G. W. HARRIS.

REVOLVING REVERSIBLE JOINT.

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1,363,113. Patented Dec. 21, 1920.

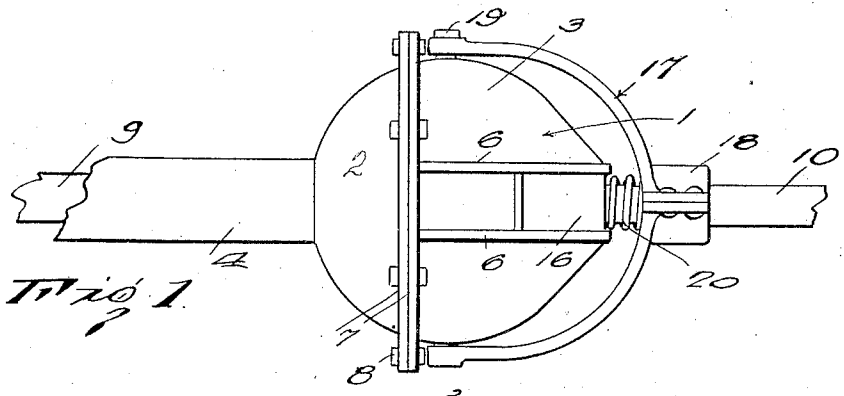


Fig. 1.

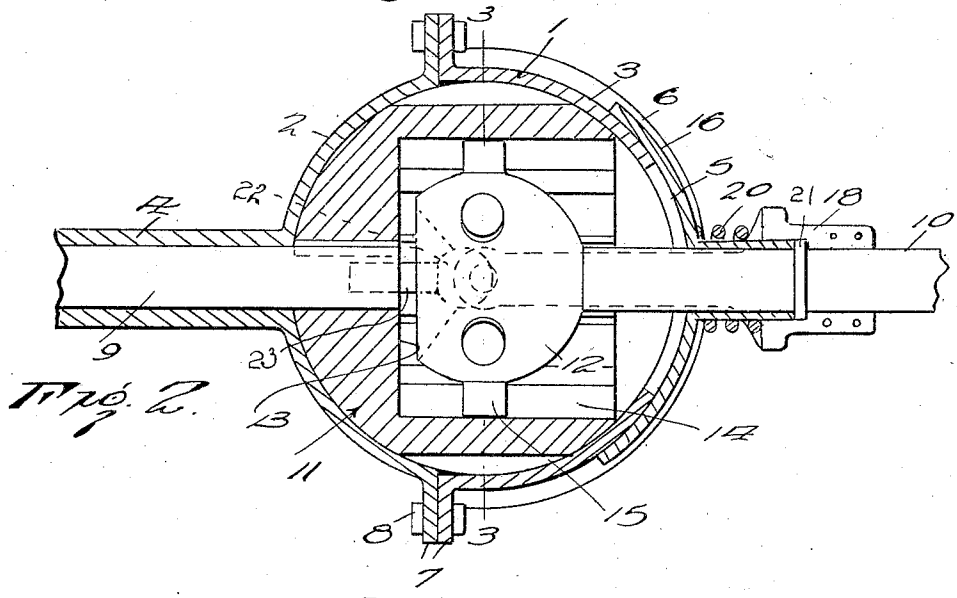


Fig. 2.

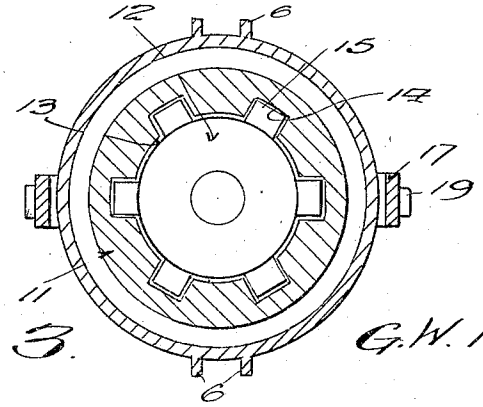


Fig. 3.

G. W. Harris

Inventor

By Geo. P. Kimmel.

Attorney

UNITED STATES PATENT OFFICE.

