

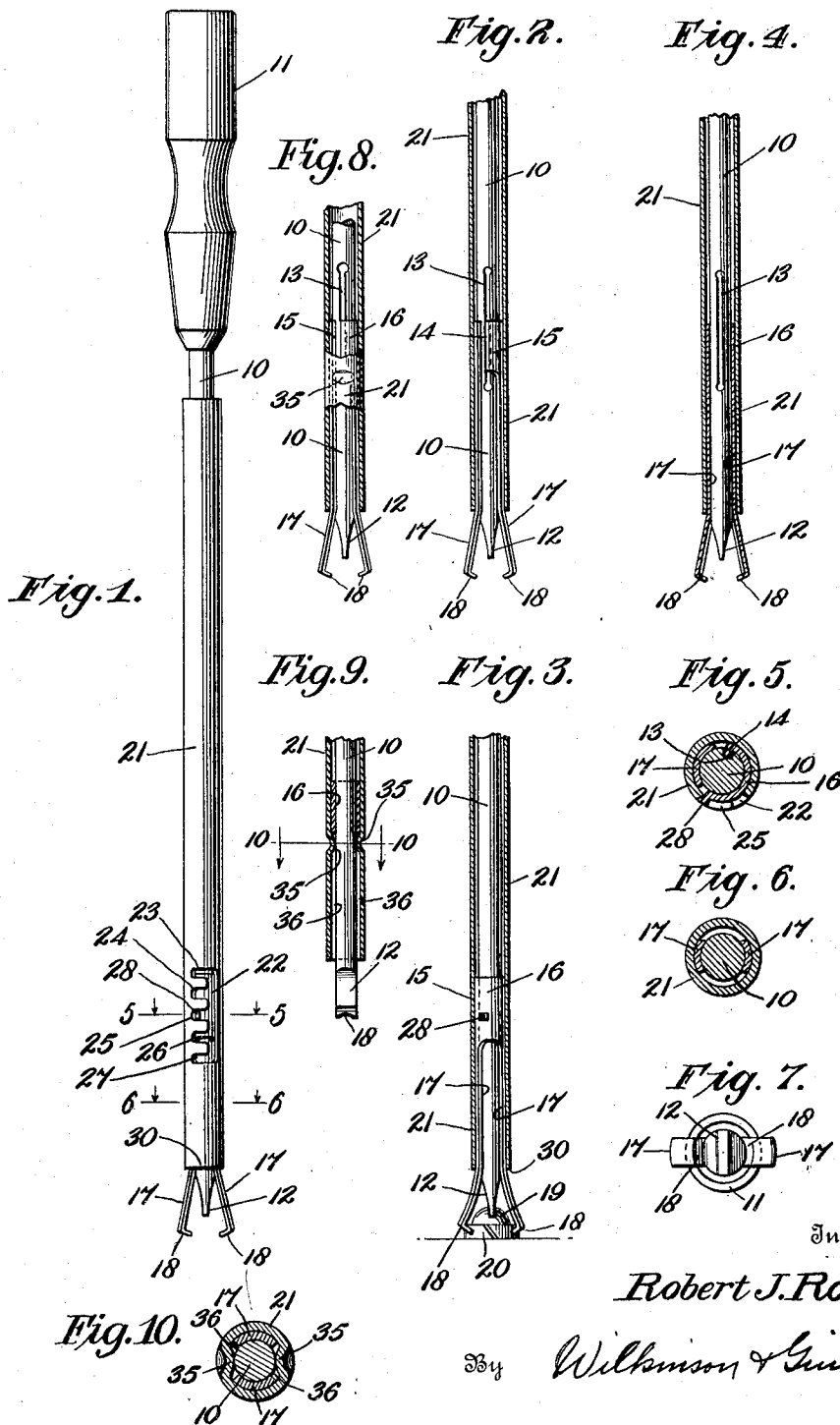
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R. J. ROWE

SCREW STARTING TOOL

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UNITED STATES PATENT OFFICE.

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SCREW-STARTING TOOL.

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To all whom it may concern:

Be it known that I, ROBERT J. ROWE, a citizen of the United States, residing at Port Huron, county of St. Claire, and State of Michigan, have invented certain new and useful Improvements in Screw-Starting Tools, of which the following is a specification.

This invention relates to screw starters and drivers, and more especially to a tool of this character which is particularly adapted for starting screws in the covers of Bendix automobile transmission cases, and has for one of its objects to provide a device of this character which will be simple in construction, comparatively inexpensive to manufacture, and more efficient in use than those which have been heretofore proposed.

A further object of the invention is to provide a device of the character described which is particularly adapted for gripping and holding screws and the lock washers usually associated therewith, and which may also be adjusted to render the gripping means inoperative, whereby the tool may be used as an ordinary screw driver.

With the above and other objects in view, which will appear as the description proceeds, the invention consists in the novel details of construction and the combinations of parts more fully hereinafter described and particularly pointed out in the appended claims.

Referring to the accompanying drawings forming a part of this specification, in which like numerals designate like parts in all the views;

Figure 1 is an elevational view of a screw starter taken in accordance with the present invention;

Fig. 2 is a fragmentary elevational view, the outer casing being shown in section, illustrating the interior construction of the device;

Fig. 3 is a view similar to Fig. 2, taken at 180 degrees therefrom, and showing the tool gripping and holding a screw and lock washer in position for starting the same;

Fig. 4 is a view similar to Fig. 2, and showing the gripping jaws in section;

Fig. 5 is a horizontal cross-sectional view, taken approximately on the plane indicated by the line 5—5 of Fig. 1, looking down;

Fig. 6 is a similar view, taken approximately on the plane indicated by the line 6—6 of Fig. 1, looking down;

Fig. 7 is a bottom plan view of the tool; Fig. 8 is a fragmentary vertical sectional view, partly in elevation, of a slightly modified form of the invention;

Fig. 9 is a similar view, taken at right angles to Fig. 8; and,

Fig. 10 is a cross sectional view, taken approximately on the plane indicated by the line 10—10 of Fig. 9.

