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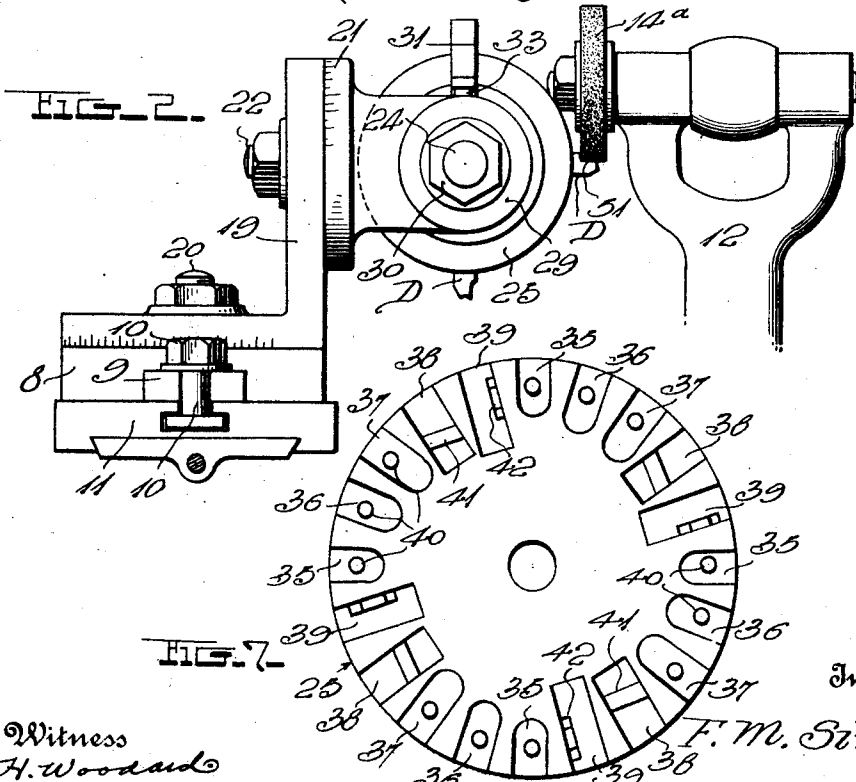
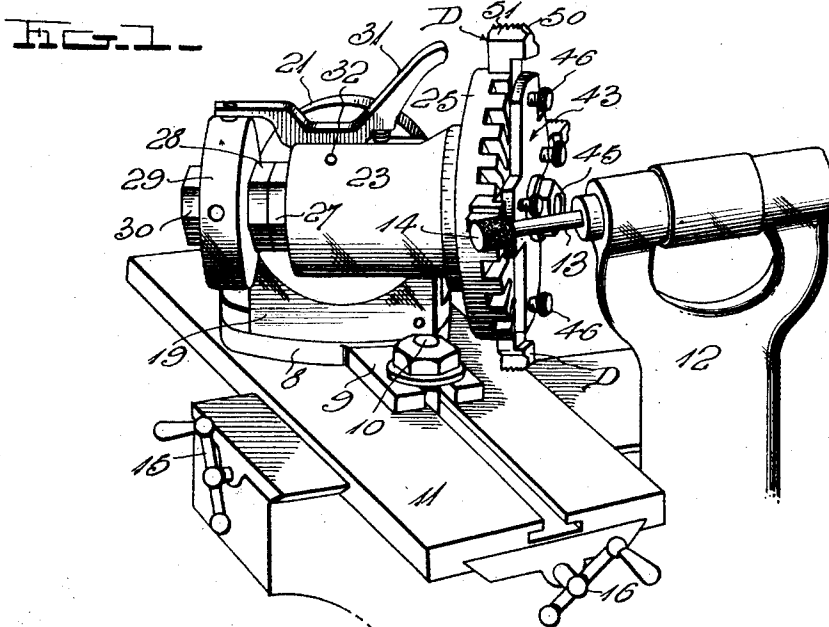
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MEANS FOR HOLDING THREAD CHASING DIES WHILE GRINDING

