(No Model.)

# R. CAMPBELL.

## GEARING.

No. 306,809. Fig. 1 Patented Oct. 21, 1884.

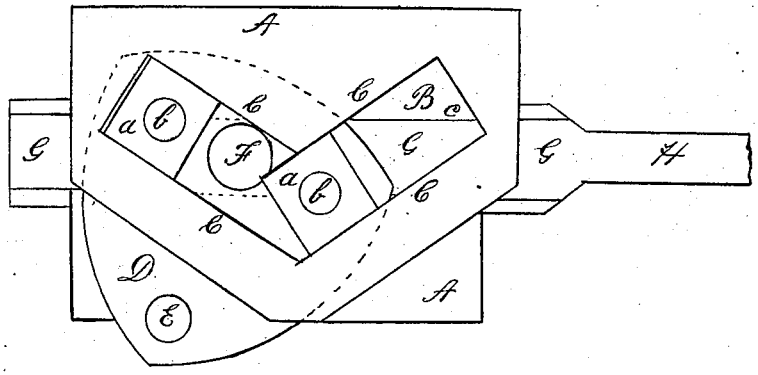



Fig. 2

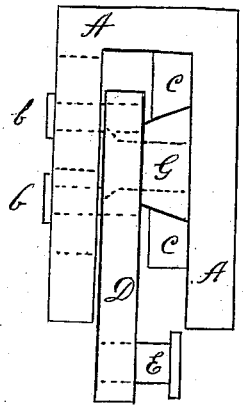



Fig. 3

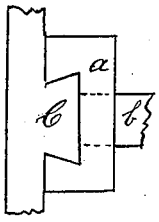
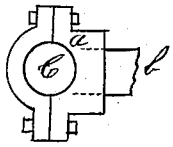



Fig. 4

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# UNITED STATES PATENT OFFICE.

ROBERT CAMPBELL, OF ALLEGHENY, PENNSYLVANIA.

## GEARING.

SPECIFICATION forming part of Letters Patent No. 306,809, dated October 21, 1884.

Application filed March 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT CAMPBELL, a citizen of the United States. residing in Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gearing, of which the following is a specification.

My invention relates to gearing in which an arm or driving-head is attached to or forms part of an actuating piston-rod or connecting-rod, the arm or driving-head affording a bearing or fulcrum carrying a form, web, disk, or lever engaging fixed bearings arranged at determinate angles in respect to the stroke of the driving-head, arm, connecting-rod, or piston-rod.

The object of my invention is an increase of leverage, or a more equal distribution of the current force into power and speed. I attain this object by mechanism illustrated in the accompanying drawings, which form a part of this specification.

Similar letters refer to similar parts in the several views.

Figure 1 represents a frame, A, with bearings or guides C C C C (*c c*, Fig. 2) forming part of or affixed to it. The driving-arm G carries the fulcrum F, on which the disk or lever D vibrates. The arms *b b* connect the disk or lever D with the bearing-heads *a a*, which slide on the faces of the guides C C C C, which deflect the stroke of the arms *b b* and cause the disk or lever D to vibrate on the fulcrum F. B is the groove, through which is seen the arm G and guide *c*. H is part of the piston-rod. E is the effective arm of the disk or lever D.

Fig. 2 is an end view of Fig. 1. *c c* are guides in which the driving-arm G operates.

Figs. 3 and 4 represent different kinds of bearings. While the bearings may be curved or straight, external or internal, superficial, salient, or re-entrant, long or short—long to serve short bearing-heads, as shown in the drawings, or short to serve long bearing-arms with equal effect, but not shown in the drawings—it is preferable to use straight bearings to secure an accurate measure of the distribution of the current force and a higher leverage.

The distinctive character of the invention is that the arm E is not dependent on a fixed fulcrum. I therefore disclaim the use of hypocycloidal curves in connection with a fixed fulcrum.

Having described my invention clearly, I claim as my invention the following:

1. In gearing, a web, disk, or lever fulcrumed on a vibrating arm or driving-head, substantially as set forth, and for the purposes described.

2. In gearing, a disk, web, or lever engaging deflecting bearings, substantially as set forth, and for the purposes described.

3. In gearing, bearings substantially as set forth and described, and for the purposes alleged.

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