April 20, 1926. 1,582,014

J. W. KENDALL

DEVICE FOR HOLDING DRILLS FOR SHARPENING

Filed Sept. 24, 1924

Fig. 1.

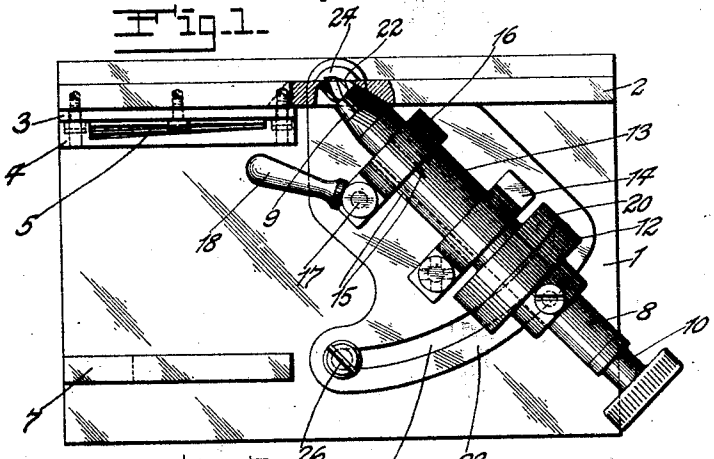


Fig. 2.

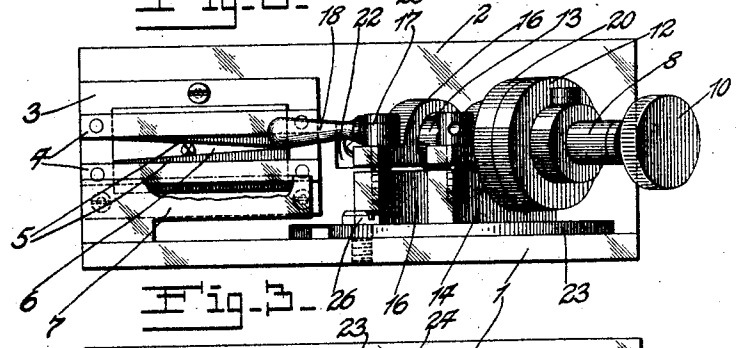


Fig. 3.

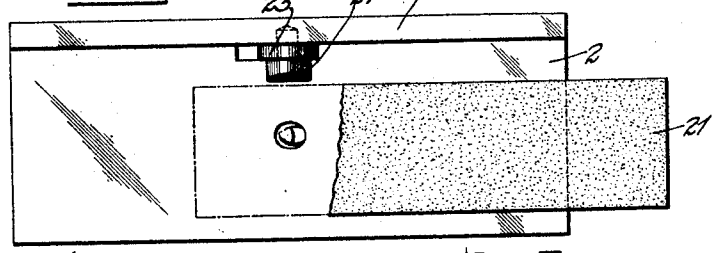


Fig. 4.

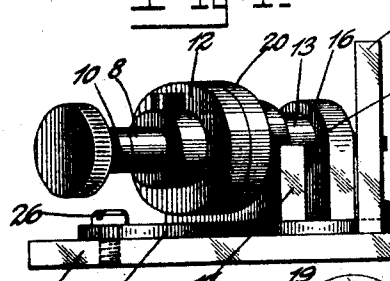


Fig. 5.

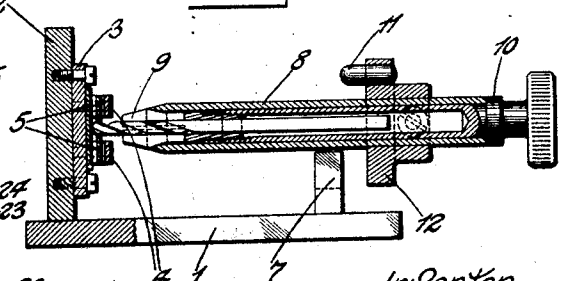
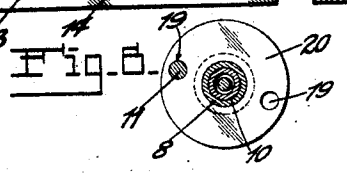


Fig. 6.



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His Attorneys.

