No. 721,686. PATENTED MAR. 3, 1903.

M. O. FELKER.

MEANS FOR UNITING PARTS OF WHIPS.

APPLICATION FILED JULY 21, 1902.

NO MODEL.

Fig. 1.

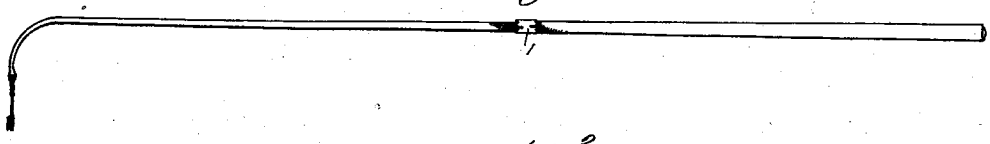


Fig. 2.

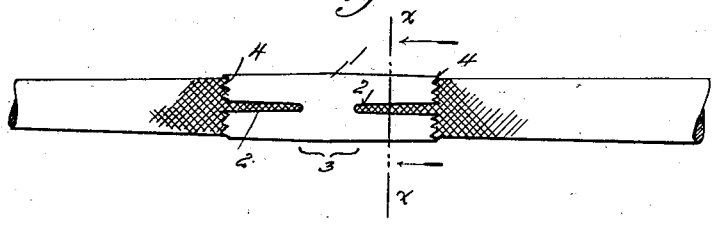


Fig. 3.

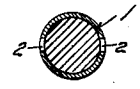


Fig. 4.

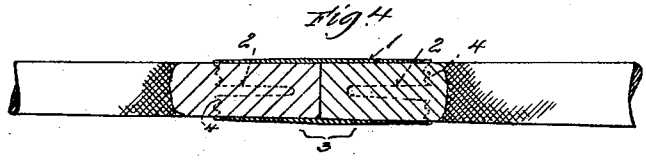
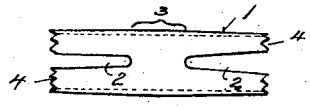


Fig. 5.



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MEANS FOR UNITING PARTS OF WHIPS.

SPECIFICATION forming part of Letters Patent No. 721,686, dated March 3, 1903.

Application filed July 21, 1902. Serial No. 116,377. (No model.)

To all whom it may concern:

Be it known that I, MELANCTHON O. FELKER, a citizen of the United States, residing at Chicora, in the county of Butler and State of Pennsylvania, have invented certain new and useful Improvements in Means for Uniting Parts of Whips, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to means for uniting parts of whips, and has for its object to provide a simple inexpensive device which may be readily applied for the purpose of uniting the ends of broken portions of whips and for other purposes.

To this end my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a view of a whip having its parts united by my improved device. Fig. 2 is an enlarged view of the joint. Fig. 3 is a sectional view taken on the line *x x* of Fig. 1 and looking in the direction of the arrows. Fig. 4 is a view similar to Fig. 2, but broken away in central longitudinal section through the joint to more clearly show the construction; and Fig. 5 is a view of the ferrule detached and with its ends opened to receive the parts to be united.

In carrying out my invention I employ a sleeve or ferrule 1, circular in cross-section and having the approximate general form of a hollow cylinder open at each end, the same being made of sheet metal, preferably brass, although any other material may be employed which is adapted to be swaged, so as to be reduced in diameter and maintain its reduced form. I prefer to construct this sleeve or ferrule in such a manner that the metal of which it is composed is thickest at its central portion, being reduced gradually in thickness or thinned off toward each end, as clearly shown in Fig. 4. I also prefer to form the sleeve or ferrule integral or of a single piece of metal. From each end of the body of the sleeve or ferrule slits 2 extend inward toward the central portion of the same, and these slits are preferably wider at their outer or open ends than at their inner ends when the ferrule is in its normal or unswaged condition, a portion of the metal being preferably cut away at each slit to give them the desired shape. The slits do not extend to the central line of the ferrule, but stop short thereof, thus leaving an annular central body portion 3 of greater thickness than the outer ends. Any desired number of slits may be employed, but I prefer the construction shown in which four slits are employed—two at each end—diametrically opposite each other and in line with the slits at the other end of the ferrule. I also prefer to so construct the ferrule that each edge thereof at the ends of the ferrule is serrated, as indicated at 4. The ferrule thus constructed is adapted to unite the broken parts of the whip or even parts of different whips having different sizes at their meeting ends. To accomplish this, the ends of the parts to be united are inserted in the ferrule from opposite ends thereof, so as to meet or as nearly so as possible within the central annular body portion 3. By reason of the ends of the ferrule being slit longitudinally said ends may be readily sprung open to receive whip-sections of different sizes, and the ends of the ferrule are thus independently adjustable, so that parts having considerable difference in relative diameters may be readily inserted in the opposite ends thereof. After the parts have been inserted the ferrule is swaged down upon them in the manner shown in the drawings, a special tool which I have devised for this purpose being employed to effect this swaging, and the ends of the ferrule will grip and firmly hold the parts of the whip and unite them in a strong and permanent joint equal in strength to the adjacent parts of the whip or even greater in strength, as experience has proved. The increased thickness at the central or middle portion of the ferrule gives this latter the greatest strength where it is required, while the thinning of the metal toward the ends facilitates the operation of swaging and gives the ferrule as a whole a certain amount of flexibility and elasticity when applied, which is increased by the presence of the slits. The serrations at the ends of the ferrule serve to prevent the latter from cutting into the material of which the whip is composed. Where the edge is continuous and non-serrated, the bending of the whip in use tends to cause said edge to cut into the

body of the whip, and thus reduce its strength at the ends of the ferrule, thereby causing a tendency to break at these points. By serrating the ends the metal at said points is subdivided into elastic points, which will yield individually in different directions to lateral strains without cutting into the material of which the whip is composed.

I do not wish to be understood as limiting myself to the precise details of construction hereinbefore described, as shown in the accompanying drawings, as it is obvious that these details may be modified without departing from the principle of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a means for uniting parts of whips, a ferrule having an elongated hollow body, of a metal adapted to be swaged, cylindrical in cross-section, and comprising a central annular portion and lateral portions having slits extending from the ends of the ferrule to said central annular portion, substantially as described.

2. As a means for uniting parts of whips, a ferrule having an elongated hollow body, of a metal adapted to be swaged, cylindrical in cross-section and having portions thereof cut away to form longitudinal slits extending from its ends toward its central portion, and of outwardly-increasing width, substantially as described.

3. As a means for uniting parts of whips, a ferrule having an elongated hollow body, of a metal adapted to be swaged, said body being of a maximum thickness at its central portion and decreasing in thickness toward each end, cylindrical in cross-section and provided with longitudinal slits extending from its ends toward its central portion, substantially as described.

4. As a means for uniting parts of whips, a ferrule having an elongated hollow body, of a metal adapted to be swaged, cylindrical in cross-section and provided with longitudinal slits extending from its ends toward its central portion, the ends of said ferrule being toothed or serrated, substantially as described.

5. As a means for uniting parts of whips, a ferrule having an elongated hollow body, of a metal adapted to be swaged, said body being of a maximum thickness at its central portion and decreasing in thickness toward its ends, said body comprising a central annular portion and end portions, parts of which are cut away to form longitudinal slits extending from the ends to the central annular portion, and of outwardly-increasing width, the ends of said ferrule being toothed or serrated, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MELANCTHON O. FELKER.

Witnesses:
JNO. D. MARSHALL,
REUBEN MCELVAIN.