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DEVICES FOR THE PROTECTION OF THE GUIDING SURFACES
OF THE SLIDES OF MACHINE TOOLS
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2,322,972

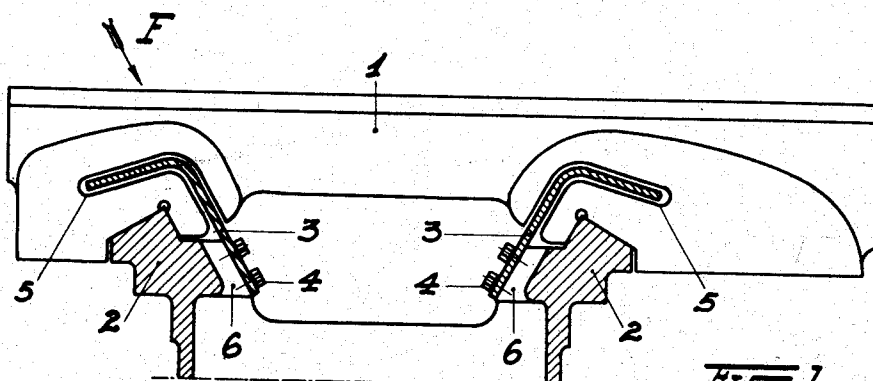


FIG. 1.

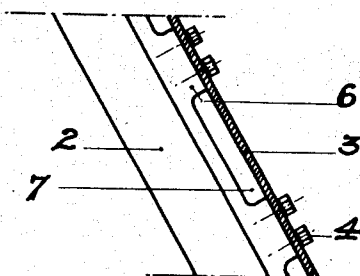


FIG. 3.

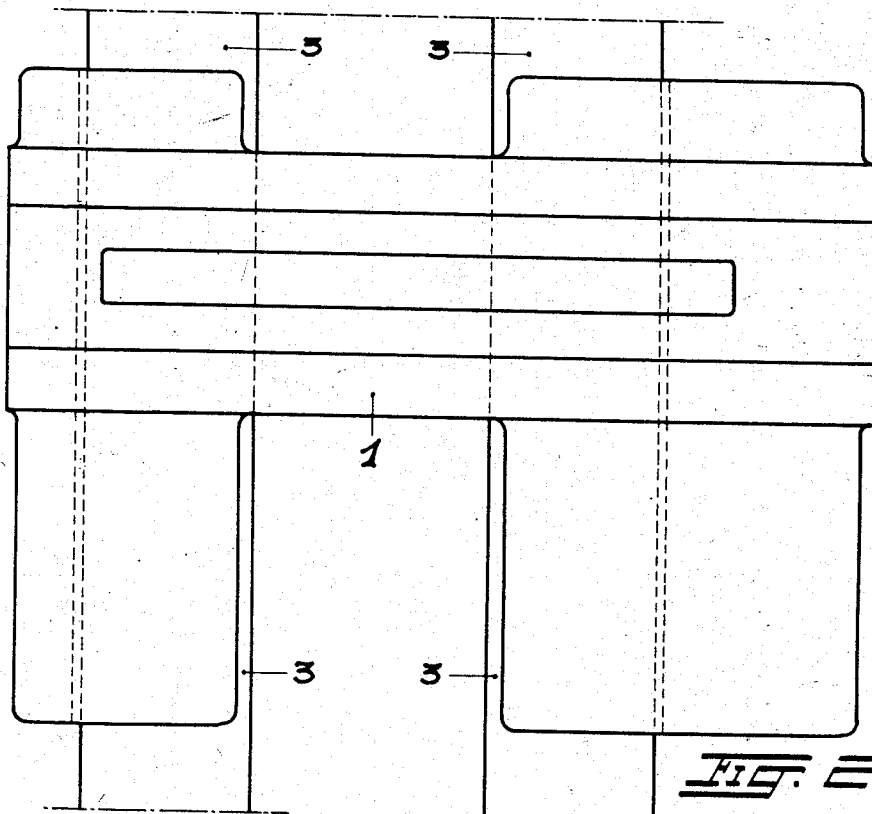


FIG. 2.

