

No. 699,596.

Patented May 6, 1902.

C. W. WAGNER.
REVERSING GEARING.

(Application filed July 31, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig.1.

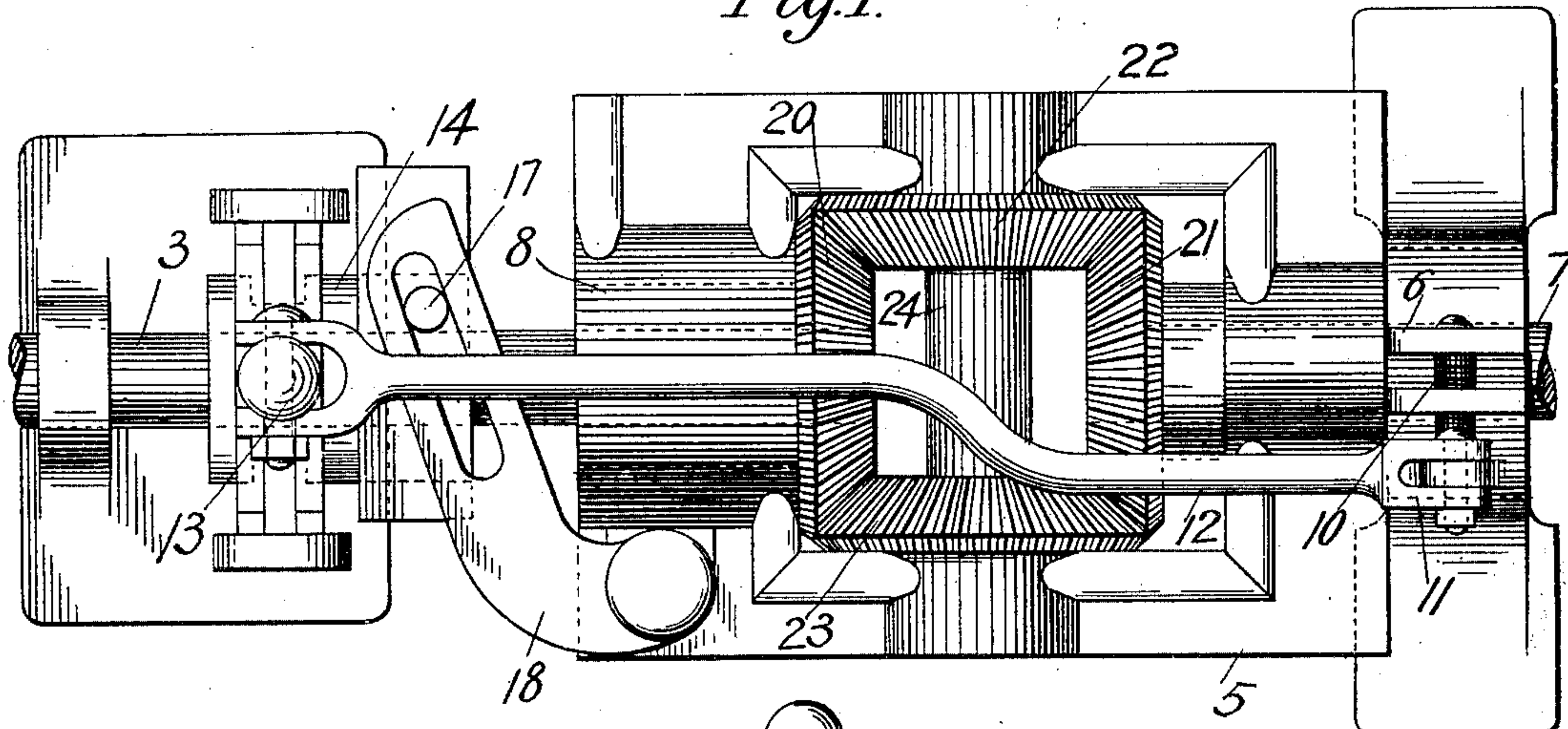
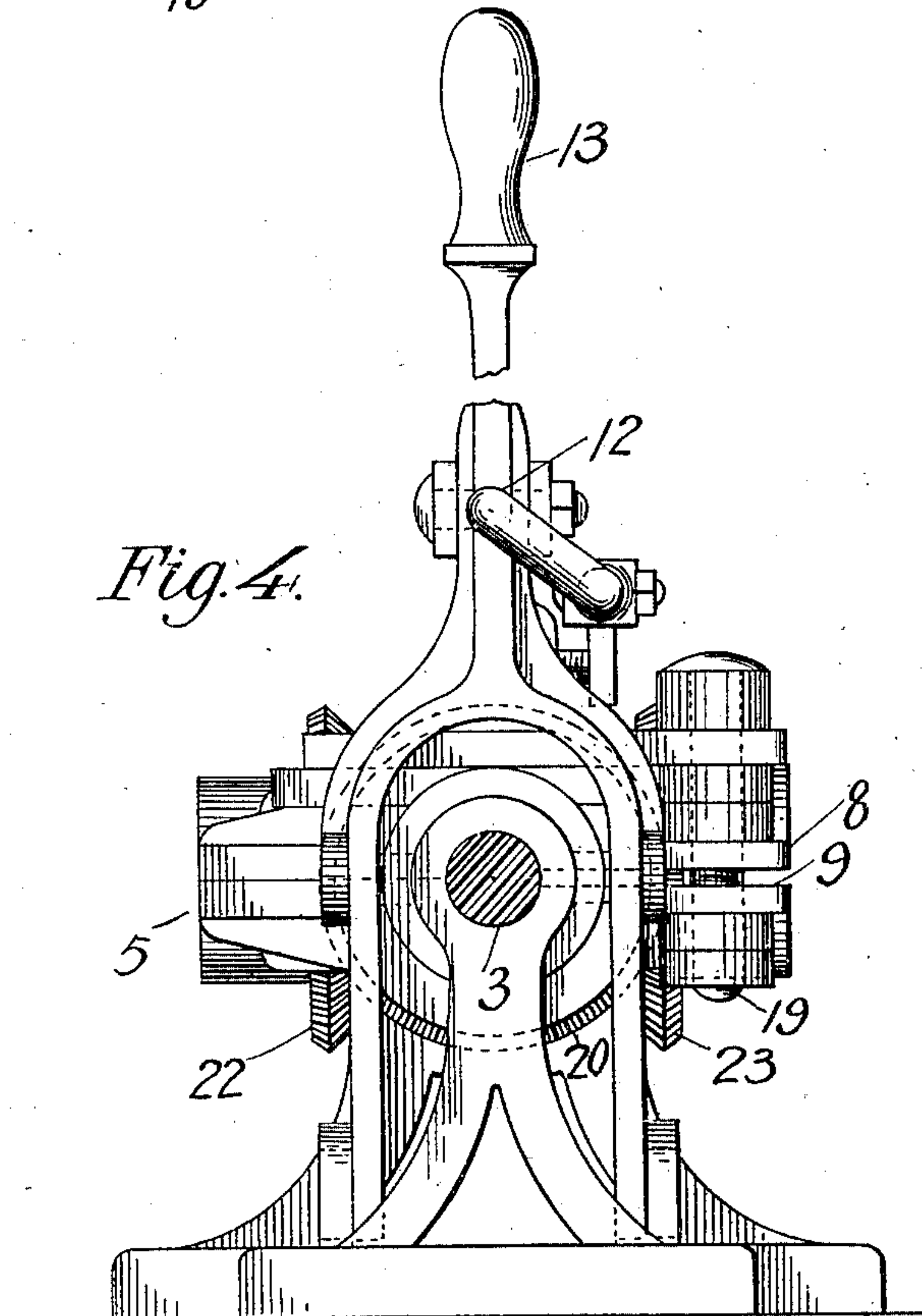


