

(No Model.)

W. ROBERTS.
THREAD GUIDE FOR KNITTING MACHINES.

No. 464,995.

Patented Dec. 15, 1891.

Fig. 1

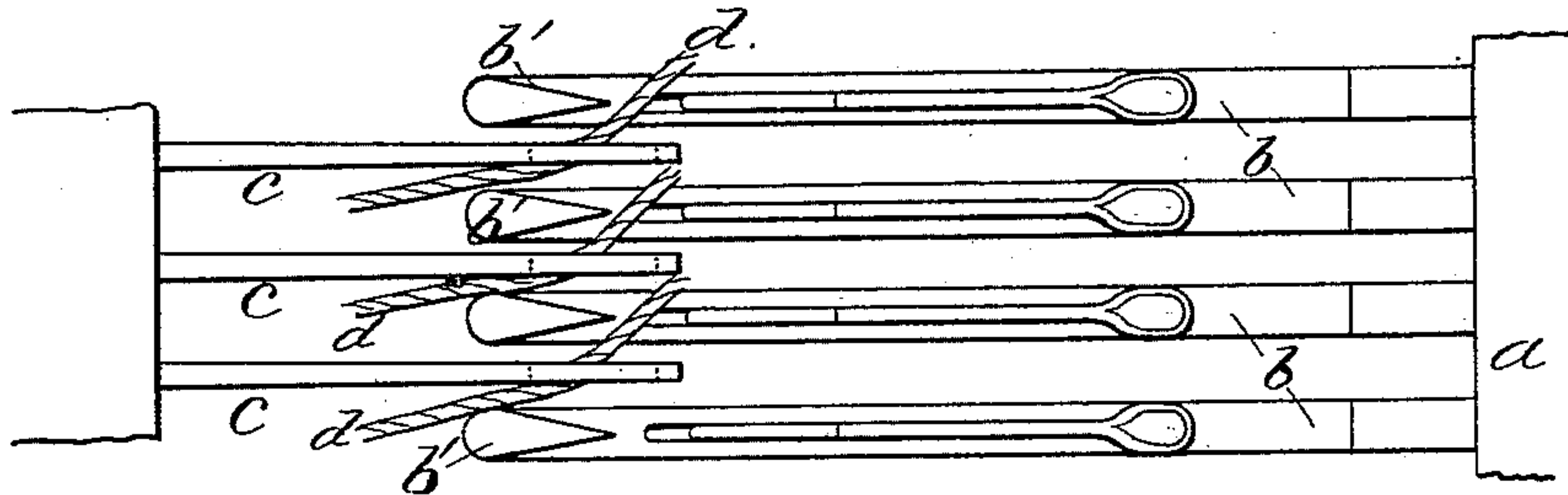


Fig. 2

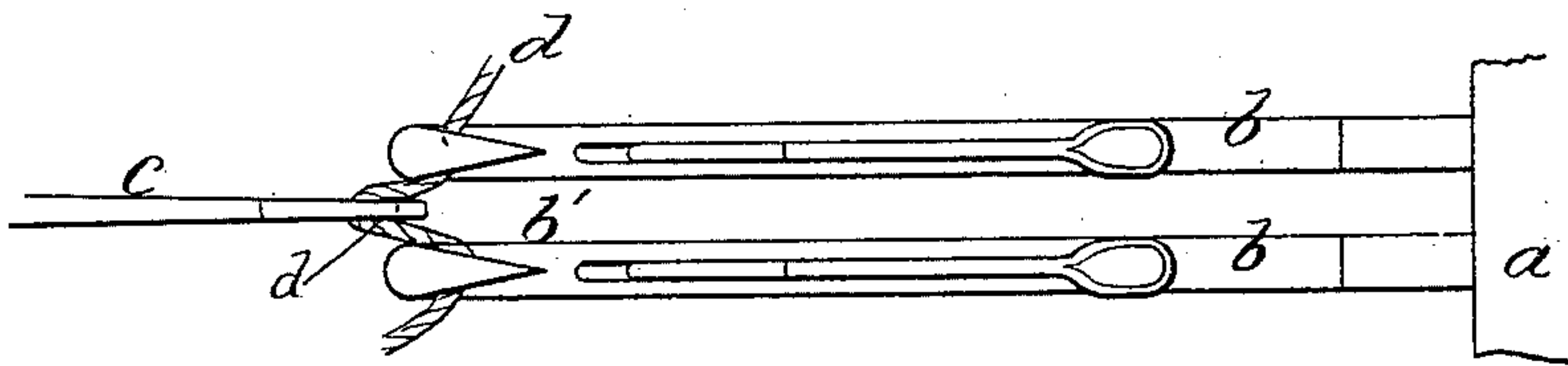


Fig. 3

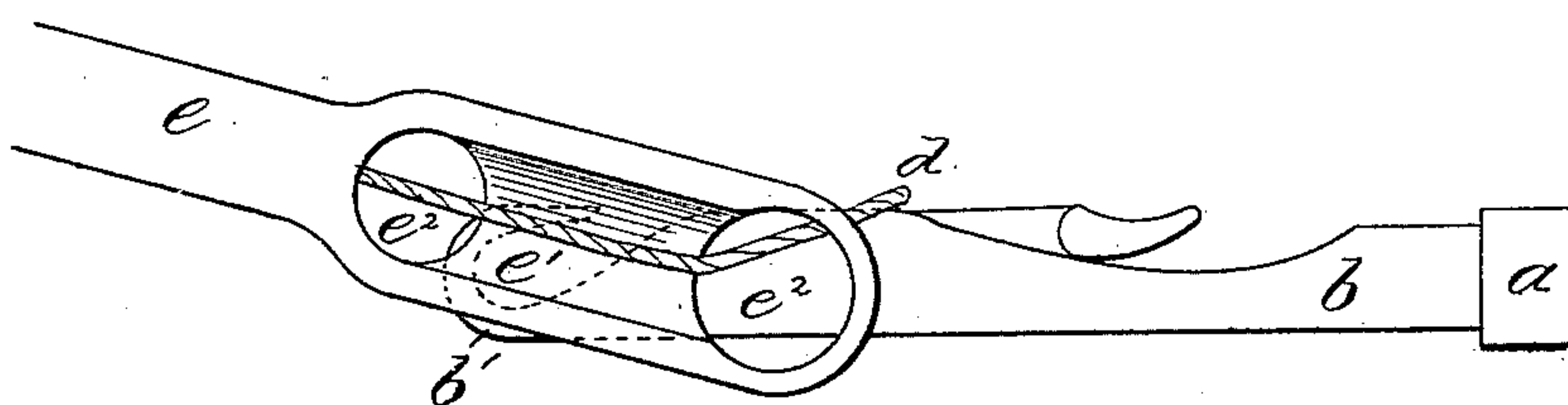


Fig. 4

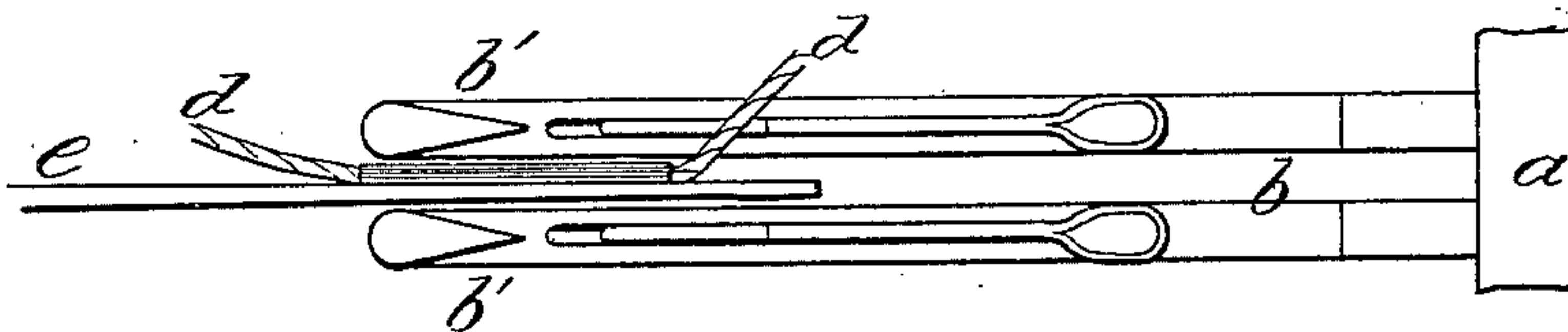


Fig. 5



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WALTER ROBERTS, OF HARTFORD, CONNECTICUT.

THREAD-GUIDE FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 464,995, dated December 15, 1891.

Application filed August 4, 1890. Serial No. 361,021. (No model.)

