Dec. 29, 1953 S. FOX 2,664,320

JOINT AND METHOD OF ASSEMBLING THE SAME

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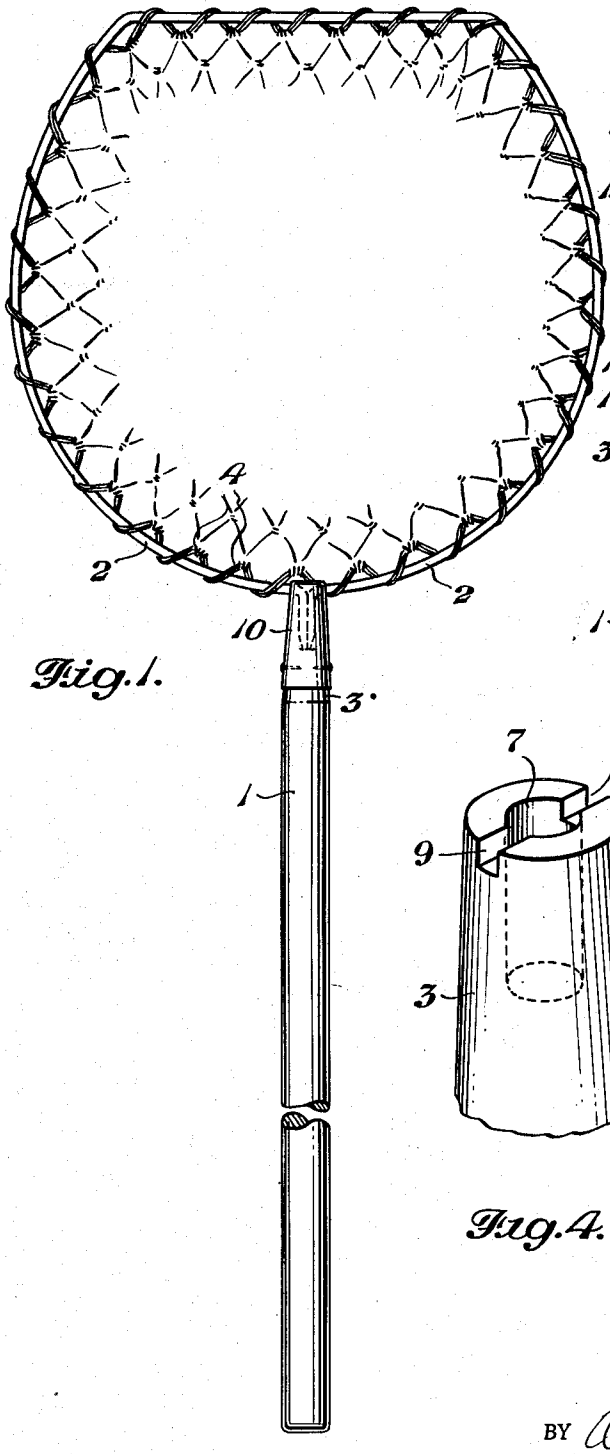


Fig. 1.

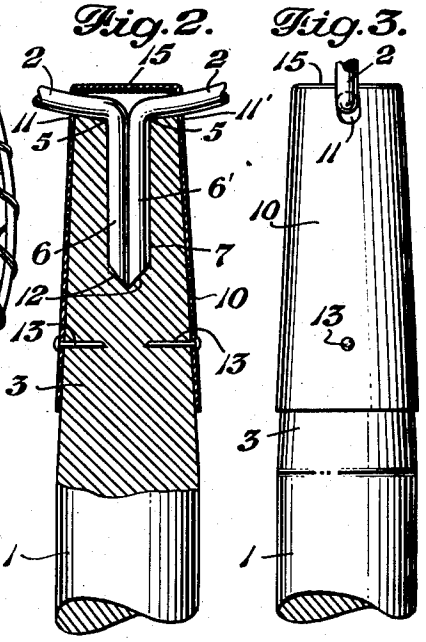


Fig. 2.

Fig. 3.

