(No Model.) 2 Sheets—Sheet 1.

A. JAROLIMEK.

METALLIC BAND FOR TRANSMITTING POWER.

No. 294,472. Patented Mar. 4, 1884.

Fig. 1.

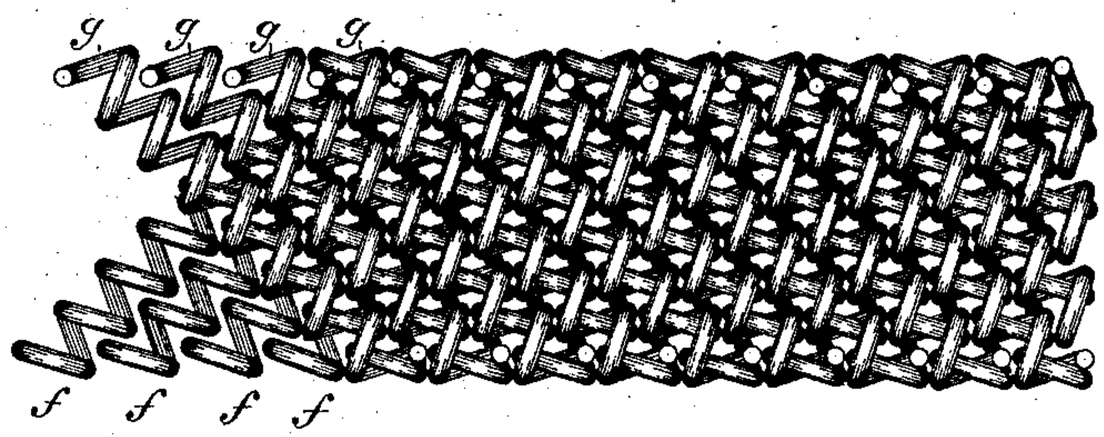


Fig. 2.

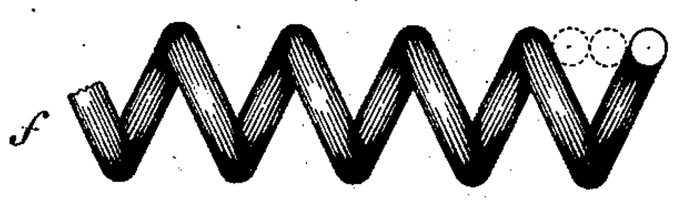


Fig. 3.

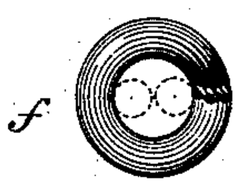


Fig. 4.

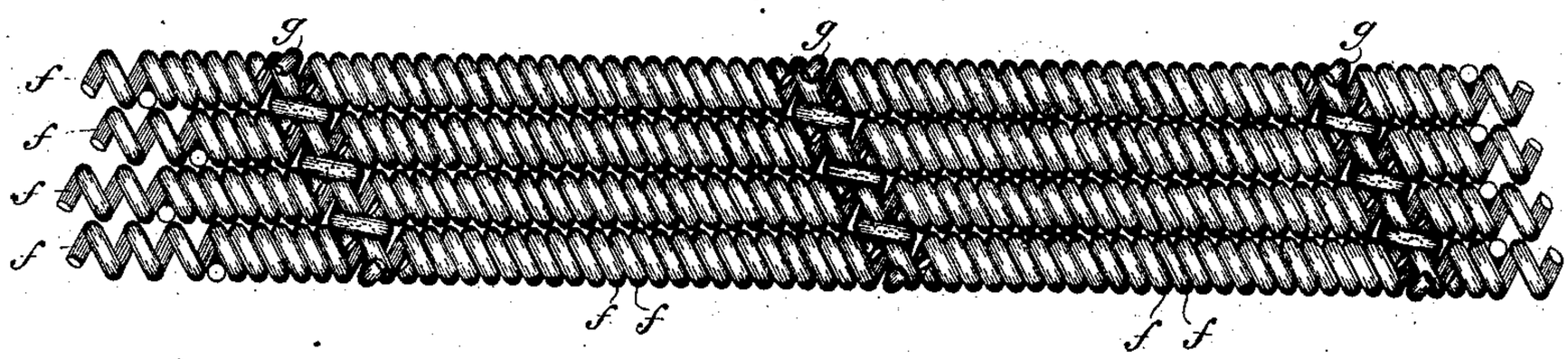


Fig. 6.

