Nov. 6, 1934. S. HANGI 1,979,741

APPARATUS FOR SHARPENING TOOLS OF CHISEL TYPE

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Fig. 1.

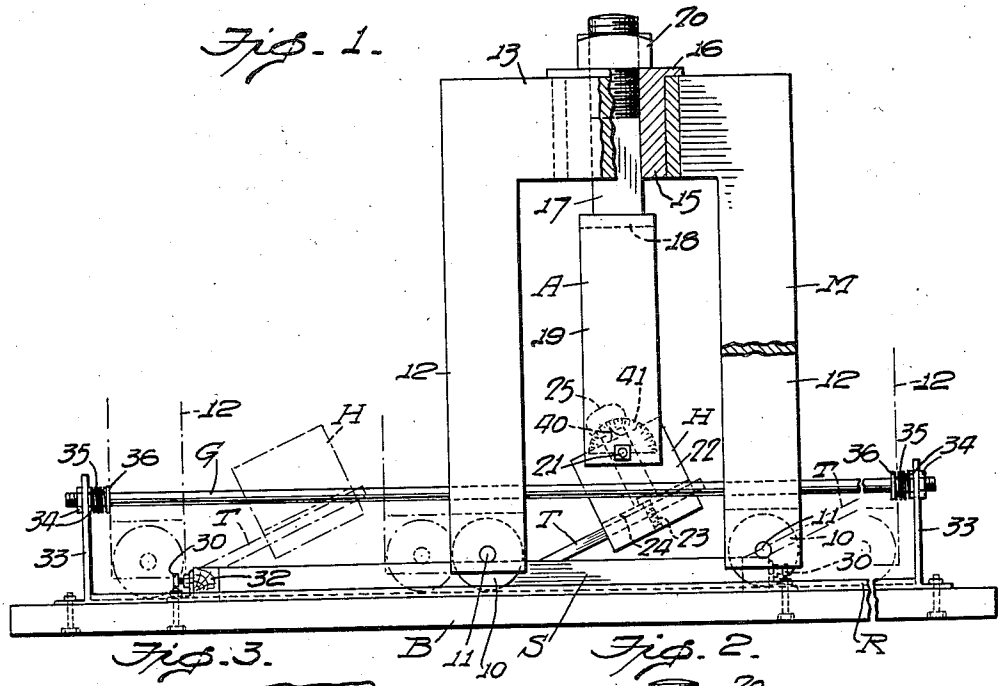


Fig. 3.

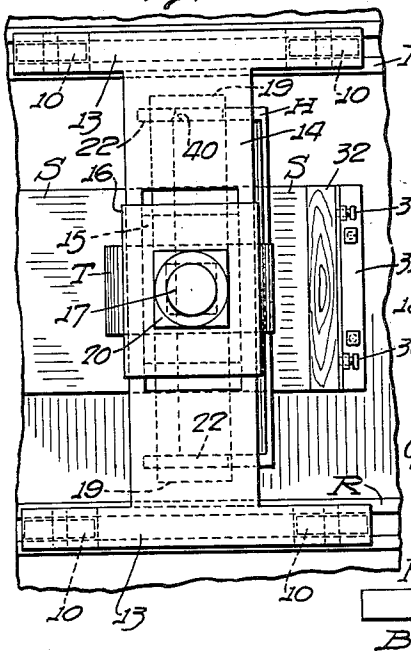
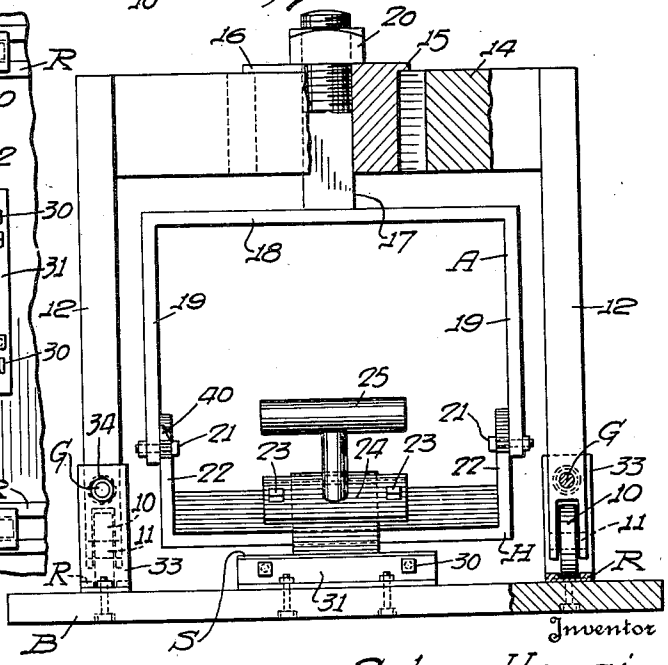


Fig. 2.



