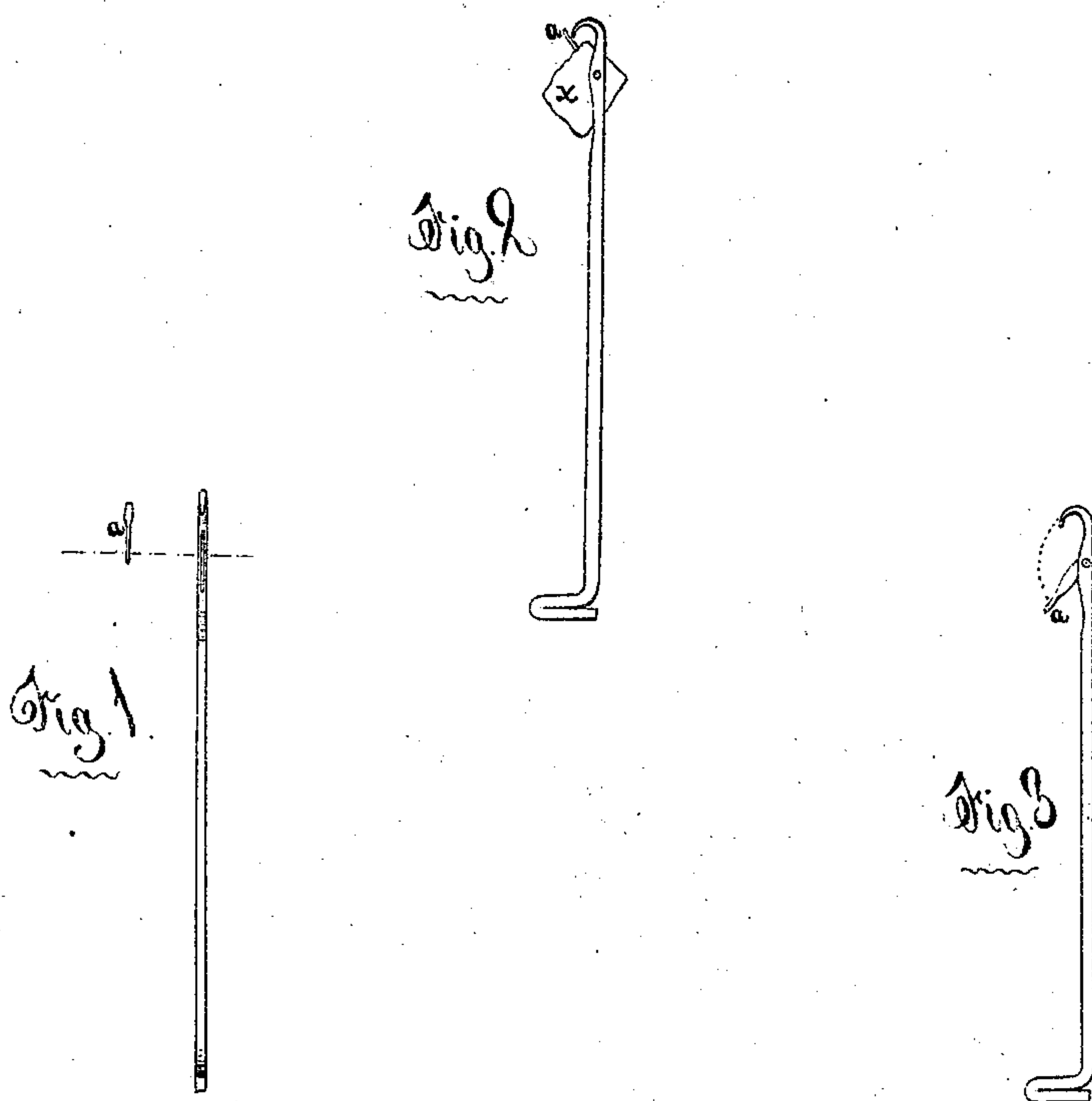


Stephen Woodward.
— Improvements —
— in —
Latch Needles for Knitting Machines

116386

PATENTED JUN 27 1871



Stephen Woodward

Inventor by

Edward C. Stymie

Robert H. Warrers

Witnesses.

UNITED STATES PATENT OFFICE.

STEPHEN WOODWARD, OF MANCHESTER, NEW HAMPSHIRE.

IMPROVEMENT IN THE MANUFACTURE OF LATCH-NEEDLES FOR KNITTING-MACHINES.

Specification forming part of Letters Patent No. 116,386, dated June 27, 1871.

To all whom it may concern:

Be it known that I, STEPHEN WOODWARD, of Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Latch-Needles for Knitting-Machines, of which the following is a specification:

My invention consists in a novel mode of uniting the latch and the needle so that the latch will turn freely upon its pivot as it is opened and closed during the operation of knitting. It has for its object to obviate the great trouble of riveting the latch in the needle so that it will not stick, and to lessen the care required to make them so that the latches will work smoothly.

Figure 1 is a view of the needle and latch separate before they are united. Fig. 2 illustrates the mode of riveting the latch in the slit in the needle. Fig. 3 is a view of a finished needle.

The needles are made of the usual and well-known form, with a slit below the barb in which the latch *a* plays. The latch is held in place by a small rivet which constitutes its pivot, and in the process of manufacturing these needles it has been a very difficult thing to rivet the latch so

that, while it is held securely in place, it shall be free to turn without sticking. This part of the manufacture is rendered easy and the difficulties removed by my method of riveting, as shown clearly in Fig. 2 of the drawing. Between the latch and the side of the slit in the needle I insert a shim of paper, *x*, and then introduce the pivot and rivet the same to the sides of the needle. When this is done the paper is removed by burning it out, and a space is thus left between the latch and the side of the slit sufficiently wide to permit the latch to have free play.

I claim—

In the construction of latch-needles for knitting-machines, &c., the employment and use of a shim of paper, or analogous substance, between the latch and the needle in riveting, which can readily be removed by heat, and thereby allow the latch to have perfect play in the needle, substantially in the manner and for the purpose described.

STEPHEN WOODWARD.

Witnesses:

N. P. HUNT,

JOHN V. SULLIVAN.