June 1, 1937. L. P. FALCONER 2,082,051

FUR CLEANING DEVICE

Filed May 13, 1935

Fig. 1.

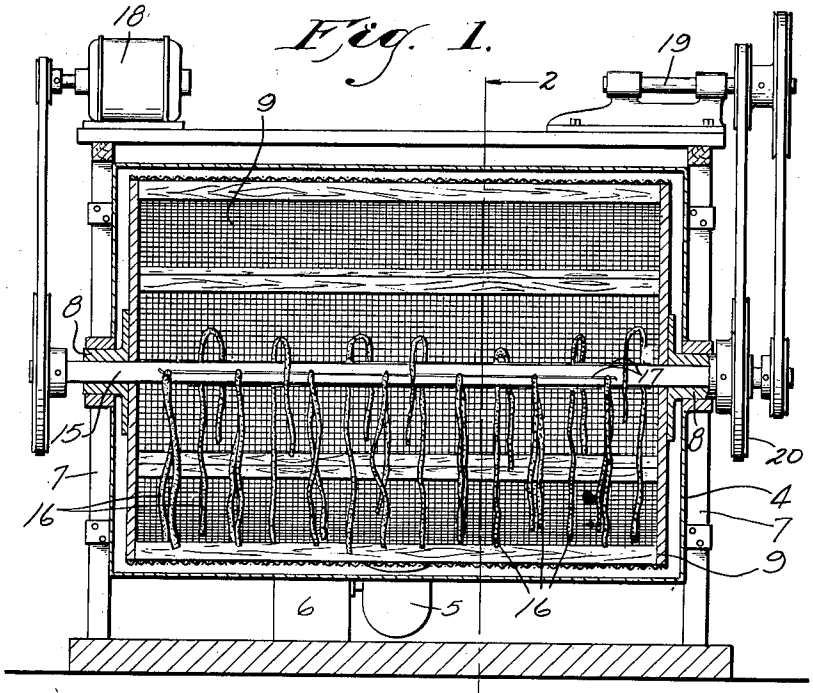


Fig. 2.

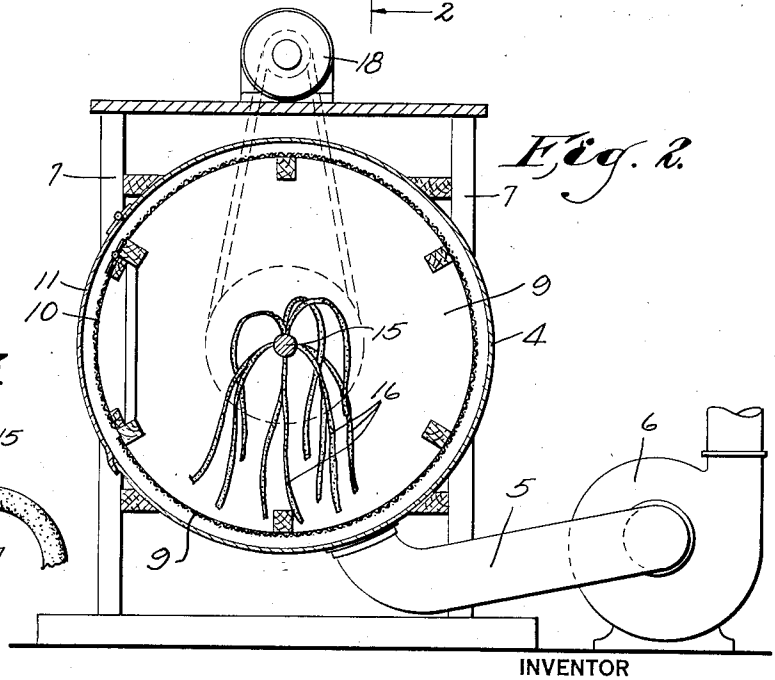
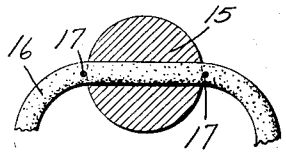


Fig. 3.



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FUR CLEANING DEVICE

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5 Claims. (Cl. 15—12)

This invention relates to improvements in fur cleaning devices. It may also be used for the cleaning of other heavy flexible articles, such as articles of clothing and the like.

The primary object of the invention is to provide novel and improved means for beating and tumbling operations in such a manner that the beating of the article to be cleaned facilitates the tumbling thereof and the tumbling of the article facilitates the beating thereof.

Specifically, it is my purpose to provide a beater shaft rotating at relatively high speed in the interior of a relatively slow moving tumbling drum, the beater shaft being equipped with flexible beaters whereby the action of the beaters will retard the movement in the drum of the articles to be cleaned thereby enhancing the tumbling movements thereof, while the tumbling of such articles will constantly present new surfaces to the beater.

In the drawing:

Figure 1 is a vertical section through the device embodying the present invention.

Figure 2 is a view of the device in cross section taken at 2—2 in Figure 1.

Figure 3 is an enlarged fragmentary detail showing the application of one of the beating thongs to the beater shaft.

