Dec. 2, 1941. J. M. MacLEOD 2,264,391

SPRING APPLYING AND REMOVING IMPLEMENT

Filed Aug. 24, 1939 2 Sheets-Sheet 1

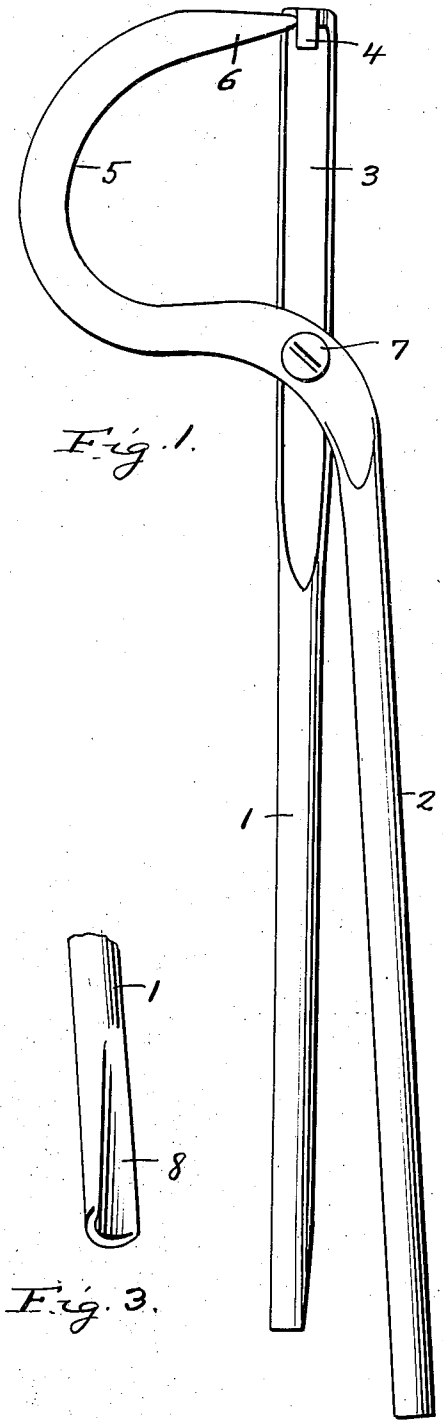


Fig. 1.

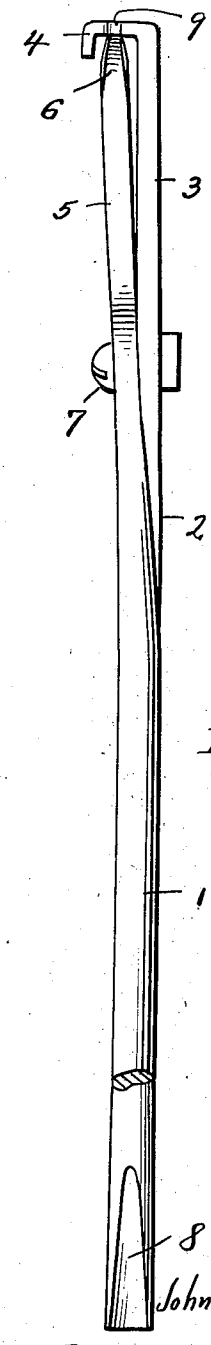


Fig. 2.

Fig. 3.

Inventor

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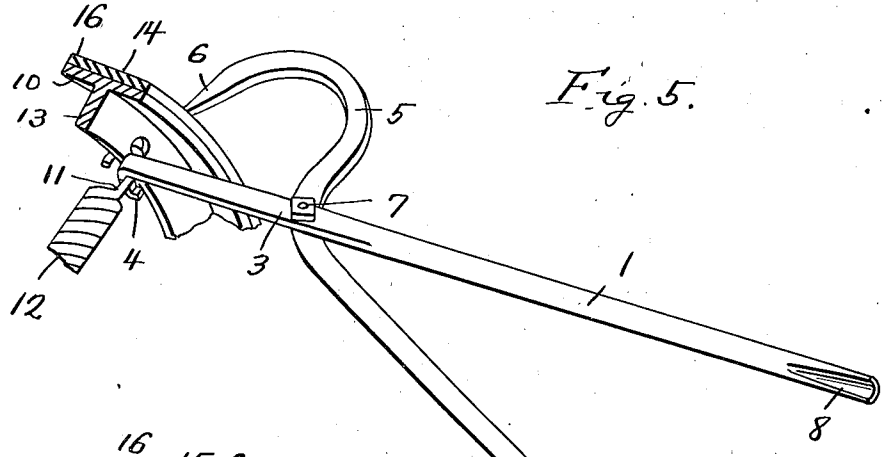


Fig. 5.

