

QUESTION PAPER REFERENCE: FD2

Claims

CLAIMS

1. An insert for a slot of a machine tool bed comprising:

means for expanding the insert widthways between a first position and a second position.

Wherein, in the second position, the width of the insert is increased relative to the first position to fix the insert within the slot.
2. The insert according to claim 1, wherein in the first position, the width of the insert is sized to fit snugly within a standard slot of a machine tool bed.
3. The insert according to claim 1 or 2, wherein the means for expanding the insert include one or more of:

a tapered element, a spacer or a shim.
4. The insert according to claim 3, wherein the tapered element is a tapered screw.
5. The insert according to claim 4, comprising a screw hole extending from an upper surface of the insert for receiving the tapered screw.
6. The insert according to any preceding claim, comprising a hollow slit in a lower surface of the insert.
7. The insert according to claim 6, wherein the hollow slit extends and tapers into the screw hole.
8. The insert according to any preceding claim, wherein the insert is configured to lie substantially flush with an upper surface of the machine tool bed.
9. A mount for a machine tool accessory comprising:

attachment means for gripping an insert in a slot of a machine tool bed,

the attachment means moveable between an engaged configuration and a disengaged configuration,

wherein, in the engaged configuration, a distance between the attachment means is reduced such that the attachment means grip the insert.

10. The mount according to claim 9, wherein the attachment means are biased into the engaged configuration.
11. The mount according to claim 9 or 10, wherein the attachment means comprise a pair of opposed arms.
12. The mount according to claim 11, wherein at least one arm is moveable relative to the mount.
13. The mount according to claim 12, wherein one arm is moveable and one arm is fixed relative to the mount.
14. The mount according to claim 13, wherein the moveable arm is pivotably attached to the mount.
15. The mount according to claim 14, wherein the pivot is located approximately halfway down the length of the moveable arm.
16. A kit of parts comprising:
 - an insert according to any one of claims 1 to 8 ; and
 - a mount according to any one of claims 9 to 15.
17. A method for removeably attaching a mount for a machine tool accessory to a machine tool bed comprising:
 - a) fixing an insert according to any one of claims 1 to 8 within a slot of the machine tool bed; and
 - b) gripping the insert using the mount according to any one of claims 9 to 15.
18. An insert substantially as described herein with reference to fig. 1, 2 and 4.
19. A mount substantially as described herein with reference to fig. 3, 4.
20. A method for removeably attaching a mount substantially as described herein with reference to fig. 4.

MARKS AWARDED 27.5/60

Introduction & Description

An insert and mount

The present invention relates to an insert for a slot of a machine tool bed and a mount for a machine tool accessory.

Machine tool accessories are currently attached to the bed of a machine tool using a mount that is secured to the machine tool bed using T-slots and a pair of bolts and nuts. Fixing the machine tool accessory in position using the nut-and-bolt arrangement can be fiddly and time consuming.

The bolts are positioned with their heads inside the T-slot by sliding the bolts into and along the slot via an open end of the slot. Bolts can be left in the T-slot without a mount attached and protrude above the machine tool bed, which can be obstructive.

When the mount is attached to the machine bed the position of the machine tool accessory must always be calibrated.

The present invention seeks to address one or more of the aforementioned problems.

Statement of invention and advantages

According to a first aspect of the present invention, there is provided an insert according to claim 1. The fact that the insert expands widthways means it can be fitted conveniently in the slot of the machine bed and retained completely within the slot. It can remain in place when the mount is attached and detached without causing obstruction. In addition, by remaining in place, the mount can be reattached in exactly the same position when it is required again.

Preferably, (feature of cl. 2). By fitting snugly within a standard slot of a machine tool bed the insert can be easily fixed in place.

Preferably (features of cl. 3 and 4). A tapered element, in particular a tapered screw, a spacer or a shim provides a convenient way of expanding the width of the insert such that it can be fixed within a variety of different sized slots or apertures.

Preferably (feature of cl. 5), the screw hole in the upper surface means that the insert can easily be moved to a different location, using a screw driver to contact the tapered screws, as required.

Preferably (feature of cl. 6), the hollow slit aids the expansion widthways of the insert.

Preferably (feature of cl. 7), the arrangement of the hollow slit and screw hole enables movement of the tapered screw to effect the expansion widthways of the insert in an effective manner.

Preferably (feature of cl. 8), by lying substantially flush with an upper surface of the machine tool bed, the insert does not cause any obstruction and can be left in place when the mount is removed. A flat surface prevents metal debris from getting trapped in or around the insert.

According to a second aspect of the present invention, there is provided a mount according to claim 9. The mount grips the insert meaning it can be easily attached & removed. Furthermore, it can be attached in exactly the same position as it clips over the insert, which can remain in the slot.

Preferably (feature claim 10), biasing the attachment means into the engaged configuration means the mount can be readily clipped over the insert.

Preferably (features of cl. 11-14). The opposed arms provide convenient attachment means that fit within the slot to grip the insert lengthways. Having one arm pivotably attached, provides an easy method to move the arms from an engaged to a disengaged configuration.

Preferably (feature of cl. 15). The location of the pivot enables an upper end of the arm to be pressed in by a user to move the arm outward into the disengaged configuration.

FIGURES

The present invention will now be described, by way of example only, with reference to the accompanying figures, in which:

Fig. 1 is a perspective view of an insert in accordance with an embodiment of the present invention.

