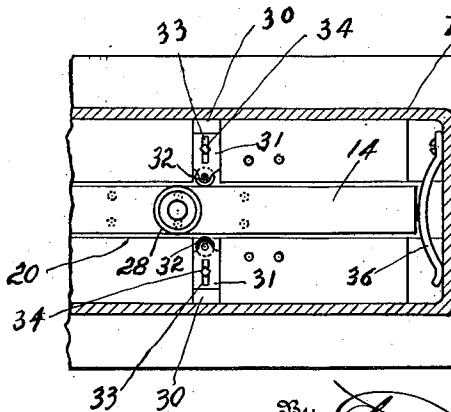
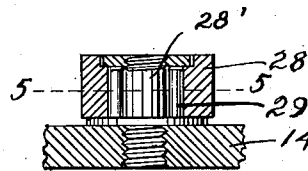
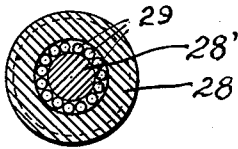
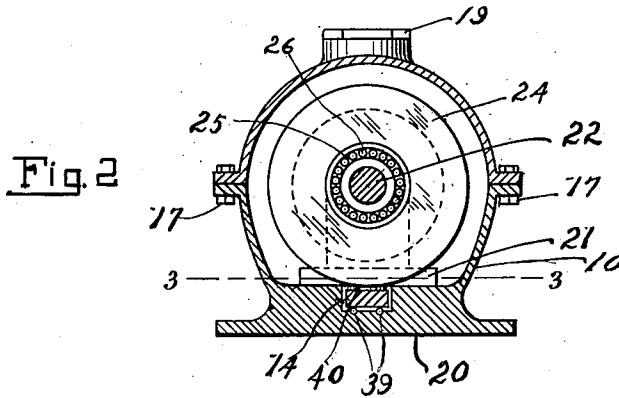
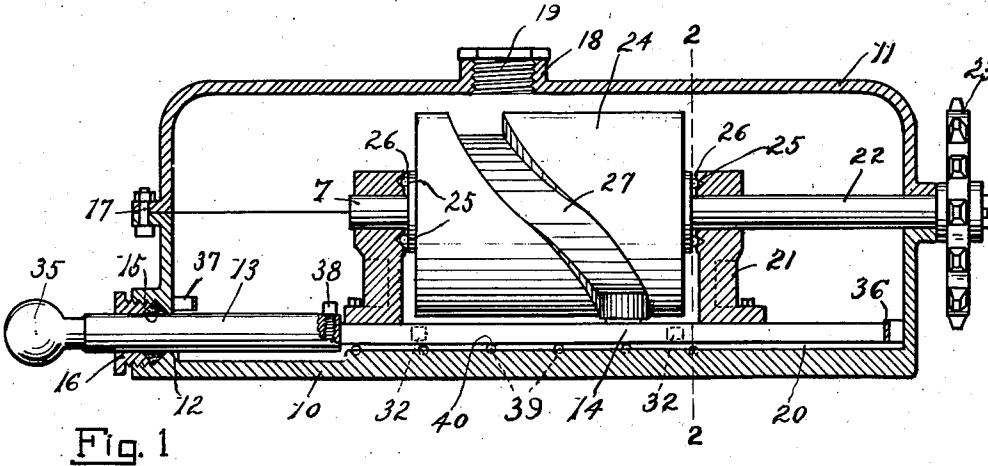


C. F. HOVER.
MECHANICAL MOVEMENT.
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1,351,753.

Patented Sept. 7, 1920.



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CHARLES F. HOVER, OF CONRAD, MONTANA.

MECHANICAL MOVEMENT.

1,351,753.

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To all whom it may concern:

Be it known that I, CHARLES F. HOVER, a citizen of the United States, residing at Conrad, in the county of Teton, State of Montana, have invented certain new and useful Improvements in Mechanical Movements; and I do hereby 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 new and useful improvements in driving mechanisms and particularly to mechanisms for converting rotary into reciprocatory movements.

One object of the present invention is to provide a novel and improved device of this character wherein the reciprocating part is prevented from being injured by knocking at the ends of its stroke.

Another object is to provide a novel and improved device of this character which is disposed to run in oil, whereby the movements of the parts will be smooth and without friction.

Other objects and advantages will be apparent from the following description when taken in connection with the accompanying drawing.

In the drawing:

Figure 1 is a vertical longitudinal sectional view through casing which contains the mechanism, the parts of the mechanism being shown in side elevation.

Fig. 2 is a vertical transverse sectional view taken on the line 2—2 of Fig. 1, looking in the direction of the rotary member, to show the relative position of the parts and the ball bearings for said rotary member.

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 2, showing the guiding means for the reciprocating member and the buffer therefor.

