July 18, 1933. E. V. HIGBEE 1,918,750

PLANE

Filed July 18, 1932

Fig. 1

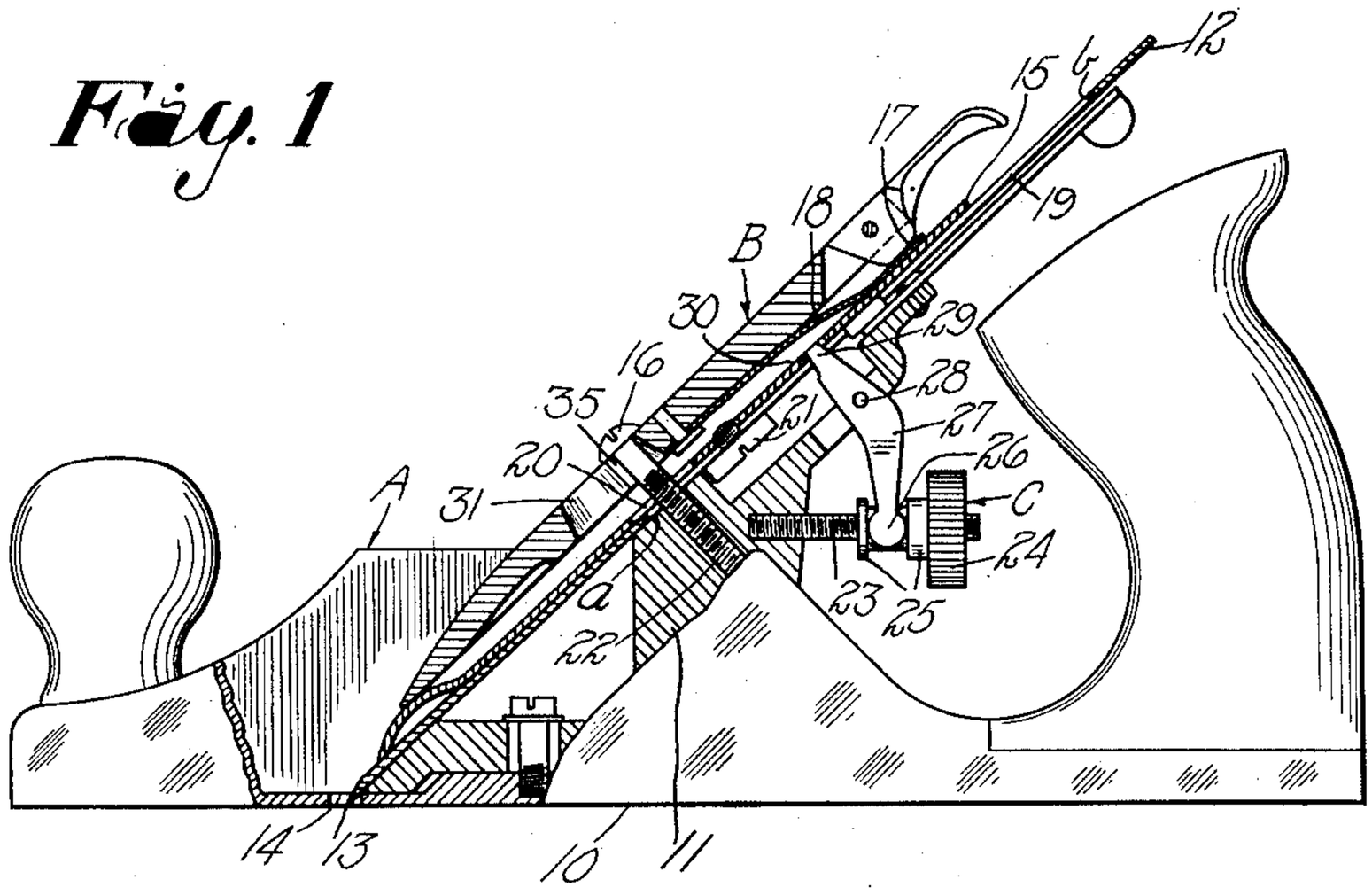


Fig. 2

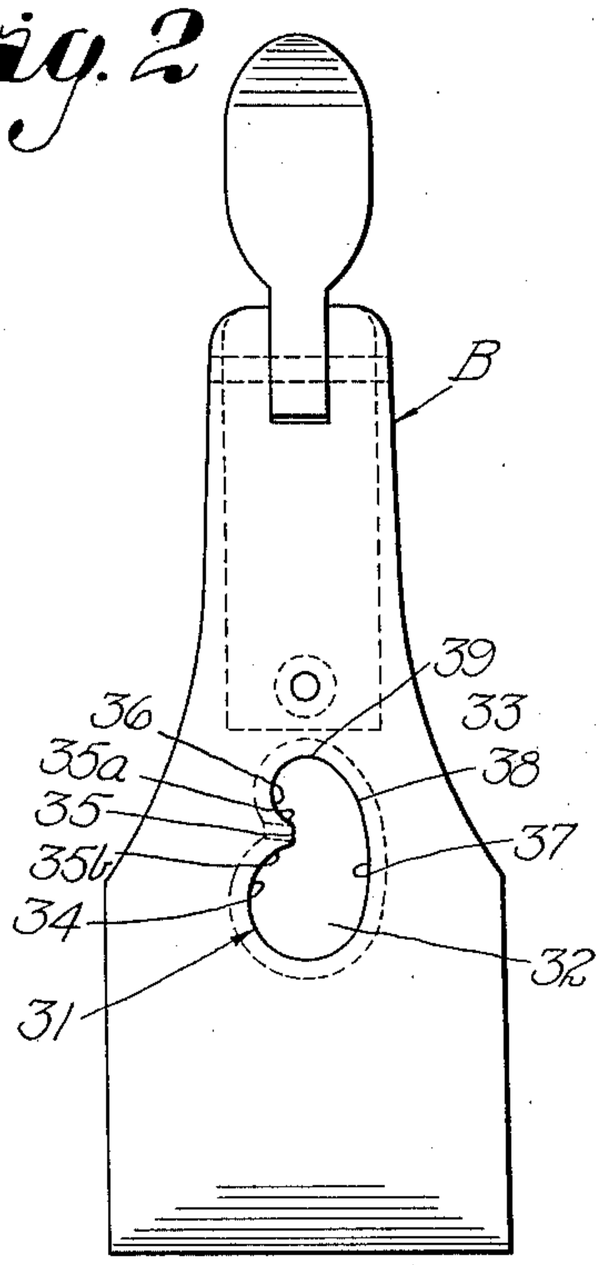
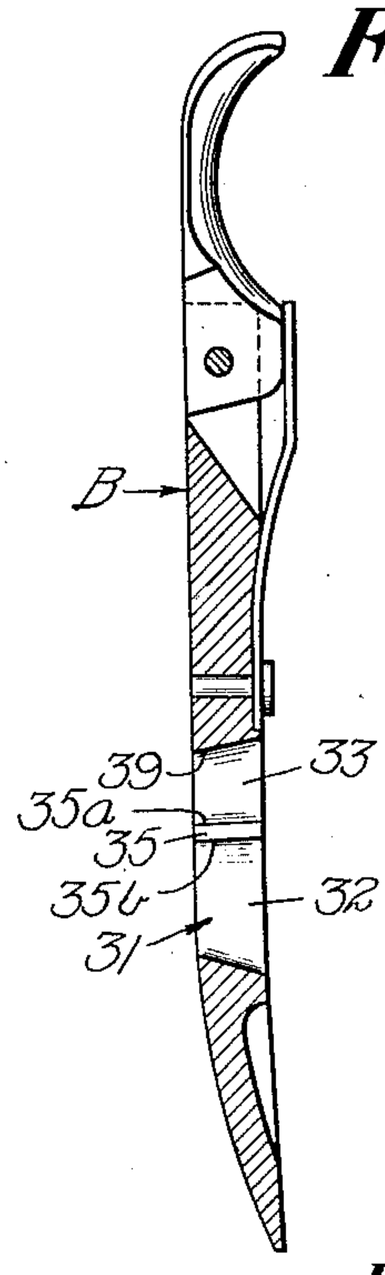


Fig. 3



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UNITED STATES PATENT OFFICE

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PLANE

Application filed July 18, 1932. Serial No. 623,159.

