2 Sheets—Sheet 1

C. KÖHSEL.

Machine-Belting.

No. 196,911. **Patented Nov. 6, 1877.**

Fig. 1

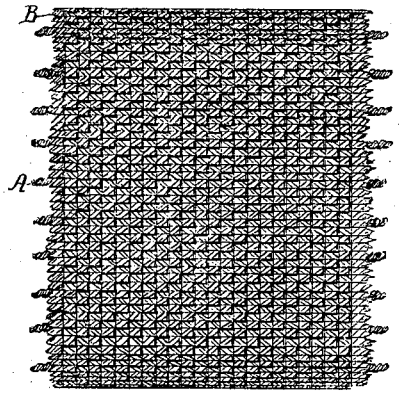


Fig. 2

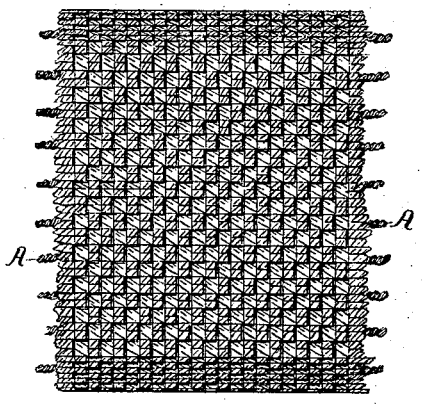


Fig. 3

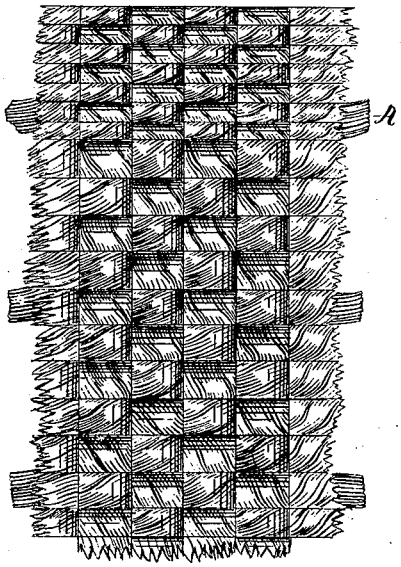
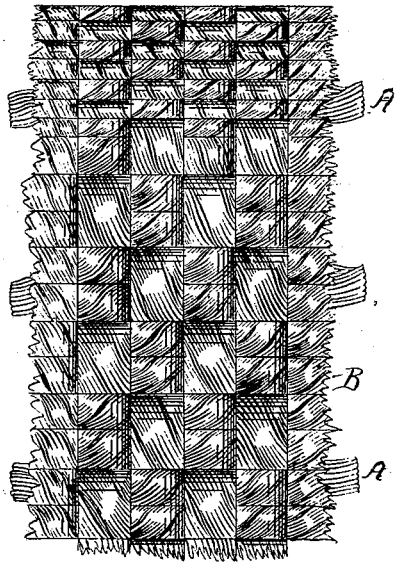
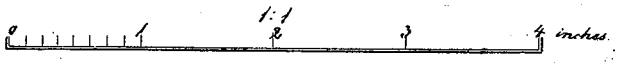
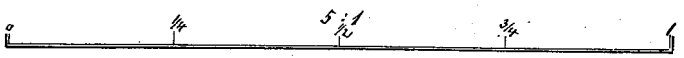


Fig. 4







Witnesses:
A. Scott
H. Guillaume

Inventor—
Conrad Köhsel
per A. Schuckert
Atty

2 Sheets—Sheet 2

C. KÖHSEL.

Machine-Belting.

No. 196,911. Patented Nov. 6, 1877.

Fig. 5

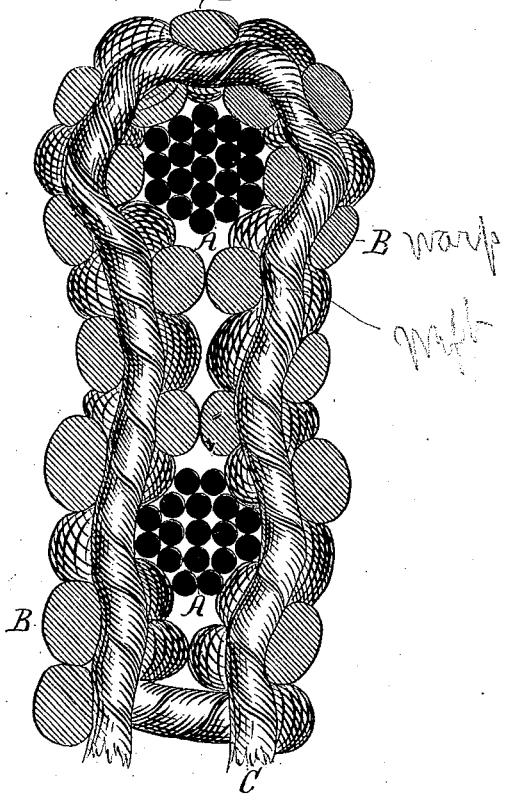
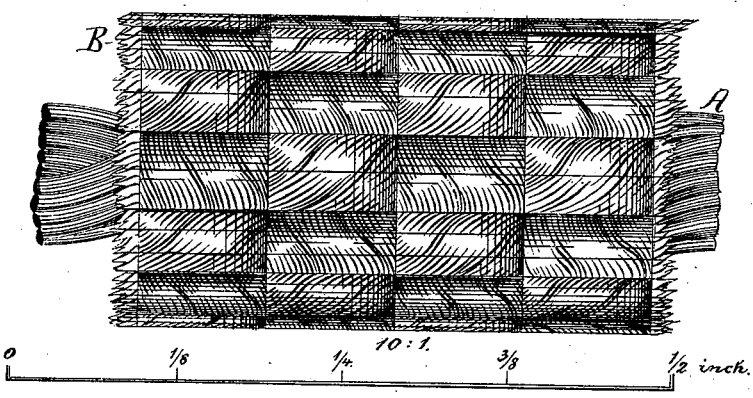


