A. MILLS.
Cartridge Belt.

No. 236,059. Patented Dec. 28, 1880.

Fig. 1.

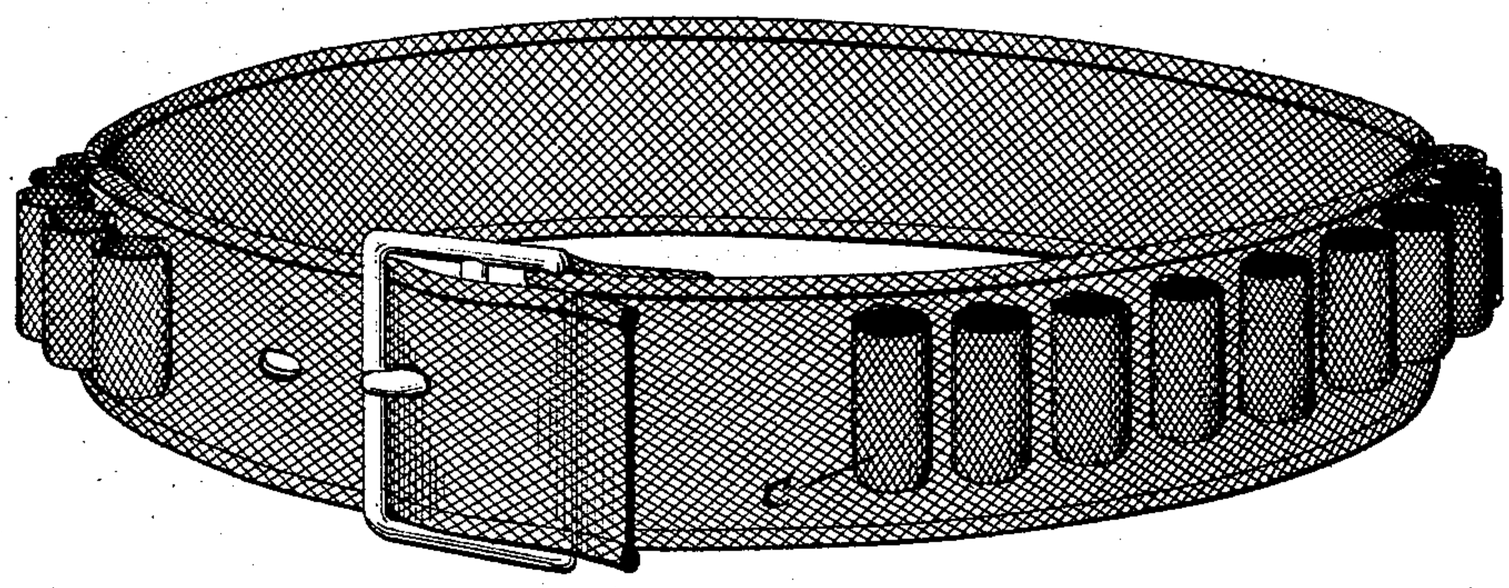


Fig. 2.

