

No. 138,720.

Fig. 1.

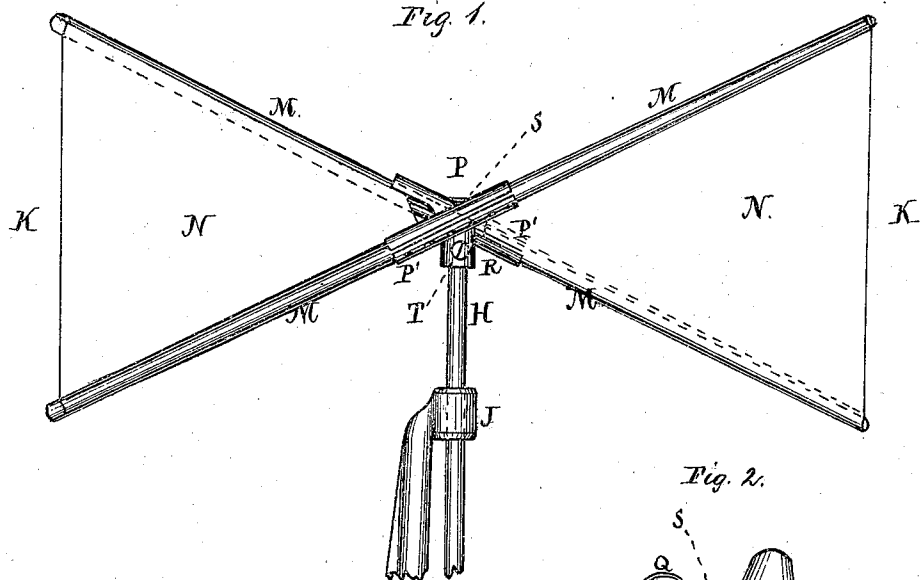


Fig. 2.

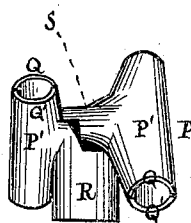
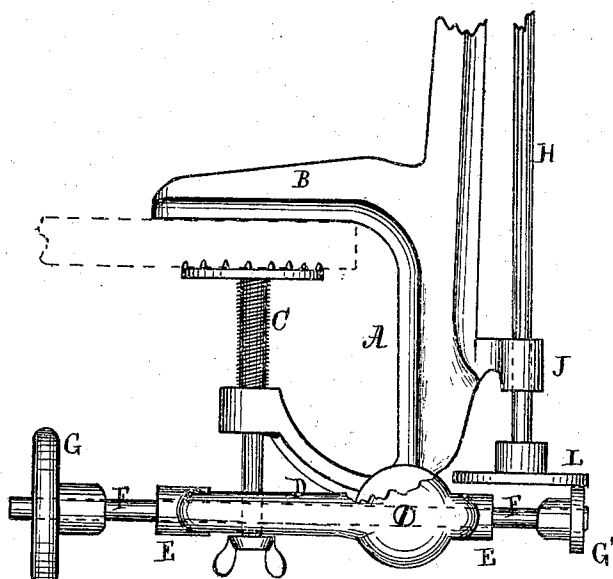
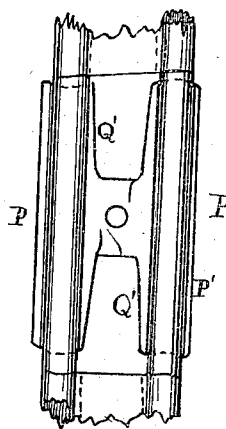


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS WELCH, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. **138,720**, dated May 6, 1873; application filed March 21, 1873.

To all whom it may concern:

Be it known that I, THOMAS WELCH, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Fans; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a side elevation of the device embodying my invention. Figs. 2 and 3 are views of detached parts.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in means for communicating motion to the fan-shaft in a simple and noiseless manner. It also consists in means for throwing the fan-shaft in and out of gear. It also consists in the construction of the fan. It also consists in the construction of the holder of the fan.

