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POWER TRANSMISSION MECHANISM.

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1,332,235. Patented Mar. 2, 1920.

Fig. 1

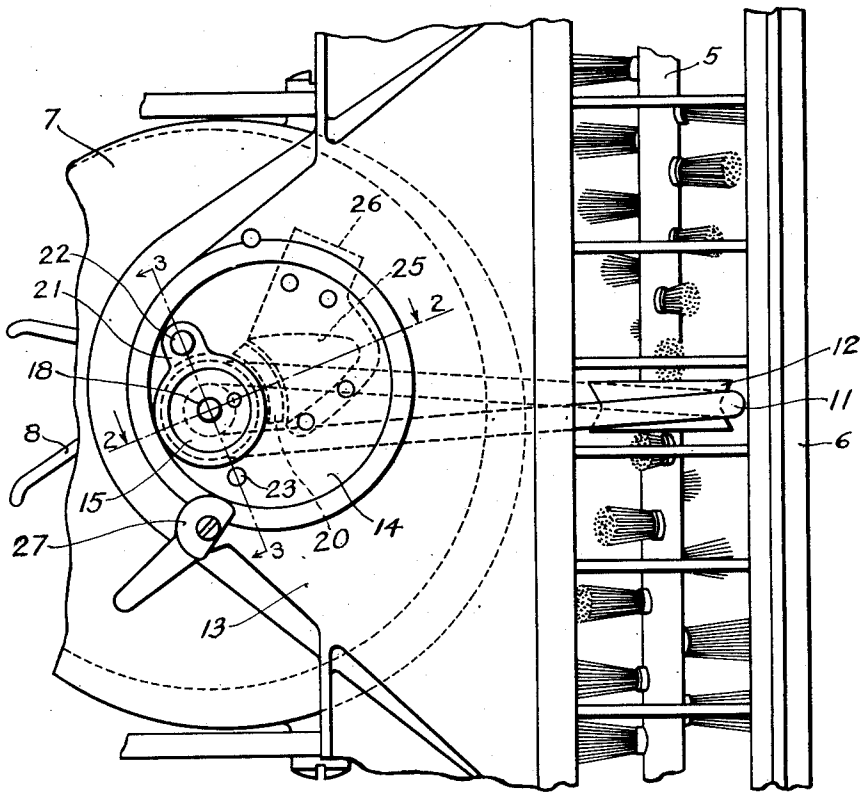


Fig. 2

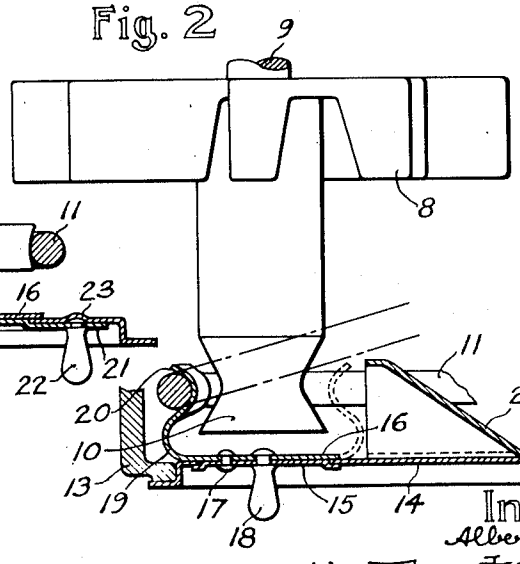
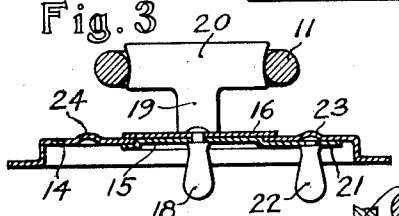


Fig. 3



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UNITED STATES PATENT OFFICE.

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POWER-TRANSMISSION MECHANISM.

1,332,235. Specification of Letters Patent. Patented Mar. 2, 1920.

Application filed April 22, 1918, Serial No. 230,056. Renewed August 27, 1919. Serial No. 320,309.

To all whom it may concern:

Be it known that I, ALBERT F. STAPLES, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Power-Transmission Mechanism; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to power-transmission mechanism of the type in which belts and pulleys are used, and the object of the invention is to provide mechanism of this kind with simple and effective means for throwing and holding the belt out of engagement with a drive-pulley when it is desired to interrupt the operation of the mechanism.

In vacuum-cleaning or suction-sweeping apparatus of the kind in which a rotary brush is connected with and driven by the same source of power as a rotary blower or fan, it is frequently desirable to disconnect the brush from the fan in order that the latter may be used alone. The present invention is particularly useful for this purpose, and it comprises certain features of construction which adapt it for application to a well-known type of suction-sweeper. The invention is obviously susceptible of use in various other connections, however.

To the foregoing end the invention consists in the power-transmission mechanism hereinafter described, as it is defined in the appended claims.

In the accompanying drawings Figure 1 is a bottom plan-view of a part of a suction-sweeper embodying power transmission-mechanism in accordance with the present invention; Fig. 2 is a section on the line 2—2 in Fig. 1; and Fig. 3 is a section on the line 3—3 in Fig. 1.

