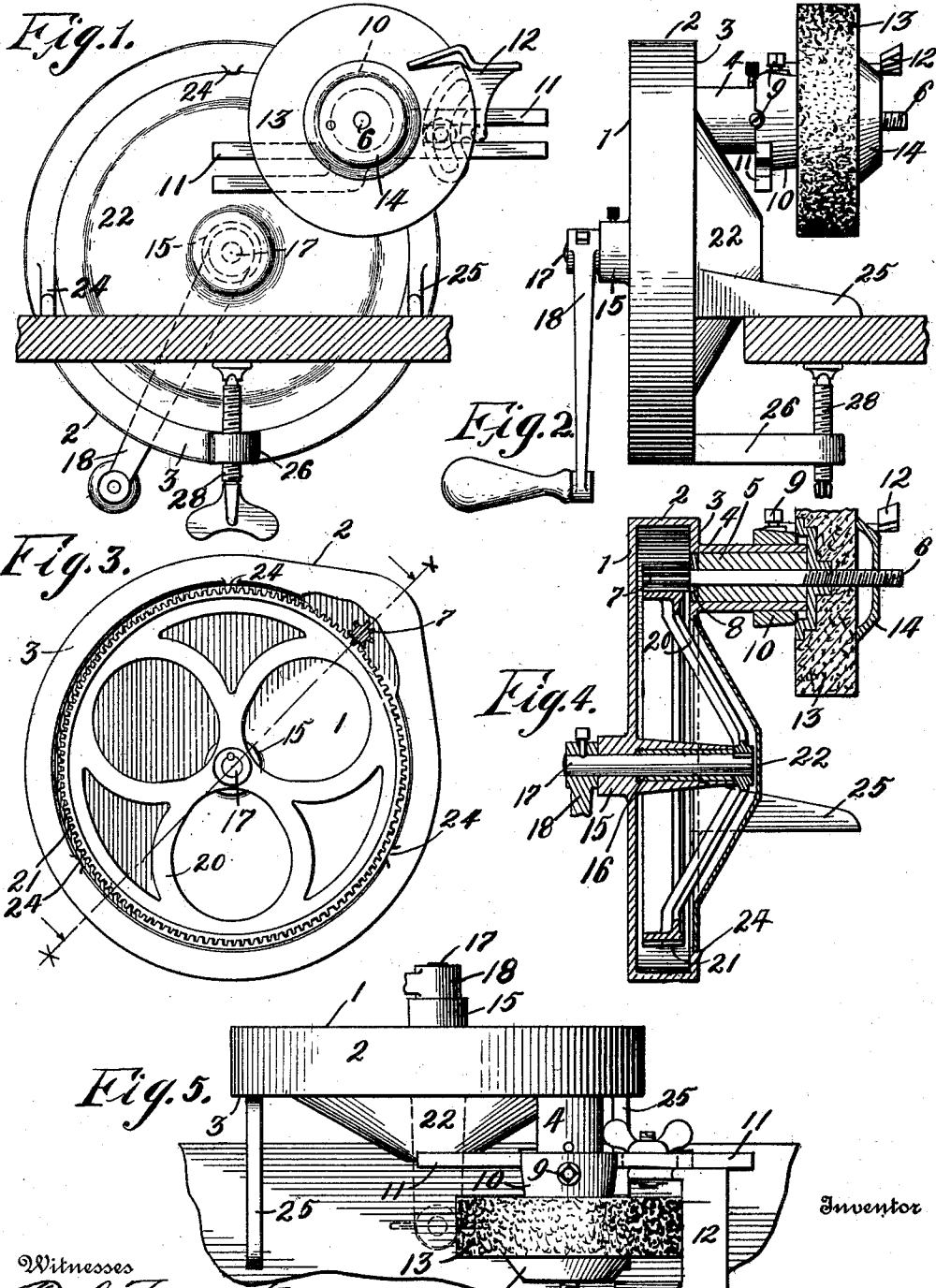


J. M. THOMPSON.
GEAR CASING.
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1,006,026.

Patented Oct. 17, 1911.



Witnesses
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GEAR-CASING.

1,006,026.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES M. THOMPSON, a citizen of the United States, residing at Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Gear-Casings, of which the following is a specification.

My invention relates to improvements in gear casings, designed especially for use in manually driven machines, such as grinding machines, buffing machines, and the like, wherein power manually applied to a crank is transmitted to a driven member having a higher speed of rotation than that of the crank.

The object of my invention is to provide a form of construction in which the shafts are supported entirely by one member of a separable casing, the shafts being parallel and projecting from the casing on opposite sides, and the other member of the casing being capable of removal for the purpose of removing or inserting gears without disturbing the relative positions of the shafts or the relation of the gear wheels to each other.

In the following description, reference is had to the accompanying drawings, which illustrate my invention as applied to a manually driven grinding machine.

Figure 1 is a side elevation of my invention as it appears when applied to a supporting shelf, the latter being shown in section. Fig. 2 is a front elevation of the same. Fig. 3 is a detail side view of the casing with the detachable member removed and with the main portion of the casing partially broken away to show the inter-meshing gear wheel and pinion. Fig. 4 is a sectional view drawn on line *x-x* of Fig. 3. Fig. 5 is a plan view.

Like parts are identified by the same reference characters throughout the several views.

