No. 655,156. Patented July 31, 1900.

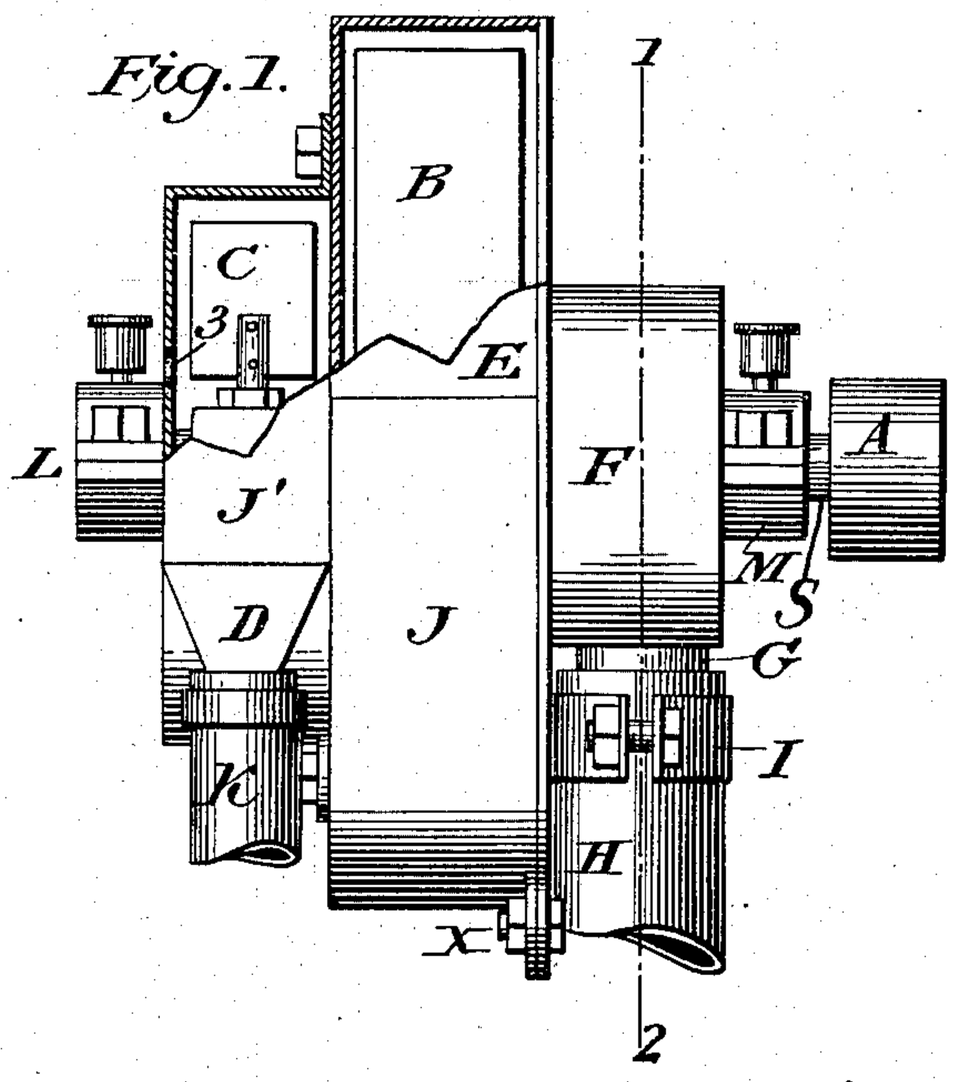
# J. E. MOTE & L. C. KING.

## DUST REMOVING AND COLLECTING MACHINE.

(Application filed Jan. 9, 1899.)

(No Model.)

Fig. 1.



