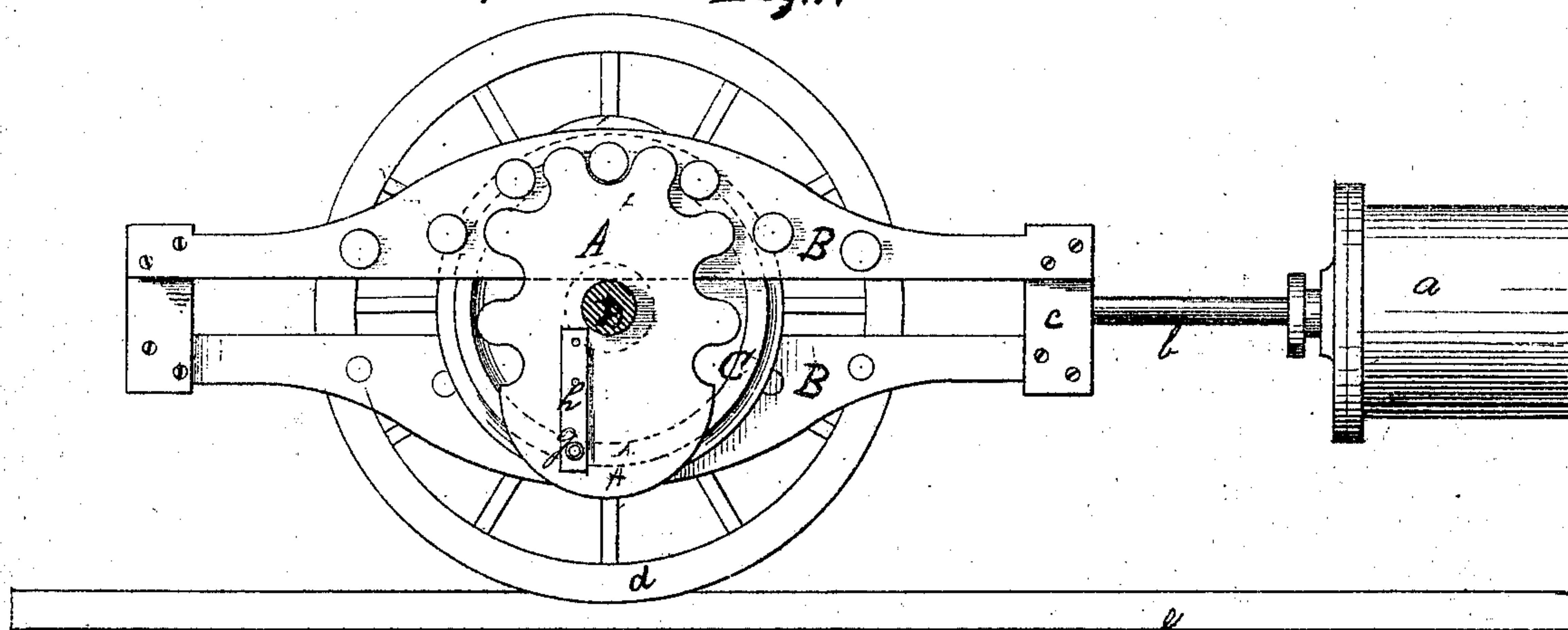


*J.H. McCarry's Impls. in Locomotive Engines.*

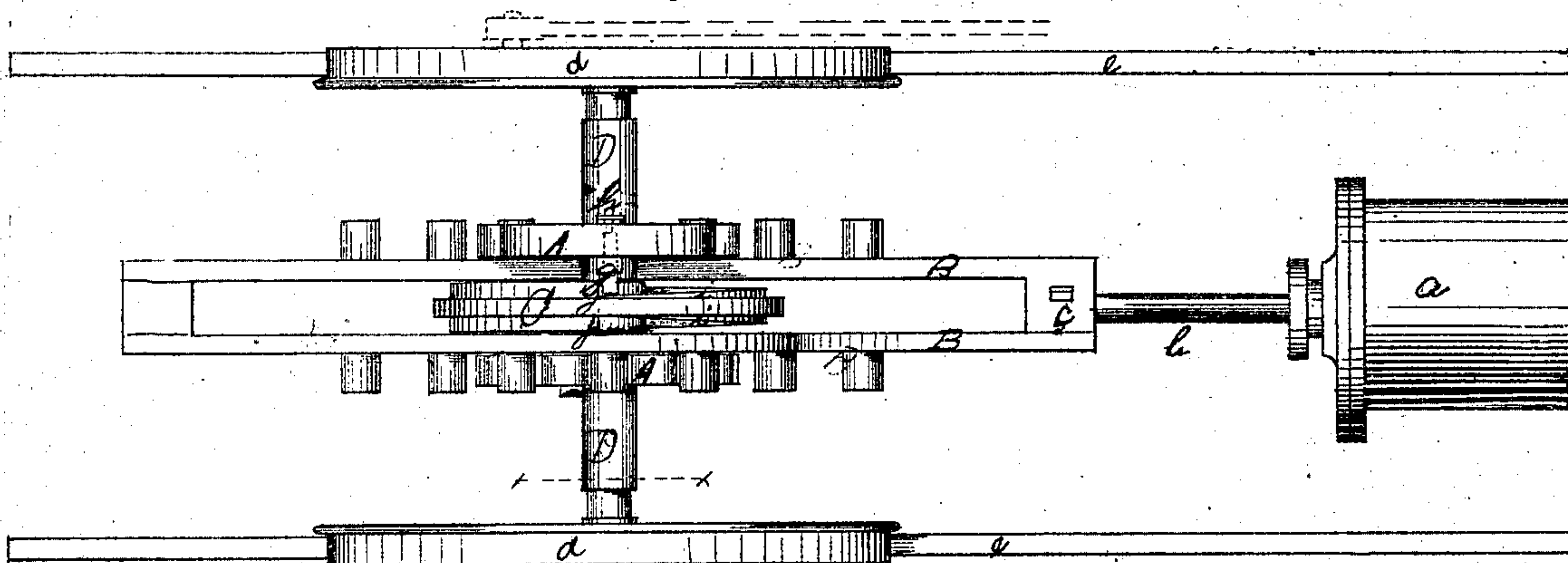
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PATENTED JUL 4 1871

