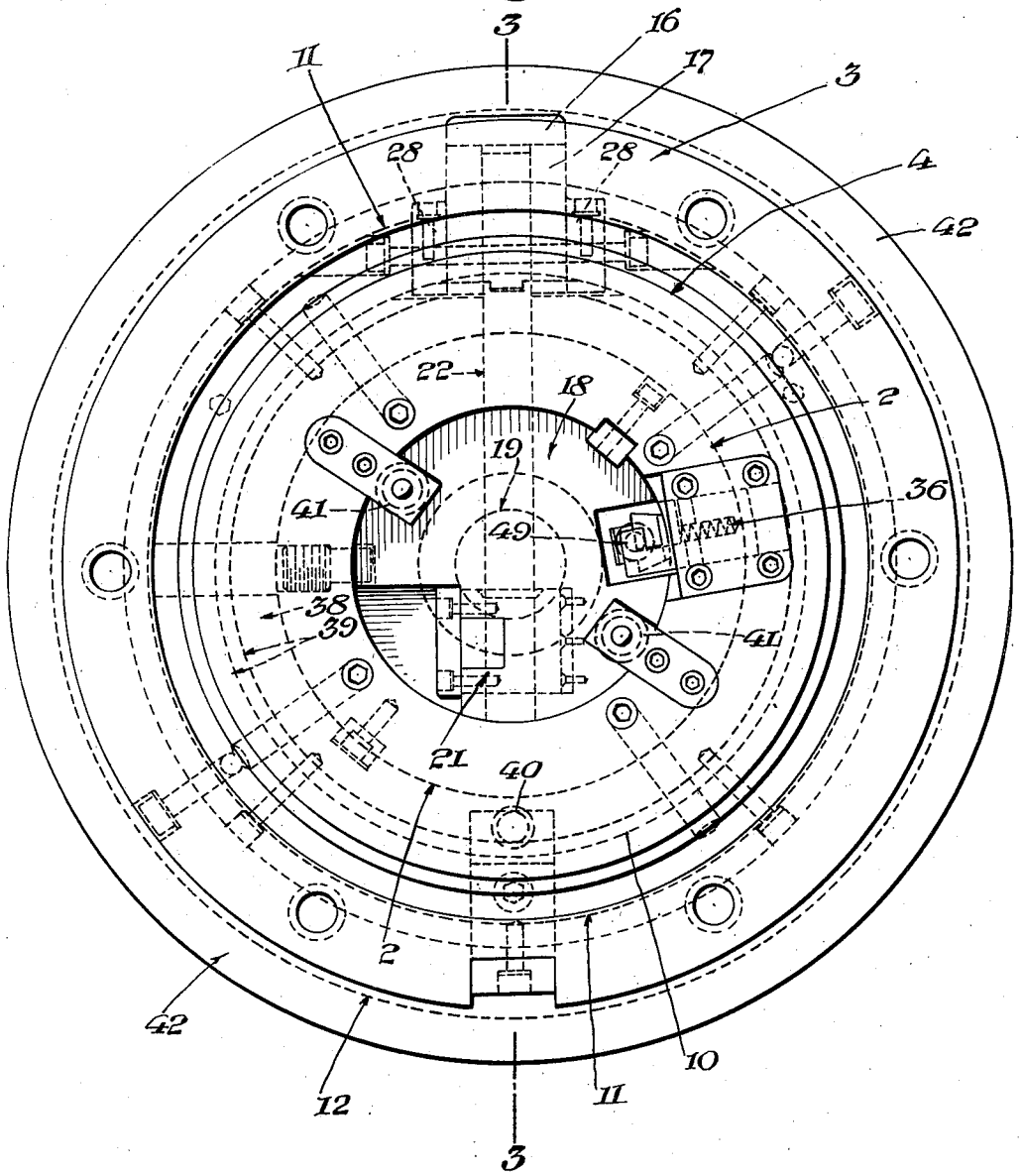
Oct. 29, 1940. W. J. HOGG 2,219,316

LEVER TYPE THREADING DIE

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Fig. 1.