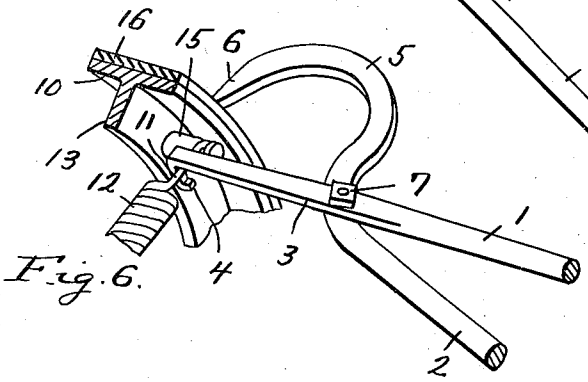


Fig. 6.

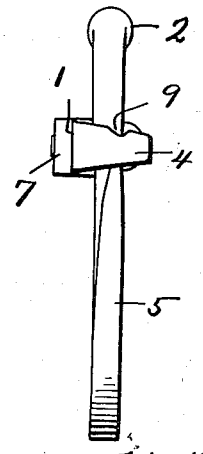


Fig. 4.

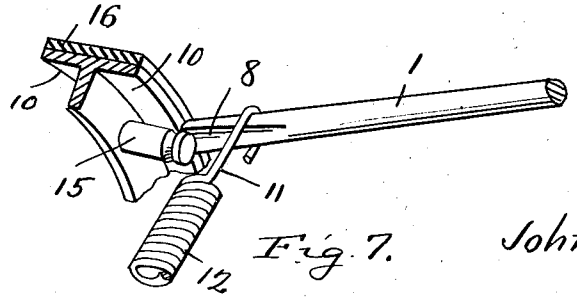


Fig. 7.

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Patented Dec. 2, 1941

2,264,391

UNITED STATES PATENT OFFICE

2,264,391

SPRING APPLYING AND REMOVING IMPLEMENT

John M. MacLeod, Newport, Vt., assignor of one-half to Henry H. Hayward, Derby, Vt.

Application August 24, 1939, Serial No. 291,776
In Canada May 25, 1939

1 Claim. (Cl. 29—87.1)

My invention relates to improvements in spring applying and removing implements for use more particularly in the automobile industry and automobile servicing establishments.

The invention is designed with the particular purpose in view of providing an implement, or tool, particularly adapted for quickly and easily detaching, or attaching, the tension springs of automobile brakes from the brake shoes.

To the accomplishment of the above, and subordinate objects presently appearing, a preferred embodiment of my invention has been illustrated in the accompanying drawings, set forth in detail in the succeeding description, and defined in the claim appended hereto.

In said drawings:

Figure 1 is a view in side elevation of a preferred form of my improved implement,

Figure 2 is a view in plan.

Figure 3 is a fragmentary view in perspective of the butt end of one of the hand grips.

Figure 4 is a view in front elevation, and

Figures 5, 6 and 7 are views in perspective illustrating the use of the implement.

Referring to the drawings by numerals, the illustrated embodiment of my improved implement is of pliers-like form and comprises a pair of preferably straight, rod-like hand grips 1 and 2, respectively, one having a flat straight front end extension 3 terminating in a laterally extending rightangled hook 4 opening rearwardly and the other having a front end extension 5 of compound curvature forming a substantially semi-circular hook in the plane of the hand grip terminating in a sharp beak 6. The member 1 is pivoted to the extension 5 of the member 2, as at 7, so that the extensions 3 and 5 are opposed in crossed relation forwardly of said pivot for operation under manipulation of said hand grips in opposite directions toward and from each other into opening and closing positions, respectively, the arrangement being such that the sharp beak 6 of extension 5 and the hook 4 are always opposed as will be clear. One of the hand grips, for instance 1, is provided at the rear, or butt, end thereof with a short longitudinal groove 8 therein gradually deepening toward the extremity of said end and for a purpose to be explained. As best shown in Figure 4 the hook 4 has a lower edge notch 19 therein, the purpose of which will presently appear.