Fig. 4.



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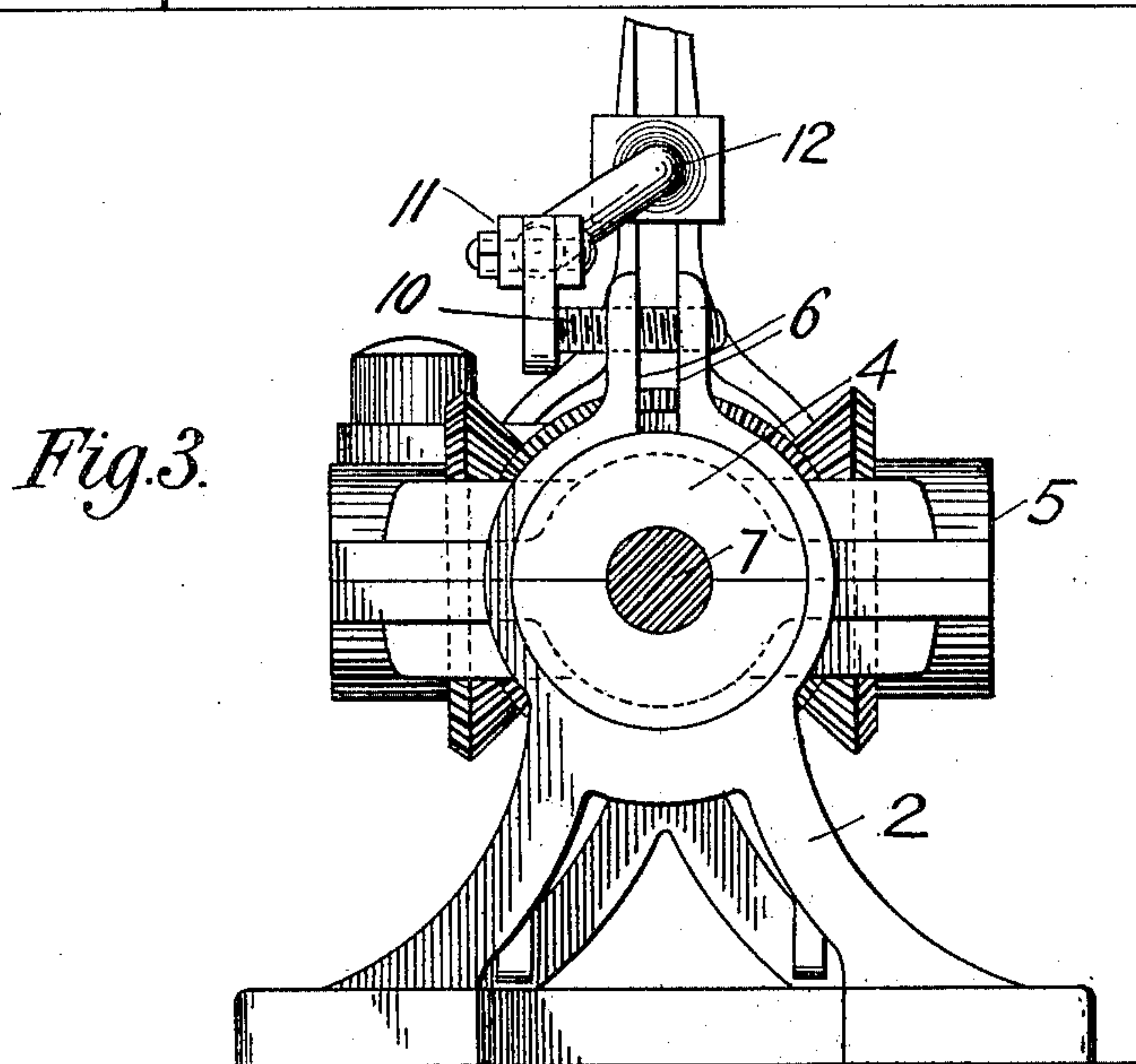
