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DEVICES FOR USE IN CONNECTION WITH THE SHARPENING OF CHISELS, PLANE IRONS AND LIKE TOOLS

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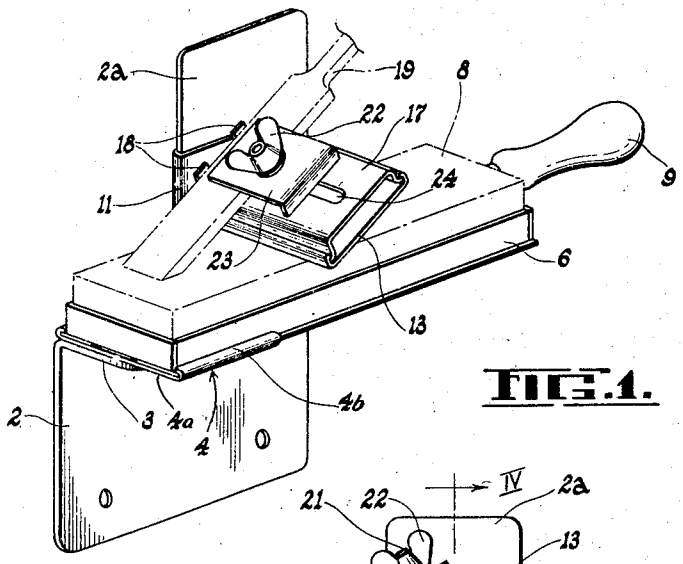


FIG. 1.

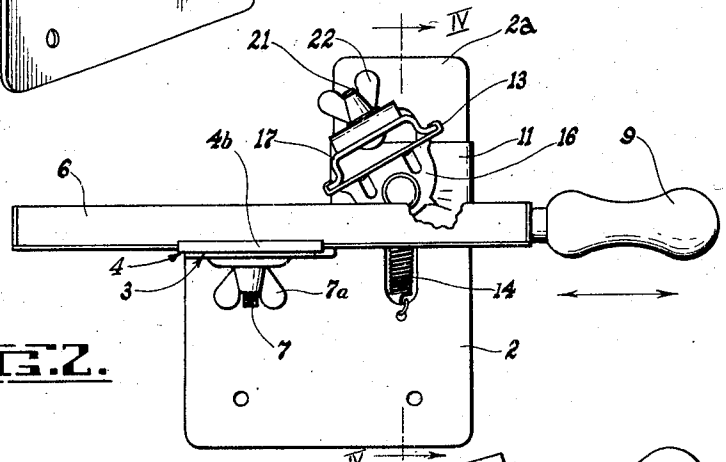


FIG. 2.

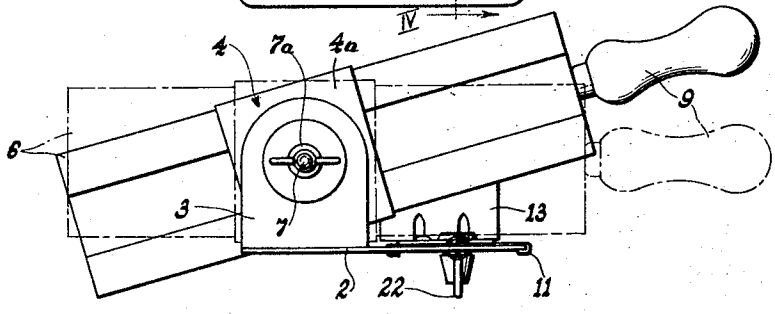


FIG. 3.

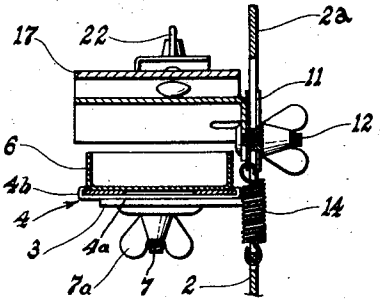


FIG. 4.

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DEVICES FOR USE IN CONNECTION WITH THE SHARPENING OF CHISELS, PLANE IRONS AND LIKE TOOLS

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5 Claims. (Cl. 51—220)

This invention relates to devices for use in connection with the sharpening of chisels, plane irons and like tools and particularly concerns those devices which include means whereby the cutting angle at which the tools are to be sharpened may be varied in accordance with requirements.

Known devices for the purpose indicated have certain disadvantages in that they usually tend to wear the sharpening stone unevenly. Furthermore, if the blade to be sharpened is wider than the stone, correct sharpening can only be carried out with difficulty.

The primary object of the present invention is to provide an improved device of the kind indicated which not only permits the sharpening of such tools to be carried out effectively in a most simple manner by unskilled persons, but in addition is capable of accommodating a wide range of sizes of chisels, plane irons and the like irrespective of whether any of them are wider than the stone.

Another important advantage is that during the sharpening operation the tool being sharpened is not subjected to different pressures depending upon the strength of the user but is subjected throughout the operation to substantially constant pressure which is relatively light but sufficient for sharpening purposes. Consequently excessive wearing of the tool and the sharpening stone is avoided.

