June 11, 1935. H. A. MAURER 2,004,333

CHASER HOLDER

Filed March 28, 1934

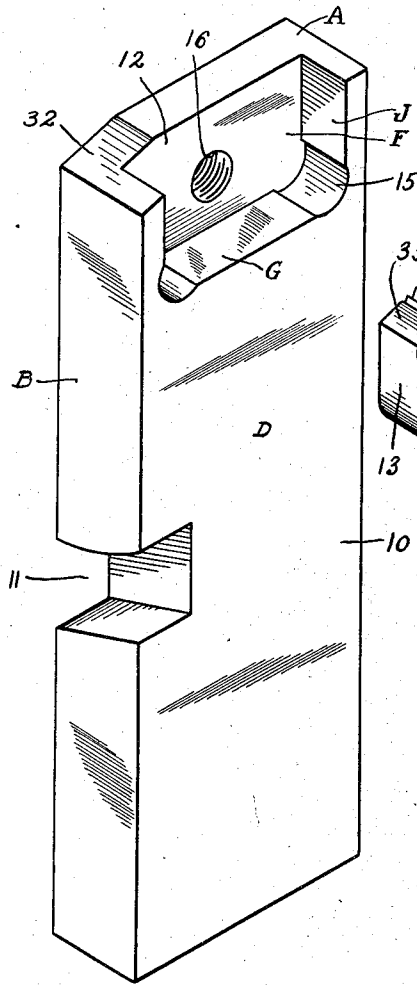


Fig. 1

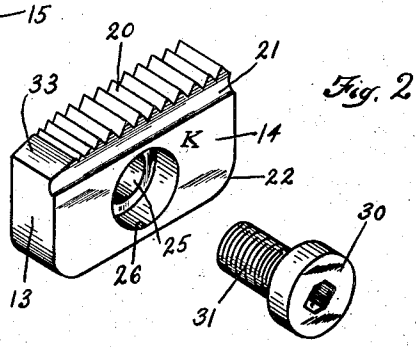
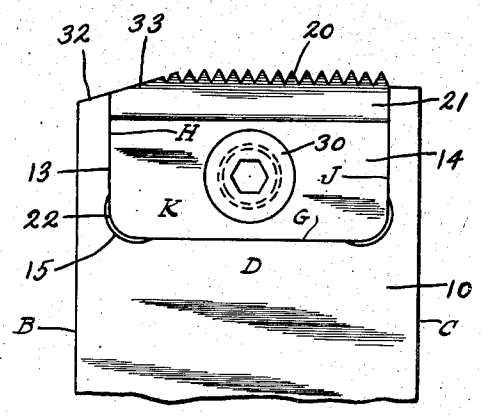


Fig. 2

Fig. 3



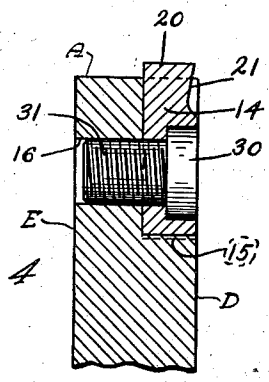


Fig. 4

Fig. 5

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4 Claims. (Cl. 10—120)

The subject of this invention is a holder wherein the cutter or chaser of a thread cutting mechanism is carried. Holders of the sort whereon this is an improvement, are well known and are ordinarily disposed in a die holding ring in quadrantal arrangement with the cutters all facing inward. An illustration of the use of such holders may be seen in Figs. 1 and 2 of Hyde Patent No. 1,921,754, wherein holders similar in function to those of the present invention, but not embodying the present improvement, are designated by the reference character 5. The purposes of this present invention are to simplify the holder, to grip the chaser with greater firmness and permanency of alignment than hitherto, to permit ready attachment and removal of chasers, to minimize wear on the chasers, and in general to give to the art a simpler, stronger, lighter assembly, more easily manufactured and more readily handled than hitherto. A further advantage is the reduction in the amount of expensive alloy steel needed for the chaser, by reason of the reduction in size of that portion of the chaser body which is engaged by the holder.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims. The annexed drawing and the following description set forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In the accompanying drawing Fig. 1 is a perspective view of a front and one side of a holder; Fig. 2 is a similar view of a chaser; Fig. 3 is a similar view of a fastening screw; Fig. 4 is a median longitudinal section through the assembly, limited to the end of the holder, and showing the fastening screw in elevation, this figure being on a larger scale; and Fig. 5 is a front view corresponding to Fig. 4.

The holder proper comprises a block or bar of substantially rectangular shape, as generally indicated by the reference character 10. For convenience of reference the parts of the holder are designated as shown in the drawing, namely, end A, which refers to the working end, front edge B, rear edge C, face D, and back E. Throughout the specification and claims the terms "front" and "rear" are used with reference to the direction of stock feed and the terms "face" and "back" are used with reference to the direction of rotation between chaser and stock. Any suitable cam-engaging means will be provided for the opening and closing movement within a die ring such as the groove 11. The holder is recessed to about half its thickness at one end, as at 12, to seat the shank 13 of the chaser 14. The recess 12 is formed of four surfaces, which for definiteness of designation are indicated on the accompanying drawing as the back F, the bottom G, the front edge H and the rear edge J. In the preferred embodiment of the invention as illustrated in the drawing these surfaces are mutually perpendicular planes and are parallel to certain planes on the holder block 10 as follows:

Back F parallel to back E and face D of holder.

