(No Model.) 2 Sheets—Sheet 1.

M. GANDY.

BELT OR BAND FOR DRIVING MACHINERY.

No. 357,077. Patented Feb. 1, 1887.

Fig. 1.

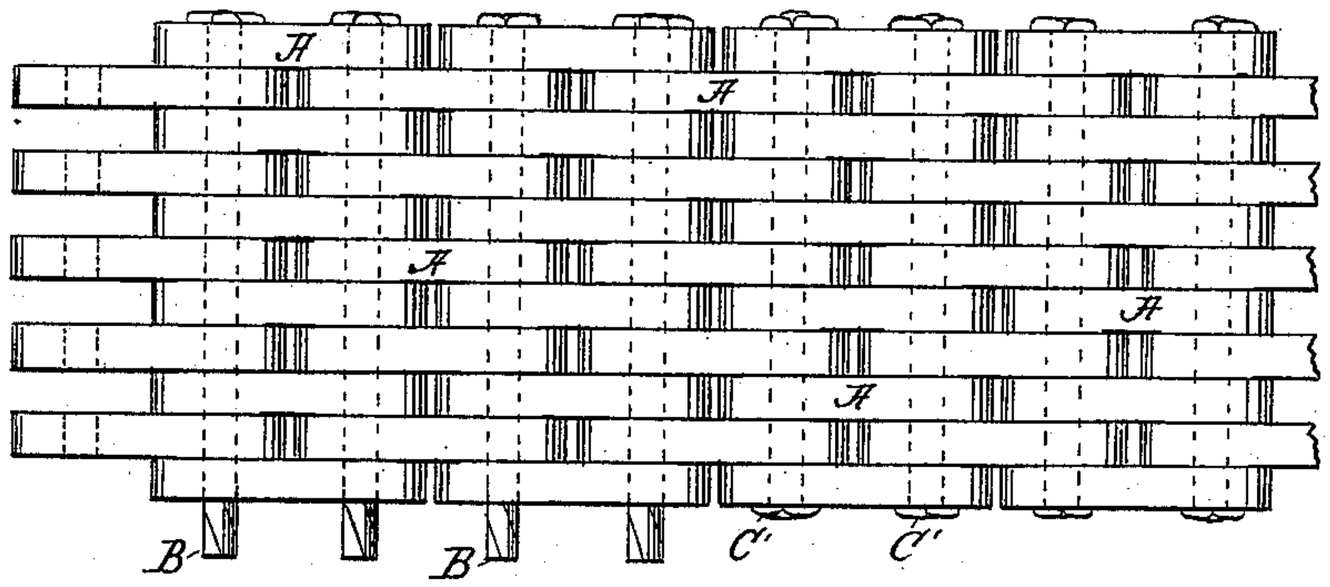


Fig. 2

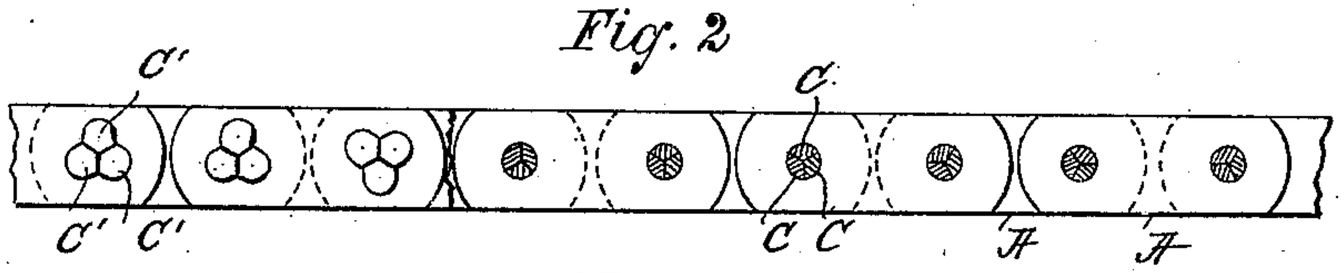


Fig. 3.