Referring to the drawing, A represents a vertical arm, which, by means of the horizontal bar B and clamping-screw C, is to be attached to the table of a sewing-machine in juxtaposition to the power or fly-wheel thereof. At the lower portion of the arm A, or the portion which carries the screw C, I joint a horizontal arm, D, which is formed with bosses E E, in which is mounted a horizontal shaft, F, the latter extending in the longitudinal direction of the table of the sewing-machine, and carrying at its end friction-wheels G G', the larger or inner one G of which being adapted to come in contact with the power-wheel of the machine and receive motion therefrom. H represents a vertical shaft which passes freely through bosses J, which project from the arm A, and said shaft is permitted to rise and fall in said bosses, which may be said to constitute its bearings. This shaft carries at its upper end a fan, K, and at its lower a horizontal disk, L, which rests on the wheel G', secured to the horizontal shaft F, and receives power therefrom. When the machine is in operation, motion is communicated by the fly-wheel to the wheel G, and consequently to the shaft F and the wheel G'. The disk L of the

shaft H rests on the wheel G', which thus receives the weight of said disk and shaft, and thus the friction between the disk and wheel causes motion to be imparted to the disk and thereby to the shaft H and the fan K.

This operation causes swift and almost noiseless rotation of the fan, and agitates the air powerfully and uniformly, whereby the operator will be subjected to the cooling influence thereof.

When fanning is not required the operator clears the friction-wheel G from contact with the fly-wheel by throwing up the shaft F at the end which carries said wheel G, and thus power from the fly-wheel is not communicated to any of the operating parts of the fan. Then again by lowering the shaft the wheel G and power wheel are in contact or gear. The wheel G at once operates the fan-shaft H through the intermediate disk L, wheel G', and horizontal shaft F, and the fan receives its proper motion.

The fan consists of one or more tapering pieces of suitable fabric, stretched upon and secured to two arms, M, which cross each other at or about their centers, so as to widen at their ends, and thus present the blades N N. These arms are held in crossed positions by a holder, P, which consists of two sockets, P', which are formed in sections, each of which is constructed of two semi-cylindrical or channelled pieces, Q Q', which extend diagonally or angularly to each other, or are inclined in opposite directions. The lower part is formed with a hub, R, and provided with set-screws S, by which the holder is attached to the fan-shaft H and confined thereon. The centers of the cross-arms are, respectively, laid on the lower piece of the holder, and the upper piece is then placed on the arms, so that the respective pieces Q Q' form tubes or sockets, and inclose the arms at the centers, which arms are then clamped on the holder by a screw, T, passing through the upper and lower pieces.

It will be seen that the fan is light in structure and powerful in execution, but is strengthened and braced by the holder, and the construction of the holder is such that the fan may be firmly connected to the shaft. The fan is readily applied to the holder by sepa-

rating the latter, setting the cross-arms in the lower channelled section Q', then fitting on the top section Q, and tightening the screw S. The removal of the fan will be accomplished by loosening the screw so as to disconnect the sections of the holder, after which the arms are easily detached from their place of application.

The fan-blades and the arms may be folded or rolled in compact form for purposes of transportation, storage, &c.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The fan-shaft H with disk L resting on the friction-wheel G', substantially as and for the purpose set forth.

2. The shaft F having an axial movement and carrying the friction-wheels G G', operat-

ing in combination with the fan-shaft H, substantially as and for the purpose set forth.

3. The shaft H carrying the fan and disk L, in combination with the shaft F carrying the friction-wheels G G' and mounted on the pivoted arm D, substantially as and for the purpose described.

4. The fan, constructed of the blades N N and cross-arms M, substantially as and for the purpose set forth.

5. The holder P, consisting of the diagonally-arranged sockets P', for the crossed arms of the fan, substantially as and for the purpose set forth.

The above signed by me this 19th day of March, 1873.

Witnesses:

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