2 Sheets—Sheet 1.

F. & I. ELKINS.
Automatic Fans.

No. 198,798. Patented Jan. 1, 1878.

Fig. 1

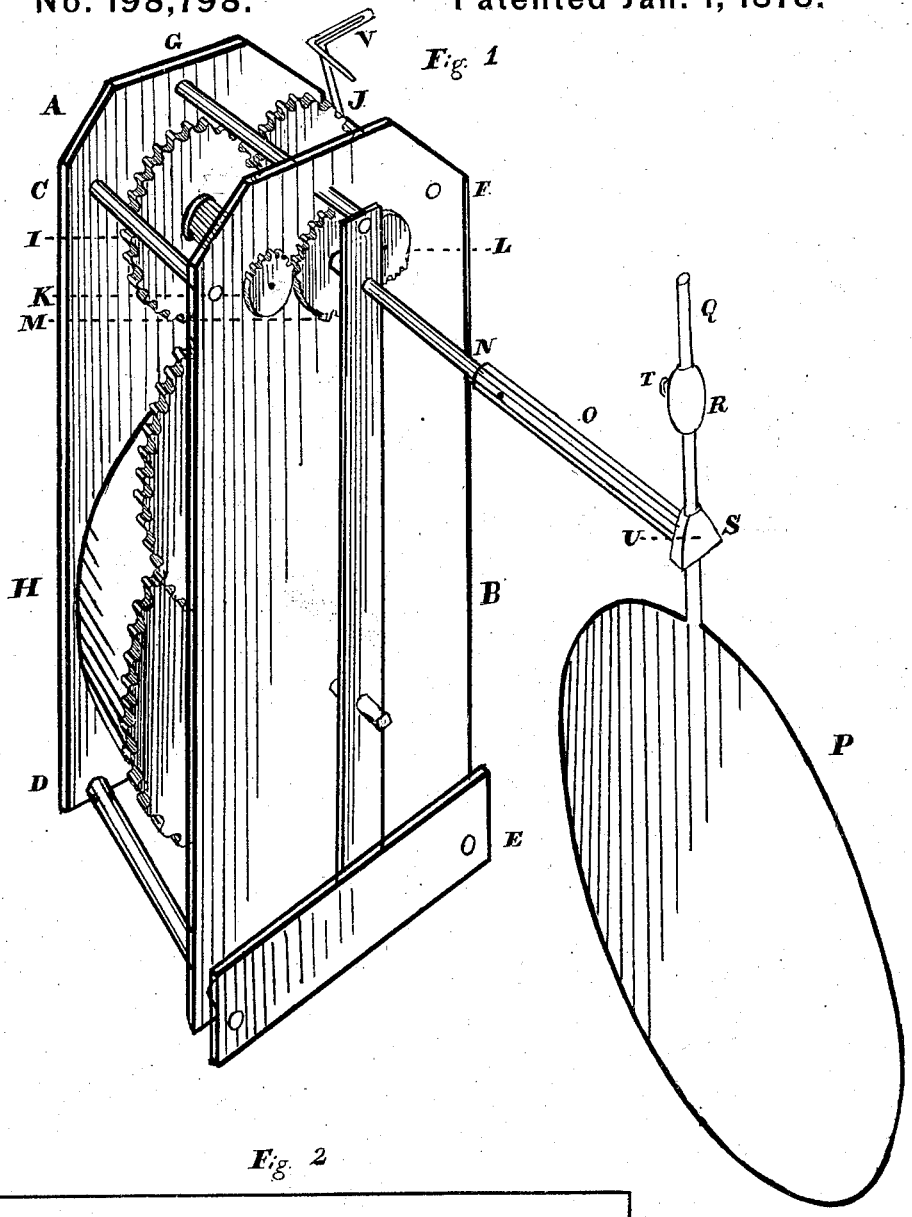

Fig. 2

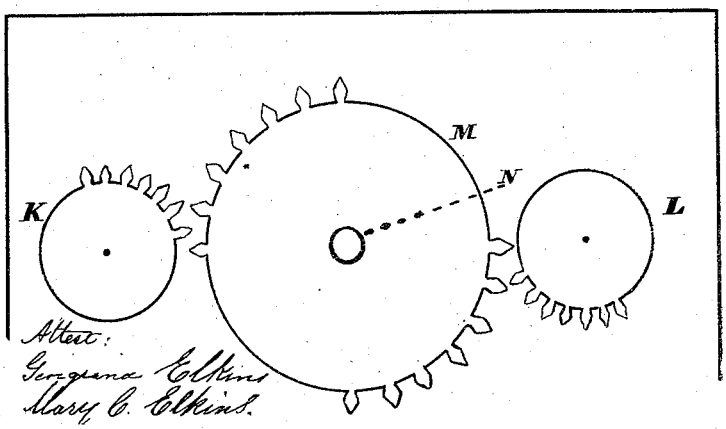