Fig. 4.

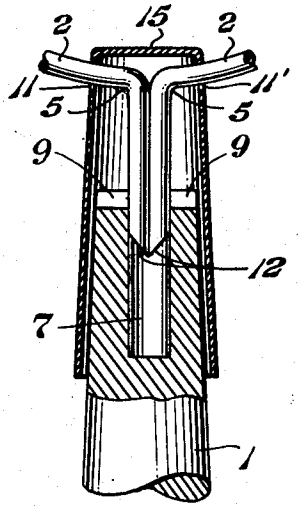


Fig. 11.

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JOINT AND METHOD OF ASSEMBLING THE SAME

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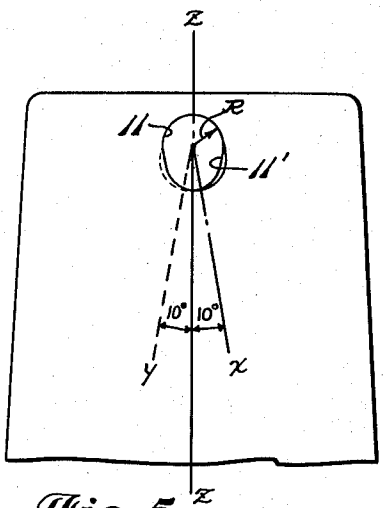


Fig. 5.

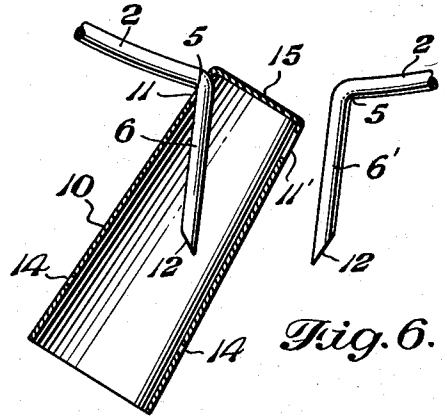


Fig. 6.

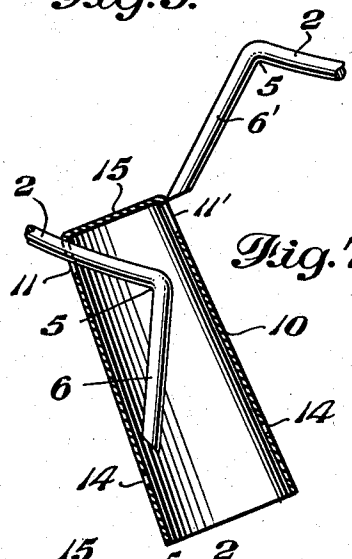


Fig. 7.

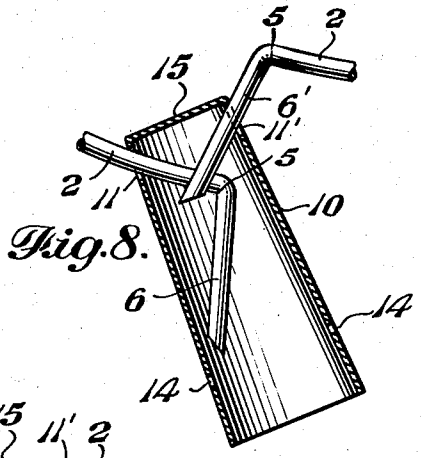


Fig. 8.

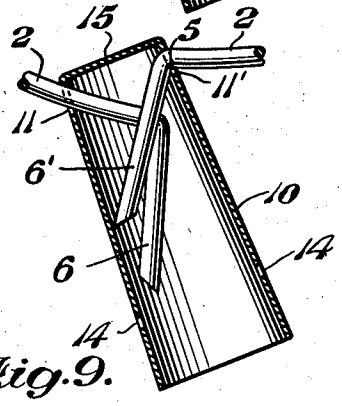


Fig. 9.

