A. E. ROEVER.

POWER TRANSMITTING DEVICE.

APPLICATION FILED SEPT. 30, 1915.

1,203,653.

Patented Nov. 7, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

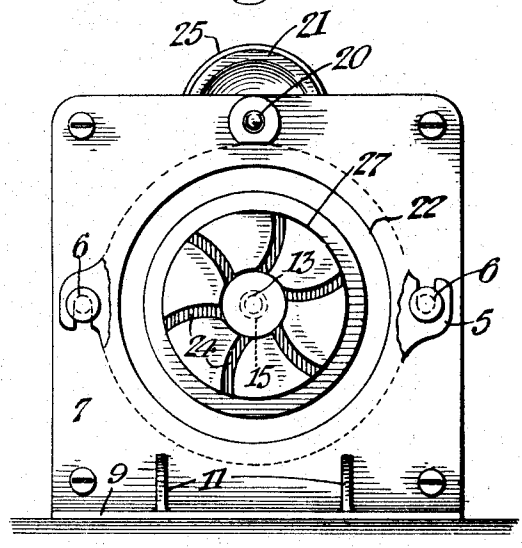


Fig. 2.

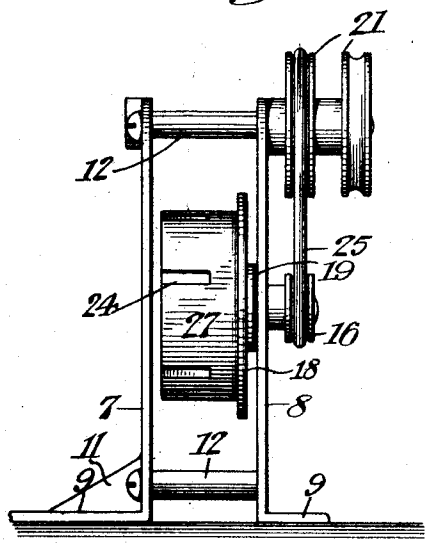
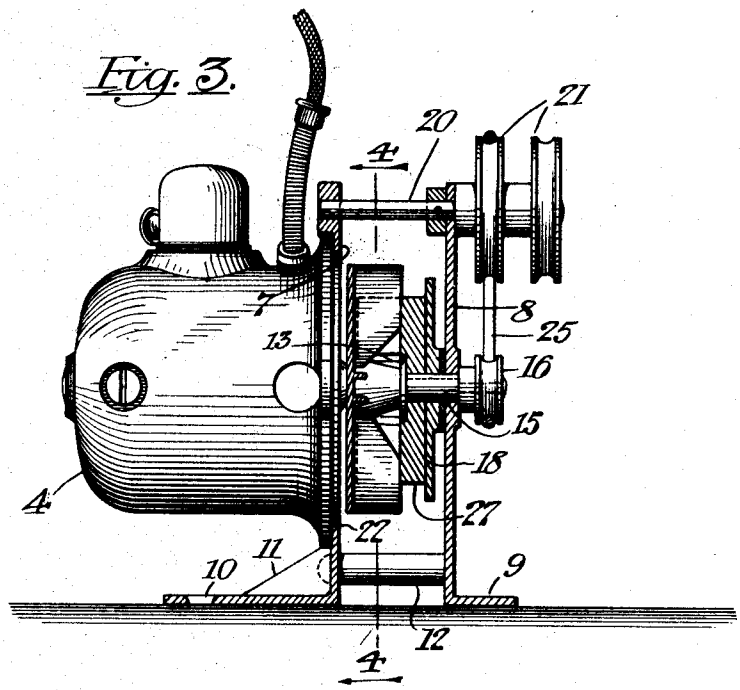


Fig. 3.



Witness:

Inventor

August E. Roever

By his Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

A. E. ROEVER.

POWER TRANSMITTING DEVICE.

APPLICATION FILED SEPT. 30, 1915.

1,203,653.

Patented Nov. 7, 1916.

2 SHEETS—SHEET 2.

Fig. 4.