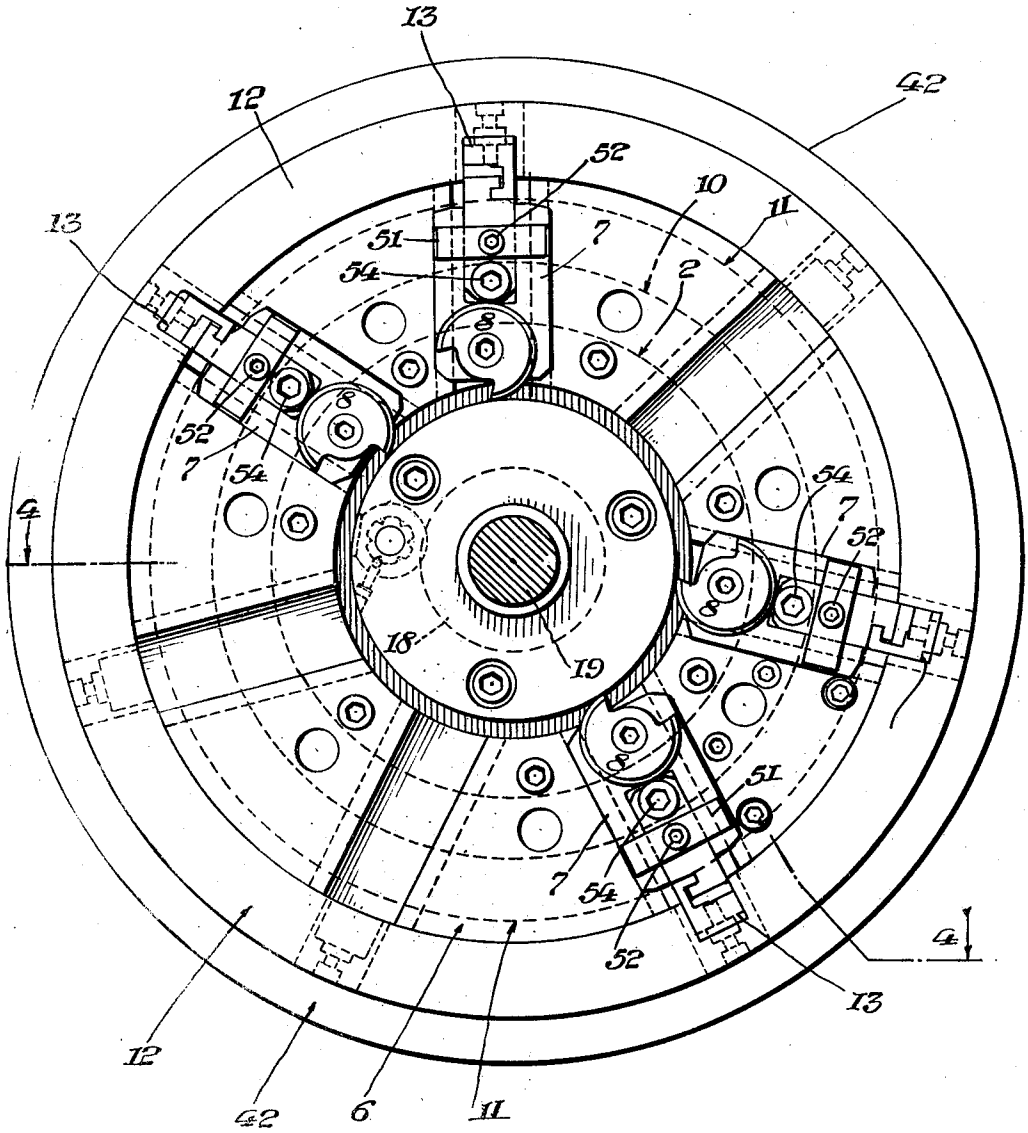
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LEVER TYPE THREADING DIE

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Fig. 2.



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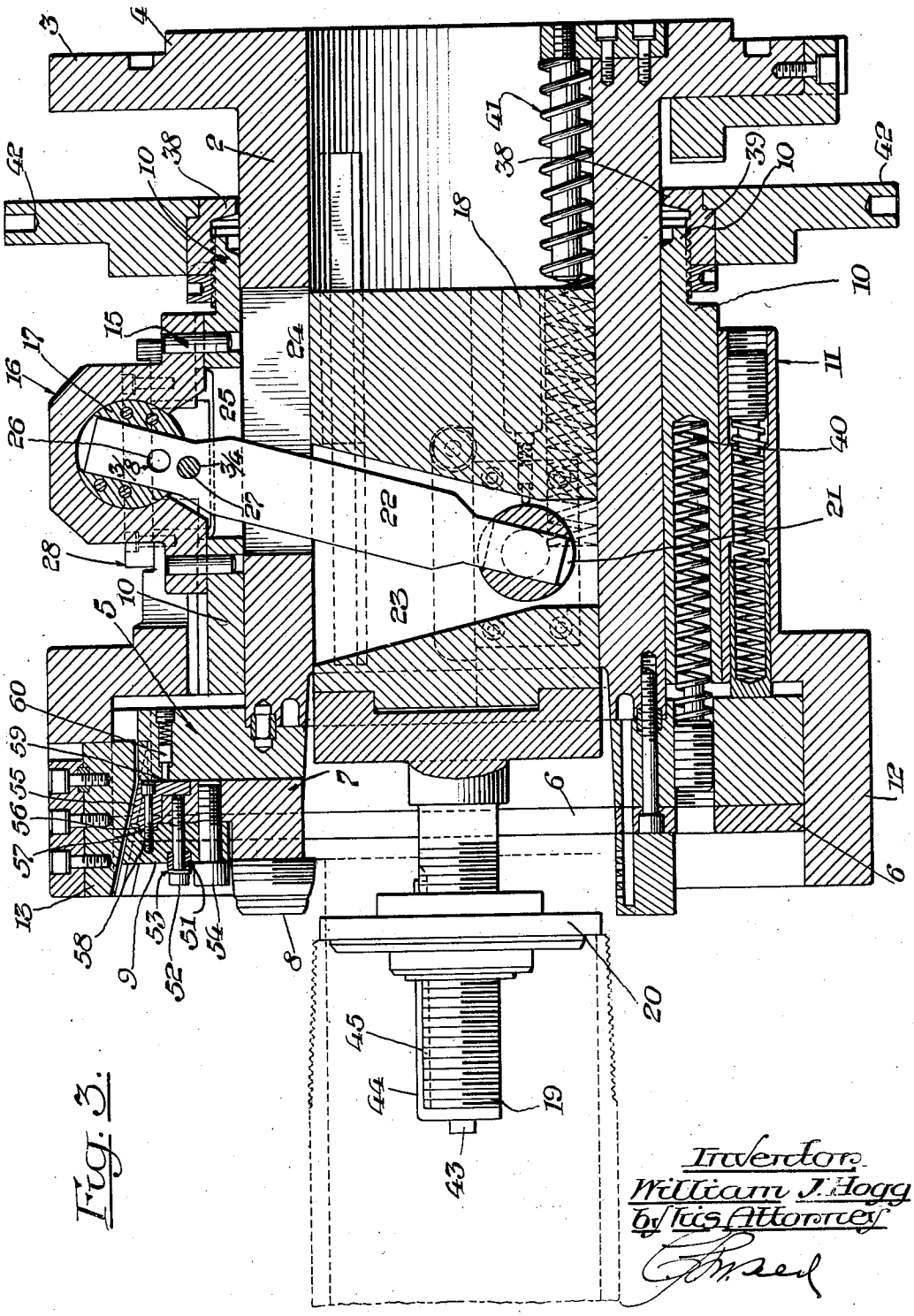


