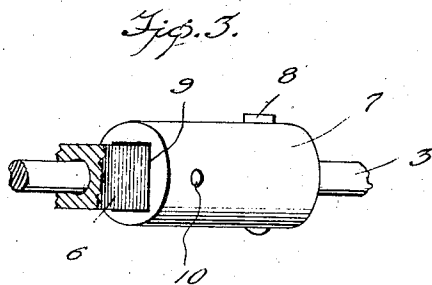
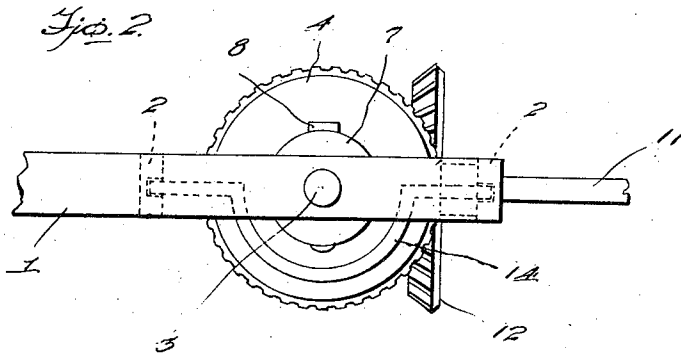
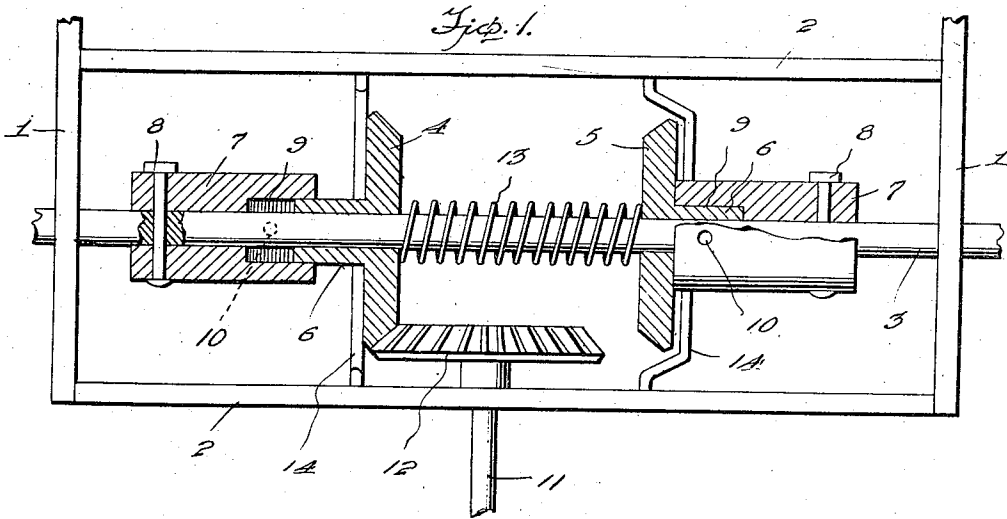


W. F. BOTTGER.
GEARING.
APPLICATION FILED SEPT. 15, 1916.

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GEARING.

1,237,158.

Specification of Letters Patent. Patented Aug. 14, 1917.

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To all whom it may concern:

Be it known that I, WALTER F. BOTTGER, a citizen of the United States, residing at Alexandria, in the county of Alexandria and State of Virginia, have invented certain useful Improvements in Gearing, of which the following is a specification, reference being had therein to the accompanying drawing.

The present invention has reference generally to improvements in that class of invention known as machine elements, and, more particularly relates to improvements in gearing.

As the primary aim and object, it is contemplated by this invention to provide an improved gearing by which an alternating rotary movement will be procured from a continuous rotary movement, means being also employed in conjunction therewith, whereby the operator may manually control the transmission of movement.

It is an equally important object of this invention to provide novel means for slidably but non-rotatably mounting gears on the driving shaft in order that they may be effectively moved into and out of mesh with a gear on the driven shaft at the will of the operator.

Still further the invention embraces the provision of improved resilient means for normally holding the gears on the driving shaft out of mesh with the gear on the driven shaft when it is not desired to operate the driven shaft, but it is to be appreciated that this means will compress under pressure from the controlling or operating means when it is desired to transmit motion from the driving shaft to the driven shaft.

Among the other aims and objects of the present invention may be recited the provision of a device of the character mentioned with a view to compactness, the number of parts of which are few, the construction simple, the cost of production low, and the efficiency high.

