No. 777,706. PATENTED DEC. 20, 1904.

W. H. VOSS.

SEGMENTAL RACK.

APPLICATION FILED MAY 22, 1903.

NO MODEL.

Fig. 1.

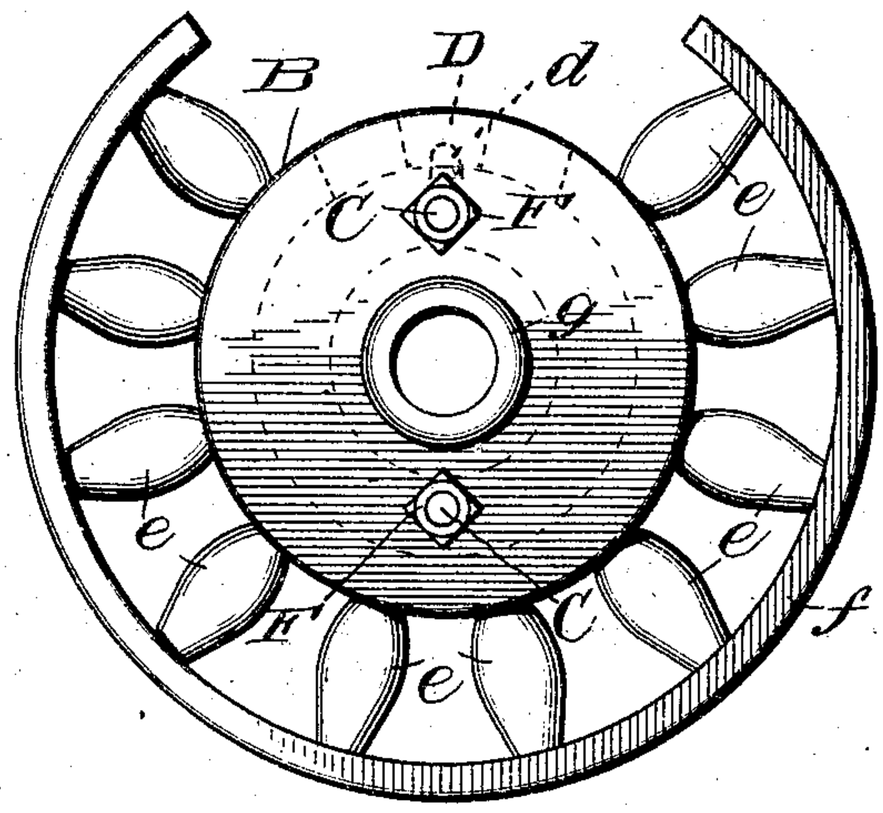


Fig. 2.

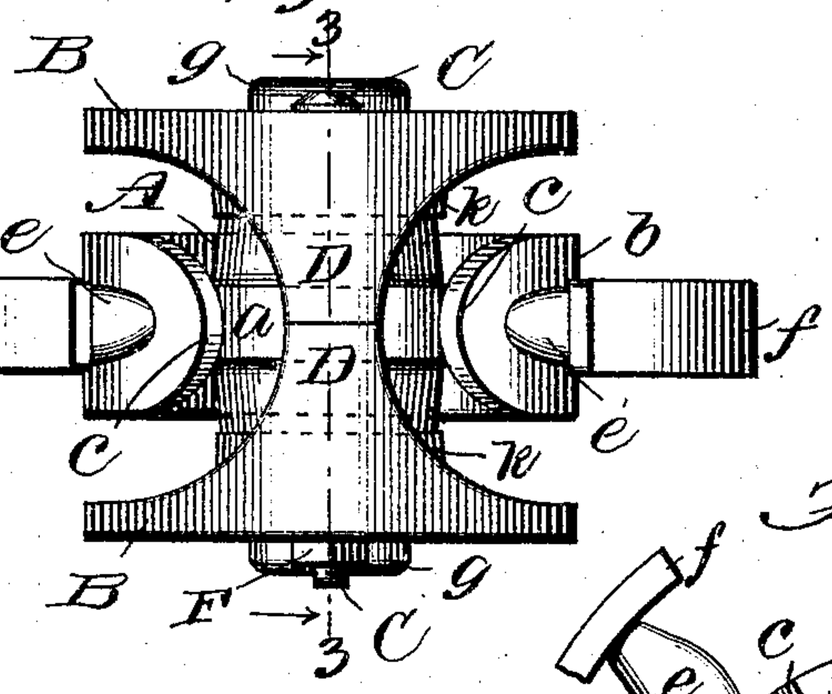


Fig. 4.