Fig. 2 is a sectional view through an insert in accordance with the embodiment of the present invention in a first (2A) and second (2B) position.

Fig. 3 is a perspective view of a mount in accordance with an embodiment of the present invention.

Fig. 4 shows the mount of fig. 3 being fitted onto an insert of the present invention.

SPECIFIC DESCRIPTION

Fig. 1 shows an insert 2 for a slot of a machine tool bed. The insert is rectangular in shape and about 1 cm wide, 1 cm deep and 5 cm long with the width 4 and the depth 6 being a snug fit with a standard T-slot. The insert width 4 is, in fact, an exact fit in a standard T-slot. The insert 2 has a hollow slit 8 which is an upturned U in shape and runs all the way along the bottom surface 10 of the insert 2.

On the upper surface 12 of the insert 2 are two spaced apart screw holes 14a, 14b for receiving a tapered screw (not shown).

Fig. 2 shows the insert 2 expanding widthways from a first position (2A) to a second position (2A). In the second position (2B), the width of the insert is increased by tightening of the tapered screw 16 in the tapered screw hole 14a. The hollow slit 9 extends and tapers into the screw hole 14a.

Fig. 3 shows a mount 20 supporting a machine tool accessory 21. In this embodiment it is a tool setter. The mount is circular in shape and comprises two opposing arms 22a, 22b. One arm 22a is moveable relative to the mount. The other arm 22b is fixedly attached to the mount 20. The moveable arm 22a is attached to the mount by a pivot 24 located half-way along the length of the arm 22a. Pushing the upper end of the arm 22a causes the arm to pivot away from the base of the mount 20. The arm 22a is biased towards the mount by a tensioned coil spring 28.

In use, the mount 20 is clipped over the insert 2 as shown in fig. 4.

The arms 22a, b grip the insert 2.

MARKS AWARDED 28.5/36

Abstract

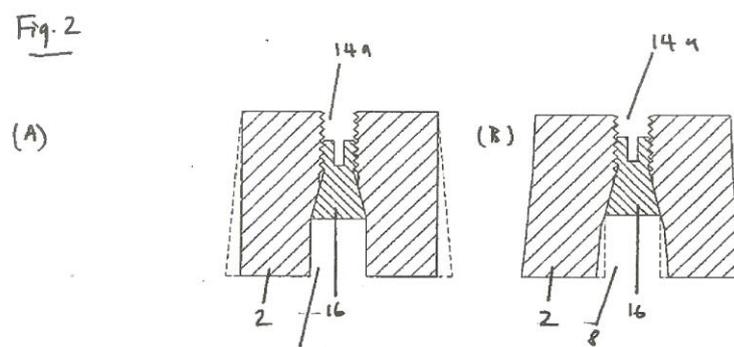
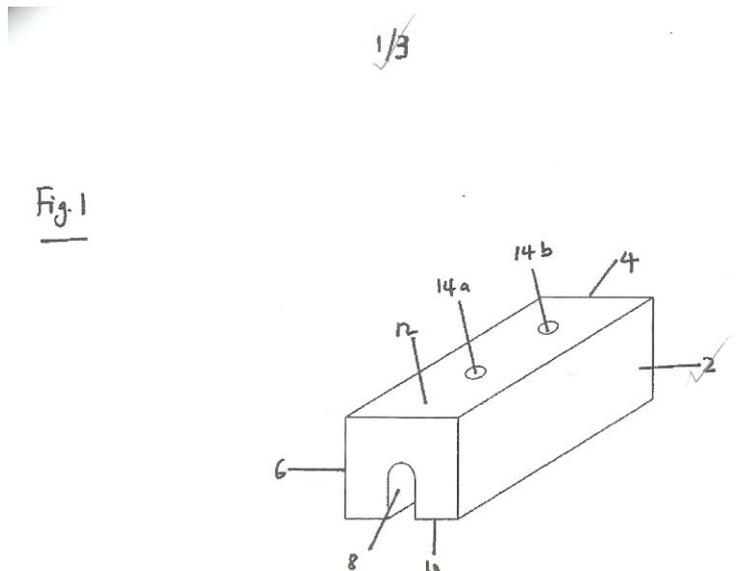
Abstract

An insert and mount

An insert 2 for a slot of a machine tool bed. The insert 2 is expandable widthways to fit within the slot. A mount 20 for a machine tool accessory has attachment means 22a, b to grip the insert 2. This allows the mount 20 to be easily attached & detached from the insert 2.

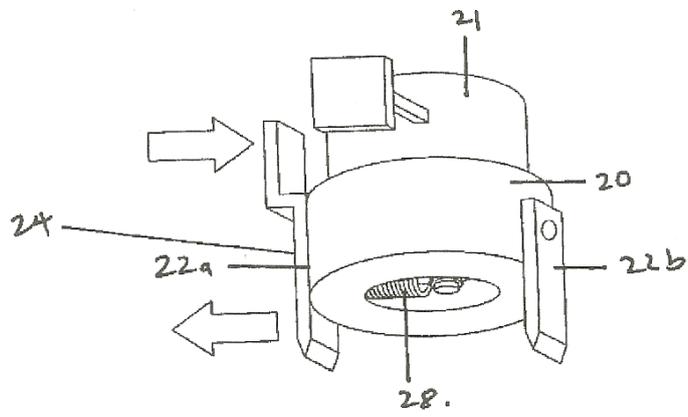
[Fig 4]

MARKS AWARDED 3/4



2/3

Fig. 3



3/3

Fig. 4