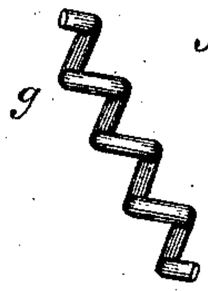


Fig. 5.

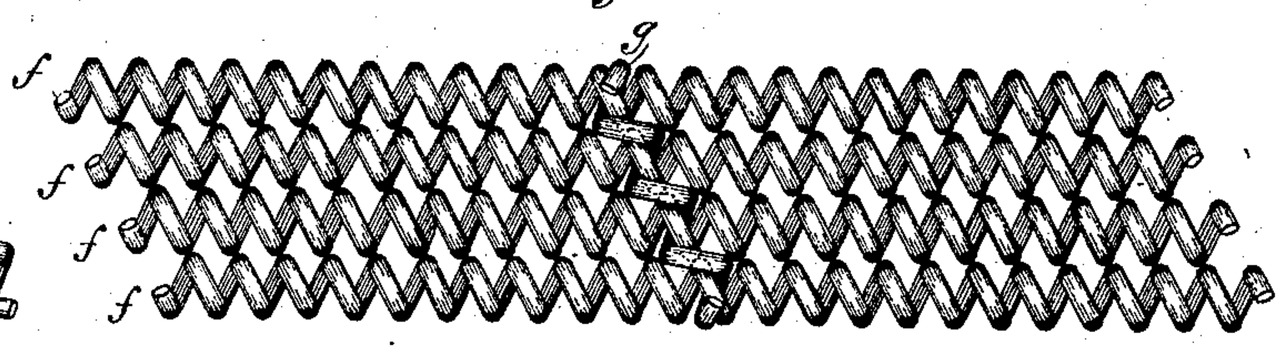
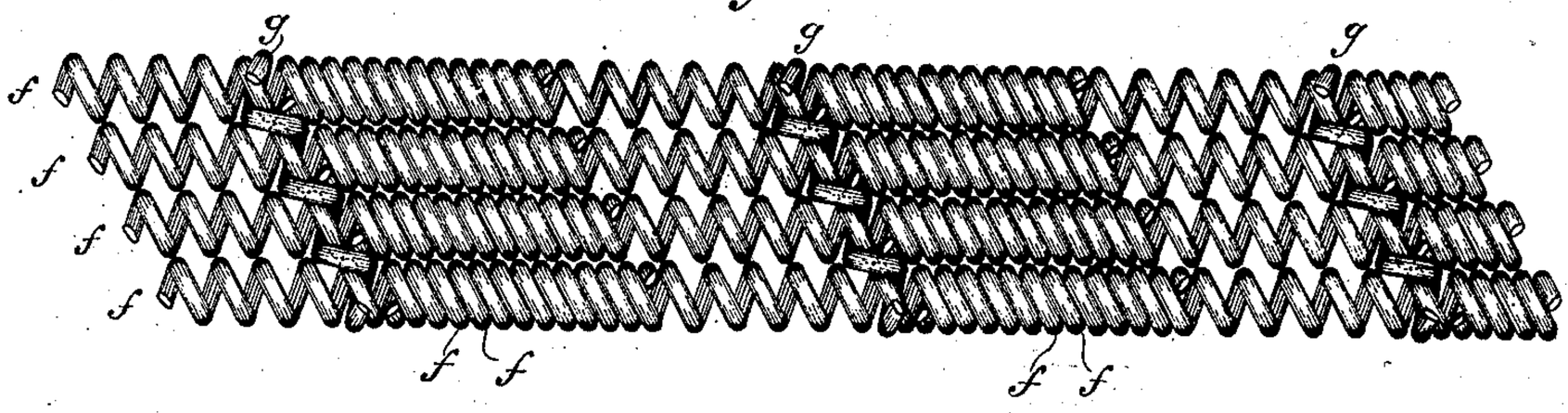


Fig. 7.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

A. JAROLIMEK.

METALLIC BAND FOR TRANSMITTING POWER.