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Fig. 4.

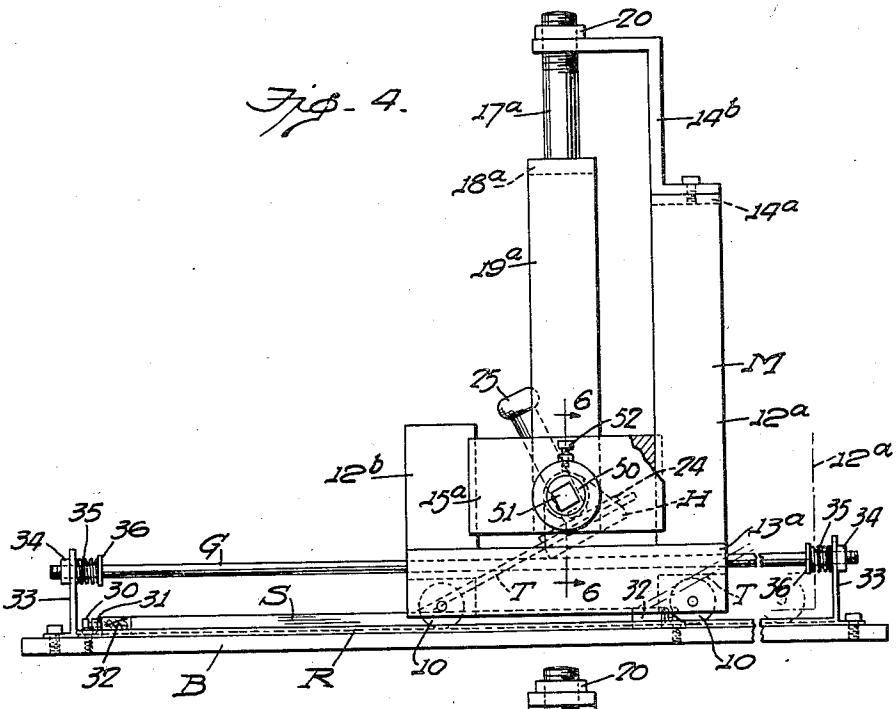


Fig. 5.

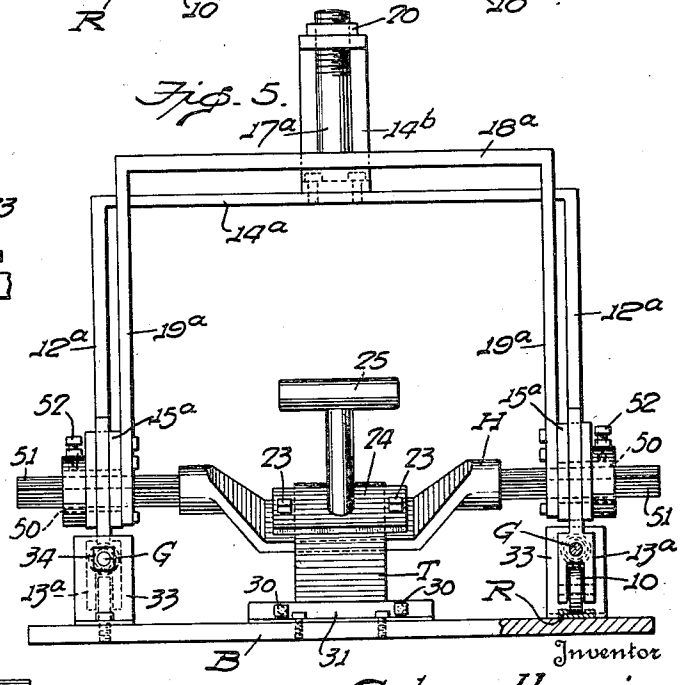


Fig. 7.