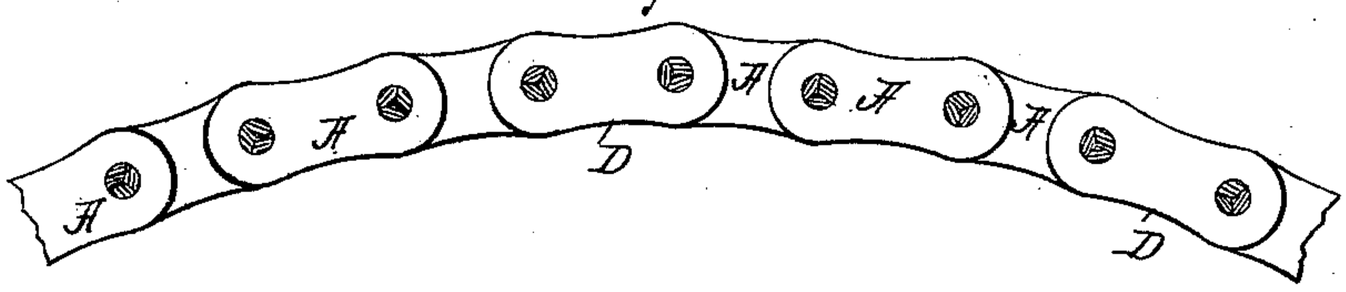


Fig. 4

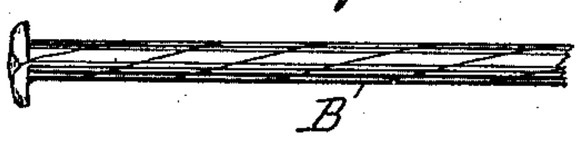
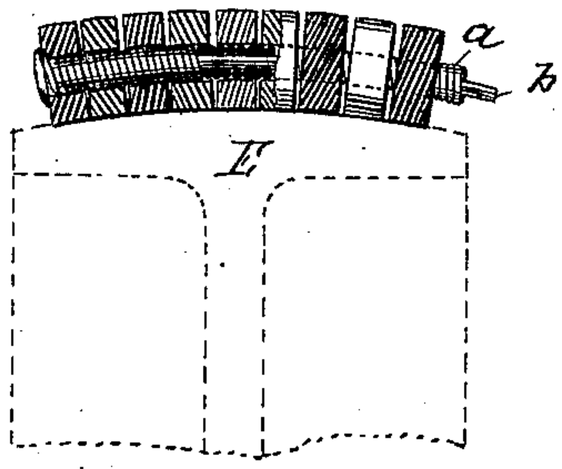


Fig. 5.



Witnesses:
Chas. B. Burr
Robert Bartlett

Inventor:
Maurice Gandy
by Munday & Burr Attys.

(No Model.) 2 Sheets—Sheet 2.

M. GANDY.

BELT OR BAND FOR DRIVING MACHINERY.

No. 357,077. Patented Feb. 1, 1887.

Fig. 6.