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Fig. 8.

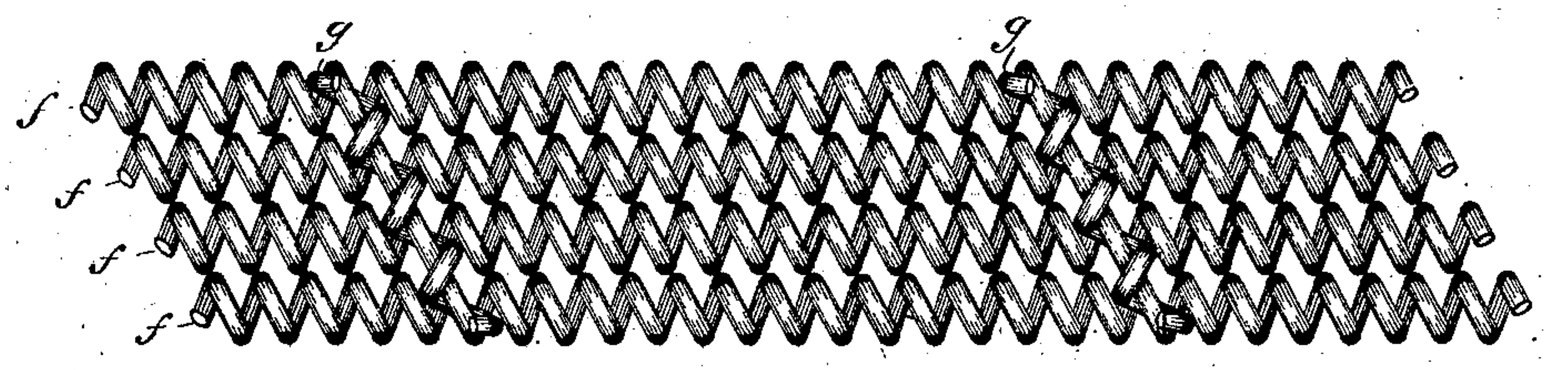
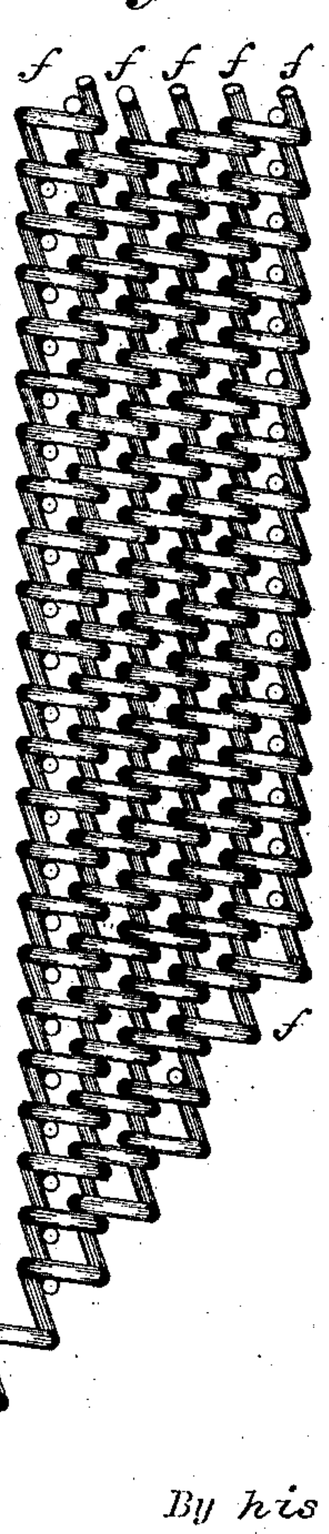


Fig. 9.



