(No Model.)

# A. SHEPARD.

## WRENCH.

No. 509,252. Patented Nov. 21, 1893.

*Fig. 1.*

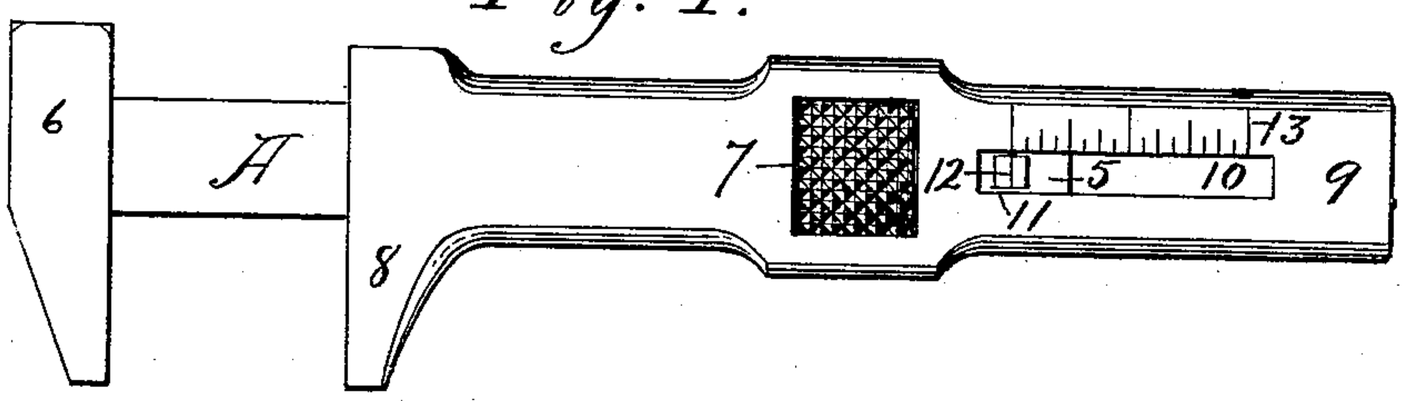



*Fig. 2.*

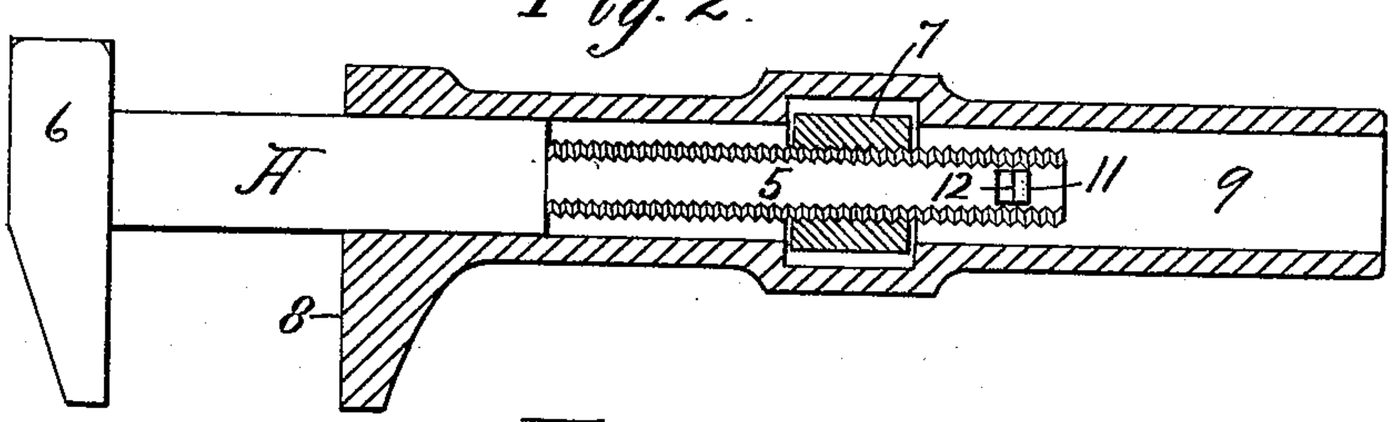
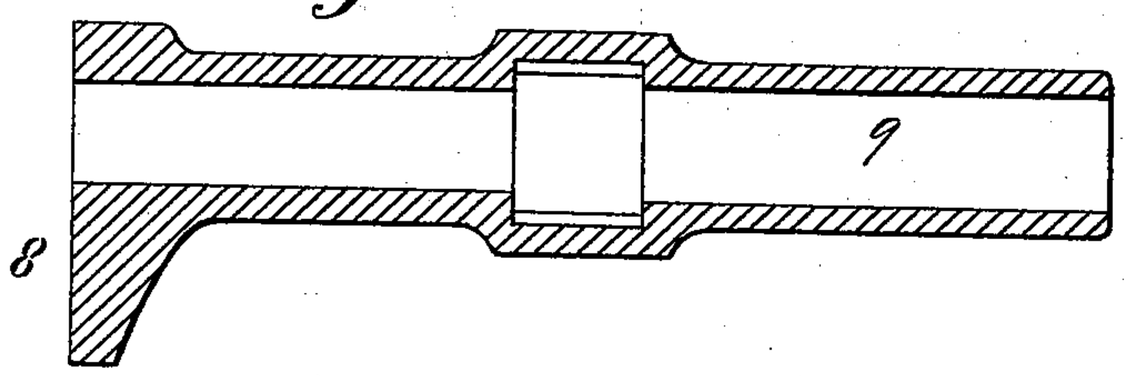



