

Diffendal & Hughes,

Horse Power.

No. 25,440.

Patented Oct. 5. 1869.

Fig. 1.

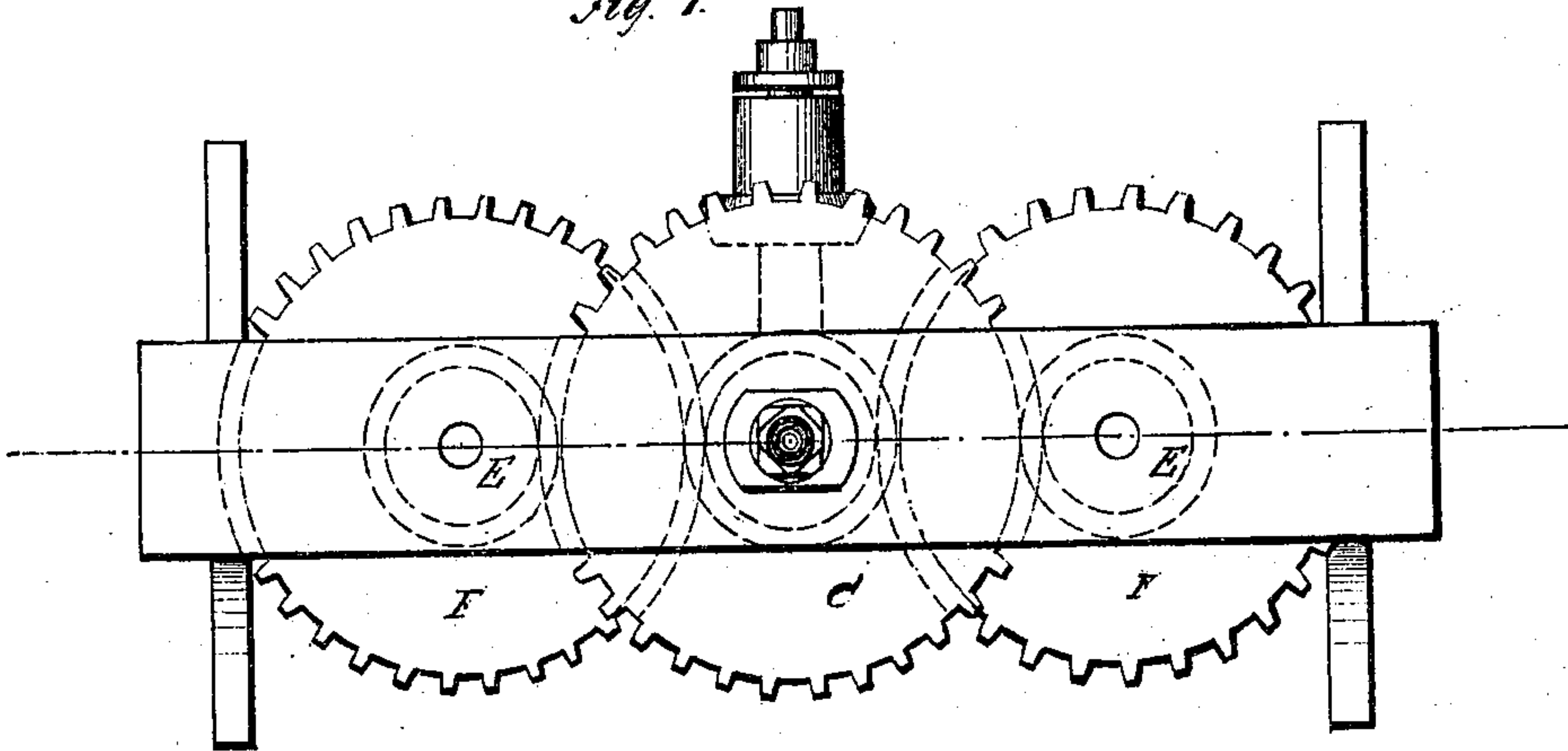
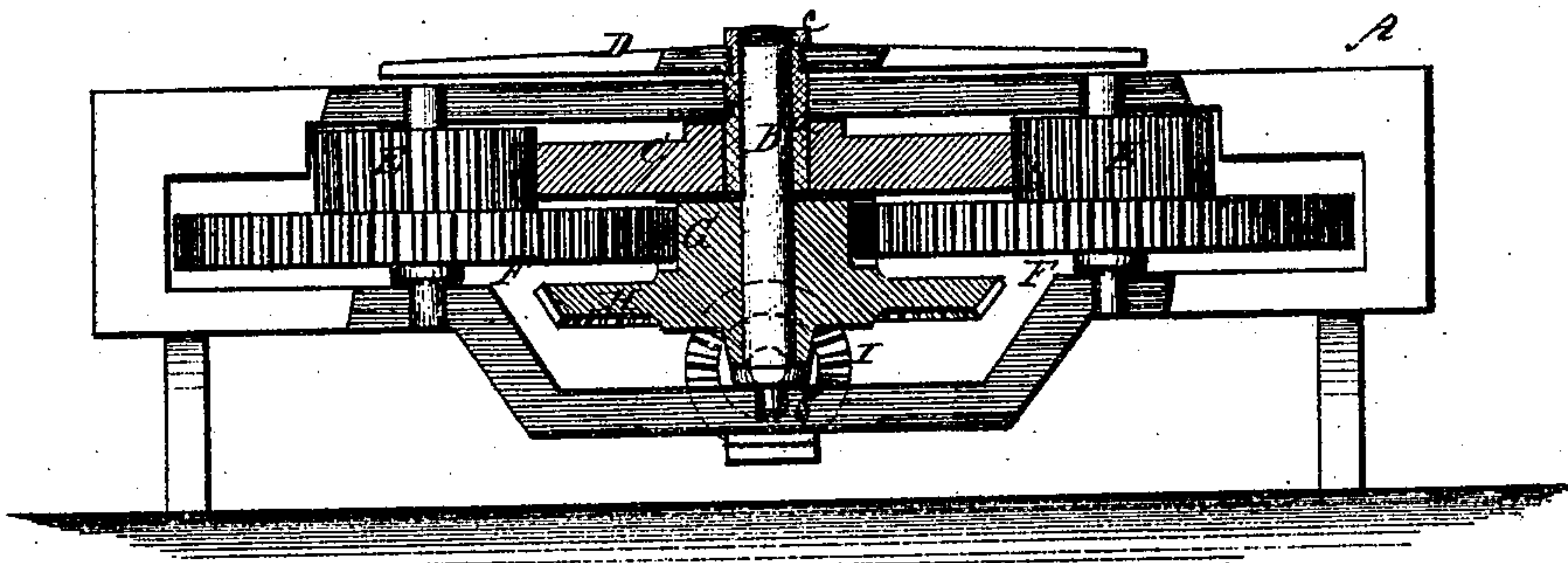