Other objects as well as the nature, characteristic features and scope of my invention will appear from the following description taken in connection with the accom-

panying drawings and pointed out in the 50 claims.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a top plan, partly in horizontal section, of my invention. 55

Fig. 2 is a side elevation of my invention, and

Fig. 3 is a perspective of the novel means for slidably and non-rotatably mounting the gears on the driving shaft. 60

Similar characters of reference are employed in all of the above described views to indicate corresponding parts.

Referring now, more particularly to the drawings, I provide a supporting frame 65 which may be and preferably is composed of side bars 1 and cross bars 2. A driving shaft 3 is journaled in the side bars and rotated by a suitable source of power. Gears 4 and 5 preferably of the bevel or miter type are 70 slidably arranged in spaced relation on the shaft, the front faces thereof being directed toward each other while squared projections 6 extend in opposite directions from the rear faces thereof. 75

In order to effectively connect these gears 4 and 5 on the shaft, so that they will slide but not rotate thereon, I have provided my improved connecting means which in the present instance consists of a pair of similarly constructed sleeves 7, the outer ends of which are rigidly mounted on the shaft 3 by suitable fastening devices 8. The adjacent inner ends have their inner bores enlarged to provide square sockets 9 for slidably receiving the squared projections 6. 85 The sleeves are also provided with holes 10 which lead to the sockets in order that a lubricant may be placed therein to insure an effective operation thereof. 90

A driven shaft 11 has one end journaled in one of the cross bars 2 while a bevel gear 12 of the miter type is carried by the outer end thereof and arranged so as to engage either of the gears 4 and 5. For the purpose 95 of normally holding the gears 4 and 5 in spaced relation with each other and out of mesh with the gear 12 I have employed my

improved resilient means comprising a compressible helical spring 13, the respective ends of which bear against and exert tension on the adjacent faces of the gears 4 and 5.

In order that the operator of the device may throw either of the gears 4 and 5 in mesh with the gear 12 to consequently rotate the driven shaft 11 in either direction, I have provided suitable operating elements 14 rotatably mounted in the cross bars 2 and arranged against the rear faces of the gears 4 and 5.

The operation of the invention may be reviewed as follows:

It will be appreciated that when either element 14 is operated the corresponding gear 4 or 5 will be slid against the tension of the spring 13, into mesh with the gear 12 to rotate driven shaft. When pressure is relieved from the operating element, the spring which has previously been compressed will expand so that the tension thereof will be exerted on the sliding gear to force the squared projection thereof within one of the sockets. The other of the gears 4 or 5 may now be operated in a similar manner to rotate the driven shaft 11 in an opposite direction.

Although I have shown and described the preferred embodiment of my invention I desire it to be understood that I am not to be limited to the exact details shown. However, I desire that especial emphasis be laid upon the novel means for slidably but non-rotatably mounting the gears on the driving shaft.

Among one of its many convenient advantages my invention is adapted for use in moving the marking arm of a corn planter from one side of the frame to the other. If employed in this manner the driving shaft would constitute the main axle.

While I have illustrated and described a preferred embodiment of the invention, I am aware that many modifications may be made therein by any person skilled in the art

without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details shown, but,

What is claimed is:—

1. A gearing including a driving shaft, a driven shaft, gears arranged on the driving shaft, means for slidably but non-rotatably connecting the gears to the driving shaft, another gear carried by the driven shaft, operating means for moving either of the sliding gears into mesh with the gear on the driven shaft, and resilient means for moving either of the sliding gears out of mesh with the gear on the driven shaft when the operating means is released.

2. A gearing including a driving shaft, a driven shaft, a pair of gears slidably but non-rotatably connected to the driving shaft, a gear carried by the driven shaft, resilient means for normally holding the sliding gears out of mesh with the gear on the driven shaft, and means for moving either of sliding gears into mesh with the gear on the driven shaft to continuously rotate the driven shaft in one direction or to alternately rotate it in both directions.

3. A gearing including a driving shaft, a driven shaft, a pair of gears arranged on the driving shaft and having squared projections extending therefrom, sleeves carried by the driving shaft and provided with square sockets for slidably receiving the squared projections of the gears for consequently slidably but non-rotatably connecting the gears to the shaft, said sleeves provided with means whereby a lubricant may be injected into the sockets thereof, a gear carried by the driven shaft, compressible resilient means for normally holding the sliding gears out of mesh with the gear on the driven shaft and independent means for moving either of the sliding gears into mesh with the gear on the driven shaft.

In testimony whereof I affix my signature.

WALTER F. BOTTGER.