

F. J. MORAN AND W. A. PECK.
PLIERS.

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1,420,729.

Patented June 27, 1922.

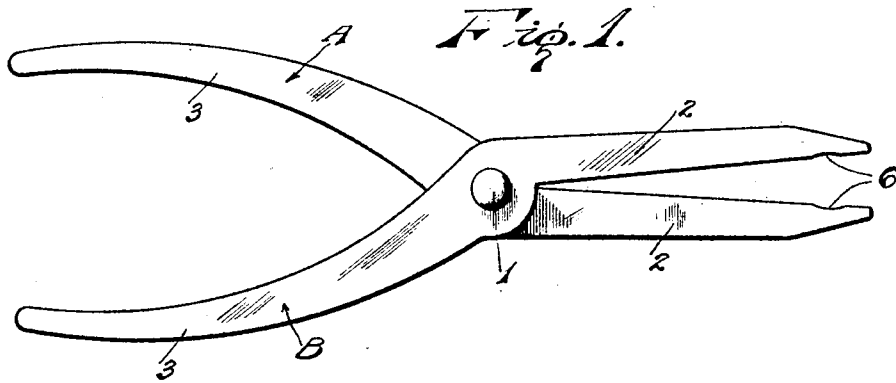


Fig. 2.

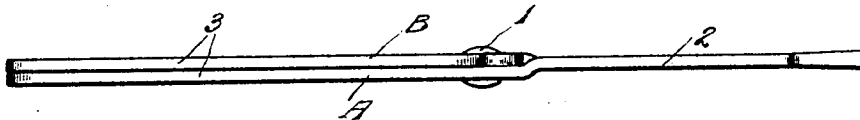


Fig. 3.

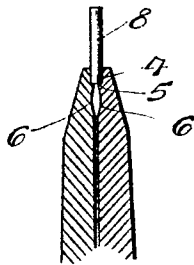
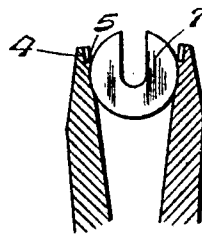


Fig. 4.



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PLIERS.

1,420,729.

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To all whom it may concern:

Be it known that we, FRANK J. MORAN and WILLIAM A. PECK, citizens of the United States, residing at New Britain and New Haven, respectively, in the counties of Hartford and New Haven, respectively, and State of Connecticut, have invented certain new and useful Improvements in Pliers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to pliers, and the principal object of the invention is to provide a simple and efficient tool which may be cheaply constructed and which is particularly adapted for the removal and replacement of valve stem pins or locks.

In the operation of grinding valves of internal combustion engines or of removing and replacing the valves for any other reason, it is necessary to use a valve spring lifter in order that the spring may be elevated so that the operator may remove the stop pin or lock which passes through or straddles the valve stem. These pins and locks are comparatively small and situated in a most inconvenient position which makes it almost impossible for the operator to reach them with his fingers or with short nose pliers and the valve lifters add to the inconvenience of the operation, frequently slipping off the spring and mashing the operator's fingers.

It is therefore the object of this invention to provide a device by which these pins and locks may be readily removed and replaced without danger of dropping them on to the oil pan probably behind a generator, starter motor or carburetor where they are inaccessible.

A further object of the invention is to provide a simply and cheaply constructed device which is adapted to handle either the stop pins or yoke-shaped stop locks which are the two types of spring stops most used in automobile construction.

Further objects of the invention will appear as the following specific description is read in connection with the accompanying drawings which form a part of this application and in which:

Fig. 1 is a plan view showing a preferred embodiment of our invention;

Fig. 2 is a side elevation;

Fig. 3 is a detail longitudinal section showing the method of holding a stop pin;

Fig. 4 is a similar view showing the application of the pliers to a yoke-shaped lock washer.

Referring more particularly to the drawing, the pliers comprise crossed members A and B pivoted together at 1, and each having an elongated gripping end 2 and a handle member 3. These pliers preferably have their parts A and B stamped out from sheet metal so as to cheapen the construction of the device, and their nose portion is swaged slightly to broaden the ends sufficiently so that the proper grip may be secured upon the pins or locked washers.

In the inner portion of each member, at the nose end thereof, there is formed a semi-circular groove 4, having a shoulder 5 at the base thereof for a purpose to be hereinafter described, and immediately to the rear of the shoulder 5 is a lateral recessed portion 6 arranged to fit the outside of the lock washer indicated at 7.

In the use of the device when removing or replacing a stop pin such as is indicated at 8, the pin is placed in the grooves 4 with its inner end abutting the shoulders 5. The pin may then be inserted in the opening formed in the lower end of the valve stem without danger of its sliding through the jaws. In removing the pin the pliers are operated to grip the nose ends on to the exposed end of the pin and the same pulled out of the opening in the valve stem. In removing or replacing U or yoke-shaped lock washers the washer is gripped between the jaws and lies in the notches 6 in the rear of the shoulder. It will thus be seen that it is firmly held against slipping in either direction.

By providing the pliers with elongated gripping portions or noses the operator is enabled to reach into far away and restricted places and remove or replace stop pins or washers which are impossible to reach with the fingers or with short nose pliers. Furthermore, the provision of the recesses for the pins and for lock washers prevents slipping of either of these types of devices from between the jaws.

While we have shown and described semi-circular grooves 4 and curved notches 6,

we wish it to be clearly understood that other forms or shapes of grooves and notches might be employed with equal advantage and we do not wish to be limited to semi-circular grooves or curved notches or in fact 5 limited in any respect to any shape of groove or notch only as defined by the appended claim. elongated jaws having coacting longitudinal grooves formed therein and opening through the ends thereof, the inner ends of said grooves terminating in a shoulder, said jaws being provided inwardly of the shoulders 15 with opposed transverse recesses.

In testimony whereof we hereunto affix our signatures.

FRANK J. MORAN.
WILLIAM A. PECK.

10 What we claim is:
A pair of pliers embodying thin, narrow,