

(No Model.)

J. B. TIBBITS.

BALANCE WHEEL.

No. 280,096.

Patented June 26, 1883.

Fig. 1

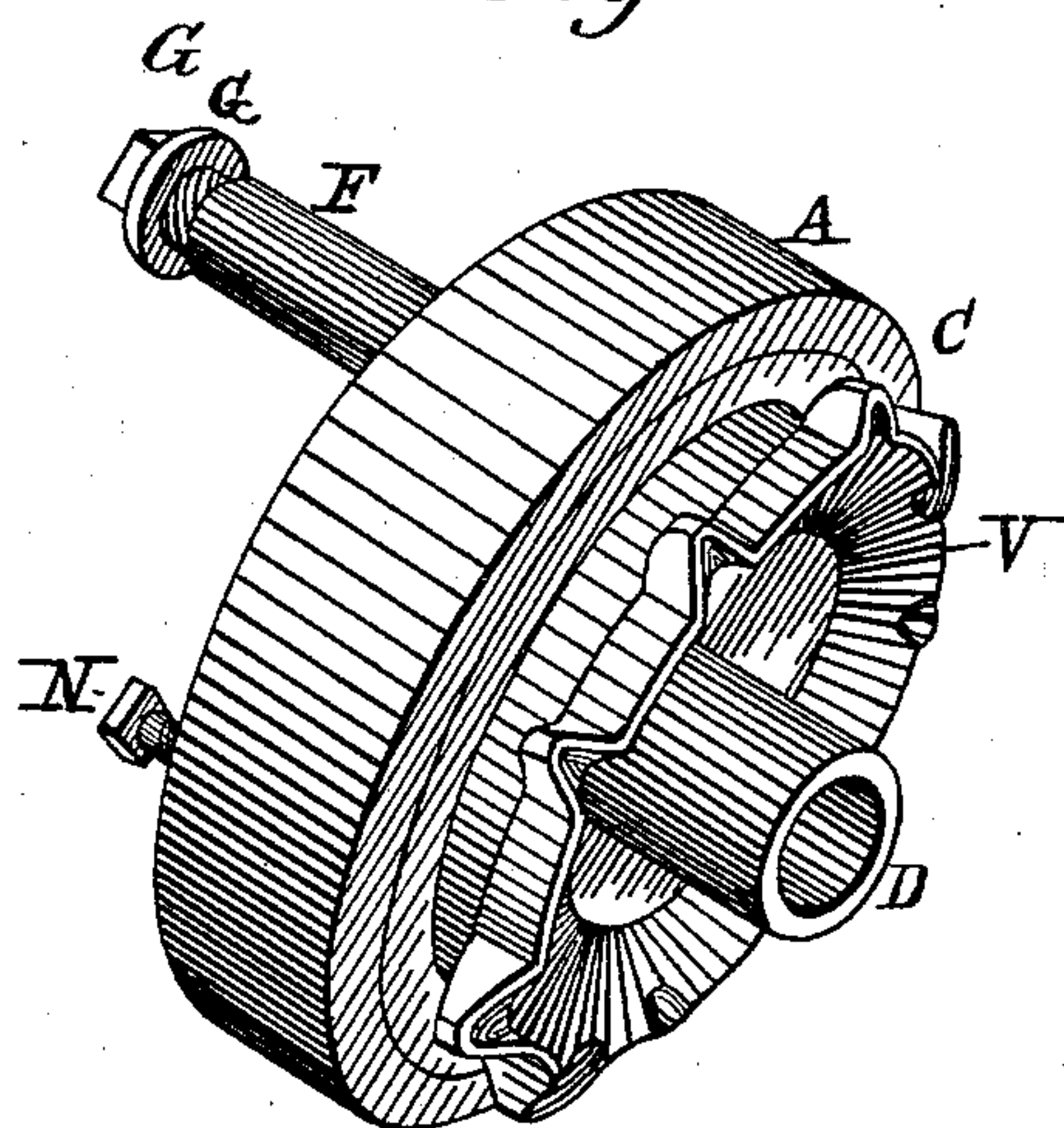


Fig. 2.

