2 Sheet, Sheet 1.

J. S. Barden,

Machine Gearing.

No 81,329. Patented Aug. 25, 1868.

Fig: 1

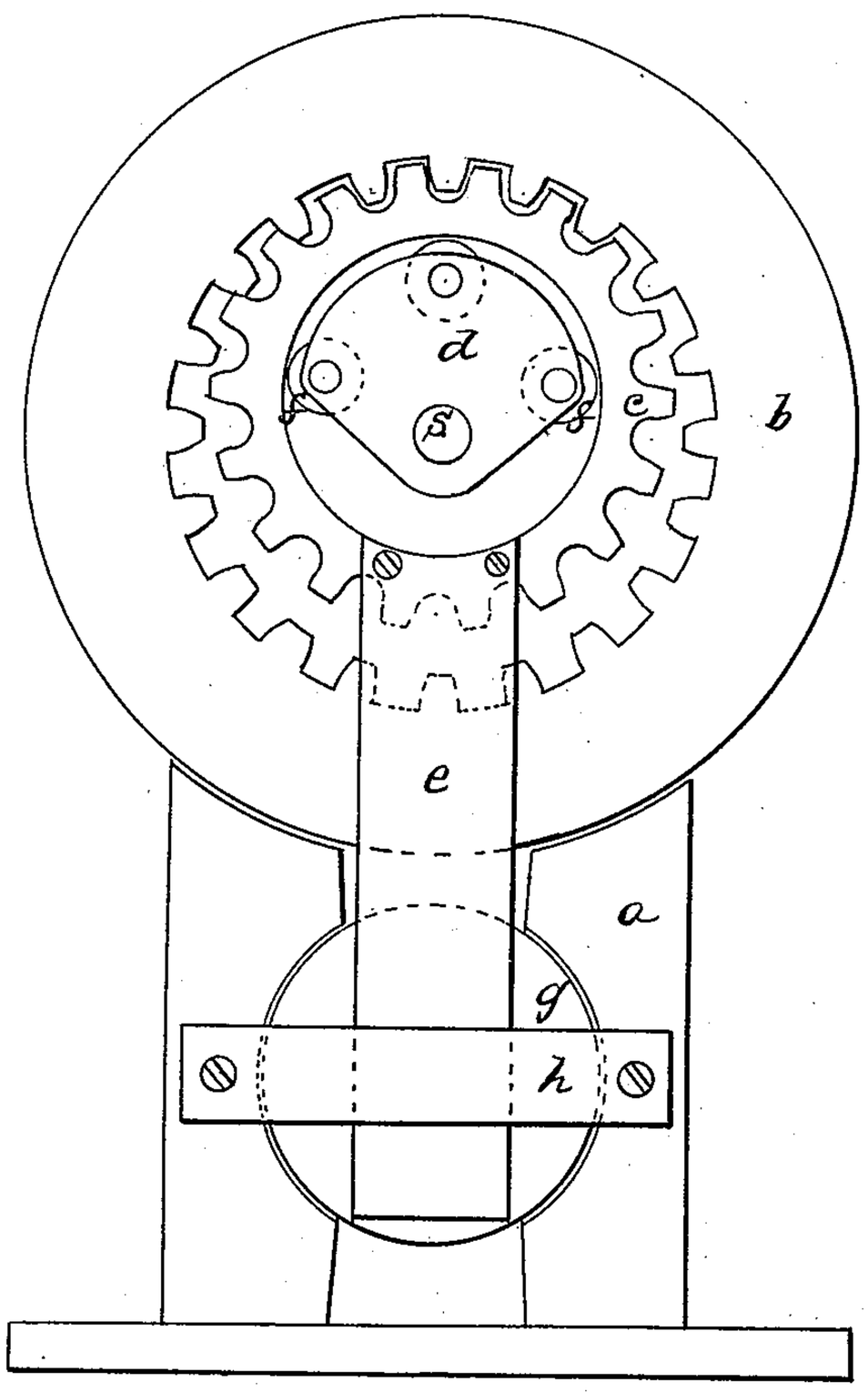
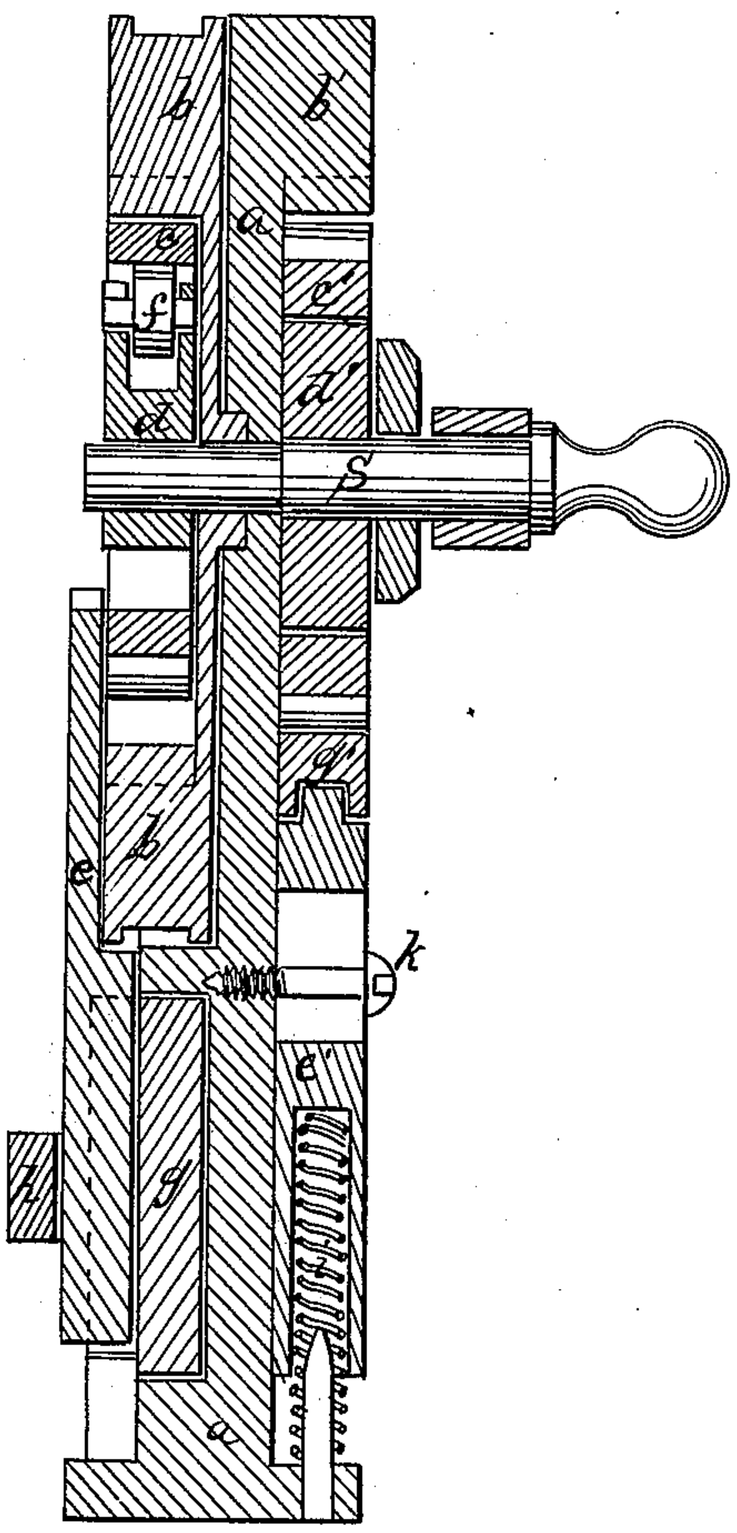


Fig: 2



Witnesses

M. L. G. Wilde
W. McWilde

Inventor

John S. Barden
by Jos. H. Adams
Atty

2 Sheets, Sheet 2.

J. S. Barden,

Machine Gearing.

