

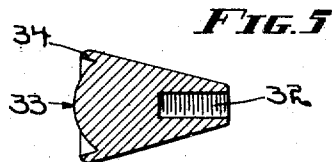
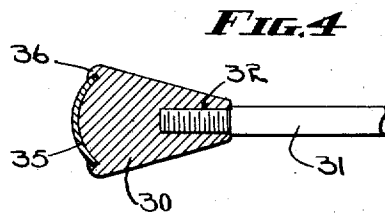
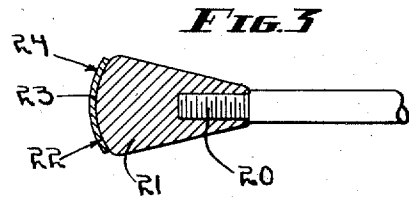
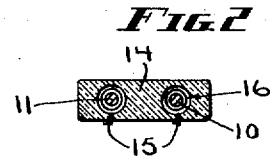
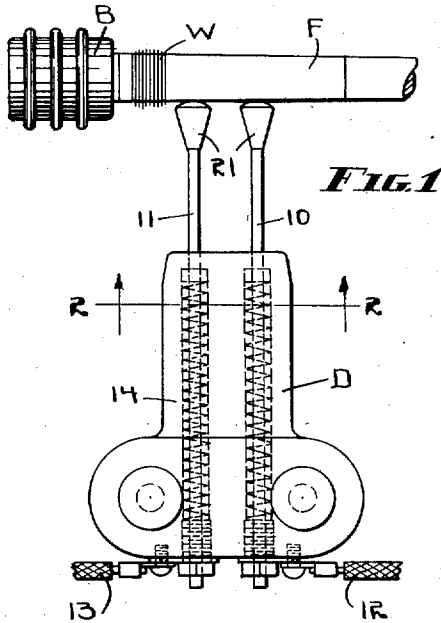
June 30, 1936.

O. V. PAYNE

2,045,960

FEELER TIP FOR WEFT DETECTORS

Filed June 21, 1934



Inventor
Oscar U. Payne
Van Hook & Hawley
Attorneys

UNITED STATES PATENT OFFICE

2,045,960

FEELER TIP FOR WEFT DETECTORS

Oscar V. Payne, Leicester, Mass., assignor to
Crompton & Knowles Loom Works, Worcester,
Mass., a corporation of Massachusetts

Application June 21, 1934, Serial No. 731,709

2 Claims. (Cl. 139—287)

This invention relates to improvements in feeler tips for weft detectors and it is the general object of the invention to provide a tip having a surface which shall be hard and possessed of very low oxidizing qualities so that it can be used for electrical feelers.

Electrical weft detectors as made at present employ a pair of oppositely charged electrodes to be electrically connected by a metallic ferrule on a bobbin when the weft of the latter is depleted. The lowest permissible voltages cause sparking which leaves a fine black deposit on the feeler tips. The weft carrier which comes into action as a result of feeler indication strikes the blackened tip surface with resultant darkening of the weft which shows in the finished cloth.

It is an important object of my present invention to employ a feeler tip which is sufficiently hard to withstand repeated contacts with hard wound weft and at the same time is practically non-oxidizable so that should a spark occur at the time of indicating weft exhaustion there will be little or no deposit on the detector tip and the freshly inserted supply of weft will not be marked as heretofore.

The metal which I prefer to use is an alloy of palladium and iridium. Both of these metals are practically non-oxidizable at ordinary temperatures and I employ the iridium principally for the purpose of producing an alloy that will be harder and more resistant to wear than pure palladium.

These metals are relatively expensive and it is a further object of my invention to provide an improved means for holding a small amount of such metal to an electrically conducting head and held in such a way that the latter cannot have contact with the ferrule on the bobbin being detected. This result I may accomplish by having the detector surface spherical or convex and attached to the head so that no exposed part of it can contact with the ferrule. The head may be made of brass which is easily oxidizable and would discolor the weft if permitted to contact directly with the ferrule.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawing, wherein two different forms of feeler tip are shown,

Fig. 1 represents a detector and bobbin of the electrical type with my invention applied thereto,

Fig. 2 is a vertical section on line 2—2 of Fig. 1,

Fig. 3 is an enlarged vertical section on line 3—3 of Fig. 1,

Fig. 4 is a view similar to Fig. 3 but with a slightly different method of holding the tip in place, and

Fig. 5 is a diagrammatic view showing a step in the process of forming the modified form of the invention.