Fig. 3.

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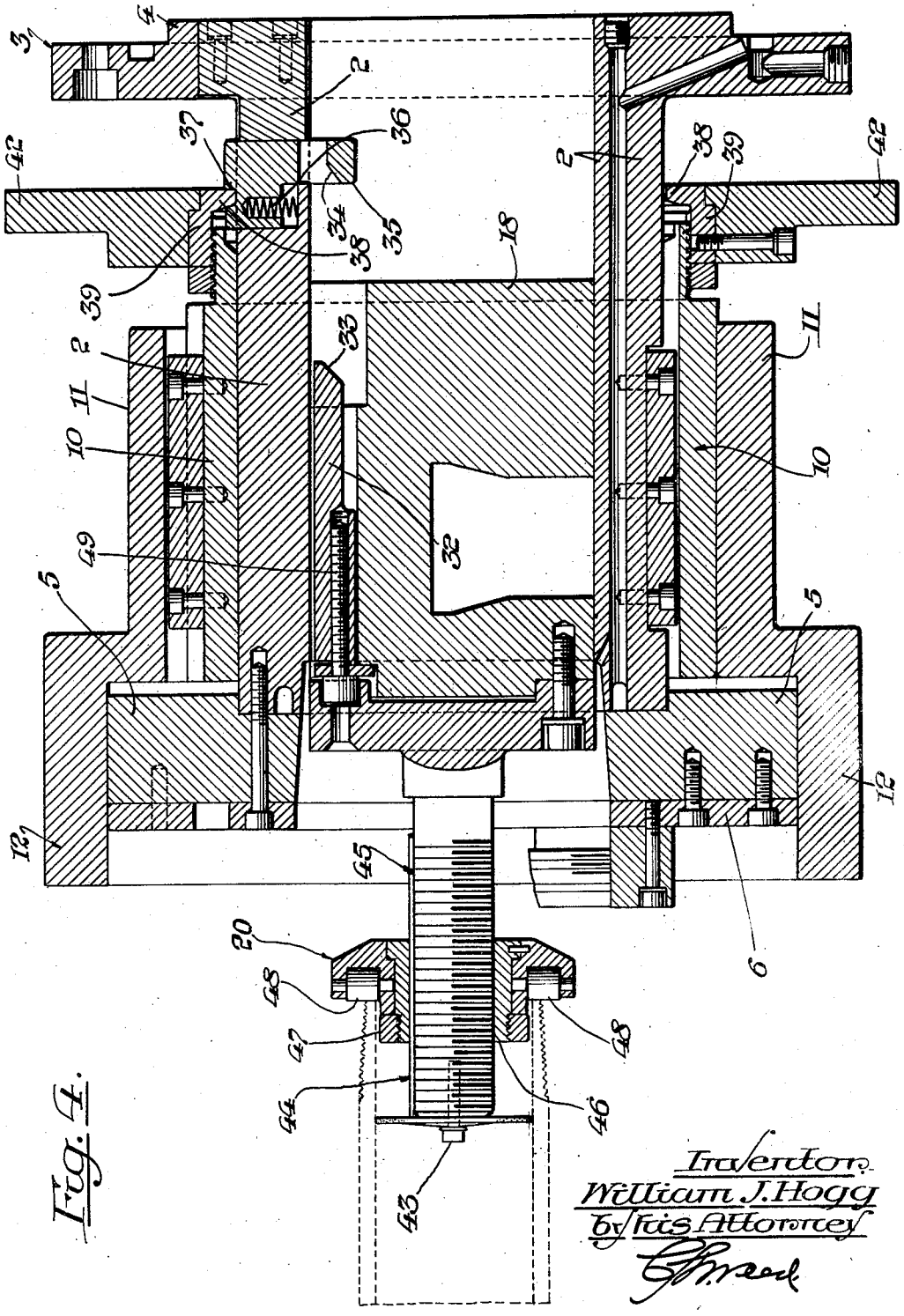