Fig. 2.



Witnesses:

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JOSEPH DIFFENDAL AND SAMUEL HUGHES, OF WESTMINSTER,
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Letters Patent No. 95,440, dated October 5, 1869.

IMPROVED HORSE-POWER.

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

To all whom it may concern:

Be it known that we, JOSEPH DIFFENDAL and SAMUEL HUGHES, of Westminster, in the county of Carroll, and State of Maryland, have invented a new and useful Improvement in Horse-Power; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to provide a simple and compact arrangement of multiplying wheels in a portable horse-power for producing a rapid motion for the tumbling-shaft, from the first mover, with the least possible amount of lateral pressure on the driving-shaft.

The invention consists in the particular construction and arrangement of parts, as hereinafter set forth.

Figure 1 represents a plan view of our improved horse-power, and

Figure 2 represents a longitudinal sectional elevation, taken on the line *xx* of fig. 1.

A represents a rectangular frame, or it may be of other form, in the centre of which is mounted, on a short hollow shaft or sleeve, *a*, a spur-wheel C.

The upper end of this shaft is made square to admit of the connection of the sweep D, which is held thereon by a screw-threaded nut, *c*, the lower end of the shaft being flush with the lower face of the wheel C.

B is a solid cylindrical shaft, stepped at *b*, and having the bevel-gear wheel H arranged loosely thereon, and passing up through the tubular shaft *a*, as shown in the drawings.

The wheel C gears with two pinions, E, one on opposite sides, also on vertical shafts, and connected with spur-wheels F, which gear into a pinion, G, working loosely on the main shaft B, and connected to a large bevel-wheel H, gearing with the bevel-pinion I, on the tumbling-shaft.

The object of the arrangement of the pinions E and

spur-wheels on both sides of the master-wheel *c* and pinion G, is to take off the lateral pressure from the shaft B, which exists when only one set is used, which, by this arrangement, is divided between the two sets and wholly removed from the said main shaft, thereby making a much more easy running and durable apparatus than when arranged with only one set of intermediate set of gears E E.

It will be observed that while the journals of the shafts on which the wheels E are mounted are thus pressed equally outward, so as to rotate with the minimum amount of friction, the arrangement of parts is such that the wheels H and O, and likewise their shafts, rotate in the same direction, thereby allowing the freest possible movement, with the least wear, friction, or consequent unnecessary expenditure of motive or impelling force.

Having thus described our invention,

What we claim as new, and desire to secure by Letters Patent, is—

1. The arrangement, in the horse-power frame herein described, of the wheels H C, and the short hollow shaft *a* and solid shaft B, with relation to each other, as shown, whereby they are adapted to rotate together in the same direction, for the purpose specified.

2. The described arrangement of the wheels O H, hub G, pinions E E, and spur-wheels F F, whereby the journals of the latter have an even bearing, as and for the purpose specified.

3. In combination with the frame A of the construction shown, the short tubular shaft *a*, solid shaft B, large spur-wheel C, large bevel-gear wheel B and its hub G, the large spur-wheels F F, and pinions E E, all constructed, arranged, and operating together, as herein described.

JOSEPH DIFFENDAL.
SAMUEL HUGHES.

Witnesses:

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