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3 Sheets-Sheet 1



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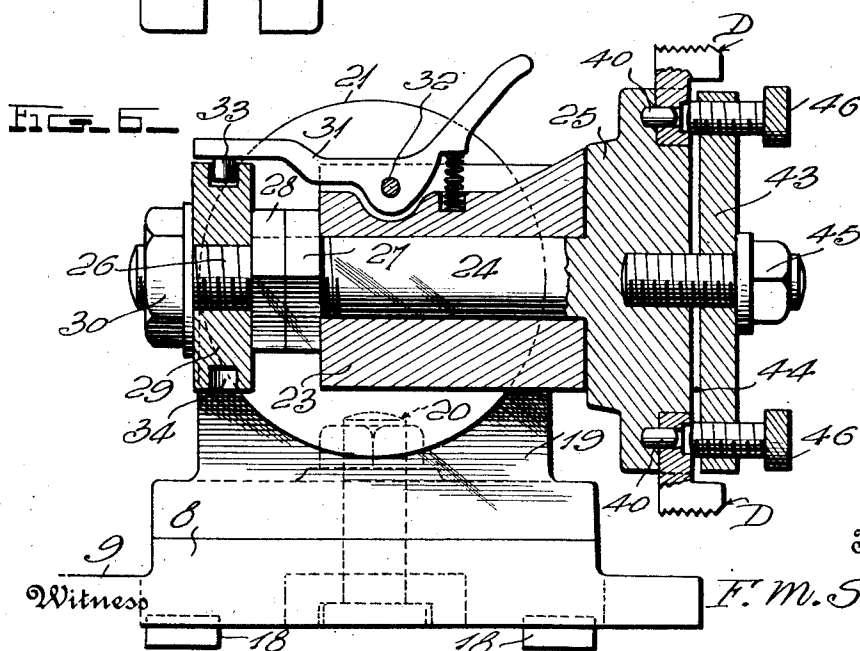
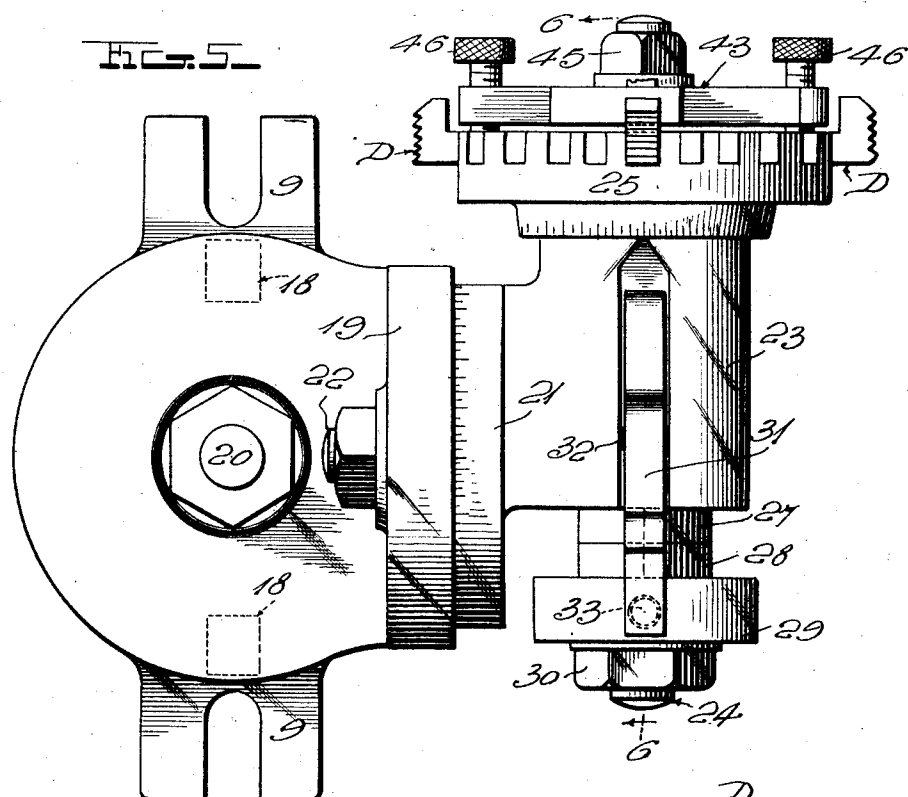
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## UNITED STATES PATENT OFFICE.

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MEANS FOR HOLDING THREAD-CHASING DIES WHILE GRINDING.

Application filed February 3, 1927. Serial No. 165,665.

The invention relates to improvements in work holders and has reference more particularly to a device for holding a complete set of thread chasing dies in such a manner that all necessary grinding operations on the individual dies, may be uniformly carried out.

It is one object of the invention to provide a device of the class set forth which may be easily adjusted to dispose the dies in proper relation to a grinding wheel.

It is another aim, to provide a device which will effectively hold sets of dies of different sizes and designs and will insure that uniform grinding of all dies of the held set, shall be effected.

A further object is to provide novel means for holding any set of dies in recesses provided for their reception.

Yet another aim is to provide unique means whereby a rotatable head which carries the dies to be ground, may be effectively held against further rotation after each turn thereof, to position a die for grinding.

Yet another aim is to provide a rather simple and inexpensive device of the class set forth, yet one which will be efficient, reliable, and in every way desirable.

