A. V. SCHRADE.

ADJUSTABLE INSULATED COUPLING FOR MOTORS AND DYNAMOS.

APPLICATION FILED MAR. 4, 1916.

1,200,143. Patented Oct. 3, 1916.

Fig. 2.

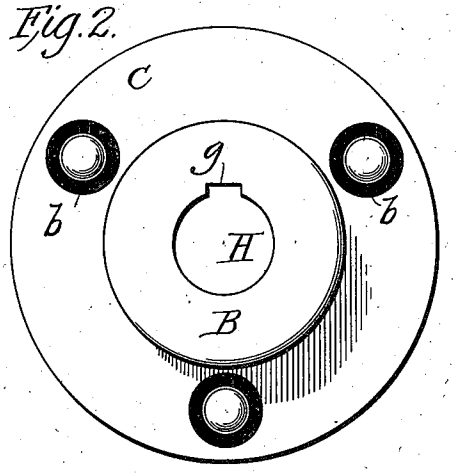


Fig. 1.

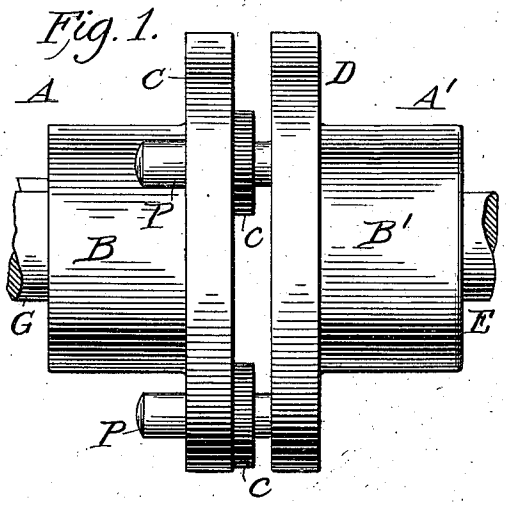


Fig. 3.

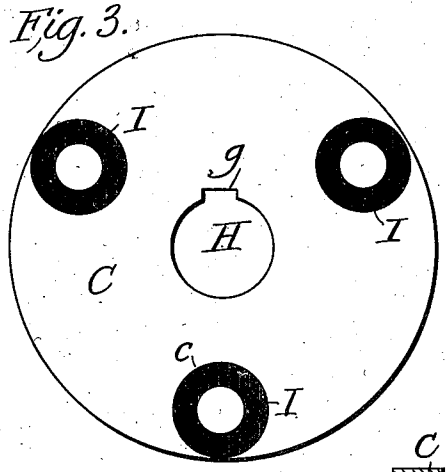


Fig. 4.

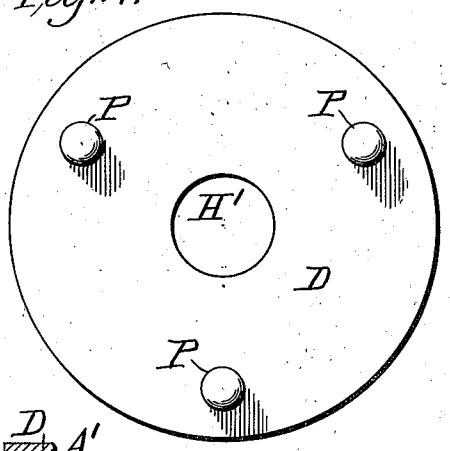
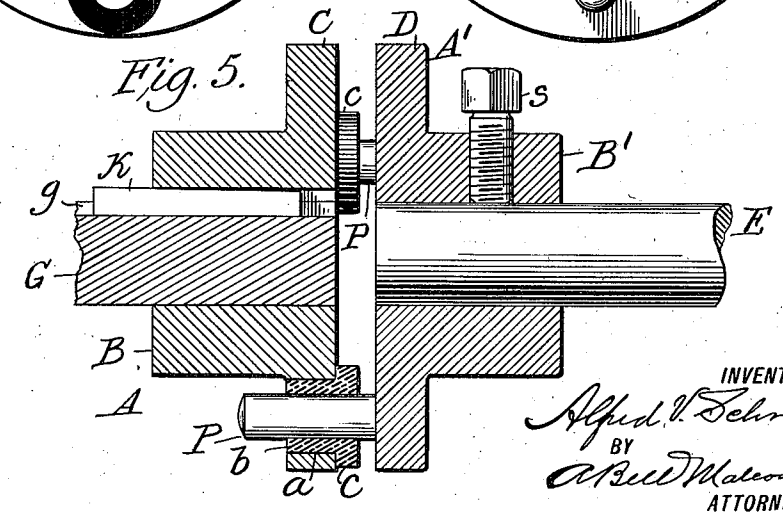


Fig. 5.



INVENTOR

Alfred V. Schrade

BY

A. Bell Malcomson

ATTORNEY

UNITED STATES PATENT OFFICE.

ALFRED V. SCHRADE, OF NEW YORK, N. Y.

ADJUSTABLE INSULATED COUPLING FOR MOTORS AND DYNAMOS.

