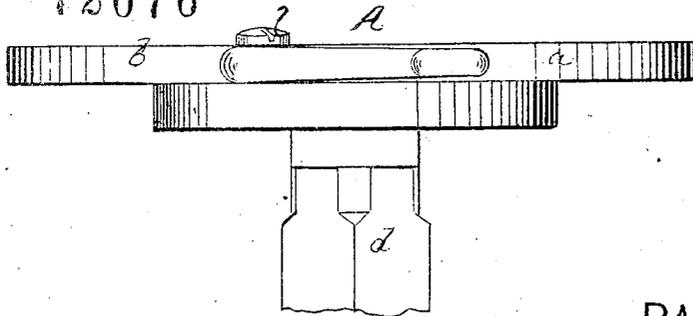
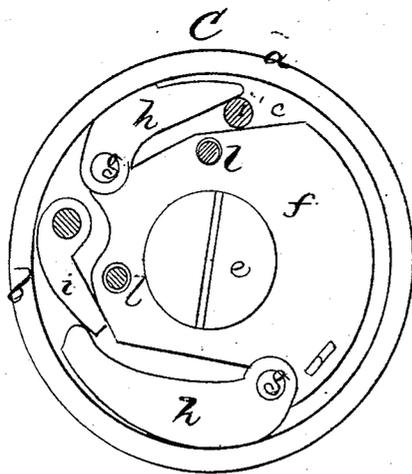
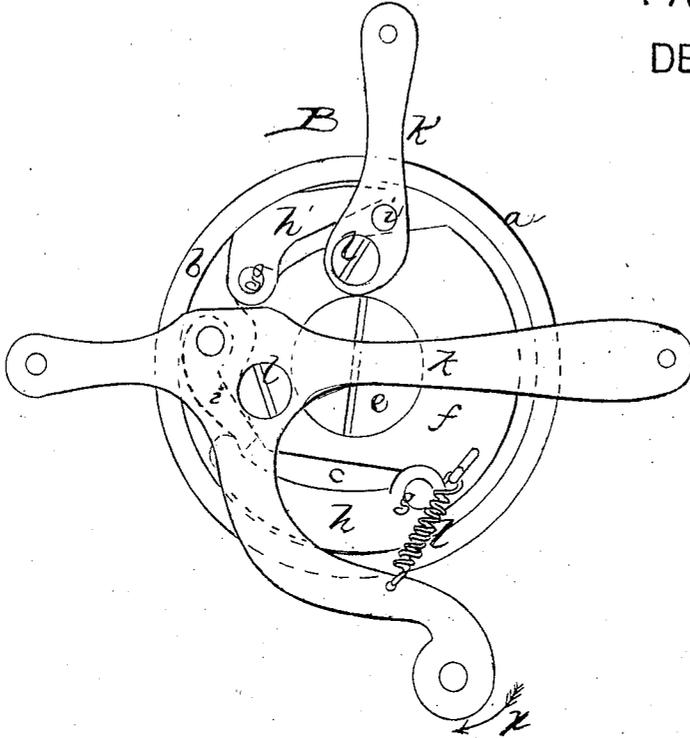


Geo. W. Powers'
Improved Friction Feed.
72676



PATENTED
DEC 24 1867



Witnesses
J. M. B. Kidder
W. W. Frothingham.

Geo. W. Powers by
Crosby Halsted Gout.
Att'y

United States Patent Office.

GEORGE W. POWERS, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 72,676, dated December 24, 1867.

IMPROVEMENT IN OPERATING FEED-WHEELS IN SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE W. POWERS, of Boston, in the county of Suffolk, and State of Massachusetts, have invented an Improved Friction-Feed for Sewing-Machines, &c.; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

The invention relates particularly to the construction of that class of sewing-machine wheel-feeds in which intermittent rotary movement is imparted to the feed-wheel, by the action of a friction-foot or lever, which, actuated in one direction, carries with it the wheel, and actuated in the opposite direction, slips over and effects no movement of the wheel.

