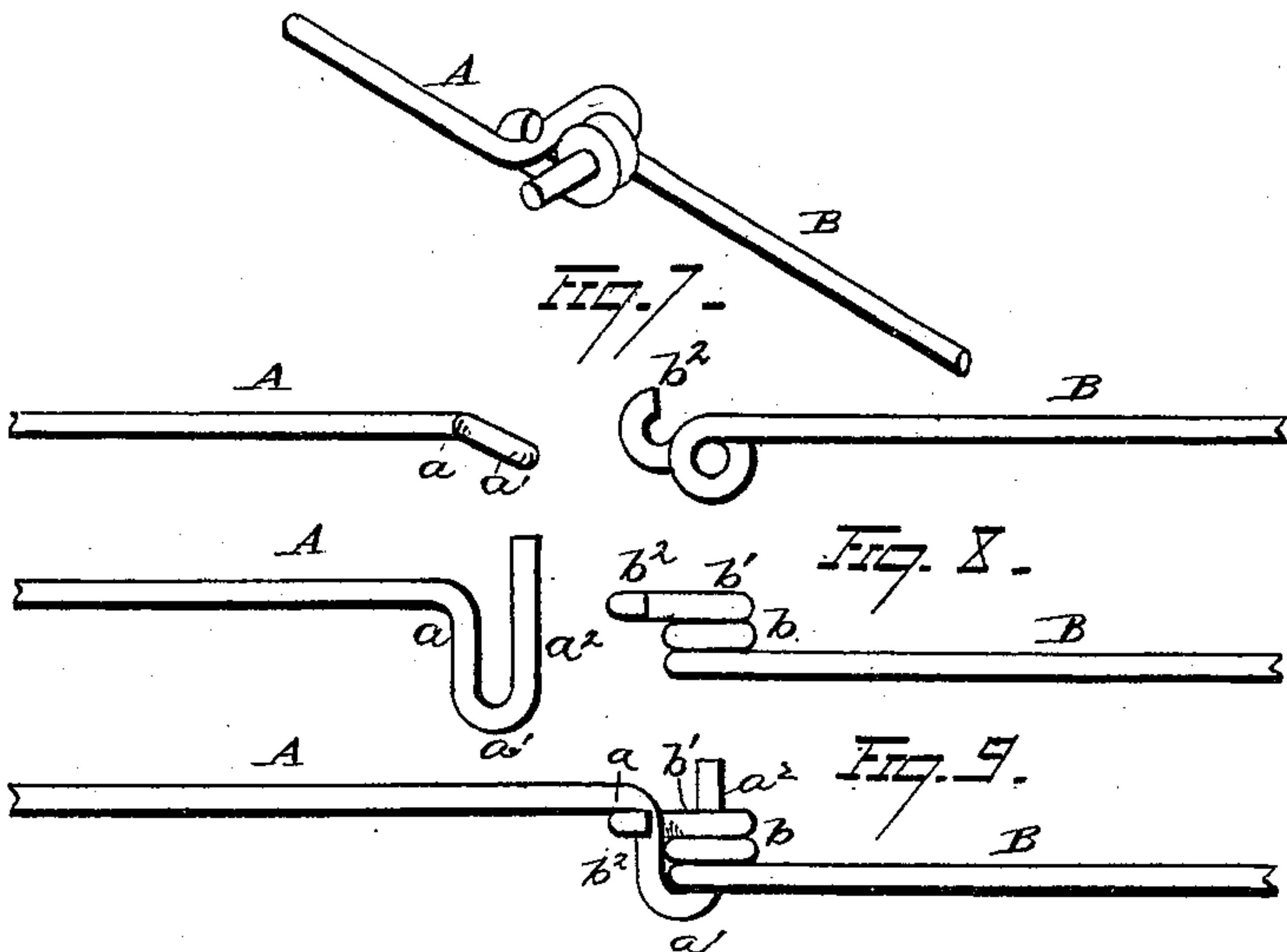
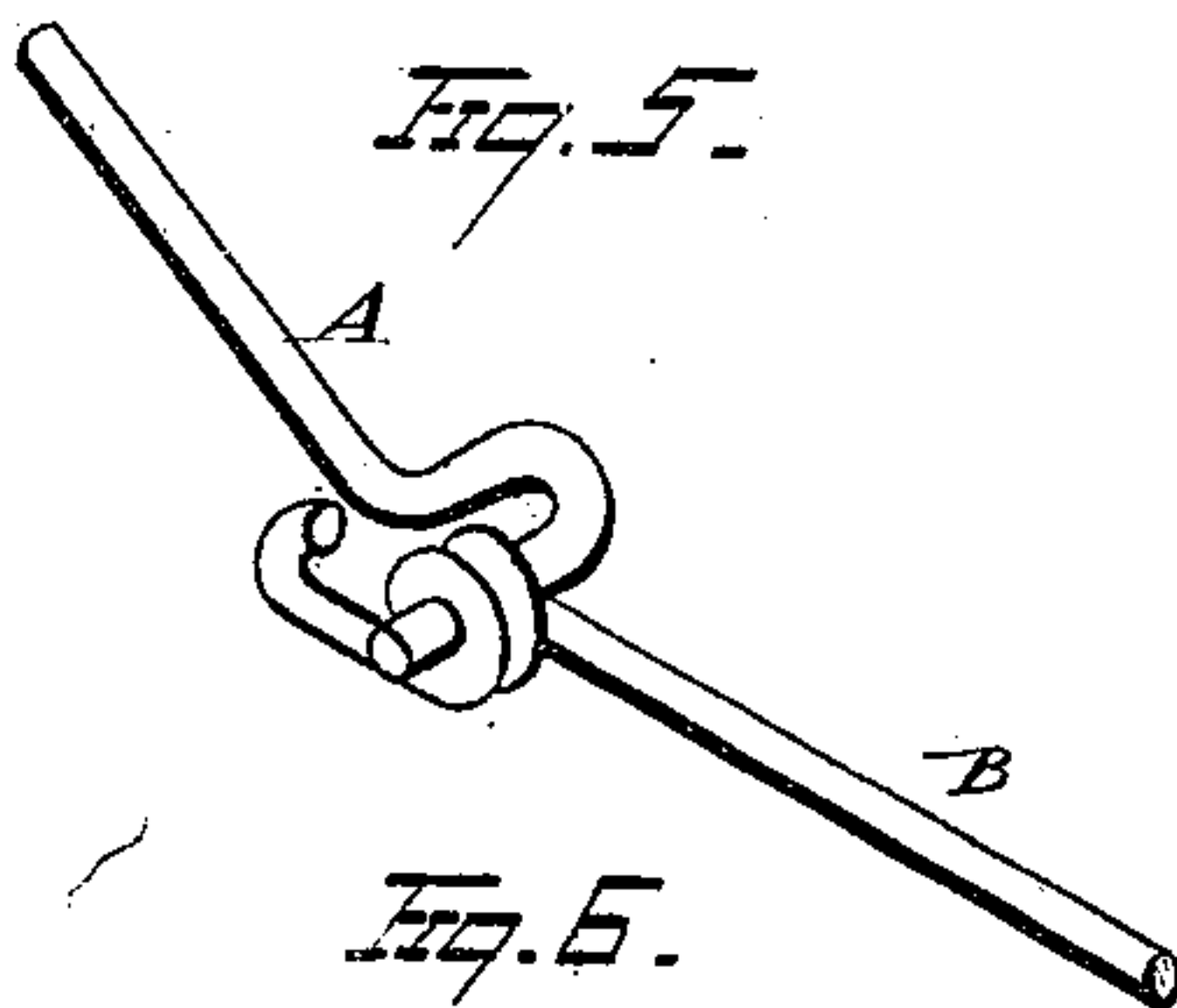