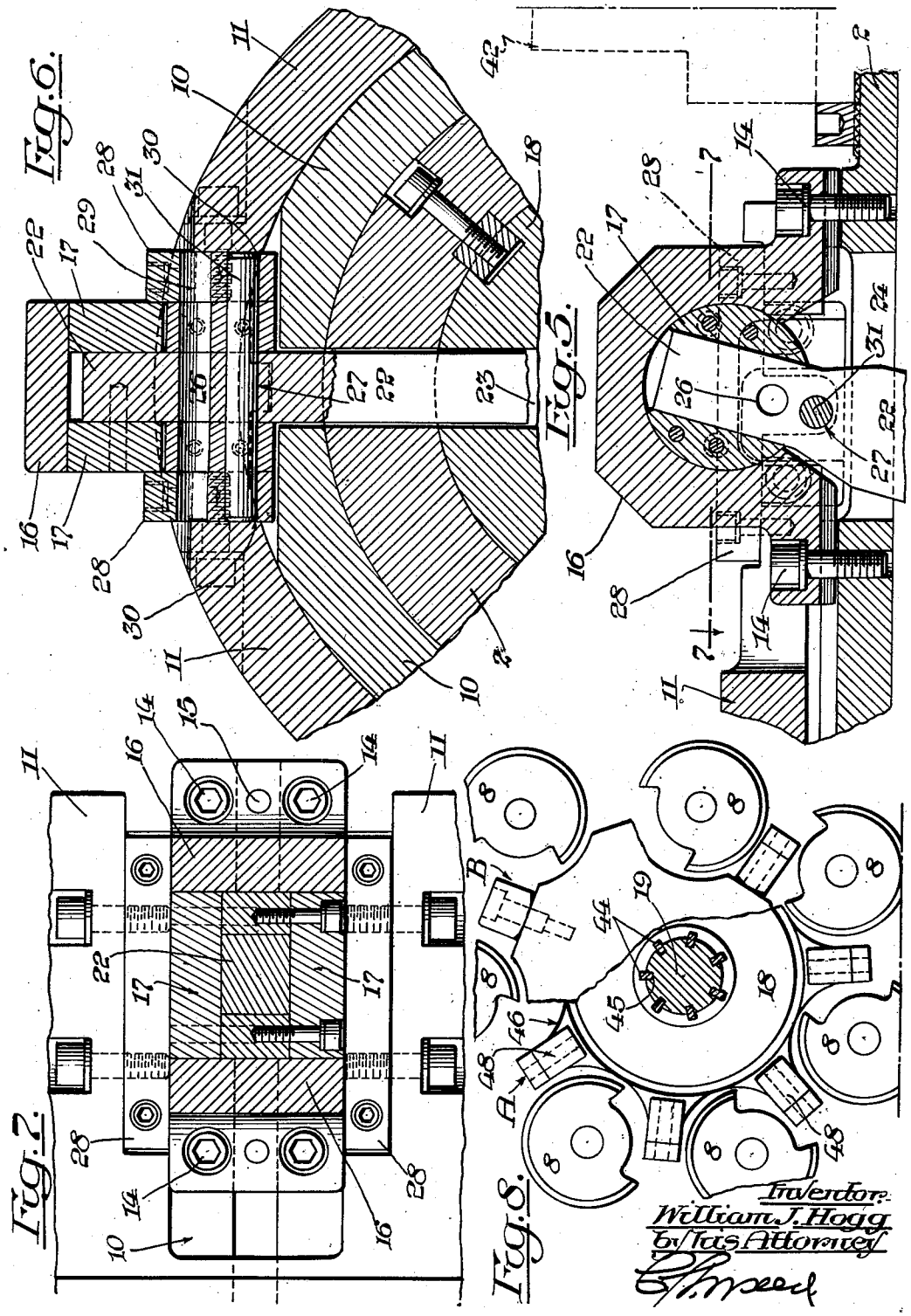
Fig. 4.

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Fig. 10.