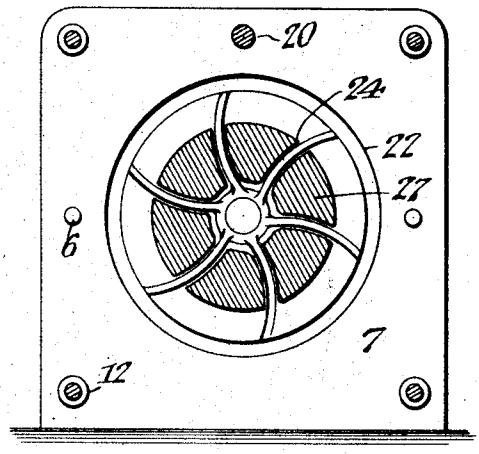
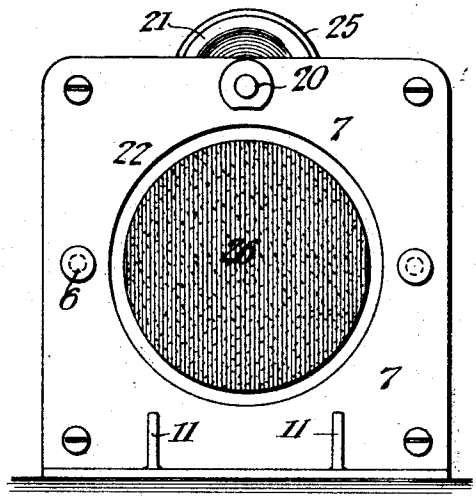


Fig. 5.



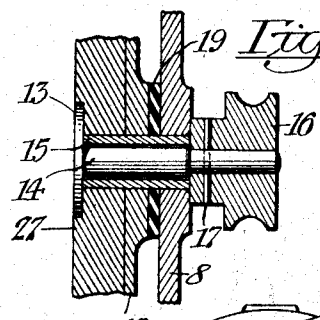


Fig. 6.

Fig. 7.

Witness:

Inventor

August E. Roever

By his Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AUGUST E. ROEVER, OF BROOKLYN, NEW YORK.

POWER-TRANSMITTING DEVICE.

1,203,653. Specification of Letters Patent. Patented Nov. 7, 1916.

Application filed September 30, 1915. Serial No. 53,246.

To all whom it may concern:

Be it known that I, AUGUST E. ROEVER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Power-Transmitting Devices, of which the following is a specification.

This invention relates to improvements in power transmitting devices, the object of the invention being to provide a device of this character adapted to coöperate with the motor-driven fan of a vacuum cleaner whereby the motor may be utilized for the performance of other work, such as running a sewing machine or a fan, or for any other purposes for which it may be desired to use the motor.

In the drawings accompanying and forming part of this specification, Figure 1 is a front view of my improved power-transmitting attachment; Fig. 2 is a side elevation thereof; Fig. 3 is a side elevation of the device, partly in section, with the motor and vacuum cleaner fan attached thereto; Fig. 4 is a sectional view taken on line 4—4, Fig. 3, looking in the direction of the arrows; Fig. 5 is a front view illustrating a modified form of the device; Fig. 6 is an enlarged fragmentary view illustrating the preferred manner of mounting the improved friction disk and its connection with a pulley for transmitting rotary motion from the motor; and Fig. 7 illustrates a form of vacuum cleaner with the motor and fan of which this improved device is adapted to be used.

Similar characters of reference indicate corresponding parts in the different figures of the drawings.

The vacuum cleaner shown in Fig. 7 comprises two main portions or casing members 2 and 4, in the upper one 4 of which is mounted an electric motor carrying a fan mounted on a shaft extending from said motor below the same, said fan projecting beyond the edge of the casing 4. The lower shell or casing member 2 carries a suction nozzle for contact with the surface to be cleaned, a fan chamber in which the fan is housed when the casing members are secured together, and a passageway for conveying the dust and dirt from the fan chamber into the receptacle or bag 3. The casing members 2 and 4 are adapted to be quickly and easily attached together and detached, and for this purpose the upper member 4 is provided at its lower edge with radially extending lugs 5, see Fig. 1, having open slots adapted to engage set screws 6 threaded into the lower casing member 2, whereby the casing members are in intimate contact when the vacuum cleaner is in operation, but by merely releasing the set screws and giving the upper member 4 a slight circumferential twist the members 2 and 4 are separated one from the other.

The improved device in the present instance comprises a frame formed of two upright plates 7 and 8, spaced apart by sleeves 12 at their four corners and secured together by bolts passing through said sleeves and screwed into one of the plates. For the purpose of adding stability to the device, the plates 7 and 8 may have their lower sides turned at right angles, as at 9, Figs. 2 and 3, and these flange portions 9 may be provided with holes 10 for permitting the device to be bolted to a wooden platform or other support if necessary. Reinforcing webs 11 may also be formed between the upright portions of the plates and the flanges 9 to afford greater stability if desired.