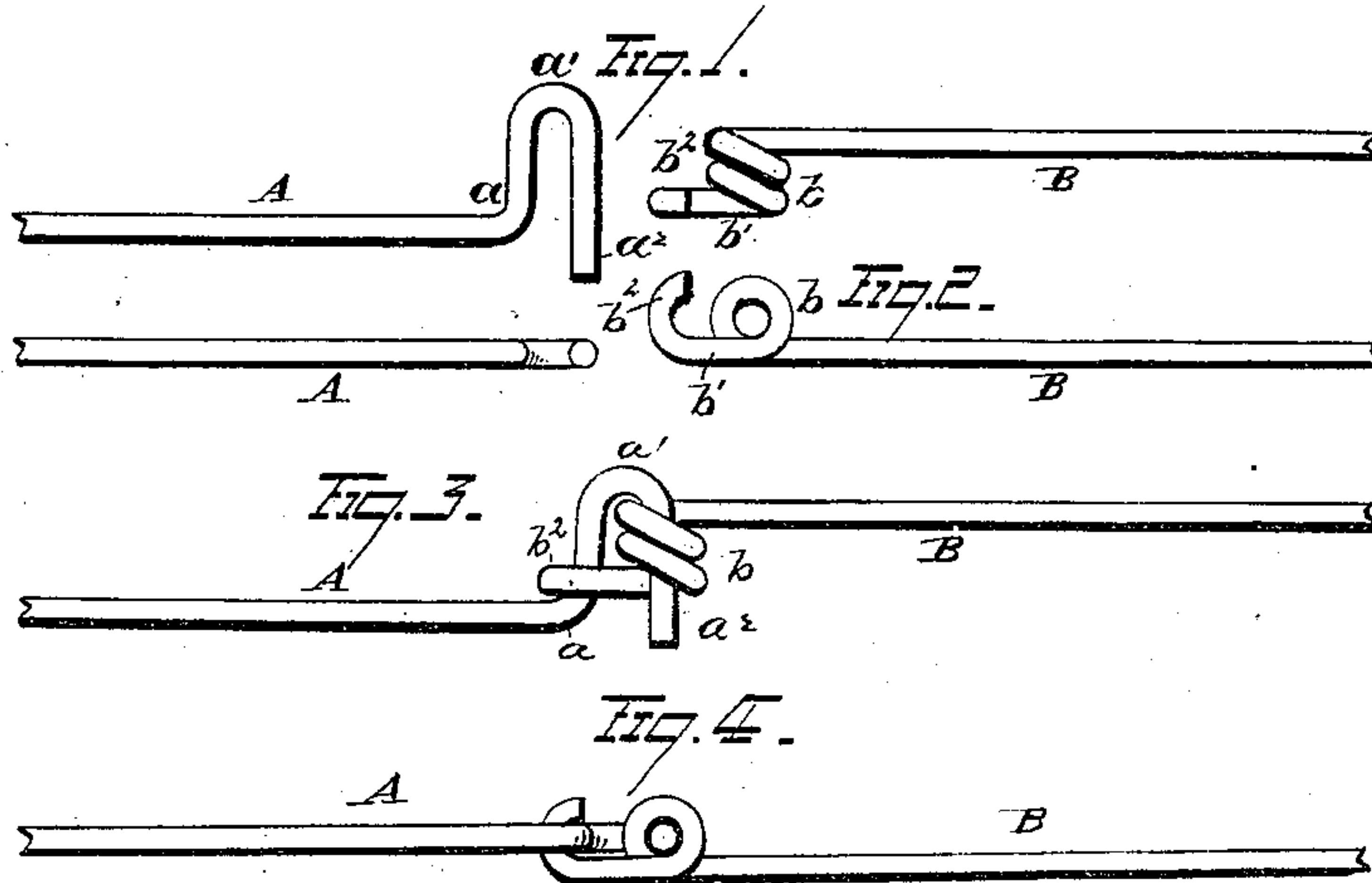