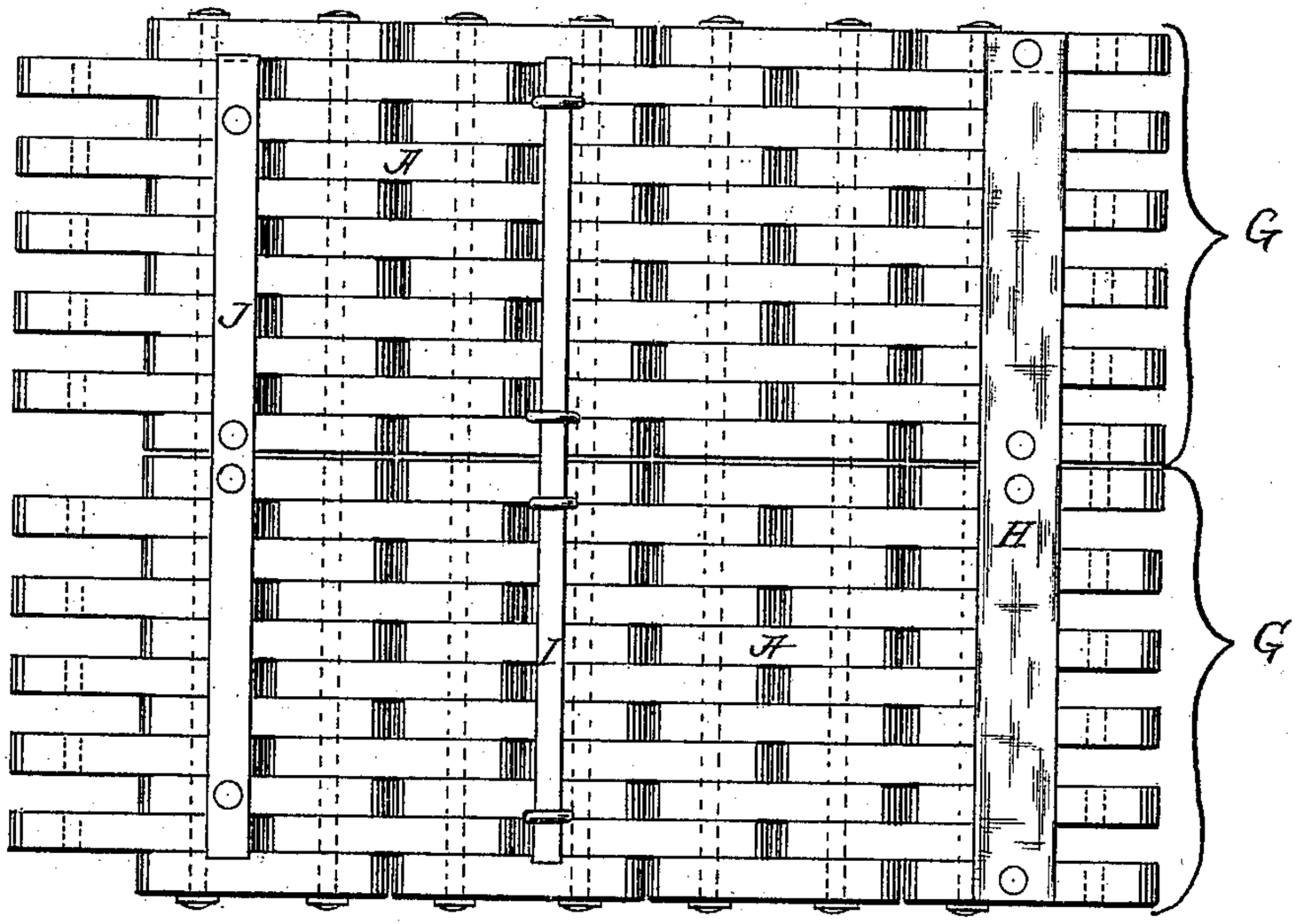
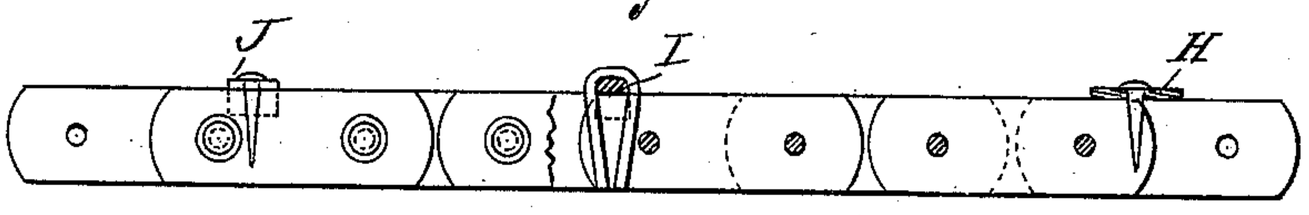


Fig. 7.



Witnesses:
Chas. C. Bull
Robert Bartlett,

Inventor.
Maurice Gandy
by Brosnan & Bull
Attys.

UNITED STATES PATENT OFFICE.

MAURICE GANDY, OF NEW BRIGHTON, COUNTY OF CHESTER, ASSIGNOR TO THE GANDY BELT MANUFACTURING COMPANY, (LIMITED,) OF LIVERPOOL, ENGLAND.

BELT OR BAND FOR DRIVING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 357,077, dated February 1, 1887

Application filed October 27, 1886. Serial No. 217,342. (No model.)

To all whom it may concern:

Be it known that I, MAURICE GANDY, a subject of the Queen of Great Britain, at present residing at New Brighton, in the county of Chester, England, have invented certain new and useful Improvements in Belts or Bands for Driving Machinery, of which the following is a description in such full, clear, concise, and exact terms as to enable any one skilled in the arts to which it appertains or with which it is most nearly connected to make and use the same, reference being had to the accompanying drawings, making part of this specification, and to the figures and letters of reference marked thereon, similar letters of reference representing corresponding parts in all the figures of said drawings.

My invention relates to that variety of belts known as "link-belts," and has for its object the production of a better link-belt than there is now in existence.

Reference being had to the drawings, Figure 1 is a top view of a section of link-belting made upon the plan of my invention. Fig. 2 is an edge view of the same made partly in sections. Fig. 3 is also an edge view of the same made partly in section and showing a modified form of the links composing the main body of the belt. Fig. 4 is a plan of rivet used by me in uniting the several links forming the belt. Fig. 5 is a cross-section of the belt, showing its application to the crown of a pulley and showing, also, a modified form of rivet. Fig. 6 is a plan of two longitudinal sections of belting tied together side by side, and showing how a wide belt may be made of two or more narrow ones; and Fig. 7 is a longitudinal vertical section through said united belts, showing a method of uniting them, for the purpose above suggested.

