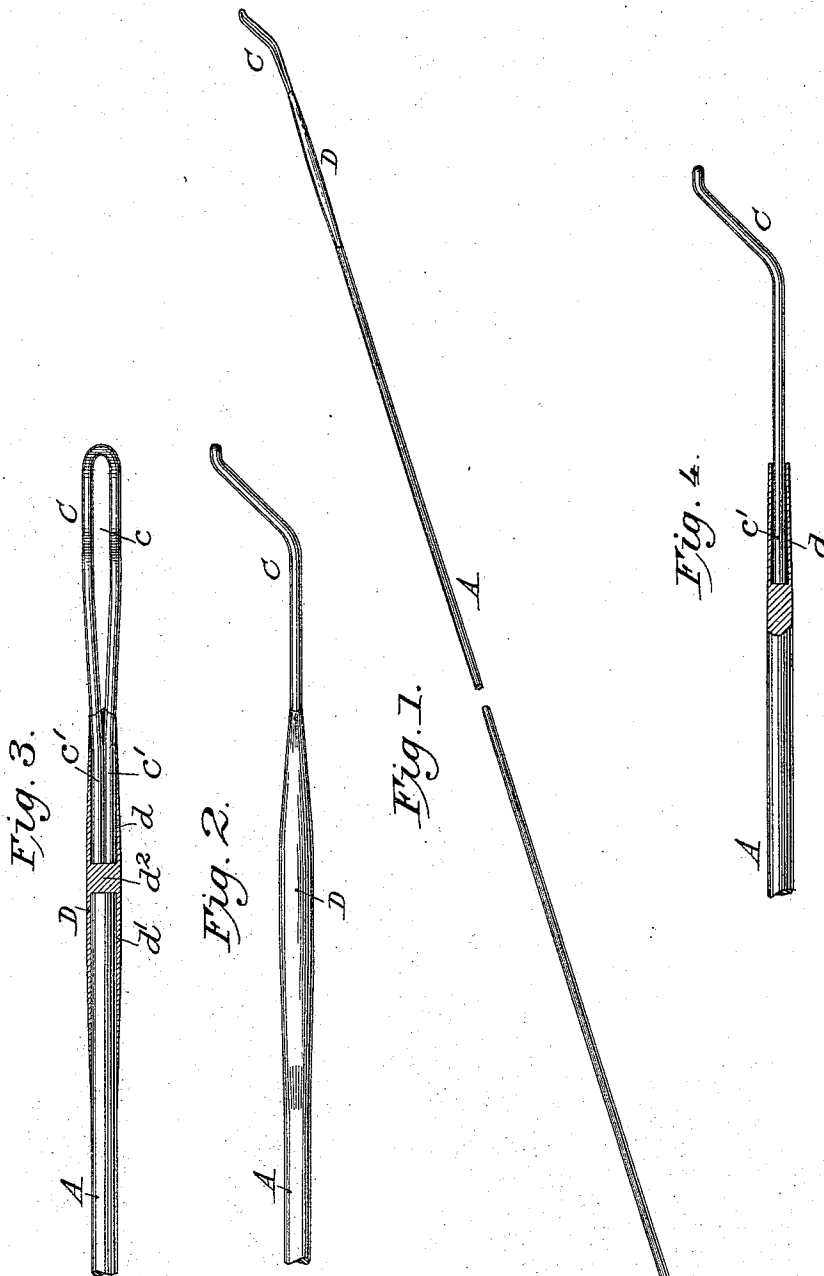


(No Model.)

E. MORRIS.  
CROSSING NEEDLE FOR CANE WEAVING.

No. 534,342.

Patented Feb. 19, 1895.



Witnesses,  
*Samuel P. Hellingworth*  
*Wm. E. Davis*

Inventor;  
EDMUND MORRIS  
by his attorneys  
*Baldwin Davidson & Co.*

# UNITED STATES PATENT OFFICE.

EDMUND MORRIS, OF MICHIGAN CITY, INDIANA, ASSIGNOR TO FORD,  
JOHNSON & CO., OF SAME PLACE.

## CROSSING-NEEDLE FOR CANE-WEAVING.

SPECIFICATION forming part of Letters Patent No. 534,342, dated February 19, 1895.

Application filed August 7, 1894. Serial No. 519,664. (No model.)

*To all whom it may concern:*

Be it known that I, EDMUND MORRIS, a citizen of the United States, residing at Michigan City, in the county of La Porte and State of Indiana, have invented certain new and useful Improvements in Crossing-Needles for Weaving Cane, of which the following is a specification.

My invention relates especially to needles used for weaving strips of cane or similar textile material into fabrics, such as open cane webbing for chair seats, chair backs, and the like. The "square" part of this kind of webbing, consisting of warps and fillings arranged in pairs with square spaces or meshes between them is, as is well understood, woven in a plain loom or weaving-machine. Strips of cane are then inserted diagonally through the meshes of the mat, over the warp and under the filling strands, by means of especially constructed needles. These needles have usually, heretofore, been made of a single piece of metal, formed integrally with a perforated tip constituting the eye. Such needles, and the manner of operating them are well illustrated in Letters Patent of the United States, No. 243,012, granted June 14, 1881, to Ford, Johnson & Company, of Michigan City, Indiana, as the assignees of H. E. Tylander. The needle shown in this patent has worked efficiently, but I find that there is an advantage in making the tip or eye or the end of the needle near the eye flexible and elastic or pliable in order that, in pulling the needle through the mat, it may bend and again assume its normal shape, as it passes over and under each strand, thereby avoiding injury to the mat.

