

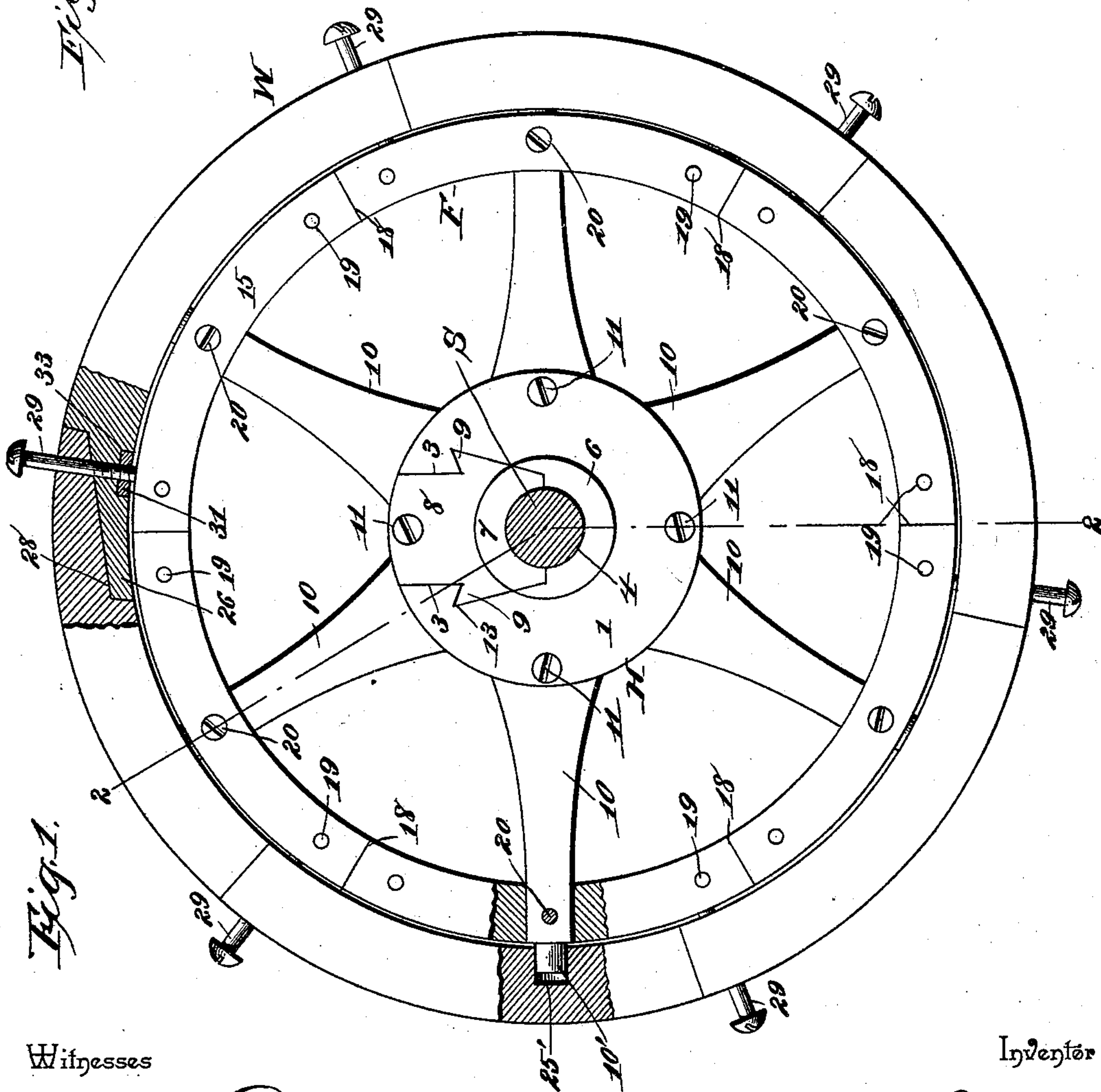
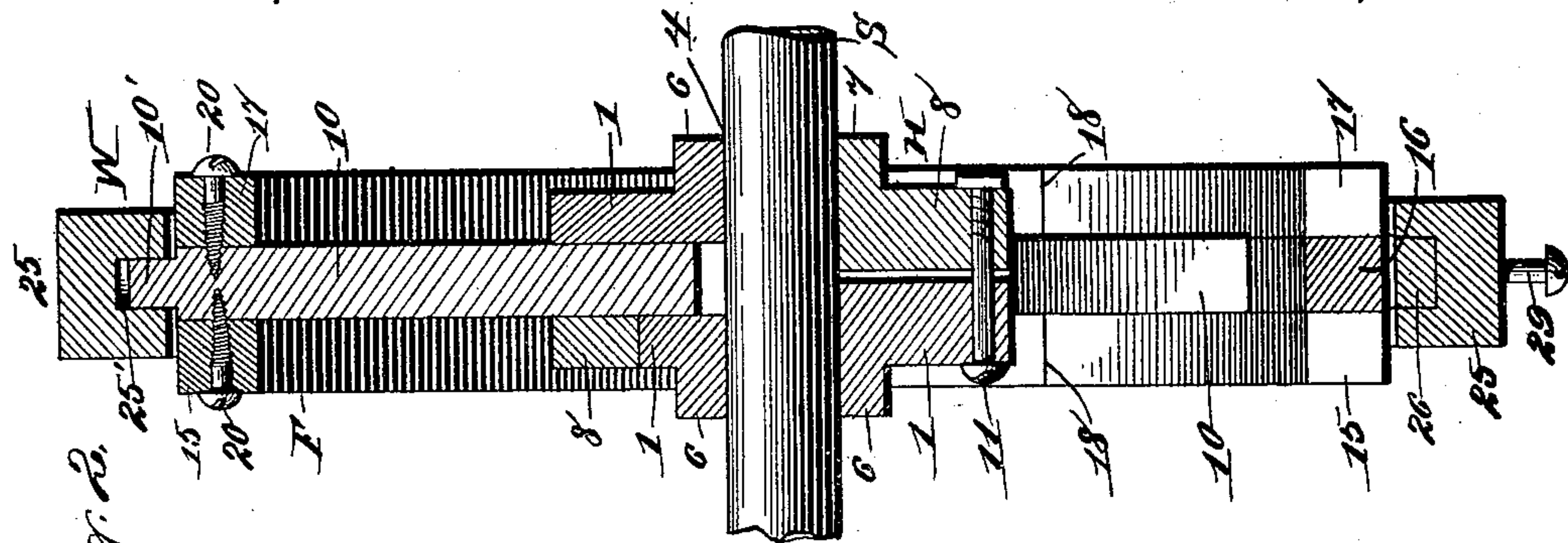
(No Model.)

