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DEVICE FOR HOLDING WORKPIECES ON A MACHINE-TOOL TABLE

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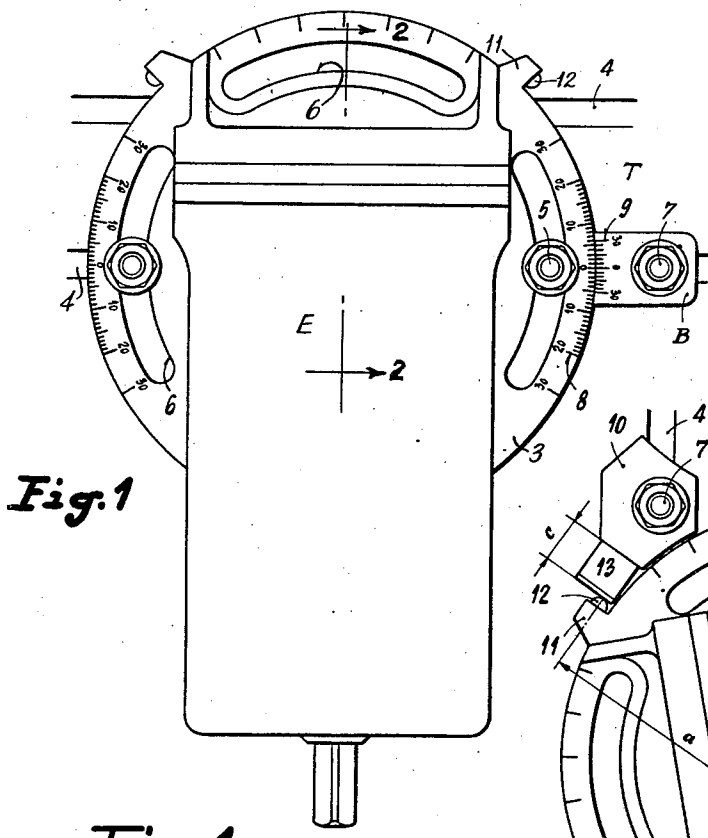

Fig. 1

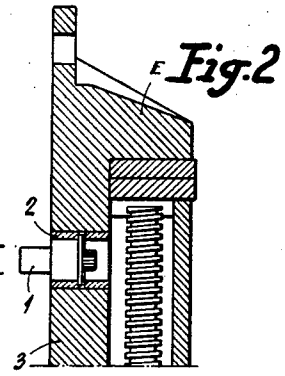

Fig. 2

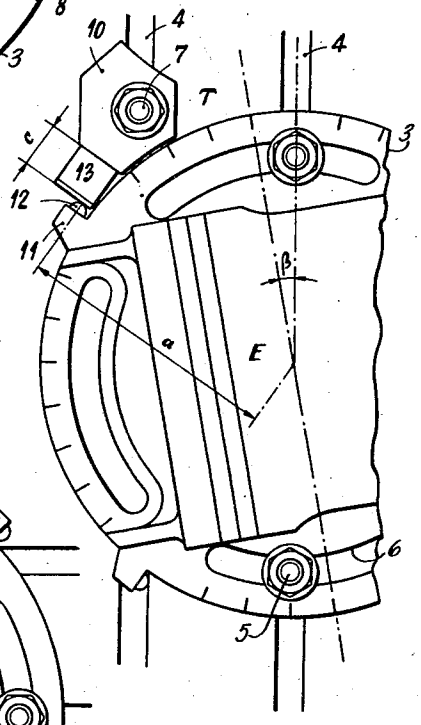

Fig. 3

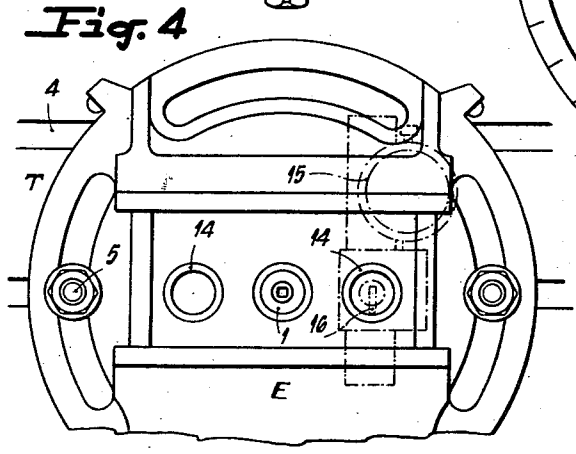

Fig. 4

INVENTORS

HENRI BUTIN

ROGER DELESMONTEY

BY Irvin S. Thompson

ATTY.

