WILLIAM HECKERT

Improvement in Devices for Changing Speed and Reversing Motion of Planing and other Analogous Machines.

No. 125,676. Patented April 16, 1872.

Fig. 1

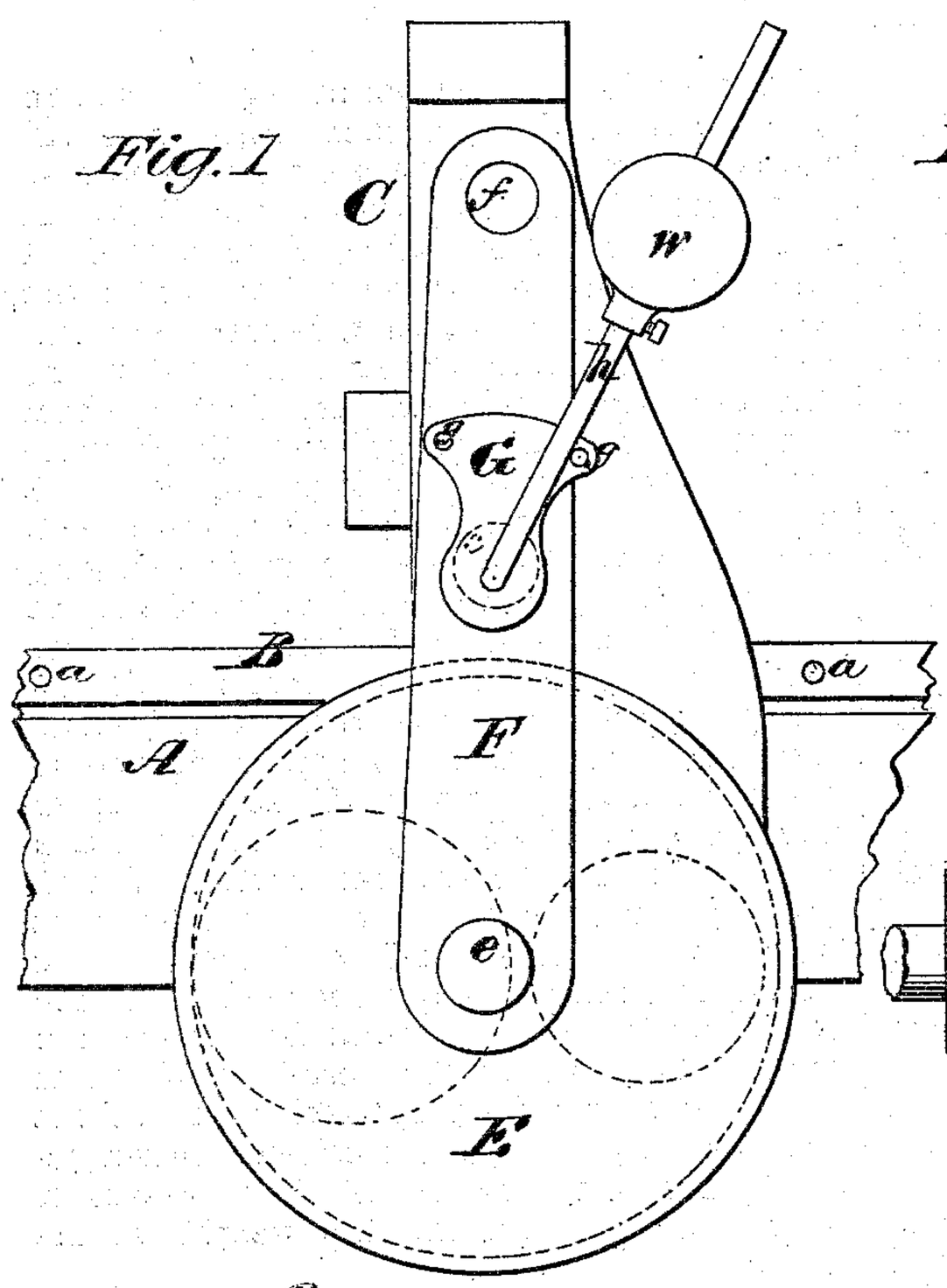


