(No Model.)

A. JAROLIMEK.

MEANS FOR TRANSMITTING POWER.

No. 244,995. Patented Aug. 2, 1881.

Fig. 1.

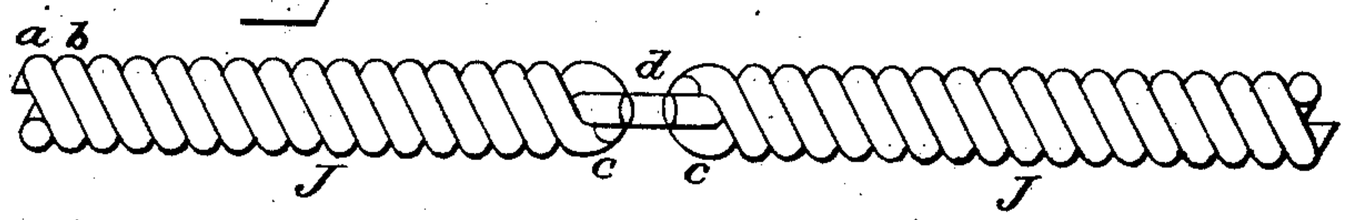


Fig. 2.

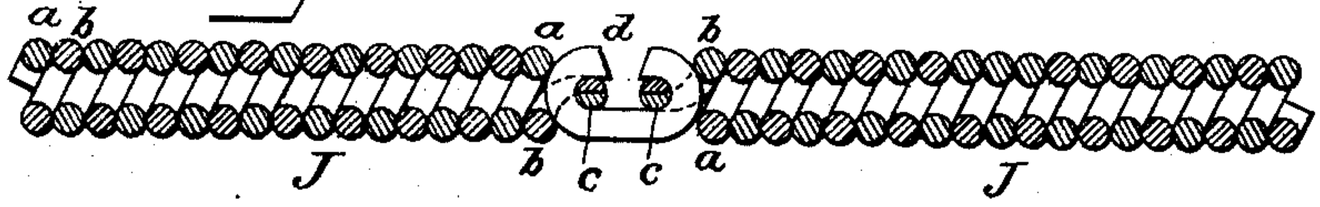


Fig. 3.

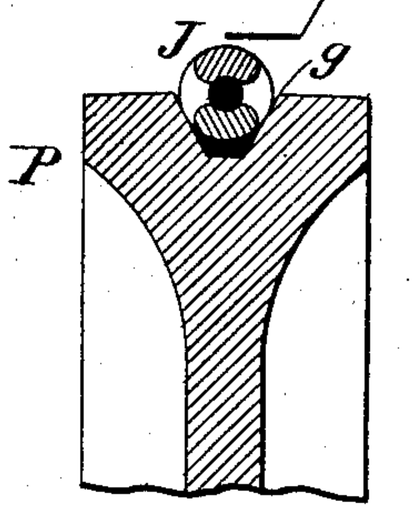


Fig. 4.

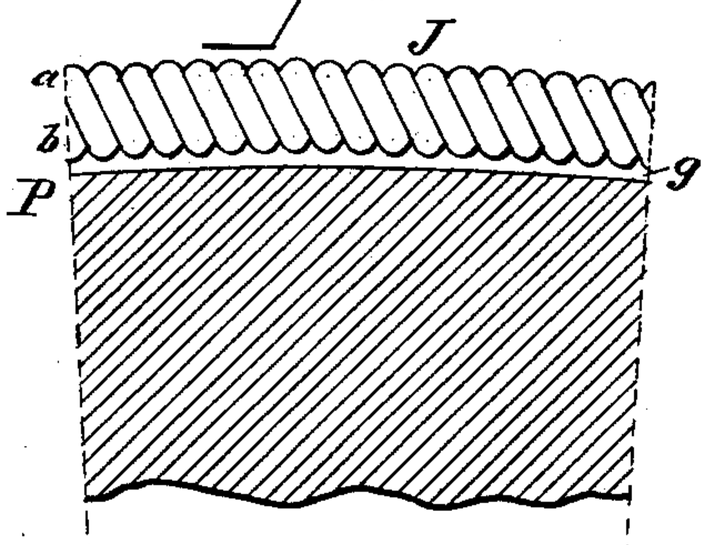
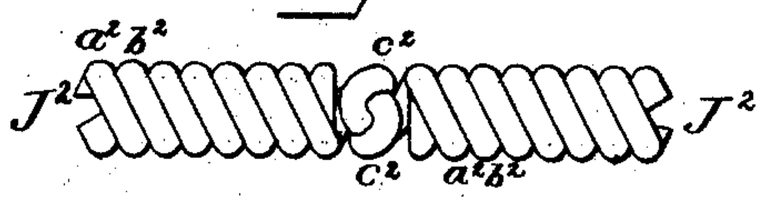


Fig. 5.



Attest:
Courtney A. Cooke.
H. C. Fannemann.

Anthony Jarolimek.
Inventor:
By his attorney.
A. L. Ewin.

UNITED STATES PATENT OFFICE.

ANTHONY JAROLIMEK, OF HAINBURG-ON-THE-DANUBE, AUSTRIA, ASSIGNOR OF ONE-HALF TO JOHN G. AVERY, OF SPENCER, MASS.

MEANS FOR TRANSMITTING POWER.