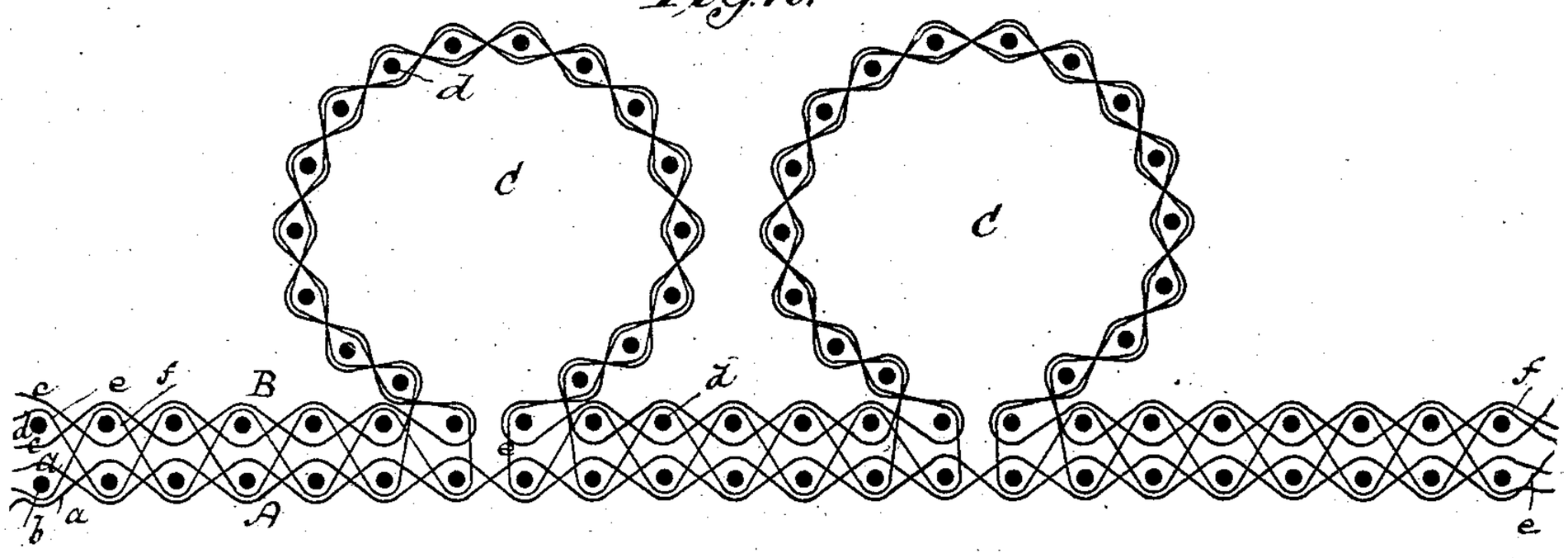
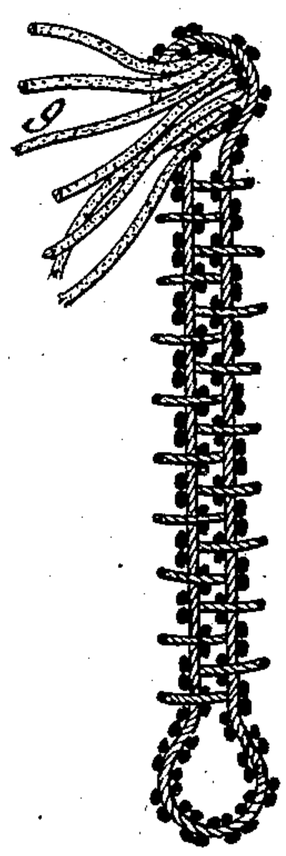


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

ANSON MILLS, OF UNITED STATES ARMY.

CARTRIDGE-BELT.

SPECIFICATION forming part of Letters Patent No. 236,059, dated December 28, 1880.

Application filed February 11, 1878.

To all whom it may concern:

Be it known that I, ANSON MILLS, of the United States Army, have invented certain new and useful Improvements in Cartridge-Belts for Carrying Metallic Cartridges, of which the following is a specification.

My invention relates to a cartridge-belt of the kind described in my Letters Patent No. 193,613, dated July 31, 1877—that is to say, a cartridge-belt made of woven material having the body of the belt and its thimbles or pockets woven in one piece simultaneously in one and the same loom.

I have improved the belt described in my said Letters Patent by making it of a heavy double fabric laced together with a small portion of the warp called by weavers "binders," the fabric being similar to what is known as "back-banding," producing, when the binders are not used, a hollow or tubular fabric used for making hydraulic hose. I make my belt of a fabric of this kind, forming the thimbles or pockets from the warp-threads of that thickness of the fabric which forms the surface next to the thimbles, in conjunction with the binders, or from those warp-threads alone, or from the binders alone. I prefer to make the thimbles from both warp and binders, inasmuch as they have more solidity and strength when thus formed; but still the thimbles may be formed either from the outer warp or from the binders, as just stated. The belt thus made possesses a solidity and body which eminently fit it for the uses for which it is intended.

I do not here deem it necessary to describe the means by which it is manufactured. It may be made in a hand-loom or in a power-loom. I have devised for its manufacture a power-loom, for which I propose to make a separate application for Letters Patent.

In the accompanying drawings, Figure 1 is a perspective view of a cartridge-belt embodying my invention. Fig. 2 is a diagram of a part of the belt on a greatly-enlarged scale, representing in longitudinal section the warp, woof, and binders in their relative positions in the belt and in the pockets. Fig. 3 is a transverse section through the belt.

