

(No Model.)

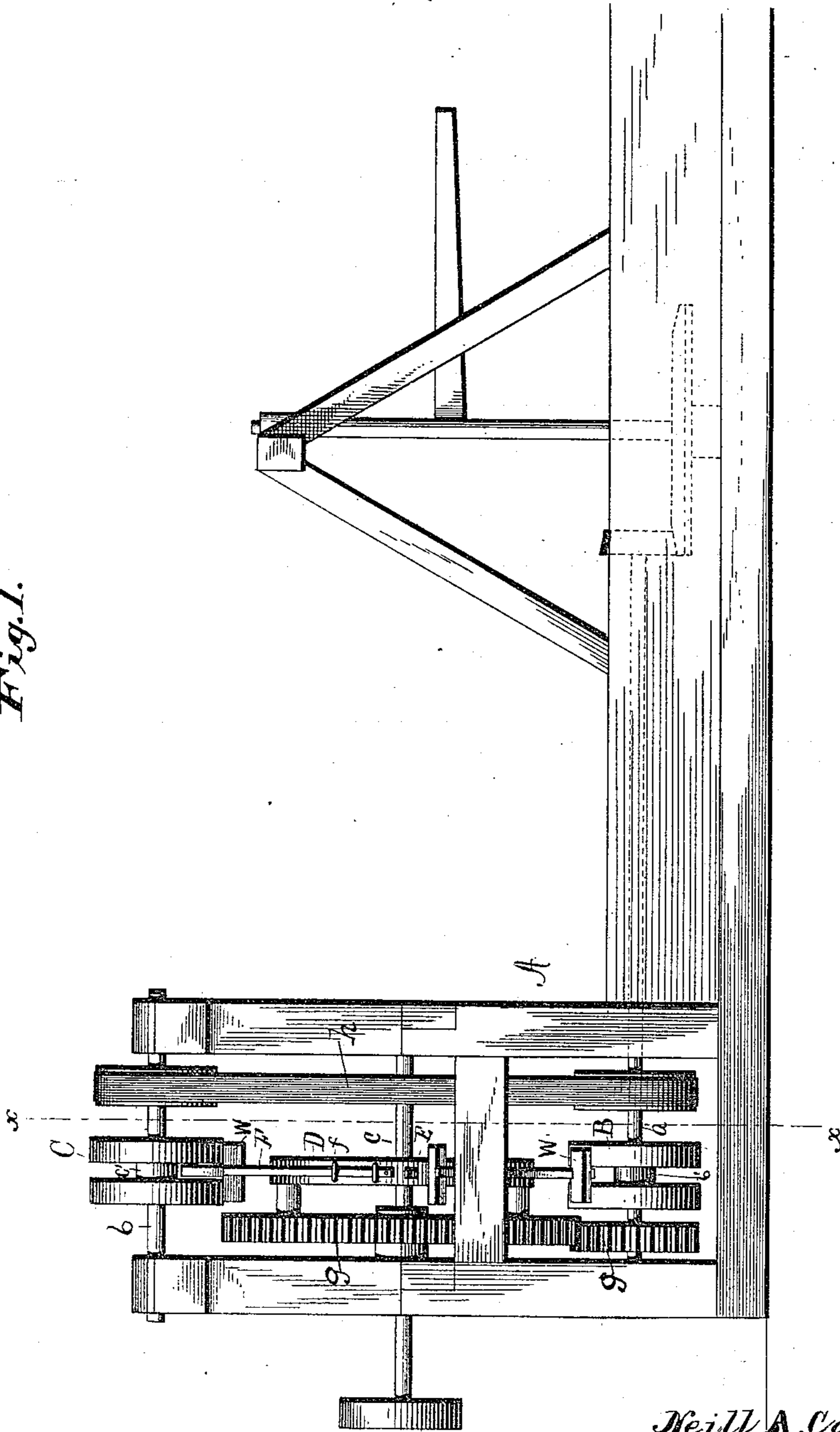
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N. A. CAMERON.
FLY WHEEL.

No. 442,570.

Patented Dec. 9, 1890.

Fig. 1.



Witnesses

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Inventor

by

[Signature]

Attorney

(No Model.)

