Oct. 13, 1931. J. C. McCLURKIN ET AL 1,827,248

GEARED ROD

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Fig. 1.

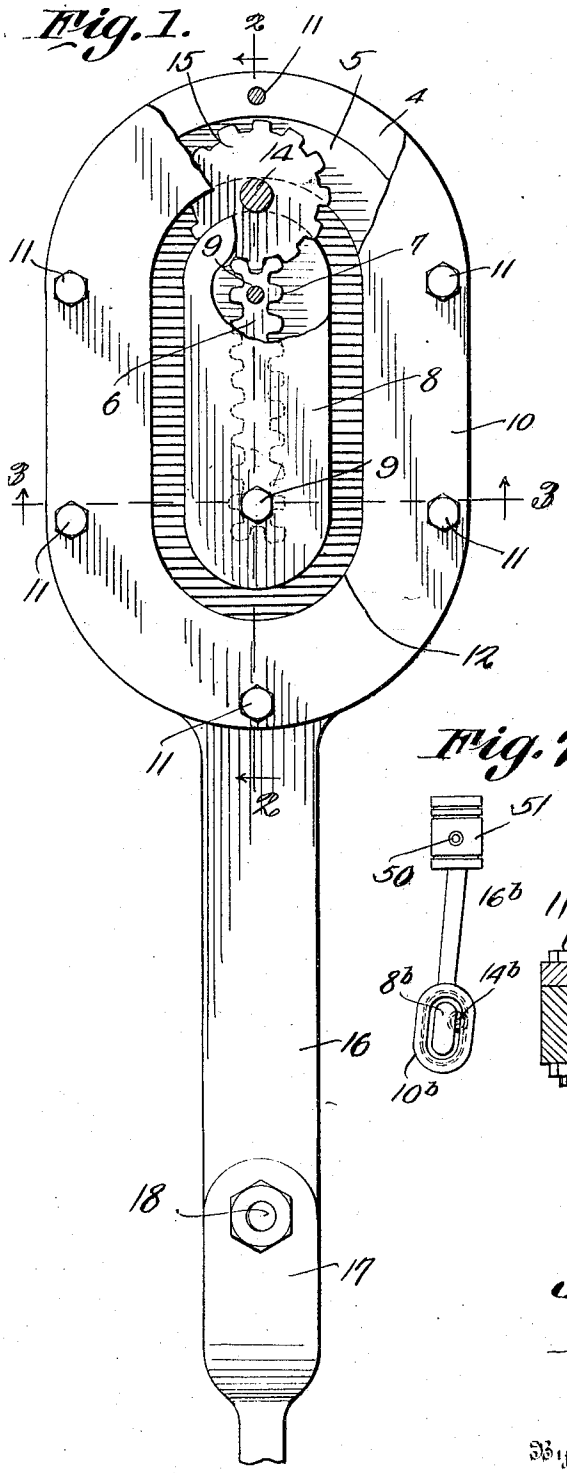


Fig. 2.

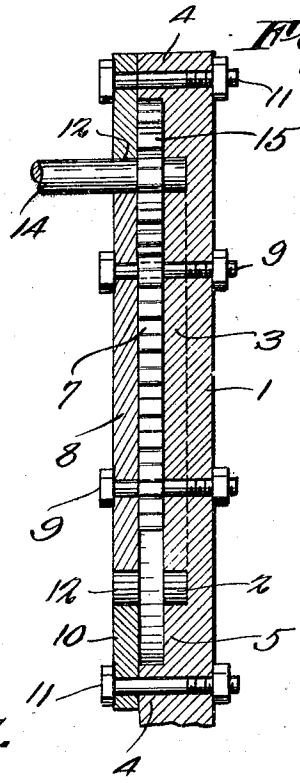


Fig. 7.

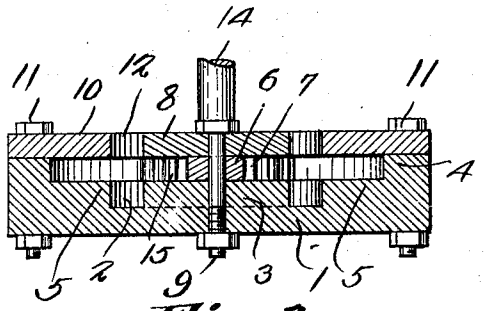


Fig. 3.

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Fig. 4.