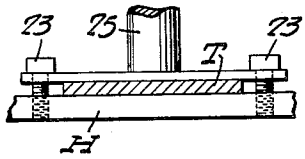
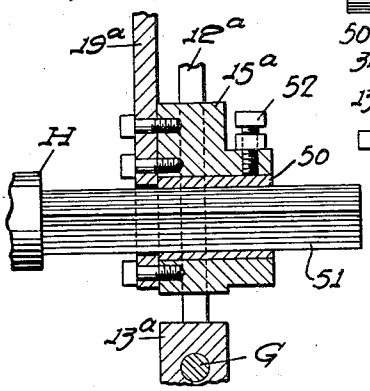


Fig. 6.



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Patented Nov. 6, 1934

1,979,741

UNITED STATES PATENT OFFICE

1,979,741

APPARATUS FOR SHARPENING TOOLS OF CHISEL TYPE

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Application October 5, 1933, Serial No. 692,340

5 Claims. (Cl. 51—158)

The present invention relates to an apparatus including a device for holding a tool of the chisel type during sharpening whereby the edge of the tool may be given a pre-selected angle.

One of the features of the present invention is the provision of a travelling frame having a tool holding device thereon which may be adjusted toward and from a sharpening stone, and also angularly.

Another feature of the present invention is the provision of a tool holder and means for supporting the same so that the tool is presented at a predetermined angle to the sharpening stone during sharpening, along with structure for guiding the tool holder for upward and downward adjusting movement.

With these and other objects in view, as will appear in the course of the following specification and claims, illustrative forms of practicing the invention are set forth on the accompanying drawings, in which:

Figure 1 is a side elevation of a first form of the apparatus, with portions broken away to show the arrangement of the parts thereof.

Figure 2 is a corresponding end elevation.

Figure 3 is a fragmentary top plan, on a larger scale.

Figure 4 is a side elevation of a modified form of construction.

Figure 5 is an end elevation of the same.

Figure 6 is a detail sectional view, on a larger scale, substantially on line 6—6 of Figure 4.

Figure 7 is a detail sectional view, showing a tool holding structure according to this invention, with the tool in section.

In these drawings, a fixed bed B is provided with rails R and a sharpening stone S. A travelling carriage M moves back and forth along the bed and supports a vertically movable tool frame A having a tool holder H pivoted thereto for supporting a tool T with its edge presented to the stone S at a predetermined and pre-selected angle. Guides G are likewise supported on the bed B for maintaining the travelling carriage M in position with respect to the rails R.

In the form of construction shown by Figures 1 to 3, the rails R are shown as having central grooves for the reception of wheels 10 which are mounted by axles 11 at the lower ends of the four legs 12 of the carriage M which are joined at the sides by webs 13 so that the pairs of legs and the web at each side forms an inverted V-shaped member. The webs 13 are joined by a cross web 14 having a vertical slot therein to receive a block 15 having a projecting top flange 16 for limiting the downward movement of the block. The block 15 has a substantially vertical aperture to receive a threaded stem 17 connected to a top web 18 of the tool frame A, which has the two legs 19 extending downwardly and forming with the top web 18 a U-shaped tool frame. The nut 20 which is engaged with the threaded stem 17 serves to adjust the vertical position in height of the tool frame.

The lower ends of the legs 19 are apertured to receive the pivot bolts 21 for supporting the upturned ends 22 of the tool support H. This tool support is illustrated as having a plane portion for receiving the tool T, and the clamping bolts 23 which secure the tool clamp 24 tightly upon the tool and hold the latter against movement. Extending upwardly from the clamping plate 24 is a T-shaped handle 25.

The stone S rests upon the bed B between the rails R and is held in position by the adjusting screws 30 passing through the transverse angle bars 31 located at the ends of the stone. It is preferred that these angle bars should be of lesser height than the stone, and filler pieces 32 of wood or like soft material are interposed.

Upwardly extending brackets 33 are secured to the bed B and are apertured at their upper ends to provide supports for the guide rails G which are illustrated as being threaded at their ends and provided with the clamping nuts 34. Cushioning springs 35 and washers 36 are provided at the ends for contact with the legs 12 of the carriage as the latter reaches the ends of its movement. The legs 12 are apertured to receive and closely fit the guide rails G.

The top of one of the vertically extending flanges 22 of the tool holder H is preferably sharpened to an indicating edge or point 40 and moves opposite the scale 41 provided on the inner surface of the corresponding leg 19, as the tool holder H rocks about its pivot bolts 21, and thus furnishes a means of accurately predetermining the angle at which the device is set.

