J. H. FULLMER.

DIESTOCK AND TAP WRENCH.

APPLICATION FILED OCT. 23, 1919.

1,407,058. Patented Feb. 21, 1922.

Fig. 1

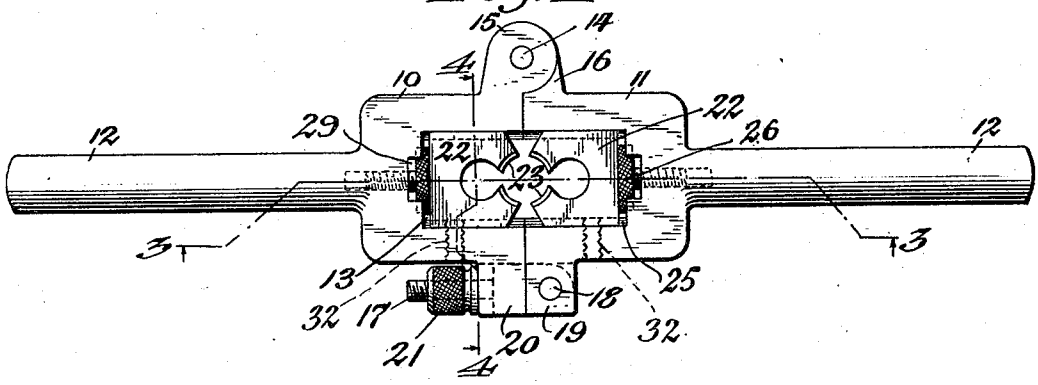


Fig. 2.

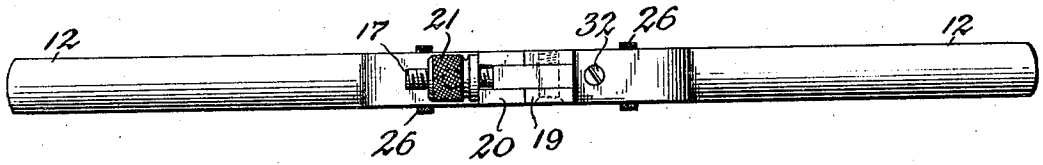


Fig. 3.

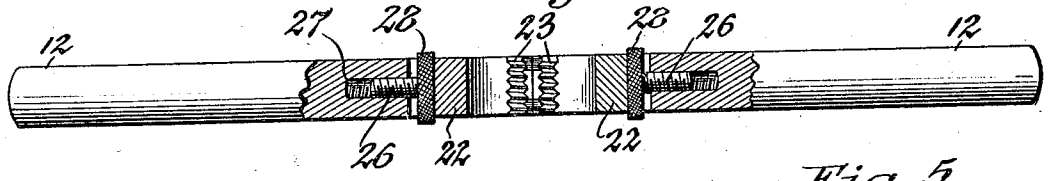


Fig. 4.

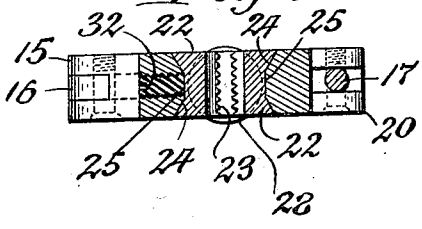
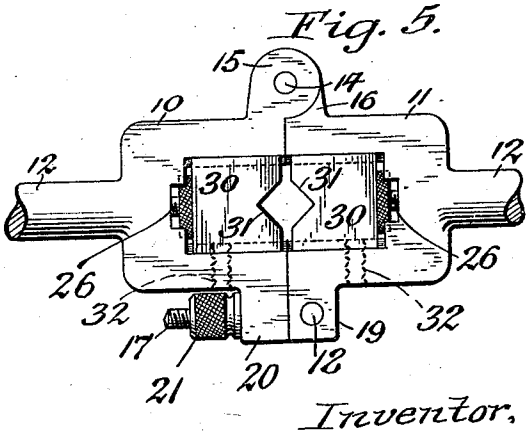


Fig. 5.



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DIESTOCK AND TAP WRENCH.

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To all whom it may concern:

Be it known that I, JOHN H. FULLMER, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Diestocks and Tap Wrenches, of which the following is a specification.

This invention relates to a diestock and tap wrench for holding either a pair of dies or die blocks for forming an external screw thread on a pipe, rod or other object and which is also capable of holding a pair of wrench blocks suitable for gripping a shank of a tap for producing an internal thread on various objects.

It is the object of this invention to produce a diestock and tap wrench of this character which can be quickly detached and removed from a bolt or rod—which is being threaded and re-applied to the base of the thread, or any intermediate point of the thread, thereby preventing undue wear on the dies and avoiding injury to the thread and the necessity of returning the dies to the beginning of the thread before the same can be taken off the work piece.

This invention has the further object to provide a diestock or tap wrench which can be adjusted for adapting the die or wrench blocks to the work piece or tap without removing the stock or wrench from the piece which is being operated upon.

A further object of this invention is to provide a tool of this character which is strong and durable in construction, which is not liable to get out of order and which is capable of being produced at low cost.

In the accompanying drawings:

Figure 1 is a plan view showing my invention organized for use as a diestock. Figure 2 is an edge view of the same. Figure 3 is a fragmentary longitudinal section of the same, the section being taken on line 3—3, Fig. 1. Figure 4 is a cross section thereof taken on the correspondingly numbered line in Fig. 1. Figure 5 is a plan view showing my invention organized as a tap wrench.

Similar characters of reference refer to like parts throughout the several views.

