

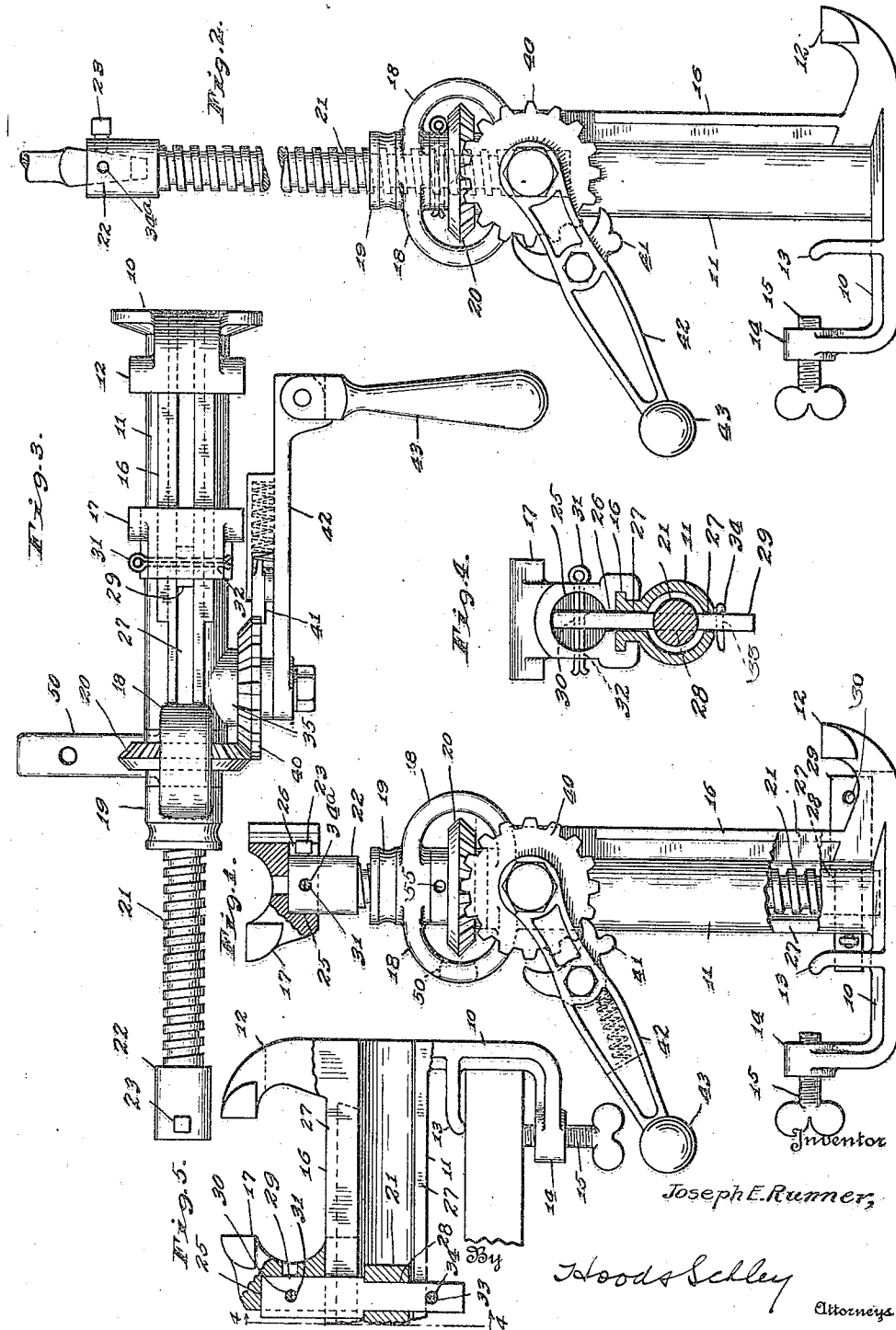
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J. E. RUNNER

COMBINATION JACK, BREAST DRILL, AND VICE

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# UNITED STATES PATENT OFFICE.

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## COMBINATION JACK, BREAST DRILL, AND VISE.

Application filed April 15, 1921. Serial No. 461,597.

*To all whom it may concern:*

Be it known that I, JOSEPH E. RUNNER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Combination Jack, Breast Drill, and Vise, of which the following is a specification.

The object of my invention is to produce a combination tool, especially useful in connection with automobiles, which may be utilized as a jack, a breast-drill, and a vise, the construction being such that when used as a vise it may be readily attached to the running board of an automobile, if desired.

The accompanying drawings illustrate my invention. Figure 1 is a side elevation showing the parts in position for use as a jack, Fig. 2 is a side elevation showing the parts in position for use as a breast-drill, Fig. 3 is an end elevation of parts in position for use as a vise, Fig. 4 is a detail sectional view on the line 4-4 of Fig. 5, and Fig. 5 is a detail of the combined vise jaw and jack step.

In the drawings, 10 indicates a suitable base plate from the middle of which rises a tubular stem 11. The base plate at one side carries a fixed vise jaw 12 and at the other side is provided with a flange 13, bracket 14 and clamping screw 15 for clamping the structure in a vise position when used under certain conditions. On the jaw side of stem 11, the stem is provided with guide flanges 16 forming a support and guide for the movable vise jaw 17 which is formed to have an interlocking sliding engagement, of usual character, with the guide flanges 16. Flanges 16 are somewhat shorter than stem 11 so that the jaw 17 may be removed from guide flanges 16.