Referring to Fig. 1, the bobbin B may be of the usual type and has a metallic ferrule F of electric conducting material. The weft W normally covers this ferrule but as depletion approaches the ferrule is uncovered and there will remain a reserve bunch as indicated in Fig. 1. Under these conditions electrodes 10 and 11 of the detector D will be electrically connected so that a current can flow through wires 12 and 13 which are connected, respectively, to the detector electrodes 10 and 11. When current flows through these wires a change will be brought about in the operation of the loom, such as bobbin or shuttle replacement, or loom stoppage. The feeler body 14 is made of insulating material and has a pair of channels 15 housing springs 16 which urge the electrodes rearwardly or toward the bobbin but permit forward yielding movement of the electrodes when the bobbin is advanced by the lay on the detecting beat of the loom.

So far as my present invention is concerned it is immaterial what particular result is caused by current flowing through the wires 12 and 13. For a more complete description of the structure and operation of the principal part of the detector reference may be had to my prior Patent No. 1,924,197.

In carrying my invention into effect I provide an improved form of tip for the electrodes 10 and 11. The preferred form shown in Fig. 3 may be formed of a piece of metallic wire having the rear end threaded as at 20 to which is threaded a head 21 of some current conducting material, such as brass. The rear part of the head may have a convex surface 22 which is preferably spherical and there is applied to this head a small sheet 23 of an alloy made substantially of 85% palladium and 15% iridium. This plate, which may be dished for the purpose, fits the contour of the convex surface 22 and may be soldered thereto, if desired. The rear surface 24 may be polished to render the same smooth.

In the modified form of tip as shown in Fig. 4 a current conducting head 30 is secured to the current conducting wire electrode 31 and has a tapped bore 32 to receive a threaded end of wire 55

31. Prior to application of the detecting surface the head may be formed as shown in Fig. 5 with a rearwardly facing convex preferably spherical surface 33 around which extends a rim 34 turned to a thin edge. A shell 35 substantially similar to the shell 23 is then placed on the surface 33 and the rim 34 is turned down as at 36 to hold the shell in place. The shell may be made of the same material as the shell 23 but instead of being soldered in place it is held in place by the turned down edges of the rim 34.

In both forms of the invention it will be seen that the rear surface of the rounded shell extends behind all parts of the head so that the latter has no opportunity to contact with the ferrule. The result is that the electric current which flows at the time indication of weft exhaustion is given is required to pass entirely through the palladium iridium alloy. Because of the nature of this alloy it does not burn in such a way as to form a black powder and any sparking which results from indication of weft exhaustion leaves these surfaces practically clean, so that the bobbin which is put into action after indication is not subjected to the repeated blows of a blackened electrode.

While I have given specific proportions for the metals which form the alloy, yet I do not wish to be limited strictly to the figures given. I have found that platinum operates satisfactorily and so far as certain features of my invention are concerned I do not wish to be limited to the par-

ticular metal or alloy which is held by the head 21 or 30.

From the foregoing it will be seen that I have provided a simple form of feeler tip which operates to close a circuit at the time of weft exhaustion without being burned. This is due to the fact that the feeler tip is formed of material having very low oxidizing tendencies and that the detecting surface formed of this material lies behind the head of less suitable material to which the detecting surface is secured.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. An electric feeler tip having a head of readily oxidizable metal formed with a convex rear surface, and a disk of a palladium and iridium alloy fitted to the convex surface and projecting beyond the rear part of the head, the head having portions to extend behind the disk to hold the latter in place on the head.

2. In an electric feeler tip, a supporting wire, a head of readily oxidizable metal threaded onto the wire and having a convex rear surface, a disk of a metal having a low oxidizing tendency conformed to the convex surface and protruding behind the rearmost part of the head and held to said head.

OSCAR V. PAYNE.