1,200,143. Specification of Letters Patent. Patented Oct. 3, 1916.

Application filed March 4, 1916. Serial No. 82,055.

To all whom it may concern:

Be it known that I, ALFRED V. SCHRADE, a citizen of the United States, residing in the city of New York, State of New York, have invented certain new and useful Improvements in Adjustable Insulated Couplings for Motors and Dynamos, a description of which is contained in the annexed specification and drawings.

This invention relates to a coupling employed to connect up the shaft of an electric motor to the driving shaft of a machine used for various kinds of work.

One object of my invention is to provide a coupling device which has its members secured to two shafts and revolves with them, but will automatically adjust its connecting members to different lateral positions during operative action.

Another object is to provide greater flexibility in the coupling combined with electric insulation between the two shafts connected.

To accomplish these ends my improved coupling provides for the use of two heads carrying extending flanges one of which has two or more peripheral pins projecting from its face which slide through registering holes in the face of the opposite disk.

Other features of my invention will appear from the more specific statements contained in the following description and explanation of the annexed drawings.

Figure 1 is a side view of the couplings and shafts. Fig. 2 is an end view of Fig. 1. Fig. 3 is a face view of one disk. Fig. 4 is a face view of the other disk and Fig. 5 is a longitudinal cross section of Fig. 1.

The coupling heads are marked A and A^1. These are composed of the circular disk or flange portions C and D having equal diameter, and the hubs B and B^1 made integral therewith. The hubs and disks have central bores H, H^1 to receive the shafts F and G. The coupling head A is preferably considered as receiving the shaft of the motor and is secured to such shaft by the medium of a longitudinal slot *g*, made in the shaft at its end and a key *k*. In placing the head A on the motor shaft G, care should be taken that its end does not project past the face of the disk C.

In the face of the disk C, are openings *a*, *a*, adapted to receive insulating thimbles I, I, made of fiber, hard rubber, or other similar substances, of an insulating nature. The thimbles I, have a barrel *b*, which fits the opening *a*, and a collar *c*, which rests on the face of the disk C.

Projecting from the face of the disk D at a point on its circumference exterior of the shaft opening are pins P, P, of the proper diameter and position to enter the bore of the thimbles socketed in the disk C. Preferably I use three pins and sockets, although this number may be increased if desired, or reduced to two. The working of my invention however, contemplates the use of at least two pins on the disk D on substantially opposite sides of the shaft.

A set screw *s*, is used in the hub of the head B^1, to secure it on the shaft.

In operating the coupling is placed in position by first securing one of the heads to the motor shaft, which is preferably the head C. The head D is then slipped on the end of the shaft F used to communicate with and operate the machinery, and secured thereto by the set screw *s*.

It is well known in the use of electric motors that the driving shaft thereof is subject to shifting laterally during use, and my device is designed to permit a certain amount of lateral play. The pins P, P^1, slide easily and evenly in the bore of the barrel *b* of the insulating thimbles passing entirely through the flanges, the inner faces of which are in contact with the surface of the pins along their length, and when the shaft has a lateral movement sufficient to cause the disks to approach very near to each other their faces will not touch, but be stopped and insulated by the collars *c*, intervening. In operation a slight deflection of the shaft F from the line of the shaft G will not interfere with the working of the motor or transmission of power through the coupling. In practice however such deflection of the shafts tends to place the inner faces of the flanges at an angle thereby bringing their outer circumferences nearer each other on one side. Danger arises from this position that the two parts of the coupling should come into electrical contact. In order to overcome this danger I provide the flat insulating circles or collars *c*, which may be secured to or part of the thimbles I. These collars are designed to keep the outer edges of the flanges from contacting even when the face of the flange is at an angle, and their width and thickness should be adjusted to the size of the coupling flange.

The arrangement of pins in a circle exterior of the circumference of the shaft and surrounding them with a collar made of fibrous material gives a flexibility which is not obtained where a central metal shaft must be employed. The faces of the two disks C and D being a little distance apart also permits of a slight inclination of the shafts in any direction. The faces need not always be on the same plane but vary with the inclination of the shafts.

I have described the use of thimbles of fibrous material and I prefer to use them made of an insulating substance. Instances may arise however, where the coupling can be used without thimbles in the holes and a beneficial result be obtained as the rigidity of the central shaft is avoided. But I prefer to have a packing of some kind between the pins and the interior of the holes.

I have described the thimbles as having a collar which lies on the face of the disk but it will be apparent that this may be omitted where the packing lies between the pins and the inside of the holes.

Having described my invention what I desire to secure by Letters Patent is:—

A coupling comprising two members each adapted to be secured to shafting by means of a central bore, each member being provided with a flange, one flange having two or more openings therethrough situated between the bore and circumference, a thimble of elastic material forming a lining for said opening and a collar to rest on the face of said flange opposed to the other flange, the other flange being provided with pins projecting from its face positioned to enter the openings in said thimble and freely slide therein as and for the purposes shown and described.

ALFRED V. SCHRADE.

Witnesses:
A. Bell Malcomson,
Gertrude Schofield.