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UNITED STATES PATENT OFFICE.

JAMES W. KENDALL, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO JAMES L. BARNGROVE, OF ST. LOUIS, MISSOURI.

DEVICE FOR HOLDING DRILLS FOR SHARPENING.

Application filed September 24, 1924. Serial No. 739,539.

To all whom it may concern:

Be it known that I, JAMES W. KENDALL, a citizen of the United States, residing at St. Louis, Missouri, have invented new and useful Devices for Holding Drills for Sharpening, of which the following is a specification.

This invention relates to a device for holding drills for sharpening.

It is well known that considerable difficulty is encountered in sharpening small drills. The difficulty arises in part from the fact that, for best results, the sharpened end of the drill must be formed exactly on the axis of the drill. To obtain this result it is necessary to bevel the ends of the drill lips with precision and uniformity. In the case of small drills it has been difficult to hold the drills in proper adjustment during the grinding and sharpening operation and it has been nearly impossible to grind to shape the ends of the drill lips to form the sharpened point properly on the axis of the drill. At each succeeding sharpening operation it is necessary to adjust the drill in a slightly different position from the preceding sharpening operation, due to the twisted or spiral formation of the drill lips.

An object of the present invention is to provide a device or machine comprising means for adjusting drills even of the smallest size in a holder, and means for supporting the holder firmly in position to present the end of the drill so that when the lips are sharpened by an abrading device both lips of the drill will be beveled at exactly the same angle forming a point exactly on the axis of the drill.

Another object of the invention is to provide a device or machine of the character mentioned in which the degree of angularity at which the drill will be sharpened may be varied as desired in order to permit use of the device or machine in sharpening drills of different types.

Various other objects and advantages of the invention will appear from the following description, reference being made to the drawing in which

Fig. 1 is a plan view of a preferred form of the invention.

Fig. 2 is a side elevation with one of the parts broken away.

Fig. 3 is a rear elevation.

Fig. 4 is an end elevation.

Fig. 5 is a view showing parts of the device in section and in the positions they occupy during the operation of adjusting the drill in the holder.

Fig. 6 is a view showing the device by which the drill holder is adjusted in its support to present the point of the drill properly for the sharpening operation.

To the base 1 a wall 2 is attached. A plate 3 is secured to the wall 2 near one end thereof and supports a pair of parallel straight edge members 4. A pair of plates 5 have their adjacent edges between the straight edge members 4 and form a tapering space or channel 6. A stop guide 7 is secured to the base 1 parallel with the straight edges 4.

The drill holder comprises a tube 8 designed and adapted to support collets or chucks 9 of different sizes, and also to support a draw spindle 10 which engages the collets or chucks 9. When it is desired to sharpen a drill of any size, within the capacity of the device, the collet or chuck 9 of the proper size for the drill to he sharpened is selected, and, with the drill in it, is placed in the holder 8. The draw spindle 10 is then tightened sufficiently to allow the drill to turn with considerable frictional resistance, and with the end of the drill some distance beyond the end of the chuck. The drill holder is then placed across the stop guide 7 and the point of the drill is placed within the tapering space 6 between the plates 5. The drill holder and the drill are then moved toward the tapered end of the space 6 until the drill is felt to wedge between the plates 5. During this movement the holder is turned back and forth slightly until the drill is felt to come to rest within the narrowest part of the space 6 to which it can move. When the drill is properly located in the manner just described the holder is turned to the right relative to the operator until the pin 11 supported by a disc 12 rigid on the holder abuts against the upper edge of the stop guide 7. Next the holder is pressed toward the wall 2 until the

chuck 9 abuts against the straight edges 4. Then the drill holder is moved to carry the point of the drill out through the wide end of the space 6 and placed in the sleeve 13, one end of which is rigid in a support 14 and the opposite end of which is split as shown at 15. The split end of the sleeve 13 is mounted in a clamping device comprising two members 16 connected by one end and separate at the other end. A screw 17 extends through the upper member 16 and screws into the lower member 16 and is provided with a lever 18 whereby it may be tightened and loosened. After the holder is placed in the sleeve 13 it is turned until the pin 11 enters one of the holes 19 in a disc 20 rigid on the outer end of the sleeve 13. Next, the lever 18 is operated to tighten the clamp 16 and thereby clamp the split end of the sleeve 13 upon the holder. In this position the end of the drill extends slightly beyond the wall 2 and in exactly the right position so that when the extended portion is removed one side of the drill will be sharpened properly with respect to the drill lips. The sharpening operation may be performed by use of an oil stone 21. When the drill holder is in proper position the end of the chuck rests against a rounded stop 22.

