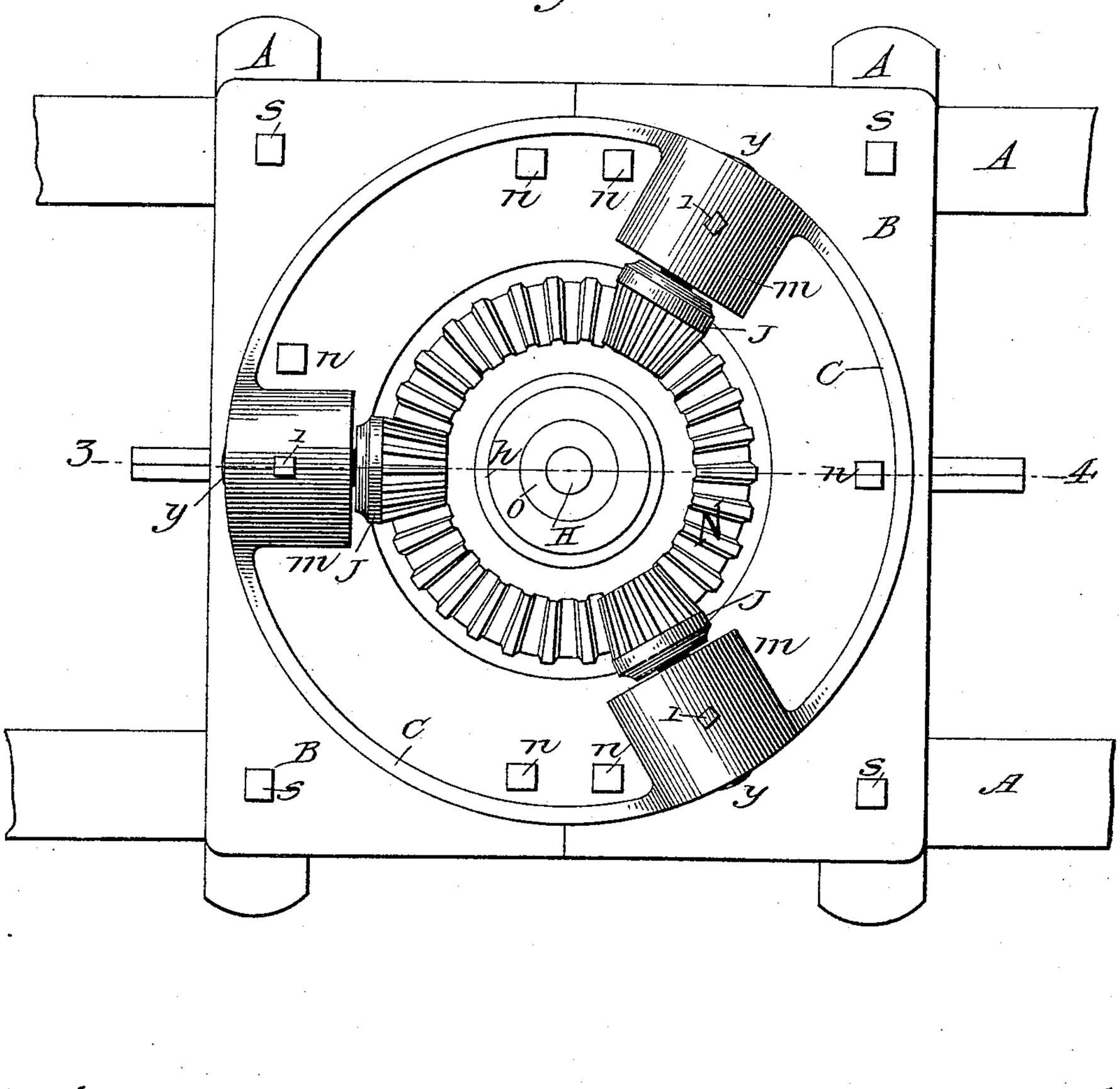
(No Model.) 2 Sheets—Sheet 1.

D. BERLEW.

HORSE POWER.

No. 397,219. Patented Feb. 5, 1889.

Fig. 1.



Witnesses.
F. W. Willis.
Oscar V. Bell.

Inventor.
Daniel Berlew

(No Model.) 2 Sheets—Sheet 2.

