packing and matting at the periphery and does away with any substantial impediment to the free flow of the treating medium through the material. It also provides the maximum of discharge area in that the reticulated ridges or valleys enter the material and furnish ample discharge means for the treating medium.

In practice the material to be treated is loaded into the basket and the basket is driven at a moderate speed, say approximately 900 R. P. M., when the material will tend to move outwardly

slightly and provide an opening at the center. In the meantime the treating medium is being supplied from the nozzles from any suitable source of supply, when it will pass through the material and out through the peripheral fluted wall and may be returned, if it is of a type to be recirculated, or it may be drained to a waste or sewer, as may be desired.

What I claim is:

1. In an extractor for treating fibrous materials, a rotatable basket for receiving said materials, and a stationary nozzle for directing a stream of treating liquid into said basket in the direction of rotation of said basket.

2. In an extractor for treating fibrous materials, a rotatable basket for receiving said materials, and a plurality of circumferentially spaced stationary nozzles for directing streams of treating liquid into said basket, said nozzles being arranged adjacent the central axis of said basket and being curved in the direction of rotation of said basket, said nozzles being inclined at varying angles to the horizontal so that streams of treating liquid can be directed by said nozzles into said basket from the bottom thereof to substantially the top thereof.

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