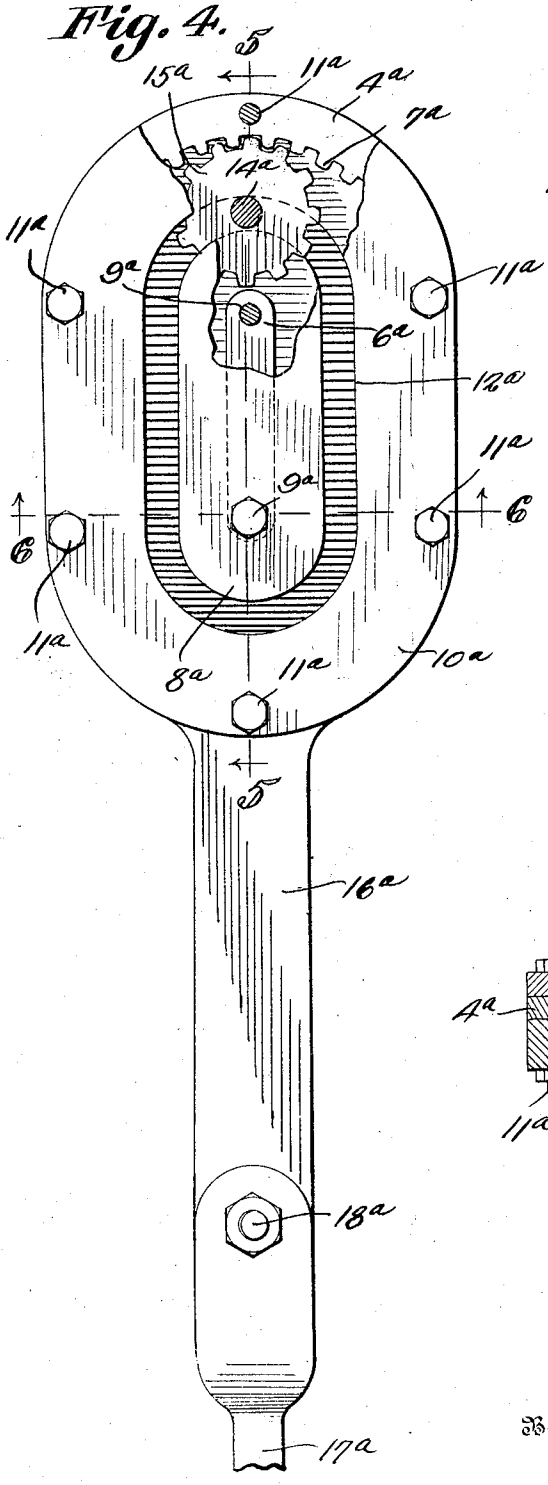
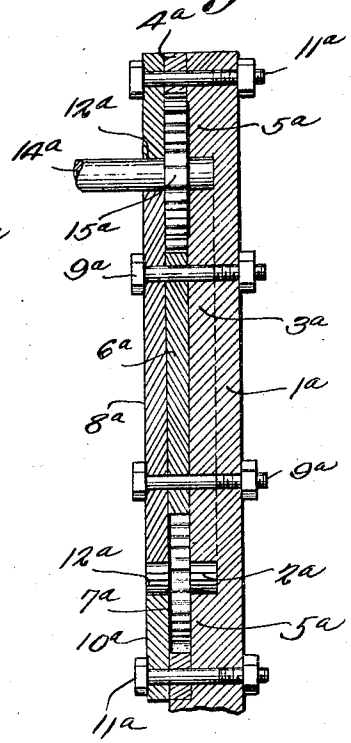


Fig. 5.



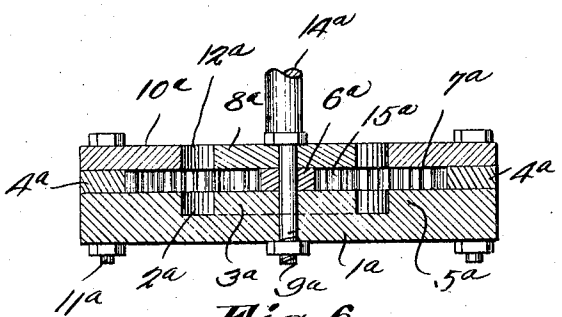


Fig. 6

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UNITED STATES PATENT OFFICE

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GEARED ROD

Application filed December 27, 1927. Serial No. 242,688.

It is the object of this invention to provide a novel means whereby motion may be imparted to a pitman from a shaft, or from a shaft to a connecting rod, the invention being capable of use in an internal combustion engine, a windmill, and in many other machines which need not be enumerated specially. The device is of that general type in which the end of a pitman or other member is given an orbital movement with respect to the axis of rotation of a shaft, through the instrumentality of a rack and a pinion. Devices of the type above mentioned have not proven entirely satisfactory in all instances, because adequate bearings were not provided for the shaft, and because such structures could not be taken down and assembled readily, a taking down and a setting up of such a device being desirable, because some parts, which carry the wear, must be made of different metal from other parts, which are called upon to endure less wear. The present invention aims to provide, therefore, a compact device of the class described which will be strong, effective, simple to manufacture, inexpensive, and capable of ready setting up and taking down.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in elevation, the device constructed in accordance with the invention, parts being broken away, and parts being in section;

Figure 2 is a section on the line 2—2, Figure 1;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is an elevation showing a modification, parts being broken away and parts being in section;

Figure 5 is a section on the line 5—5, of Figure 4;

Figure 6 is a section on the line 6—6 of Figure 4.

