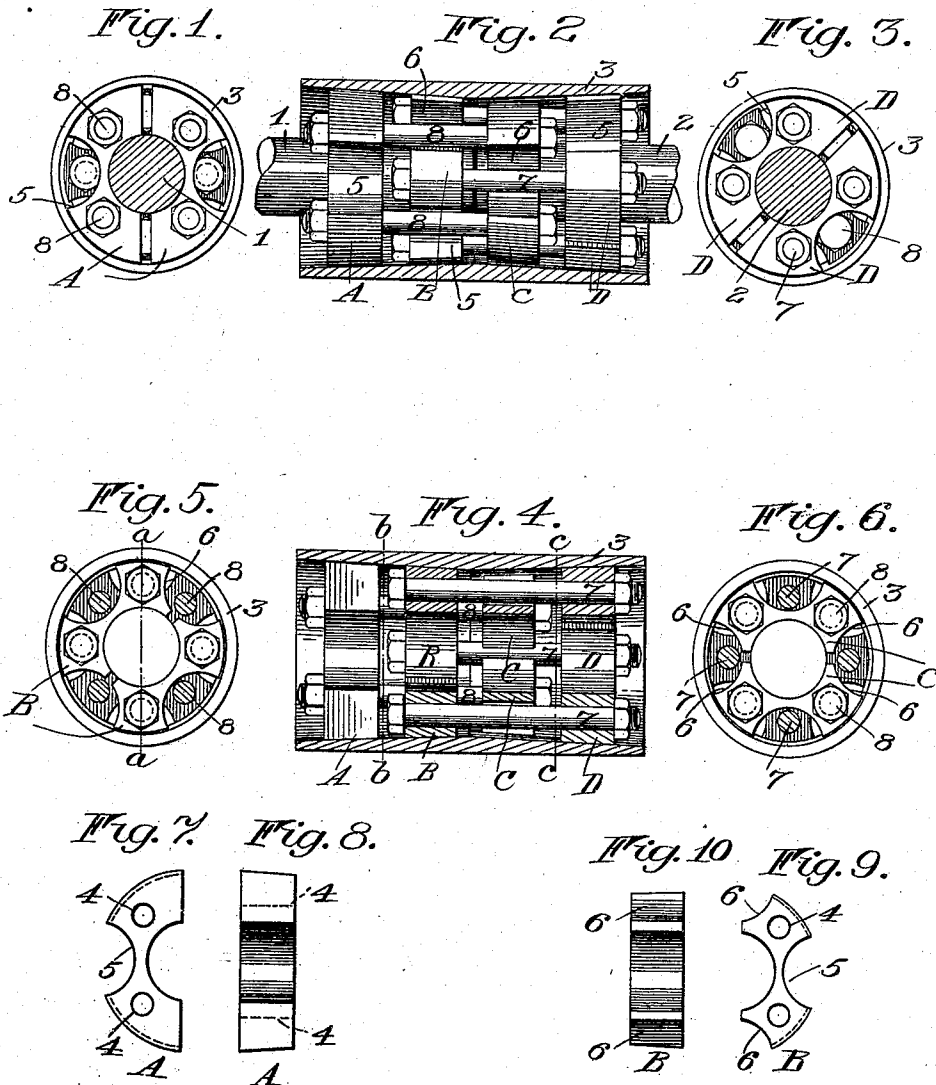


G. S. SEARLE.
SHAFT COUPLING.
APPLICATION FILED SEPT. 23, 1907.

923,714.

Patented June 1, 1909.



Inventor

Witnesses
Walter B. Payne.
H. H. Linn.

George Samuel Searle
By Chas. H. Rich
his Attorney

UNITED STATES PATENT OFFICE.

GEORGE SAMUEL SEARLE, OF ROCHESTER, NEW YORK.

SHAFT-COUPLING.

No. 923,714.

Specification of Letters Patent.

Patented June 1, 1909.

Original application filed May 28, 1903, Serial No. 159,162. Divided and this application filed September 23, 1907.
Serial No. 394,222.

To all whom it may concern:

Be it known that I, GEORGE SAMUEL SEARLE, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Shaft-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the reference characters marked thereon.

The present invention relates to shaft couplings of the type in which the abutting ends of two sections of shafting are held in alinement by frictionally engaging jaws, such, for instance, as shown in my Patent No. 849,860, dated the 9th day of April, 1907, and this application is a division of my application No. 159,162, filed May 28, 1903, which eventuated in the aforesaid patent.

An object of the invention is to provide a construction by which a greater amount of friction is secured, so that this type of coupling may be employed in the transmission of a greater amount of power.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 represents an end view as seen from the left hand of Fig. 2. Fig. 2 represents the shell or casing in longitudinal section and the internal parts in side elevation. Fig. 3 represents an end view as seen from the right hand of Fig. 2. Fig. 4 is a longitudinal section on line *a-a* Fig. 5. Fig. 5 is a section on line *b-b* Fig. 4. Fig. 6 is a section on line *c-c* Fig. 4. Figs. 7 and 8 represent an end and a side view respectively of one of the outer jaws, and Figs. 9 and 10 represent like views of one of the inner jaws.

Referring to the drawings 1 and 2 indicate the sections of the shafting to be coupled and 3 the outer shell or casing which has oppositely tapering faces on its inner wall, in the preferred form, faces tapering inwardly from each end, while its outer surface is preferably cylindrical.