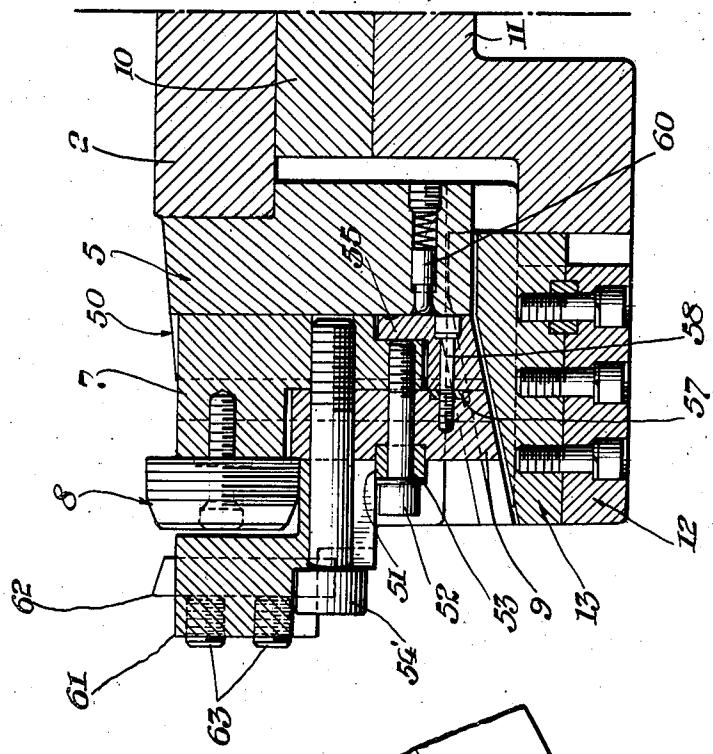
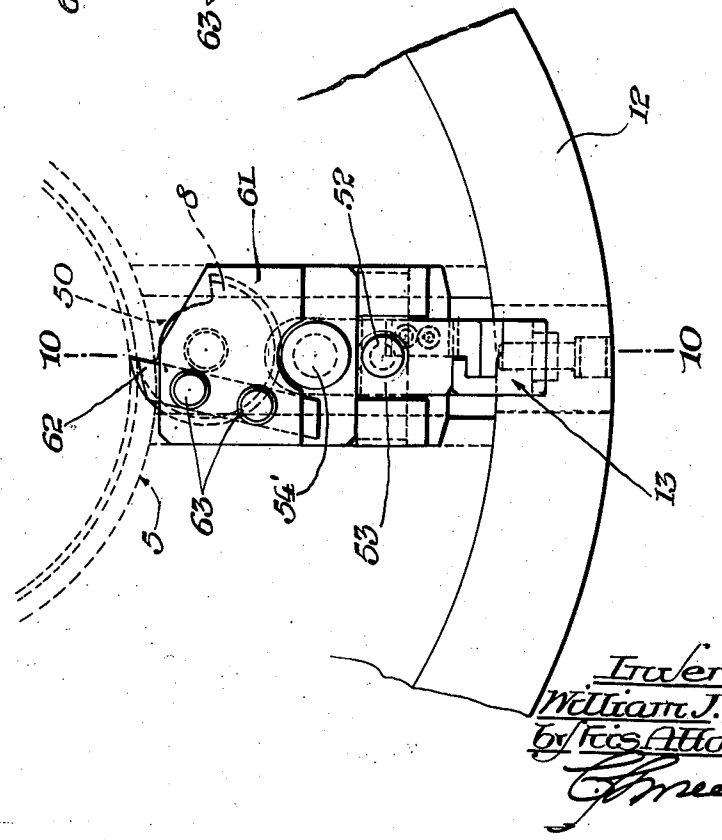


Fig. 9.



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Patented Oct. 29, 1940 2,219,316

UNITED STATES PATENT OFFICE

2,219,316

LEVER TYPE THREADING DIE

William J. Hogg, Cleveland, Ohio, assignor to The National Acme Company, Cleveland, Ohio, a corporation of Ohio

Application October 27, 1939, Serial No. 301,542

22 Claims. (Cl. 10—120.5)

This invention relates to threading tools, more particularly to pipe dies adapted for threading pipes such as oil well pipes, usually of large diameters from about 5" to 8⅝", the object of the invention being to provide an improved pipe die having automatically shiftable cutters or chasers for cutting a tapered thread and which die is simple in construction and efficient in operation.

A further object of the invention is the provision of an improved die of the type specified in which the chasers or cutters are positively and, therefore, more efficiently controlled especially during their expanding movement, thereby insuring that each chaser will do an equal amount of cutting and be prevented from pulling away from the controlling sleeve and take a heavier cut with the result that a better tapered and smoother thread is obtained, and in which the die has a large range so that a number of different tapers can be readily obtained as well as a fine adjustment of taper by the mere manipulation of a very simple adjusting means.

A further object of the invention is the provision of interchangeable chaser carrying members and insert cams to provide for additional ranges of sizes without the necessity of changing the chaser carrying members.

A further object of the invention is the provision of means for permitting adjustment for length of thread without affecting the diameter of the pipe threads at the tripping point of the die.

A further object of the invention is the provision of means for permitting adjustment for length of thread in such manner that the diameter of the pipe threads at the tripping point of the die may be changed if desired.

A further object of the invention is the provision of means for adjusting the diameter of thread cut by the die without affecting the length or taper of the thread.

A further object of the invention is the provision of means for carrying a turning tool in front of the chaser to remove excess stock before threading, thereby prolonging the life of the chasers.

A still further object of the present invention is the provision of a trip ring adapted to accommodate a variety of sizes of pipes, thereby avoiding the necessity of a separate trip ring for each size of pipe to be cut.