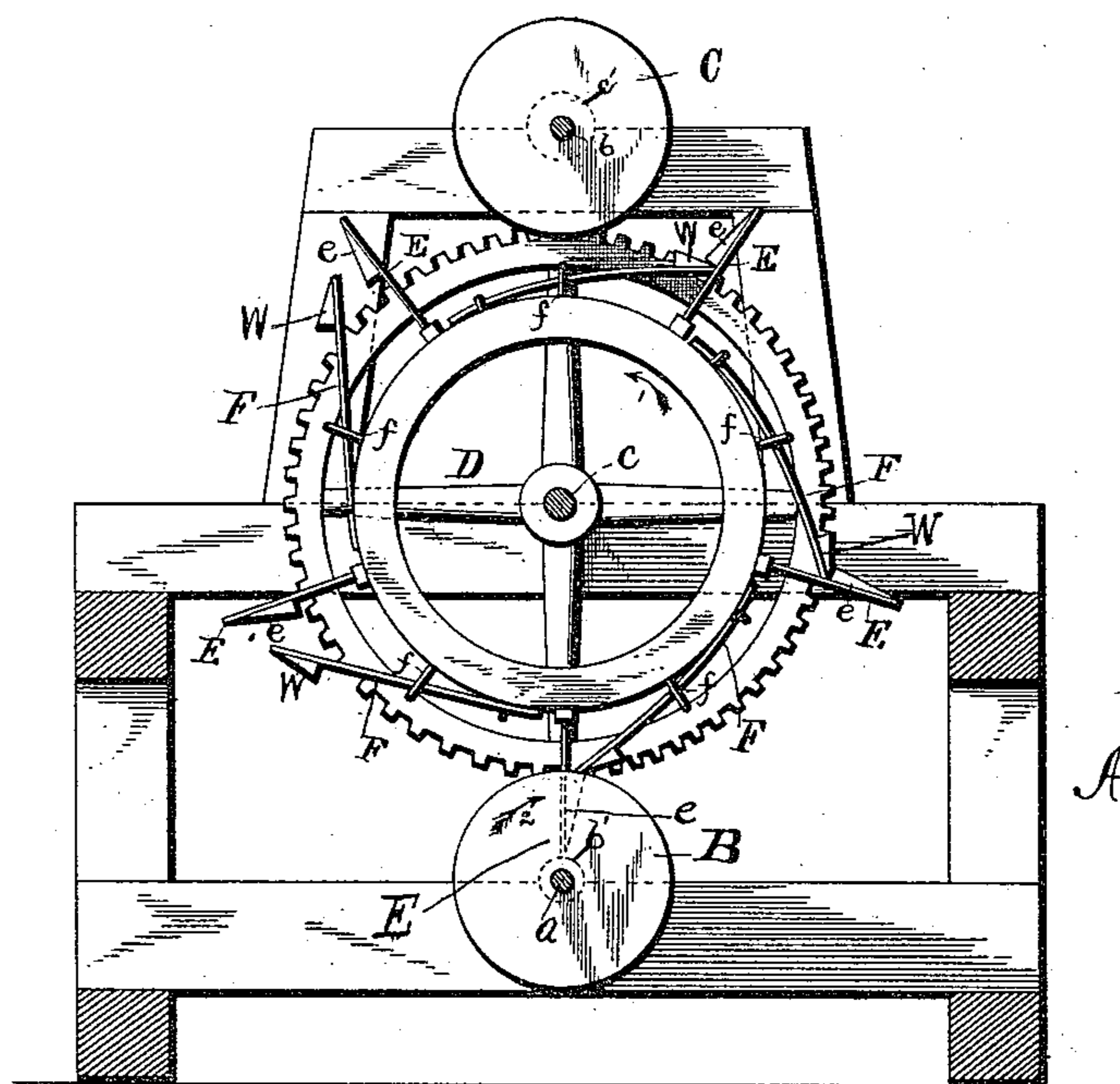
2 Sheets—Sheet 2.

N. A. CAMERON.
FLY WHEEL.

No. 442,570.

Patented Dec. 9, 1890.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

NEILL A. CAMERON, OF BLOSSOM, TEXAS, ASSIGNOR OF ONE-THIRD TO
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FLY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 442,570, dated December 9, 1890.

Application filed August 14, 1890. Serial No. 361,988. (No model.)

To all whom it may concern:

Be it known that I, NEILL A. CAMERON, a citizen of the United States of America, residing at Blossom, in the county of Lamar and State of Texas, have invented certain new and useful Improvements in Balance or Fly Wheels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to improvements in balance or fly wheels, and is adapted to be applied to many different classes of machinery.

In the accompanying drawings I have illustrated my invention applied to a horse-power, in which—

Figure 1 is a side elevation; Fig. 2, a sectional view taken through the line *x x*, Fig. 1.

