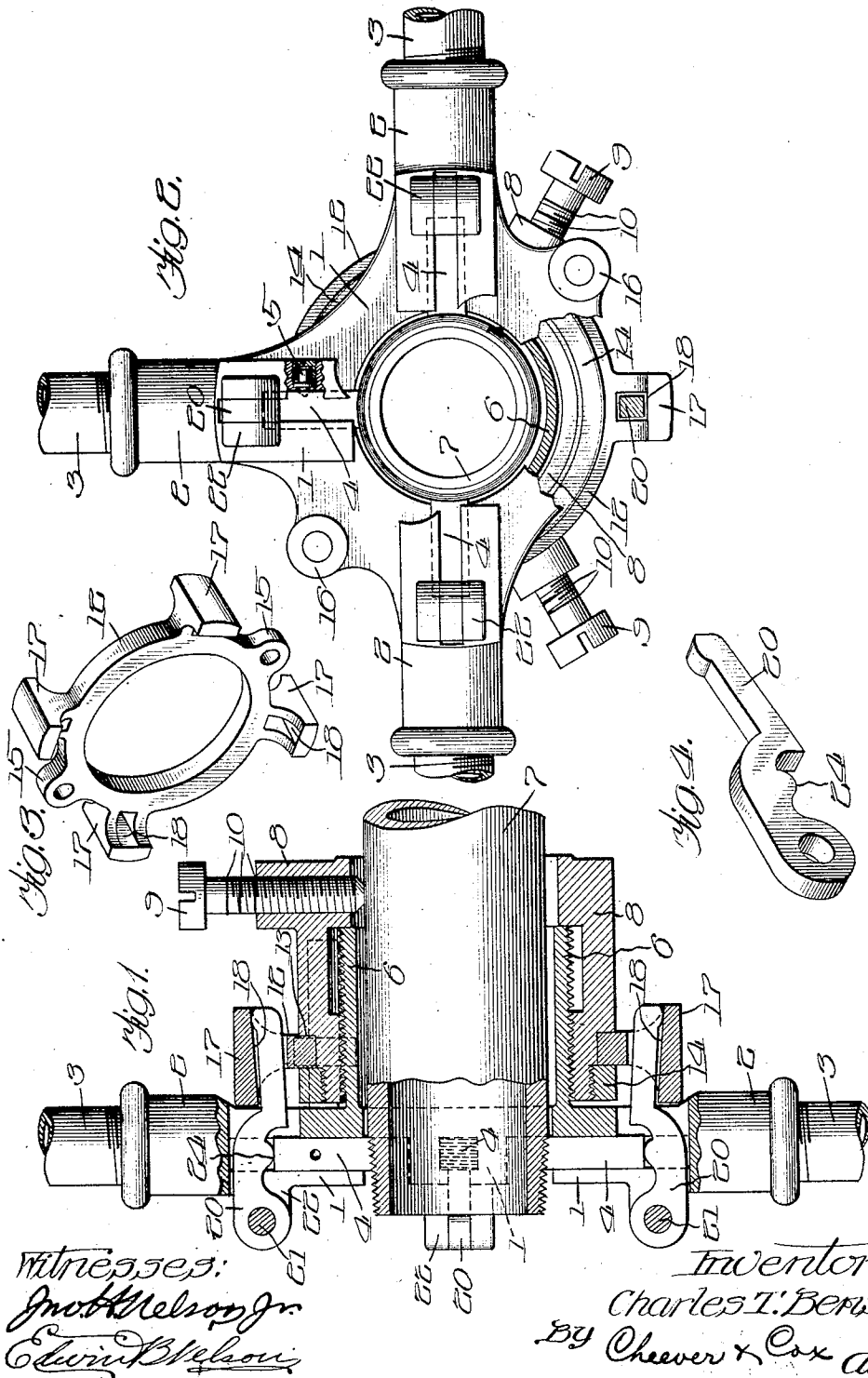


C. T. BENSON.
DIE STOCK.
APPLICATION FILED NOV. 9, 1911.

1,042,073.

