F. BANGERTER.

CARTRIDGE CONVEYER BELT.

APPLICATION FILED JULY 3, 1919.

1,331,043.

Patented Feb. 17, 1920.

Fig. 1.

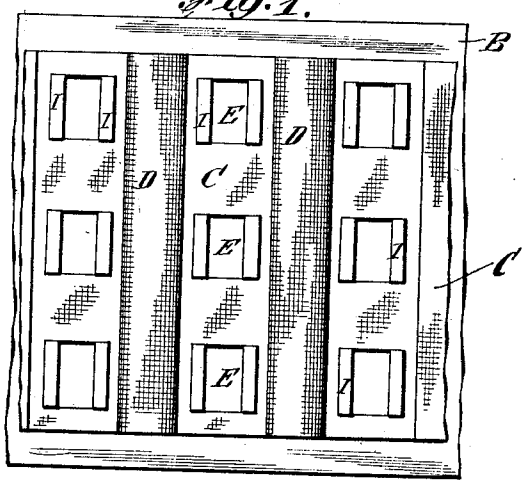



Fig. 3.

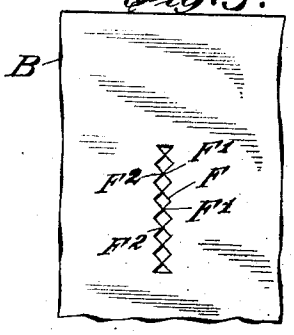



Fig. 4.




Fig. 2.

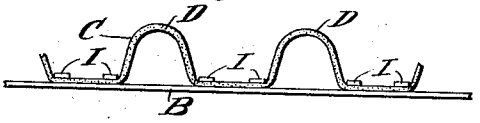



Fig. 5.

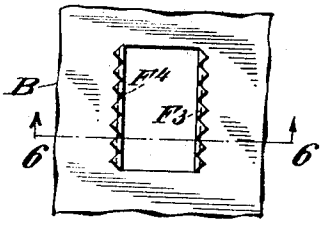



Fig. 7.

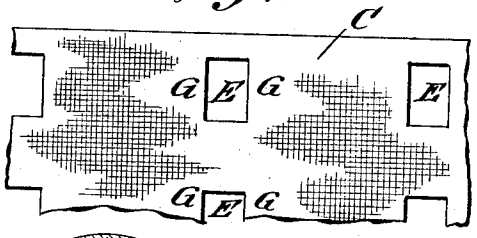



Fig. 6.

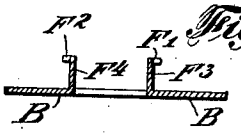
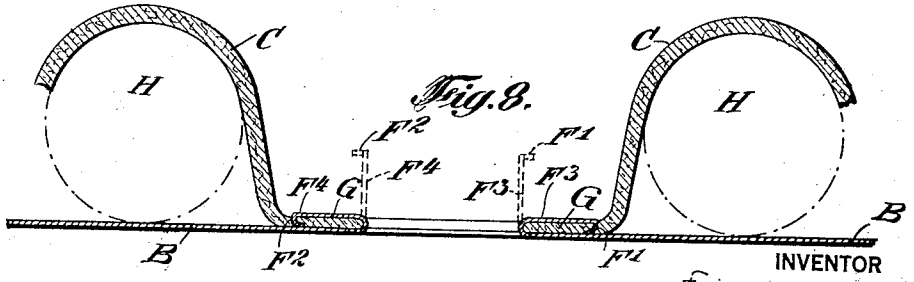



Fig. 8.




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# UNITED STATES PATENT OFFICE.

FRIEDRICH BANGERTER, OF NEW YORK, N. Y.

## CARTRIDGE CONVEYER-BELT.

1,331,043. Specification of Letters Patent. Patented Feb. 17, 1920.

Refiling of abandoned application Serial No. 233,646, filed May 10, 1918. This application filed July 3, 1919. Serial No. 308,638.