After one side of the drill has been sharpened the screw 17 is loosened to permit partial withdrawal of the holder which is then turned to place the pin 11 in the other hole 19 which presents the other lip of the drill in proper position to be sharpened.

The drill support is mounted upon a plate 23 having one end connected to a pivot 24, the axis of which is in alinement with the axis of the rounded stop 22. The opposite end of the plate 23 has a curved slot 25 through which a screw 26 passes into the base 1. By releasing the screw 26 and turning the plate 24 to change the radial position of the sleeve 13 with respect to the axis of the stop 22, the angularity of the sharpened end of the drill may be varied as desired and the machine may be adjusted to sharpen drills of different types.

From the foregoing it will be seen that my invention obtains all of its intended objects and purposes in a highly efficient and satisfactory manner and that by its use the smallest of drills may be accurately and properly sharpened and used repeatedly. The construction, arrangement and relationship of the parts may be varied in numerous particulars and within equivalent limits without departure from the nature and principle of the invention. I do not restrict myself unessentially, but—

What I claim and desire to secure by Letters Patent is:

1. A device of the character described comprising a drill holder, a support holding said drill holder rigidly in each of two adjusted positions, and means for engaging and holding a drill in said holder when said holder it turned to a position in which the sides of the drill point extend beyond the drill holder in a definite predetermined relationship thereto.

2. A device of the character described comprising a guide plate for abrasive material, a drill holder, means for adjusting a lip drill in the drill holder in a position in which the sides of the drill point occupy a definite predetermined relationship to the drill holder, and means for supporting the drill holder rigidly in each of two positions to present the sides of the drill point alternately in the same relationship to said guide.

3. A device of the character described comprising a guide for abrasive material and having a hole therethrough, a drill holder, means for adjusting a lip drill in said holder in a predetermined adjustment, and means for rigidly supporting said holder in one position in which the end of the drill extends through said hole at angles for sharpening first one lip and then the other lip of the drill leaving a sharpened point exactly on the axis of the drill and in the plane of the surface of said guide.

4. A device of the character described comprising a guide for abrasive material and having a hole therethrough, a drill holder, means for adjusting a lip drill in said holder in a predetermined adjustment, means for rigidly supporting said holder in one position in which the end of the drill extends through said hole at angles for sharpening first one lip and then the other lip of the drill leaving a sharpened point exactly on the axis of the drill and in the plane of the surface of said guide, and means for holding said supporting means in different adjustments to support said drill holder in different angular positions relative to said guide.

5. A device of the character described comprising a guide stop plate for abrasive material and having a hole therethrough, a drill holder, means for adjusting a drill in said holder in a position in which the drill extends a predetermined measured distance beyond the end of the holder, and means for locking said drill holder in each of two positions in each of which one of the lips of the drill extends through said hole beyond said guide stop.

6. A device of the character described comprising a guide stop plate for abrasive material and having a hole therethrough, a drill holder, means for adjusting a drill in said holder in a position in which the drill extends a predetermined measured distance beyond the end of the holder, means for lock-

ing said drill holder in each of two positions in each of which one of the lips of the drill extends through said hole beyond said guide stop, and means for adjusting the drill in the drill holder in position to obtain such relationship when the drill holder is adjusted as aforesaid.

7. A device of the character described comprising a guide stop for abrasive material and having a hole therethrough, a drill holder. means for adjusting a drill in said holder in a position in which the drill extends a predetermined measured distance beyond the end of the holder, a support for supporting said drill holder in position in which the lips of the drill extend through said hole beyond said guide stop alternately in alternate adjustments of the drill holder, and means for securing said drill holder in each of said two positions.

