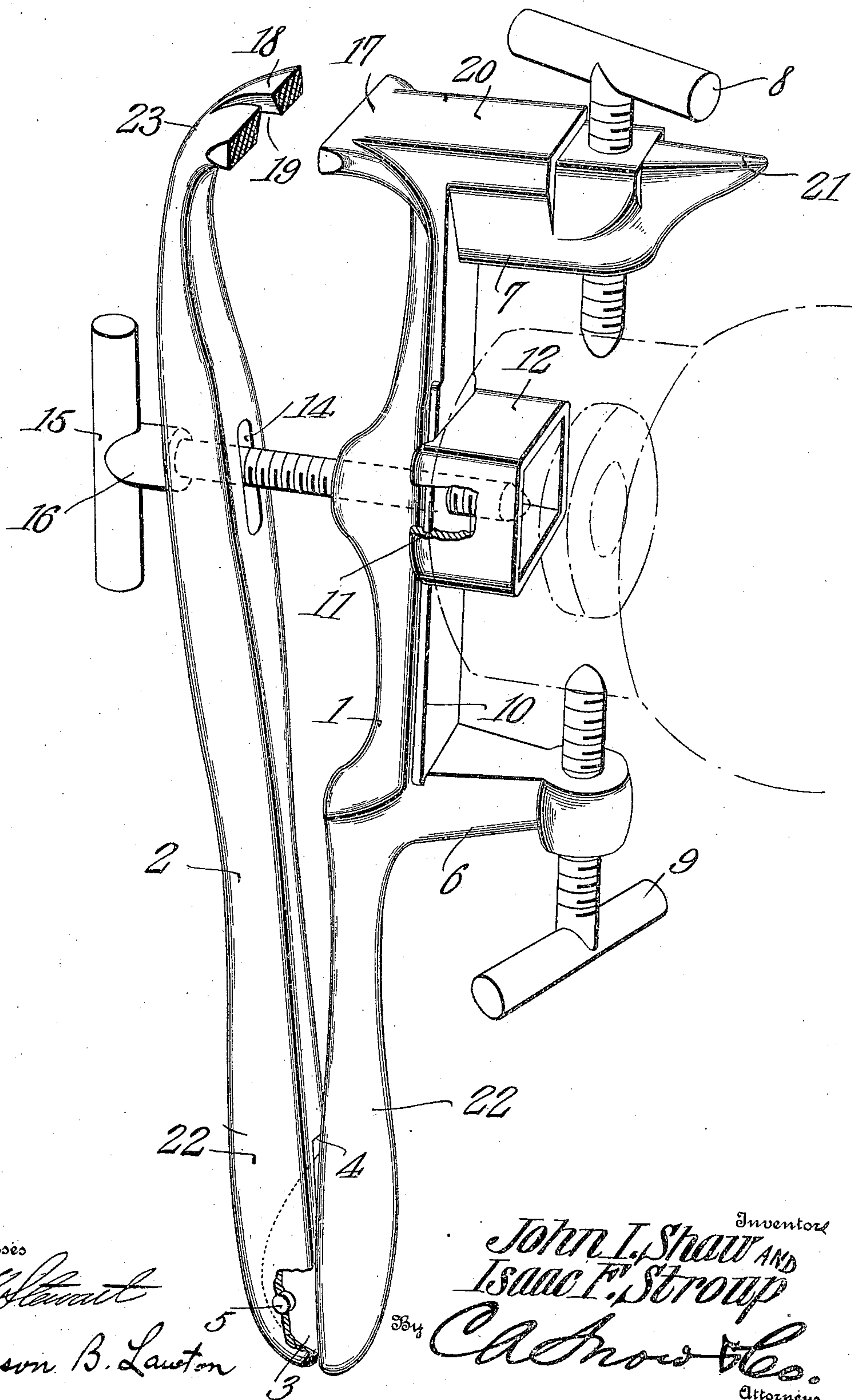


J. I. SHAW & I. F. STROUP.
COMBINATION TOOL.
APPLICATION FILED APR. 5, 1909.

952,473.

Patented Mar. 22, 1910.



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UNITED STATES PATENT OFFICE.

JOHN I. SHAW AND ISAAC F. STROUP, OF NOVINGER, MISSOURI.

COMBINATION-TOOL.

952,473.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed April 5, 1909. Serial No. 488,044.