The body of this diestock and tap wrench is preferably constructed of two sections 10, 11 which are arranged lengthwise in line with each other and each of which is provided at its outer end with a handle 12 while its inner end is provided with a recess 13 of oblong form. The opposing inner ends of these two body sections are detachably connected with each other so that the body may be opened for inserting or removing the blocks or bits therefrom and also for more readily and quickly removing the tool from the rod or pipe on which a thread has been cut, as well as re-applying the same thereto at any desired point if this becomes necessary.

This detachable connection preferably consists of a pin 14 which passes through corresponding lugs 15, 16, on one pair of corresponding longitudinal edges of the body sections, and a clamping device connecting the opposite longitudinal edges of the body sections and preferably consisting of a laterally swinging bolt 17 pivoted by means of a pin 18 to a pair of lugs 19 on one of the body sections and movable into and out of the space between a pair of lugs 20 on the other body section, and a screw nut 21 arranged on the free end of the bolt 17 and adapted to engage with the rear side of the lugs 20.

Upon loosening the nut 21 the bolt 17 may be freely swung out of engagement with the lugs 20 for opening up the two sections of the body and thus permit the blocks or bits forming either the working surfaces of an external threading device or a tap wrench to be inserted in the recesses of the body sections, as well as removed therefrom.

In the construction shown in Figs. 1–4, the blocks or bits 22 which are arranged respectively in the recesses 13 of the body sections are constructed to form dies for producing external threads on rods, pipes or the like for which purpose the inner edges of these blocks or bits are provided with sectional thread cutters 23, as shown in Figs. 1, 3 and 4. Each of these die blocks or bits is adjustable lengthwise on its respective stock section so that the same may be shifted into the proper position relative to the surface which is to be threaded.

For this purpose each of the die blocks or bits is provided on its opposite longitudinal sides with guiding surfaces 24 which are preferably constructed substantially of V-shaped form in cross section and the same engage with correspondingly V-shaped guide surfaces or ways 25 arranged parallel with each other on the opposite longitudinal sides

of the respective recess. By this means each die block or bit is free to slide lengthwise on its body section, but is held against lateral displacement relatively thereto.

The means for adjusting each die block or bit into its proper working position preferably consists of a longitudinal screw 26 engaging its outer end with an internal threaded opening 27 formed in the respective diestock section at the inner end of its recess while the inner end of this screw engages with the outer end of the adjacent die block or bit. This last-mentioned end of the adjusting screw 26, is preferably provided with an enlargement or head 28 which is knurled and projects laterally beyond opposite sides of the respective body section so that the same may be gripped by the fingers of the operator for convenience in adjusting the screw 26 to the desired position in which to hold the adjacent die block where its cutting surface will be in the correct position for operating upon the pipe or rod to be threaded. The inner end of the recess 13 of each body section is preferably provided with a cavity 29 in which the enlargement or head 28 of the respective screw may pass when in its most retracted position and thus permit the adjacent die block or bit to move backwardly from the center of the diestock to its fullest extent and engage the bottom of the respective recess 13.

When using the tool as a diestock the die blocks or bits are first secured in the body sections thereof in the proper position for producing the desired external thread. After a thread has been cut upon a pipe or rod by means of the bits in the diestock the tool can now be removed from the work piece without necessitating running the diestock backwardly to the place of beginning thereon, but instead, this can be accomplished quickly by simply loosening the nut 21 and swinging the bolt 17 out of engagement from the lugs 20 so that thereafter the sections of the body can be swung apart or into an open position which will permit the diestock to be removed laterally from the work piece. If it should become necessary to re-apply the diestock to the work piece either at the base of the thread or at a point intermediate of the ends of the thread, this can be readily done by simply closing the body sections around the working piece and then locking them in position by means of the clamping bolt 17 and nut 21. It will therefore be obvious that this tool avoids the necessity of running the diestock backward along the entire finished thread to the place of beginning, thereby not only avoiding unnecessary loss of time but also avoiding injuring the finished portion of the thread as well as eliminating unnecessary wear on the dies.

If it is desired to use this tool for holding a tap wrench the thread cutting die blocks or bits shown in Figs. 1, 3 and 4 are removed from the body sections and instead thereof a pair of wrench blocks or bits 30 are inserted in the recesses of the body sections. These wrench blocks are constructed in all respects like the threading dies 22 excepting that the inner ends of the same are provided with V-shaped notches 31 which engage with the correspondingly shaped angular portion or shank of a tap which is used for cutting an internal thread, as shown in Fig. 5. Each of these wrench blocks is guided at its opposite longitudinal edges on the opposite longitudinal walls of the respective body section, by means of guiding surfaces of substantially V-shaped form in cross section, and each of these wrench blocks is held in its adjusted position relatively to the center of the wrench by means of the adjacent adjusting screw 26 engaging the rear end of this block.

By so organizing this tool that the same may be used both as a diestock and a tap wrench the number of tools for effecting work of this character is materially reduced and a considerable economy in the cost of equipment is effected.

In order to hold the blocks in place and prevent the same from becoming detached from the body sections when the latter are separated each of these body sections is provided with a set screw 32 arranged in an opening formed transversely in the side thereof and engaging the adjacent side of the respective die or block.

I claim as my invention:

A diestock and tap wrench comprising a body composed of two sections each of which is provided on its outer end with a handle and in its inner end with a recess having opposite parallel longitudinal guide walls, blocks arranged in said recesses and each having opposite longitudinal guide edges engaging with the guide walls of the respective recess, and means for adjusting said blocks lengthwise arranged between the outer end of each block and the adjacent end of the respective recess comprising longitudinal adjusting screws each of which engages its outer end with a threaded opening in the outer end of one of said recesses while its inner end is constructed in the form of a head which engages with the outer end of the adjacent block and projects laterally beyond opposite sides of the respective body section and is accessible to the fingers.

JOHN H. FULLMER.