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UNITED STATES PATENT OFFICE

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DEVICE FOR THE PROTECTION OF THE
GUIDING SURFACES OF THE SLIDES OF
MACHINE TOOLSMartin Henri Rumpf, Uccle-Brussels, Belgium;
vested in the Alien Property CustodianApplication March 8, 1941, Serial No. 382,396
In Belgium March 11, 1940

1 Claim. (Cl. 82—32)

This invention relates to improvements to the devices for the protection of the guiding surfaces or slides of machine tools such as horizontal lathes, turret lathes, grinding machines, boring machines and the like, on which slide one or more members, for instance one or more carriages, a puppet-head, a grinding-wheel head or other parts.

In a lathe, namely, the function of such a device is to keep the slides out of reach of the chips or filings produced during the operation of the machine and tending by their accumulation on said slides to cause by seizure a too early wear of the same.

A great number of devices have already been proposed for carrying out this purpose and to remedy to this disadvantage, which is particularly serious with respect to a satisfactory preservation of the accuracy of the slides. They have however never given entire satisfaction.

One of these known arrangements comprises a fixed metallic cover-plate secured at its both ends respectively to the puppet-head and to the opposed end of the bed, slits being cut in the carriage or carriages for its thoroughfare. Said cover protects only partially the guiding surfaces, which remain exposed to the projected matter at the spot where the chips accumulate more specially: between two slides.

On the other hand, as these covers hang between the puppet-head and the opposite end of the bed, an efficient protection must be added to them in order to avoid any damage to these covers by the accidental fall of a heavy body. When lacking such a protection the cover is liable to distortions which may lead to choking between the cover and the carriage. The choking may also be caused by simple deflection of the cover under its own weight.

This arrangement has furthermore the disadvantage of allowing the flushing water to infiltrate between cover and slide, which water carries along impurities liable to cause the wear of the slides and impairing their proper lubrication.

Another known protection system consists of covers secured upon the arms of the carriage or carriages and sliding with them. They extend beyond the ends of the bed in the extreme positions of the carriage to which they are fastened, which increases the floor-space needed for the machine.

From the point of view of the infiltration of the water these covers have the same disadvantages as the suspended fixed covers and if they are not directly in contact with the slides they furthermore have the same disadvantages as the former covers with regard to the results of the accidental fall of a heavy body.

The object of this invention is to provide an efficient protection of the slides against any projection or accumulation of chips and to give the

covers a perfect stiffness, which protects them against any accidental fall of a heavy body.

With this object in view, my invention essentially consists in the special arrangements and combinations of parts hereinafter fully described and pointed out in the appended claim.

On the annexed drawing which shows as an example an embodiment of the device according to the invention. In said drawing,

Figure 1 is a transverse section of the device.

Figure 2 is a top view of the same and

Figure 3 is a view seen in direction of arrow F in Figure 1.

In the accompanying drawing, 1 is the carriage of a machine tool and 2 the slides of the machine being a part of the bed and carriage 1 being adapted to slide on them.

According to the invention, a cover plate 3 is secured, for instance by means of screws 4, upon the portion of the bed adjacent to each slide 2.

Said cover 3 enters a slit 5 provided in carriage 1 and shaped so that cover 3 is surrounded to a great extent by the material of the carriage.

The cover is secured at regular spaces to the bed upon the entire length of the latter and its extension does in no case exceed the length of the machine. On the other hand, the cover opposes any entrance of chips from inside of the bed. Its width may be such that it entirely overhangs the slide whereby an efficient protection is secured. However, as shown on Figure 3, the fastening of the cover upon the slide takes preferably place upon bosses 6 leaving between themselves open spaces 7, so that in case a foreign body enters accidentally through the void shown in A, it is immediately removed through said open spaces 7.

It should be noted that the cover used according to this invention is perfectly rigid, which gives it a protection against any accidental fall of a heavy body. On account of this stiffness, the thickness of the cover may be chosen so as to warrant the highest mechanical resistance without any resulting disadvantage as to deflection.

What I claim is:

In a machine tool having a bed, parallel guide surfaces forming part of said bed, and a carriage to travel on said guide surfaces, the combination of a plurality of spaced inwardly projecting bosses provided on said bed parallel to and below the inner edge of each of said guide surfaces, and, for each guide surface, a protective cover plate of a length equal to that of the guide surface, each plate having its lower edge secured to the bosses provided below the inner edge of the corresponding guide surface and extending upwardly and outwardly into a curved slot provided in said carriage, the outer edge of each cover plate being disposed outwardly of the outer edge of the corresponding guide surface.

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