Patented Oct. 22, 1912.



UNITED STATES PATENT OFFICE.

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DIE-STOCK.

1,042,073.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES T. BENSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Die-Stocks, of which the following is a specification.

My invention relates to die stocks for cutting thread upon pipe or similar pieces of work, and the object of the invention is to provide simple and efficient means for automatically controlling the chasers, dies or thread cutters as they are variously called, in a radial direction to produce a tapered thread upon the work.

I obtain my object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an assembly view partly in longitudinal section showing the parts in position upon the pipe. Fig. 2 is a view looking toward the right in Fig. 1. Fig. 3 is a perspective view of the cam ring, and Fig. 4 is a perspective view of one of the controlling levers.

Similar numerals refer to similar parts throughout the several views.

The stock body 1 is provided with sockets 2 into which are screwed handles 3 for rotating the chasers upon the work. Chasers or threaded cutters 4 are mounted within the stock body so as to be radially movable. The chasers are firmly prevented from falling out of place when not in use by spring pins 5 shown in Fig. 2. Extending from the stock body is a tubular portion 6, which is apertured to receive the pipe 7 or other piece of work and is threaded to cooperate with the leader bushing 8. Said leader bushing or work holder is furnished with a plurality of set screws 9 adapted to hold the bushing firmly upon the work. By preference, a number of marks 10 are placed upon the set screws to facilitate the centering of the work and to indicate to the operator the size of the pipe which is being threaded.

A ring 12, shown in perspective in Fig. 3, is mounted upon the leader bushing in such manner as to rotate independently thereof. Said ring is prevented from moving to the right (Fig. 1) by a shoulder 13 formed upon the bushing, as best shown in Fig. 1. A collar 14 screws upon the leader bushing on the opposite side of ring 12 and prevents the latter from moving toward the

right. The ring is thus rotatable independently of the leader bushing but is laterally fixed with reference to said bushing and consequently is laterally fixed with reference to the work when the device is in action. In order to cause the ring to rotate in unison with the stock body and at the same time permit it to move toward and from the stock body in unison with the leader bushing lugs 15 are formed upon the ring and these are apertured to receive guide pins (not shown) which pass through correspondingly apertured lugs 16 in the stock body.

Ring 12 is composed preferably of cast metal and carries a plurality of integral lugs 17. A cam surface 18 is formed upon each of these lugs and in the preferred construction the cams are formed by slotting the lugs which thus form a housing for the levers 20 which are fulcrumed upon pins 21 carried by the lugs 22 formed upon the stock body. In the preferred form the levers are provided with integral lugs or bosses 24 which engage the outer ends of the chasers and control their position radially. The free ends of the levers are engaged by the cam surfaces 18 which are so inclined as to permit the levers to swing outwardly as the stock body and chasers travel along the work during the act of cutting the thread.

In operation, before applying the apparatus to the pipe the leader bushing is backed off so that the levers will contact the contracted ends of the cams and hold the chasers at innermost position to cut the thread to the greatest required depth. After fastening the pipe in a vise or other holder the leader bushing is placed over the end of the pipe and rigidly secured thereto at the proper distance from the end thereof in the ordinary manner. The stock body is then rotated, causing the chasers to begin to cut the end of the pipe. As the stock body is rotated the leader bushing causes it to travel along the pipe by reason of the engagement of the leader bushing with the threaded tubular portion of the stock body. As the stock body travels along the pipe the free ends of the levers travel along the cam surfaces on the ring 12, thus permitting the levers to gradually swing outward and permitting the pipe to crowd the chasers radially outward and gradually decrease the depth of cut.