To all whom it may concern:

Be it known that we, JOHN I. SHAW and ISAAC F. STROUP, citizens of the United States, residing at Novinger, in the county of Adair, State of Missouri, have invented a new and useful Combination-Tool, of which the following is a specification.

The objects of the invention are, generally, the provision in a merchantable form of a device of the class above mentioned which shall be inexpensive to manufacture, facile in operation and devoid of complicated parts; specifically, the provision of a wheel wrench provided with interchangeable nut caps, and with an element adapted to maintain a nut cap in position upon the device; and of novel means for frictionally engaging the above named element against movement; other and further objects being made manifest hereinafter as the description of the invention progresses.

The invention consists in the novel construction and arrangement of parts hereinafter described, delineated in the accompanying drawings and particularly pointed out in that portion of this instrument wherein patentable novelty is claimed for certain distinctive and peculiar features of the device, it being understood that within the scope of what hereinafter thus is claimed, divers changes in the form, proportions, size and minor details of the structure may be made, without departing from the spirit or sacrificing any of the advantages of the invention.

Similar numerals of reference are employed to denote corresponding parts throughout the accompanying drawing, wherein our invention is shown in perspective.

In carrying out our invention we provide primarily a fixed member denoted generally by the numeral 1, and a movable member 2 which is pivotally connected with the fixed member 1. The pivotal connection between the fixed member 1 and the movable member 2 may be effected by a variety of means. In the present instance, we have grooved the member 2 near one of its terminals, as denoted by the numeral 4, and provided the member 1 with a tongue 3 adapted to register in the groove 4 in the member 1. A pintle 5 is passed transversely through the member 2, and through the tongue 3 of the member 1 to complete the aforesaid pivotal connection between the members. The fixed

member 1 is provided with spaced arms 6 and 7 projecting substantially at right angles from its body portion. The extremity of the arm 6 which will for convenience be designated hereinafter as the lower arm, is threaded transversely, to receive at its outer terminal, a set screw 9. The upper arm 7, intermediate its ends, is threaded to receive a transversely disposed set screw 8, the set screws 8 and 9 having a common axis. Between the arms 6 and 7 the body of the fixed member 1 is provided at its edges, with laterally projecting tongues 10. These tongues 10 do not extend entirely across the space between the arms 6 and 7, but, as shown in the drawing, are terminated adjacent the upper arm 7. These tongues 10 are adapted to register in slots 11 disposed in the sides of a nut cap 12, at one end thereof, so that the said nut cap may have sliding movement upon the tongues 10.

The movable member 2 is provided, intermediate its ends, with a longitudinally disposed slot 14 arranged to receive slidably, a set screw 15 which is threaded into the fixed member 1 and disposed transversely thereof. As clearly shown in the drawing, one extremity of this set screw 15 is adapted to project within the contour of the nut cap 12, the other extremity of the said set screw being provided with a head 16 adapted to engage the movable member 2.

The fixed member 1 is provided at its upper terminal with a jaw 17 adapted to cooperate with a similar jaw 18 which is carried by the movable member 2. The jaw 18 of the movable member is provided, with a V-shaped notch 19. The upper surface of the arm 7 between the set screw 8 and the jaw 17 is provided with a broad, flat surface 20, and, at its extremity, beyond the set screw 8, the said arm 7 terminates in a pointed end 21. Adjacent their point of pivotal union, the members 1 and 2 are rounded to provide suitable handholds 22.

In practical operation, assuming that the device is to be used as a wheel wrench, the set screw 15 is rotated in order to retract its extremity from the contour of the nut cap 12, and to house the same within the body of the fixed member 1. The nut cap 12 may then be slid upward upon the tongues 10 until it is in close relation with the upper arm 7. When the nut cap is in this position, since it is free from the tongues 10, it may be removed from the

device and another nut cap inserted in its place, it being understood that the device is to be equipped with a series of nut caps adapted to fit nuts of different sizes and of different shapes. The proper nut cap having been selected and slid into place upon the tongues 10, the set screw 15 is rotated to project slightly within the contour of the nut cap 12, to prevent the same from slipping off of the tongues 10. The nut cap 12 is then inserted into the interior of a hub, and made to inclose the nut which is mounted upon the spindle of the axle. The set screws 8 and 9 are then rotated, locking the device securely upon the hub. The movable member 2 is then separated from the fixed member 1, either by inserting a wedge between the jaws 17 and 18, or by grasping the member 2 adjacent the jaw 18, to cause the member 2 to bind frictionally upon the head 16 of the set screw 15, thereby limiting the movement of the said set screw 15. The wheel and the wrench may then be rotated together to remove the nut from the end of the spindle.

