July 8, 1924. 1,500,264

G. M. PETERSON

PISTON VISE

Filed May 16, 1923

Fig. 1.

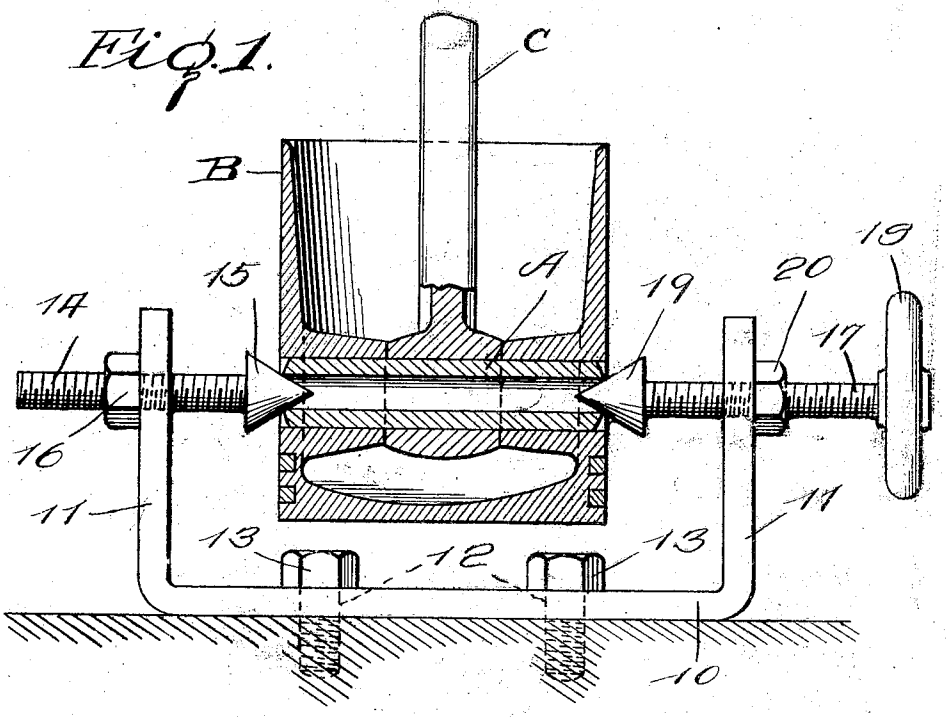
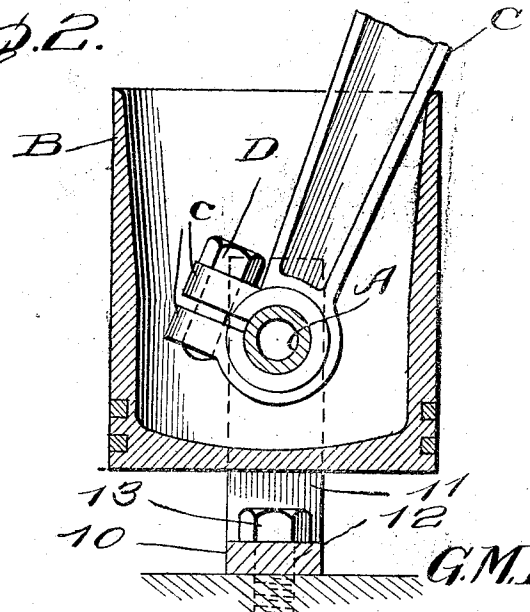


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE M. PETERSON, OF STURGEON BAY, WISCONSIN.

PISTON VISE.

Application filed May 16, 1923. Serial No. 639,352.

To all whom it may concern:

Be it known that I, GEORGE M. PETERSON, a citizen of the United States, residing at Sturgeon Bay, in the county of Door and State of Wisconsin, have invented certain new and useful Improvements in Piston Vises, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to vises, and particularly to vises for gripping pistons, such as the pistons of internal combustion engines.

The general object of this invention is to provide a vise of this character which is designed to hold the piston firmly and conveniently and which is designed particularly for the purpose of unscrewing or screwing up piston pin clamp screws.