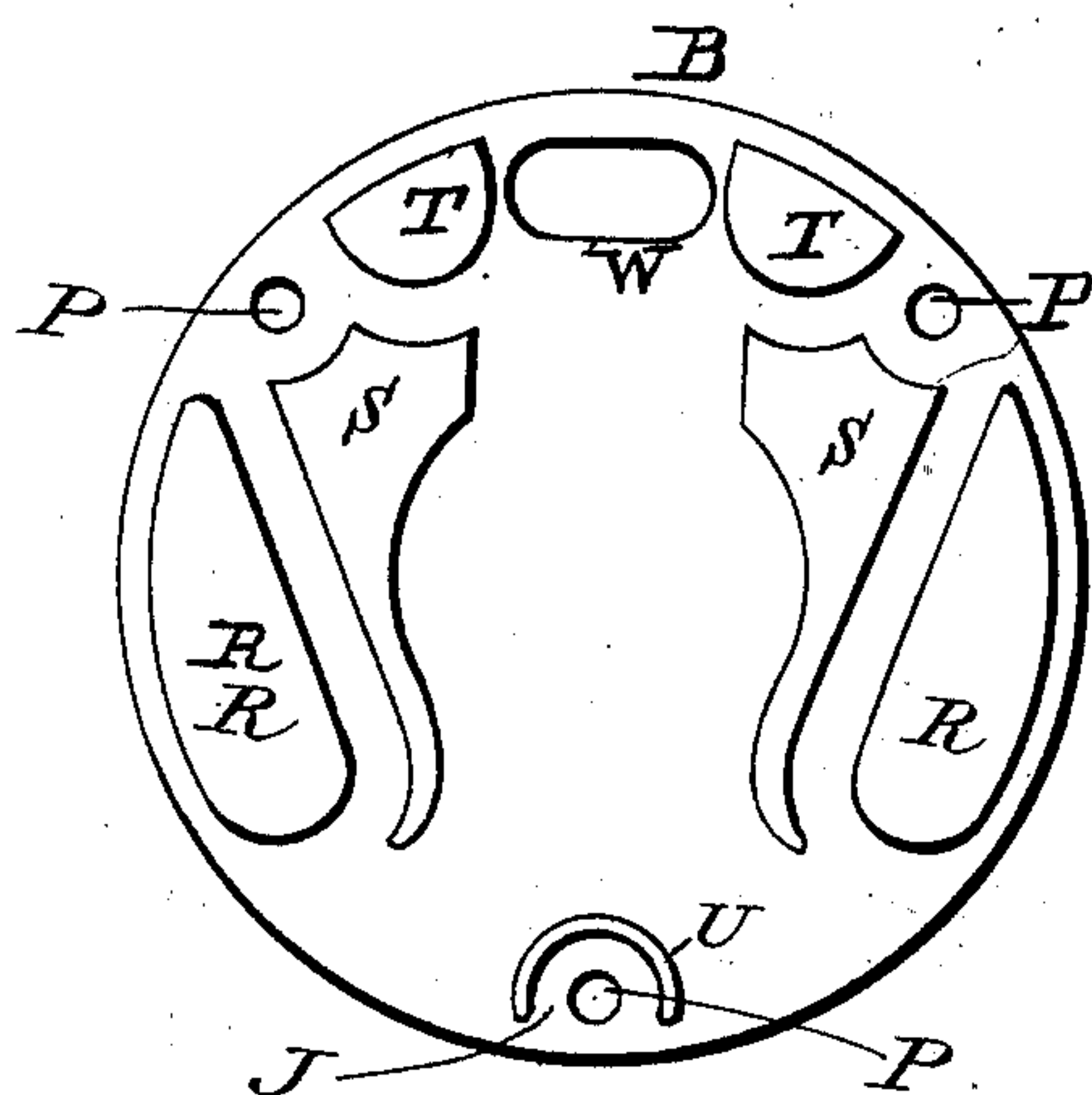
