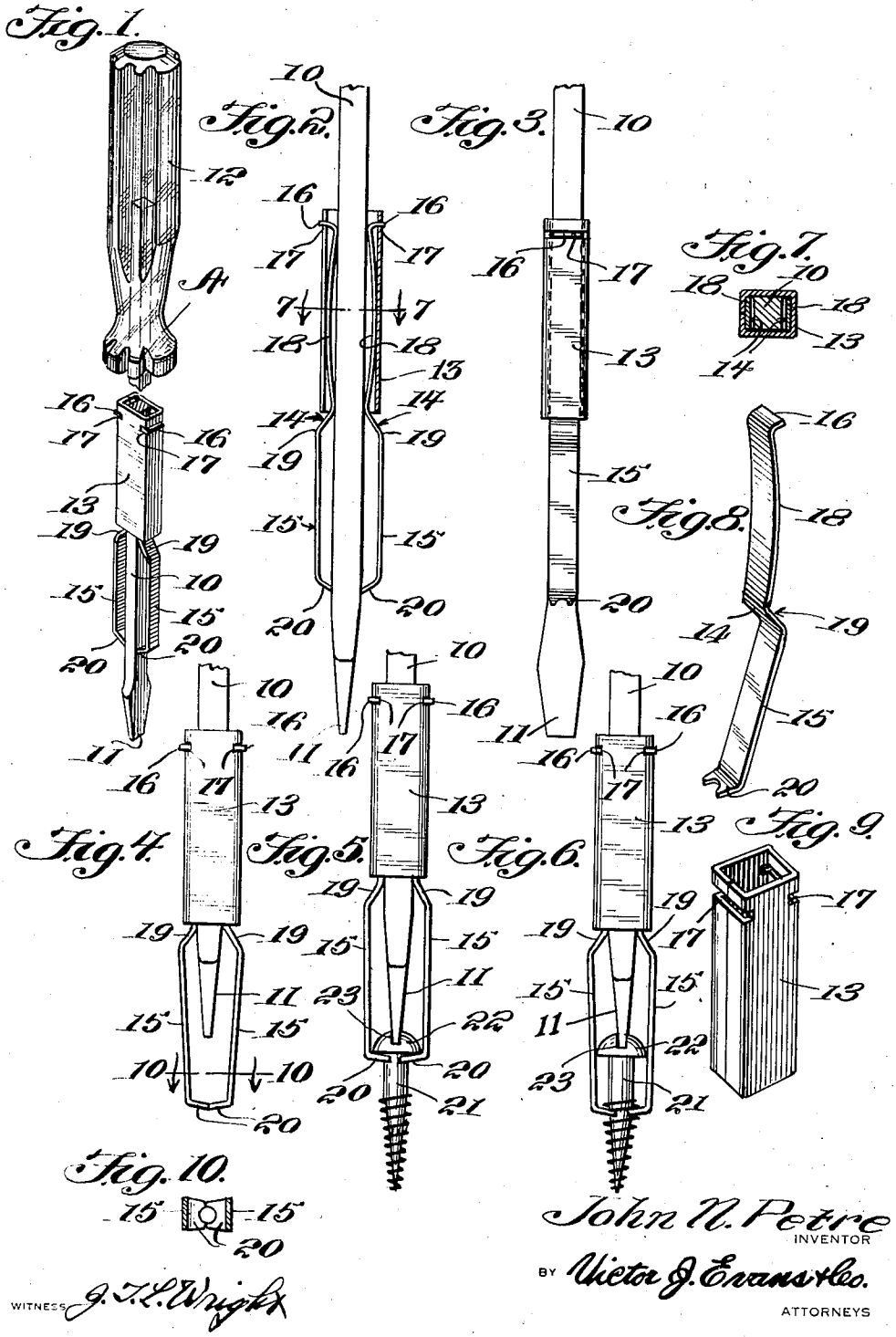
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SCREW DRIVER ATTACHMENT

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WITNESS J. L. Wright

John N. Petre
INVENTOR

BY Victor J. Evans & Co.
ATTORNEYS

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SCREW DRIVER ATTACHMENT

John N. Petre, Orchard Park, N. Y., assignor to Park Metalware Co. Inc., Orchard Park, N. Y., a corporation of New York

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The invention relates to a screw driver attachment and more especially to a screw holding screw driver.

The primary object of the invention is the provision of a tool of this character, wherein the runner or sleeve slidably fitting the shank of such tool has interlocked with said runner or sleeve the arms of a pair of gripping members, these being engageable with a screw when the screw driver is set thereto for the working of the screw home or its removal from a piece of work.

Another object of the invention is the provision of a tool of this character, wherein a fastener, such as a headed or non-headed screw, can be firmly gripped and held to the work irrespective of the condition of the screw driver receiving notch or slot as provided therein so that successful operation of the tool may be had for the insertion or removal of the fastener of screw type into or from a piece of work.

