

(No Model.)

J. SANDS.
SYSTEM OF AUTOMATIC FANS.

No. 372,174.

Patented Oct. 25, 1887.

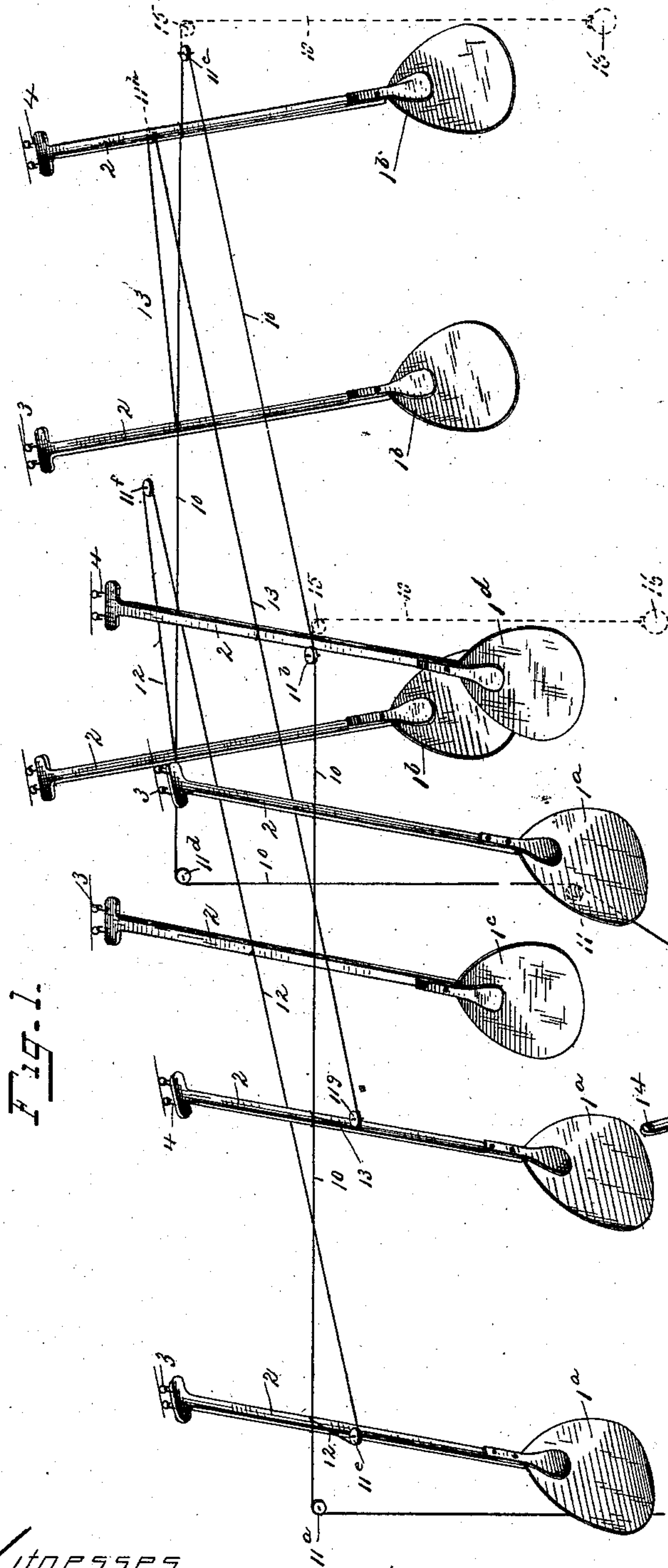


Fig. 1.