8. A device of the character described comprising a guide stop for abrasive material and having a hole therethrough, a drill holder, a support for supporting said drill holder in position in which the lips of the drill extend through said hole beyond said guide stop alternately in alternate adjustments of the drill holder, means for securing said drill holder in each of said two positions, and means for securing said support in position to support said drill holder in different angular positions relative to said guide stop.

9. A device of the character described comprising a drill holder for lip drills, means for securing a drill chuck with a drill in it in connection with said drill holder, and means for effecting adjustment of lip drills of different sizes in predetermined positions in said drill holder.

10. A device of the character described comprising a drill holder, a guide stop for abrasive material and having a hole therethrough for the end of a drill in said holder, a sleeve in which said drill holder may be mounted, and a latch device preventing said sleeve from turning from either of two adjustments in said sleeve while the end of the drill extending through said hole is sharpened.

11. A device of the character described comprising a drill holder, means for adjusting a drill in said holder in a position in which the drill extends a predetermined measured distance beyond the end of the holder, a guide stop for abrasive material and having a hole therethrough for the end of a drill in said holder, a sleeve in which said drill holder may be mounted, a latch device preventing said sleeve from turning from either of two adjustments in said sleeve while the end of the drill extending through said hole is sharpened, and a clamping device holding said drill holder from longitudinal displacement in said sleeve.

12. A device of the character described comprising a tubular drill and chuck holder, means for securing a drill and chuck in said holder, means for measuring the distance of projection of the drill beyond the holder, means for turning said holder to a desired position, and means for preventing the drill from turning with the holder.

13. A device of the character described comprising a rotative and longitudinally movable drill holder, means for measuring the distance of projection of the drill beyond the holder, means for holding a drill in said holder, and a device for engaging and holding the drill from turning and from longitudinal movements when said holder is turned and moved longitudinally.

14. A device of the character described comprising a rotative and longitudinally movable drill holder, means for holding a drill in said holder, a device for engaging and holding the drill from turning and from longitudinal movements when said holder is turned and moved longitudinally, and means for stopping turning movements of said holder when said holder is in a predetermined position relative to said drill.

15. A device of the character described comprising a rotative and longitudinally movable drill holder, means for holding a drill in said holder, a device for engaging and holding the drill from turning and from longitudinal movements when said holder is turned and moved longitudinally, and means for stopping longitudinal movements of said holder when said holder is in a predetermined position relative to said drill.

16. A device of the character described comprising a rotative and longitudinally movable drill holder, means for holding a drill in said holder, a device for engaging and holding the drill from turning and from longitudinal movements when said holder is turned and moved longitudinally, and means for stopping both turning and longitudinal movements of said holder when said holder is in a predetermined position relative to said drill.

17. A device of the character described comprising a drill holder, means for adjusting lip drills of different sizes in said holder with the ends of said drills extending the same distance beyond the holder and the lips on the extended ends having the same relationship to the holder, and means for supporting the holder in each of two positions in which the lips of the drill are alternately in the same position.

18. A device of the character described comprising a drill holder, means for adjusting lip drills of different sizes in said holder with the ends of said drills extending the same distance beyond the holder and the lips on the extended ends having the same rela-

tionship to the holder, means for supporting the holder in each of two positions in which the lips of the drill are alternately in the same position, and a stop guide for abrasive material and having a hole therethrough for the end of the drill.

19. A device of the character described comprising a drill holder, means for supporting said drill holder in each of two positions, and means for adjusting lip drills of different sizes in said holder with the ends of said drills extending the same distance beyond the holder and the lips on the extended ends having the same relationship to the holder.

20. A device of the character described comprising a drill holder, means for supporting said drill holder in each of two positions, means for adjusting lip drills of different sizes in said holder with the ends of said drills extending the same distance beyond the holder and the lips on the extended ends having the same relationship to the holder, and a stop guide for abrasive material and having a hole therethrough for the end of the drills in said holder.

21. A device of the character described comprising a drill holder, means for supporting said drill holder in each of two positions, means for adjusting lip drills of different sizes in said holder with the ends of said drills extending the same distance beyond the holder and the lips on the extended ends having the same relationship to the holder, a stop guide for abrasive material and having a hole therethrough for the end of the drills in said holder, and means for holding said supporting means and thereby said drill holder in different positions relative to said stop guide.

JAMES W. KENDALL.