With the foregoing in view, the invention resides in the novel subject matter herein-after described and claimed, the description being supplemented by the accompanying drawings.

Fig. 1 is a perspective view of the device in operative relation with a grinding wheel and its stand, arranged to grind the usual chamfer on a set of thread chasing dies.

Fig. 2 is an elevation showing the device set in operative relation with a grinding wheel for grinding the work-engaging or advance surfaces of the dies.

Fig. 3 is an enlarged elevation of the die-holding device.

Fig. 4 is an end elevation partly in section as indicated by line 4—4 of Fig. 3.

Fig. 5 is a top plan view.

Fig. 6 is a vertical longitudinal section as indicated by line 6—6 of Fig. 5.

Fig. 7 is an elevation of the rotatable head upon which the dies to be ground, are secured.

The drawings above briefly described, illustrate the preferred form of construction, and while this construction will be herein specifically described, it is to be understood at the outset, that within the scope of the invention as claimed, numerous variations may be made.

Moreover, such expressions as "vertical" and "horizontal" are to be considered as relative rather than limiting.

The numeral 8 designates a horizontal base having lugs 9 to receive bolts 10, by means of which said base may be secured to a well known part 11 of a stand 12, commonly used for supporting the arbor 13 of a grinding wheel 14. By means of conventional construction, controlled by cranks 15 and 16, the part 11 may be moved either longitudinally or transversely of the arbor 13. This part 11 is customarily provided with a T-slot which receives the heads of the bolts 10, and I prefer that the base 8 be provided with lugs 18 for reception in said slots.

An L-shaped supporting member 19, is pivoted by a vertical bolt or the like 20, upon the base 8, said bolt passing through the base portion of said supporting member. Contacting with the vertical portion of this supporting member, is a plate or disk 21, which is pivoted to it by a bolt or the like 22. When desired adjustments have been made, the bolts 10, 20 and 22 are of course tightened.

Integral with the outer side of the plate or disk 21, is a bearing 23 whose axis is disposed diametrically with respect to said plate or disk. This bearing rotatably receives a shaft 24, one end of which is provided with a cylindrical head 25 which may either be integral with it or otherwise rigidly joined thereto. The other end of the shaft 24 projects beyond the bearing 23 and is preferably reduced at 26, and on the shaft between this reduced portion and the bearing, are a nut 27 and a lock nut 28 which are used to take up end play in the shaft. A locking collar 29 surrounds the reduced portion 26 and may be clamped against the nut 28, for rotation bodily with the shaft 24 and head 25, by means of a nut 30. However, when this nut 30 is loosened, relative turning of the collar 29 and the head 25, is permitted, for a purpose to be hereinafter explained.

A spring-pressed, manually releasable, locking member 31 is pivoted at 32 upon the bearing 23 and is co-operable with locking portions of the collar 29, to lock this collar against turning. In the present disclosure, the locking member 31 is provided with a stud 33 and the locking portions of the collar 29, are in the form of sockets 34, any of which may receive said stud. These sockets correspond in number to the number of dies in any of a plurality of sets which can be held

for grinding by the device. Customarily, there are four dies to any set, and hence four of the sockets 34 have been shown. However, if the device is constructed to hold sets of dies in which each set contains some other number of dies, there will be a corresponding number of sockets provided. The dies to be ground are mounted upon the head 25 and while one die is being ground, the stud 33 is in one of the sockets 34. When the next die is to be ground, the locking member 31 is released and the head 25 turned to present the next die to the grinding wheel, and when said die arrives at the proper, predetermined point, the stud 33 will snap into the next recess or socket 34.

The head 25 is provided with a number of sets of recesses to accommodate different sets of dies to be ground. The recesses of one set are denoted at 35, those of another at 36 and those of still others at 37, 38 and 39, and in the present disclosure, each set of recesses consists of four of the latter. However, if sets of dies are to be ground having other numbers of dies in each set, the number of recesses in each set, provided for the reception of the dies, would vary accordingly. The recesses of any set are uniform in character and are uniformly spaced about the periphery of the head 25, and it will be seen that by effecting the necessary turning of the collar 29 with respect to said head 25, the recesses 34 of said collar may be made to engage the stud 33 of the locking member 31, when the dies, in the selected recesses, are successively and uniformly presented at the proper point for grinding.

The formations 40, 41 and 42, within the recesses of the head 25, may be considered as locating pins, gibs, keys or the like, shaped to engage complementary portions of the standard dies now in every day use.