In the form of construction shown in Figures 4 to 6, the bed B, rails R, stone S and guide rails G are substantially the same as before. The carriage M in this embodiment, however, is formed of lower lateral blocks 13*a* each of which is provided with cavities at the ends to receive the wheels 10. A long leg 12*a* extends upwardly at the right hand end (Fig. 4) and a short leg 12*b* extends upwardly at the left hand end, from each of the lateral blocks 13*a*, thus leaving between the legs 12*a* and 12*b* spaces in which may slide the blocks 15*a* which have vertical grooves at their

ends for a guiding fit with the legs 12a and 12b. The two legs 12a are preferably formed integral with a top web 14a to provide a U-shaped member in the carriage. The top web 14a has secured thereto a bracket 14b which is apertured to receive the threaded stem 17a of the U-shaped tool frame A having the top web 18a and the two legs 19a. The legs 19a at their bottoms are connected fixedly to the sliding blocks 15a. A nut 20 is employed for cooperation with the threaded stem 17a in adjusting the vertical position of the tool frame A. The blocks 15a, which thus form a part of the tool frame have horizontal alined holes therein for receiving the bushings 50 which have cylindrical outer surfaces for rotation in the blocks 15a and square central passages to receive the squared ends 51 of the tool holder H.

The tool holder H, as in the first embodiment, has a plane surface for receiving the tool H, the clamping bolts 23, and the clamping plate 24 with a handle 25.

In this form of construction, clamping screws 52 (Fig. 6) are passed through each block 15a to hold the bushings 50 and therewith the tool holder H against movement about a horizontal axis.

In each form of the invention, the tool T is placed on the plane surface of the tool holder H, and clamped by the plate 24 and screws 23. The tool frame A is then raised or lowered until a proper angle is thus pre-selected for the presentation of the tool T with the stone S. This is done by rotation of the nut 20. It is then possible to clamp the tool holder H against turning about a horizontal axis by tightening the bolts 21 or the screws 52.

The handle 25 is then pushed back and forth so that the carriage M with its associated parts moves back and forth on the rails R while being guided by the guide rails G. The pressure of the tool upon the work during movement of the carriage toward the left in Figures 1 and 4 may be regulated by a slight further adjustment of the nut 20. During the movement toward the right, the pull on the handle 25 usually tends to slightly relieve the working pressure. As a result, the tool receives a sharpened edge of the desired angle, and owing to the substantially fixed position in which the tool is held, it is at no time brought forcibly down upon the stone S, but tends to slide back and forth in a more or less forcible engagement therewith.

It is obvious that the invention is not limited solely to the forms of construction shown, but that it may be modified within many ways of the scope of the appended claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:—

1. An apparatus for sharpening edged tools of the chisel type, comprising an abrading element providing a sharpening surface, parallel rails extending parallel to said surface, a reciprocable carriage guided by said rails, a tool frame including a U-shaped member having the legs extending toward said surface, a tool holder pivoted to said legs on an axis substantially parallel to said surface, and devices including a threaded stem secured to the bight of said U-shaped member, and a nut for supporting said frame on said carriage and for adjusting the same toward and away from said surface.

2. An apparatus for sharpening edged tools of the chisel type comprising an abrading element providing a sharpening surface, parallel rails extending parallel to said surface, a reciprocable carriage guided by said rails, blocks carried by said carriage for vertical movement thereon, a tool frame, a tool holder, means for inter-connecting said tool frame, said tool holder and said blocks, and means including a threaded stem and adjusting nut for moving said blocks vertically whereby to vertically adjust said tool frame.

3. An apparatus for sharpening edged tools of the chisel type, comprising an abrading element providing a sharpening surface, spaced parallel rails extending parallel to said surface, supporting brackets and guide bars supported thereby in position parallel to and above said rails, a reciprocable carriage having spaced lower portions provided with rollers engaged with said rails and having apertures closely fitting said bars, leg portions on said carriage extending upward from said lower portions and leaving a space between said leg portions and above said surface, a cross member connecting said leg portions above said space, a tool frame guided from said cross member for vertical movement and located in said space, and a tool holder mounted at the lower end of said frame.

4. An apparatus as in claim 3, in which cushioning devices are provided at the ends of said bars to limit said carriage at the ends of its strokes.

5. An apparatus as in claim 3, in which said leg portions include guides for said tool frame.

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