*Fig. 1.*



*Fig. 2.*



Witnesses:

*Wm. L. Mumford*  
*W. C. Chaffee*

Inventor:

*J. H. McCarry*  
*By W. L. Mumford*



# UNITED STATES PATENT OFFICE.

JAMES H. McCAMY, OF WYTHEVILLE, VIRGINIA.

## IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. 116,617, dated July 4, 1871.

*To all whom it may concern:*

Be it known that I, JAMES H. McCAMY, of the town of Wytheville and State of Virginia, have invented certain new and useful Improvements in Mechanical Movement, of which the following is a specification:

My invention relates to the combination of wheels and racks arranged together on an axle, so that, by the reciprocating action of the piston, they cause the axle to revolve, the object being to do this and to preserve at all times the line of traction direct with the center of resistance; to have the power continually acting at right angles with a line passing through the center of the axle, giving equal power and full leverage to the piston, and thereby obtaining the whole mechanical force of the steam; to do away altogether with the dead-points and enable the machinery to start promptly from any position; to dispense with the series of connecting-rods and other gearing applicable to engines, simplifying and lessening their expenses, and to retain the power lost in the tangential action of the connecting-rod; to place the cylinder in closer proximity to the axle, whereby the point of resistance is brought closer to the power exerted, which will greatly shorten the length of engines and lessen the danger of locomotives in passing curves; and also to get the force exerted in the middle of the axle and render it, if so desired to be, unnecessary to use more than a single engine. Otherwise, one set of pinions, round or oblong, and racks, &c., is put upon either end of the axle of the driving-wheels.

Figure 1 is a vertical longitudinal section. Fig. 2 is a plan view of the alleged invention.

The same letters have reference to corresponding parts in each of these figures.

A A in Figs. 1 and 2 are oblong pinions, revolved back and forth by the curved racks B B, which are placed one above and the other below the axle D on either side of the cam-wheel C, the latter only of which is stationary to the axle. *a* is the cylinder; *b*, the piston-rod, connected to the cross-head *c*; *d d*, the driving-wheels on the track *e e*. On the oblong pinions A A are self-

acting cogs *g g*, one of which is seen in each figure. These are pressed down by metallic or India-rubber springs *h h*, seen as before, which causes them, when they are raised over the inclined plane *i i*, Fig. 2, by the forward motion of A A by B B and *b*, to fall behind the shoulders *j j*. The racks B B being on each side of the axle D cause the wheels A A to pass in opposite directions, and, from this circumstance, the self-acting cogs *g g* pass up the planes alternately and fall behind the shoulders *j j*, and revolve the cam-wheel C, each in its turn, half round. The shoulders *j j* on each side of the cam-wheel C, which are two in number in the drawing, may be multiplied at will, placing them in sections, if desired. A duplicate set of cogs is used to work against shoulders oppositely cut, one for setting the locomotive in a forward motion, the other for reversing. Only one of those is seen in the engraving. When one is in use the other is keyed up to miss their shoulders. To use more than one set of driving-wheels, the length of the racks B B must be extended so as to reach over other sets of pinions, &c., arranged as before.

If desired, the cam-wheels can be dispensed with by having projections on the outside of pinions through which the shaft passes. Mortises are made through to the shaft for self-acting cogs to work in. Shoulders are arranged on shaft just as they are on cam-wheel, and substantially for the same purpose. The racks are now placed on a line, one above the other.

I claim as my invention—

1. The oblong wheels A A, constructed substantially as and for the purpose hereinbefore set forth.

2. The curved racks B B, in combination with oblong wheels A A, substantially as described.

3. The oblong pinions A A, the curved racks B B, with the cam-wheel C, arranged together substantially as and for the purpose hereinbefore set forth.

Witnesses:

J. H. McCAMY.

ELIJAH DYER,

GEORGE A. CATUN.