Link-belts have heretofore been made of leather; but such belts are objectionable, because they are expensive and because they are elastic. After they are made and put in service they stretch continually and have to be taken off the pulleys and "taken up"—that is to say, a section has to be cut out of them—to insure their tensile strain and grip upon the pulley; and another objection to such belts as heretofore made is found in the fact that the rivets used in uniting the links are composed of solid sections of wire rods, which prevent the belt from hugging the curved crown of the pulleys.

My invention, broadly considered, consists of a non-elastic link-belt, preferably composed of paper, having its links united by flexible rivets, and also of making one wide belt by uniting together two or more narrow ones by means of separate fastenings applied to the top side of the belt.

In the practice of my invention, I begin by first making a paper-board composed of several thicknesses of paper duly pasted or glued and pressed together, said paper-board being made of the desired thickness—say from one-eighth of an inch to one-fourth of an inch thick, or thicker, in case it be desirable, after the ordinary manner of working such paper-board. Any other suitable method of making said board or papier-maché may be employed, if preferred.

In the preparation of the paper-board of which the belt is to be made, a water-proof cement or paste may advantageously be used to render the belt proof against wet or dampness; or the board, after being made, either before or after the links are cut, may be wet on its exterior surface with a solution composed of about one pound of soap to one gallon of water, and then passed through a solution composed of about two pounds of alumina sulphate to one gallon of water, or some other suitable reagent by which the links of the belt are made proof against dampness.

The board being made of the desired thickness and density, I proceed by cutting it up into links of the desired length and breadth, as shown in the drawings by A A, the edges of these links being cut straight, as shown by Fig. 2, or curved to suit the circumference of the pulley, as shown by D, Fig. 3. In cutting out these links holes should also be punched or cut in their respective ends to secure the uniting-rivets B B B, by which the several links are united to form the belt. These holes may of course be punched after the links are cut; but it is more expeditious to cut the holes

as part of the operation of cutting out the links. The links being cut and punched as above described, they are strung together side by side upon the rivet until a belt is formed of the desired length and width. The rivets may of course be made of a solid section of wire, that being the old way of making them in the formation of leather link-belts, and it is possible to use them in the manufacture of my paper link-belt; but the result is not so satisfactory as when the links are united with a flexible rivet. Such a rivet is shown by Fig. 4. It consists of three wires drawn together somewhat in the form of a helix, having a cylindrical exterior and a triangular interior, as shown by C, Fig. 2, the ends being parted and clinched over on the links, as shown by C′ in the same figure. The flexible rivet may also be made by simply twisting three or four wires together in the form of a rope, or by wrapping a wire around a small mandrel in the form of a spiral spring, as illustrated by A B, Fig. 5; but I prefer to make them as I have described in the first instance, either with or without the helical form.

A belt of the desired width having been formed as above described, its width may be increased to any desired extent by uniting to either edge thereof similar belts of the desired width. This is done by tying the several widths together by means of strips or links of metal applied to their top sides, as illustrated by I J, or by canvas similarly applied, as shown at H, Fig. 6, the links or strips being duly secured to the links of the several widths of belting, either by riveting, as shown in Fig. 7, or by any other effectual means now known to those skilled in the arts to which the invention appertains. The two belts combined and tied together are shown by G G, Fig. 6, in brackets.

I am aware that link-belts have heretofore been joined together side by side by links placed between and separating the edges of the belts thus joined. I am not aware, however, that such belts have been joined by means substantially herein described, so that the belts may be brought close together to utilize the entire friction-surface of the pulley covered by the combined belt, or so that the strain on the connecting-links may be equally distributed throughout the entire width of the belts so joined.

In the foregoing description I have referred to paper only as the material of which the links are to be made; but any other known non-elastic substance made of fibrous material and having the quality of paper for this purpose may be used as a substitute for the paper in making the links, and is intended to be included within the scope of the invention.

The features of novelty which it is sought to secure by Letters Patent are designated in the following claims:

1. The combination of two or more link-belts, each composed of a series of links united by rivets, said rivets consisting of a plurality of wires arranged substantially as described, said belts being joined together by means of strips, rods, or links applied to their top sides, substantially as set forth.

2. A link-belt composed of a series of links united by rivets consisting of a plurality of wires combined, substantially as described.

3. A link-belt consisting of the combination of two or more link-belts joined together by means of strips, rods, or links applied to their top sides, substantially as described.

4. A rivet for link-belts, consisting of a plurality of wires combined, substantially as and for the purpose set forth.

MAURICE GANDY.

Witnesses:
GEO. PUGH VEST,
W. J. SULIS,
U. S. Consulate.