A further object is to provide a device of this character which is particularly adapted to engage the hollow piston pin without engaging the piston proper, and which is further so constructed that the vise itself may be applied either to the work supporting stand illustrated in my pending application filed May 1, 1923, Serial No. 635,920, or applied to a bench vise or applied to a motor block when the latter is mounted in a supporting stand.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a sectional view through a piston showing my improved piston vise applied thereto, the vise being shown as mounted upon a base;

Figure 2 is a section at right angles to Figure 1, showing the manner in which the piston is held while the clamp nut D is being removed.

As illustrated in these drawings, the vise comprises an approximately U-shaped supporting bar 10 having upwardly extending parallel arms 11. The bar 10 may have any suitable width and is perforated at two points, as at 12, for the passage of the cap screws 13. Under some circumstances bolts might be used in place of the cap screws.

Engaging through one of the arms 11 is an adjustment screw 14 which has screw-threaded engagement with this arm and which has an enlarged conical head 15. A set nut 16 holds this screw 14 in its adjusted position. Opposed to the screw 14 is an adjustment screw 17 which has screw-threaded engagement with its corresponding arm and which is provided with a wheel 18 whereby the screw may be adjusted. The extremity of this screw is likewise provided with a relatively large conical head 19. The conical heads 15 and 19 are preferably, though not necessarily, longitudinally channeled. This screw 17 is held in place by a set nut 20.

The vise illustrated is particularly designed for use with the pistons of internal combustion engines or other pistons having tubular or hollow piston pins, such as the piston pin A which is disposed within the trunk piston B. The vise is particularly designed to be used for the purpose of disengaging the piston rod from the piston. The piston rod which is commonly used with pistons of this character is designated C in Figure 2 and is split at its piston pin engaging end to provide opposed jaws *c* which are contracted upon the piston pin by means of the clamp screw D. The opposite end of the piston rod is, of course, formed to engage the ordinary crank.

It will be seen that a vise constructed in accordance with my invention grips the ends of the tubular piston pin but does not engage the piston itself so that the tubular piston pin is held rigid, which permits the piston to be oscillated upon its axis into convenient position to permit a wrench or pliers to be applied to the screw D to release the screw and thereby permit the detachment of the pin from the piston and from the connecting rod. This vise can be used on any tubular piston pin but is particular adapted for the pistons of Ford and Fordson motors. The vise may be used upon the supporting cross bar of the motor stand illustrated in my pending application for patent before referred to, or may be attached to a work bench or the U-shaped base 10 might be clamped between a shop vise. The vise is also adapted to be screwed onto a Ford block by the cap screws 12 screwing into the inlet water connecting openings. With this construction there is no danger of crushing or injuring the piston or marring the surface of the piston, as only the tubular piston pin is engaged by the vise.

It will be seen that this piston vise grips the piston at the ends of the piston pin and that, therefore, no possible damage can be done to the piston or to the pin, whereas in

all vises which grip the piston itself there are chances of damaging or scoring the piston surface or the surfaces of the rings, and under sufficient strain also the piston can slip, whereas with this device there is no possible chance of slipping.

I claim:—

1. A vise of the character described comprising a base having upstanding parallel arms, the arms being internally screw-threaded, an adjustment screw passing through one of said arms and having a conical head, the adjustment screw carrying a nut holding the screw locked in place, and an adjustment screw passing through the other arm and having an enlarged conical head, this screw being provided with a handle whereby it may be rotated, and a set nut on the screw for holding the screw in adjusted position.

2. A piston vise of the character described comprising an approximately U-shaped member having parallel arms, the base of the U-shaped member having apertures for the passing of attaching devices, an adjustment screw passing through one of said arms and having means whereby it may be locked in adjusted position and having a pointed head, and an adjustment screw passing through the other of said arms and having a handle whereby it may be rotated, and means whereby it may be locked in adjusted position.

In testimony whereof I hereunto affix my signature.

GEORGE M. PETERSON.