*Fig. 3.*


*Fig. 4.*




Witnesses
C. M. Stipek
F. H. Greenwood.

Inventor
Amos Shepard
By James Shepard
Atty.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

AMOS SHEPARD, OF PLANTSVILLE, CONNECTICUT.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 509,252, dated November 21, 1893.

Application filed August 7, 1893. Serial No. 482,524. (No model.)

*To all whom it may concern:*

Be it known that I, AMOS SHEPARD, a citizen of the United States, residing at Plantsville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to improvements in wrenches, and the objects of my improvement are economy in construction and general convenience and utility.

In the accompanying drawings: Figure 1 is a side elevation of my wrench. Fig. 2 is a central longitudinal section of the movable jaw and adjusting nut, the other parts being shown in side elevation. Fig. 3 is an end view of said movable jaw, and Fig. 4 is a central longitudinal section of the casting for the movable jaw.

My wrench is of the class in which the wrench bar A is provided with a threaded shank 5 and a fixed jaw 6, the movable jaw 8 being arranged to slide on the wrench bar and controlled by means of the adjusting nut 7 on the threaded shank 5. This class of wrenches is well known and my improvements thereon relate to economy in construction and to the construction of the stop and graduated scale. I form on the movable jaw 8 a handle portion 9 cast integral therewith and provided upon one side with a longitudinal slot 10. In the middle of the combined movable jaw and handle, a recess is formed for the adjusting nut 7 substantially as in other wrenches of this class. In the shank 5 of the wrench bar I arrange a stop pin 11 which projects into the slot 10 to limit the movement of the movable jaw so as to prevent it from being detached from the wrench bar. I also form on the end of said pin a mark or index 12, and upon the handle portion immediately by the side of said pin there is a graduated scale 13, to indicate the span between the jaws 6 and 8. As shown in the drawings, this span is represented as one inch. In order to economize in the construction, I form the combined movable jaw and handle of cast steel, cast on a core so as to leave an opening through said casting from end to end. This opening in the casting at the end having the movable jaw is of a size slightly less than that of the finished wrench bar A, while the opening through the handle portion 9 of this casting is made substantially the same size as the finished wrench bar. By thus forming my combined movable jaw and handle with a continuous opening from end to end, I am enabled to finish it by driving through a broach, and by having the handle portion of the size of the finished wrench bar I am enabled to properly guide the broach in broaching out the opposite end, thereby insuring the formation of a straight hole and causing the broach to dress off about the same amount of metal on each side of the hole. This is of great importance, as it brings the hole square with the face of the jaw so as to require but little fitting and it makes the employment of a steel casting practicable.

I claim as my invention—

The herein described wrench having the fixed jaw 6, wrench bar A, shank 5 and pin 11 in said shank, the combined movable jaw and handle 8, 9, having an opening therethrough of a size substantially the same as at the end bearing said movable jaw and the slot 10 in its handle portion, a graduated scale on said handle portion by the side of said slot and an index on said pin, substantially as described and for the purpose specified.

AMOS SHEPARD.

Witnesses:

STEPHEN WALKLEY,

C. L. CAMPBELL.