The improved device is of relatively simple design and construction having few working parts which are likely to get out of order or require adjustment.

Other objects and novel constructional features of the invention will be more readily apparent from the following more detailed description.

Referring to the drawings which form part of this specification;

Figure 1 is a perspective view of a device in accordance with the present invention;

Figure 2 is a side elevation of the parts seen in Figure 1;

Figure 3 is an inverted plan view of Figure 2;

Figure 4 is a cross section taken on the line IV—IV of Figure 2.

In accordance with the present invention the improved device includes a supporting element **2** which may consist of a normally upright plate or bracket adapted at its lower end for mounting in a vice or for connection to a bench for example, in any other suitable manner.

At an intermediate point in its height the supporting element is provided near one side thereof with a laterally projecting shelf **3** carrying an adjustable guide member **4** for a sharpening stone holder **6**. The adjustable guide member may have a flat base *4a* with opposed substantially parallel channels *4b* at or near its opposite side edges as seen more clearly in Figure 4.

The adjustable guide member is preferably turnable about a normally vertical axis and for this purpose the laterally projecting shelf **3** may have a hole therethrough to pass a spindle or bolt **7** connected at its upper end to the adjustable guide member. The bolt is fitted with a

clamping nut *7a* or any other suitable means for retaining the adjustable guide member **4** in the desired operative position.

The aforesaid stone holder **6** preferably consists of a tray having upstanding side and end walls so as to snugly accommodate a conventional sized sharpening stone **8** on the tray. The tray is also fitted with a handle **9** so that it may be reciprocated in the adjustable guide member whilst in addition coaligned limit stops (not shown) may be provided on the tray and the guide member so as normally to prevent the tray being inadvertently displaced from its guideway.

Associated with the foregoing are adjustable supporting means for the tool to be sharpened. Such means are mounted on the upper part *2a* of the plate-like supporting element which is of reduced width and upstands above the laterally projecting shelf **3** at the side thereof.

Mounted on this upstanding section of the supporting element is a slider **11** carrying a transverse clamping bolt **12** or other pivotal connection for a laterally projecting guideway **13**. This slider is preferably spring influenced, for example, by means of a coiled tension spring **14** connected at one end to the slider and at its opposite end to the supporting element.

The laterally projecting guideway is normally inclined transversely in relation to the adjustable guide member **4** for the stone holder and may be connected to the clamping bolt **12** on the slider by an apertured lug **16** at the inner end of the guideway.

The latter is fitted with a longitudinally slidable tool carrier **17** which is preferably provided at one end with a flange or one or more locating stops **18** adapted to be engaged by the side edge of a tool **19** to be sharpened so as to ensure that the cutting edge thereof is substantially parallel with the plane of the upper surface of the sharpening stone.

The tool carrier **17** is also provided with means for detachably connecting a chisel or plane iron thereto. Such connecting means may consist of an upstanding bolt **21** fitted for example with a wing nut **22** and preferably with an angular clamping plate **23** adapted to fit over a chisel. This clamping plate is not required when a plane iron is being sharpened in that the upstanding bolt may be readily passed through the usual longitudinal slot in the plane iron. The tool carrier is also preferably provided with a longitudinal slot **24** so that the clamping bolt may be moved lengthwise thereof in accordance with requirements.

In use, the guideway **13** for the tool carrier is set to the appropriate angle and then locked in this position by its bolt. The tool to be sharpened is then clamped in position on the tool carrier **17** after the slider **11** has been raised sufficiently to tension the spring whilst the cutting edge of the tool is resting on the sharpening stone. Longitudinal movement of the stone as aforesaid sharpens the tool at the required angle.

Another important feature of the invention is that by turning the adjustable guide member **4** for the stone holder the cutting edge of the tool to be sharpened extends crosswise of the sharpening stone **8** at an angle in relation to the longitudinal axis of the stone instead of at substantially right angles thereto as is usually the case with existing types of tool holders. Many tradesmen consider that by holding the tool in such a position a better sharpening action is obtained.

It will also be apparent that if the width of the tool being sharpened is slightly greater than the width of the stone, this problem may be met by turning the adjustable guide member **4** for the stone holder until the stone accommodates the full width of the cutting edge of the tool. It will also be apparent that the spring **14** maintains a minimum constant downward pressure of the tool onto

the stone whilst uneven wearing of the latter is avoided by moving the tool carrier **17** lengthwise in its guideway **13** so as to position relatively narrow cutting edges on various parts of the stone surface whilst the latter is being reciprocated.

If desired, provision may be made for indicating the working angle of the tool carrier in relation to the sharpening stone. For this purpose the aforesaid apertured lug on the inner end of the laterally projecting guideway may be provided with a pointer registering with the arcuate scale on the slider as seen more clearly in Figure 2 of the drawings.