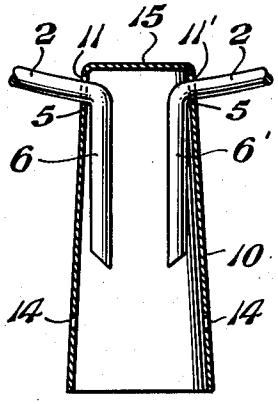


Fig. 10.

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JOINT AND METHOD OF ASSEMBLING THE SAME

Samuel Fox, Baltimore, Md.

Application October 16, 1950, Serial No. 190,339

6 Claims. (Cl. 306—45)

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This invention relates to a device for joining a handle to a landing net or similar article, a method of assembling a handle to such article, a novel ferrule element useful in such an assembly, and a novel landing net or similar article containing such improved handle joint.

One of the usual crab dip nets now commonly sold has a wire bow construction carrying a net with the ends of the bow twisted and affixed to a wooden handle. In use, the twisted ends may become disengaged from the handle, and particularly when the handle becomes wet and rotting of the wood or rusting of the bow ends occurs. In that type of bow with the twisted ends, the net is laced onto the bow after the handle has been assembled therewith. The present invention obviates the difficulties of handle disengagement by providing a secure and fixed joint between the handle and bow, and permits threading of the net onto the bow previous to assembling the handle therewith, thus saving time and material, and providing a landing net of neat appearance and capable of withstanding harder usage and having longer life.

An object of the present invention is to provide a crab or dip net or similar article with a novel handle joint whereby the handle is fixedly secured to a wire bow that supports or carries a net or the like.

Another object of the invention is to provide a novel method of assembling a handle, ferrule and wire member so that the handle and wire are joined in immovable or fixed relation, and the joint produced thereby.

A further object of the invention is the provision of a novel ferrule element having a lateral curved surface with two slots or elongated openings angularly disposed therein.

Other objects of the invention will be apparent from the description and appended claims herein.

Referring to the drawings:

Figure 1 is a top plan view of a crab or landing net and handle joint therefor made in accordance with the invention;

Figure 2 is a view in longitudinal cross-section of the ferrule, handle end, and bow of Figure 1 in final assembled relation, or in place;

Figure 3 is a view in side elevation of Figure 2;

Figure 4 is a perspective view of the ferrule attaching end of the handle;

Figure 5 is an enlarged diagrammatic showing of the upper portion of the ferrule, showing the manner in which the elongated openings are angularly disposed therein;

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Figure 6 is a view showing the first step in assembling the bow and ferrule, the ferrule being shown in cross-section;

Figure 7 is a view showing the second step in assembling the elements of Figure 6;

Figure 8 is a view showing the third step;

Figure 9 is a view showing the fourth step;

Figure 10 is a view showing the fifth step;

Figure 11 is a view showing the sixth or final step in assembling handle, ferrule and bow, the ferrule being shown in cross-section and the handle attaching end being shown partly in cross-section.

Referring to the figures of the drawings, the numeral 1 is a wooden handle having a tapered end 3 and a wire bow or hoop 2 attached thereto through the medium of the ferrule 10. A woven net 4 is carried by the bow 2. The bow 2 is bent sharply at the points 5 thus providing two free ends 6 and 6'; which in the final assembly (shown in Figure 2) lie in parallel relation in the socket 7 of the tapered end of the handle. The end of the handle is provided with horizontally or transversely disposed slots or grooves 9 communicating with the outer end of the socket 7. The metal ferrule 10 having the shape of a frustrum of a cone is provided with two elongated openings or slots 11 and 11'; each of which is angularly disposed on the ferrule. These openings are elongated; that is, they are greater in longitudinal length than in transverse width. Each slot or opening has substantially parallel sides bounded by curved ends, as clearly shown in Figure 5. As shown in Figure 5, the slots or openings are disposed oppositely on the ferrule.