In the said drawings, the numeral 10 indicates the shank of the device, one end of which is provided with a suitable handle 11 and the other end of which is cut away or flattened as indicated at 12, to engage the slots in the screw heads in the same manner as the ordinary screw driver.

The said shank 10, as is best shown in Figs. 2, 4 and 5, is provided at a point suitably spaced from the lower end 12 with an elongated slot or groove 13, in which is adapted to slide the tongue or projection 14, carried by the gripping member 15. This said gripping member preferably comprises a substantially cylindrical body portion 16, provided with a pair of depending legs 17, the lower ends of which are bent at an angle, as indicated at 18, to constitute gripping members adapted to engage and hold the screws, such as 19, and lock washers, such as 20, as indicated in Fig. 3.

The said gripping member may readily be stamped from sheet material and suitably bent or curved to substantially cylindrical shape, as indicated in the drawings, to snugly embrace the shank 10 with its tongue or projection 14 engaging the groove 13 of the said shank, as will be readily apparent.

Slidably mounted on the said shank 10 and surrounding the gripping member 15 and its jaws 17, is a sleeve 21, which is provided adjacent its lower end with an elongated slot 22, one side of which is provided with a plurality of notches or serrations 23, 24, 25, 26 and 27, see Fig. 1. The gripping member 15 is provided with a struck-out tongue or projection 28, see Figs. 1, 3 and 5, which is adapted to work in the said slot 22 and in its notches or serrations above mentioned.

The mode of using the tool will be readily apparent from the above description, but it may be briefly summarized as follows. When it is desired to start a screw, the sleeve 21 of the tool may be rotated from right to left, as seen in Fig. 1, to disengage the

tongue or projection 28 from the notch 25 and to bring it into the slot 22. When in this position the said sleeve may be moved longitudinally relative to the shank 10 and the gripping member 15, to cause its extreme lower end 30 to contract the spring jaws or gripping member 17 and to cause them to engage the screw head or washer, as indicated in Fig. 3.

10 When the said screw and washer is thus engaged and held, the sleeve may then be rotated in an opposite direction to bring the tongue or projection 28 into engagement with one of the other notches or serrations 15 26 or 27, whereupon the jaws 18 will be caused to securely hold the screw and washer. The shank 10 may then be moved longitudinally relative to both the sleeve 10 and the gripping member 15 for a distance 20 equal to the length of the slot or groove 13, to bring the reduced end 12 of the said shank into engagement with the slot in the screw head. The entire tool may then be rotated by motion applied to the handle 11 25 to start the screw and to either drive the same home or to withdraw it, as the case may be. When the driving operation is completed the sleeve may be again rotated to disengage the projection 28 from the particular notch it happens to be occupying, 30 whereupon the said sleeve may be moved axially relative to the gripping member, thereby permitting the same to release its hold on the screw and washer.

35 The form of the invention illustrated in Figs. 8, 9 and 10 is quite similar to that above described, but the tongue 28 of the gripping member 15 is omitted, as is the slot 22, and the notches or serrations 23, 24, 25, 26 40 and 27 of the sleeve 21. In lieu of this connection between the members 21 and 15, the member 21 is indented or otherwise provided with a pair of substantially oppositely disposed inward projections 35, which 45 extend into the spaces 36 between the legs 17 of the member 15, as will be clear from Figs. 9 and 10.

50 Upon downward movement of the sleeve 21 relative to the shank 10, the frictional engagement of the walls of the said sleeve with the gripping member 15, will carry

the latter downwardly also, the length of the slot 13, after which any further movement of the sleeve 21 will cause its lower edge 30 to contract the gripping jaws 18 to 55 cause them to engage a screw and washer such as 19 and 20, as above described. Upon upward movement of the sleeve 21, its indentations 35 will slide freely within the spaces 36 without moving the member 15, 60 thereby releasing the gripping jaws 18, until they engage the lower edge of the head 16 of member 15, whereupon further upward movement of the sleeve will carry the member 15 with it to the limit of the slot 65 13, as will be readily apparent.

While two forms of the invention have been illustrated and described, it is obvious that those skilled in the art may vary the details of construction as well as the 70 arrangement of parts without departing from the spirit of the invention, and therefore it is not wished to be limited to the above disclosure except as may be required by the accompanying claims. 75

What is claimed is:

1. A device of the class described comprising a shank; a gripping member provided with a tubular head and spaced depending legs, slidably mounted on said 80 shank; and a sleeve surrounding said shank and gripping member, provided with an indentation entering and slidable in the space between said legs and adapted to engage said head to move said gripping member. 85

2. A device of the class described comprising a shank; a gripping member provided with a tubular head and spaced depending legs, slidably mounted on said 90 shank; means comprising a tongue and groove connection for limiting relative movement between the two; and a rigid sleeve surrounding said shank and gripping member, provided with an indentation entering and slidable in the space between said 95 legs and adapted to engage said head to move said gripping member in one direction, the inner surface of said sleeve frictionally engaging the outer surface of said head to move said member in the other direction. 100

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