It will be noted that in my construction

the point of contact of the levers with the cam ring is further from the fulcrum than the point of contact of the levers with the chasers. The leverage on the chasers is thus multiplied. Another advantage of my construction is that the levers are almost completely housed, the portions nearest the fulcrums being housed within the stock body itself and the free ends being housed within the lugs 17 of the cam ring. The levers are thus protected and the durability and efficiency of the tool greatly increased. Furthermore the parts are simple in construction and the tool is free from projecting or delicate parts which might get out of order.

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

1. In a die stock, a stock body adapted to carry the dies, a leader bushing screwing upon said body and adapted to be fastened to the work, die controlling levers fulcrumed at one end upon said stock body, and a rotatable and laterally fixed cam ring having internal cams arranged lengthwise of the axis adapted to automatically control said levers.

2. In a die stock, a stock body adapted to carry the dies, a leader bushing screwing upon said body and adapted to be fastened to the work, die controlling levers pivoted at one end to said stock body, and a cam ring rotatable and laterally fixed upon said leader bushing, said cam ring being apertured and housing the free ends of said levers, and the cam surfaces extending lengthwise of the axis of rotation.

3. In a die stock, a stock body adapted to carry the dies, handle sockets on said stock body, a leader bushing screwing upon said stock body, set screws for fastening the leader bushing to the work, die controlling levers fulcrumed at one end upon said stock body, and a rotatable and laterally fixed cam ring adapted to control said levers, said cam ring being located between the set screws and the handle sockets.

4. In a die stock, a stock body adapted to carry the dies, a leader bushing making screw connection with said body and adapted to be fastened to the work, and a rotatable but laterally fixed cam ring operative upon said levers, the stock body being apertured to receive said levers for housing the same, and the lever fulcrums being located at one end of the housing apertures and the cam ring at the other.

5. In a die stock, a stock body adapted to carry the dies, handle sockets on said stock body, a leader bushing making screw connection with said stock body and adapted to be fastened to the work, die controlling levers pivoted to said stock body, and a cam

ring rotatable and laterally fixed upon said leader bushing, said ring and the lever pivots being on opposite sides of the handle sockets.

6. A device of the class described comprising a stock body adapted to carry the dies, die controlling levers pivoted to said stock body near the end thereof and extending inward along said stock body, a leader bushing at the inner end of said stock body making screw connection therewith, and a cam ring adapted to engage said levers, said ring and the lever fulcrums being located on opposite sides of the dies.

7. In combination, a stock body having a threaded tubular extension adapted to receive the work, chasers mounted in said stock body, a threaded leader bushing screwing onto said threaded tubular portion of the stock body and adapted to be fastened to the work, levers fulcrumed upon said stock body and adapted to engage the outer ends of the chasers at a point between the ends of the levers, and a ring rotatably mounted upon said leader bushing and laterally fixed with reference to said bushing, said ring having cams adapted to engage the free ends of said levers for controlling the chasers radially.

8. In combination, a stock body, a leader bushing adapted to be secured to the work and making screw connection with the stock body, levers fulcrumed upon said stock body, a ring rotatable upon and laterally fixed with reference to said leader bushing, cams on said ring for operating said levers, and chasers radially movable within said stock body and adapted to be engaged by said levers at a point intermediate of the extremities of said levers.

9. In combination, a stock body having lugs projecting in one direction therefrom and a threaded tubular projection extending in the opposite direction therefrom, a ring on the side of the stock body opposite to said lugs, cams on said ring, a threaded leader bushing screwing onto the threaded tubular portion of said stock body, said ring being laterally fixed upon and rotatable independently of said leader bushing, chasers mounted in said stock body and levers adapted to contact said chasers at a point between the ends of said levers, said levers being fulcrumed at one end upon said lugs, and at the other end contacting said cams, substantially as described.

In witness whereof, I have hereunto subscribed my name in the presence of two witnesses.

CHARLES T. BENSON.

Witnesses:

HOWARD M. COX,
MARGARET D. ROBB.