*To all whom it may concern:*

Be it known that I, FRIEDRICH BANGERTER, a citizen of the United States, residing at No. 13 East 124th street, in the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Cartridge Conveyer-Belts, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to cartridge conveyer belts similar, in general respects, to those now ordinarily used with machine guns, wherein mechanism is employed for automatically feeding to the magazine of the weapon, belts or strips containing the loaded ammunition shells or cartridges, being a continuance of application Serial No. 233,646.

Various forms of mechanism may be used for feeding such belts. The form thereof has no part in the present invention and the same will not be illustrated or particularly described. It will suffice to state that any form of mechanism which will engage and propel the strip may be employed for that purpose.

The object of this invention is to provide a cartridge conveyer belt embodying as a base a band of hard material which, while sufficiently flexible to answer all purposes, is not readily subject to deterioration in use.

A further object of my invention is to provide such a belt having a base band or body of relatively thin material reinforced or strengthened at certain points, whereby it is rendered certain to retain its shape in operation.

A further object of the invention is to provide such a belt, so constructed that it may be positively and accurately propelled by suitable feeding mechanism.

While, in general, the conveyer belt is sufficiently flexible at all required points to be capable of being wound upon and unwound from reels employed for carrying the ammunition, and adapted to conform to all machine gun requirements, the construction is such that it affords better working contact with the feeding mechanism by which it is propelled than in the case of belts as heretofore constructed, providing means whereby the belt may be uniformly and positively driven without becoming distorted or misshapen owing to strains imparted by the feeding mechanism, which has heretofore been a fruitful source of derangement of the working parts of machine guns and interruption of the firing operation.

In the production of my improved belt, I employ a hard, thin, flexible band or strip, preferably of steel, and combine therewith a fabric, preferably elastic in its nature, such, for example, as rubber webbing, the latter being adapted to form, in conjunction with the hard base band, receptacles for receiving the cartridge shells.

The means whereby the fabric is secured to the metallic base band is such that it not only affords an irrefrangible grip upon the fabric, but at the same time increases the strength of the metallic band at the particular points where more than ordinary strength is required, serving to prevent the belt from becoming distorted by contact with the propelling mechanism, which frequently has resulted in inaccurate feeding or complete stoppage thereof.

When the receptacles for holding the loaded cartridges are emptied of their contents, the fibrous material entering into the construction of those receptacles may be compressed to a very thin space when wound upon a reel, and yet, when unwound, will tend to assume their original shape owing to the elastic and flexible nature of the materials employed.

The above stated objects of my invention will be readily apparent from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a complete belt;

Fig. 2 is a side elevation;

Figs. 3, 4, 5 and 6 are broken-away views, somewhat enlarged, showing successive steps of fitting the metallic band to receive the fabric which is applied thereto;

Fig. 3 being a plan view of the metallic band after the first step of cutting and removing a portion of the metal to form a slot having a plurality of opposing serrated edges;

Fig. 4 is a horizontal section showing the opposing rows of teeth up-turned;

Fig. 5 is a plan view showing a portion of the metal adjacent the serrated edges upturned and the teeth thereof projecting at right angles thereto;

Fig. 6 is a horizontal section on line 6—6

of Fig. 5, showing the metallic band in condition and positioned to receive the fabric to be applied thereto;

Fig. 7 is a plan view of the fabric to be applied to the metallic band; and

Fig. 8 is a horizontal section, showing how the fabric is applied to the metallic band and the latter secured thereto.

Referring to the construction illustrated, B represents a strip or band of very hard, yet thin and flexible material, such, for example, as cold rolled steel, which may be of any desired length.

Secured to the band B, by means hereinafter described, is a strip of fabric C, which, at regularly spaced intervals, is looped to form cartridge receptacles D. Between said receptacles D, and also at regularly spaced intervals, are one or more rows of apertures E extending through the fabric C and through the band or strip B.