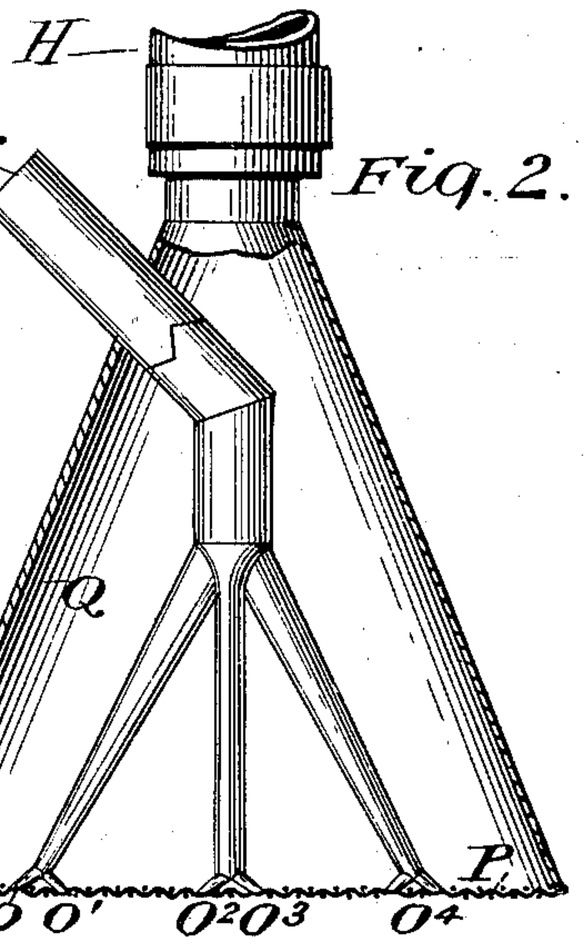
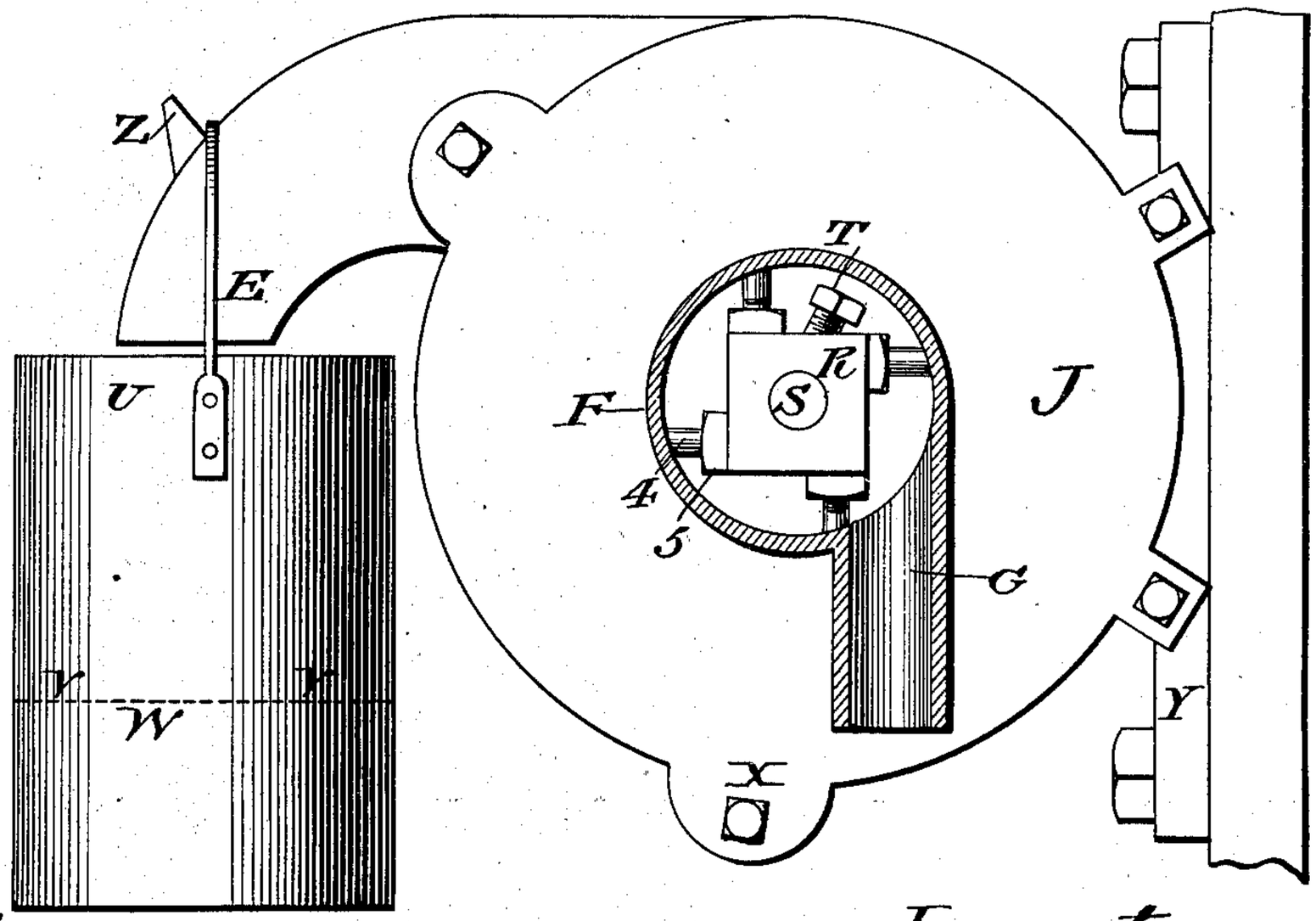




