

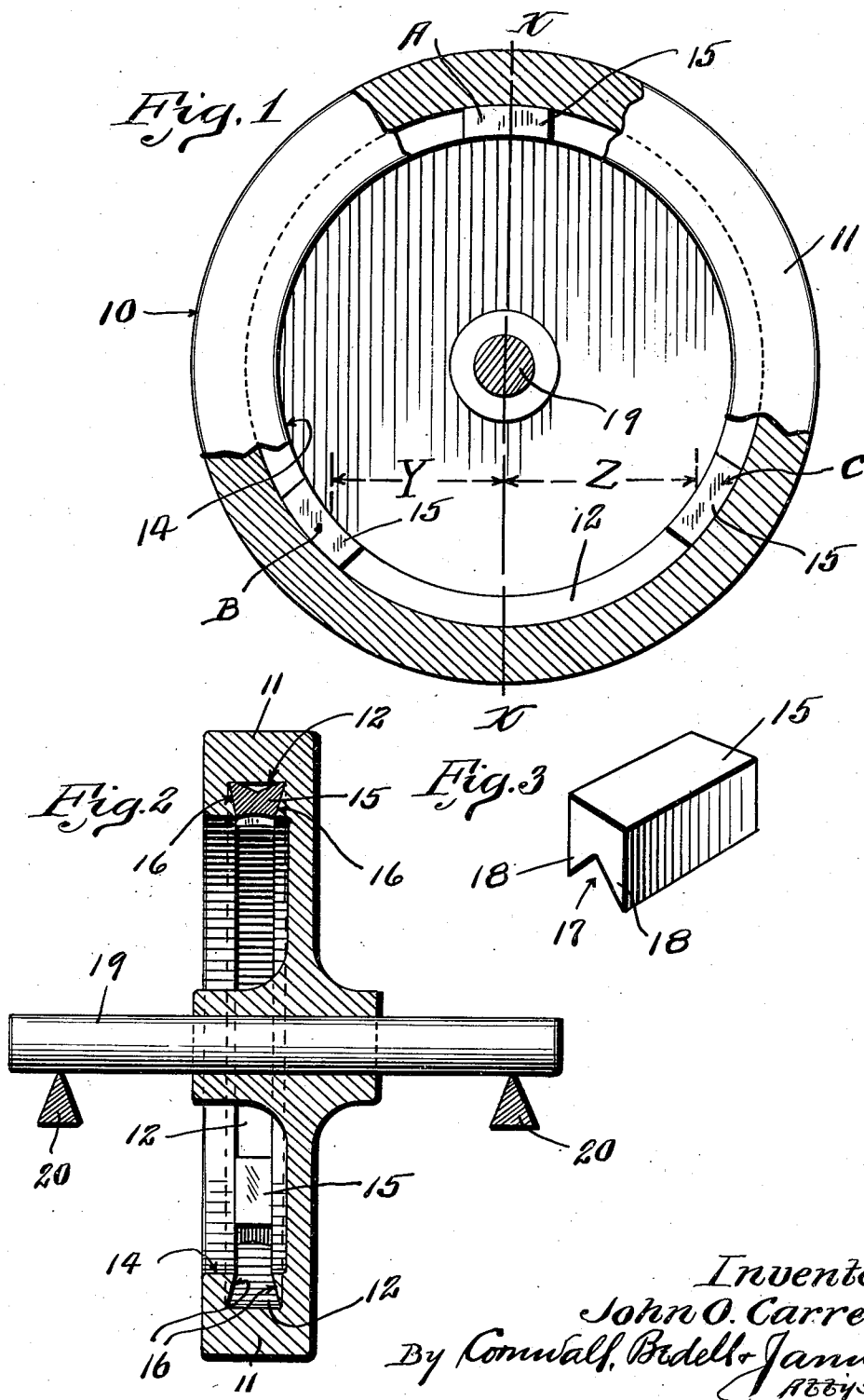
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FLYWHEEL AND METHOD OF BALANCING SAME

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FLYWHEEL AND METHOD OF BALANCING SAME.

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This invention relates to new and useful improvements in fly wheels and to a novel method for balancing the same.

The objects of the invention are to provide a fly wheel which can be easily and quickly balanced in a simple and economical manner.

Further objects of the invention are to provide a method for balancing fly wheels and other revoluble members, which method is accurate and economical and can be easily practiced.

With these and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is an end elevational view of a fly wheel partly broken away to more clearly illustrate the invention.

Figure 2 is a vertical cross section taken longitudinally through the fly wheel.

Figure 3 is a perspective detail view of one of the weights used for balancing the wheel.