The major portion or body of the casing comprises the side wall 1, peripheral wall 2 and an inwardly projecting portion or flange 3, which preferably extends annularly about the margin of the peripheral wall 2. This flange 3 is provided with a tubular boss 4, which projects outwardly from the face of the flange and receives a tubular bearing member 5 through which a shaft rod 6 extends, this rod being provided at its inner end with a pinion 7 within the casing. A washer 8 is interposed between the pinion and the bearing member 5. This bearing

member 5 may be secured in the tubular boss 4 by means of a set screw 9, which may also serve to connect a supporting collar 10 with the boss 4. This supporting collar may be provided with suitable fork arms 11, to which tool rests 12 may be secured. A grinding wheel or other rotatable member 13 may be mounted upon the shaft rod 6, to which it is connected by means of a threaded nut 14. The side wall 1 of the casing is also provided with a tubular boss 15, which projects both inwardly and outwardly from the wall of the casing and within the casing is interiorly enlarged to receive a bushing 16. The driving shaft 17 extends through this tubular boss 15 and bushing 16 and at its outer end is provided with a crank 18.

The inner portion of the boss 15 extends entirely through the body of the casing and projects from this portion of the casing through the large circular aperture with which the body of the casing is provided on the side occupied by the flange 3. The shaft 17 extends through this portion of the boss 15 and through the bushing 16 and a large gear wheel 20 is mounted upon this projecting end of the shaft. This gear wheel is provided with a conical central portion or web, adapted to support the peripheral teeth 21 within the body of the casing and in a position to mesh with the teeth of the pinion 7. This gear wheel is covered, and the opening in the casing body is closed, by a removable wall 22, which may, if desired, be formed of sheet metal having sufficient resiliency to permit it to be sprung into position with its margin engaging the margin of the flange 3. The flange 3 may, if desired, be provided with lugs 24 at suitable intervals, adapted to facilitate holding this wall of the casing in position, when the margin of the wall is engaged resiliently back of such lugs.

The body of the casing is composed of cast metal and the flange 3 is provided with outwardly projecting arms 25, these arms being preferably located a little below the shaft 17. It is also provided with an outwardly projecting arm 26, this arm being located at the bottom of the casting and substantially mid-way between and below the arms 25. This arm receives a clamping set screw 28 of the ordinary type, used for clamping such machines to a supporting table or stand.

From the foregoing it will be observed

that not only both the shafts 6 and 17 but also the clamping arms 25 and 26 are supported directly by an integral casting. With this construction, when the shaft apertures are once drilled to receive the respective shafts in parallel positions, the shafts and gear wheels may be removed and replaced at pleasure and the parts of the casing separated for the purpose of so doing, without any danger of interfering with the alignment of the shafts, or the proper meshing of the gears. To remove the gears, it is merely necessary to first remove the casing member 22, after which the gear wheel 20 may be drawn away from the shaft 17 and removed, the aperture in the body of the casing being sufficiently large to permit such removal. The shaft 17 may then be removed. The shaft 6 may be removed by removing the set screw 9, whereupon both the shaft and the bushing or bearing member 5 may be withdrawn with the pinion 7. If desired, however, the shaft 6 may be withdrawn from the pinion 7 to which it is feathered, without removing the bushing 5 and the pinion 7 may then be removed from the body of the casting through the same opening that permits the insertion and removal of the gear wheel 20.

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

1. A gear casing consisting of the combination of an integrally formed member having an interior cavity and an opening in one side wall communicating with said cavity, a removable member fitting said opening, and a pair of substantially parallel bosses extending in the same direction from the respective side walls of the integrally formed member, and provided with parallel shaft apertures; said side wall aperture being of sufficient size to permit the insertion and removal of the gearing.

2. A gear casing comprising a side wall provided with an inwardly projecting, centrally located boss, a peripheral wall having an inturned flange constituting a part of the opposing side wall, and provided with an outwardly projecting boss, and a removable

wall portion constituting the remaining portion of the wall of which said flange is a part; said tubular bosses being provided with parallel shaft apertures, and the bosses, peripheral wall portions, flange, and first mentioned side wall, being integrally formed.

3. A gear casing consisting in the combination of two separable parts, one of said parts being provided with parallel shaft bearings on opposing side walls, and arranged to wholly support the mechanism for which the casing is designed, and the other of said parts being wholly independent of the mechanism in the casing, and detachably connected with the first mentioned part.

4. A gear casing comprising a side wall provided with an inwardly projecting, centrally located boss, a peripheral wall having an inturned flange constituting a part of the opposing side wall, and provided with an outwardly projecting boss, and a removable wall portion constituting the remaining portion of the wall of which said flange is a part; said tubular bosses being provided with parallel shaft apertures, and the bosses, peripheral wall portions, flange, and first mentioned side wall, being integrally formed, and said removable wall portion being conical with the inwardly projecting boss extending into the apex of the cone.

5. A gear casing consisting in the combination of two separable parts, one of said parts being provided with parallel shaft bearings on opposing side walls and arranged to wholly support the mechanism for which the casing is designed, and the other of said parts being wholly independent of the mechanism in the casing, and detachably connected with the first mentioned part, said shaft bearing part being also provided with outwardly projecting integral clamping arms, and one of said arms having a movable clamping member.

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

JAMES M. THOMPSON.

Witnesses:

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