The present invention relates to planes such as disclosed in the Patent No. 1,812,820, granted June 30, 1931, to James M. Burdick. In planes of this character, when the cutter is constantly adjusted forwardly and backwardly, the clamping lever tends to move back and loosen on the lever screw.

It is an object of the present invention to provide an improved clamping lever for planes of this kind which will overcome to a very large degree, if not entirely, the above noted objection.

It is another object of the present invention to provide an improved clamping lever for planes of this character which possesses a greater holding power than the old style lever.

A further object of the present invention is to provide an improved clamping lever for planes of this character which requires relatively small alteration of the old style lever but which will obtain the advantageous results pointed out above.

A still further object of the present invention is to provide an improved clamping lever for devices of this character which may be manufactured at substantially the same cost as the old style lever.

Other objects will be in part obvious, and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

In the accompanying drawing, wherein is shown, for illustrative purposes, one embodiment which the present invention may take,

Fig. 1 is a side view, partly in section, and partly in elevation, of a plane showing my improved clamping lever applied thereto;

Fig. 2 is a front elevation of my improved clamping lever; and

Fig. 3 is a longitudinal section of the same.

Referring more particularly to the drawing, A generally represents a plane of a well known type, and B generally represents my improved clamping lever applied thereto. The plane A may be of the usual construction and comprises a plane bottom 10 which supports a wedge-shaped block member 11 against which bears a blade 12 having a cutting edge 13 extending through an opening 14 in the plane bottom 10. A cap plate 15 bears upon the upper surface of the blade 12 and is clamped thereagainst by the lever B which is held in position by a lever screw 16, a cam 17 and a spring 18 of usual construction.

The blade 12 is provided with a centrally disposed longitudinally extending slot 19 which extends from a point *a* rearwardly to a point *b* and the cap plate 15 is provided with an opening 20 registering with a lower portion of the slot 19 in the blade 12. The blade 12 and the cap plate 15 are secured together by a screw 21 in the usual manner so that they move together. The screw 16 passes through the slot 19 and the opening 20 and is received by a screw threaded socket 22 in the block 11.

In order to adjust the blade backwardly and forwardly, an adjusting mechanism, generally indicated at C, is provided. The mechanism C comprises a screw threaded bar 23 non-rotatably secured in the block 11. A nut 24 is threaded upon the bar 23 and is provided with a pair of spaced apart collars 25 between which are confined the heads 26 (only one of which is shown) of a lever 27 which is pivoted, as at 28, intermediate its ends to the block 11. The free end 29 of the lever 27 passes through the slot 19 in the blade 12 and engages in an opening 30 in the cap plate 15. The end 29 of the lever 27 engages the ends of the opening 30 so that the cap plate 15 and blade 12 are moved forwardly or backwardly by the lever 27 dependent upon the direction of movement of the nut 24 with which the lever is operatively connected.

The clamping lever B is of substantially the same construction as the old style lever with the exception that, instead of the usual keyhole slot, my improved clamping lever B is provided with a somewhat kidney-shaped slot 31. This slot is provided with an enlarged forward portion 32 and a restricted rearward portion 33 of less width than the diameter of the head of the screw 16. Between the enlarged portion and the restricted portion, the wall 34 of the slot 31 is provided with an inwardly extending projection 35 whereby an offset 36 is formed at one side of the restricted portion 33 of the slot. The projection 35 is provided with an inwardly

and rearwardly facing shoulder 35*a* and with an inwardly and forwardly facing shoulder 35*b*. The opposite wall 37 of the slot is curved inwardly and rearwardly, as at 38, towards the offset 36 and merges with the rear end wall 39 of the slot.