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UNITED STATES PATENT OFFICE.

ANTHONY JAROLIMEK, OF HAINBURG-A-DONAU, AUSTRIA-HUNGARY, ASSIGNOR OF ONE-HALF TO JOHN G. AVERY, OF SPENCER, MASS.

METALLIC BAND FOR TRANSMITTING POWER.

SPECIFICATION forming part of Letters Patent No. 294,472, dated March 4, 1884.

Application filed May 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANTHONY JAROLIMEK, a subject of the Emperor of Austria, residing at Hainburg-a-Donau, in Austria-Hungary, have invented a new and useful Improvement in Bands for Transmitting Power, of which the following is a specification.

This invention is additional to my inventions relating to the manufacture of driving-bands for machinery of metallic wire suitably coiled and applied, as described and claimed in Letters Patent of the United States No. 241,494, dated May 17, 1881, and No. 244,995, dated August 2, 1881.

My present invention relates to improvements in driving-bands of wire, designed for use upon ordinary drums and pulleys, as substitutes for and in the same shape as the flat leather belts or bands most commonly used.

A first object of this invention is to provide for readily and strongly uniting side by side the requisite number of "spirals" of a first series to form a given width of band, by means of pieces of like spirally-coiled wire, constituting a second series of spirals, said first-series spirals being disposed either diagonally or longitudinally in the band.

Another object of this invention is to provide for employing openly-coiled, and consequently the most flexible, spirals, and at the same time to locate their coils at the face of the band, substantially at right angles to the edges of the band, so as to give the band great traction in proportion to its flexibility and resistance to elongation.

A third object of this invention is to combine in a flat driving-band of spirally-spun wire the desirable qualities above indicated without complication of parts, and at the same time to form a two-ply fabric, either side of which may be used as the face, and which shows no joint or coupling-place and possesses the united strength of several distinct spirals in two full series at every possible transverse line of severance, this being the preferred construction of my improved wire driving-band.

This invention consists in certain combinations and arrangements of parts whereby the above-named objects are accomplished, as hereinafter described and claimed.

Two sheets of drawings accompany this specification as part thereof. Figure 1 thereon is a face view of a driving-band of the preferred construction above referred to, and Figs. 2 and 3 are detail views of one of the spirals of which it is composed. Fig. 4 is a face view of a fragment of band illustrating a modification, and Figs. 5 and 6 are detail views relating thereto; and Figs. 7 to 9, inclusive, are face views of fragments of bands illustrating other modifications of the same invention.

Like letters of reference indicate corresponding parts in all the figures.

In the said preferred construction illustrated by Figs. 1, 2, and 3, the band is composed of a great number of uniform short spirals, *f f f f g g g g*, of suitable wire, (preferably hardened steel wire,) which are spun with a pitch corresponding to at least three times the thickness of the wire, and with an external diameter of about four times the thickness of the wire, as seen in Figs. 2 and 3, which are, respectively, an elevation and an end view of one of the same. These are united in two sets, lettered, respectively, *f* and *g*, the latter crossing the former and interlocked therewith at each coil, as clearly seen in Fig. 1, so that all the parts of the band are thoroughly interlocked, and a flexible flat band of uniform texture and great strength is so produced. Moreover, owing to the diagonal or oblique positions of the respective spirals in the band, their coils at the face of the band are so located as to be transverse with reference to the length of the band and the direction of tractional strain, and the tractional capacity of the band is thus rendered great, notwithstanding the openness of its coils. If the spirals are properly spun, they cannot unscrew themselves out of the band; but complete safety against the escape of spirals or the protrusion of their ends may be readily secured by a slight rolling or compression of the edges of the band or the entire width thereof. The spirals are so cut and screwed in that both ends of each are caused to lie in a covered position, so that the edges of the band are smooth. The length of the spiral determines the width of the band. They may be made for different widths of band with any desired number of coils. In uniting the

ends of a band, the terminal spirals *g* at the respective ends may be partly unscrewed and rescrewed in the spirals *f* of the opposite ends, so as to securely unite the ends without extraneous couplings.