Referring now to the use and operation of the described implement, in detaching a tension spring, the extensions 3 and 5 are opened to span the brake shoe 10 and act as jaws, and the hook 4 of the extension 3 is engaged with the hooked end 11 of the tension spring 12 which is attached in some cases to the radial flange 13 of the brake shoe by way of an aperture 14 in said flange, and in other cases, to a lateral stud 15 on said flange. The hand grip 1 is now manipulated toward the hand grip 2 to locate the beak 6 of extension 5 on the brake lining 16, or shoe, as the case may be, thereby establishing a fixed fulcrum point for the implement. With the parts in the position described, under pivotal movement of the hand grips 1 and 2 toward each other the end 11 of spring 12, if anchored in an aperture 14, will be interlocked with the hooked end 11 so as to be pulled out of the aperture 14 by hook 4 under fulcruming of the implement on the shoe, or band, in a direction to move said hook 4 away from said flange. Where the hooked end 11 of the tension spring 15 is anchored to a stud 15, the terminal of hook 4 will, under such pivotal movement of the hand grips 1 and 2, wedge between the hooked end 11 and stud 15 and then lift, or otherwise separate, said end from said stud. The notch in hook 4 functions to provide a seat for the hooked end 11 as will be clear.

In attaching such springs where there is an aperture in the brake shoe 10 the implement is used in substantially the same manner with the exception that the hooked end 11 of the spring 12 is drawn, under manipulation of the hand grips toward each other, to the aperture and then inserted therein under fulcruming action of the implement on the drum. In this connection another particular advantage of the implement is that it may be used, as will be obvious to attach a spring in an aperture where the latter is located inwardly of the flange 13 a distance greater than the over turn of the spring or in other words the length of the hooked end 11. Thus the implement is adapted for a wide range of operation in stretching and attaching such springs than present day devices. It will also be noted that the 3 and 5 may be opened substantially 180° thereby making it easy to attach or detach such springs without one hand grip interfering with the other which is not the case with implements for the same purposes as commonly constructed.

The implement may also be used to advantage in removing hub caps of the snapped in type by engaging the beak 6 with the edge of the cap and using the hook 4 as a fulcrum member.

Also as will be manifest the implement may be used in attaching and detaching springs when-

ever there is a fixed point for engagement by the beak 6.

The described groove 8 in the butt end of the hand grip 1 may be used to attach the tension spring 12 to a stud 15 by inserting said butt end through said hooked end 11 of said spring, as shown in Figure 7, and then engaging said butt end with the stud, with the latter seated in the groove, and in a position such that said grip may be fulcrumed on said stud to stretch the spring 12 and locate the hooked end 11 beyond said stud for sliding off said butt end onto the stud, the groove 8 preventing the butt end of said grip from sliding off the stud laterally.

The foregoing will, it is believed, suffice to impart a clear understanding of my invention without further explanation.

Manifestly, the invention, as described is susceptible of modification without departing from the inventive concept and right is herein reserved to such modifications as fall within the scope of the subjoined claim.

What I claim is:

A spring removing implement for detaching the hooked end of a tension spring from the shoe of an automobile brake comprising a pair of elongated members pivoted closer to one end than the other, the longer ends forming hand grips, and the shorter ends constituting jaw members, the elongated members being thereby pivoted together in opposed relation for opening and closing said jaw members under manipulation of said hand grips, one of said hand grips being straight and its jaw member being a straight extension thereof and terminating in a laterally projecting right angular flange having an inturned end forming a single rearwardly opening hook, said flange extending in the direction of the axis of the pivot for interlocking with one end of a spring, and the other jaw member from the pivot to its terminus being a substantially semi-circular hook terminating in a beak for location over an edge of a brake shoe and engagement with said shoe to provide a fixed bearing point for said other jaw member whereby the first mentioned jaw member may be moved toward closing position to stretch the hooked end of a spring and said implement rocked on said shoe in a manner to pull the end of the spring away from its point of attachment to its shoe, said flange being provided with an inner edge notch for seating said tooked end of the spring to prevent said end from slipping off said flange, and said flange tapering toward said notch to provide for sliding of said hooked end of the spring into the notch.

JOHN M. MacLEOD.