In the use of the device, after the blade 12 and the cap plate 15 have been properly placed upon the block 11, the lever screw 16 is screwed into the block 11, the lever B with the cam 17 in a position at substantially right angles to that shown in Fig. 1 is then placed upon the cap plate by threading the enlarged portion 32 of the slot 31 over the head of the screw 16. The lever B is now moved downwardly and forwardly and should the wall 37 of the slot 31 engage the shank of the screw 16 due to the curvature 38 of the wall 37, the lever B will be guided by the shank of the screw 16 so that the offset 36 of the slot 31 will be caused to receive the shank of the screw 16.

It will be noted that the shoulder 35*b* of the projection 35 is curved inwardly and rearwardly so that, in assembling the lever B upon the screw 16, should the shank of the screw become engaged against the shoulder 35*b*, forward movement of the lever will cam the same to one side so that the projection 35 will clear the shank of the screw and the curved portion 38 of the wall 37 will engage the shank of the screw and the lever B will be guided so that the offset 36 will receive the shank of the screw 16. It is thus apparent that regardless of whether the shoulder 35*b* or the wall 37 of the slot 31 engages the shank of the screw the lever will be so guided that the offset 36 will be caused to receive the shank of the screw. At this time, the shank of the screw 16 will be engaged at its front and rear sides by the shoulder 35*a* and the wall 39 respectively. The cam 17 is then swung to the position shown in Fig. 1, whereupon the rear end of the clamping lever B is moved outwardly with respect to the blade 12 to bind the upper surfaces of the walls of the restricted portion 33 of the slot 31 against the under surface of the head of the screw 16. The lever B will now be held positively against any longitudinal movement since the shank of the screw 16 is confined between and engaged by the shoulder 35*a* and the end wall 39 of the slot. The adjusting means C is now manipulated to properly adjust the blade 12 to the desired position. When the adjusting means C is manipulated to adjust the blade 12 back, the shoulder 35*a* engaging the front wall of the screw shank will prevent the clamping lever B from moving back and loosening on the lever screw 16.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

1. A clamping lever for planes having a substantially kidney-shaped slot, said slot having an enlarged portion and restricted portion and an inwardly extending projecting on one wall of said slot and disposed between said portions, said projection having an inwardly and rearwardly facing shoulder.

2. A clamping lever for planes having a substantially kidney-shaped slot, said slot having an enlarged portion and a restricted portion and an inwardly extending projection on one wall of said slot and disposed between said portions to provide an offset in said restricted portion, the opposite wall of said slot curving inwardly and rearwardly towards said offset.

3. A plane comprising a lever screw, and a clamping lever having a slot therein, said slot having an enlarged forward portion adapted to initially receive said screw and a restricted rearward portion adapted to subsequently receive said screw, one wall of said slot having an inwardly extending projection adapted to engage the forward wall of said screw when the latter is disposed in said restricted portion, the opposite wall of said slot having an inwardly and rearwardly curved portion, said projection having a forwardly and inwardly facing shoulder which is curved inwardly and rearwardly.

4. In a plane, a cutter blade, means for adjusting said blade forwardly and backwardly, a clamping lever for holding said blade in adjusted position, a lever screw, and a cam carried by said lever and adapted to cooperate with said screw to hold said lever in clamping position, said lever having a slot therein provided with an enlarged portion adapted to initially receive said screw and a restricted portion adapted to subsequently receive said screw, one wall of said slot having an inwardly extending projection adapted to engage the forward wall of the shank of said screw to maintain the lever against rearward longitudinal movement, whereby the lever is prevented from escaping from the screw while the blade is being adjusted back.

EARL V. HIGBEE.