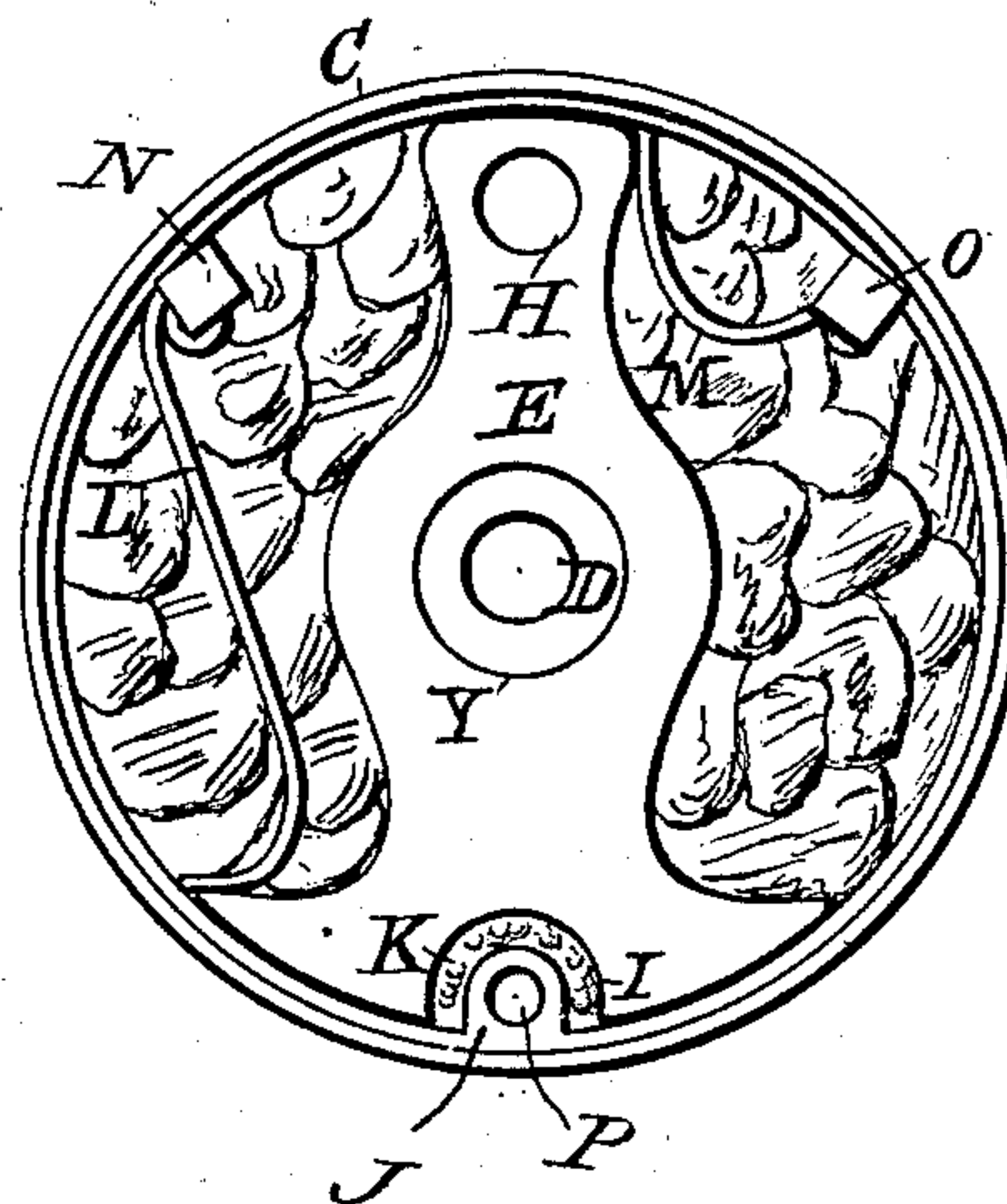