My invention consists in the peculiar construction and arrangement of the device or devices through which such intermittent movement of the wheel is effected.

The drawings represent a feed-wheel embodying my invention, A showing an edge view, and B a face view of the same. C, a face view, with the actuating-lever or levers removed. *a* denotes the feed-wheel, the intermittent rotative movement of which is to impart the intermittent progressive movement to the cloth or other material to be moved, when the wheel is applied to a sewing-machine or other mechanism to which such feed is adapted. This wheel is made in shell-form, or has a peripheral rim, *b*, projecting from its web or disk, *c*, and it is mounted upon a stationary shaft, *d*, or a screw-pin or centre, *e*, entering said shaft, the wheel turning readily but not loosely thereupon. In the plane of the rim *b*, and also mounted on the shaft or screw-pin, is a rocker-plate, *f*, turning loosely on the shaft, and having jointed to it, by a pin, *g*, one or more friction-pawls or levers, *h*, one face of which lies in contact of in juxtaposition to the inner surface of the rim *b*, being, however, so applied, that while at the end nearest the joint-pin, the pawl may be in direct contact with the rim, its opposite end stands somewhat away therefrom, as seen at C. Each pawl is interposed between one edge of the plate *f* and the rim *b*, and between the inner face of the pawl, near its point, and the adjacent face of the rocker-plate, is an entering-wedge or pin, *i*, hung to or projecting from an actuating-arm or lever, *k*, jointed to the rocker-plate at *l*, as seen at B, one end of the lever extending out from the wheel, into any convenient position to be properly operated upon by the sewing-machine, or other mechanism to which the wheel is to be applied. The relative position of the outer end of the impelling-lever, its fulcrum and pin or wedge, with respect to each other, and to the friction-pawl, is such that movement of the lever in one direction, forces the pin or wedge in between the pawl and rocker-plate, and presses the outer face of the pawl up against the feed-wheel rim, causing the lever, wheel, and plate to move together as one piece, while movement in the opposite direction releases the pawl from the pressure of the wedge or pin, and turns the rocker-plate without effecting any movement of the feed-wheel. Where an entering-pin is applied directly to the actuating-lever *k'*, as seen in the modification at the upper part of A, the movement of the lever itself will instantly force the pin between the rocker-plate and the pawl *h'*, but where an entering-wedge is located with respect to the pawl and plate, as shown at A and B, a spring, *l*, is preferably employed, to force the pawl against the wheel, the movement of the lever-arm in the direction of the arrow *x* releasing the pawl from the action of the spring, and effecting the movement of the rocker-plate, without moving the wheel. It will readily be seen that the feed-movement of the wheel is made certain by this arrangement of devices, the pawl being pressed with more or less stress against the wheel, or more or less of its surface being brought into contact with the wheel-surface, accordingly as the resistance to the movement of the wheel varies, the liability of the pawl to slip, moving in the direction in which the wheel is to be impelled, being obviated by the construction, arrangement, and method of operation of the pawl. The actuating-arm of the lever may be variously located in relation to the pawl and other mechanism, as shown by the respective positions of the lever-arms at A.

I am aware that a rotative friction-feed is not in itself broadly new. Instances of such feeds may be seen in United States Patents, 10,879 and 57,287, and my invention has only reference to the specific construction and arrangement for rendering such feeding-devices practical in construction, and reliable in operation.

For convenience of illustration, the modification, in the relative arrangement of the pawl and lever, and the device operated by the lever to press out the pawl, is shown at B, (and also to some extent at C,) in the same view in which the pawl, wedge, lever, and spring *l* are represented, but it will, of course, be understood that they are not employed together.

I claim the combination of the lever, friction-pawl, and entering-wedge or pin, together, and with the feed-wheel and rocker-plate, when the whole are constructed and arranged to operate substantially as set forth.

Witnesses:

J. B. CROSBY,
FRANCIS GOULD.

GEO. W. POWERS.