The angularity of each of the openings 11 and 11' on the ferrule is shown in Figure 5. The arc of the top end of the slot 11 has for its radius the distance R, as shown. The center of the circle defined by the aforesaid arc and having R as its radius is the point of intersection of the line X coinciding with the major axis of the slot opening and the longitudinal or vertical axis Z—Z of the ferrule. As shown, the preferred angle between X and Z—Z is 10 degrees, but the angle may be greater or less, and is made great enough to permit insertion of the bow ends in the elongated slots as hereinafter described. An angle from 5 degrees to 15 degrees between the line X and line Z—Z is the most practical range. This likewise applies to the angle between the line Y and the line Z—Z. The angular position of the elongated openings on the surface of the ferrule may also be defined as the longest dimension of an elongated slot (the major axis) being

disposed at an angle to the plane of the longitudinal or vertical axis of the ferrule that is transverse and substantially normal or perpendicular to the surface plane of the slot opening and intersects the same.

While the angularity of the openings has been defined with respect to the vertical axis of the ferrule, it is apparent that the major axis of the slot opening is angularly disposed with respect to the geometrical element which defines the generator line of the generated curved lateral surface of the ferrule.

It will be also noted from the view shown in Figure 5 that the openings 11 and 11' are laterally and angularly opposed to each other, but each opening bears the same directional relationship angularly on the ferrule when viewed separately on either side thereof. As shown, the peripheries of one end portion of the openings are divergent while the other end portion of their peripheries are in alignment.

The transverse width of each slot or opening is slightly larger than the outside diameter of the wire bow, so that the latter may be inserted in the slots as hereinafter explained. The slots are made sufficiently elongated and angular in direction to permit bypassing of the bow ends as herein described. The ferrule is a single unitary element with the top 15 thereof substantially flat, and the hollow body of the ferrule forms a receptive internal surface for the tapered portion 3 of the handle 1.

The method of assembling is as follows. The bow 2 is threaded through the net 4, the ends 6 and 6' being free and permitting the threading. While the net may be alternatively later applied by suitable lacing thereof to the bow after assembly, I prefer to thread the bow beforehand and thus save time and material. The first step of assembling the joint is to insert one end 6 of the bow into the ferrule hole 11 as shown in Figure 6, the ferrule being shown therein in cross-section. The ferrule is then moved or rotated relative to 6 to the position shown in Figure 7 whereby the inserted end of the bow forms a triangle in the ferrule with one internal surface thereof as a base. The other end 6' is then inserted in the opposite hole of the ferrule in a position to bypass the end 6 therein, as shown in Figure 8, and by moving or rotating the ferrule relative to the inserted ends to the positions shown in Figures 9 and 10, the ends 6 and 6' bypass each other and become disposed in parallel relation. The ends in parallel relation are then moved toward each other to lie adjacently together and are so inserted in the socket 7 of the handle 1 as shown in Figure 11.

By moving the ferrule and the end of the handle 1 toward each other, the ends 6 and 6' of the bow go farther into the socket, the pointed ends 12 pierce the handle wood, and the horizontally disposed portions of the bow enter the grooves or slots 9, with the ferrule snugly disposed over the tapered portion 3 of the handle 1. The latter step is aided by application of a final blow to the top of the ferrule, or other applied pressure to bring the parts into place. Nails or like fastening means 13 are passed through small apertures 14 in the ferrule to secure the assembly in fixed final position.

It is preferred to have the socket 7 less in length than the length of the bow ends 6 and 6' whereby upon applying pressure in the insertion of the bow ends in the handle, the pointed bow ends 12 are forced into the wood. Likewise, the dimensions of the grooves 9 are preferably made slightly smaller than the diameter of the portions 12 of the bow wire, so that a wedging action takes place upon applying the final pressure to the parts when bringing them together in interfitting relationship. The flat top portion 15 of the ferrule defines with the curved lateral surface of the ferrule as small a curvature as possible, so as to accommodate as much of the handle end as possible adjacent to the internal surface of the top of the ferrule.

If for any reason, it is desired to disassemble the device, the nails are removed, the ferrule and bow ends are disengaged from the handle, and the procedure used for inserting the bow ends in the ferrule is reversed.