In order to obtain a perfectly balanced fly wheel and other revoluble members operating at high speed, it is necessary to test each wheel and perform operations thereon to remove surplus material from the heavy portions thereof. Heretofore in balancing fly wheels and other revoluble parts, it has been customary to remove a portion from the heavy part of the wheel by drilling or in any other suitable manner. This method is expensive and unreliable as it requires time and labor and is unsatisfactory for the reason that too much material may be removed from one spot, requiring further operations on the wheel.

By my novel method the fly wheels and other revoluble objects can be easily balanced without requiring machine operations and a great deal of time and labor.

Referring by numerals to the accompanying drawings, 10 indicates a fly wheel having a ring 11. This fly wheel is provided with a concentrically arranged groove 12 preferably formed in the inwardly disposed face 14 of ring 11. A plurality of weights or blocks 15 of the required dimensions are formed of lead or other suitable material and are adapted to be inserted in said groove 12. This groove is preferably undercut or

dove-tailed in cross section, as indicated at 16, and each block 15 is preferably formed on one side with a longitudinally disposed V-shaped groove 17, thereby forming in one face of said block outwardly presented portions 18 which, when pressure is applied to the opposite face of said block, are adapted to be flared outwardly.

Preferably three blocks are used to each wheel, as shown in Figure 1. When the blocks are inserted in the groove 12, the V-shaped face of each block is presented outwardly with portions 18 against the bottom of the groove. A slight pressure applied against the inner face of each block causes said portions 18 to spread laterally toward the inclined walls 16 of groove 12, thereby securing said blocks against displacement from said groove but permitting movement of said blocks therein.

The wheel is fixed to a shaft 19 and the latter is placed on balancing weights 20 so that said wheel can revolve freely on said supports. The blocks 15 are now moved in said groove until the wheel is in perfect balance whereupon said blocks are firmly seated in their positions by applying pressure in any suitable manner to each block, causing portions 18 thereof to fully expand against the undercut walls of said groove and thereby be firmly seated in position.

To find the balance of the wheel, one weight or block, such as A, is firmly seated in the upper portion of the wheel and blocks B and C are arranged in the lower portion of said wheel. Blocks B and C are now adjusted independently of each other so as to bring block A in vertical plane with the vertical axis of the wheel as indicated at X—X in Figure 1. Blocks B and C are adjusted independently of each other in order to take care of air holes which may have been formed in the casting and are hidden from view and which would affect the balance of the wheel. Consequently, when properly balanced, blocks B and C may not necessarily occupy equidistant positions from line X—X but the distances between the respective blocks and said line may vary as indicated in Figure 1 by lines Y and Z.

When the wheel is in perfect balance, blocks are fixed permanently in their respective positions by applying pressure to the inwardly disposed faces thereof. The

blocks thus seated are held against displacement and the groove being formed in the inwardly disposed face of the rim of the wheel, said blocks are not affected by centrifugal action while the wheel is running at high speed.

A wheel of my improved construction can be easily balanced by adjusting the blocks in the groove of said wheel and no machining, such as drilling, is required, and the wheel can be brought to proper balance without removing it from the balance weights, thereby eliminating loss of time and labor heretofore necessary for such work.

My novel method of balancing the wheels is accurate, can be easily practiced, requires no expensive operations or labors, and insures quick and efficient results.

I claim:

1. A balanced wheel comprising a flanged wheel provided in its inwardly disposed face with an undercut annular groove, and a plurality of blocks of metal adjustable in said groove to bring said wheel in balance, said blocks being adapted to be fixed in adjusted position by applying pressure thereto causing them to spread laterally in engagement with the walls of said groove.

2. A balanced wheel comprising a flanged wheel, the inner periphery of said flange being provided with an annular undercut groove and a plurality of blocks adjustable in said groove to balance said wheel, said blocks being recessed whereby pressure applied to said blocks will cause them to expand against the undercut side walls of the

groove, thereby fixing said blocks in adjusted positions.

3. In a device of the class described, a revoluble member provided with a circular flange, there being an undercut groove formed in the inner face of said flange and a plurality of metal blocks in said groove adapted to be arranged in spaced relation therein to balance said member, said blocks being longitudinally recessed in one of their faces, whereby pressure applied to the other face causes the sides of said blocks to expand against the sides of said groove thereby fixing said blocks in position.

4. In a device of the class described, the combination with a wheel having an undercut annular groove, of a plurality of weighted blocks in said groove, each of said blocks being provided with laterally extensible portions whereby by applying pressure to said blocks said portions are spread laterally against the side walls of said groove, thus permanently fixing said blocks in adjusted positions.

5. In a device of the class described, a block of soft metal adapted to be inserted in a concentric groove of a wheel, said block being provided in one face with a longitudinal V-shaped recess whereby pressure applied to the other face of said block will cause the sides thereof to expand laterally in frictional engagement with the side walls of said groove.

In testimony whereof I hereunto affix my signature this 11th day of October, 1924.

JOHN O. CARREY.