A spider 43 is disposed outwardly from the outer end surface 44 of the head 25 and is pivoted at its center to the center of this head, as denoted at 45. The arms of this spider may move into opposed relation with the recesses 35-39 of any of the sets, and set screws 46 are threaded through said arms, to clamp the dies D in the proper recesses. In this connection, attention may be invited to the fact that each die-holding recess opens through the periphery of the head 25 and through the end surface 44 of the latter. Thus, when the screws 46 are loosened and the spider 43 is turned to the proper extent, the dies are exposed and may be easily removed.

Instead of using the collar 29 and the cooperating locking member 31 when performing all grinding operations, I may make use of a spring metal stop finger 47 connected by appropriate supporting means 48-49, with the member 19, said finger being engageable with the dies D and being sufficiently resilient

to permit turning of the head, that is, when any of the dies encounters the finger upon such turning of the head, said finger will spring outwardly until the die passes and will then snap back to the position of Fig. 4 to support the die and hold the head 25 against rotation, during the grinding operation.

From the foregoing, taken in connection with the accompanying drawings, it will be clear to those skilled in the art, that I have produced a new and greatly improved device, for holding thread chasing dies while performing the necessary grinding operations upon them. Fig. 1 illustrates the manner of using the device for grinding the usual chamfers 50 upon the dies D, and as all of said dies are held in a uniform manner by the head 25, they will be uniformly presented to the grinding wheel 14, and hence will all have the same degree of chamfer performed by said wheel.

Fig. 2 illustrates the manner in which the advance faces 51 of the dies D are ground, by the use of a larger grinding wheel 14<sup>a</sup>. These surfaces also will be uniformly ground and it will be seen that they may be ground at a single setting of the machine, which is also true when grinding the surfaces 50.

As excellent results are obtainable from the general construction shown and described, such construction is preferably followed. However, within the scope of the invention as claimed, variations may of course be made.

I claim:

1. A work holder comprising a head having a plurality of spaced means for at one time holding all of a set of duplicate members in uniform relation with said head, and a second plurality of spaced means differing from the first named means for at another time holding all of another set of duplicate members in uniform relation with said head; means movably mounting said head and permitting successive presentation of said spaced holding means at a common point; and means for holding said head against accidental movement when any active one of said spaced means is disposed at said predetermined point.

2. A work holder comprising a head having a plurality of spaced means for at one time holding all of a set of duplicate members in uniform relation with said head, and a second plurality of spaced means differing from the first named means for at another time holding all of another set of duplicate members in uniform relation with said head; means movably mounting said head and permitting successive presentation of said spaced holding means at a common point; a locking member having lock-engaging portions corresponding in spacing and number to either of said pluralities of holding means, releasable means for securing said locking member to

said head in operative relation with either of said pluralities of holding means, and a relatively stationary lock co-operable with said locking portions of said lock-engaging member when the latter is secured in operative relation with either of said pluralities of holding means.

3. A work holder comprising a support, a head mounted rotatably thereon, means spaced about the axis of said head for holding a plurality of different sets of members, one set at a time, in uniform relation with the head, whereby upon turning of the head the held members may be successively and uniformly presented at a common point, a locking member co-axial with said head and having lock-engaging portions corresponding in spacing and number to the above named holding means for a set of the members, a second locking member movably mounted on said support for successive co-action with said locking portions, and means for connecting the head and the first named locking member for normal rotation in unison, said connecting means being releasable to permit relative turning of the head and the first named locking member to place said locking portions in co-operative relation with the holding means for any set of members.

4. A work holder comprising a support, a shaft passing rotatably therethrough, a head secured on one end of said shaft, means spaced about said shaft for holding a plurality of different sets of members, one set at a time, in uniform relation with the head, whereby upon turning of the head the held members may be successively and uniformly presented at a common point, a collar upon

the end of the shaft remote from the head, means for securing the collar upon the shaft for normal rotation therewith, and a locking member movably mounted on the aforesaid support, said collar having locking portions for successive engagement with said locking members, said locking portions being equal in number and spacing to the above named holding means for a set of the members; the aforesaid collar securing means being releasable to permit relative turning of the aforesaid head and collar, permitting said locking portions to be set in co-operative relation with the holding means for any set of members.

5. In a work holder, a member having a set of spaced uniform recesses to at one time receive a set of duplicate members, and at least one additional set of spaced uniform recesses to at another time receive another set of duplicate members; clamping means having clamping portions equal in number to the recesses of either of said sets, and means mounting said clamping means for movement of said clamping portions into opposed relation with either set of recesses to clamp the members therein.

6. A structure as specified in claim 5; said recesses being spaced about a common point on said members; said clamping means consisting of a spider whose arms are provided with set screws and constitute said clamping portions, said mounting means rotatably connecting said spider with said member at said common point.

In testimony whereof I have hereunto affixed my signature.

FREDERICK M. SINGER.