Fig. 2.

Fig. 3.

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JOHN EDGAR MOTE AND LEWIS C. KING, OF RICHMOND, INDIANA.

## DUST REMOVING AND COLLECTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 655,156, dated July 31, 1900.

Application filed January 9, 1899. Serial No. 701,639. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN EDGAR MOTE and LEWIS C. KING, citizens of the United States, residing at Richmond, in the county of Wayne and State of Indiana, have invented a new and useful Machine for Removing and Collecting Dust or Dirt from Type-Cases, Drawers, and Shelves, of which the following is a complete specification.

Similar letters refer to similar parts.

Figures 1 and 2 taken together are a vertical view, part being in section, of the entire machine as arranged to be driven by power, excepting the receiver U, which is shown in Fig. 3. Fig. 3 is a vertical section of Fig. 1 on the line 1 2, with the receiver U shown in its proper position. It also shows the means of attaching the machine to a post or wall when power is used.

B and C indicate two fans mounted upon the same shaft S and in adjoining cases J and J'.

R is the hub of fan B, shown secured to the shaft S by the set-screw T.

4 indicates one of the studs riveted or bolted to the fan-leaf on one end, while the other is inserted into the hub R and held fixed at a desired position by the lock-nut 5.

J' indicates the case of the fan C, its inlet through which air is drawn in being situated near the center of the side at 3, and the tangential or spiraling outlet, through which the air is discharged under compression from the fan C, being indicated by D.

J is the case of the fan B, and to bring the air into this case with the least possible friction from it revolving in the suction-pipe there is an opening near the center of the side, which communicates to a box F the reverse of the fan-case J' in form, its inlet entering tangential or spiraling, (indicated by G.) The outlet to this case is a spout tangential or spiraling, (shown at E.)

L and M are the journal-boxes of the shaft S, which is driven by the pulley A.

Y indicates ears, being a part of J, by which the apparatus is fastened to a post or wall when power is used.

U is a bucket or tank, herein designated as the receiver, hung from the spout E on the lug Z, so that all the air discharged from said spout E enters this receiver in such a manner that practically all of it comes in contact with a dampened fabric V V, contained therein. The cross-section of the opening in spout E, and hence of the current discharged, is not limited to any one set form nor is the angle of contact with the dampened fabric fixed.

Q indicates a hood or funnel, which is simply a conductor or suction-pipe enlarged or flared at the end, so as to gather in dust-laden air from a larger area.

N indicates a conductor-pipe upon which the tube K terminates outside the hood Q and which is attached to and penetrates the side of the hood, after which it is branched into pipes which may themselves be divided into other conductor-pipes until they are of such distribution that they become the nozzles O', through which jets of air are discharged against dust-laden surfaces. The shape of their cross-section is not limited to any special form.