From the above, it will be seen that the angular disposition of the elongated slots or openings 11 permit entry of the bow ends into the ferrule, and permit movement of the bow ends to bypass each other after their insertion into the ferrule without jamming or other interference with each other, to the end that they ultimately reside therein in parallel relation. The bow ends thus assembled in interfitting relationship with the handle end are securedly held in permanent position by the ferrule element fastened over the handle end.

It will be apparent that while the invention has been described specifically to a tapered handle and conical ferrule, the invention is not limited thereto, as the principles are applicable to cylindrical as well as to conical ferrules and handles. Furthermore, the principles of the invention are not limited to a landing net assembly, as the same may be utilized for joining other devices having as essential elements a handle, wire or like element, and ferrule.

Other variations or modifications may be made within the spirit and scope of the invention, and the same is not to be limited except as indicated in the appended claims.

I claim:

1. The method of assembling a wire element having two ends bent at an angle with a ferrule having two elongated openings each having a width slightly larger than the diameter of a free end of the wire element, the said elongated openings being angularly disposed with respect to the longitudinal dimension of the ferrule, which comprises the steps of inserting one of the free ends of the wire element in one of the openings in accordance with the angulation thereof until the angle bend of the said end with the wire element lies inside the ferrule in an inclined position, inserting the second free end of the wire element in the other opening in accordance with the angulation thereof until the same bypasses the angle bend of the first end, then moving the free ends inside the ferrule relatively to each other to cause them to assume parallel positions inside the ferrule.

2. The method of assembling a handle, a bow element and a ferrule of an article of the class described to form a tight joint therebetween, wherein the handle contains a socket, the bow element has two free ends bent at an angle therewith, and the ferrule has two elongated openings each having a width slightly larger than the diameter of a free end of the bow element and the major axis of each opening being disposed at an angle to the longitudinal dimension of the ferrule; the steps comprising inserting one of the free ends of the bow element in one of the openings in accordance with the angulation

thereof, causing the angle bend of the said end to lie inside the ferrule in an inclined position, inserting the second free end of the bow element in the other opening in accordance with the angulation thereof, bypassing the angle bend of the first end with the secondly inserted end, moving both of the aforesaid ends to parallel adjacent positions, inserting the parallel disposed ends in the socket of the handle, and moving the handle and the ferrule toward each other to form a tight joint therebetween.

3. As a new article of manufacture, a hollow ferrule member having a pair of diametrically opposed openings through the lateral surface thereof, the major axes of said openings being angularly disposed to a plane passing through the vertical axis of the ferrule and which plane intersects the peripheries of said openings, the peripheries of one end portion of the openings being divergent while the other end portion of their peripheries are in alignment.

4. As a new article of manufacture, a hollow unitary integral ferrule member having a closed end and a continuous lateral surface having a pair of diametrically opposed elongated openings therein, the major axes of said openings being angularly disposed to a plane passing through the vertical axis of the ferrule and which plane intersects the peripheries of said openings, the peripheries of one end portion of the openings being divergent while the other end portion of their peripheries are in alignment.

5. In combination, a handle element having at an end thereof a socket and groove means transversely disposed at the outlet of the socket, a unitary integral ferrule element fitting over said end of the handle element and having a pair of diametrically opposed openings in the lateral surface thereof, the major axes of the openings being angularly disposed with regard to a plane passing through the vertical axis of the ferrule and which plane intersects the peripheries of said openings, the peripheries of one end portion of the openings being divergent while the other end portion of their peripheries are in alignment, and a wire element having two ends thereof fixedly located in said socket and groove means and passing through said openings in the ferrule element.

6. A joint for a handle and a wire element; comprising a handle element having a socket therein, a wire element having a pair of free ends, and a ferrule element having a closed end and a continuous lateral surface having a pair of diametrically opposed openings therethrough, the major axes of said openings being angularly disposed to a plane passing through the vertical axis of the ferrule and which plane intersects the peripheries of said openings, the peripheries of one end portion of the openings being divergent while the other end portion of their peripheries are in alignment, the said wire element passing through the said openings with the free ends thereof immovably positioned in the handle.

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