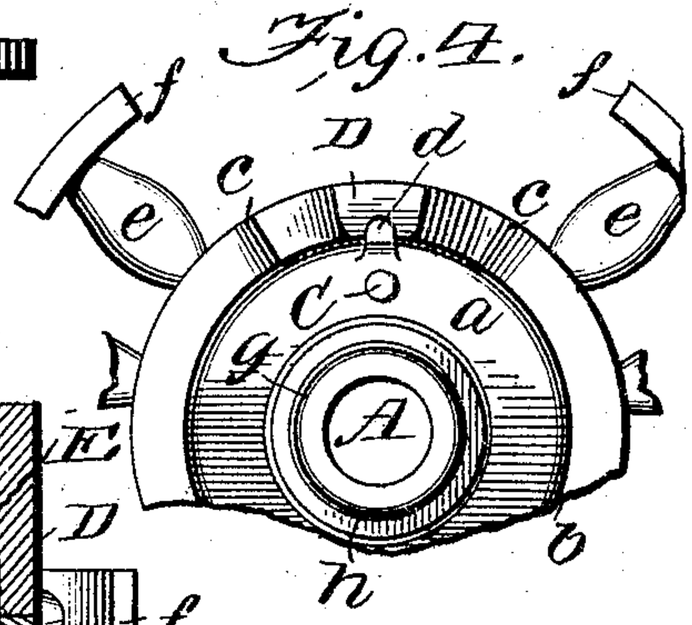
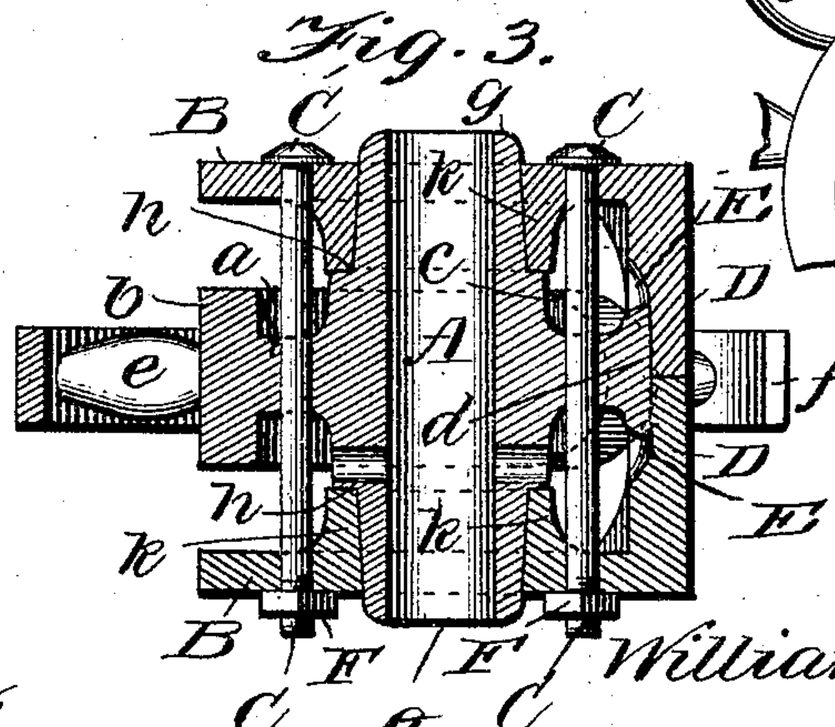


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM H. VOSS, OF DAVENPORT, IOWA.

SEGMENTAL RACK.

SPECIFICATION forming part of Letters Patent No. 777,706, dated December 20, 1904.

Application filed May 22, 1903. Serial No. 158,282.

To all whom it may concern:

Be it known that I, WILLIAM H. VOSS, a citizen of the United States, and a resident of Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Segmental Racks, of which the following is a full, clear, and exact description.

The object of my invention is to construct a segmental rack for mechanical movements similar to that illustrated and described on page 90 of the publication entitled "*507 Mechanical Movements*," edited by Henry T. Brown, copyrighted in 1868, and indicated as movement "371" therein, of several parts in such manner that the rack can be made in a much more perfect and satisfactory manner than when cast in one piece or when the part thereof comprising what is known as the "cylinder" is made in one piece. This I accomplish in a simple and economical manner, substantially as hereinbefore described, and as particularly pointed out in the claims.

In the drawings, Figure 1 is a plan view of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical central section taken on dotted line 3 3, Fig. 2, looking in the direction indicated by the arrows. Fig. 4 is a plan view of a portion of my invention with the upper section removed.