GEORGE WASHINGTON HARRIS, OF LIBERAL, KANSAS.

REVOLVING REVERSIBLE JOINT.

1,363,113. Specification of Letters Patent. Patented Dec. 21, 1920.

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To all whom it may concern:

Be it known that I, GEORGE W. HARRIS, a citizen of the United States, residing at Liberal, in the county of Seward and State of Kansas, have invented certain new and useful Improvements in Revolving Reversible Joints, of which the following is a specification.

The present invention comprehends generally improvements in that class of invention known as machine elements and more particularly relates to a revolving reversible joint.

The principal aim and object of this invention is to provide a device of the above mentioned character wherein the construction of the parts forming this joint are novel and designed to be carried upon adjacent ends of shaft sections so that upon rotation of one of the shaft sections rotary motion will be imparted to the other shaft section by reason of the peculiar engagement of the coacting heads.

It is an additional object of this invention to provide a device of the above mentioned character wherein the casing for accommodating the coacting heads serves to prevent accidental disengagement of the heads while in addition coacting guiding means are mounted on one section of the casing and on one of the shaft sections for guiding the swinging movement of one of the shaft sections relative to the other shaft section.

Among the other aims and objects of this invention may be recited the provision of a device of the above mentioned character with a view to compactness, and wherein the number of parts are comparatively 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 this invention will be more readily apparent from the following description taken in connection with the accompanying drawings and pointed out in the claims, forming a part of this specification.

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

Figure 1 is a side elevation of the improved joint.

Fig. 2 is a longitudinal sectional view of the joint, and

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2.

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

Referring now, more particularly, to the accompanying drawings there is provided a suitable sectional casing designated in its entirety by the numeral 1 and is of globular cylindrical or other suitable form being preferably composed of sections 2 and 3, the section 2 being formed with an integral tubular stem 4 communicating centrally with the interior of the section 3 while section 3 is formed with a transverse slot 5 and in addition is formed externally with laterally extending spaced parallel semi-circular guiding ribs 6 positioned on opposite sides of the slot 5. In addition the sections are formed at their adjacent or meeting ends with laterally extending annular flanges 7 detachably held together through the instrumentality of suitable fastening means, such as nut and bolt arrangements 8.

Shaft sections 9 and 10 are now employed and are preferably mounted through the tubular stem 4 and the slot 5, the adjacent ends being operably connected with each other by the interengaged coacting heads generally designated by the numerals 11 and 12 and respectively formed on the adjacent ends of the sections 9 and 10 and positioned within the casing 1.

In the present instance the head 11 is preferably ball shaped, although its shape may be modified as desired, and is formed at its outer end with an inwardly extending cylindrical socket or recess 13 the side walls of which are formed with a plurality of internal gear teeth 14, the teeth being arranged longitudinally of the head and spaced in parallel relation with each other. The head 12 is also substantially ball shaped and is provided with circumferentially arranged and radially projecting teeth 15 on its outer surface, the teeth being preferably arranged in a common plane at right angles to the longitudinal axis of the shaft section 10 and are of course engaged with the teeth 14 so as to insure of the transmission of rotary motion from either of the shaft sections to the other at the time one of the shaft sections is rotated. It also is to be noted that the shaft section 10 is capable of being oscillated in the slot without effecting the meshing engagement of the teeth 14 and 15. Moreover the teeth 15 are capable of sliding movement with respect to the teeth 14, that is, the longitudinal movement is permitted between

the sections 9 and 10 without effecting the meshing engagement of the teeth 14 and 15.

As intimated, suitable coacting means are provided for guiding the oscillatory movement of the shaft section 10. In reducing the features of the invention to practice, a slide in the form of an arcuate shoe 16 is employed and is formed with a central opening and slidably arranged about the shaft section 10. In addition the shoe of course is arranged between the guiding ribs 6 and over the slot 5. Coacting with the shoe in guiding the oscillatory movement of the shaft section 10 is a two-part yoke 17 the medial portion of which is formed with an opening and with an integral collar 18 which is disposed loosely about the shaft section 10, the ends of the arms of the yoke being swingably connected by suitable pins 19 to diametrically opposite points on the outer surface of the section 3 of the globular casing 1, as indicated in the drawings. Suitable resilient means such as a coiled spring 20 is arranged about that portion of the shaft section between the yoke and the slide and has its respective ends exerting in expansive action against the yoke and the slide 16 so as to effectively maintain the slide in the proper position. A collar 21 is formed upon the shaft section 10 and is engaged in a recess in the collar 18.