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DEVICE FOR HOLDING WORKPIECES ON A MACHINE-TOOL TABLE

Henri Butin, 10 Blvd. Pierre Joannon, Izieux, Loire, France, and Roger Delesmontey, 25 Rue de l'Avenir, Geneva, Switzerland

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3 Claims. (Cl. 269—81)

The object of this invention is a device for holding workpieces on a machine-tool table which contains at least one longitudinal groove.

This device is remarkable especially from the fact that it comprises, in combination, a vise pivoting horizontally around a pivot intended to be inserted in the groove so as to cause the table of the machine to serve as a fixed plate; parts for locking the vise base on the machine table and means, solid with said table, adapted to adjust with accuracy, in co-operation with other means carried by the vise base, the angular position of the vise in relation to the groove.

In a first embodiment, one of the said means solid with the machine table is constituted by a block intended to be fixed on the machine table and having at least an index placed opposite to a graduation marked on the vise base. The index may be replaced by a vernier allowing the evaluation of angles to within five minutes of arc.

According to a preferred embodiment, the device also has at least one removable stop retained in a second groove of the machine table and placed in the same range as at least one projection solid with the vise base, both the stop and the projection being arranged in such a manner that the angular position of the vise may be determined with highest accuracy by means of wedges inserted between them and representing the value of the selected angle converted into a linear value.

The attached drawing shows, by way of example, several embodiments of the device in accordance with the invention.

FIG. 1 is a plan view of a first embodiment;

FIG. 2 is a partial profile view, in section, of said first embodiment;

FIG. 3 is a plan view of a part of a second embodiment.

As shown in FIGS. 1 and 2, the device comprises, on the one hand, a pivoting vise E and, on the other hand, an index-holder block B attached to the table T of a machine-tool. Vise E is intended to move around a pivot 1 retained by any convenient means in the boring of a socket 2 traversing the vise base 3. This arrangement offers the great advantage of eliminating the fixed plate of machine vises as hitherto known, the necessary fixed plate being constituted, according to the invention, by the table T of the machine. Indeed, the lower part of the vise pivot 1 is intended to be inserted without any clearance in one of the longitudinal grooves 4 of table T on which the vise is fixed in position by locking means constituted by a screw 5 provided with a nut and washer, the screw 5 traversing the vise base 3 through curved slots 6.

The angular postion of the vise with respect to table T is determined with the aid of a block or element B which is guided in the groove 4 constituting the seat of the vise pivot 1, by means of a slide for instance. The block B is fixed on the table T by locking means constituted by a screw 7 with its nut and washer. Block B may have an index placed opposite to a scale or graduation 8 marked

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at the edge of the vise base 3. Block B is thus a removable element.

In order to obtain the highest precision in the angular adjustment of the vise, the index may be replaced by a vernier 9 (FIG. 1), allowing the angles to be evaluated to within five minutes of arc.

FIG. 3 shows the vise E fixed in a predetermined angular position on the machine table T. The vise is set to the desired position by means of a removable stop 10 fixed in a groove 4 on the table. This stop is located at the same radius as one of the bosses 11 formed on the vise base 3. Each boss 11 carries a hemispherical projection 12 located opposite the stop 10. When the angular position of the vise must be adjusted with high accuracy, in the range of a second of arc, the selected angle β is converted into a linear value c

$$c=a.\ \sin\beta$$

which is materialised by means of a group of wedges 13. These wedges are inserted between the projection 12 and the stop 10, and the vise is then locked into its predetermined position.

We claim:

1. A clamping device for holding a workpiece on a machine-tool table which has at least one groove therein, said device comprising a horizontally pivoted vise having a base, pivot means rigid with said base and engaged within said groove for pivotably mounting said vise on the table, a removable element attached to the table, means carried by said base and cooperating with said removable element for adjusting the angular position of the vise in relation to said groove, and means for locking the vise upon said table in its adjusted position.

2. A clamping device for holding a workpiece on a machine-tool table which has at least one mounting groove therein, said clamping device comprising a horizontally pivotable vise having a base, pivot means rigid with said base and engaged in said groove for rotatably mounting said vise on the table, means for fixing the angular position of said vise upon the table, a scale carried by said base, a removable block attached to the table, and at least one index marked upon said removable block opposite to said scale.

3. A clamping device for holding a workpiece on a machine-tool table which has at least one mounting groove therein, said clamping device comprising a horizontally pivotable vise having a base, pivot means rigid with said base and engaged in said groove for rotatably mounting said vise on the table, means for fixing the angular position of said vise upon the table, a scale carried by said base, a removable block attached to the table, and a vernier marked upon said removable block opposite to said scale.

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ROBERT C. RIORDON, *Primary Examiner.*
THOMAS J. HICKEY, FRANK SUSKO, *Examiners.*