Fig. 6



Witnesses:
A Scott
H Guillaume

Inventor
Conrad Köhsel
per A Schüssling
Atty

UNITED STATES PATENT OFFICE.

CONRAD KÖHSEL, OF HANOVER, PRUSSIA.

IMPROVEMENT IN MACHINE-BELTING.

Specification forming part of Letters Patent No. **196,911**, dated November 6, 1877; application filed October 9, 1877.

To all whom it may concern:

Be it known that I, CONRAD KÖHSEL, of the city of Hanover, Kingdom of Prussia, Germany, have invented certain new and Improved Machine Beltings and Straps, composed of metal and textile materials, of which the following is a specification:

Machine-belting as heretofore manufactured, of leather, india-rubber, woven hemp, and hair-cloth, has been found objectionable, because it has been found that belting made of the materials specified lacks the necessary strength to resist the tension to which it is subjected when in use. The constant loosening and tightening of the ordinary belting will cause the stretching of the same, so that it will easily slip on the driving-pulleys, and ultimately tear apart. The hair driving-belts recently introduced are more strong and firm than the leather or hempen belts, but do not answer all expectations, as the edges of such belts are easily worn off in shipping the same from loose to fast pulleys.

My invention is designed to remove the above objections by producing a driving-belt, or other similar strap, which is strong, pliable, and not liable to tear when subjected to a high degree of tension.

The invention consists in a machine or driving belt made of a woven textile material, having cords formed of twisted round wires or flat strips of metal embedded therein, said wire cords being arranged parallel with the warp, at proper distances apart throughout the width of the same, and retained by means of said warp and the weft of the belt, as will be hereinafter more fully described.

In the accompanying drawings, forming part of this specification, Figures 1 and 2 are bottom and top views of belting made according to my invention. Figs. 3 and 4 are similar views on an enlarged scale. Fig. 5 is an enlarged transverse section; and Fig. 6, a side view of a belt, shown also on an enlarged scale.

In carrying out my invention, I take thin wire rope A, made of twisted and double wires, of iron, brass, or other suitable metal, and arrange the same between the warp threads or cords B of the belting, so that they will be woven into the same, or intimately connected therewith by the weft thread or cord C. Instead of using twisted wires, which are generally annealed, I may employ thin strips of metal, care being taken that the layer of metal be disposed in a longitudinal direction, so that it will be retained by the warp and weft of the belt.

The layer of metal introduced into the belt will impart to the same the necessary strength to withstand the severe tension or strains to which it is subjected when in use, and, withal, it will not destroy the pliability of the belt, which is a very necessary desideratum.

A woven belt is far more desirable and cheaper than one made of leather or other material generally used, and, when strengthened in the manner described, is the most effective belt that can be used. The belts may be woven either with a plain or ribbed surface, and may be impregnated with a varnish, or be coated with gutta-percha or india-rubber.

Belting made according to my invention can be manufactured in a uniform manner, so that it will fit the driving-pulleys smoothly and perfectly, for the purpose of transmitting motion at all times, as it will not glide or slip off said pulleys.

The idea of incorporating wires or strips of metal in a machine or driving belt has been suggested, but never carried into practice to any great extent, because it has been found that, by using a warp made entirely of wires or strips of metal and a weft of a textile material, a belt formed in this manner is too rigid and heavy, and does not possess the necessary degree of pliability so essential in a driving-belt. The warp-wires also require a textile covering, which adds to the cost of the belt. A belt made of two layers of leather, gutta-percha, or other material, and an intermediate wire-filling has also been proposed. A belt made in this manner is expensive, and is manufactured with difficulty, owing to the care which has to be observed in cementing or riveting the parts together. It may possess the proper degree of strength to prevent any undue stretching of the same, but it is not pliable enough to commend itself for general use.

In my invention I use wire cords made of twisted strands of wire, which, it is well known,

combine great strength with pliability. These cords are embedded in the textile warp and weft threads of the belt, at proper distances apart from each other throughout the entire width of the belt. The wires are not exposed, and therefore do not require a textile or other covering, as is the case in a belt having the warp formed of wires. By distributing the wire cords at proper distances apart from each other throughout the width of the belt, the flexible and pliable character of the latter is not impaired or affected, and I thus combine in my case cheapness of manufacture, great pliability of the belt, and a strength sufficient to resist all tensile strain.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The machine or driving belt herein described, consisting of a warp and weft of a textile material, and cords formed of twisted wires or strips of metal, arranged at intervals apart parallel with the warp, and completely covered by the latter and the weft, as and for the purpose set forth.

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

CONRAD KÖHSEL.

Witnesses:

CHRISTIAN PRACTORIUS,
GERARD V. NAWROCKI.