The object of my invention is to provide an improved balance or fly wheel in which I make use of weights carried by spring-arms and means for holding the weighted spring-arms on one side of the wheel near the center thereof, said arms being released so as to be located farther from the center of the wheel on the opposite side, and in carrying out my invention I provide the fly-wheel with a series of radiating spring-arms having notched ends with which spring-bars carrying weights are adapted to engage; also, upper and lower grooved disks for alternately causing the engagement and releasing of the weighted spring-bars from the notched spring-arms.

In the drawings, A refers to a suitable frame, which may be a part of a horse-power or other machinery, the main shaft *a* thereof carrying a central grooved roller B, while the shaft *b* carries a similar grooved roller C. Between these shafts *a* and *b* is located a shaft *c*, upon which is mounted the fly or balance wheel D. The shafts *c* and *d* may be suitably geared to each other by cog-wheels *g*, located on said shafts *c* and *d*, the shafts *a* and *b* being connected by a belt *h*, which passes over pulleys on said shafts, the latter revolving in unison. The wheel D, mounted on the shaft *c*, has se-

cured to the periphery thereof a series of radiating spring-arms E, which are provided with notches or catches *e*, with which the tangentially-located weighted spring-bars F engage at the proper time. These tangential weighted spring-bars carry at their outer ends transverse weights W, and their outward movement from the shaft *c* is limited by bails or staples *f*. The rollers B and C are similarly constructed, having a central recess of sufficient size to permit the ends of the spring-arms E to pass into these recesses, and one of these rollers, preferably the upper one C, has a hub *c'* of slightly larger diameter than the hub *b'* of the lower roller B.

In operation, when the wheel D is turned in the direction indicated by the arrow 1, the roller-disk B will be rotated in the direction indicated by the arrow 2, either by the belt connecting the shafts *a* and *b*, or by frictional contact of the spring-arms therewith. As the wheel D rotates, the outer ends of the spring-arms E will pass into the recesses in the roller B, and the transverse weights W, contacting with the peripheries of said rollers, will move the weighted spring-arms inwardly to engage with the notched ends of the spring-arms E, thereby holding the weights nearer the center of the wheel than normally. As the spring-arms and weighted spring-bars move upwardly, the spring-bars F contact with the periphery of the upper roller C, while the outer ends of the spring-arms E strike against the hub and are sprung back to release the weighted spring-bars, thereby permitting the weights to move outwardly a considerable distance beyond the periphery of the wheel, thus gaining considerable amount of power by shifting the position of the weights, which on one side of the fly-wheel will be near the center and on the opposite side considerably beyond. It will be obvious that it will not be necessary to connect the shafts *a* and *b* by pulleys and belts, as shown, though it is desirable to connect the main shaft with the wheel or pulley carrying the shifting weights hereinbefore described.

Having thus described my invention, I claim—

1. The improved fly or balance wheel herein

shown, the same being provided with a series of radiating notched arms and a corresponding series of tangential weighted bars, in combination with the rollers B and C, substantially as shown, and for the purpose set forth.

2. In combination with a wheel D, carrying a series of radiating spring-arms having notches, a series of tangential weighted spring-bars F, and oppositely-arranged rollers B and C, having central recesses and hubs of different diameters for locking and releasing the weighted spring-bars, substantially as set forth.

3. A fly-wheel D, provided with a series of radiating spring-arms having notches on their faces, tangential weighted spring-bars F, adapted to abut against the peripheries of the rollers B and C, so as to be alternately engaged with and released from the radiating spring-arms E, and bails or loops *f* for limiting the upward movement of the weighted spring-bars, substantially as shown, and for the purpose set forth.

4. In combination with a wheel D, having secured to the periphery thereof spring-arms

E, with notched ends, spring-bars F, having transverse weights which engage with the spring-arms E, rollers B and C, centrally recessed, as shown, and provided with hubs of different diameters, so that the spring-arms E can pass one of said bars without engaging therewith, while they engage with the opposite hub and are held out of engagement with the weighted spring-bars, substantially as shown, and for the purpose set forth.

5. The combination of a fly-wheel, spring catch-arms, weighted spring-bars, and means, substantially as shown, for causing automatically the engagement and release of the weighted spring-bars from the catch-bars, so that the weighted bars will be held near the center of the wheel while on one side and a considerable distance beyond when released, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

NEILL A. CAMERON.

Witnesses:

W. S. NUCKALS,

A. H. COOPER.