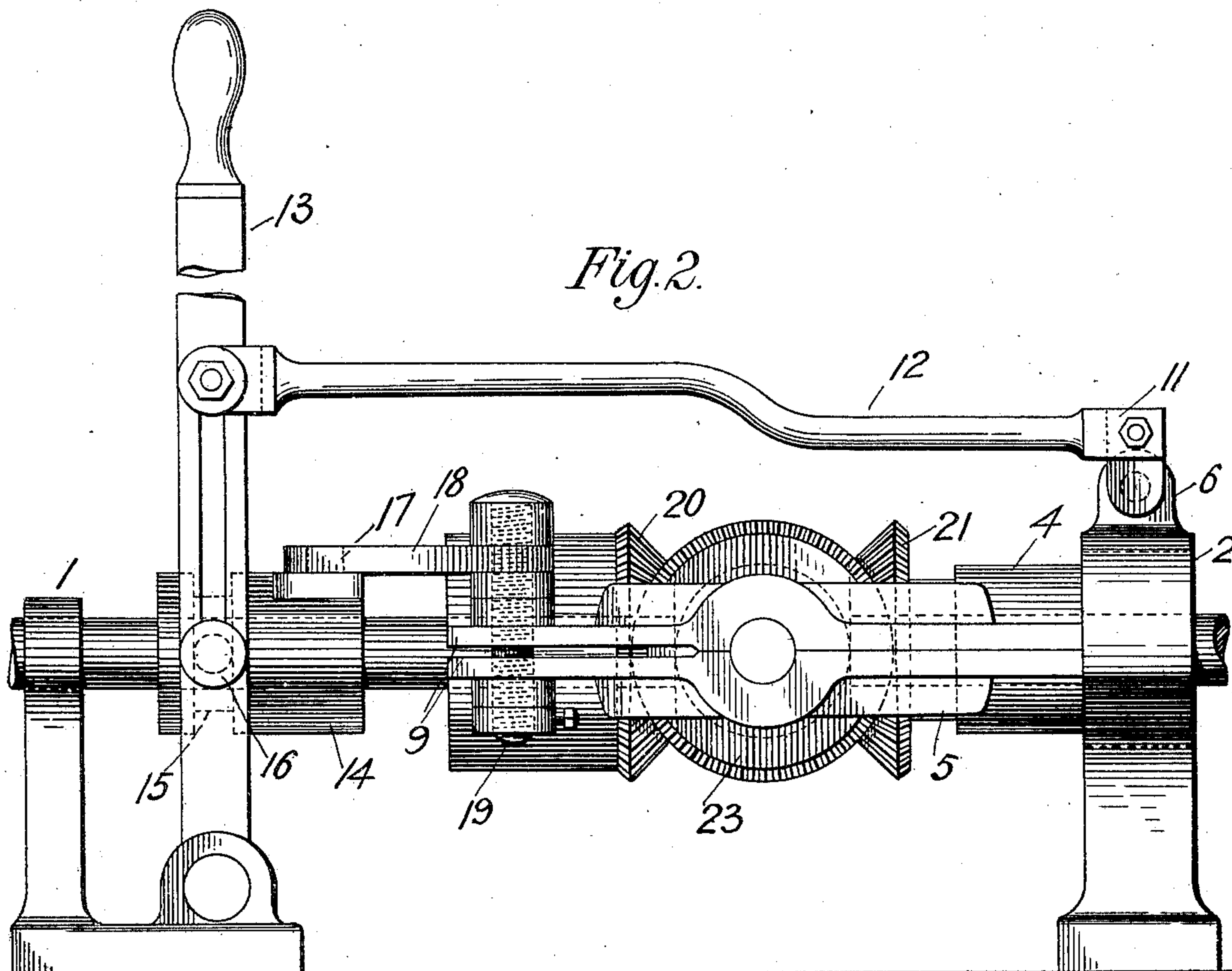
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UNITED STATES PATENT OFFICE.