2 Sheets—Sheet 1.

B. COBURN.  
FLY WHEEL.

No. 477,324.

Patented June 21, 1892.



Witnesses

*E. Hurdman*  
*J. T. Hollamer*

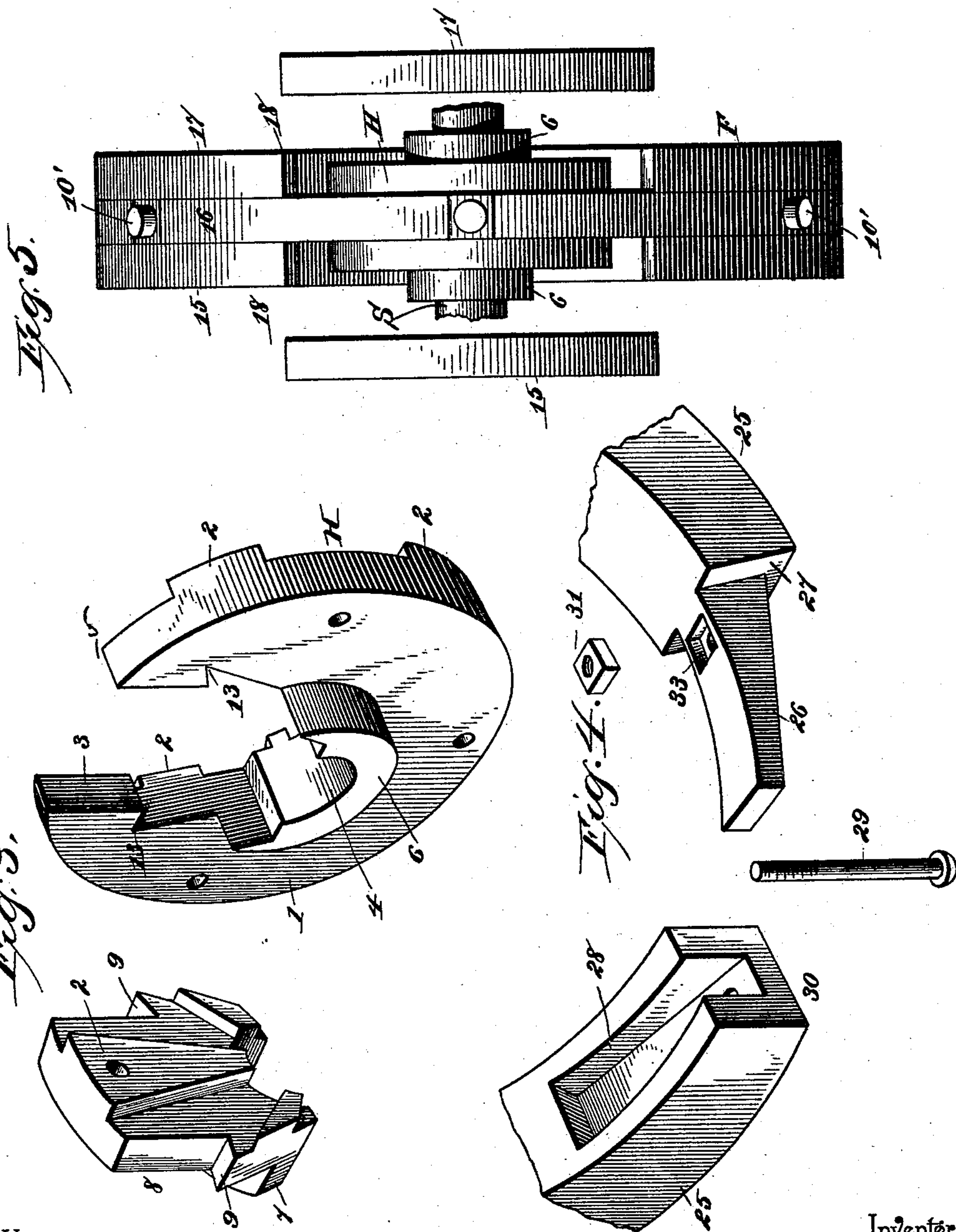
By his Attorneys,

Inventor  
*Byron Coburn*  
*C. A. Snow & Co.*

**2 Sheets—Sheet 2.**

**No. 477,324.**

Patented June 21, 1892.



Witnesses

*E. A. Erdman,*

A. J. Collamer.

Inventor

*Byron Coburn*

By *his* Attorneys,

Chas. Snow & Co.



# UNITED STATES PATENT OFFICE.

BYRON COBURN, OF LE ROY, NEW YORK.

## FLY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 477,324, dated June 21, 1892.

Application filed December 4, 1891. Serial No. 414,024. (No model.)

*To all whom it may concern:*

Be it known that I, BYRON COBURN, a citizen of the United States, residing at Le Roy, in the county of Genesee and State of New York, have invented a new and useful Fly-Wheel, of which the following is a specification.

This invention relates to fly-wheels; and the object of the same is to produce certain improvements therein.

To this end the invention consists in the details of construction hereinafter more fully described and claimed, and as illustrated on the two sheets of drawings, wherein—

Figure 1 is an elevation of this wheel surrounded by weighted segments, the whole being broken away at several points. Fig. 2 is a vertical section of the wheel on the line 2 2 of Fig. 1. Fig. 3 is a perspective detail of the hub and of the removable section withdrawn and inverted. Fig. 4 is an enlarged perspective detail of the adjacent ends of two of the weighted segments slightly separated and with the locking-bolt slightly removed. Fig. 5 is an edge view of the wheel, with two of its outermost arc-shaped members slightly removed.

Referring to the said drawings, S is the shaft, H the hub from which radiate spokes carrying the felly F, and W are weighted segments, which may be applied to the felly when it is desired to make the wheel a balance or fly wheel. These members are of the following specific construction: The hub H is made in two duplicate parts. Each part comprises a body 1, having on its inner face radial strengthening-webs 2, and cut away at one