If desired, the set screws 8 and 9 may be made to engage a fixed support, such as a table or bench, and in such case, the device may be used as a vise, the set screw 15 serving to operate the movable jaw 2. If desired, the handholds 22 may be grasped and the device used as a pair of tongs or pliers. The notch 19 in the jaw 18 is adapted to engage the head of a spike whereby the same may be withdrawn, the portion 23 of the jaw 18 serving as a fulcrum. When the device is assembled with a suitable support as hereinbefore described, and being employed as a vise, the flat surface 20 of the fixed member 1 serves as an anvil. The pointed end 21 of the arm 7 is adapted to be used as an anvil, and at the same time, when the device is removed from the support, the said pointed end 21 serves as an ice-pick.

Having thus described our invention what we claim as new and desire to protect by Letters Patent is:

1. A device of the class described comprising a fixed member; spaced, hub-engaging clamps disposed upon the fixed member; a nut cap; the nut cap and the fixed member being provided with interlocking elements whereby the former may be slidably mounted upon the latter between the clamps; those elements of the fixed member being broken away adjacent one of the clamps, to provide for the removal of the nut cap.

2. A device of the class described comprising a fixed member; spaced, hub-engaging clamps disposed upon the fixed member; a nut cap; the nut cap and the fixed member being provided with interlocking elements whereby the former may be slidably mounted upon the latter between the clamps; those

elements of the fixed member being broken away adjacent one of the clamps to provide for the removal of the nut cap; and means for holding the nut cap within the grasp of the interlocking elements.

3. A device of the class described comprising a fixed member; hub-engaging means disposed upon the fixed member; a nut cap removably mounted upon the fixed member, the cap and the fixed member being provided with interlocking elements; adjustable means mounted upon the fixed member for holding the nut-cap within the grasp of the interlocking elements; a movable member pivoted to the fixed member and arranged to bind frictionally upon said adjustable means.

4. A device of the class described comprising a fixed member; spaced, hub-engaging clamps disposed upon the fixed member; a nut cap removably mounted upon the fixed member, the fixed member and the nut cap being provided with interlocking elements; adjustable means mounted upon the fixed member and arranged to extend within the contour of the nut cap to limit the movement of the nut cap within the grasp of the interlocking elements; and a movable member pivoted to the fixed member and arranged to bind frictionally upon said adjustable means.

5. A device of the class described comprising a fixed member; clamps carried by the fixed member and arranged to engage opposite parts on a vehicle hub; a nut cap removably mounted on the fixed member between the clamps; a set screw threaded into the fixed member and terminally disposed within the nut cap; and a movable member pivoted to the fixed member and arranged to bind frictionally upon the set screw.

6. A device of the class described comprising a member having projecting arms; set screws transversely mounted in the arms; a nut cap removably mounted on the fixed member between the arms; a set screw threaded into the fixed member and terminally disposed within the nut cap; and a movable member pivoted to the fixed member and arranged to bind frictionally upon the last named set screw.

7. A device of the class described comprising a fixed member and a movable member terminally pivoted thereto, the movable member being longitudinally slotted; hub-engaging clamps carried by the fixed member; a nut cap removably mounted on the fixed member between the clamps; a set screw slidably mounted in the slot in the movable member, threaded into the fixed member, and terminally disposed within the nut cap; the movable member being tiltable to bind frictionally upon the set screw.

8. A device of the class described comprising a fixed member; spaced, hub-engaging clamps disposed upon the fixed member; 13)

a nut cap removably mounted on the fixed member between the clamps, the fixed member and the nut cap being provided with interlocking elements; a movable member, longitudinally slotted, pivotally connected with the fixed member; a set-screw slidably mounted in the slot in the movable member, threaded into the fixed member, and terminally disposed within the nut cap to limit the movement of the nut cap within the grasp of the interlocking elements; the mov-

able member being tiltable to bind frictionally upon the set-screw.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

JOHN I. SHAW.
ISAAC F. STROUP.

Witnesses:

R. G. ROMBAUER,
J. H. WALLACE.