No. 81,329. Patented Aug 25, 1868.

Fig: 3.

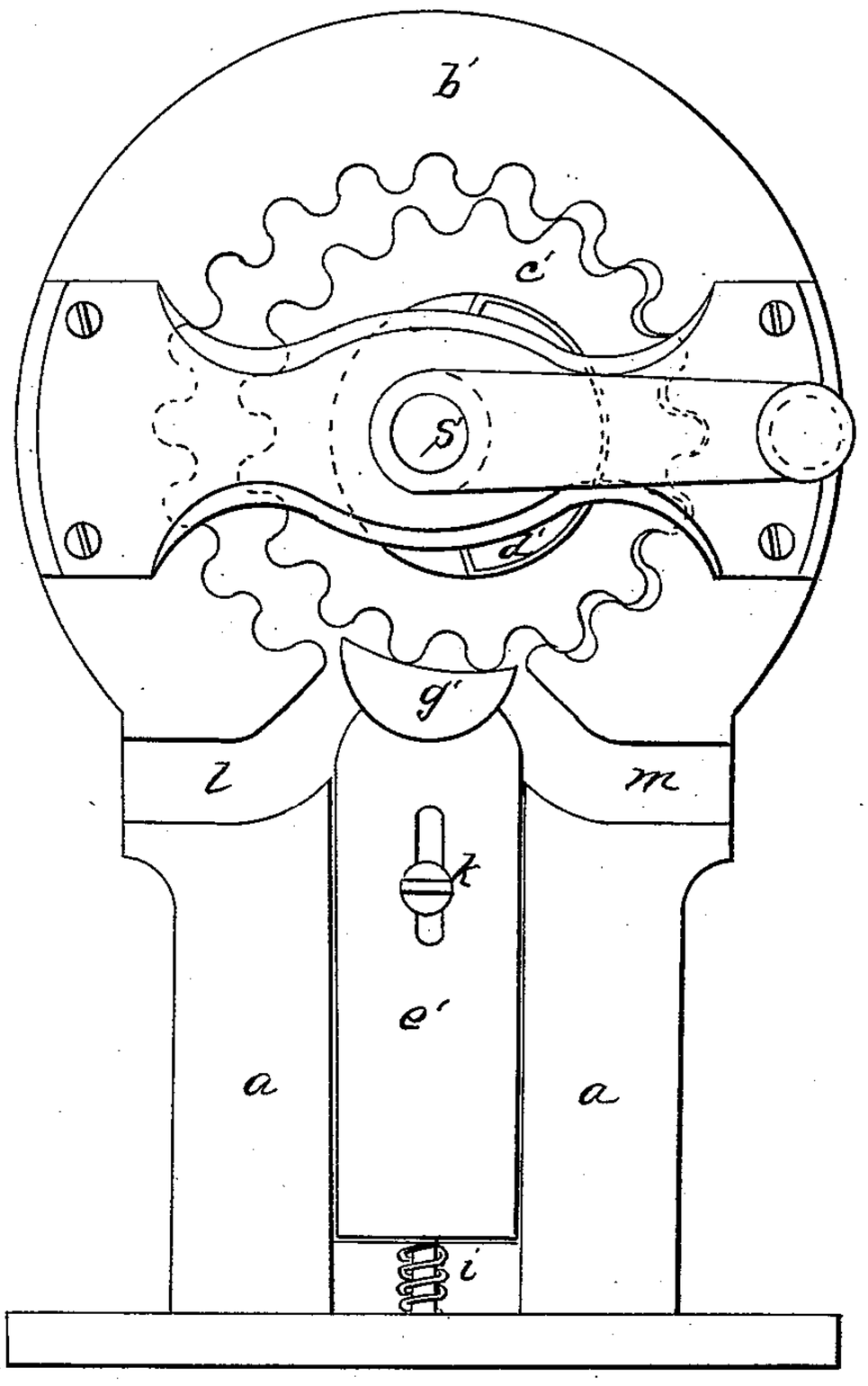
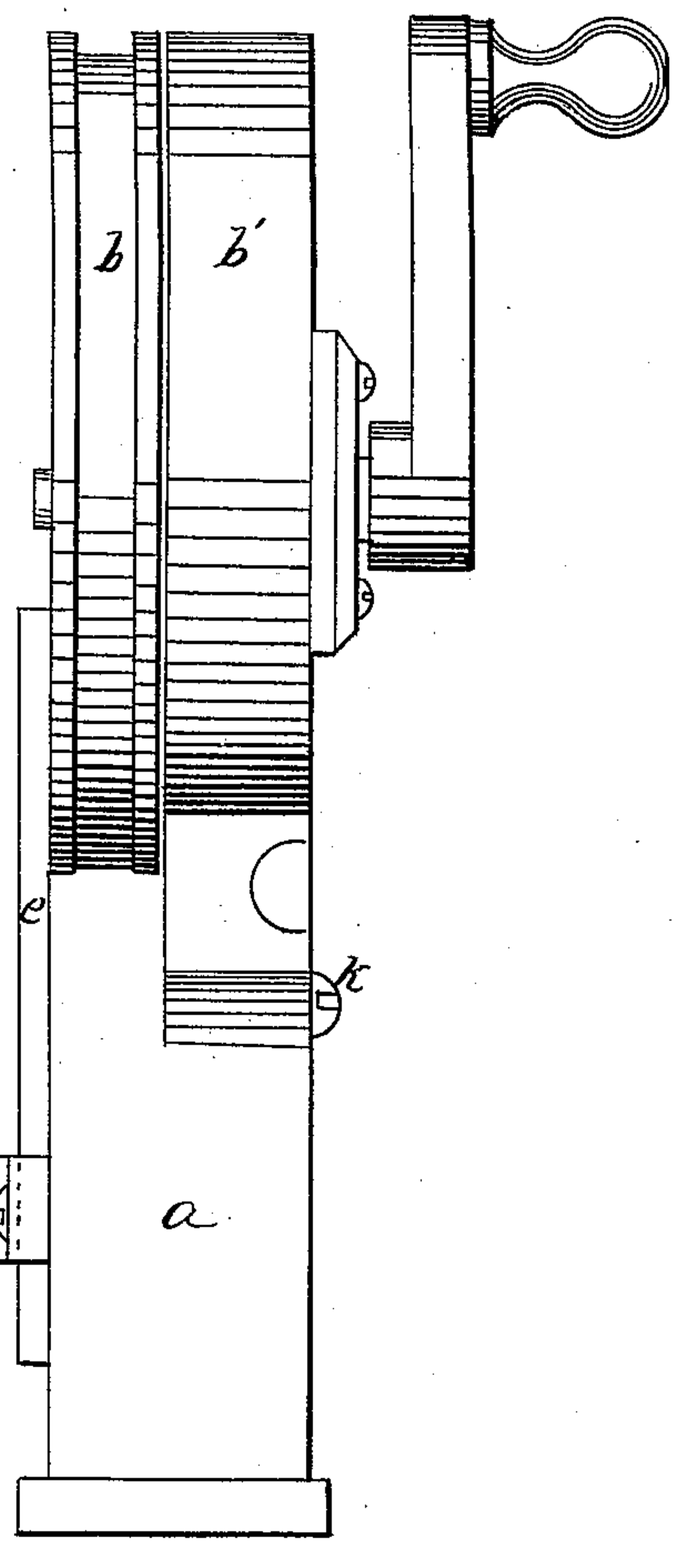