Figure 7 is a diagrammatic elevation showing one application of the invention differing from the one suggested in Figure 1.

Referring to Figures 1, 2 and 3, the device is shown as embodying a base plate 1. The base plate has a lug 3, located in an inner recess, and a table 5 disposed about the lug 3, and spaced from the lug 3 to form a loop shaped groove 2. The device includes, as constituent members, a marginal rib 4 on the table 5 and a removable bar 6 on the lug 3. The rib 4 is located about an outer recess in the base plate, the outer recess being of greater area than the inner recess. One of said constituent members 4—6, to wit, the bar 6, is provided with a rack 7. A removable cover plate 8 is mounted on the bar 6. The cover plate 8 is of greater area than the bar 6. Securing devices 9 connect both the bar 6 and the cover plate 8 with the lug 3 and the solid block 1. A removable cover ring 10 is mounted on the rib 4. The covering 10 overhangs the table. Securing elements 11 connect the covering 10 with the base plate 1 and pass through the rib 4. The cover ring 10 and the cover plate 8 form a loop shaped slot 12 that is alined with the groove 2. A shaft 14 is located in the groove 2 and in the slot 12. A pinion 15 is secured to the shaft 14 and meshes with the rack 7. The pinion 15 extends between the cover ring 10 and the table 5 and between the cover plate 8 and the

lug 3. The base plate 1 has an extension 16 which may be pivoted at 18 to a pitman 17.

The shaft 14 is rotatable on its axis and when the shaft is rotated, the pinion 15, cooperating with the rack 7, will cause the base plate 1 and parts carried thereby to move in an orbit, in a way well understood by those skilled in the art.

In Figures 4, 5, and 6 parts hereinbefore described and designated by numerals previously used with the suffix "*a*". In this form of the invention the marginal rib 4*a* is a separable member whereas the rib 4 of Figure 2 is formed integrally with the table 5 and with the base plate 1. Moreover, in Figure 4, the rack 7*a* is formed in the rib 4*a* and not in the bar 6*a*. There is an advantage in fashioning the bar 6 of Figure 1 and the rib 4*a* of Figure 4 as separate members. These elements carry racks and because they are separable, the racks may be cut readily in a milling machine. The structure, furthermore, is such that the parts 4*a* and 6 may be made out of a better grade of material than the rest of the device and this is desirable, because the parts 4*a* and 6 carry the racks which must bear the wear resulting from the action of the pinions 15—15*a*. The shaft 14, taken as typical, has a good bearing in the groove 2 and in the slot. The pinion 15 is sustained, laterally, to a desirable and satisfactory extent because it projects between the table 5 and the cover ring 10 and between the cover plate 8 and the lug 3. The general construction is such that access may be had to all working parts by removing the securing elements, such as the bolts 9—11.

In Figure 7 of the drawings, an application of the invention differing from the one suggested in Figure 1, is disclosed. Parts hereinbefore described have been designated by numerals previously used, with the suffix "*b*". The shaft 14*b* may be regarded as the shaft of an internal combustion engine, the part 16*b* being used as a connecting rod which is pivoted at 50 to the piston 51 of the internal combustion engine.

What is claimed is:

A gearing of the class described, comprising a solid block provided on one side with an outer recess and with an inner recess at the base of the outer recess, the outer recess being of greater area than the inner recess, whereby the base of the outer recess will form a table about the inner recess, there being a lug on the base of the inner recess and cooperating with the edge of the inner recess to define a loop-shaped groove about the lug, the outer recess forming a marginal rib at said side of the block, a removable cover ring on the outer surface of the rib and overhanging the table, securing elements connecting the ring with the rib, a removable bar on the lug, a removable cover plate on the bar and of greater area than the bar, securing elements connecting the bar and the cover plate with the lug, the cover plate extending into the ring and having its outer surface flush with the outer surface of the ring, a shaft movable in the groove, and between the outer edge of the cover plate and the inner edge of the ring, and a pinion on the shaft, the pinion being extended between the ring and the table, and between the lug and the cover plate, the bar and the rib constituting constituent portions of the gearing, and one of said constituent portions having a rack wherewith the pinion meshes.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures.

JOHN C. McCLURKIN.
AUBREY STALLARD.