A further object of the invention is the provision of a tool of this character, wherein the runner or sleeve frictionally embracing the shank of the screw driver or the like will remain in place anywhere of the major length of such shank so that the spring holder for the screw or the like can be above, below or exactly at the tip of the screw driver.

A still further object of the invention is the provision of a tool of this character, which is extremely simple in construction, readily and easily adjusted, thoroughly reliable and efficient in operation, assuring the positive gripping of a screw or the like to be operated upon by the tool, strong, durable, and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter more fully described, as illustrated in the accompanying drawing, which discloses the preferred embodiment of the invention, and as pointed out in the claims hereunto appended.

In the accompanying drawing:

Figure 1 is a perspective view of a screw driver showing the attachment constructed in accordance with the invention and applied thereto.

Figure 2 is a vertical longitudinal sectional view through the attachment as applied to the screw driver shank.

Figure 3 is an elevation of the attachment showing the same carried by the shank of the screw driver, the view being at a right angle to that in Figure 2.

Figure 4 is a view similar to Figure 3 but looking in a direction at a right angle thereto and the attachment being in an extended position on the screw driver shank.

Figure 5 is a view similar to Figure 4 but showing the attachment in a slightly retracted position gripping and holding a screw in operable engagement with the tip of the screw driver shank.

Figure 6 is a view similar to Figure 5 showing a further working adjustment of the attachment.

Figure 7 is a sectional view on the line 7—7 of Figure 2 looking in the direction of the arrows.

Figure 8 is a perspective view of one of the members of the attachment.

Figure 9 is a perspective view of the runner or sleeve of the attachment.

Figure 10 is a sectional view on the line 10—10 of Figure 4 looking in the direction of the arrows.

Similar reference characters indicate corresponding parts throughout the several views in the drawing.

Referring to the drawing in detail, A designates generally a screw driver of any conventional type having the usual shank 10 provided with the screw-engaging tip 11 and carrying a handle 12. The shank 10 in this instance is of substantially square formation and cross section throughout a major or greater portion of the length thereof.

Upon this screw driver is the screw holding attachment which comprises a runner or adjusting sleeve 13 slidably fitted to the shank 10 of the screw driver A. This sleeve is preferably made from a single sheet metal blank bent to embrace the shank 10 of the screw driver, it being of substantially rectangular shape in cross section throughout its length while at opposite sides of the shank 10 of the screw driver within the said runner or sleeve 13 are clearances for the arms 14 of gripping or holding jaws 15, these being inherently resilient. The arms 14 are provided with outwardly turned terminal tongues or ears 16 which are accommodated within receiving slots 17 cut into the runner or sleeve 13 at opposite sides thereof and opening outwardly therefrom. These tongues or ears 16 are held engaged in the slots 17 through the crowding dispositon of the shank 10 when the sleeve or runner 13 is fitted thereon. The arms 14 are preferably bulged or bowed outwardly as at 18 (see Figure 8) and when placed within the runner or sleeve 13 these portions 18 are tensioned for

frictional action upon the shank 10 of the screw driver A which is inserted between them as shown in Figure 2 so as to hold the runner or sleeve in slidably adjusted position on the shank.

The holding jaws 15 are outstruck from the arms 14 as at 19 and are provided with inturned claw terminals 20 for cooperative gripping engagement with a screw 21 for the holding of the same in position to be acted upon by the tip 11 of the shank 10 of the screw driver in the working of the screw home in a piece of work or outwardly therefrom.

The holding jaws 15 are susceptible of embracing the screw 21 at various points of its length and particularly for hooking action with a head 22 of such screw for positively holding the latter in position to be worked upon through the engagement of the screw driver tip 11 in the slot 23 provided in the head 22 of said screw. These jaws 15 of the attachment also will serve to grip and hold a fastener devoid of the head but having a screw driver receiving slot for the engagement of the screw driver therewith.

The attachment positively holds the screws or studs either when inserting them in or removing them from a piece of work.

The arms 14 within the sleeve or runner 13 will be positively interfitted therewith by the ears or tongues 16 engaged in the slots 17, this being effected by the presence of the shank 10 within the said sleeve or runner with the arms 14 disposed between the said shank and opposite side walls of the runner or sleeve. The runner or sleeve is frictionally held on the shank 10 and will remain in any desired location on manual adjustment thereof.

The interfitting of the arms 14 within the sleeve or runner 13 avoids the necessity of rivets or other like fasteners in the assembly of the attachment and in the connection of the arms with said runner or sleeve.

The holding jaws 15 at the gripping terminals thereof may be of a formation to cooperate with a screw driver which in cross section is round, oval or flat faced and similarly the runner can be shaped in conformity with the screw driver at the shank thereof.