The eye in the Tylander needle above referred to is punched out from the flattened tip-end of the shaft, and, in some instances, breaks easily, and when broken, the entire needle is useless. I therefore provide a removable tip, in order that, should it break, it may be readily replaced by a new one; but I also make the tip in such manner that it is less liable to break than the tips heretofore used.

The construction of my improved tip is such that the eye is enlarged, and may therefore be more readily threaded, and the walls

of the eye are smooth and not liable to cut or injure the cane strips.

In carrying out my invention, I preferably form the tip of a single piece of steel wire, bent into loop form, and provide the end of the shaft of the needle with a socket to receive the ends of the loop. This socket may be formed either by providing a recess in the end of the shaft, or by employing a sleeve secured to the end of the shaft, and adapted to receive the ends of the loop.

The details of construction and subject-matter claimed are hereinafter specified.

In the accompanying drawings—Figure 1 is a perspective view of a crossing needle embodying my improvements. Fig. 2 is a side elevation, on an enlarged scale, of one end of the needle. Fig. 3 shows a view, partly in section, of the same end of the needle, and Fig. 4 shows a view, partly in section and partly in elevation, of a modification.

The shaft A, which is usually from two to three feet long, is preferably made of round steel wire, and it is provided on one end with a collar B, by means of which it may be held correctly in a chuck forming part of the machine which operates the needle. It will be understood, however, that the needle may be operated either by hand or by machinery.

The tip C, is preferably made of round wire, bent into a loop, but it may be made of flat or other shaped wire, similarly formed. It is bent somewhat after the manner of the Tylander needle above referred to, but has an additional bend at its extreme outer end, being thus somewhat S-shaped in side elevation as shown in Fig. 2. It has a long narrow eye or aperture c, as illustrated in Fig. 3, and the adjacent, parallel ends c', of the loop, are arranged in a socket at the end of the needle shaft.

By bending the needle as above specified, the tip or extreme outer end will be flattened so that when pulling the needle backward through the fabric, the flattened tip will move along in contact with the strips of cane instead of presenting a narrower, and hence sharper, edge to the cane. The double bend above referred to also facilitates in interweaving the needle with the cane when revolved on its forward movement.

In Figs. 1, 2 and 3 the socket is shown as consisting of a sleeve D, bored to form a recess  $d$ , in which the ends  $c'$ , of the wire are arranged, and in which they are preferably secured by solder. The sleeve is also formed with a recess or socket at  $d'$ , to receive the end of the shaft A, which is also preferably secured in place by solder. Between the recesses  $d$ ,  $d'$ , there is a web or partition  $d^2$ , preferably formed integrally with the body of the sleeve. The ends of the loop and the end of the shaft abut against the partition, and the relative position of the loop and shaft is thereby determined, and endwise movement prevented. Preferably the sleeve is made smooth and round and tapered at each end, as illustrated. Not only does the sleeve form a socket-piece for securing the tip to the shaft, but it also strengthens the working end of the needle. I may, however, dispense with the sleeve, and form a recess or socket in the shaft itself, as illustrated in Fig. 4.

The needle is operated in the same manner as other needles of this class, in the way above indicated, and unless otherwise specified, the parts are of usual well-known construction.

The advantages attained by my improvements have been already indicated, and

What I claim as my invention is—

1. A crossing needle for weaving open mesh fabric having a pliable or elastic bent tip whereby when the needle is drawn through the fabric its tip bends or yields for the purpose specified.

2. A crossing needle for weaving open mesh fabric having a bent, flexible or elastic apertured tip rigidly but removably secured to the needle shaft.

3. A crossing needle for weaving open mesh fabric having a straight, stiff shaft, and a bent tip formed of elastic wire secured to the end of the needle shaft.

4. A crossing needle for weaving open mesh fabric having a socketed shaft, and a tip formed of elastic wire bent and looped and secured in the socket at the end of the needle shaft.

5. A crossing needle provided with a tip bent at a point in line with the axis of the shaft, and also again bent near its extreme outer end to present a flattened portion for the purpose specified.

6. The combination in a crossing needle for weaving open mesh fabric, of the shaft, the recessed sleeve secured thereto, and a flexible or elastic tip secured in the recess in the sleeve.

7. The combination in a crossing needle for weaving open mesh fabric of a shaft, the sleeve having recesses at opposite ends and a central partition, and a looped spring wire tip secured to the sleeve.

8. A crossing needle for weaving open mesh fabric, provided with an S-shaped tip formed of elastic steel wire round in cross section, and looped to form an eye, as described.

In testimony whereof I have hereunto subscribed my name.

EDMUND MORRIS.

Witnesses:

A. N. GITTINGS,  
H. B. MORRIS.