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Fig. 3

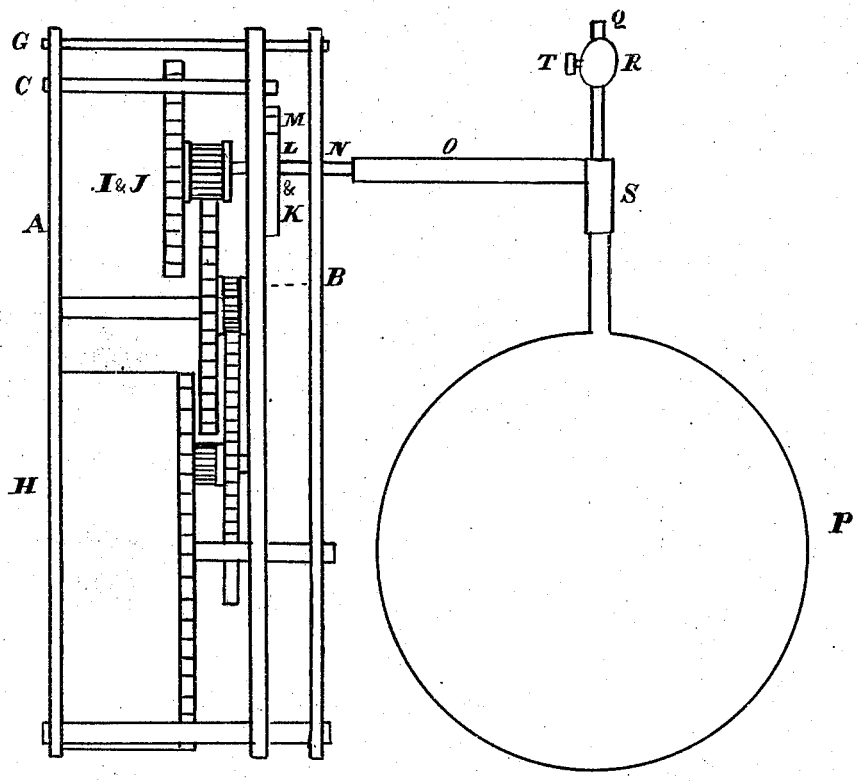
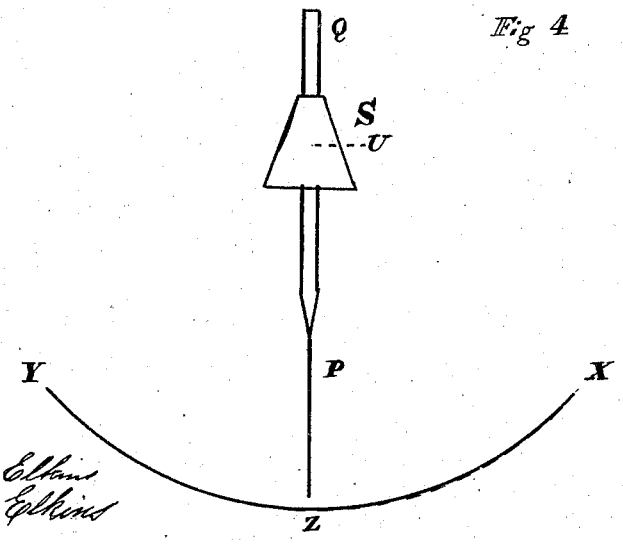


Fig 4



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UNITED STATES PATENT OFFICE.