Fig. 2

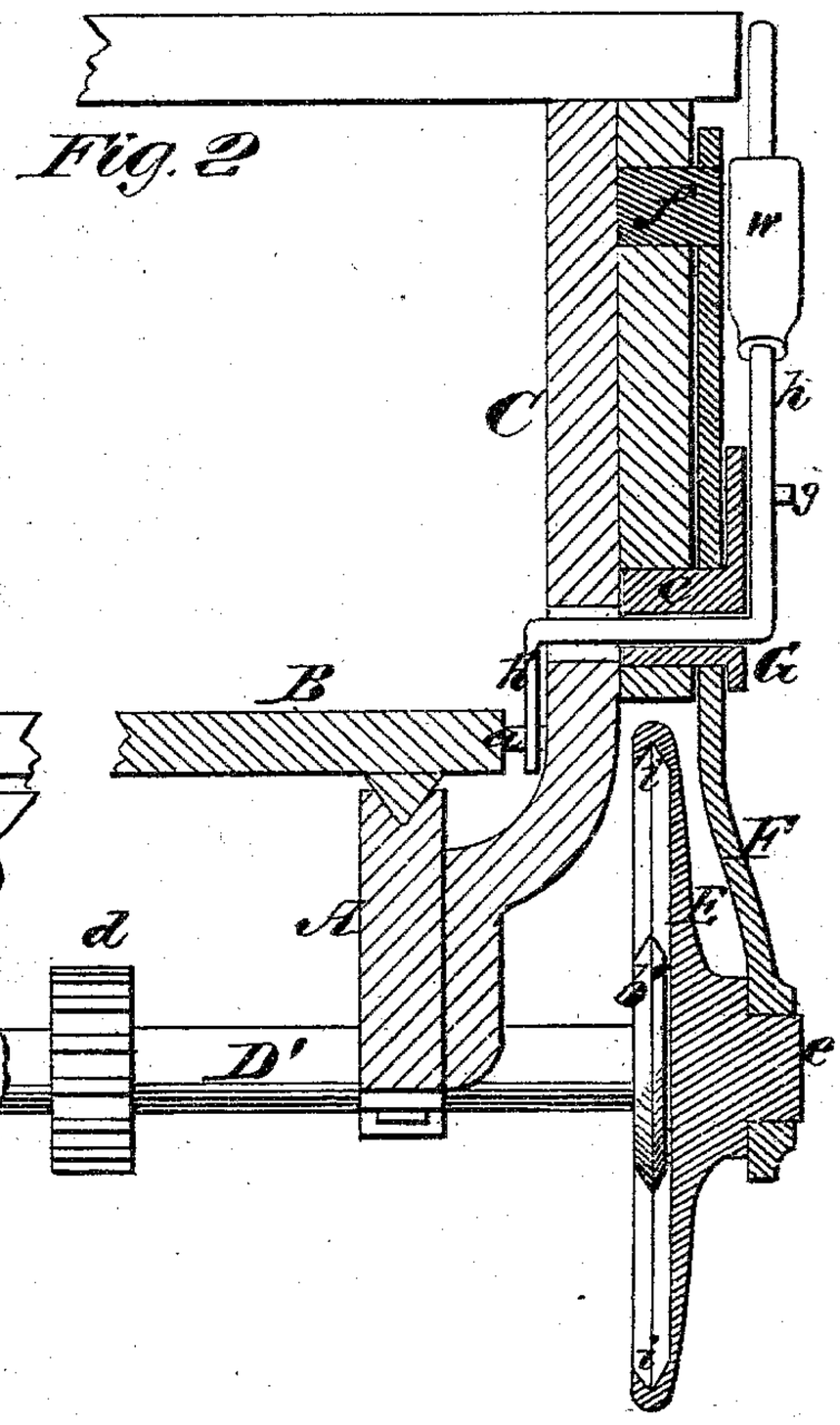
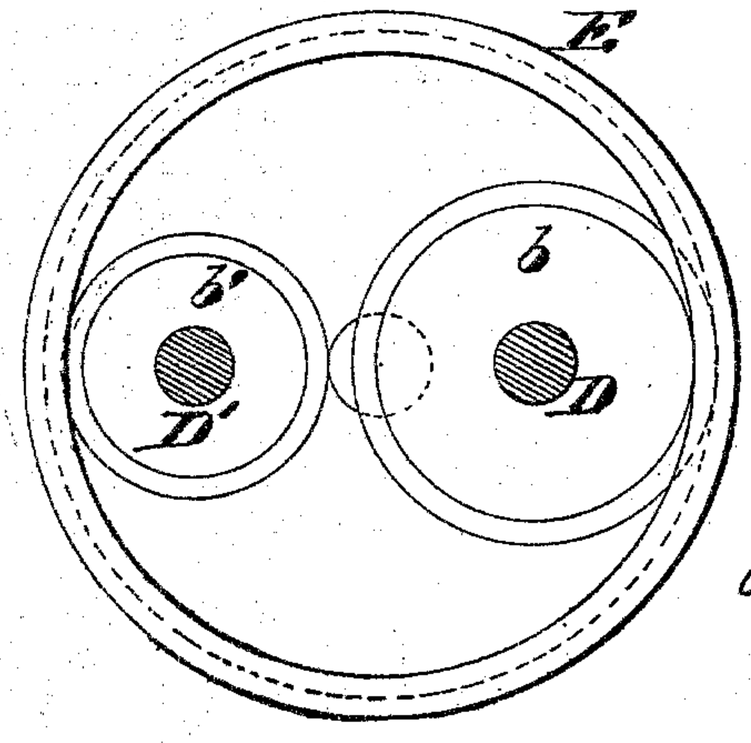


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM HECKERT, OF NEWCASTLE, PENNSYLVANIA.