To all whom it may concern:

Be it known that I, WALTER ROBERTS, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Thread-Guides for Knitting-Machines, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates to the class of knitting-machines in which a thread-guide is used to hold and locate the thread in making the stitches in the operation of knitting. The needles in such a machine are arranged in a plane parallel to each other with certain spaces between them and with the hooked ends of the needles in alignment. The thread-guide is arranged to pass into the spaces between the needles, and to make a sort of circular sweep about the needle in such manner as to lay the thread across back of the barb or hook, so that the latter catches it and forms a loop in the operation of knitting. The thread-guide is a thin piece of metal with a hole in the front end, through which the thread which passes down one side of the guide is passed through to the opposite side of the guide. If the needles are set too close together or the ends of the guide enter too far between them there is danger that the thread will be caught by the hook of the needle over which the thread is being laid or by the hook of the next needle to it, which causes the thread to break out of the guide, thus leaving a hole in the fabric by the dropping of a stitch or of a number of stitches until the operative tending the machine notices the difficulty and remedies it by rethreading the guide.

The object of my invention is to provide a guide in which this improper catching of the hook of the barb or needle is entirely obviated.

My invention consists in providing the thread-guide of a knitting-machine with a thread-pocket near the front end, and within which the thread is protected; and it further consists in details of the parts making up the device as a whole, and in the combination of such a guide with the barbed needles, as

more particularly hereinafter described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a top or plan view of a section of a needle-bar of a knitting-machine, showing a number of latch-needles on enlarged scale and the position of the thread-guide with relation to the needles when the guides of the prior art are used. Fig. 2 is a detail top view of a bar of latch-needles and the old thread-guide, illustrating the main difficulties that my invention obviates. Fig. 3 is a detail side view, on enlarged scale, of my improved thread-guide, shown in operative relation to a latch-needle. Fig. 4 is a detail top view of the same, illustrating the operation of my improvement. Fig. 5 is a detail view in cross-section of my improved guide on enlarged scale.

In the accompanying drawings, the letter *a* denotes the needle-bar of a knitting-machine; *b*, a series of needles set in the usual manner side by side in a common plane parallel to each other and with their outer ends in alignment. The needles are latch-needles, terminating each in a hooked end *b'*, that is at times closed by the latch in the operation of knitting. The thread-guides *c* are of the old construction, and the thread *d*, while held in a guide, is placed by it across the needle in such manner as to cause the needle to engage the thread so as to form a loop in the process of knitting. Where the needles are set closely together, as is required for fine work, great care must be exercised that the front end of the hook does not enter so far between the needles as to press the thread against the needles in such manner as to enable the hook to improperly catch the thread, as is illustrated in Fig. 2 of the drawings. Such catching of the thread causes the loop *d'* to be improperly formed, so that as the needles retract or the thread-guide moves backward the thread is broken and leaves a hole that may be of considerable length unless the thread-guide is at once rethreaded and the proper connection made to form the line of stitches. In the endeavor to prevent such improper catching of the hooks the mechanism is so arranged, sometimes, that the end of the hook

enters but slightly between the needles, and the result of this is that instead of catching the thread upon the proper hook to form a loop in knitting the thread strikes the top of the hook back of the point and slips down off the end, thus drawing the stitch and leaving an opening or pin-holes in the fabric.

The letter *e* denotes my improved thread-guide that has formed in its end that is adapted to be thrust between the needles a thread-pocket *e'*. This pocket is preferably formed by striking or punching up a portion of the metal, forming a semicircular wall, the pocket extending between two holes *e²*, through which the thread *d* is passed in such manner that it lies along in the pocket, so as to be protected by the wall of the pocket on one side against the needle on that side, and by lying in the recess of the pocket escapes any chance of being caught by the needle adjacent to that side, the thread passing through the hole farthest back on the guide, along the pocket, and out through the hole at the front of the guide and on the same side of the guide as that at which it entered.

The essential feature of my invention consists in providing, in the manner substantially as described, a covered way or pocket in the end of the guide, in which the thread can lie in such manner as to be protected against

any danger of its improperly engaging the hooked ends of the needles on either side of the thread-guide in the operation of knitting.

I claim as my invention—

1. In a knitting-machine, in combination, a number of needles arranged in a plane parallel to each other and with spaces between them, and a thread-guide having a path of movement extending into the said spaces and having in the operative end a thread-pocket placed lengthwise of the guide and with openings at its opposite ends, all substantially as described.

2. In a knitting-machine, a thread-guide formed of thin material with a thread-holder and pocket extending between the two perforations through the guide at the extremities of the pocket, all substantially as described.

3. In a knitting-machine, in combination with a hooked needle, a thread-guide formed of thin metal with a thread-pocket consisting of a hollow recess made in the substance of the guide and with perforations at its extremities, all substantially as described.

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Witnesses

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