In Figs. 3, 4, 5 and 6, I show the manner in which the fabric strip C is secured to the carrying metallic band B. Referring to Fig. 3, I first cut in the strip B a slot indicated at F (there may be one or more rows, as indicated in Fig. 1), said slot being formed by so removing the metal therefrom as to leave rows of opposing teeth, as indicated at F′, F². These teeth are then upturned, as indicated in Fig. 4. The slot F is then widened by up-turning the portion of the strip B adjacent the teeth, F′, F², as indicated at F³, F⁴ in Figs. 5 and 6. In this position the metallic base band B is in readiness to receive the fabric strip C, which will already have had cut therein one or more rows of apertures E, conforming to the number of rows of apertures in the metallic base band B, which fabric strip is applied, as indicated in Fig. 8, the portion G thereof adjacent the apertures E fitting close to, and in position to have pressed down thereon, the members F³, F⁴, carrying the teeth F′, F², which latter will project through the fabric C and will be upset on the under side thereof, securely holding the fabric and metallic band in immovable position relative to each other. It will be understood that the receptacles D will be suitably shaped, as to form and size, by means of a forming mandrel H, or otherwise, to adapt them, as required, to the size or caliber of the cartridges to be placed therein and automatically removed therefrom.

The preferred form of my invention would involve employing as the fabric strip C, rubber webbing, which, by reason of its elasticity will facilitate the loading and unloading of the cartridges into and from the belt, and avoid to a considerable degree shrinkage of the material, yet, if it is desired to employ wholly fibrous material, such as canvas or the like, the metallic base band B is so flexible that it will readily accommodate itself thereto when the cartridges are placed in and removed from the belt.

It will be seen that I have provided a cartridge conveyer belt which answers all of the above stated objects. The belt is light and durable, and at the points I, indicated in Fig. 1, there is provided a double thickness of the material of the metallic base band, the edges thereof at the apertures E being rounded and of a strength to withstand almost any degree of hard usage by machine gun feed mechanism or otherwise. It will be evident that the belt may be fed positively and accurately, since there is no tendency for the material to give way or become distorted when pressure is applied thereto. When the cartridge receptacles D are formed of elastic webbing, as herein referred to, it will be evident that the cartridges will be securely held therein in any position in which the belt may be held, either in operation or otherwise.

The apertures E may be of any required size and spaced at any required distance for actuation by an automatically acting finger, sprocket wheel or other form of feeding or driving mechanism having means adapted to push or pull the belt at the requisite speed.

In the broad aspects of the invention, I wish it to be understood that I do not limit myself to apertures in the metallic band and fabric, and other variations and modifications of the construction illustrated, may be made without departing from the spirit of the invention as defined by the appended claims.

What I claim is:

1. In a cartridge conveyer belt, the combination of a metallic band having a plurality of longitudinally alined openings, and a fibrous strip having openings registering with the openings in the metallic band and having cartridge receptacles between said openings, and means securing said band and strip together.

2. In a cartridge conveyer belt, the combination of a metallic band having a plurality of longitudinally alined openings, a fibrous strip also having openings coinciding with the openings in said band and having cartridge receptacles between said openings, said band and strip being secured together by clamping upon itself and upon said fibrous strip the metal of said band adjacent said openings.

3. The combination of a metallic band having longitudinally alined openings, a fibrous strip having similarly spaced and alined openings and looped between said openings to form cartridge pockets, said metallic strip being doubled upon itself and clamped upon the fibrous strip adjacent said openings.

4. In a cartridge conveyer belt, the com-

bination of a metallic band having longitudinally alined openings and a fibrous strip having openings similarly spaced and alined and looped between said openings to form cartridge pockets, said metallic band being doubled upon itself and upon the fibrous strip adjacent said openings to reinforce said band and hold said fibrous strip thereto.

5. In a cartridge conveyer belt, the combination of a metallic band having a plurality of longitudinally alined apertures, a fibrous strip having openings coinciding with the openings in the metallic band and looped between said openings to form cartridge pockets, said metallic band having a portion folded upon itself and having serrated edges penetrating said fabric and upset thereunder.

FRIEDRICH BANGERTER.