CHARLES W. WAGNER, OF CAMDEN, NEW JERSEY.

REVERSING-GEARING.

SPECIFICATION forming part of Letters Patent No. 699,596, dated May 6, 1902.

Application filed July 31, 1901. Serial No. 70,339. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. WAGNER, a citizen of the United States, residing at Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Reversing-Gearing; and I do 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.

This invention relates to reversing-gearing for varying the direction of rotation of a driven shaft receiving motion from a drive-shaft rotating constantly in one direction.

The object of the invention is to provide reversing-gearing which shall be simple of construction, comparatively inexpensive of production, and adapted to perform its work in an efficient manner.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of a reversing-gearing embodying my invention. Fig. 2 is a side elevation of the same, and Figs. 3 and 4 are elevations looking toward the opposite ends of the gearing.

Referring now more particularly to the drawings, the numerals 1 and 2 represent bearings, in which are respectively journaled a drive-shaft 3 and a hollow journal 4 upon one end of a rotating frame 5, the bearing-tube being split to provide jaws 6, which are adapted to be moved toward and from each other to clamp and release said journal, which serves as a bearing for the driven shaft 7, arranged in longitudinal alinement with the drive-shaft 3. The opposite end of the frame is constructed to form a split clamp or bearing 8 for the adjacent end of the drive-shaft 3, the jaws 9 of which bearing are adapted to be contracted and expanded to clamp and release said shaft.