In the drawings accompanying and forming a part of this specification,

Fig. 1 is a rear end view of this improved die.

Fig. 2 is a front end view thereof.

Fig. 3 is a transverse vertical section taken on line 3—3 of Fig. 1.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

Fig. 5 is an enlarged detail section of the yoke shown in Fig. 3.

Fig. 6 is a section at right angles to Fig. 5.

Fig. 7 is a section taken on line 7—7 of Fig. 5.

Fig. 8 is an end view illustrating the positions of the improved trip ring.

Fig. 9 is an enlarged detail illustrating the position of a cutting tool in front of the chaser, and

Fig. 10 is a section taken on line 10—10 of Fig. 9.

Similar characters of reference indicate corresponding parts in the several views.

Before explaining in detail the present imrovement and its mode of operation, I desire it understood that the invention is not limited to details of construction and arrangement of parts illustrated in the accompanying drawings since the invention is capable of other embodiments, and that the phraseology employed is for the purpose of description and not of limitation.

In the use of the die about to be described it will be undertsood that the die can be rotated and the pipe held stationary or the pipe rotated and the die held stationary or both the pipe and die can be rotated.

Also, either the pipe or die may be fed but in the present instance, the invention is described with the die rotating and the pipe or work held against rotation in a chuck on a carriage that is movable endwise, the die being held against endwise or axial movement.

This improved die head, in the preferred form thereof comprises a body 2 having a flanged shank 3 and pilot 4 adapted to fit into the spindle of a machine and this flanged shank 3 is provided with a series of holes for bolting the die firmly to the spindle.

To the front end of the body 2 is attached a ring formed nose piece 5 of suitable diameter to allow for a large or small range of sizes of pipe or work, as may be desired, and the front face of this nose piece 5 is provided with removable hardened steel plates 6 to provide for inexpensive replacement when necessary.

The nose piece 5 is provided with a series of radial slots to receive the chaser blocks 7 carrying, in the present instance, a series of circular chasers 8 and secured to each chaser block 7 in the manner hereinafter described is an insert cam 9.

Encircling the body 2 is a diameter adjusting

sleeve 10 secured against axial movement during the thread cutting operation and axially movable on the completion of the thread cutting operation.

Slidably carried by the sleeve 10 is a die cup sleeve 11 having at its forward end an enlarged portion or die cup 12 within which and suitably carried thereby are a series of positive taper gibs or cams 13 adapted to interlock with the insert cams 9 to effect radial movement of the chasers on the shifting of the die cup.

Secured against independent axial movement to the sleeve 10 by screws 14 and dowels 15 is a yoke 16 provided with a swivel disk 17.

A trip sleeve or slide 18 is slidably carried within the body 2 and this sleeve 18 has a forwardly extending threaded member 19 to which is secured a work engaging member or trip plate 20 and in this trip sleeve 18 is located a swivel disk 21.

A taper control lever 22 extending through openings 23, 24 and 25 of the trip sleeve 18, the body 2 and sleeve 10, respectively, connects the swivel disk 21 of the trip sleeve 18 and the swivel disk 17 of the yoke 16. At the upper end of the lever are provided holes 26 and 27 which are spaced, in the present instance, for 3/8" and 3/4" taper per foot and other holes may be positioned for other tapers if desired.

Secured to the die cup sleeve 11 by suitable screws are die cup pull back arms 28 which, in turn, are provided with holes 29 and 30 corresponding to the holes 26 and 27 of the lever. When a 3/8" taper is desired, a pin 31 is passed through the holes 29 of the die cup pull back arms 28 and the hole 26 of the lever and when a 3/4" taper is desired, the pin 31 is passed through the holes 30 of the die cup pull back arms and the hole 27 of the lever.

The operation of the die thus far described is as follows:

The pipe is clamped in a chuck and fed forward toward the rotating die until the end of the pipe contacts the inside trip plate 20 and continues forward at a rapid speed until the work is closed to the chasers 8, at which time the carriage lead screw is engaged and the pipe fed into the die at the proper feed per thread.

The trip plate 20 and trip sleeve 18 are moved rearward by the forward movement of the pipe and this causes the lever 22, swiveling in the disks 21 and 17, to be moved back at its inner end by the trip sleeve 18 but held against such movement at its top by the yoke 16. Thus, all points from the inner to the outer end of the lever are moved back to a less extent than the inner end and the positioning of the holes 26 and 27 is such that the amount of movement of the hole 26 is one-sixteenth the amount of movement of the pivotal point of the lever with the trip sleeve near its inner end, and the amount of movement of the point 27 is one-eighth. Because of the connection of the lever with the pull back arms 28, these arms are moved back accordingly and, likewise, the die cup sleeve 11 together with the die cup 12 is moved back. Due to the taper gibs or cams 13 interlocking with the insert cams 9, this rearward movement of the die cup causes an outward expansion of the chasers 8 to cut a tapered thread.

