TOOL FOR CLEANING THE SPLINES OF TELESCOPICALLY EXTENSIBLE SHAFTS

Bennett B. Reak, West Bend, Wis., assignor to Weasler Engineering & Mfg. Co., Inc., West Bend, Wis., a corporation of Wisconsin

Filed Oct. 21, 1965, Ser. No. 499,668

2 Claims. (Cl. 15—105)

ABSTRACT OF THE DISCLOSURE

A flat plate or strap serving as a handle has convex and concave tool portions at its ends for respectively cleaning male and female splines. Each tool portion is provided with alternating teeth and inter-tooth notches complementary to the spline surface to be cleaned and having generally parallel widely spaced side edges and arcately curved terminal edges.

This invention relates to a tool for cleaning the splines of telecopically extensible shafts.

Splines are frequently painted as received by the customer buying new equipment. In order to have them function properly, it is necessary that the metal be clean and polished and free of paint and other materials that might cause sticking. Similar problems arise in use due to gummy materials getting on the splines and requiring to be removed. Heretofore, the removal of such materials has been a long and painstaking procedure.

The instant tool comprises a flat plate or strap which serves as a handle. At one end of this plate is an obliquely turned tool portion which is concavely notched to receive male splines and has teeth for entering between the male splines for the removal of all foreign matter.

At the other end of the handle is a tool portion peripherally bent at right angles to the handle, rather than obliquely, because it must enter into a female splined element. This tool portion is generally convex with outwardly extending teeth to enter the channels between the splines of a female coupling element and to fit in said channels to scrape all foreign matter therefrom, while the space between the teeth performs a similar function on the sides and tops of the splines.

In the drawings:

FIG. 1 is a view of the tool in side elevation.
FIG. 2 is a view of the tool in plan.
FIG. 3 is a view in end elevation.
FIG. 4 is a view taken from the viewpoint of the line 4—4 in FIG. 1.

The tool is made in one piece to provide an elongated central plate portion 6 which serves as a handle. At one end there is an upturned tool element 8 which is generally convexly arcuate in elevation, being provided with radially projecting teeth 10, intervening grooves 12, at half-teeth 14 adjoining the handle 6.

The tool element 8 fits the interior of a female spline shaft member. The teeth 10 enter the channels between the splines of such member, while the notches 12 receive the splines and conform in cross sectional contour to the intervening cross section of the respective splines.

At the other end of the handle is a generally concave tool element 15 which is preferably set at a 45° angle with respect to the handle 6 to project angularly at the side thereof opposite that at which the tool element projects. Tool element 16 has its maximum projection: its corner portions 18. Between these corner portions there is an accurately concave notch 20. The margins 20 in said notch are made to fit in the channels between the splines of a male spline element. The notches 22 which extend more deeply beyond the margin 20 in a conform in contour to the cross sectional contours of the splines of the male element which is to be cleaned.

It will be understood that the tool is designed to fit standard male and female splines. The tool element 8 fits the splined female member of a given coupling while the tool element 16 fits the splined complementary male element of the same coupling.

1. A spline cleaning tool comprising a strap-like sheet metal handle portion integrally provided at its ends with tool elements projecting in opposite directions and having alternating notches and teeth, one such element being generally convex and the other generally concave, the teeth of the generally convex element having wide spaced substantially parallel side margins and the notch of the generally concave element having substantially parallel side margins, both said teeth and said notch having generally arcuate terminal margins, the respective teeth being dimensioned to fit between the splines and the notches being adapted to receive and to fit the contours of a complementary spline.

2. A tool according to claim 1 in which the said element which is convex projects approximately at right angles to one face of the handle, the element which is concave projecting obliquely at an angle of about 45° from the opposite face of the handle.

References Cited

UNITED STATES PATENTS

1,195,297 8/1916 Vlcek 15—236
2,013,545 9/1935 Stevens 15—233
2,817,863 12/1957 Johns 15—236
2,824,323 2/1958 Tos et al. 15—104
1,041,839 10/1912 Miller 15—104

CHARLES A. WILLMUTH, Primary Examiner.
L. G. MACHLIN, Assistant Examiner.