Bottom G parallel to end A of holder.

Front edge H of recess parallel to front edge B of holder.

Rear edge J of recess parallel to rear edge C of holder. For convenience of machining the corners 15 of the recess 12 are rounded with some clearance beyond the edges and bottom of the recess. It will be observed that all surfaces are readily accessible for machining. A threaded hole 16 extends transversely through the holder from the back of the recess.

The chaser 14 is a solid generally rectangular piece of tool steel with the usual cutting teeth 20 along one edge and chip groove 21 thereabove. The size and shape of the shank 13 are such as to fit the recess 12 closely except at the corners 15, with the face K of the shank flush with the front face of the holder 10. Thus the chaser bears firmly against the holder recess and over substantially the entire available area on the front and rear edges, bottom and back, only the front face K and the necessary projection for the teeth being unsupported by contact with a surface of the seating recess. The corners 22 of the shank are rounded but in the preferred form here shown do not fit into the corners 15 of the recess, although this clearance is not essential to the invention.

A smooth hole 25 through the chaser matches the threaded hole 16 in the holder when the chaser is in position. The hole 25 is outwardly enlarged, as at 26, to sink the head 30 of a screw 31 adapted to take into the threads of 16, thereby fastening the chaser in the holder. When assembled, the head 30 will not stand above the face K of the chaser shank. The end A of the holder is also chamfered as at 32 in the plane of the usual chamfer 33 at the entering end of the cutter teeth.

The displacing tendency due to the circumferential travel in thread cutting tends to turn the chaser counterclockwise, as seen in Fig. 4, about the edge 12' as a pivot. The lever arm of the turning force is the height of the teeth 20. The screw 31, which resists this tendency, works on a much longer lever arm, thus holding the chaser firmly and so eliminating the need for a slot in which to seat the chaser.

To assemble the chaser and holder the shank 13 is put into the recess 12 and fastened by the screw 31. Even an unskilled operator cannot accidentally or carelessly put the chaser 14 into the holder with the wrong surface exposed because the head 30 of the screw 31 would then stand above the front plane of the holder, strike the die ring and so prevent the holder from being moved to work-receiving position.

It will be seen from the foregoing that I have invented a chaser and holder comprising a minimum number of parts, the parts being individually simple and easy to machine, there is no possibility of assembling them incorrectly, there are no adjustments to be made, and no elements to get out of order.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A chaser and holder comprising; a holder body, recess edges therein parallel to the outer edges thereof and extending along said holder a relatively short distance from one end thereof, said distance being short relative to the size of the chaser, a recess bottom transverse to said recess edges, said recess edges and bottom intersecting the face of said holder, and a recess back parallel to and spaced from the back of said holder, said recess back and recess edges intersecting an end of said holder and all of said recess surfaces jointly defining an open seating recess; and a chaser comprising a shank and a blade, said shank having edges, bottom and back closely fitting the corresponding recess surfaces and equal in thickness to the depth of said recess, said blade comprising a chamfer at the work entrance and cutting teeth adapted to project beyond the end of said holder when the shank is seated, and a chamfer on said holder end in prolongation of the blade chamfer; and holding means connecting said holder and chaser and disposed entirely within the holder body and the chaser shank.

2. A chaser and holder comprising; a holder body, recess edges therein parallel to the outer edges thereof and extending inward a distance from one end thereof short relative to the size of the chaser, a recess bottom transverse to the recess edges, each of the foregoing recess surfaces intersecting the face of said body, and a recess back parallel to and spaced from the back of said holder, said recess edges and back intersecting an end of said holder and all of said recess surfaces jointly defining an open seating recess; a chaser comprising a shank and a blade, edges, bottom and back on said shank closely fitting said respective recess surfaces, said shank being equal in thickness to the depth of said recess, said blade comprising cutting teeth adapted to project beyond the end of said holder when the shank is seated; and holding means for said chaser comprising a headed screw threaded into the carrier body behind said seating recess and a countersunk recess in said shank adapted to receive said screw head.

3. The combination of a holder and a chaser; said holder having in one end of one side a seat open to that end and that side and closed on the edges, said seat including a back away from the cutting edge of the chaser; a shank on said chaser adapted to closely fit said seat with one face of the shank exposed; said chaser being supported by said back up to but not beyond the base of the teeth, whereby circumferential strains tending to tilt the chaser act on a lever arm equal only to tooth depth; and a fastener for the chaser face, said fastener being secured in said shank well away from the teeth and also being secured in said holder, whereby the fastener acts on a longer lever arm than the tilting strains which it resists.

4. Thread cutting means comprising a holder of generally rectangular prismatic form including a face D, a back E, an end A, and edges B and C, said holder having at said face and end a recess composed of a back F, edges H and J, and bottom G, said recess surfaces being respectively parallel to back E, to edges B and C, and to end A; a chaser adapted to be carried by said holder, said chaser including a shank shaped to seat in said recess with back, edges and bottom in snug fit against corresponding elements of the recess, and with the face K of said shank exposed and not above the holder face D, and fastening means engaging said holder and said shank not above the level of face K.

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