A. F. REINOEHL.

Fan for Forge-Fires.

No. 226,247. Patented April 6, 1880.

Fig. 1.

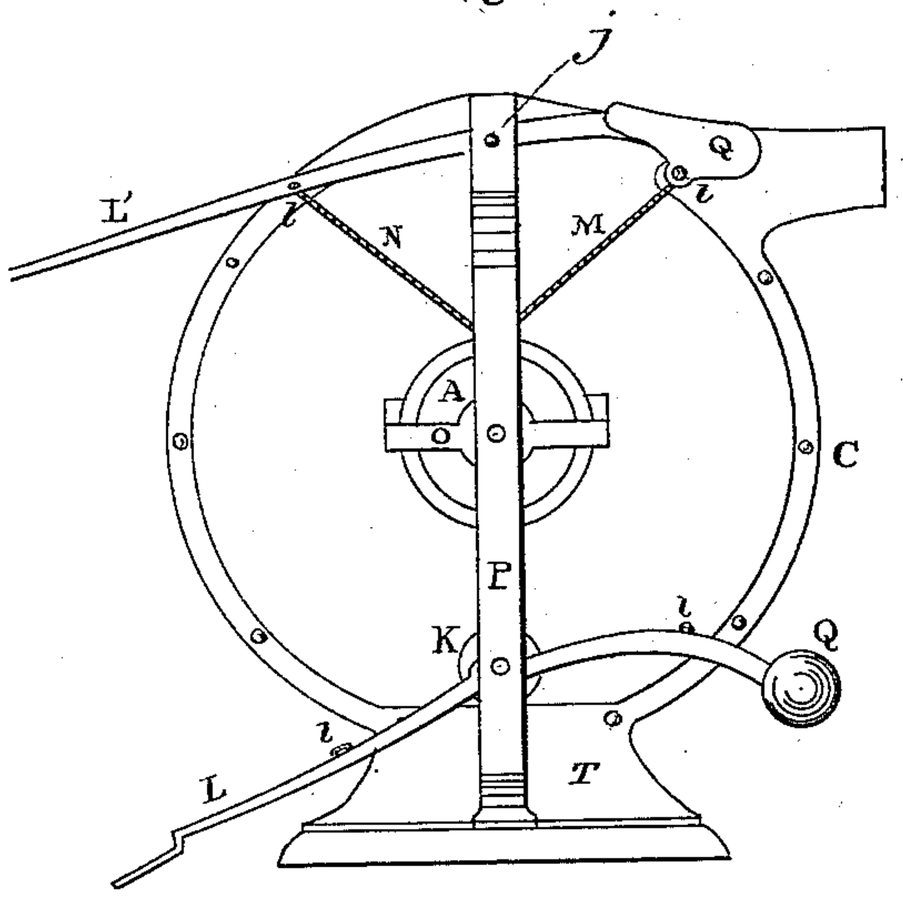


Fig. 2

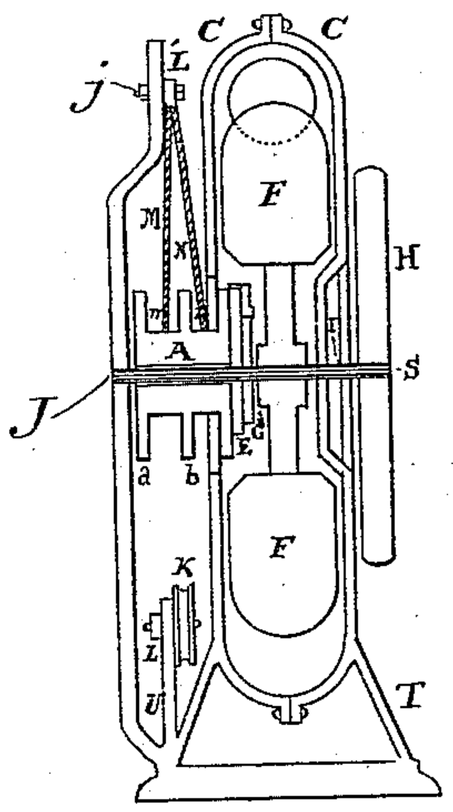


Fig. 3

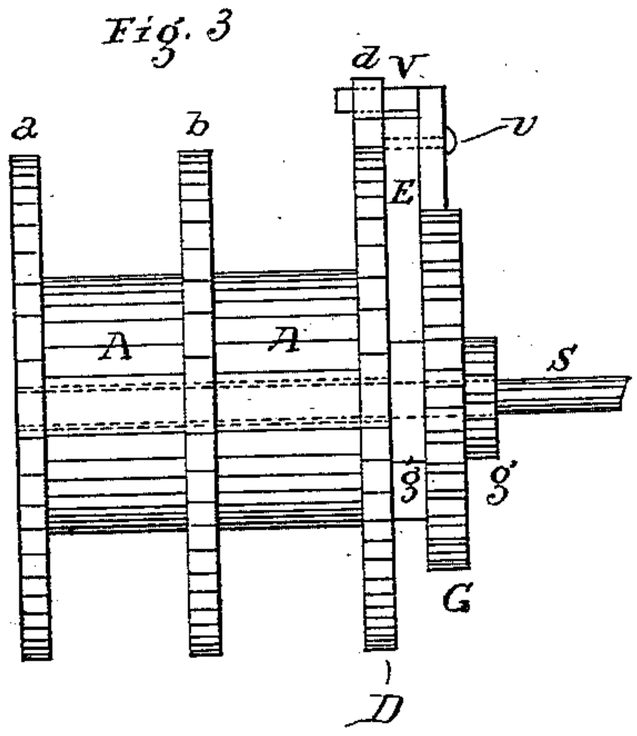


Fig. 4

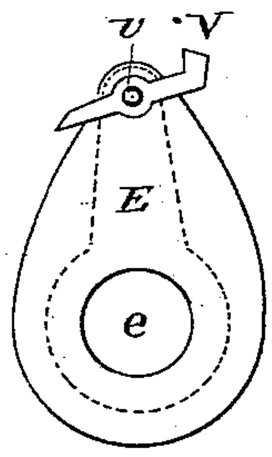
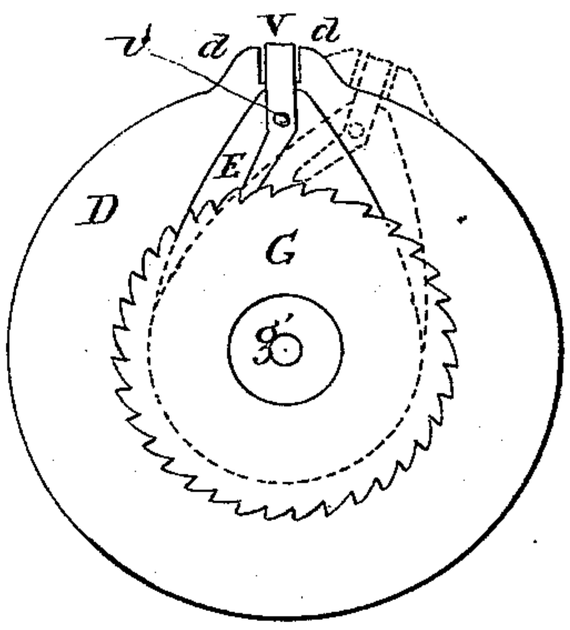


Fig. 5



Witnesses.

H. H. J. Miller

Jacob Stauffer

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UNITED STATES PATENT OFFICE.

AUGUSTUS F. REINOEHL, OF MANHEIM TOWNSHIP, (LANCASTER P. O.,)
LANCASTER COUNTY, PENNSYLVANIA.

FAN FOR FORGE-FIRES.

SPECIFICATION forming part of Letters Patent No. 226,247, dated April 6, 1880.

Application filed December 9, 1879.

To all whom it may concern:

Be it known that I, AUGUSTUS F. REINOEHL, of Manheim township, (Lancaster P. O.,) Lancaster county, State of Pennsylvania, have invented certain Improvements in Propelling Fans or Blowers for Forge-Fires, of which the following is a specification.

The improvement relates to a class of devices for operating a fan or the like by means of a vibrating lever and flanged sleeve, in combination with a pivotal pawl and fixed ratchet to an ordinary revolving shaft, supporting the fan within the case, together with the ratchet and pawl, as herein more fully set forth.