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN B. TIBBITS, OF HOOSIC, NEW YORK.

BALANCE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 280,096, dated June 26, 1883.

Application filed February 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. TIBBITS, a citizen of the United States, residing at Hoosic, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Balance-Wheels, of which the following is a specification.

My invention relates to balance-wheels used in connection with machinery, and especially to those used with reaping-machines, mowing-machines, and harvesters; and the objects thereof are to secure regularity of motion and avoid or greatly lessen the strain upon the wheel and the machinery to which it is attached, caused by variations in the speed of balance-wheels as usually constructed, at certain points in each revolution, and the consequent jerk or wrench given to the wheel and machinery. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of the balance-wheel. Fig. 2 is a view of the inner surface of the cap or movable side of the balance-wheel. Fig. 3 is a view of the inside of the balance-wheel and the contents thereof in proper position.

Similar letters refer to similar parts throughout the several views.

The balance-wheel may be of any suitable size and material, and it is formed by a circular rim, A, Fig. 1, having two sides, B and C, Figs. 2 and 3, the outer surface of which sides is flat and flush with the respective edges of the rim A. The side C may be cast with, or in some suitable manner securely fastened to, the said rim, while the side B rests upon a shoulder or other proper support on the inner side of the rim, and is held in position by bolts or screws, or other suitable device, so as to be easily removed and replaced. The inner surface of the rim is straight from edge to edge and smooth, while the outer surface may be of any desired form. The wheel is hollow, and without hub, spokes, or arms, and inside thereof is placed a piece of iron or other suitable metal, E, which I call a "balance-weight." The length of this balance-weight is such as to allow the ends thereof to be as near as possible to the inner surface of the rim of the wheel, and not be in contact therewith, and the sides

of the balance-weight and the inner surface of the sides of the wheel are as near each other as may be and not be in contact, thus allowing the balance-weight to move freely therein. The size and weight of this balance-weight must be adapted to the size of the wheel with which it is used. It is broader at one end than at the other end, and is irregular in width, and through the narrow end, from side to side, is an opening, H, into which is inserted and fastened one end of a shaft or arm, F, which projects beyond the side B of said wheel, and at a right angle thereto, a suitable distance to allow one end of a pitman to be placed thereon, and held in position by a screw-nut, G, or other suitable device. Each end of the balance-weight is circular to correspond with the circularity of the inner surface of the rim A, and entirely across the broad end of said weight, at the center of said end, is a semicircular groove, I, of sufficient size to admit therein a corresponding semicircular projection, J, extending inwardly from the inner surface of said rim A, and also to leave a space, K, between the said groove and projection. Through the said balance-weight, from side to side and at the center thereof, is an opening, Y, into which is placed one end of a hollow shaft or core, D, and upon which the balance-weight will turn. This shaft or core D passes through and is cast with or firmly fastened to the side C of the wheel, and projects beyond said side C, at a right angle thereto, a sufficient distance to allow one end of a shaft to be inserted therein and fastened thereto. Bearing against one edge of the balance-weight, at the narrow end of such weight, is one end of a suitable spring, M, and bearing against the opposite edge of said balance-weight, at the broad end of said weight, is one end of a suitable spring, L, and the other end of each spring is fastened to the wheel, close to the inside of the rim and near to the narrow end of the balance-weight, by bolts or screws N and O. All the space within said wheel not occupied by the various other parts thereof is filled with wool or other suitable elastic material closely packed therein. Upon the inner surface of the side B of said wheel are slight projections R, S, T, and U, which correspond, substantially, in outline, size, and position with the parts of said

wheel containing the wool or other elastic material, and upon which they are intended to press. The opening in the side B, and through which the shaft or arm F passes, is slightly elongated in a direction crosswise of the balance-weight, so as to allow the balance-weight a rotary motion. The side B is securely fastened to the wheel by bolts or screws through the openings P.

10 The gear V shown in Fig. 1 is not a part of my invention, and I make no claim in regard thereto.

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

15 1. A hollow wheel having a rim, A, a permanent side, C, having a core, D, through the center, and a movable side, B, having an elongated opening near the edge thereof, substantially as described.

20 2. A balance-weight, E, broad at one end, with a groove in and across such end, and narrow at the opposite end, and an arm or opening for an arm in such narrow end, substantially as described.

25 3. A balance-weight, E, capable of a rotary motion upon a core, D, at its center, in combination with a hollow wheel, substantially as described.

30 4. The combination and arrangement, inside of a hollow wheel, of a balance-weight, E, springs L and M, core D, projection J, and wool or other suitable elastic material, substantially as set forth.

35 5. The combination, in a hollow wheel, of a movable balance-weight, E, and wool or other suitable elastic material, substantially as described.

6. The entire combination and arrangement of parts forming a balance-wheel, consisting of a rim, A, sides B and C, core D, balance-weight E, springs L and M, projection J, wool or other suitable elastic material, projections R S T U, arm F, nut G, and bolts N and O, substantially as described. 40

7. An elastic joint (so called) formed in a balance-wheel by the interposition of wool K or other suitable elastic material between the sides of a groove, I, in that end of a balance-weight E, which is opposite to the end of such balance-weight from which power or motion is transmitted, and a stationary projection, J, or other suitable device, serving as a stop within and smaller than said groove, substantially as described. 45

8. The combination, in a balance-wheel, of a balance-weight, E, and wool K, or other suitable elastic material, placed against the edges of said balance-weight in such manner as to act as a spring, substantially as described. 50

9. The combination, in a balance-wheel, of a balance-weight, E, capable of a rotary motion upon a hollow shaft or core, D, at its center, acting as a journal, and having an elastic joint (so called) at one end, and an arm or shaft to which may be attached a pitman or other suitable device for transmitting power or motion, and wool K or other suitable elastic material, and suitable springs, L and M, substantially as described. 55 60 65

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Witnesses:

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