FANNY ELKINS AND IDA ELKINS, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. **198,798**, dated January 1, 1878; application filed December 2, 1876.

To all whom it may concern:

Be it known that we, FANNY ELKINS and IDA ELKINS, of the city of Brooklyn, county of Kings, and State of New York, have invented certain Improvements in Fans, of which the following is a specification:

The first part relates to the combination of wheels having teeth on parts of their circumference only, and so adjusted to each other as to produce in one of them oscillatory motion through an arc of one hundred and eighty degrees, or less.

The second part relates to devices for giving to a fan suspended from the shaft of the oscillatory wheel a greater impetus at the beginning of each end of its arc than it has through the rest of the arc.

The third part relates to the combination of the two former devices.

Figure 1 is a perspective view of the whole apparatus. Fig. 2 is a front view of the two partly-toothed wheels, which give an oscillatory motion to the partly-toothed wheel placed between them. Fig. 3 is a side view of the whole apparatus. Fig. 4 is a front view of the fan, to illustrate its working.

The wheel I is set in motion by a train of wheel-work, beginning at H and ending at I. The teeth of I mesh into those of J, causing J to revolve simultaneously and regularly with I, but in the opposite direction. The shaft of I, passing through the plate B, bears the wheel K, which turns with I and in the same direction. The shaft of J bears the wheel L, turning with J. Therefore the wheels K and L turn with equal speed in opposite directions. These wheels, being smaller than I and J, do not touch each other when revolving. Between them is the wheel M.

K, L, and M have teeth on parts of their circumferences only, and K and L are so set with regard to M that they act upon it at different times, one turning M in one direction through a part of a circle, and then the other turning it through the same part of a circle in the other direction.

The length of arc furnished with teeth, the number of teeth, and the size of M relatively to K and L, will determine the speed of M and the number of degrees of its arc of oscillatory motion.

In Figs. 4, 1, and 3, the wide tube S is fastened to a tube, O, at right angles to S, which slides upon the shaft N of the oscillatory wheel M, and may be set so as to place S at any required distance from the plate B. A fan, P, is slipped into a tube fastened at U, and swinging freely in S.

The wheel-work being set in motion, and the shaft O moving, the fan is carried, say, in the direction X, Fig. 4. The resistance of the air prevents P from falling rapidly toward Z, and the side nearest X of the open tube S strikes and drives P forcibly by Z to Y. Its motion is greater when the open tube strikes it from the side X and from the side Y at the beginning of its fall than it is at any other time, and, consequently, a puff of air is given at each end of its arc, thus simulating the initial puffs given by a fan carried in the hand.

The speed of the fan may be regulated by its size, by the speed of the wheel M, by altering the distance of the fan from the point of suspension, and by altering the distance of the movable weight R by means of the set-screw T.

A bent rod, V, fastened to one of the upper braces, between the plates A and B, may be dropped into the teeth of the wheel J, and stop the motion of the whole, if desired.

We claim as our invention—

1. The combination of the three external mutilated wheels K, L, and M, having their centers in a straight line, the wheels K and L being arranged to rotate regularly in opposite directions, and thereby communicating oscillatory motion, through any predetermined arc, to the wheel M, substantially as described.

2. The combination of the funnel-shaped tube S and freely-pivoted fan P, substantially as and for the purpose hereinbefore set forth.

3. The combination of the external mutilated wheels K, L, and M, funnel-shaped tube S, and freely-pivoted fan P, all substantially as shown and described.

FANNY ELKINS.
IDA ELKINS.

Witnesses:
IDA F. HOWE,
GEORGIANA ELKINS,
MARY C. ELKINS.