Like parts are identified by the same reference characters throughout the several views.

The drum casing 4 may be of any conventional form. It is preferably provided with a suction connection 5 leading to a centrifugal blower 6 for drawing off the dust and lint and sawdust beaten from the articles to be cleaned.

Provided with suitable bearings in the frame 7 which supports casing 4 are the tubular hubs 8 of the tumbling drum 9. This drum is preferably made in the form of a reel covered with screening or other reticulated material through which the dust and lint can freely pass. It has a door at 10 registerable in one position of drum rotation with the door 11 of the casing 4.

Preferably (but not necessarily) coaxial with drum 9, is the beater shaft 15. This shaft is transversely apertured at different angles to receive the beating thongs 16 which may comprise pieces of belting circular in cross-section. Threaded through these thongs next to the surface of shaft 15 are retaining strands 17 which anchor the thongs in place. The size, shape and material of the beating thongs is of course, broadly immaterial to the present invention, but leather belting has been found to be appropriate.

The motor 18 for driving the apparatus may conveniently be mounted on top of the frame 7 and belt connected with shaft 15, the pulley ratio being such that with an 1800 R. P. M. motor the beater shaft 15 will operate at about 500 R. P. M. At the opposite end of shaft 15, such shaft is belt connected with a jack shaft 19 which is likewise conveniently mounted on the top of frame 7 and receives motion at a slower speed to turn about 200 R. P. M. The jack shaft is connected with the pulley 20 on one of the tubular hubs 8 of the drum 9 to turn the drum at approximately 25 R. P. M.

It will of course, be understood that the relative speeds stated are purely illustrative. As above noted, the speed ratios are not at all critical but it is desirable that the beater shaft should operate at a relatively high speed while the drum should operate comparatively slowly. Where the speed differential is so great, it is of course broadly immaterial whether the beater shaft and drum operate in the same direction or in opposite directions. In either case the flailing action of the beating thong 16 on the material tumbling in the drum will tend to move such material slightly with reference to the drum and to eliminate any tendency of the material to remain motionless with reference to the periphery of the drum. Thus the beating action increases the amount of tumbling which would otherwise be produced with the drum alone while at the same time the tumbling motion of the skins or fabrics in the device is constantly presenting fresh surfaces to the flailing action of the beating thongs.

In cleaning furs it is common to use sawdust to take up the cleaning material from the furs. The sawdust is hard to dislodge from the fur, but where the present device is used the sawdust is removed with greater facility and in less time than has heretofor been possible. All dust and sawdust and lint and hair is drawn from the casing 4 by means of the blower 6 so that after the articles have been tumbled and beaten for a relatively short period they will be found to be completely fresh and clean.

I claim:

1. In a device of the character described the combination with a tumbling drum provided with rotatably supported hub portions, of a beater shaft coaxial with said drum and extending through said hub portions, thongs connected with said shaft and having their free end portions in proximity to the interior perimeter of the drum to act upon material tumbled therein, means for driving said shaft at a relatively high speed and means for driving said drum at relatively low

speed such that said thongs will assist in tumbling in said drum the work acted on therein and also constantly act upon the new surfaces presented by the work in the tumbling thereof during the cleaning operation, the speed of the shaft being sufficiently high to maintain the thongs distended centrifugally and the speed of the drum being sufficiently low to prevent the work from being held centrifugally to the periphery of the drum.

2. The combination with a beater shaft having a transverse hole, of a beater thong extending through said hole and a lacing threaded through said thong at each side of said shaft whereby to anchor said thong in said hole.

3. The combination with a beater shaft having a series of transverse holes, of a series of thongs having free end portions and having their respective central portions extending through the holes of said shaft, and lacing means threaded through a succession of said thongs along each side of said shaft whereby to anchor the said thongs in said shaft.

4. In the device of the character described, the combination with a casing provided with an outlet and suction means for evacuating air therefrom, of a drum rotatable in said casing and provided with a reticulated periphery to deliver foreign matter to the air of said casing for evacuation therewith, a beater shaft rotatable within said drum and provided with a series of thongs having free end portions disposed to act upon the material in said drum, and means for rotating said shaft at a relatively high rate of speed and said drum at a relatively low rate of speed such as to tumble the work about the interior of the drum, the speed of the drum being sufficiently low to prevent the work from adhering centrifugally to the periphery of the drum and the speed of said shaft being sufficiently high to hold the thongs centrifugally distended for beating action on the work in the course of its tumbling in the drum, said thongs coacting with the drum to tumble the work.

5. In a device of the character described, the combination with a casing provided with an outlet passage and suction means for evacuating air therefrom, a drum provided with a support upon which said drum is rotatable in the casing, said drum having a reticulated periphery, means for rotating said drum at a speed sufficiently low to tumble its contents, a beater shaft provided with means supporting it for rotation within the drum, thongs connected with said shaft and having free end portions of sufficient length to act upon material in the drum, and means for rotating said shaft with respect to the drum at a speed sufficiently high to distend said thongs by centrifugal force for contact with such material during the tumbling thereof.

LEO P. FALCONER.