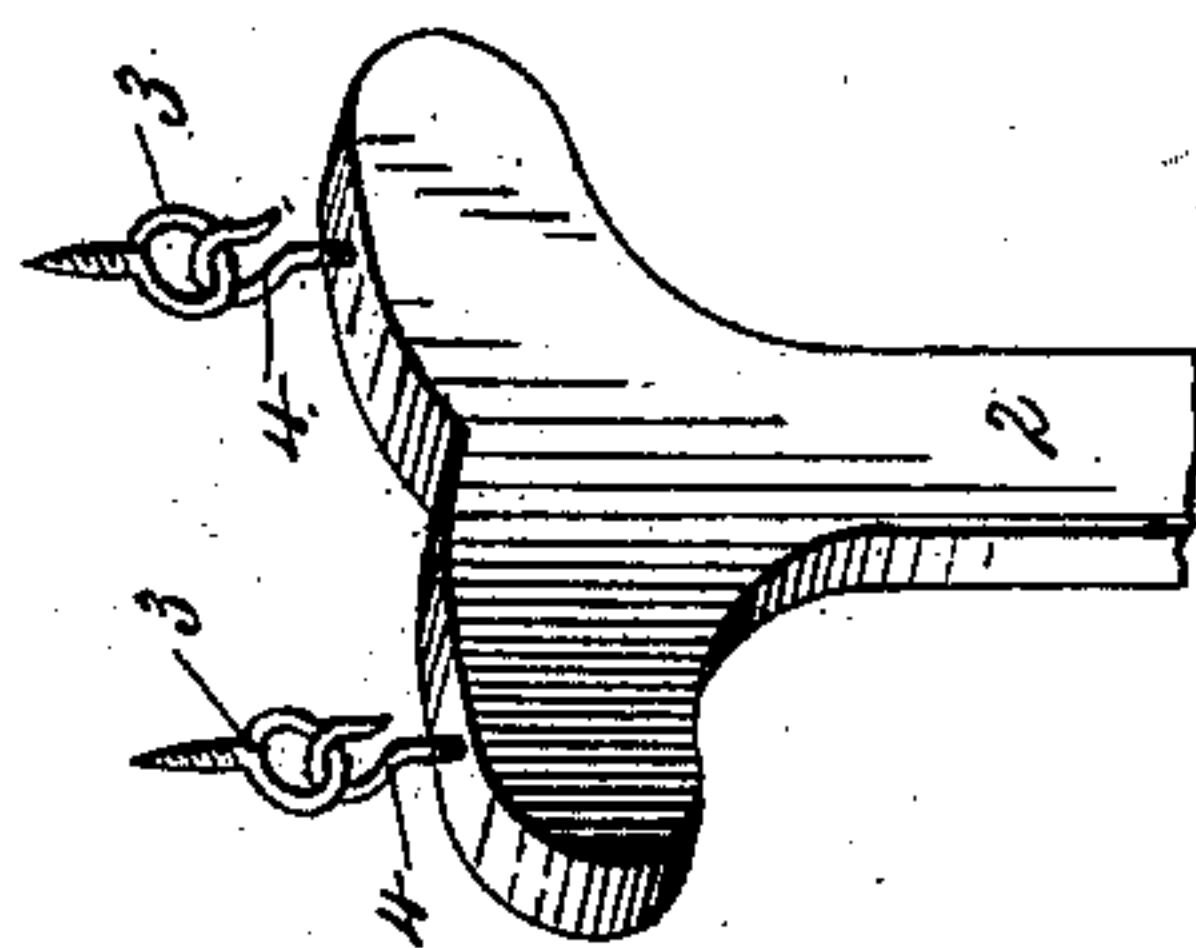


Fig. 2.

Witnesses.
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SYSTEM OF AUTOMATIC FANS.

SPECIFICATION forming part of Letters Patent No. 372,174, dated October 25, 1887.

Application filed July 18, 1887. Serial No. 244,588. (No model.)

To all whom it may concern:

Be it known that I, JESSE SANDS, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Systems of Automatic Fans; 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.

My invention relates to automatic fans, and has for its object to adapt them for use in factories, restaurants, offices, or private dwellings where it is desired to keep up a circulation of air for purposes of ventilation, keeping flies from settling, comfort in warm weather, &c.

In order to produce the desired result at slight expense and with very little motive power, while at the same time the appearance of the system shall be pleasing to the eye, entirely out of the way, not liable to get out of repair, and capable of being put up and taken down very quickly and without the assistance of skilled labor, I have devised the simple and novel construction and arrangement of which the following description, in connection with the accompanying drawings, is a specification, numbers being used to indicate the several parts.

Figure 1 is a perspective view illustrating the construction and arrangement of the system and its operation in use, and Fig. 2 is a detail view illustrating the simple and inexpensive manner in which I preferably connect the shanks of the fans to the ceiling.

1 denotes fans, which may be of any suitable size, shape, and material, ordinary Japanese fans being preferable, as their fantastic shapes and brilliant ornamentation add greatly to the appearance of the room.

2 denotes the shanks of the fans, which are ordinarily made of light wood, it being simply required that they have sufficient strength and rigidity to support the fans and overcome the inertia of the air in starting. These fans may be attached to the ceiling in any suitable manner. I preferably use ordinary screw-eyes, 3, in the ceiling and hooks 4 in the ends

of the shanks of the fans. This enables the fans to be put up or taken down very quickly and without the necessity of employing skilled labor.

The eyes may be allowed to remain in the ceiling, or, if preferred, they may be removed after the heated term without injury to the ceiling and as readily replaced when necessary.

5 denotes a crank-disk upon a shaft, 6, to which motion may be imparted in any suitable or preferred manner—as, for instance, by belt-connections, a water-motor, or an electric motor—the source of power being wholly unimportant so far as my present invention is concerned.

7 denotes a pendulum or weight suspended by a rod, 8, which is pivoted in any suitable manner, as at 14. A link, 9, connects the crank-disk with the weight. A continuous cord or chain, 10, extends from the rod over suitable pulleys, 11, and makes the circuit of the fans in a room, being connected to the shanks at a suitable distance below the point of attachment to the ceiling.