IMPROVEMENT IN DEVICES FOR CHANGING SPEED AND REVERSING MOTION OF PLANING AND OTHER ANALOGOUS MACHINES.

Specification forming part of Letters Patent No. 125,676, dated April 16, 1872.

To all whom it may concern:

Be it known that I, WILLIAM HECKERT, of Newcastle, in the county of Lawrence and State of Pennsylvania, have invented a new and Improved Automatic Device for Changing Speed and Reversing Motion; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is an elevation of the improved device applied to the frame of a planer. Fig. 2 is a section taken vertically and transversely through Fig. 1. Fig. 3 shows an inside view of the reversing-wheels applied to the friction or belt wheel.

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

This invention relates to a novel device which is applicable to planers, shapers, screw-cutters, lathes, and other machinery, and which is designed for reversing the movements of parts as well as changing the speed thereof.

The following description of my invention will enable others skilled in the art to understand it.

In the accompanying drawing I have represented my invention applied to the frame A C of a machine for planing metal, wherein B represents the rectilinear reciprocating bed on which the metal to be planed is confined, and *a a* represent knockers, of the usual well-known kind, which alternately act against a crank-arm, *h'*, at the terminal strokes of said bed, and cause a reversal of the movements of the latter automatically, as will be hereinafter explained. D D′ represent two horizontal transverse shafts, one of which carries a large spur-wheel, not shown, which engages directly with the teeth of a rack on the bottom of the bed B, while the other shaft, D′, carries a pinion spur-wheel, *d*, which engages with the teeth of said large spur-wheel. The shafts D D′ are in the same horizontal plane, and carry on their outer ends, outside of the frame A, friction-wheels *b b′*. The largest friction-wheel, *b*, is on the shaft D, and the smallest one is on shaft D′, and both wheels have their peripheries beveled in order to increase their friction-surfaces, as shown in Fig. 2. E is an inside friction-wheel, of such diameter as will receive loosely within its double beveled friction-surface *i* the two wheels *b b′*, shown in Fig. 3, and allow this wheel E to be moved laterally, so as to engage either one of the wheels *b b′* with it, or, when desired, to disengage both of these wheels from it. In the drawing, Figs. 1 and 3, the large friction-wheel *b* is represented as engaged with the friction-wheel E, which gives the fastest speed to the bed B. The journal *e* of the friction-wheel E has its bearing in the lower end of a swinging bracket, F, which is pivoted at *f* to the frame C, so that it is capable of vibration in the direction of the length of the machine. Below the pivot *f* a cam, *c*, passes through one upright of frame C, and has applied fast on its outer end a tripping-plate, G, at each upper angle of which is a stud, *g*. Through the cam *c* passes loosely the cranked portion of a vibrating arm, *h*, which carries an adjustable weight, *w*, as shown in Figs. 1 and 2. The weight *w*, acting through the medium of the cam *c* and bracket F, presses the surfaces *i* of the wheel E against the periphery of one or the other of the friction-wheels with a force sufficient to give all the frictional contact desired; and this pressure can be increased or diminished by adjusting the weight on the arm *h*.

It will be seen from the above description that when the traveling bed B reaches the terminus of a stroke one of the knockers *a* on this bed will strike the crank-arm *h'* of the loaded arm *h* and move the latter past a vertical plane, when it will fall, and, striking one of the studs *g*, will trip the plate G and cause cam *c* to shift the wheel E. This will reverse the motion of the bed B; and if this bed is to make a backward stroke, the wheels E *b* will be brought in contact; if, however, the stroke be a forward one, the wheel E will be brought in contact with the wheel *b′*, and a slow movement of the bed will result. If the loaded arm *h* be held in a vertical position, both wheels will be out of contact with the wheel E.

It is obvious that the wheel E may be the belt-wheel; or the belt-wheel may be applied

on the shaft *e* of this wheel E. It is also obvious that the wheels *b b'* may be arranged so as to act against the surface of a groove formed into the periphery of the wheel E, instead of against the inside surface *i*, as shown. I prefer the arrangement which I have represented, as it is compact, and for other reasons more desirable.

Having described my invention, I claim as new—

1. The friction-wheel E, having a movable bearing, F, in combination with the friction-wheels *b b'*, substantially as described.

2. The loaded crank-arms *h h'*, tripping-plate G, cam *c*, and knockers *a a*, in combination with the bracket F and friction-wheels *b b'* E, substantially as described.

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