Fig. 4 is an enlarged detail sectional view showing the roller 12 and its mountings.

Fig. 5 is a horizontal sectional view taken on the line 5—5 of Fig. 4.

Referring particularly to the accompanying drawing, 10 represents the lower portion, and 11 the upper portion of an oil-tight casing. In one end of the lower portion 10 there is formed an opening 12 through which the cylindrical portion 13 of the bar 14 is slidably disposed, suitable packing 15, and a closure plug 16 being engaged in said opening,

for the purpose of preventing escape of oil from the casing. The upper portion is secured, detachably, to the lower portion by the bolts 17. In the upper wall of the portion 11 there is formed a filling opening 18 in which is engaged a closure plug 19, and through this opening the casing is filled with oil. The greater portion of the bar 14 is flat, as shown, and is disposed in a longitudinal groove 20, formed in the bottom wall of the lower portion of the casing. Secured to the bottom wall of the casing, and extending vertically in longitudinal alinement, are the two bearing brackets 21 which rotatably support the longitudinal shaft 22. One end of this shaft extends through one end of the casing and has secured thereon a sprocket wheel 23. The inner faces of the upper ends of the bearing brackets, as well as the adjacent end faces of the cylindrical member 24, which is secured on the shaft, between said brackets, are formed with ball races 25 in which are disposed the circular series of ball bearings 26, to take up the end thrust of the member 24. In the peripheral face of the member 24 there is formed an endless cam groove 27 for the reception of the roller 28 which is carried by the vertical pin 28' secured in the upper face of the flat portion of the bar 14. Surrounding this pin, and within the roller, are the antifriction bearing rollers 29. It will be noted that the feet of the brackets 21 are disposed across the groove 20 so that said brackets act as guides and retainers for the bar to prevent upward movement thereof from said groove. Formed in the bottom of the casing, and extending laterally away from the groove 20, are the small grooves or channels 30, and slidably disposed in each of these channels is a block 31 carrying on its inner end a roller 32 which bears against the side face of the flat portion of the bar 14. Each of these blocks is longitudinally slotted, as at 33 to receive a screw 34 which is engaged in the bottom of the channel 30, and by means of which the blocks may be adjusted and held in different positions toward and away from the bar 14. The portion of the bar 14, which is disposed outwardly of the casing, is provided with a ball head 35 for engagement with one end of a sickle bar of a mowing machine, or the like, not shown. At one end of the casing there is mounted a buffer spring 36 against which the end of the flat portion of the bar

14 engages at one end of the stroke thereof, while a similar spring 37 is disposed at the other end of the casing for abutting engagement by the vertical pin 38 carried by the inner end portion of the cylindrical part of the said bar. Thus jar and shock are absorbed at each end of the stroke of the bar 14.

It will thus be seen that when the shaft 22 is continuously rotated the cylindrical member will cause the bar 14 to reciprocate longitudinally in the groove 20, so that at one end of the stroke thereof it will abut against the spring 36, and at the other end of the stroke the pin 38 will abut against the spring 37, thereby avoiding knocking sounds, and preventing shocks and jars. The cam groove's walls acting on the roller 28, and rotating continuously, will produce the desired continued reciprocation of the bar. In the bottom wall of the groove 20 there are formed the depressions 39 within which are disposed the ball bearings 40 for supporting the bar 14, and permitting the same a free sliding movement.

What is claimed is:

1. A device of the class described comprising a base having a guide groove therein, spaced bearing brackets secured upon the base and bridging the groove, a rotatable member having a shaft journaled in the brackets, said rotatable member having a cam groove, a bar mounted in the groove of the base for reciprocation therein and having means engaging the cam groove for actuating the bar, the base having transverse channels communicating with its groove, and plates adjustably mounted in

the channels and having bearing rollers disposed to contact respectively with the opposite sides of the bar.

2. A device of the class described comprising an oil-tight casing a rotating member in the casing having an endless cam groove therein, a longitudinally slidable member, a roller carried by the slidable member engaging in the cam groove, supports for the rotating member extending over the slidable member for retaining the latter against upward movement, a pin carried by the slidable member, and buffers situated at the ends of the casing for engagement respectively by one end of the reciprocating sliding member and the said pin.

3. A device of the class described comprising a casing having a rotatable member mounted therein and having means extended exteriorly of the casing for rotating it, said member having a cam groove, a bar mounted for reciprocation in the casing and extending exteriorly thereof, means carried by the bar and engaged in the cam groove for reciprocation of the bar from the latter, roller guides disposed at opposite sides of and in contact with the bar and adjustable toward and away from it, and yieldable stops for the bar disposed for operation at opposite reciprocatory strokes of the bar.

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

CHARLES F. HOVER.

Witnesses:

M. M. PETERS,
O. C. SHEPHERD.