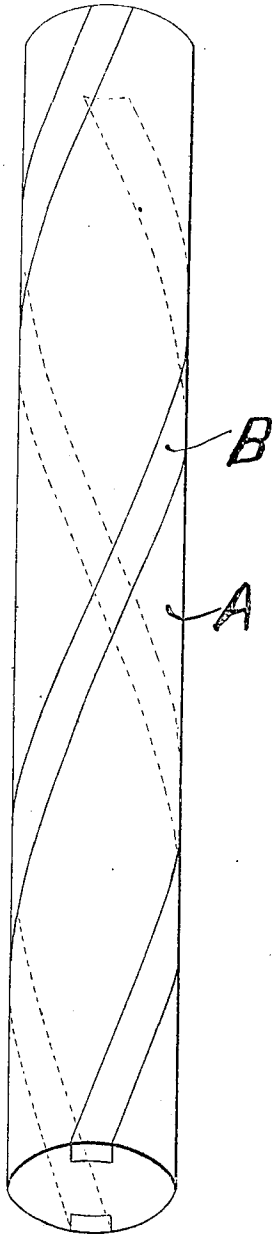
No. 885,259. PATENTED APR. 21, 1908.

F. S. KIRKLAND.

STAMP MILL SHAFTING.

APPLICATION FILED NOV. 1, 1906.



Witnesses:

Frank S. Kirkland,

Inventor.

UNITED STATES PATENT OFFICE.

FRANK S. KIRKLAND, OF MILWAUKEE, WISCONSIN.

STAMP-MILL SHAFTING.

No. 885,259. Specification of Letters Patent. Patented April 21, 1908.

Application filed November 1, 1906. Serial No. 341,541.

To all whom it may concern:

Be it known that I, FRANK S. KIRKLAND, a citizen of the United States of America, and a resident of Milwaukee, Wisconsin, have invented an Improvement in Stamp-Mill Shafting, of which the following description, in connection with the accompanying drawing, is a specification.

The said drawing illustrates the form in which my invention may be embodied, A indicating a hammered shaft of iron, steel, or other suitable metal, and B strips of copper or other nonmagnetic metal inlaid therein.

The incessant concussion to which the cam shaft in a stamp mill is subjected produces crystallization in such shaft, and in the course of time breaking of the shaft occurs, this involving destruction of other parts together with loss of time and great expense incidental to replacing the broken shafts and other parts. Heretofore these accidents have been accepted as unavoidable, there being no known remedy therefor. In actual practice I have produced a shaft which is free from the objections inherent in the old form of shafts, and which will not crystallize or polarize under the constant pounding of the shaft while in use.

It is an established fact that the crystallizing of shafting begins from the outside extending inward from the concussions it receives. In order to avoid this, some combination should be made with the steel or iron of which the shafting is composed, which will prevent such magnetization and crystallization, or more particularly the crystallization. In order to do this, the electric fibers of the iron or steel extending longitudinally with the shafting, as in all hammered steel or iron, must be of variable length, no two being of the same length adjoining each other. By so doing the harmony in the vibration is destroyed, and by cutting one or more spiral grooves in the shafting, making a complete circuit of the shaft, and electric welding into that groove or grooves, a bar of copper or of a composition of copper and zinc, I find that the crystallization is absolutely stopped.

Into the exterior surface of the shaft is cut a long spiral groove, which latter in its general direction is approximately longitudinal, and in which groove is closely fitted a strip of copper or other nonmagnetic material, whereupon the composite shaft is subjected to the action of an electric current and a perfect welding of the elements takes place. As indicated in the drawing, the shaft may be provided with one or more of such grooves with electrically welded strips.

The invention is not limited in its application to stamp mill shafts, but in practice will extend to railway car axles and other shafts in which the defect hereinbefore named may be found to exist.

What I claim and desire to secure by Letters Patent is:—

1. A metallic shaft having an exterior groove therein and a strip of copper electrically welded in such groove, for the purpose specified.

2. A metallic shaft having an exterior groove therein and a strip of nonmagnetic material welded in such groove, for the purpose described.

3. A spirally grooved metallic shaft having a strip of copper electrically welded in such groove for the purpose specified.

In testimony whereof, I have signed my name to this specification, in the presence of two witnesses.

FRANK S. KIRKLAND.

Witnesses:
FERNANDO MENDOZA,
M. H. MILLS.