The accompanying drawings, with the letters of reference marked thereon, and a brief explanation, will enable those skilled in the art to make and use the same, in which—

Figure 1 shows the fan or blower-case and levers; Fig. 2, a section to show the case and internal arrangement and bearings of the shaft. Fig. 3 is a sectional enlarged view of the flanged sleeve, pawl, and ratchet. Fig. 4 shows the eccentric or annular arm of the pawl-holder; Fig. 5, the inner flange of the sleeve and notch to hold the pawl and ratchet combined.

C represents the ordinary fan and case used for forge-fires. The central revolving shaft, S, has its bearings I J and a fly-wheel, H, at one end and a loose flanged sleeve, A, at the other end. Within the case, and keyed to the shaft and hub of the fan F, is a ratchet-wheel, G, provided with a projecting shoulder, *g*.

The lever L′, as in other cases, has its fulcrum or pivot at *j*, and a loop, *l*, equidistant from the pivot, on each side, for the attachment of a strap or cord, the shaft S being a revolving and not a dead shaft, as shown in other cases in which loose sleeves are used. The so-called "loose sleeve" A is provided with three flanges to retain the straps or cords between them.

a b are the flanges, (shown outside the fan-case,) with the intervening spaces between *a b* and *b* D. This latter flange D of the sleeve A has a raised portion at one point of its periphery, with a notch cut out, so as to form the lips, marked *d*, this flanged sleeve being connected by two separate cords or straps, M N, in the spaces between the flanges, around which they are wound, one to the right and the other to the left, and the separate ends connected to the several loops *l* on the lever, and drawn tightly, so that when the lever is vibrated up and down one cord or strap is made to wind up while the other is being unwound. Thus each up-and-down action of the lever will turn the sleeve alternately from right to left on the shaft, and in itself will have no further action; but in order to make it available for propelling the shaft with its fan or wheel, an independent or connecting device is employed, (shown by the eccentric or arm E.) This has an annular opening, and sits upon a smooth projecting circular disk, *g*, connected with the central portion of a ratchet-wheel, G. This eccentric is therefore disconnected otherwise from the ratchet or the sleeve, having a free motion on said projection or circular fulcrum-disk *g*.

The alternate connection and disconnection in its motions with the ratchet is produced by a pawl, V, secured to the inside (next the ratchet) by a pivot, *v*, to the face of said eccentric or arm E, forming part of it. This pawl V is bent over at right angles at its outer end, and extends and enters the notch between the lips *d* on the adjoining inner flange, D, of the sleeve A, before mentioned. This pawl V is so placed that the first motion on the lever to pull it down will act upon the sleeve, and, by its slotted flange-connection with the pawl and its movable support E, will cause the lower or claw end of the pawl to drop into a ratchet-tooth, when it firmly clutches and combines the sleeve and ratchet, which, being combined or keyed to the shaft and fan-blower, gives the impact and motion to the shaft and propels it forward during the depression of the lever. On relaxing the downward pull, the weight Q on the other end of the lever will act by the force of gravity on the now free sleeve.

The moment a retrograde motion takes place by the action of the vibrating lever on the sleeve it causes the disengagement of the pawl from the ratchet, which latter continues to revolve by the impulse given in driving the fan-shaft, while the pawl itself and its support

have a retrograde motion with the sleeve without material friction or check to the impulse given until said impulse or impact is again imparted in the more or less quick successions of the vibrations of the lever-and-strap connection to the sleeve, alternately locked to the ratchet by the impact of the pawl, so as to result in a silent click and continuous rotary motion.

I also show a foot-lever, L, which, if preferable, can be used in like manner for propelling the fan should it be desirable to have greater tension or more powerful action. I also show a pulley, K, in connection with the lever, to which one end of each cord may be affixed and reversely wound and carried around the sleeve in opposite directions between the flanges, and connected with the lever at *l*, as before mentioned.

I am aware that pawls and ratchets are not new, and that a vibrating lever, in combination with a flanged hub or fly-wheel jointly and severally made to revolve loosely on a dead shaft, is claimed—a combination I do not use or claim.

I am not aware that the combination of a loose sleeve and locking-flange by a pawl and ratchet within a fan-case for giving motion was ever before known or used. Therefore,

What I claim as my invention is—

The combination of an ordinary rotating shaft, S, the fan F, ratchet G, pawl and its support V E, and notch or holders *d d* on the flange D, all within the fan-case C, substantially arranged and operated as and for the purpose specified.

A. F. REINOEHL.

Witnesses:
H. J. MILLER,
JACOB STAUFFER.