Mounted in threaded openings in the jaws 6 of the bearing 2 is a left-hand threaded screw 10, connected by a clamp 11 with the outer end of a connecting-rod 12, pivoted at its inner end to an operating-lever 13. The

lower end of this lever is forked or bifurcated to straddle a sliding sleeve 14, mounted on the drive-shaft 3, said sleeve being annularly grooved, as shown at 15, to receive studs 16 upon the arms of the forked end of the lever, whereby said sleeve is adapted to revolve with the frame when the latter is clamped to the shaft 3 without affecting the position of said lever. The sleeve 14 carries a pin or stud 17, upon which works the slotted end of a curved link 18, which is connected at its opposite end with a right-hand-threaded screw 19, working in threaded openings in the jaws 9 of the clamp or bearing 8. By this construction it will be seen that when the lever 13 is moved in one direction—say to the right—the screw 10 will be turned to allow the jaws 6 to expand and release the journal 4, and at the same time the screw 19 will be turned to contract the jaws 9 of the bearing 8 to clamp the shaft 3, and that when the lever is moved in the opposite direction the reverse action takes place, the jaws 6 being expanded to grip the journal 4 and hold the frame stationary while the jaws 9 are expanded to release the drive-shaft 3.

The drive-shaft 3 and the driven shaft 7 are provided upon their adjacent ends with fixed beveled gear-wheels 20 and 21, which mesh with interposed compensating beveled gear-wheels 22 and 23, mounted upon studs or stub-shafts 24, journaled in the sides of the frame, the construction being such that when the frame 5 is held stationary and the shafts are free to turn motion will be communicated from the drive-shaft 3, which rotates constantly in one direction, through the medium of the beveled gearing to the driven shaft 7, which will thereby be caused to rotate in the reverse direction. When, however, the frame is clamped to the shaft 3 to rotate therewith and turns freely in the bearing 2, the shaft and gearing will be locked together, thus causing the driven shaft 7 to rotate with the shaft 3 and in the same direction.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of the invention will be readily understood, and it will be seen that when the lever 13 is thrown to the right in Figs. 1 and 2 the screw 10 will be turned to expand the

jaws 6 6 and allow the journal 4 to turn freely in the bearing 2, while the screw 19 will be turned to contract the jaws 9 9 to cause them to grip the drive-shaft 3 and to clamp the frame 4 thereto. As the shaft 3 revolves the frame 4 will then be caused to revolve therewith and the beveled gearing will be locked, thus preventing independent rotation of the driven shaft 7 and causing it to turn with the frame and shaft 3 and in the same direction as said shaft 3. When the lever 13 is moved to the left, however, the screw 10 is turned to contract the jaws 6 and cause them to grip the journal 4 and hold the frame 5 stationary, while the screw 19 is turned to expand the jaws 9 and allow the shaft 3 to turn independently in the bearing 8. Motion will then be transmitted through the train of gears to the driven shaft 7 to rotate it in the reverse direction to the direction of rotation of the shaft 3.

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

1. In a reversing-gearing, the combination of an expansible and contractible bearing, a frame adapted to rotate and having a journal mounted in said bearing, a driven shaft extending through said journal, a drive-shaft

journalled in the frame in longitudinal alignment with said driven shaft, means for clamping the frame to the drive-shaft, gearing between the drive and driven shafts, and means for simultaneously causing the bearing to grip the frame-journal and the clamping means to release the drive-shaft, and vice versa, substantially as described.

2. In a reversing-gearing, the combination of an expansible and contractible bearing, a frame provided at one end with a journal mounted in said bearing and at its other end with a clamp, a drive-shaft mounted in the frame and adapted to be engaged and released by said clamp, a counter-shaft mounted in said journal, gearing between the two shafts, screws mounted upon the expansible bearing and clamp, and means for operating said screws to simultaneously contract the bearing and expand the clamp, and vice versa, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES W. WAGNER.

Witnesses:

G. R. BURROUGH,
WILLIAM P. LANDSDOWN.