In the modification illustrated by Figs. 4, 5, and 6, the spirals *f f f f* of the first series are made relatively long, and spun with a pitch equal to two diameters of the wire, and are disposed longitudinally in the band, as seen in Fig. 4. They are united against lateral separation by short transverse spirals *g*, (one or more,) at mid-length of each set of the former. This at the beginning of the operation of making a band is illustrated by Fig. 5, which is a face view of a set of longitudinal spirals, *f f f f*, united at mid-length by a transverse spiral, *g*, screwed through from edge to edge. Fig. 6 shows a spiral, *g*, detached. After a set of longitudinal spirals are united, as seen in Fig. 5, a like set are screwed longitudinally into them and united by another transverse spiral, and so the operation proceeds until the required length of band is produced. This band possesses the advantages of great solidity and increased tractional friction upon the band-pulleys.

In the modification illustrated by Fig. 7 the band is composed of long longitudinal spirals *f f f f* and short transverse spirals *g g*, spun and united as in the modification last described, save that the sets of longitudinal spirals are united at one third of their length, and the next set are screwed into them only one-third of their length, leaving one-third of the length of each longitudinal spiral open. This is a disadvantage as to solidity and tractional friction; but owing thereto any longitudinal spiral which may fail may be taken out of the band and replaced by a new one with great facility, and the ends of the band may be united by the same process as the respective sets of longitudinal spirals, which is an advantage over said modification illustrated by Figs. 4, 5, and 6.

In the modification illustrated by Fig. 8 a single set of spirals, *f f f f*, of sufficient length for a band are simply spun according to the directions above given, with a pitch equal to two diameters of the wire, and united by transverse spirals *g g g* at a sufficient number of points, the latter being screwed through the former, as in the other modifications above described.

In the modification illustrated by Fig. 9 short spirals *f f f f* are used in a single set or series, each spiral being simply screwed longitudinally into one side of the adjoining spiral, so as to form a band very similar in texture and surface to that illustrated by Figs. 1, 2, and 3 with the spirals disposed diagonally, as clearly seen in Fig. 9, and their coils at the face of the band transverse to the direction of tractional strain. For this band the spirals should be spun with pitch and outer diameter both somewhat more than three times the diameter of the wire. The ends of the band may be coupled, as in the first construction, without extraneous means, and the spirals may be secured against escape by rolling or compressing the band, as before described.

The fabrics hereinbefore described as driving-bands may be used for other analogous purposes, and may be made of any required widths and lengths, and of wire of various gages for different uses. For example, I have covered the peripheries of a pair of driving-pulleys with well-stretched endless bands of the structure shown in Fig. 1 with excellent effect, causing the superposed driving-band to work without the least slip.

I am aware that flat driving-bands of wire are not broadly new, and that in making them it has been proposed to interlock short spirals side by side, the latter being in all cases, however, transverse with reference to the length of the band and the direction of strain with their respective coils only slightly oblique with reference to the edges of the band.

I claim as new and desire to patent under this specification—

1. In a flat driving-band of spirally-spun wire, the combination of a series of spirals, *f f*, having open coils, and a series of spirals, *g g*, crossing the former on diagonal rows of coils, and interlocking therewith to unite said spirals *f f* with each other, side by side, substantially as hereinbefore specified.

2. In a flat driving-band of spirally-spun wire, a series of open-coil spirals to form the tractional face of the band, arranged diagonally, as shown and described, to render their coils at the face of the band transverse with reference to the length of the band and the direction of tractional strain, substantially as hereinbefore specified.

3. The improved flat driving-band of spirally-spun wire, composed of a series, *f f*, of diagonally-arranged open-coil spirals united by a similar series, *g g*, of diagonally-arranged open-coil spirals crossing the former on diagonal rows of coils, and interlocking therewith at each coil, as hereinbefore specified, for the purposes set forth.

ANTHONY JAROLIMEK.

Witnesses:
WILLIAM HÜNING,
JAMES RILEY WEAVER.