The thimbles are made somewhat shorter than the width of the belt-body, as and for the purposes described in my aforesaid Letters Patent.

The two thicknesses of fabric which compose the belt are shown plainly in Fig. 2. The warp-threads of the lower thickness, A, are marked *a;* the weft-threads of that thickness are marked *b*. The warp-threads of the upper layer or thickness, B, are marked *c*, and the weft-threads of that thickness are marked *d*. The two series of binders which hold together the two thicknesses and cause them to form one fabric are marked *e f*.

It will be noted that the thimbles or pockets C, which extend only part way across the belt, leaving at each edge a selvage composed of the full thickness of the double fabric, are formed of the warp and weft *c d* of the upper layer of the fabric, in conjunction with the binders *e f*. The warp and weft of the lower thickness, on the contrary, do not enter into the composition of the thimbles; but this layer or thickness extends unbrokenly and continuously from end to end of the belt, forming a backing, which gives solidity to the belt, support to the thimbles or pockets, and increased strength at the points where the thimbles join the body of the belt.

The belt may be woven on a loom of the general character set forth in my aforesaid Letters Patent, save that there should be four or more warp or yarn beams and twelve or more leaves of harness. Of these four warp-beams one would carry all the warp of the two sheds of the lower half or layer of the double fabric, and all the warp of the upper half thereof except that used in pockets or thimbles; the second would carry all the warp of the upper half of the fabric used in the thimbles; the third would carry all the binders used in the thimbles, and the fourth would carry all the binders not used in the thimbles. So of the twelve harness-leaves employed. The first and second would carry the two sheds of the lower half or thickness of the double cloth; the third and fourth would carry the two sheds of the upper half of the double cloth; the fifth and sixth would carry the two sheds of the binders; the seventh and eighth would carry all the two sheds of the upper half of the double cloth used in

the thimbles; the ninth and tenth would carry all the two sheds of the binders used in the thimbles; and the eleventh and twelfth would carry all that part of the two sheds of the upper half of the double cloth used to cover the overshot of the shoot passing from thimbles to the main fabric and back again.

As to the binders, I would remark that I use but one binder to every two warp-threads of any one shed—that is to say, I employ but about one-fourth as many binders as warp-threads, and the number of binders is preferably further decreased by omitting them for, say, a space of five or six dents of the reed at each edge of the fabric, which serves to impart a better finish to the fabric at those points, giving the edges an appearance of being corded. I in this way obtain rounded and comparatively soft edges to the belt, the selvages being tubular, as indicated in Fig. 3; and if it be desired to cord the selvage a number of warp-threads from the main beam, carried in separate harness, and worked so as not to engage in the woof-threads, but simply so as to fill the hollow of the tubular selvage, may be used, as indicated at *g*, Fig. 3. In this figure but one tubular selvage is represented as filled, the other being left empty, in order to show more clearly its tubular formation.

The operation of weaving may be conducted substantially as explained in my aforesaid Letters Patent, with such variations as required in making a double cloth, as will be understood without further explanation by those skilled in the art to which my invention relates.

The above-suggested arrangement is intended for the manufacture of the double fabric with thimbles made from the warp-threads of the upper half, in combination with the binders.

It is manifest that (in conjunction, of course, with the upper weft) the thimbles may be made from the warp-threads alone of the upper half without the binders, or from the binders alone without the warp-threads of the upper half. This would necessitate, of course, a corresponding change in the harness and warp-beams.

In lieu of the foregoing-described arrangement of weaving mechanism, I can employ for the purpose of making the belt the power-loom hereinbefore referred to. I would here remark that said loom is fully shown and described in United States Letters Patent issued to me of even date herewith.

It is manifest that, without departure from my invention, the fabric may be made of three or more plies or thicknesses instead of two. The latter, however, will be found sufficient for the purpose.

Having described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. A woven cartridge-belt composed of a double fabric woven with thimbles or pockets on one thickness of the fabric, which extend only partly across the fabric, leaving at each edge a selvage composed of the full thickness of the double fabric.

2. A cartridge-belt fabric composed of a double fabric having tubular selvages, and woven with thimbles on one thickness of, and extending only partly across, the fabric, substantially as hereinbefore set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

ANSON MILLS.

Witnesses:
M. GEORGII,
J. W. HAMILTON JOHNSON.