SPECIFICATION forming part of Letters Patent No. 244,995, dated August 2, 1881.

Application filed June 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY JAROLIMEK, a citizen of Austria, residing at Hainburg-on-the-Danube, in Austria, have invented a new and useful Improvement in Means for Transmitting Power, of which the following is a specification.

The present invention is additional to that described and claimed in my specification forming part of Letters Patent of the United States No. 241,494, dated May 17, 1881, relating to the construction and employment of "steel strings," or round bands of coiled steel wire, or equivalent hard and elastic wire, as a substitute for belts and bands of leather, rubber, &c., for the transmission of rotary motion as a vehicle of power.

In practice I find that where a greatly-varying load must be borne by the bands, and in starting heavy machinery, where the bands are suddenly subjected to a heavy or extraordinary strain, here and there a band will break if formed of single wire, as described in my said previous specification. I find that these accidents invariably occur the instant after the strain is encountered, and are caused by the bounding or jumping of the elastic band when it slips in the pulley-groove after being unduly stretched. A transverse strain is thus caused which is much more trying to the hardened-steel wire than any amount of traction.

My present invention consists in a two-wire band, and in a simple and effective coupling therefor, whereby I not only prevent the accidents above mentioned, but afford at little, if any, additional cost a band of given weight and diameter which will transmit a much greater power than one of corresponding size made of single wire, and with less loss of power and less wear of the parts by slipping, as hereinafter more fully set forth.

Figure 1 of the accompanying drawings is an elevation, and Fig. 2 a longitudinal section, of this band. Fig. 3 represents a transverse section of the same, with a corresponding section of the periphery of a pulley grooved to receive it; and Fig. 4 represents a section of a segment of the pulley in the plane of its groove, showing an elevation of the band therein. Fig. 5 is an elevation of the coupled ends of another band, illustrating a modification.

The present device is a hollow round band, J, formed by coiling two similar wires, *a b*, around a suitable mandrel (which may consist of a piece of the same wire) and then withdrawing the latter, the wire employed, by preference, being steel wire hardened uniformly, either before or in the act of coiling.

The band, as regards its coils, is originally close or dense, and may be used without preliminary stretching. I prefer to open the coils very slightly in the act of testing the band material, as described in my said previous specification; but in either case the double coils of the band in use are substantially dense or close, so that the successive coils of one wire (*a*, for example) shall overlay and support the next preceding coils of the other wire, *b*. This is primarily due, however, to the relative inclination of the individual coils in the band as compared with the close or dense coils of my single-wire bands. Owing to this construction, when the band is stretched over a pulley, P, Figs. 3 and 4, each wire is supported throughout its length by the other wire, and bounding or lateral vibration within the wedge-shaped groove *g* of the pulley and elsewhere is not simply reduced, but prevented in the most effective manner. The overlaying of the successive coils is best illustrated by Fig. 4. Said construction serves also to materially increase the power-transmitting capacity of a band of given size and weight. Said capacity is not simply doubled by the employment of two wires of given size, in place of one, within a band of given diameter, but is further increased, owing to the increased resistance to elongation which the more inclined coils of the respective wires afford. This also operates to lessen slip, wear, and loss of power, as set forth in my said previous specification, while ample flexibility is preserved.

The ends of the band are made to terminate in loops *c c*, integral at each end with both wires, and coupled by a link, *d*, as shown in Figs. 1 and 2. The extremities of the respective wires are filed down to half the thickness of the wire, or thereabout, and are bent so as

to overlap each other closely, as shown. I thus form a very superior coupling which is at once secure, flexible, and not thicker than the remainder of the band, and so as to render the line of tension at all times central and the strain on the respective wires equal. As but a small percentage of the tensile strength of metal in the band as a whole is used in practice, loops so constructed of a single thickness of the wire are amply strong as a coupling for a two-wire band.

In a modification of my invention I make my two-wire band, J^2, Fig. 5, with terminal coupling-hooks c^2 c^2 integral at each end with only one of the wires, the hooks being securely interlocked, as shown, and forming a simple and secure coupling of ample strength, but inferior to the first in flexibility and equality of strain.

I do not wish to limit myself, however, to the use of this class of couplings for my two-wire band, broadly considered, as the latter may be coupled in various ways. Neither do I wish to limit myself to the use of steel wire, as wire of phosphor-bronze or other metal which can be hardened and coiled may be used with like results to a greater or less degree. Neither do I wish to limit myself to any method of manufacture, nor to the use of but two wires, as more than two wires may in some cases be coiled together into a metallic band substantially analogous to mine.

Having thus described my said improvement, I claim as new and desire to secure by Letters Patent—

1. As an improvement in means for transmitting power, the within-described hollow round band, composed of a plurality of wires coiled substantially dense or close, the successive coils of one wire overlaying and supporting those of another, as specified, for the purposes set forth.

2. A hollow round band composed of a plurality of wires in the form of a substantially dense or close double spiral coil, in combination with grooved pulleys for transmitting power.

3. A hollow round band composed of a plurality of wires in the form of a substantially dense or close double spiral coil, and constructed with coupling-loops integral with both wires at each end of the band, in combination with a coupling-link, substantially as herein described.

ANTHONY JAROLIMEK.

Witnesses:

JAMES RILEY WEAVER,

HANS COTTAS.