In the preferred form of my improvement, in one of the upright plates, as 8, is mounted in any suitable manner a sleeve 15, see Fig. 6, through which extends a stud shaft 14 having an enlarged head in the form of a disk 13 which is countersunk into the front face of the projecting drum portion 27 of the disk 18 and secured thereto, as for instance by being wedged therein, so as to rotate therewith, said shaft extending through the sleeve and projecting a sufficient distance from the plate 8 for carrying a pulley 16, which may be fastened on said shaft by means of a pin 17 passing through the hub of the pulley and through the shaft. The clutch member or disk 18 and its drum portion 27, to which it is secured in any

suitable way, thus rotate loosely on said sleeve, thereby rotating the shaft 14 and pulley 16, a suitable washer 19 being interposed between the clutch member 18 and the plate 8. The plate 8 is also provided with an opening above the center thereof to afford a bearing for a shaft 20 carrying at one end thereof a double pulley 21, which is connected by a belt 25 with the pulley 16, said shaft having a bearing at its opposite end in the front plate 7 of the frame. The plate 7 is provided centrally thereof with an opening 22 of a diameter sufficiently large to permit the passage therethrough of the fan carried on the motor shaft, and this plate is also provided with threaded openings 23 for the reception of the set screws 6 for securing the casing member 4 to the device in the same manner as it is secured to the casing member 2 of the vacuum cleaner.

My improved clutch member may be formed in a number of different ways, and I have shown herein two forms thereof. In the form shown in Figs. 1 to 4 this clutch member comprises a disk 18 having a projecting drum portion 27 provided with radially disposed grooves 24 adapted to register with and corresponding in shape and depth to the blades of the fan carried on the motor shaft. In this form of the device it will be obvious that by securing the motor casing 4 to the plate 7, with the fan blades within the grooves 24, the rotation of the motor will be transmitted through the fan, which forms one member of the clutch, to the pulley 16, and from thence, by means of the belt 25, to the double pulley, and may thus be used for any purpose for which it may be desired to use a motor. Instead of the double pulley 21, a single pulley may be used and the shaft 20 provided with a squared end for the reception of a fan for agitating the atmosphere and cooling the room.

The improved clutch member may consist merely of a friction plate or disk, which may consist of a rigid plate provided on its face with a layer of some suitable material for creating friction between the fan blades and the disk, so that when the disk is brought into close contact with the fan it will be rotated therewith owing to the frictional contact of the fan blades with the material on the plate or disk, or the disk may consist of some flexible material, such for instance as leather 26, as shown in Fig. 5, and which disk is fixed to the shaft 14 to rotate therewith and, by reason of its flexibility, the disk will be sucked, on the rotation of the fan, into engagement with the fan blades to be rotated thereby. Of course the shaft 14 may have a slight sliding movement toward the fan when the leather disk is sucked toward it, thereby to insure a firmer contact or grip of the fan blades on the leather disk. It has been found in practice that the leather disk, on the stoppage of the fan, practically frees itself from the fan, but on the next rotation of the fan the engagement is again made and the shaft 14 and its pulley rotated in the manner hereinbefore described.

While I have shown in Fig. 6 what I regard as the preferred manner of mounting the disk 18 and pulley 16 on the plate 8, it will be understood that this may be accomplished in a number of different ways. For instance, the sleeve 13 may be entirely dispensed with and the shaft 14 mounted directly in the plate and secured to the disk in any suitable manner. This and many other details of construction may be more or less varied without departing from the spirit and scope of this invention, and the improvement used in connection with any motor having a fan or rotating blades suitably located for this purpose.

I claim as my invention:

1. The combination with a motor and a fan driven thereby, of means coöperating with said fan for transmitting rotary motion from said motor, the organization being such that the removal of the fan proper will break the connection between the motor and said means.

2. The combination with a motor and a fan driven thereby, of means coöperating with the blades of said fan for transmitting rotary motion from said motor, and means for supporting said motion-transmitting means.

3. The combination with a motor and a fan driven thereby, of a clutch member cooperating with the fan proper for transmitting motion from said motor.