(No Model.)

J. WHITE.
Bale Ties.

No. 230,093.

Patented July 13, 1880.



WITNESSES
A. L. Lawrence.
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UNITED STATES PATENT OFFICE.

JOSEPH WHITE, OF CLEVELAND, OHIO, ASSIGNOR TO W. S. TYLER, OF
SAME PLACE.

BALE-TIE.

SPECIFICATION forming part of Letters Patent No. 230,093, dated July 13, 1880.

Application filed June 14, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WHITE, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Bale-Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to bale-tie fastenings, and especially to that class adapted to wire ties; and it consists in the peculiar manner hereinafter specified (with its modifications) of bending the uniting ends of a wire binding to effect a tie.

In the drawings, Figures 1, 2, 3, 4, 5, and 6 illustrate in various positions one form of embodiment of my invention; and Figs. 7, 8, and 9, modifications thereof.

In each of the figures above named the tie ends of a wire band are represented as bent according to my invention.

In Figs. 1 to 6, inclusive, the end A of the wire is first bent upward, (see a ,) then over, a' , and downward, a^2 , forming the hook illustrated in Fig. 1. Instead of this, however, the wire may be bent in a precisely opposite manner, as illustrated in Fig. 8. The other end, B, of the wire is given one, two, or more downward coils or twists, b , is then extended, b' , substantially in the same direction of the main body of the wire, and bent into hook shape, b^2 , in a plane at right angles to the axis of the coil or spiral referred to. This is illustrated in the drawings from Figs. 1 to 7, inclusive.

Instead of this construction, a precisely opposite manner of bending, as illustrated in Figs. 7, 8, and 9, may be adopted, wherein the coil b is given an opposite twist and projects upward. When this modified construction is

employed the hooked portion of the end A should be given a bend, as indicated in Fig. 7 of the drawings. When the two ends A B are united the part a^2 will pass through and be embraced by the coil b , and the part a will be surrounded and embraced by the hook b^2 , as indicated in Figs. 3, 6, and 9 of the drawings.

This method of uniting the ends of a wire tie I have found to be very effective, and the wire will break before the fastening will unloose or yield. As a matter of course, I do not limit myself to the means for bending the wire as described. It may be done by hand or with any suitable machinery.

Instead of employing a single wire band at its ends, as indicated in the drawings, it would be fully in accordance with my invention to bend short pieces of wire, as indicated, and construct them in such a manner as to allow of their attachment to a band of wire which shall form the main portion of a tie, and these short bent wires, which form the bale-tie proper, may be made and sold as separate articles of manufacture.

What I claim is—

1. A bale-tie consisting of a wire or rod, bent at one end substantially in the form of a hook, a a' a^2 , and at the other bent into a spiral of one, two, or more coils, b , and a hook, b^2 , substantially as and for the purpose shown.

2. A bale-tie fastening consisting of hook a a' a^2 or its equivalent, and a coil, b , (of one or more layers,) and hook b^2 , substantially as and for the purpose shown.

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

JOSEPH WHITE.

Witnesses:

JNO. CROWELL, Jr.,
WILLARD FRACKER.