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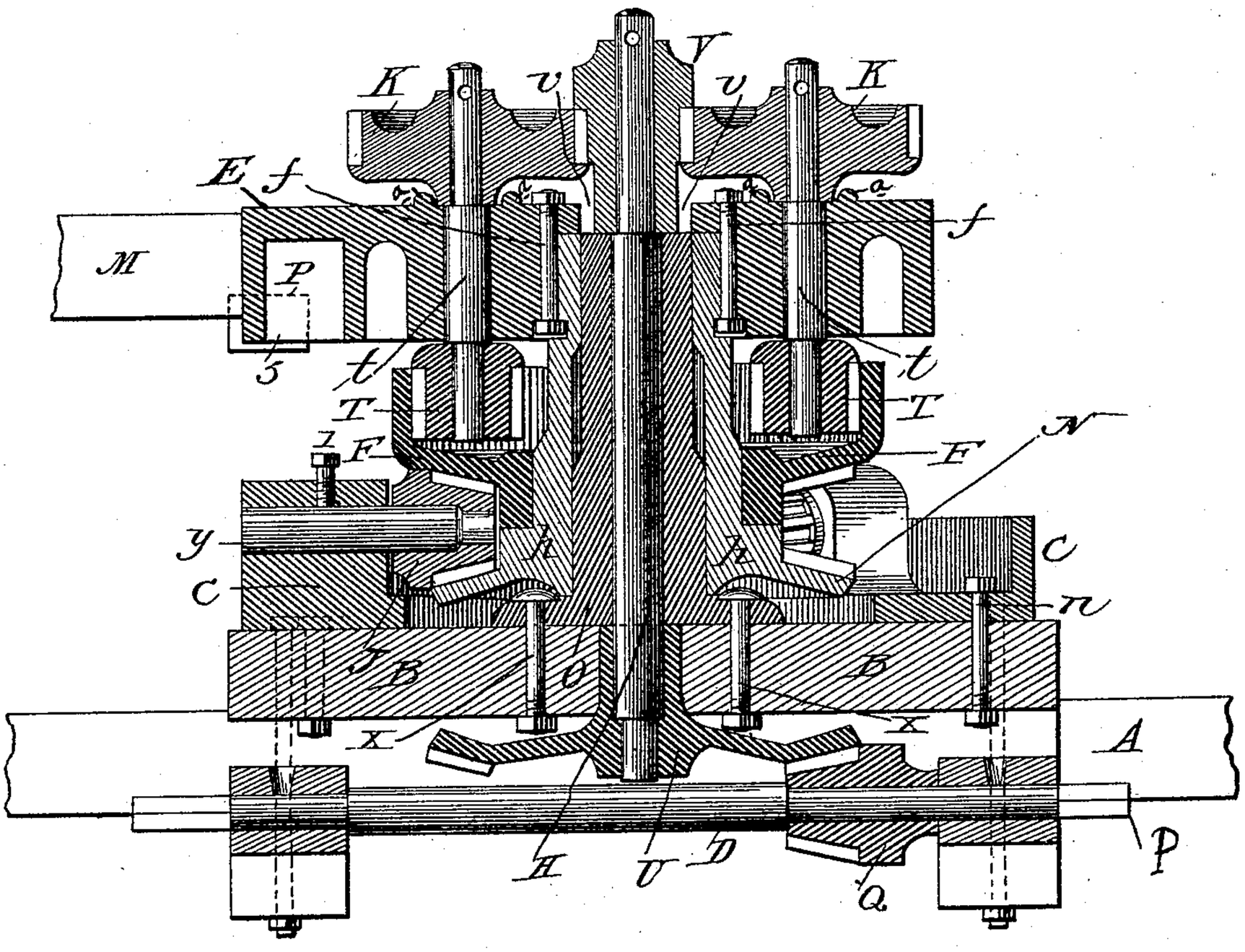
Fig. 2.



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Inventor:
Daniel Berlew

UNITED STATES PATENT OFFICE.

DANIEL BERLEW, OF SPRINGFIELD, OHIO.

HORSE-POWER.

SPECIFICATION forming part of Letters Patent No. 397,219, dated February 5, 1889.

Application filed February 13, 1888. Serial No. 263,918. (No model.)

To all whom it may concern:

Be it known that I, DANIEL BERLEW, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented a new and useful Improvement in Horse-Powers, of which the following is a specification.

