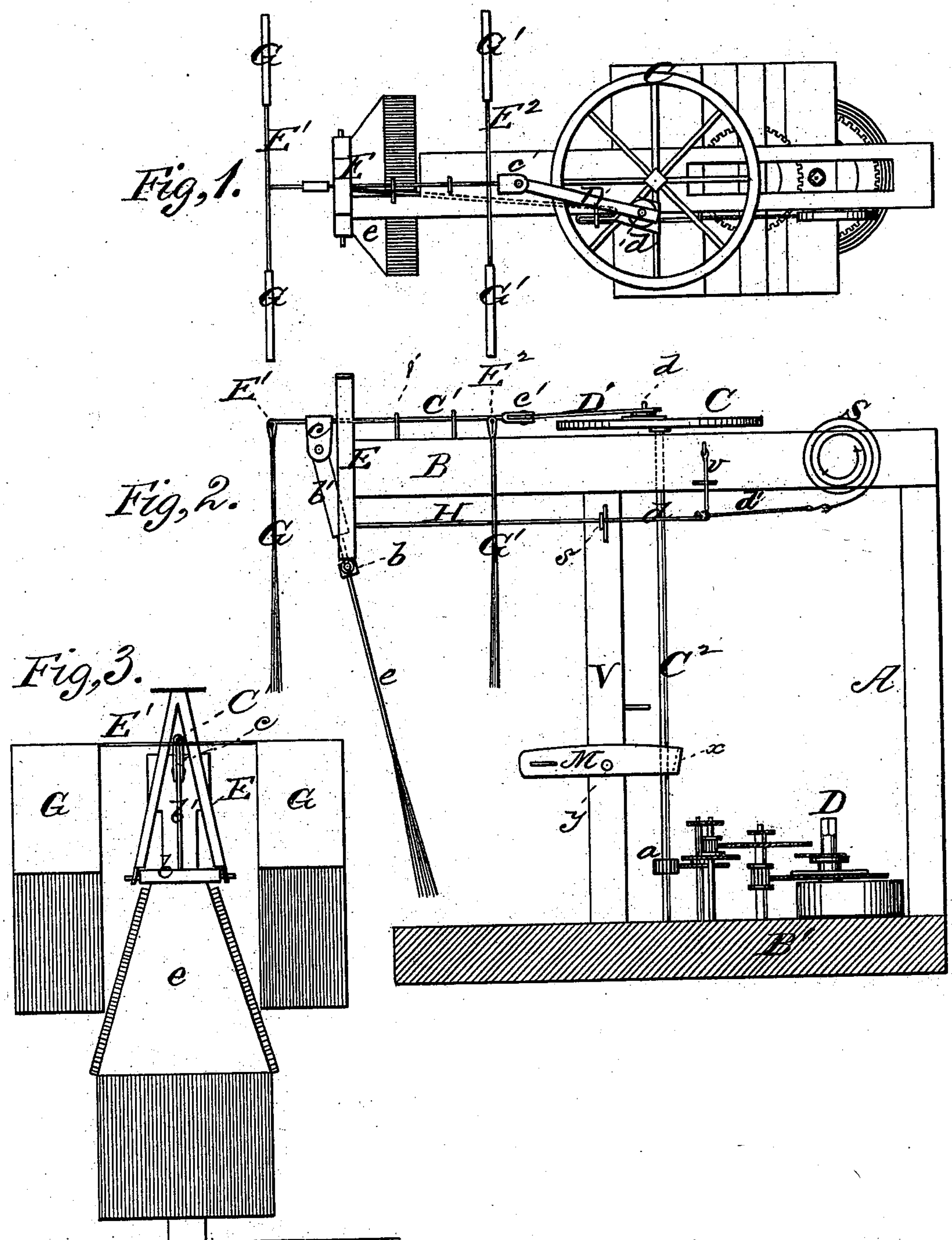
W. H. LOVE.
Automatic-Fan.

No. 209,696. Patented Nov. 5, 1878.



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UNITED STATES PATENT OFFICE.

WILLIAM H. LOVE, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO WILLIAM LEWIS HIPKINS, OF SAME PLACE.

IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. **209,696**, dated November 5, 1878; application filed September 28, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. LOVE, of Washington, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Fan-Motors; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of my invention. Fig. 2 is a side elevation of the same, and Fig. 3 is an end view thereof.

This invention has relation to improvements in fly-fan motors.

The object of the invention is, mainly, to devise a fan of simple and economical construction for creating a current of air, that will be adapted for use in connection with an invalid's bed or chair, or which may be applied to a stand carrying exposed food, the object in both cases being to drive away flies and create currents of cooling air.