Die tripping means

When the correct length of thread is cut, the chasers are expanded out of the threads so as to remove the pipe from the die and to this end a trip lever 32 having a beveled end 33 adjustably carried by the trip sleeve 18 for movement therewith contacts a corresponding beveled portion 34 of the trip dog 35 carried by the body 2 (see Fig. 4). The engagement of the cooperating beveled surfaces of the trip lever 32 and trip dog 35 causes an inward movement of the dog 35 against the action of a spring 36. This trip dog is provided with a groove 37 adapted to cooperate with a rib 38 of a size adjusting ring 39 secured to the rear end of the sleeve 10 in such manner as to hold the sleeve 10 against movement until the trip dog 35 is moved inwardly at the end of the thread cutting operation and upon release thereof permits the sleeve 10 to move rapidly rearwardly under tension of a die opening spring or springs 40 (see Fig. 3). The rearward movement of this sleeve 10 carries with it the yoke 16, swivel disk 17, pull back arms 28 and die cup 12, thereby causing the cooperating cam surfaces of the cams 13 and 9 to move the chasers outwardly out of the threads.

Resetting to cutting position

When the pipe is removed from the die, the inside trip sleeve is moved back into position by means of trip sleeve springs 41 (see Fig. 3).

A die resetting ring 42 is secured to the size adjusting ring 39 and the forward movement of this ring 42 will move the adjusting ring 39, together with the sleeve 10, yoke 16, disk 17, pin 31, pull back arms 28, die cup 12 and gibs or cams 13 forwardly which, in turn, move the chasers inwardly. The parts are moved forward until the projection or rib 38 of the size adjusting ring is in line with the slot or groove 37 of the trip dog 35 which is forced outwardly under pressure of the spring 36 to lock the parts in position.

Adjustment for diameter

The adjusting ring 39 is secured to the sleeve 10 by means of threads and since the ring 39 is held against axial movement relative to the body 2 by the trip dog 35, rotation of this ring will cause a forward or backward movement of the sleeve 10 together with its associated parts to move the chasers inwardly or outwardly.

A change in size from one pipe size to another may also be effected by changing the blocks 7 or the chaser cam inserts 9.

When changing pipe sizes by means of the blocks, it is necessary that these blocks have chaser mounting screw holes at various distances from the cam end but when this is done by means of the inserts the same blocks can be used with various lengths of inserts and the latter is a less expensive way. However, the former is advisable at times when a greater bearing surface is desired, as when threading large sizes of pipe.

Length of thread

When the longest thread the die will cut is desired, the inner slide 18 is brought forwardly as far as possible and the trip plate 20 adjusted rearwardly by removing the screw 43 which permits removal of a key 44. The key 44 is fitted into a key-way 45 of the threaded extension 19 and in one or more slots in the trip plate holder 46. When the key is removed, the trip plate holder 46, together with the trip plate 20 can be adjusted rearwardly. If so adjusted until the front face of the trip plate 20 comes in line with the front face of the chasers, the full expanding

action takes place. When the pipe or work is moved into the die a longer thread can be cut if the trip plate is further adjusted rearwardly, whereby the chasers will cut the length of the chaser before commencing to expand.

The key 44 keeps the threaded part or holder 46 from turning when the end of the pipe contacts the trip plate 20 if either the pipe or die is revolving, and the parts 46, 20 and collar 47 are so constructed that when the pipe is against the face of the trip plate 20 (see Fig. 3), this trip plate can rotate with the pipe. This may also be accomplished by means of rollers 48 as shown in Figs. 4 and 8. If a short thread is desired, the trip plate is moved out away from the die chasers.

It will be noted that adjustment in the foregoing manner maintains a uniform diameter at the tripping point without size adjustment.

An additional adjustment for thread length is obtained by adjusting the trip lever 32 forwardly or backwardly by means of a screw 49 (see Fig. 4). If the trip lever 32 is moved toward the rear, it will trip the die before the full taper movement has been used. If this method is employed, the diameter of the pipe will be smaller at the point of trip because the taper control has not expanded the die to the full extent.

Thus, by using these two adjustments for thread length a greater amount of diametrical and length adjustment may be obtained.

Construction of insert cam in chaser block

The chaser block 7 is provided with a slot 50 into which the insert cam 9 fits. This cam is located lengthwise very accurately by a strap or locating key 51 which is adapted to fit a ground slot in the chaser block 7 which corresponds to a similar ground slot in the insert cam 9. This locating key 51 is held in position by means of the screw 52 threaded into the block and locked against movement by a lock washer 53 (see Fig. 3).

Also located in the insert cam is an enlarged hole through which a screw 54 is threaded into the block for additional security and this screw 54 may be replaced by a longer screw when an additional turning tool is to be applied as hereinafter explained.

When a set of chasers and blocks is inserted in the slots of the die, they are located so that the tongue and grooves of the cams 13 line up with the tongue and grooves of the insert cams 9 and to insure the proper alignment of these parts, locating blocks 55 attached to the cam inserts 9 are provided.

These locating blocks are each provided with a tongue 56 adapted to cooperate with a groove 57 in the cam 9 and secured in position by a screw 58. These locating blocks 55 are provided with a small radius groove 59 adapted to cooperate with the rounded end of a spring pressed plunger 60 carried by the nose piece 5. The spring pressure of the plunger is such that the blocks are held in place thereby for locating purposes but this pressure is not sufficient to interfere with the easy movement of the blocks in the grooves of the die head under action of the die parts.