The invention is illustrated as embodied in a suction-sweeper of the type shown, for example, in United States Patent No. 1,247,837 granted November 27, 1917, to H. E. Hoover, and only so much of the sweeper is shown as is necessary for an understanding of the present invention. There is a rotary brush 5 arranged to operate through the open bottom of a housing 6. This housing is connected with the casing 7 of a rotary fan 8, which exhausts the air from the housing. The fan is mounted on and driven by a shaft 9 actuated by an electric motor (not shown).

The brush 5 is rotated by belt-and-pulley connections with the shaft 9, and for this purpose a drive-pulley 10 is fixed at the lower end of the shaft and is connected by a belt 11, with a pulley 12 fixed on the middle of the brush. The present invention relates particularly to means by which the belt 11 may be held out of engagement with the pulley 10, to permit the fan to operate independently of the brush.

As in the said Patent No. 1,247,837, the pulley 10 is inclosed in a depending portion 13 of the fan-casing, and a removable circular cover 14 is provided to afford access to the belt and pulley. This cover is utilized as a support for the belt-controlling member, and for this purpose it is provided with a circular opening in which a sheet-metal disk 15 is fitted, this disk being flanged, as shown in Fig. 2, to center it in the opening. Upon the upper surface of the disk 15 is fixed a second disk 16, the disks being secured together by a rivet 17 and a stud 18. The disk 16 is formed with an integral laterally extending arm 19, terminating in a concave belt-engaging member 20. The disk 15 is provided with an integral laterally extending arm 21 provided with a stud or handle 22. In the normal position of the parts, when the belt is in operation, the member 20 occupies the position shown in dotted lines in Figs. 1 and 2, being at this time clear of engagement with the belt. When it is desired to throw the belt out of operation, a half-turn is given to the disks 15 and 16, the two studs 18 and 22 being used as handles for that purpose. By this movement the belt-engaging member 20 is engaged with one side of the belt, and is then brought to a position at the side of the pulley 10 which is remote from the pulley 12, thus drawing and holding the belt entirely clear from the pulley, as shown in Fig. 2. The pulley is then free to rotate without impediment.

In order to insure retention of the belt-engaging member in the proper operative and inoperative positions, the stud 22 is provided with a convex upper end, as shown in Fig. 3, which is adapted to be seated normally in one or the other of two depressions 23 and 24 in the sheet-metal of the cover 14. The resiliency of the arm 21 permits the

stud to ride out of these depressions when the parts are moved.

To prevent threads or other articles from collecting against the arm 19 when the machine is in operation, a sheet-metal guard 25 is provided, this guard being in position to shield the arm 19 in its normal inoperative position.

As in the said Patent No. 1,247,837, the removable cover 14 is flanged to locate it within the corresponding opening in the casing 13, and is secured in place on one side by a sheet-metal lug 26 which engages over the edge of the casing, while at the other side the cover is secured by a button 27. In the present construction the lug 26 and the guard 25 are, for convenience, made integral, of a single piece of sheet-metal.

The invention is not limited to the embodiment just described, but may be embodied in various other forms within the scope of the following claims.

The invention claimed is:—

1. In power-transmission mechanism, the combination, with a belt, a pulley, a housing inclosing the belt and the pulley and provided with an opening adjacent the pulley, and a removable closure for said opening; of means, mounted on said closure, for engaging the belt to disengage it from the pulley.

2. In power-transmission mechanism, the combination, with a belt, a pulley, and a housing inclosing the belt and the pulley and provided with an opening for access to the pulley, of a removable closure, for said opening, the closure also being provided with an opening; a rotatable member mounted in the opening of the closure; a belt-controlling member mounted on the rotatable member within the housing; and manually-operable means, outside the housing, for rotating the rotatable member.

3. In power-transmission mechanism, the combination, with a power-shaft, a rotatable member, pulleys on the power-shaft and the rotatable member, and a belt connecting the pulleys, of a belt-controlling member arranged to swing around the power-shaft and to engage the belt and lift it from the pulley on said shaft; and a guard interposed between the rotatable member and the shaft in position to shield the belt-controlling member when the latter is in inoperative position between the rotatable member and the shaft.

4. In power-transmission mechanism the combination, with a belt, a pulley, and a housing inclosing the belt and the pulley and provided with an opening adjacent the pulley, of a member rotatably and removably mounted in said opening; and means, mounted on said member and actuated by rotation thereof, for engaging the belt to disengage it from the pulley.

5. In a power transmission mechanism the combination with a belt, a pulley and a housing inclosing the belt and pulley, of means mounted on said housing for engaging the belt to disengage it from the pulley.

6. In a power transmission mechanism the combination with a belt, a pulley and a housing inclosing the belt and pulley, of means mounted on said housing adapted for insertion between the belt and pulley for holding the belt clear of the pulley.

7. In a power transmission mechanism the combination with a belt, a pulley and a housing inclosing the belt and pulley, of a rotatable member mounted in said casing, a belt controlling member mounted on said rotatable member and extending within the housing, and manual means outside the housing for rotating the belt controlling member.

8. In a power transmission mechanism the combination with a belt, a pulley and a housing inclosing the belt and pulley, of means for disengaging the belt from the pulley comprising a rotatable belt controlling member mounted on and within the housing and a guard adjacent said rotatable member adapted to protect it when it is in inoperative position.

9. In a power transmission mechanism the combination with a belt, a pulley and a housing inclosing the belt and pulley, of means for disengaging said belt from said pulley comprising a member rotatably mounted on said casing and a pulley engaging member mounted on said rotatable member.

ALBERT F. STAPLES.