It will be noticed in the drawings that the cord after passing over one pulley in each direction is broken. This is to indicate that the arrangement of the fans relatively to the actuating mechanism has nothing to do with the operation of the system. In practice the actuating mechanism is entirely out of view, being placed ordinarily in the cellar or basement, it being simply necessary that one end of the cord or chain be passed up through the floor on one side of the room and the other end be passed down through the floor on the other side.

Independent sets of fans may be operated in any number of different rooms in the same building by providing independent cords arranged to make the circuit of each room. These cords may be attached either to the weight, as the cord is attached in the drawings, or, where one room is directly above the other, the opposite ends of the cord for the upper room may be attached directly to different portions of the cord in the room below.

The operation is as follows: The fans specially marked 1^a are supposed to be upon one

of the long sides of a room—in the present instance the left side. The fans marked 1^b are upon the opposite side of the room. Beginning at the left the cord passes from the pendulum or weight around a pulley, ordinarily below the floor, then through the floor and around a pulley marked 11^a. Thence it extends down one side of the room and is connected to each of the fans, which in the present instance are shown as swung forward—that is, toward the left. From the last—that is, the right—fan on that side of the room the cord or chain passes around a pulley marked 11^b, thence down the end of the room and around a pulley marked 11^c, thence down the right side of the room, being connected to the shank of each fan on that side, which are shown as swung in the opposite direction—that is, toward the right. After leaving the last fan—that is, the left one on the right side of the room—the cord passes around a pulley marked 11^d, thence down through the floor around another pulley below the floor, and is again connected to the pendulum or weight. It will thus be seen that each movement of the pendulum or weight in either direction moves all the fans upon one side of the room in one direction and all the fans upon the other side of the room in the opposite direction. This reverse movement of the fans on the opposite sides of the room is an important feature, as it keeps the air circulating around the room instead of causing waves of air to pass backward and forward the length of the room. I have found in use that the current of air produced by the movement of the fans on one side of the room acts in a marked degree to move the fans on the opposite side. The air before the fans is carried forward and must pass down the opposite side of the room, and a partial vacuum is created behind the fans, which the air rushes forward to fill.

Having once placed the system in operation almost infinitesimal power is required to keep it going. This enables the system to be utilized in restaurants and private dwellings, where steam-power is not available, as the smallest water-motors furnish sufficient power to run quite a number of fans. My system of suspending the fans, moreover, renders it especially valuable in restaurants and dwellings, as it enables a fan to be placed centrally over each table or bed and be entirely out of the way of the occupants and attendants. Where sets of fans are used in restaurants, should there be tables in the center of the room independent cords may be run from the shanks of the side fans and connected to the shanks of the central fans. In the present instance I have shown two fans as placed centrally between the sets of fans on the opposite sides of the room, the one at the left being indicated by 1^c and the one at the right by 1^d. The fan denoted by 1^c is operated by a cord denoted

by 12, which extends from the shank of one of the fans on the left side of the room around a pulley denoted by 11^e, thence to the shank of the fan it is to operate, thence around a pulley marked 11^f at the right end of the room, and thence to the shank of one of the fans upon the right side of the room. The fan denoted by 1^d is operated by a cord denoted by 13, which extends from the shank of one of the fans upon the left side of the room around a pulley denoted by 11^g, thence to the shank of the fan which it is to operate, thence to a pulley shown in dotted lines and denoted by 11^h at the right end of the room, and thence to the shank of one of the fans upon the right side of the room. If preferred, two independent cords, 10, may be used instead of one cord making the circuit of the room. This arrangement is clearly illustrated in dotted lines in Fig. 1. The cords pass in opposite directions from the weight over pulleys and down opposite sides of the room in precisely the same manner. Instead of passing over pulleys 11^b and 11^c, however, each cord passes over a pulley indicated in dotted lines and denoted by 15. At the end of each cord a weight, 16, is placed. In one arrangement the set of fans on each side of the room acts as a counterbalance to the set on the other side, and in the other arrangement the set of fans upon each side of the room is counterbalanced by a weight. It will of course be understood that I do not limit my invention to the exact arrangement of the details of construction shown in the drawings, as the details may be varied greatly without departing from the principle involved.

I claim—

1. In a system of automatic fans, the combination, with fans whose shanks are pivotally secured to the ceiling on opposite sides of a room, of a cord passing over pulleys and connected to the shanks of the fans below their pivotal point, and independent cords, each of which is connected to the shank of a fan on each side of the room, is passed over pulleys, and is connected to fans pivotally secured to the ceiling, whose line of vibration is at an angle to the line of vibration of the fans at the sides of the room.

2. A series of fans having shanks pivotally secured to the ceiling on opposite sides of a room, in combination with a cord connected to the shanks of all the fans upon one side of a room, thence around pulleys and to the shanks of all the fans upon the opposite side of the room, both ends of said cord being attached to a vibrating pendulum or weight, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JESSE SANDS.

Witnesses:

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