Fig: 4.



Witnesses

H. S. G. Wilde

W. M. Wilde

Inventor

John S. Barden
by J. H. Adams
Atty.

United States Patent Office.

JOHN S. BARDEN, OF PROVIDENCE, RHODE ISLAND.

Letters Patent No. 81,329, *dated August* 25, 1868.

IMPROVED MECHANICAL MOVEMENT.

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

Be it known that I, JOHN S. BARDEN, of Providence, in the county of Providence, and State of Rhode Island, have invented a new and improved Mechanical Movement, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a front elevation of my invention.

Figure 2 is a transverse vertical section of the same, together with that of a modification of my invention.

Figure 3 is an elevation, showing a modification of my invention.

Figure 4 is a side elevation of the invention, including the modification.

The nature of my invention consists in the combination of an external and internal gear, with a rotating cam or eccentric in such a manner that upon the rotation of the eccentric a rotary motion will be imparted to one of the gears, while the other remains either entirely stationary or is held in such a way as to be allowed a limited oscillating movement.

As the external gear is made to roll upon the internal gear, the relative rotary motion of the two will depend upon the difference of the relative diameters of the two pitch-lines.

If one of the gears be held and the eccentric be made to rotate, the unconfined gear will have a slow motion around its own centre; if one of the gears be entirely stationary and the other be actuated by the eccentric, it will be found that the movable gear will have a rotary motion on its own axis, in a direction opposite to that of the eccentric, and also a motion by which a portion of the gear-teeth will engage constantly and successively with a portion of the teeth of the stationary gear.

Referring to the drawings—

a, in the several figures, represents an upright frame or standard.

b is a large internal gear-cylinder, loosely supported on shaft *s*, and upon which it rotates.

c represents a smaller or external gear-cylinder, supported upon and actuated by a cam or eccentric, *d*, secured to the shaft *s*.

The eccentric, *d*, is provided with friction-rollers, *f*, as shown in fig. 1, which bear upon the inner surface of the gear-cylinder *c*.

To the gear-cylinder *c* is attached a bar, *e*, extending downwards, and fitted snugly, but so as to have a free sliding movement, in a recess formed in a circular disk, *g*, which latter is fitted in a recess in the frame, and in which it is confined by means of a slat or cross-piece, *h*, so as to allow of a free partially rotary motion.

It will thus be seen that by rotating the eccentric, *d*, the smaller or external gear *c* will be caused to engage constantly and successively with a portion of the teeth of the larger or internal gear, thus imparting to the latter a slow rotary motion on its own axis.

The external gear, *c*, is prevented from having a rotary movement by the bar *e*, which latter being confined in the recessed disk or circular plate *g*, is allowed a sliding motion in the same, the disk *g* moving on its centre to accommodate itself to the varying motion of the bar *e*.

Power may be applied to the larger or internal gear-cylinder to communicate motion to the external gear and its connections, or it may be applied directly to the external gear, according to the required application of power or velocity.

The less the difference between the pitch-lines of the external and internal gears, the greater will be the power obtained, and the gear that sustains more directly the weight to be moved will have less tendency to move backwards.

If velocity is required, then sufficient difference should be made between the diameters of the external and internal gears to allow the eccentric to move without taking any more power than is practically desirable.

The internal gear-cylinder may have an arm attached to it to prevent it from rotating, and causing it to oscillate, in which case, the arm upon the external gear-cylinder should be dispensed with, to allow the latter to rotate.

Fig. 4 represents a modification of my invention.

b' is the stationary internal gear, and c' the smaller or external gear, in the central portion of which latter is fitted, so as to move freely, a disk, d', attached eccentrically to the shaft s, so that as the latter is rotated the eccentric, d', will impart to the gear c' a rotary motion on its own axis, and at the same time cause it to engage successively and continuously with a portion of the teeth of the internal gear b'.

g' represents an abutment, which is held against the gear c' by means of a sliding bar or slab, e', actuated by a spring, i, secured to the base of the frame.

The abutment g' is fitted in the top of the slide e', and is allowed a free oscillating motion to accommodate itself to the motion of the gear c'.

The slide e' is secured to the frame by means of a set-screw passing through a slot in the slide.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of an external and an internal gear with an eccentric, substantially as set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN S. BARDEN.

Witnesses:

JAMES A. WOODBURY,

J. H. ADAMS.