side, as at 3, from its central hole 4 to its periphery 5. Said central hole is surrounded by a flange 6, part of which 7 is formed on a section 8, which is of a proper size to fit the cut-away portion or opening 3, the edges of this section preferably having teeth 9, engaging recesses 13 in the sides of the opening 3 to prevent the section from being drawn out. The two parts are placed with their webs contiguous, and the inner ends of spokes 10 are passed into the sockets formed between the two bodies 1 and between the two webs 2, and bolts 11 are passed through the bodies and the spokes, or through the bodies between the spokes, to hold the parts together.

In putting this improved wheel onto a shaft

as S, the sections 8 of the two parts of the hub are first removed, and the openings which remain are passed over the shaft until the latter is seated in the flanges 6. The two parts are then turned relatively until their openings are out of alignment, the spokes 10 inserted, the sections 8 put in place, and the bolts 11 applied to bind the whole together. Thus it will be seen that my improved wheel can be mounted on a shaft without removing the latter from its journals or supports, and obviously the hub could be keyed to the shaft if it were desired that the wheel should rotate therewith.

The felly F of this improved wheel is preferably made of arc-shaped members in three rings 15, 16, and 17, those in the outermost two rings standing with their ends in contact, as at 18, and preferably at points opposite each other, while the members 16 of the intermediate ring are arranged so as to break joint with the other members and have their own ends resting against the spokes 10. Pins, rivets, or bolts 19 pass through the three members at proper points, or may pass through the members in pairs, if preferred, and screws or bolts 20 pass through the outer members 15 and 17 and through the spokes 10 between these members. Thus all parts of the felly are rendered removable, whereby any piece can be replaced when broken, worn, or warped, and a very large wheel is rendered easy of transportation by thus being made in pieces.

