

H. BOOT.  
KNITTED FABRIC.

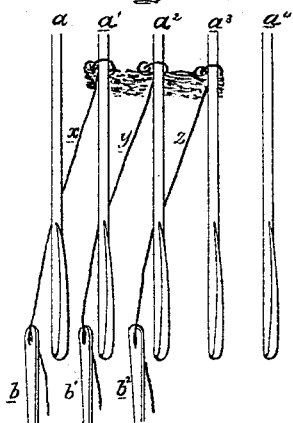
No. 114,397.

Patented May 2, 1871.

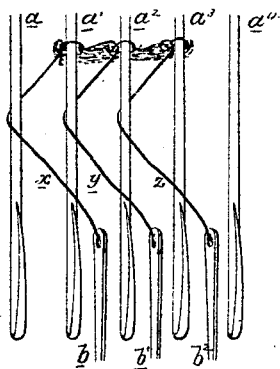


*Fig. 1.*

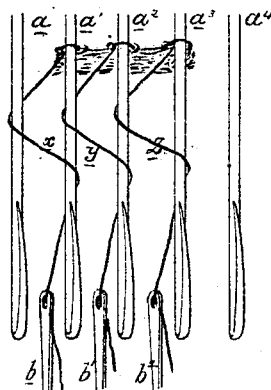
*Fig. 2.*



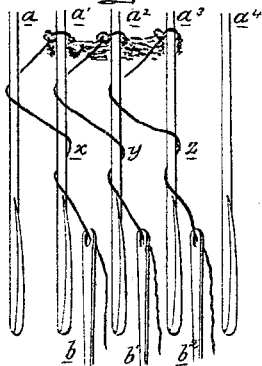
*Fig. 3.*



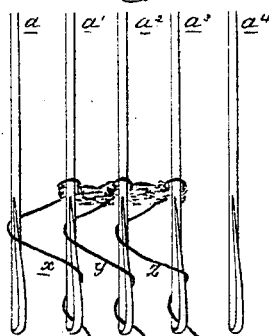
*Fig. 4.*



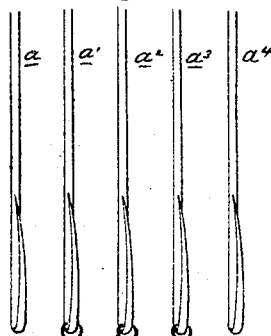
*Fig. 5.*



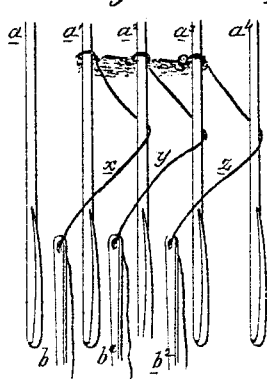
*Fig. 6.*



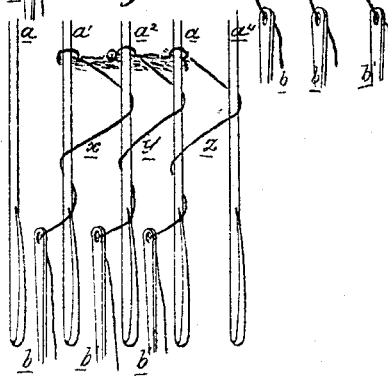
*Fig. 7.*



*Fig. 8.*



*Fig. 9.*



*Witness*  
*Chas. H. Salmon*  
*John Parker*

*Henry Boot*

# United States Patent Office.

HENRY BOOT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THOMAS DOLAN, OF SAME PLACE.

Letters Patent No. 114,397, dated May 2, 1871.

## IMPROVEMENT IN KNITTED FABRICS.

The Schedule referred to in these Letters Patent and making part of the same.

I, HENRY BOOT, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented an Improved Knitted Fabric, of which the following is a specification.

### *Nature and Object of the Invention.*

My invention consists of an improved knitted fabric, produced by a novel operation, fully described hereafter, of ordinary knitting mechanism, the main peculiarity of the fabric being its extreme elasticity, both transversely and in the direction of the threads, which renders it much more suitable for hosiery and similar articles of manufacture, than knitted fabrics produced in the usual manner.

### *Description of the Accompanying Drawing.*

Figure 1 is a view of a portion of my improved knitted fabric, and

Figures 2, 3, 4, 5, 6, 7, 8, and 9 are views representing the successive operations demanded in producing the said fabric.

### *General Description.*

In carrying out my invention I use ordinary bearded needles and guides, the needles being indicated in the drawing by the letters  $a$ ,  $a^1$ ,  $a^2$ ,  $a^3$ , and  $a^4$ , and the guides by the letters  $b$ ,  $b^1$ , and  $b^2$ ;  $x$ ,  $y$ , and  $z$  being the threads passing through holes in the guides and attached to a small portion of the fabric, looped to the needles  $a^1$ ,  $a^2$ , and  $a^3$ .

The needles are stationary and horizontal, and the required movements are imparted to the guides by a pattern wheel, in combination with the usual mechanism.

The operation is as follows:

The guides first carry the threads beneath and to the left hand of the needles, as shown in fig. 2; then up between the needles and over two of the latter, as seen in fig. 3, and then down again, each guide occupying a position to the right of that needle to which its thread is attached during its descent.

During the above movements of the guides the latter move toward the fabric, so that the laps of thread might be carried beyond the beards and onto the shanks of the needles, the guides next moving outward from the fabric, so as to carry the threads under the beards, and the sinkers carrying it back again.

After this the guides move to the left, beneath the needles, then up between and over the latter, and down again at the same point as before, (see figs. 4 and 5,) the effect of this latter movement being to form a single lap of each thread over its own needle.

During the next outward movement of the guides in the direction of the arrow (see fig. 6) these single laps are carried beneath the beards of the needles, as they are intended to form the loops, after which the beards are pressed down in order to enable the double laps and the loops previously formed to be drawn over the said beards and off of the needles by the same outward movement of the guides.

When the operation has been thus far conducted the first series of interlocked loops will have been formed, the fabric remaining suspended from the needles, as shown in fig. 7, by the single laps of thread which now form the loops.

The next series of stitches is formed in a precisely similar manner, except that the operation of the guides is reversed, the latter first passing over the needles from right to left to form the double lap, as shown in fig. 8, and then in the same direction over one needle to form the single lap, as seen in fig. 9.

The above-described operation will be fully understood if the course of one thread be traced throughout the several figures of the drawing. The loops of the thread  $x$ , for instance, are formed upon the needles  $a$ ,  $a^1$ , and  $a^2$  by the guide  $b$ , which first laps the thread over the needles  $a$  and  $a^1$ , and then over the latter needle only, after which the single lap is drawn beneath the beard of the needle  $a^1$ , the double lap over the beards of both needles, and the loop previously formed over the beard of the needle  $a^2$  only.

The operation is then reversed, the double lap being formed by passing the thread over the needles  $a^2$  and  $a^1$ , and the single lap by passing the thread over the needle  $a^1$ , the single lap being then drawn beneath the beard of the latter needle, and the double lap over the beards of both needles, as before described.

By this double and single lapping of the threads first in one direction and then in the other, a close fabric can be produced which is elastic in every direction, and consequently much more suitable for hosiery and similar knitted articles of manufacture than fabrics produced in the usual manner.

### *Claim.*

A knitted fabric, produced substantially in the manner described.

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

HENRY BOOT.

Witnesses:

CHAS. H. SALMON,  
WM. A. STEEL.