The jaws are outwardly offset with relation to the runner receiving the arms 14, these arms being outwardly bowed for the purposes hereinbefore stated and the connecting portions 19 between the jaws proper and the arms being preferably oblique as shown. This outwardly offsetting of the jaws is for the purpose of removing the flexing point of the spring from the point thereof exactly where it emerges from the runner to the interior of the latter and thus overcoming spring breakage at such point.

By reason of the formation and proportionate transverse dimension of the runner 13, which loosely embraces the screw driver shank 10, there is provided sufficient space for the arms 14 between the shank and the two opposed walls of the runner to allow the flexing action of these arms throughout the entire extent thereof with the result that the spring in these arms is transferred from the point where the same emerge from the runner. Now due to the shape of the arms, that is to say, the bulges or bowed condition as at 18 wholly within the runner, there is not only obtained frictional action on the shank, but, as stated above, the flexing action of these arms is transferred to a point inside of the runner. The arms 14 have a transverse line contact at their opposite ends with the shank of the screw driver and a transverse line contact with the runner intermediate their ends and these arms are freely flexible throughout between their respective places of contact with the screw driver shank and runner where they are movable with frictional resistance particularly when an outward pull is had thereon throughout the extent of the entire element without liability of the arms breaking at the points where the same emerge from the runner.

What is claimed is:

1. An attachment for a screw driver having a conventional shank and screw-engaging tip portion, said attachment comprising a runner freely embracing and slidable longitudinally on the screw driver shank, said runner having two opposite longitudinal side portions spaced from the adjacent opposed sides of the shank, and a pair of cooperatively opposed resilient single-piece jaw members projected forwardly from the forward end of said runner and having screw-retaining provision at their outer ends, said jaw members being formed with integral arm extensions of substantially the same length as the runner and offset inwardly therefrom at their inner ends and adjacent the forward end of the runner and extending respectively in the opposite longitudinal spaces between the screw driver shank and the adjacent opposed side portions of the runner, said arm extensions being fastened at their rear ends to the adjacent end portions of the runner and each arm extension being bowed outwardly with maximum original offset greater than the width of the space between the screw driver shank and the opposed side wall of the runner, whereby, when assembled in the attachment, to be placed under tension by compressive distortion thereof, the extensions will have in the region of their opposite ends a transverse line contact with the screw driver shank and intermediate their ends a transverse line contact with the adjacent opposed side portions of the runner.

2. An attachment for a screw driver having a conventional shank and screw-engaging tip portion, said attachment comprising an elongated open-ended runner freely embracing and slidable longitudinally on the screw driver shank, said runner having two parallel opposite longitudinal side portions spaced throughout the length thereof from the adjacent opposed sides of the shank, and a pair of cooperatively opposed resilient jaw members each formed from a single flat strip and having a portion projected forwardly from the forward end of said runner and having screw-retaining provision at its outer end, said jaws having integral arm extensions of substantially the same length as the runner and inwardly offset therefrom at their inner ends and extending respectively with freedom of transverse movement in the opposite longitudinal spaces between the screw driver shank and the adjacent side portions of the runner, said arm extensions being fastened at their rear ends to the adjacent end portions of the runner and each arm extension being bowed outwardly substantially from end to end thereof with maximum original offset greater than the width of the space between the screw driver shank and the opposed runner wall, whereby, when assembled in the attachment, said arm extensions are placed under tension by compressive distortion thereof and have in the region of their opposite ends a transverse line contact with the screw driver shank and intermediate their

ends a transverse line contact with the adjacent opposed side portions of the runner.

3. An attachment for a screw driver having a conventional shank and screw-engaging tip portion, said attachment comprising a runner freely embracing and slidable longitudinally on the screw driver shank, said runner comprising an elongated open-ended tubular member of rectangular cross section having two opposite longitudinal side wall portions spaced throughout the entire length thereof from the adjacent opposed sides of the shank, said side wall portions of the runner being apertured adjacent the rear ends thereof, and a pair of cooperatively opposed resilient jaw members each formed from a single flat strip and having a portion projected forwardly from the forward end of said tubular runner member and having screw-retaining provision at its outer end, said jaws each having an integral arm extension at its inner end of substantially the same length as the tubular runner member and offset inwardly from the jaw portion proper with an oblique connecting portion between the jaw portion proper and the arm extension, said arm extensions being each bowed outwardly from end to end thereof with maximum original offset greater than the width of the space between the screw driver shank and the opposed runner wall and formed with an outwardly turned rear terminal tongue, whereby, with said arm extensions inserted in the respective opposite longitudinal spaces between the screw driver shank and the adjacent opposed walls of the tubular runner member and the rear terminal tongues of said resilient arm extensions interfitted in the apertured rear end portions of the runner member, said arm extensions are placed under tension by compressive distortion thereof and held against longitudinal movement at their rear terminals and have a transverse line contact with the screw driver shank adjacent both their rear and forward terminals with their outwardly bowed portions intermediate the terminals thereof in transverse line contact with the adjacent opposed wall portions of the tubular runner member.

JOHN N. PETRE.