The head 12 is formed at its inner end with a recess or socket receiving the spherical head 22 carried by a shank 23 received within an axial opening formed in the adjacent terminal of the shaft section 9.

It is believed in view of the foregoing description that a further detailed description of the operation of the invention is entirely unnecessary. Likewise it is believed that the advantages of the invention will be readily apparent.

Still further embodiments of the invention than those herein especially defined may be resorted to as conditions or preference may dictate, as may be in keeping with the hereto appended claims.

Having thus fully described the invention what is claimed as new and desired to be secured by Letters Patent, is:

1. A joint comprising a sectional casing composed of a pair of sections, one section being formed with a tubular stem and the other section being provided with a transverse central slot disposed opposite the stem, shaft sections arranged through the stem and slot, the slot permitting of the shaft section engaged therethrough having oscillatory movement, heads formed on the adjacent ends of the shaft sections and arranged in the casing and means connecting the heads for conjoint rotation and permitting angular movement thereof.

2. A joint comprising a casing formed with a transverse central slot and provided on its outer face with spaced parallel guide ribs positioned on opposite sides of the slot, shaft sections arranged in the casing and slot, said slot permitting oscillatory movement of the shaft section arranged therethrough, coacting heads forming on the adjacent ends of the shaft sections and positioned within and retained by the casing having meshing and sliding engagement with each other, a yoke pivoted to the slotted casing formed with a bearing receiving the shaft section arranged through the slot, a guiding shoe slidably mounted on one of the shaft sections and arranged between the ribs of the casing, and resilient means between the yoke and the shoe for holding the latter in proper position.

3. A joint of the character described including a casing having an elongated slot therein, guides arranged on opposite sides of the slot, a guiding shoe confined between the guides, a yoke having pivotal connection with the casing and permitting the yoke to swing in the direction of the longitudinal axis of the slot, a shaft section supported in the yoke and extending through the shoe and into the casing, a second shaft section arranged in opposed relation to the first mentioned shaft section and also arranged in the casing, and means rotatably connecting the shaft sections for conjoint rotation and permitting angular movement thereof.

4. A joint comprising a casing provided with an elongated slot, guides arranged on opposite sides of the slot, a guiding shoe confined between the guides, a yoke pivotally secured to the casing and arranged to swing in the direction of the longitudinal axis of the slot, a shaft section arranged in the yoke and extending through the guiding shoe into the casing, a collar on said shaft section engaging the yoke and limiting the longitudinal movement of the shaft section, a second shaft section extending into the casing, and a shaft joint connecting the shaft sections.

5. A joint comprising a casing provided with an elongated slot, a shoe slidably engaged with the casing and covering the slot therein, a yoke pivotally mounted to swing in the direction of the longitudinal axis of the slot, a shaft section extending through the yoke and shoe and into the casing, a collar formed on said shaft and engaging the yoke to limit the longitudinal thrust of the shaft section, a tubular extension formed on the shoe engaging said collar and inclosing the shaft, a second shaft section arranged in opposed relation to the first mentioned shaft section and extending into the casing, and means connecting the shaft sections.

6. A joint comprising a casing provided with an elongated slot, a shoe covering said

slot, a yoke pivotally mounted on the casing for movement in the direction of the longitudinal axis of the slot, a shaft section extending through the yoke and shoe into the casing, a collar on said shaft limiting the longitudinal thrust of the section in one direction, a tubular extension formed on the shoe receiving the shaft section and abutting the collar, spring means confined between the yoke and shoe and maintaining the latter in engagement with the casing, a second shaft section arranged in opposed relation to the first mentioned shaft section and extending into the casing, and means connecting said shaft sections.

In testimony whereof I affix my signature hereto.

GEORGE WASHINGTON HARRIS.

Witnesses:
GUS GRIMSLEY,
J. W. LONGENECKER.