The weighted segments W of this wheel consist each of a heavy segmental piece 25, having at one end a projection 26, which is dovetailed laterally and which is of less thickness radially than the body 25, thereby leaving a shoulder 27 outside the projection 26. In the other end of the piece 25 is a recess 28, which is dovetailed to correspond with the projection on the adjacent segment and which also does not extend completely to the outer face of the segment. When it is desired to increase the weight or the diameter of my improved wheel, these segments are applied thereto; but as it may happen that the interior circumference of the ring of weighted segments may not correspond with and fit accurately over the periphery of the felly I provide screws 29, which I pass inwardly toward



the axle through the shell 30 outside each recess 28, then through the dovetailed projection 26, and then through a nut 31, which I preferably (although not necessarily) provide seated against or in a shallow recess 33 in the inner edge of the projection 26, the tip of the screw extending to and resting on the periphery of the felly. If this ring of weighted segments is to be applied to a wheel already in place, the construction of the wheel need not be altered, and a ring of a size which will most nearly fit around the wheel is of course to be used, the screws 29 being turned home and perhaps embedded slightly in the felly to hold the ring in place and to center it around the hub; but if this ring is to be applied to the wheel when first made the spokes 10 are permitted to extend slightly beyond the felly F, as seen at 10', and the weighted segments are each provided with a cavity 25' in its inner face in which fits the outer end of the spoke. In this case the screws 29 and the nuts 31 may be omitted.

The various parts of this improved wheel are of any desired sizes and materials; but they are preferably of metal and preferably made in graduated sizes and interchangeable, so that each part can be replaced when desired. The wheel will be found very useful in belting, and when the ring of weighted segments is added a powerful fly-wheel is produced whose weight can be increased to whatever extent desired by adding more of such rings and without removing the wheel from the shaft.

What is claimed as new is—

1. A wheel having a hub made in two duplicate parts, each part having an opening from its center hole to its outer edge, a section removably secured in said opening, spokes detachably secured to the hub, and a sectional felly, as and for the purpose set forth.

2. A wheel having a hub made in two duplicate parts, each part having an opening extending from its center hole to its outer edge and provided with recesses in its side walls, a section removably secured in said opening and having teeth fitting said recesses, a sectional flange around the center hole of the hub, spokes radiating from the hub, and a sectional felly, as and for the purpose set forth.

3. A wheel having a hub made in two duplicate parts, each part having an opening extending from its center hole to its outer edge, sections removably seated in said openings and arranged to be out of alignment with each other, radial strengthening-webs on the adjacent faces of the parts, spokes whose inner ends are secured between the parts and between the webs, and a felly made in sections detachably connected, as and for the purpose set forth.

4. A wheel having a hub made in two duplicate parts, each part having an opening

extending from its center hole to its outer edge, sections removably seated in said openings and arranged to be out of alignment with each other, radial strengthening-webs on the adjacent faces of the parts, spokes whose inner ends are seated between the parts and between the webs, bolts passing through the parts between the spokes, one of such bolts also passing through each of the said sections, and a felly made in sections detachably connected, as and for the purpose set forth.

5. The combination, with a wheel whose spokes project beyond the outer face of its felly, of a ring of weighted segments, each having a cavity fitting over the projecting end of a spoke, and connections, substantially as described, between the ends of the segments, as and for the purpose set forth.

6. The combination, with a wheel, of a ring of weighted segments having tongue-and-groove connections between their meeting ends and screws passing through the segments radially inward and bearing on the periphery of the wheel, as and for the purpose set forth.

7. The combination, with a wheel, of a ring of weighted segments surrounding the same, each segment having a projection at one end transversely dovetailed and of less radial thickness than the body of the segment and in its other end a dovetailed recess opening through the inner face of the segment, but not extending completely to the outer face of the said inner segment, and means for holding the segments on the wheel, substantially as described.

8. The combination, with a wheel, of a ring of weighted segments surrounding the same, each having a projection at one end transversely dovetailed and radially reduced and in its other end a dovetailed recess opening through the inner face of the segment, but not extending completely to the outer face of the said inner segment, and screws, each passing inwardly through the shell and projection and bearing against the periphery of the wheel, as and for the purpose set forth.

9. The combination, with a ring, of weighted segments, each having a dovetailed projection at one end and a dovetailed recess in its other, the projection having a shallow recess in its inner face and the recess having a shell covering the outer face of the projection, of a nut seated in each shallow recess, a wheel within the ring, and a screw passing through each shell, projection, and nut and bearing against the periphery of the wheel, as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BYRON COBURN.

Witnesses:

FRANK WINTHROP BALL,  
BUTLER WARD.