Referring to the drawings, A represents the hollow central boss of my improved rack that at about its center of length has a circumferential web *a* projecting therefrom, the outer circumferential edge of which (all except a short section thereof) is provided with a segmental rim *b*. The width of the rim *b* exceeds the thickness of the web *a*, and this width is disposed equally on each side of said web and has its ends *c c* rounded. Projecting radially and at equal distances apart from points midway between the longitudinal edges of said rim are a series of corresponding studs *e e*, the outer edges of which are bound and connected by a segmental frame *f*, the width of which is about one-half that of the rim *b*. These studs are circular in cross-section and taper from about their centers of length, where they are greatest in diameter, to their ends. The end studs of this series *e* project radially in a plane intersecting the center from which the curvature of the rounded ends *c* of the rim *b* are struck. Midway between the ends of the rim *b* the web *a* has a short radially-projecting tenon *d*.

The boss A is provided with end extensions *g g*, which are less in diameter and taper from the shoulders *h*, resulting from such reduction toward their outer ends substantially as shown. B B represent corresponding circular plates, the diameter of which preferably corresponds to that of the rim *b*. These plates are provided with central bosses *k*, that have central openings through them, which are the same diameter as and are tapered similar to the circumference of the extension *g g*, over which they are adapted to be placed. These bosses *k* preferably project from but one side of said plates, and the length of the opening therethrough is but slightly less than that of the extensions upon which they are fitted. The end edges of said bosses rest upon and are held in contact with the shoulders *h* of the boss A by means of the bolts C, which latter extend from the outer plain face of one of said plates B, through suitable openings therein, through the web *a*, and through alining openings in the opposite plate B, and have nuts F F suitably tightened upon their screw-threaded ends. By removing these nuts the bolts can be removed and the plates B B disconnected from the boss A of the segmental rack.

At a point intersected by a vertical plane intersecting the center of the rack and striking through the ends *c c* of the rim *b* plates B B have lugs D D, the ends of which latter meet mediate said plates, preferably, in a transaxial plane intersecting the centers of the series of studs *e e* and have side edges that are curved to describe a semicircle struck from the center of the end studs of said series *e e*. Thus constructed, these plates B B and lugs D D, together with the rim *b*, provide an endless runway or guideway between them, the course of which is disposed symmetrically both above and below the studs *e e* and extends around the ends thereof always at the same distance from the centers of said studs, substantially as shown. In order to

assist in preserving the rigidity of structure of the rack, as hereinbefore described, I make in the inner surfaces of the lugs D D adjacent to their meeting ends longitudinal grooves E E, into which the tenon *d*, projecting from the edge of the web *a* between the ends of the rim *b*, projects. This method of interlocking the plates B B with the body of the segmental rack removes the transverse strain on the bolts C C, which the tendency of the said parts to rotate independently of each other would otherwise create. While preferred, however, the tenons and grooves E E may be omitted.

What I claim as new is—

1. A radially-disposed segmental rack comprising a central boss having corresponding extended ends of reduced diameter, a circular web projecting midway the length of said boss having a segmental rim the ends of which are rounded, and a series of studs projecting radially from said rim, in combination with concentric guide-plates fitting over and secured upon the extended ends of said boss and provided with lugs projecting toward each other and meeting midway between the ends of said rim intermediate said plates.

2. A radially-disposed segmental rack comprising a central boss having corresponding extended ends of reduced diameter, a circular web projecting midway the length of said boss having a segmental rim the ends of which are rounded and having a tenon projecting therefrom, and a series of studs projecting radially from said rim, in combination with concentric guide-plates fitting over and secured upon the extended ends of said boss and provided with lugs projecting toward each other and meeting midway between the ends of said rim intermediate said plates and provided with longitudinal grooves in their inner surface into which said tenon enters.

3. A radially-disposed segmental rack comprising a central boss having corresponding extended smooth tapered ends of reduced diameter, a circular web projecting midway the length of said boss having a segmental rim the ends of which are rounded and having a tenon projecting therefrom, and a series of studs projecting radially from said rim, in combination with concentric guide-plates fitting over and secured upon the extended ends of said boss and provided with lugs projecting toward each other and meeting midway between the ends of said rim intermediate said plates and provided with longitudinal grooves in their inner surface into which said tenon enters and longitudinal bolts extending from end to end through said plates and said web, and nuts engaging the same.

In testimony whereof I have hereunto set my hand and seal this 29th day of April, 1903.

WILLIAM H. VOSS. [L. S.]

Witnesses:

WILLIAM E. PULS,

EDWARD L. GULDNER.