The upper end of stem 11 is provided with a pair of brackets 18, 18 which support a thimble 19 in line with stem 11, and between the upper end of stem 11 and the lower end of thimble 19 I arrange a bevel gear 20 which is internally threaded to receive the threaded stem 21 which, at its upper end, is externally formed to receive jaw 17 and is internally provided with a tool-receiving socket 22 with which is associated a clamping screw 23.

In order that jaw 17 may be utilized as a jack step at the upper end of stem 21, I provide it with a socket 25 adapted to re-

ceive the upper end of stem 21, a groove 26 leading radially from the socket 25 so as to fit over the clamping screw 23 and thus hold the jaw 17 from turning upon the upper end of stem 21.

Stem 11 is diametrically slotted between brackets 18 and base plate 10, as indicated at 27, and the lower end of stem 21 is correspondingly diametrically slotted at 28 (see dotted lines, Fig. 1) to receive a finger 29 adapted to lie in groove 26 of jaw 17 when said jaw is utilized as a vise jaw. The finger 29 is provided at one end with a perforation 30 adapted to receive a cotter-pin 31 which may be projected through suitable perforations 32 in jaw 17, and at the other end is provided with a perforation 33 adapted to receive a cotter-pin 34 which will serve to retain the finger in place as indicated in Fig. 4.

The same cotter-pin 31 is utilized to retain jaw 17 upon the upper end of stem 21 by being passed through perforations 34.

Journalled upon a stud 35 at the upper end of stem 11 is a gear 40 which meshes with gear 20 and serves also as a ratchet with which cooperates a double-ended pawl 41 mounted upon a crank arm 42 journalled upon the stud 35. The crank arm 42 is provided at its outer end with a pivoted handle 43 which may be swung into position either at right angles to or in line with arm 42.

In event it is desired to more securely hold the device when it is utilized as a vise in position than it would be ordinarily held by the clamp 13, 14 and 15, a lag screw or clamping bolt may be passed through an opening in a finger 50 formed on one of the brackets 18 and secured into the base or support on which the apparatus is intended to be mounted. By this means both ends of the apparatus will be firmly secured in position.

With the parts in position shown in Fig. 1 the apparatus is in condition for use as a jack, the finger 29 serving to prevent rotation of stem 21 and pawl 41 serving to drive gear 20 in either direction so as to raise or lower stem 21.

To utilize the structure as a breast-drill, jaw 17 is removed from stem 21 or guide 16 as the case may be, and finger 29 is withdrawn from slots 27 and 28, and one of the cotter-pins is projected through perforations 55 in gear 20, and a coinciding perforation

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in stem 21, thereby fastening stem 21 to gear 20 so that it will partake of its rotation.

In order to utilize the apparatus as a vise, finger 29 is projected through slots 27 and 28, and jaw 17 is pinned to finger 29 in the manner already described.

I claim as my invention:

1. A combination tool comprising a main body, a threaded stem reciprocable and rotatable in said body, a nut associated with said threaded stem and main body, means by which said nut may be caused to either rotate or reciprocate the threaded stem, and means by which said nut may be rotated.
2. A combination tool comprising a main body, a threaded stem reciprocable in said body, a nut associated with said threaded stem and main body, means by which said nut may be caused to reciprocate the threaded stem, and means by which said nut may be rotated, a stationary abutment member carried by the main body, a second abutment member arranged to be slidably associated with the main body adjacent the stationary abutment member and removable from the main body, means by which said second abutment member may be operatively associated with either the outer end of the threaded stem, or with the inner end of the threaded stem.
3. A combination tool comprising a main body, a threaded stem reciprocable in said body, a nut associated with said threaded stem and main body, means by which said nut may be caused to reciprocate the threaded stem, and means by which said nut may be rotated, a stationary abutment member carried by the main body, a second abutment member slidably associated with the main body adjacent the stationary abutment member and removable from the main body, and means for connecting the second abutment member with the inner end of the threaded stem.
4. A combination tool comprising a main body, a threaded stem reciprocable in said body, a nut associated with said threaded stem and main body, means by which said

nut may be caused to reciprocate the threaded stem, and means by which said nut may be rotated, a stationary abutment member carried by the main body, a second abutment member slidably associated with the main body adjacent the stationary abutment member and removable from the main body and operatively associated with either end of the stem, a finger removably projected through a longitudinal slot in the main body and through the threaded stem, and means by which said second abutment member may be connected to said finger.

5. A combination tool comprising a main body, a threaded stem reciprocable and rotatable in said body, a nut associated with said threaded stem and main body and rotatable relatively to said stem, detachable means for connecting the stem to the nut to rotate said stem with the nut, and means by which said nut may be rotated.

6. A combination tool comprising a main body, a threaded stem reciprocable and rotatable in said body, a nut associated with said threaded stem and main body and rotatable relatively to said threaded stem, detachable means for connecting the stem to the nut to rotate said stem with the nut, detachable means for locking said stem against rotation, and means by which said nut may be rotated.

7. A combination tool comprising a main body, a threaded stem reciprocable in said body, a nut associated with said threaded stem and main body, means by which said nut may be caused to reciprocate the threaded stem, means by which said nut may be rotated, a stationary abutment member on said main body, and a movable abutment member, and means for operatively connecting the movable abutment member to either end of said stem.

In witness whereof I have hereunto set my hand at Indianapolis, Indiana, this 13th day of April, A. D. one thousand nine hundred and twenty-one.

JOSEPH E. RUNNER.