(No Model.)

E. RING.

WHIP CENTER.

No. 417,203. Patented Dec. 10, 1889.

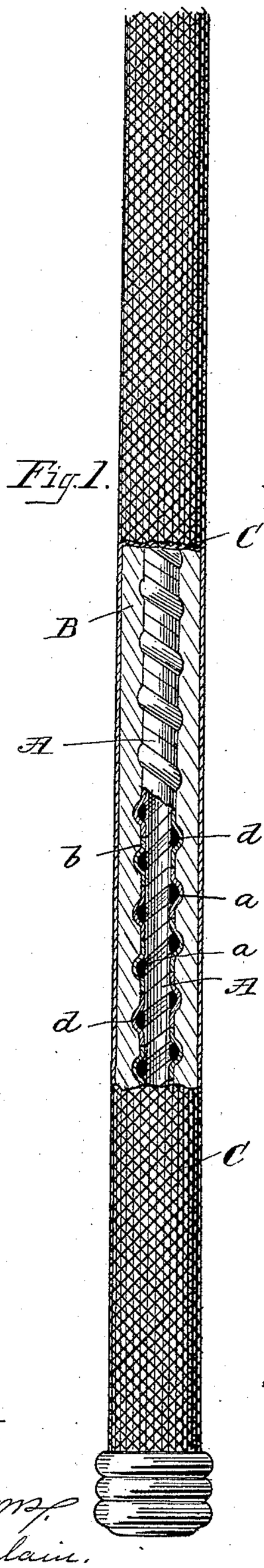

Fig. 1.

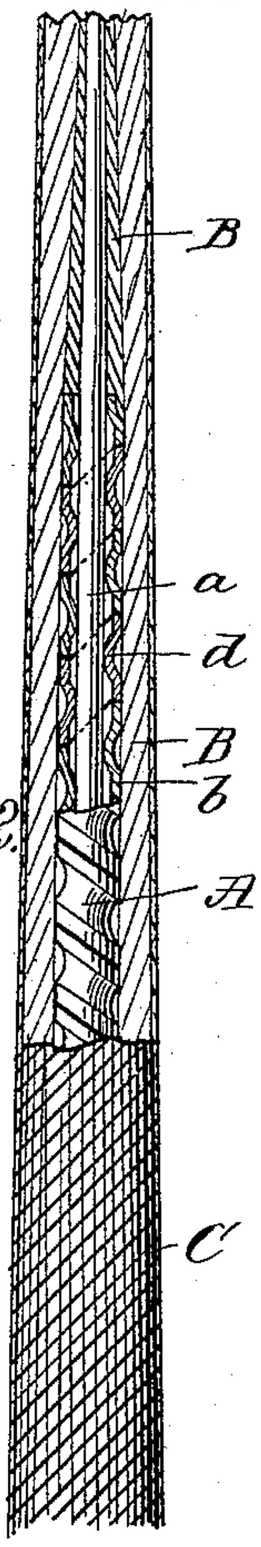

Fig. 2.

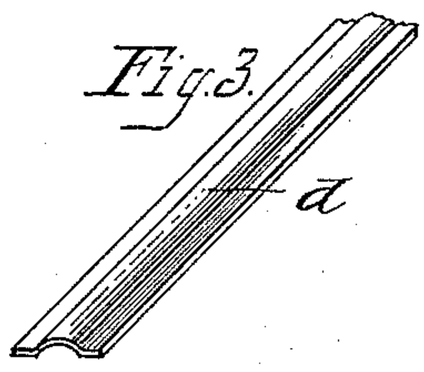

Fig. 3.

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UNITED STATES PATENT OFFICE.

ELKANAH RING, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR TO JAMES NOBLE, JR., OF SAME PLACE.

WHIP-CENTER.

SPECIFICATION forming part of Letters Patent No. 417,203, dated December 10, 1889.

Application filed August 28, 1889. Serial No. 322,201. (No model.)

To all whom it may concern:

Be it known that I, ELKANAH RING, a citizen of the United States, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Whip-Centers, of which the following is a specification.