The nature of the invention consists in combining with parallel fans having horizontal motion a fan having vertical vibration, the said fans being all operated by a motor common to both, and each provided with fringes, whereby a downward current of air is produced and a rustling motion of the fringes created, as will be hereinafter more fully set forth and claimed.

In the annexed drawings, the letter A designates an upright frame, having an overhanging beam, B, and erected on a floor or platform, B′. C^2 represents a vertical shaft, having its bearings in the beam B and platform B′, and carrying on its upper end a master-wheel, C, and on its lower end a pinion, *a*, that engages the last wheel of a clock-train, D.

E indicates an angular frame, rigidly secured to the extremity of the beam B, with its apex upward, and having journaled in its lower portion a rock-shaft, *b*, to which one of the fan-blades, *e*, is secured. The shaft *b* is provided with a rigid arm, *b′*, that is connected flexibly to the lower end of a hanger, *c*, depending from a connecting-rod, C^1, joined by a knee-connection *c′* to a pitman, D′, attached, by means of a wrist-pin, *d*, to the master-wheel C.

The rod C^1 is above the beam B, and reciprocates horizontally through the guides *e′*, erected on the said beam, the function of the said guides being to direct the movements of the connecting-rod in right lines, and to cause the joint of the said rod and pitman to flex readily. At the free end of this rod, outside of the angular frame, is secured a transverse rod, E^1, of suitable rigidity, from the ends of which depend the fringed fans G, and near the knee-joint *c′* is a second transverse rod, E^2, having similar fans, G′, depending one from each end.

The arm *b′* of shaft *b* is connected with a coiled spring, S, secured at the opposite end of the frame A by means of a rod, H, and a flexible cord, *d′*, one end of the said cord being attached to the free extremity of spring S and the other to the end of rod H. The rod H is guided during its movements by being carried through a staple, *s*, on the upright V, and its free end is supported by a vertically-vibrating hanger, *v*, depending from beam B. At the point where rod H extends through the staple *s* it is bent in a flattened S-shaped form, the plane of the bend being horizontal, in order to produce a broad bearing on the guide *s*, by means of which the said rod is prevented from speedily cutting through the said guide and wearing the same away.

When the clock-work is wound up a horizontally-reciprocating motion is imparted to rod C^1, causing the fans G G′ on the rods E^1 E^2 to wave violently, their motion being horizontal. At the same time a vertically-vibratory motion is given to the fan *e* on the rock-shaft *b*. This fan vibrates toward the fans G G′, alternately causing a considerable current of air, which suffices to cool the atmosphere. At each forward movement of rod C^1 the spring S is coiled up, so that when the backward movement commences the said spring reacts, causing the fans to be brought back with a jerk and the fringes thereon to rustle violently, thus effectually driving off flies.

The fans may be used in connection with an invalid's chair or bed, or to protect exposed

food from flies. The speed of the fans is regulated, or they are stopped altogether, by means of a brake-lever, M, of angular form, the shorter arm of which extends beyond the shaft C^2, and is shod with leather or other similar material. This lever is fulcrumed on the upright V at *y*, and its leather-shod arm *x* is forced into contact with the said shaft C^2 by depressing the power end thereof.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fly-fan, the combination, with a frame, A, a vertical shaft, C^2, master-wheel C, pinion *a*, and clock mechanism rotating said shaft, of the end frame E, carrying rock-shaft *b*, having a fan-blade, the connecting-rod C^1, having transverse rods E^1 E^2, carrying the fans G G′, the hanger *c*, and arm *b*′, connecting said rod C^1 and rock-shaft *b*, as specified.

2. The combination, with a frame, A, a clock-train, a vertical shaft rotated by said train and having a master-wheel, C, on its end, an angular end frame, E, its rock-shaft *b*, carrying a fan-blade, connecting-rod C^1, the transverse rods E^1 E^2, having fans G G′, the hanger *c*, and arm *b*′, connecting said rod C^1 and the rock-shaft *b*, of the coil-spring S, secured to the frame, and a rod, H, connecting said spring and said arm *b*′ of the rock-shaft *b*, substantially as specified.

3. The combination, with the frame A, having the end frame E, the rock-shaft *b*, carrying the fly-fan *e*, and a mechanism actuating the same, of the coil-spring S, secured at one end to the frame A, and connected at the other with said rock-shaft by the rod H and cord *d*′, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM H. LOVE.

Witnesses:
FRANK GALT,
GEO. C. POULTON.