It is also to be understood that various alterations, modifications and/or additions may be introduced into the foregoing construction and arrangement of parts without departing from the ambit of the invention as defined by the appended claims.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An improved device for use in connection with the sharpening of chisels, plane irons and like tools including a normally upright supporting element provided at one side with a laterally projecting stationary shelf carrying an adjustable guide member for a reciprocatory sharpening stone holder, said adjustable guide member being turnable about a normally vertical axis and being provided with clamping means for retaining the adjustable guide member in the desired operative position on its shelf, adjustable supporting means for the tools to be sharpened which are also mounted upon said supporting element above the adjustable guide member and movable towards and away from said adjustable guide member, said supporting means incorporating a guideway projecting laterally in relation to the supporting element and which is normally inclined in relation to the adjustable guide member, said laterally projecting guideway being fitted with a tool carrier which is movable lengthwise of its guideway and fitted with clamping means for detachably connecting the tool to be sharpened thereto, and means for retaining said laterally projecting guideway in the desired angular relationship with respect to said sharpening stone holder so that the cutting edge of the tool to be sharpened may engage a sharpening stone in said holder.

2. An improved device for use in connection with the sharpening of chisels, plane irons and like tools, comprising a normally upright supporting element, an adjustable guide member for a reciprocatory sharpening stone holder on said supporting element, adjustable supporting means for the tools to be sharpened also mounted upon said supporting element above the adjustable guide member, said supporting means including a guideway projecting laterally in relation to the supporting element and which is normally inclined in relation to said adjustable guide member, a tool carrier mounted on the laterally projecting guideway, means on the tool carrier for detachably connecting the tool to be sharpened thereto so that its cutting edge may engage a sharpening stone in said holder, said supporting element including a normally upright plate, a laterally projecting shelf on said plate, said laterally projecting shelf carrying said adjustable guide member, a normally upright spindle connecting the adjustable guide member to the shelf, a clamping nut on said spindle, a base on said adjustable guide member, opposed substantially parallel channels attached thereto, a tray slidably accommodated on said base forming a sharpening stone holder, and a handle on said tray so that it may be reciprocated.

3. An improved device for use in connection with the sharpening of chisels, plane irons and like tools, comprising a normally upright supporting element, an adjustable guide member for a reciprocatory sharpening stone holder on said supporting element, adjustable supporting means for the tools to be sharpened also mounted upon said supporting element above the adjustable guide member, said supporting means including a guideway projecting laterally in relation to the supporting element and which is normally inclined in relation to said adjustable guide member, a tool carrier mounted on the laterally projecting guideway, means on the tool carrier for detachably connecting the tool to be sharpened thereto so that its cutting edge may engage a sharpening stone in said holder, said adjustable supporting means being mounted upon the upper part of said supporting element, a slider forming part of said adjustable supporting means, means on said slider pivotally connecting said laterally projecting guideway thereto, spring means on said slider to normally urge it towards the sharpening stone holder, and means for indicating the angle at which said tool carrier is operatively positioned in relation to said slider.

4. An improved device for use in connection with the sharpening of chisels, plane irons and like tools, comprising a normally upright supporting element, an adjustable guide member for a reciprocatory sharpening stone holder on said supporting element, adjustable supporting means for the tools to be sharpened also mounted upon said supporting element above the adjustable guide member, said supporting means including a guideway projecting laterally in relation to the supporting element and which is normally inclined in relation to said adjustable guide member, a tool carrier mounted on the laterally projecting guideway, means on the tool carrier for detachably connecting the tool to be sharpened thereto so that its cutting edge may engage a sharpening stone in said holder, stop means on said tool carrier for engaging one of the side edges of the tool to be sharpened, an upstanding bolt fitted with a nut for detachably connecting the tool to the tool carrier, a slot formed in said tool carrier, said upstanding bolt being slidable lengthwise in said slot, a clamping plate adapted to fit over a tool to be sharpened and held in place by said bolt.

5. A device for use in connection with the sharpening of chisels, plane irons and the like comprising a supporting element including a normally upright plate, a laterally projecting stationary shelf on said plate, a sharpening stone holder, an adjustable guide member for the sharpening stone holder carried by said shelf, a base on said guide member having opposed substantially parallel channels attached thereto, an upright spindle passing through the laterally projecting shelf and fitted with a clamping nut about which said guide member is turnable, said stone holder including a tray, a handle on said tray so that it may be reciprocated lengthwise in the guide member, the upper part of said supporting element being of reduced width and upstanding above said shelf, adjustable supporting means for the tool to be sharpened on the upper part of said supporting element, said adjustable supporting means including a slider, a pivotal connection on said slider, a laterally projecting guideway connected to said slider by said connection and normally inclined in relation to the adjustable guide member and adapted for clamping to the slider in the desired adjusted position, a longitudinally slidable tool carrier on said laterally projecting guideway, stop means on said tool carrier at one end thereof, an upstanding bolt, a nut fitted thereon, and a clamping plate for detachably connecting the tool to be sharpened to its carrier.

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