P P show a gauze attached over the inlet to the hood Q to prevent any article of a given size from entering and to prevent type or articles in boxes or cases from jumping over a partition into the wrong box.

The compressed air is conducted from the fan-case J' through the outlet D to the conductor-pipe N by means of a flexible tube K, fastened by clamping-bands directly on D and N or on couplings thereunto attached. A partial vacuum in the fan-case J is extended to the hood Q through the inlet-box F and its inlet G by means of a flexible suction-pipe H, attached in the same manner as K. It is obvious that these tubes K and H can be reduced in length until the cases J and J' come to be mounted upon the hood Q, and when so used the conductor-pipes would serve as suitable handles to steady or move the apparatus.

The construction of the machine would vary with the size and demands. The fan-cases in one instance would be cast metal and bolted, riveted, or screwed together; in another they would be made of sheet metal, and, thirdly, this substituted more or less by wood or castings.

The fans are constructed with a metal shaft, carrying a hub with arms or a hub with inserted studs. To these arms or studs paddles, of sheet metal, cast metal, or wood, are

secured. The hood being a flared conductor-pipe is made, preferably, of sheet metal or thin castings, but can be constructed of wood or other suitable material. The pipe N and nozzles O′ are made, preferably, of sheet metal. The materials used in the other parts are obviously not of a fixed nature.

The method of operating this machine is to first have the receiver U in its place partly filled with a liquid and the fabric V V saturated and in a position so that it will remain saturated by being in contact with the liquid. Then set the fans into rapid rotation and place the hood Q in such a position with respect to the object to be cleaned that a jet or jets of air coming through openings O, &c., strike the article, loosen the dirt, and float it. There being a partial vacuum in the hood Q this dust-laden air is drawn into it and thence to the fan-case J, from which it is discharged through the spout E into the receiver U, where the dust adheres to the dampened fabric, and the air passes out of the top of the receiver near or around where it entered. When the fabric becomes dirty, it is removed, washed, and replaced. By this operation it will be seen that a type-case can be rapidly cleaned in a room by passing the hood Q over the top of the case, so that the strong jets of air penetrating to the bottom will blow the dust or dirt out of the case, whether the case is full of type or empty. If a type-case be full of type, the jets of air will cause the dust or dirt to rise through the openings in the piles of type.

The fans B and C may be mounted in entirely separate cases, and the outlets D and E can be brought off in spirals, which start from the side (perpendicular to the shaft S) of the case and gradually depart from the same. It is apparent that the fan-leaves are not of a necessity at a fixed angle with the fan-shaft.

Fans are used herein as a pumping device, and the machine could be constructed to perform its work equally well with some other device.

We are aware that fans as a pumping device are and have been used for blowing dirt, shavings, straw, &c., from various machinery; also, that they are used to pick or suck up dirt, shavings, straw, &c., and to convey the same through tubes and pipes; also, that they have been used to create by suction a current for removing dust and dirt from articles. Hence we do not claim any such broad combination; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The combination in a machine for removing and collecting dust or dirt from type-cases, drawers and shelves, of a fan-case J′ in the chamber of which is rotated a fan C, the inlet to said chamber being an opening 3 in the side of the case and the outlet, a spout tangential to the circumference of the case; a conductor-pipe K, from the outlet D to the nozzles O′ &c., a gauze P P covering the open flared end of the hood Q, which is reduced in size, so that a conductor-pipe H connects it through a tangential inlet G to the chamber in the case or box F, which is connected to the chamber in case J by an eye or opening near the center of the side of the case J, in the chamber of which a fan B is rotated and the outlet to which is a spout E, tangential to the side of said case, substantially as and for the purpose set forth.

2. In a machine for cleaning dust or dirt from type-cases, drawers and shelves, a compressing fan and chamber, a conductor-pipe leading from said chamber, terminating in nozzles, an exhaust fan and chamber, a conductor-pipe, over the free end of which is a gauze, leading to said chamber, a conductor-pipe leading from it and the chamber, terminated in or above a dust-separating chamber, which contains a fabric supported on a liquid substantially as and for the purpose set forth.

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