This invention in whips relates particularly to the center or core thereof, the object being to provide in the whip a center which renders to the whip peculiar capabilities of retraction from deflection, durability, and economy; and the invention consists in the construction and combination of parts forming the whip-center, and of other parts combined therewith to form a whip, all substantially as will hereinafter more fully appear, and be set forth in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which whips constructed in accordance with this invention are illustrated.

Figure 1 is a side view and central longitudinal section of a portion of a whip. Fig. 2 is a similar view to Fig. 1, but showing a portion of the whip toward the tip and slightly modified as to the arrangement of the parts, but involving the same essentials of construction and composition. Fig. 3 is a view of a strip of metal from which the whip-center is in part made up.

In the drawings, A represents the center; B, the sidings applied over the center, as usual, and C the outer plaited covering. The center A consists, primarily, of a tube *b*, preferably of equal diameter throughout, formed from a strip of sheet metal having therein a longitudinal groove or corrugation *d*, and substantially of the form shown in Fig. 3, said strip being wound spirally and the corrugation or groove forming, when the strip is wound spirally to constitute the tube, a spirally-running groove and also a rib in the walls thereof. The center consists, secondarily, in combination with the tube formed as above, of a filling *a* of flexible material—such as whalebone, rattan, rawhide, or leather—inclosed within said spirally-corrugated center proper. The said center is intended to extend from the butt-end of the whip to the portion thereof at which the "tip," so called, commences, and the said filling *a* is projected therefrom farther and constitutes the tip, or the tip-center.

The tubular center may be formed with the groove inside, as shown in Fig. 1, and the filling of flexible material may be disposed spirally within the internal spiral groove, being laid in the corrugating groove of the strip from which the core is to be formed, and wound spirally therewith; or, as shown in Fig. 2, the tubular center may have the filling *a* in the form of a rod formed from the flexible material, substantially such as specified, and disposed axially within the spirally-formed and grooved core-tube; and in the said Fig. 2 the core is shown as wound with its corrugation or groove exteriorly, whereby an internal spiral rib is formed, and which exerts more or less of a spring-pressure on the said strip of filling.

In the manufacture of the center of the particular construction just described the corrugated strip, of a sufficient length and which may have been produced in any of the well-known ways of corrugated sheet metal, is first rolled or wound spirally on a mandrel, or otherwise, to form the tubular center. The filling or axial core-strip, which is usually of a length greater than that of the tubular center proper and of an even diameter except at its forward end, which is tapered to constitute a tip or tip-center, is then drawn through the spirally-formed tube, the coils of said tube expanding against a spring reaction to permit of the insertion of said core or filling-strip, and lying by the internal spirally-coursed rib on said strip with a retractive spring-bearing.

The above-described corrugated feature of the said spirally-wound metal strip conduces to a much-improved spring action to more quickly and forcibly straighten the whip after deflection, and the projecting spiral rib of said metal strip, by its engagement with the adjoining whip-sidings, prevents any crawling movement of the core within the whip.

With the center having substantially parallel sides, and the filling extending forward beyond the end thereof for a suitable distance, the whip is then made up in the usual manner, the sidings of rattan or other

material employed being tapered to give the proper form to the whip, and may or may not, at the option of the maker, be extended to cover the part of the filling-strip which is projected beyond the end of the spirally-formed metallic tube *b*.

The whip is to be finished up by plaiting or otherwise, in any of the usual manners.

What I claim as my invention is—

1. A whip-core consisting of a flat metallic band having a longitudinal groove or corrugation therein wound spirally, thereby forming a tube having therein a spiral seam and a spiral rib and channel, combined with a filling of flexible material, as whalebone, rawhide, or the like, inclosed within said spirally-formed metallic tube, substantially as and for the purpose set forth.

2. A whip consisting of a core formed of a flat metallic band having a longitudinal groove or corrugation therein wound spirally, constituting a tube having a spiral seam and a spiral rib and channel therein, and a filling of flexible material, as whalebone, rawhide, or the like, inclosed within said spirally-formed metallic tube and extended forwardly beyond the end thereof to form the tip-center, and the tapered sidings applied around said core and tip-center, substantially as and for the purpose set forth.

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