Turning tool block

At times, it is desirable to provide a turning tool to operate ahead of the chasers to prevent excessive wear on the chasers and to remove surplus stock from the pipe. For this purpose a turning tool 61 having a tool bit 62 secured thereto by screws 63 is supported in front of the chaser block by means of the elongated screw 54' substituted for the short screw 54 and this tool block is also held in position by the strap or key 51. By this construction, the tool bit 62 may be adjusted independently of the chasers so that the desired amount of stock may be removed from the pipe for accurate threads. It will be obvious that a circular cutting tool could be used instead of the square tool bit shown, if desired.

Trip plate for a combination of sizes

As hereinbefore pointed out, the trip plate 20 may be so constructed as to permit rotation of the trip plate 20 itself or it may be provided with rollers as shown in detail in Fig. 8. With this roller contruction, it is possible to use only three roller holders for a complete range of sizes for which the die in the present instance is constructed of from 5" to 8⅝" capacity.

The trip plate 20 in this instance is constructed to provide for a roller 48 located between each of the chasers and the rollers are long enough to contact the face of various pipe diameters. The roller, as shown at A, is adapted for use with a pipe from 5" to 6", and the roller as shown at B is adapted for use with pipe from 7¼" to 8⅝". A trip plate carrying rollers intermediate the two shown in Fig. 8 is used for the intermediate sizes of pipes from 6" to 7¼".

It is to be understood that, by describing in detail herein any particular form, structure or arrangement, it is not intended to limit the invention beyond the terms of the several claims or the requirements of the prior art.

Having thus explained the nature of my said invention and described a way of constructing and using the same, although without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I claim:

1. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, and means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work.

2. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, and means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, said yoke connected sleeve and body having cooperating means for preventing relative movement therebetween during the thread cutting operation

3. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the

slide and shiftable sleeve to effect a tapered threading of the work, said yoke connected sleeve and body having cooperating means for preventing relative movement therebetween during the thread cutting operation, and means carried by the slide and cooperating with said cooperating means for effecting relative movement of said sleeve and body upon completion of the thread cutting operation thereby to expand the chasers out of the work.

4. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, said yoke connected sleeve and body having cooperating means for preventing relative movement therebetween during the thread cutting operation, and adjustable means carried by the slide and cooperating with said cooperating means for effecting relative movement of said sleeve and body upon completion of the thread cutting operation thereby to expand the chasers out of the work.

5. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, and means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, one of said pivotal connections being stationary relative to the body during the thread cutting operation and movable at the end of the thread cutting to shift the chasers to permit removal of the work.

6. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, and means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, one of said pivotal connections being adjustable to change the taper of thread to be cut.

7. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and means for adjusting the chasers radially.

8. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and a plurality of means for adjusting the chasers radially.

9. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for controlling the length of thread of the work.

10. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and a plurality of adjustable means for controlling the length of thread of the work.

11. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, and a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work.

12. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and means interchangeably connecting the shiftable sleeve and lever for adjusting the taper of the thread to be cut.

13. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and means for tripping the chasers out of the work upon completion of the thread cutting operation.

14. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between

the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for tripping the chasers out of the work upon completion of the thread cutting operation.

15. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and means for adjusting the chasers radially comprising a threaded member held against axial movement relative to the body and having a threaded engagement with said yoke connected sleeve whereby upon rotation of said threaded member the yoke connected sleeve and the lever will be shifted to shift the chasers radially.

16. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and means for shifting the chasers radially comprising chaser carrying blocks and interchangeable cam inserts carried by said blocks and cooperating with said shiftable sleeve for varying the radial position of said chasers.

17. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for controlling the length of thread of the work without affecting the diameter at the point of completion of the work, said means comprising an axially movable work engaging member.

18. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for controlling the length of thread of the work without affecting the diameter at the point of completion of the work, said means comprising an axially movable work engaging member and said work engaging member having elongated rollers for engaging the front face of a plurality of pipe sizes.

19. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for controlling the length of thread of the work without affecting the diameter at the point of completion of the work, said means comprising an axially movable work engaging member and said work engaging member having elongated rollers for engaging the front face of a plurality of pipe sizes, said rollers projecting radially of the die between the chasers.

20. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, a lever having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and adjustable means for controlling the length of thread to be cut and comprising axially movable means carried by the slide and a trip dog cooperating therewith for changing the tripping point of the die.

21. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chasers carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and turning means carried by the body and located in front of said chasers.

22. A die comprising a body, an axially shiftable slide therein, a sleeve on said body, a yoke connected thereto, a shiftable sleeve carried by said last sleeve, radially shiftable chaser carrying blocks carried by the body and connected with said shiftable sleeve for radial shiftable movement thereof, means having pivotal connections with the slide, yoke and shiftable sleeve whereby a relative difference in movement is effected between the slide and shiftable sleeve to effect a tapered threading of the work, and turning means positioned in front of the chasers and carried by said blocks.

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