4. The combination with a motor and a fan driven thereby, of a clutch member cooperating with said fan for transmitting motion from said motor, and means for supporting said clutch member for rotary movement.

5. The combination with a motor and a fan driven thereby, of means for transmitting rotary motion from said motor and comprising a disk adapted to engage the blades of said fan.

6. The combination with a motor and a fan driven thereby, of means for transmitting rotary motion from said motor and comprising a disk adapted to engage the blades of said fan, and means for supporting said disk for rotary motion.

7. The combination with a casing and a motor and a fan mounted therein, of a frame detachably secured to said motor casing, and means mounted in said frame and coöperating with said fan for transmitting motion from said motor.

8. The combination with a casing and a

motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing and comprising a pair of plates spaced apart and secured together, and means rotatably mounted in one of said plates and adapted to coöperate with said fan for transmitting motion from said motor.

9. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing and comprising a pair of plates spaced apart and secured together, and means rotatably mounted in one of said plates and comprising a disk provided with means for engaging the blades of said fan for transmitting motion from said motor.

10. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, a shaft mounted in said frame, and means provided at one end of said shaft for engaging said fan for rotation thereby.

11. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, a shaft mounted in said frame, means provided at one end of said shaft for engaging said fan for rotation thereby and means at the opposite end of said shaft for transmitting said rotation.

12. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, said frame comprising a pair of upright members spaced apart and secured together, a shaft mounted in one of said upright members, and means provided at one end of said shaft for engaging said fan for rotation thereby.

13. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, said frame comprising a pair of upright members spaced apart, one of said members provided with an opening for the passage of said fan, a shaft mounted in the other of said members, and means provided at one end of said shaft for engaging said fan for rotation thereby.

14. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, a shaft mounted in said frame, means provided at one end of said shaft for engaging said fan for rotation thereby, means at the opposite end of said shaft for transmitting said rotation, and a shaft mounted in said frame and adapted to receive rotary motion from said first shaft.

15. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, said frame comprising a pair of upright members spaced apart, a shaft mounted in one of said upright members, means provided at one end of said shaft for engaging said fan for rotation thereby, and a shaft mounted in said upright members and adapted to receive rotary motion from said first shaft.

16. The combination with a casing and a motor and a fan mounted therein, of a frame adapted to be detachably secured to said casing, said frame comprising a pair of upright members spaced apart, a shaft mounted in one of said upright members for rotary motion, a shaft mounted in both of said upright members, means carried by one of said shafts and coöperating with said fan for transmitting motion from said motor, and means between said shafts for transmitting motion from one to the other.

17. The combination with a motor and a fan driven thereby, of means adapted to be drawn into engagement with said fan by the rotary movement thereof for transmitting rotary motion from said motor.

18. The combination with a motor and a fan driven thereby, of means comprising flexible material adapted to be drawn into engagement with said fan for transmitting rotary motion from said motor.

19. The combination with a motor and a fan driven thereby, of means comprising leather adapted to be drawn into engagement with said fan for transmitting rotary motion from said motor.

20. The combination with a motor and a fan driven thereby, of means adapted to be drawn into engagement with said fan by the suction thereof to coöperate with said fan for transmitting rotary motion from said motor.

21. The combination with a motor and a fan driven thereby, of means adapted to be drawn into engagement with said fan by the suction thereof to coöperate with said fan for transmitting rotary motion from said motor, said means comprising a disk.

22. The combination with a motor and a fan driven thereby, of means adapted to be drawn into engagement with said fan by the suction thereof to coöperate with said fan for transmitting rotary motion from said motor, said means comprising a disk of flexible material.

23. The combination with a motor and a fan driven thereby having radially extending blades, of means adapted to be drawn into contact with said blades by the suction of the fan for transmitting rotary motion from said motor.

24. The combination with a motor and a fan driven thereby, of means held in frictional engagement therewith by the suction created by said fan for transmitting rotary motion from said motor.

25. The combination with a motor and a fan driven thereby, of flexible means held in frictional engagement therewith by the suction created by said fan for transmitting rotary motion from said motor.

26. The combination with a motor and a fan driven thereby, of flexible means drawn toward and held in frictional engagement with said fan by the suction created by said fan thereby to transmit rotary motion from said motor.

Signed at New York, in the county of New York and State of New York, this 25 day of September, 1915.

AUGUST E. ROEVER. [L. S.]

Witness:

HARRY FRIEDMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."