My invention relates to that class of horse-powers operated by means of levers. In the usual way of constructing this class of horse-powers a large master-wheel is employed, which is especially heavy when it is intended to stand the strain of eight, ten, or twelve horses. As a consequence these powers are objectionable on account of their great weight, which renders them cumbersome to handle when it is desired to move them; also, a further objection to the usual powers of this class, made in the usual way, is that they require unnecessarily heavy draft on the horses to operate them, while on the plan of my improvement not over one-third of material is required in the construction of a power that will stand the strain and accomplish greater work in proportion to the horses used than any power constructed on the usual plan of using the large master-wheel. As a further advantage in my improvement the manufacturer needs but one complete set of patterns to be able to manufacture from the smallest to the largest powers by simply adding duplicate parts which give the necessary or required strength in a power intended to do any certain work. This I accomplish in my improvement by applying the counter motion of a wheel in getting up the necessary speed in such a manner as to make the draft light on the horses. This wheel is mounted on the hub of the master-wheel and is provided with two sets of cogs—one external and one internal. The external cog part of this wheel is a duplicate of the cog part of the master-wheel. The duplicate cog parts of both the double-toothed wheel and the master-wheel mesh with pinions located between them, which pinions in their movement, when power is applied to the master-wheel, give a counter movement to the double-toothed wheel, and as the pinions which mesh with the internal cog part of said wheel have their bearings in a frame rigidly attached to the vertically-extended hub of the master-wheel, they are carried in a planetary movement in the same direction with the forward movement of the master-wheel, which gives said pinions two circuits round the internal cog part of the double-toothed wheel at each round of the master-wheel. These pinions have mounted at the top end of their shafts cog-wheels which mesh with a center pinion mounted at the top end of a central vertical shaft, which transmits the power to the tumbling-shaft by means of a bevel cog-wheel attached to the lower end of said central shaft. This power can be made to be driven by either one of two ways—either by making the lever or sweep attachment to attach on the vertically-extended hub of the master-wheel, or by fitting the attachment on the double-toothed wheel and driving from that point instead of the one shown in the accompanying drawings.

In the drawings which accompany this specification, Figure 1 is a top view of the master-wheel, showing its position. Fig. 2 is a sectional elevation on lines 3 4.

In Fig. 1, A is the wooden frame. B is the platform, to which the circular plate C is secured by bolts *n*. Plate C at *m* supports studs *y*, on which pinions J are mounted. N is the master-wheel, mounted on a center hollow post, O, which is secured to platform B by bolts *x x*. F is the wheel with two sets of cogs—one internal and one external set—and is mounted on the vertically-extended hub of the master-wheel N. T T are cog-pinions meshing with the internal cogs of the double-toothed wheel F. E is the lever-frame, and is attached rigidly to the top of the vertically-extended hub of the master-wheel N by means of bolts *f f*, located in the joint between the frame and the extended hub. Openings are provided for bolts *f f* in casting—half in the hub and half in the frame—which bolts secure the frame rigidly to the extended hub of the master-wheel N. M shows a lever in position with the rear end fitted in a pocket at P. The lever is supported in position by a stirrup-rest. (Shown by dotted lines at Fig. 2.)

a a on frame E are circular projections forming oil-cups around shafts *t t*. The opening in frame E at *v* forms an oil-chamber for

oiling the central parts of the machine. K K are cog-wheels mounted on the top end of shafts *t t*, and mesh with the pinion V. Pinion V is mounted on the top end of the central vertical shaft, H. U is a bevel-wheel attached to the lower end of the shaft H, and meshes with the pinion Q on the tumbling-rod attachment P.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a horse-power, the wheel F, provided with an internal and an external set of teeth, in combination with master-wheel N, having a vertically-extended hub, pinions T J K V, and gear U, substantially as described.

2. A central vertical shaft and a hollow post thereon, in combination with the lever-frame, a supporting-platform, a wheel which is internally and externally toothed, a master-wheel, and gearing connecting said wheels with the tumbling-shaft, substantially as described.

3. In a horse-power, the combination of a wheel having internal and external teeth, a master-wheel having an extended hub, on which said first-mentioned wheel is mounted, pinions between said wheels, and gearing connecting said wheels with the tumbling-shaft, substantially as described.

DANIEL BERLEW.

Attest:
F. W. WILLISS,
AMOS N. MILLER.