Coöperating with each tapering face of the shell is a plurality of sets of jaws, in the present instance two sets for each face, as sets A and B for one, and C and D for the other; and each set preferably comprises two jaws

each of which has its inner face conforming to the shaft, to be gripped, and its outer face tapering to fit the inner surface of the shell 3. In general section all of the jaws are semicircular and in length they are less than one fourth of the shell or casing 3, in order that when fitted within the latter the sets lie in spaced relation and the outer sets are arranged away from the ends thereof so that the means for moving them on the tapering faces will not project therefrom.

The movement of the sets on the tapering faces of the inner wall is effected in couples, preferably in alternate sets, one set of each couple moving on each tapering face, and to this end it is preferred to form each jaw with two bolt openings 4 and with a semicircular groove 5 running lengthwise thereof, and the inner jaws may have their corners cutaway at 6. Bolts 7 and 8 connect alternate sets and extend through the grooves 5 and cutaway portions 6 in the jaws between the sets which they connect. The provision of these grooves 5 reduces the rigidity of the jaws so as to allow them to more easily conform to and grip the shaft, and the relative positions of the grooves 5 and cutaway portions 6 in proximate sets is such that the introduction of a tool to hold the bolts or to drive the inner sets from the casing or shell is permitted.

In securing two shaft sections the casing or shell 3 is first placed about the shaft and then the inner sets are fitted so that each set engages a different shaft section and has its bolt openings lying opposite the grooves 5 or the openings formed by the cutaway portions 6 of the other member. Bolts 7 and 8 are then introduced through opposite ends of the shell or casing so that the bolts 7 pass through the openings 4 in the jaws B, and the grooves 5 and cutaway portions 6 in the jaws C, while the bolts 8 extend through the openings 4 of the jaws C and the grooves and cutaway portions of the jaws B. Jaws A and D are now inserted so that their bolt openings 4 receive the bolts 7 and 8 respectively. The sets are now connected in couples, the members of one couple being separated by a member of another couple and engaging oppositely tapering faces, so that upon the tightening of the bolts 7 and 8, or other suitable means for moving the sets, a compression of each shaft section takes place at a plurality of points.

It will be noted that the joints between the

jaws of adjacent sets do not aline, and in this manner two bolts passing through any one jaw will engage with one end of each opposing jaw, so that it is less easy for one jaw to be drawn ahead of its mate, thereby securing an equal distribution of the compression and a proper alinement of the shafting.

It will be noted further that the jaws that engage one shaft section are movable independently of those that engage the other section so that it is possible to couple shafts which have different diameters as those jaws which clamp the smaller shaft will move farther inward than the other, and, if the difference in diameter is very great, jaws with smaller gripping faces may be provided.

I claim as my invention—

1. In a shaft coupling, the combination with an outer shell having oppositely tapering faces on its inner wall, of a plurality of sets of jaws arranged to coöperate with each tapering face, and means for moving the sets in couples on the tapering faces, one set of each couple moving on each tapering face.

2. In a shaft coupling, the combination with an outer shell having its inner wall provided with faces tapering toward each other, of a plurality of sets of jaws arranged to coöperate with each tapering face, and means for moving said sets toward each other in couples, one set of each couple moving on each tapering face to effect a clamping of the shaft sections.

3. In a shaft coupling, the combination with an outer shell having its inner wall provided with faces tapering toward each other, of a plurality of sets of jaws arranged to coöperate with each tapering face, and bolts connecting the sets in couples, one set of each couple moving on each face.

4. In a shaft coupling, the combination with an outer shell having oppositely tapering faces on its inner wall, of a plurality of sets of jaws coöperating with each tapering face, each jaw having a groove, and means connecting the sets in couples for moving them on the tapering faces, one set of each

couple moving on each tapering face and said means extending through the grooves in the jaws between a connected couple.

5. In a shaft coupling, a shell, a plurality of jaws arranged to coöperate with the inner wall of the shell, and connections between alternate sets to move them to effect a clamping of two shaft sections.

6. In a shaft coupling, a shell having its inner wall provided with oppositely tapering faces, a plurality of sets of jaws for coöperation with said tapering faces, and connections between alternate sets for moving them to effect a clamping of two shaft sections.

7. In a shaft coupling, a shell having its inner wall provided with oppositely tapering faces, a plurality of sets of jaws for coöperating with said tapering faces and means for drawing alternate sets toward each other.

8. In a shaft coupling, the combination with a shell having its inner wall provided with two faces tapering toward each other, of four sets of jaws, two of which coöperate with each tapering face, and means for moving alternate sets toward each other.

9. In a shaft coupling, the combination with a shell, of four sets of jaws arranged to coöperate with the inner wall of the shell to effect a clamping of shaft sections, and bolts connecting alternate sets.

10. In a shaft coupling the combination with a shell having its inner wall provided with two faces tapering toward each other, of four sets of jaws two of which coöperate with each tapering face, and bolts connecting alternate sets of the jaws.

11. In a shaft coupling, the combination with a shell having its inner wall provided with oppositely tapering faces, of four sets of jaws, two of which coöperate with each tapering face, and means for moving the alternate sets toward each other to effect a clamping of two shaft sections.

GEORGE SAMUEL SEARLE.

Witnesses:

W. HERBERT WALL,
FLORENCE E. FRANCK.