C. D. GARRETSON.

DIE SUPPORT FOR TUBE MAKING MACHINES.

APPLICATION FILED MAR. 13, 1915.

1,185,302.

Patented May 30, 1916.

FIG. 1.

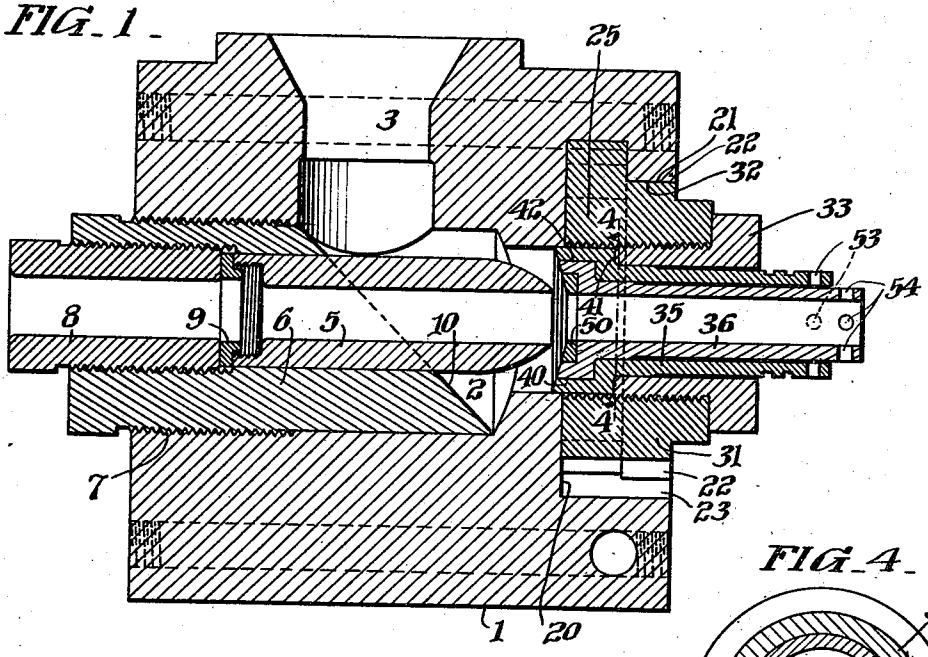


FIG. 4.

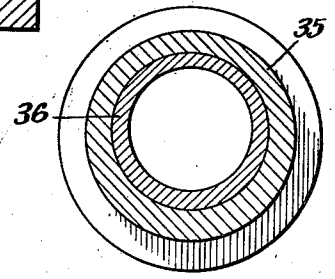
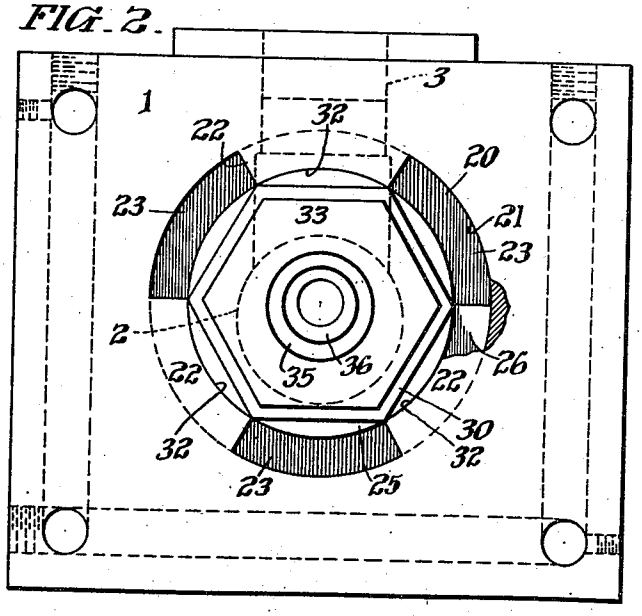


FIG. 2.



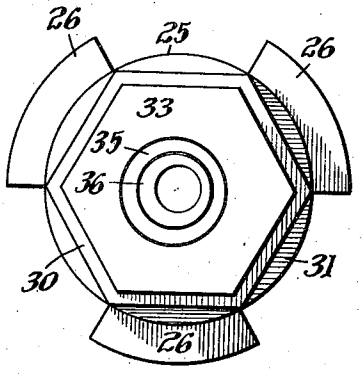


FIG. 3.

WITNESSES

Daniel Webster, Jr.

C. E. Kleinfelder.

INVENTOR

Cornelius D. Garretson

BY Cyrus N. Anderson

ATTORNEY

UNITED STATES PATENT OFFICE.

CORNELIUS D. GARRETSON, OF WILMINGTON, DELAWARE, ASSIGNOR TO ELECTRIC HOSE AND RUBBER COMPANY, OF WILMINGTON, DELAWARE, A CORPORATION OF DELAWARE.

DIE-SUPPORT FOR TUBE-MAKING MACHINES.

1,185,302. Specification of Letters Patent. Patented May 30, 1916.

Application filed March 13, 1915. Serial No. 14,111.

To all whom it may concern:

Be it known that I, CORNELIUS D. GARRETSON, a citizen of the United States, residing in Wilmington, county of New Castle, State of Delaware, have invented certain new and useful Improvements in Die-Supports for Tube-Making Machines, of which the following is a specification.

My invention relates to die supports for machines for forming metallic tubing and I have illustrated the same in connection with a portion of a machine of the type illustrated in the patent to Henry B. Cobb, No. 558,257, issued April 14, 1896.

In tube forming machines it is necessary at times to change the dies for the purpose of substituting dies of one size or capacity for dies of different sizes or capacities, larger or smaller, so that tubing of larger or smaller diameter may be formed, and it is one of the objects of my invention to provide means whereby a female die may be readily removed from the machine and another female die substituted therefor.

A further object of my invention is to provide means whereby the female die of any set of dies may be adjusted transversely with respect to the coöperating male die member.

Other objects and advantages of my invention will be specifically referred to in the detailed description of my invention which follows or will be apparent from such description.

In order that my invention may be more readily understood and comprehended reference should be had to the accompanying drawing in which I have illustrated one form of a convenient embodiment thereof but it should be understood that changes in the details of construction may be made within the scope of the claims without departing therefrom.

In the drawings:—Figure 1 is a central vertical sectional view; Fig. 2 is an end elevation with the dies in place; Fig. 3 is a view in end elevation of the female die holder, the sleeve for the same and the holder for these parts in assembled relation ready for insertion into the machine; and Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 1, the parts being shown as enlarged.

Referring to the drawing, 1 designates a block provided with a die chamber 2. In the construction as illustrated my invention is adapted for the formation of a lead tube around a tube of hose but it should be understood that it is not limited to such construction but may be employed in connection with machines which are used for the manufacture of tubing from any suitable metal other than lead and without regard to whether or not such tube is formed around a tube of hose or a tube of any other character.

The metal enters the die chamber 2 through a passage-way 3 formed in one side of the block 1. The male die or core-tube 5 is supported in the eccentric sleeve 6 which is secured in a screw-threaded opening 7 in the block 1. The male die 5 is held in position within the eccentric sleeve 6 by means of a tubular screw-threaded plug 8 the inner end of which engages a washer 9 which is seated against the outer end of the said die 5. The forward end of the sleeve 6 is inclined as indicated at 10, substantially as in the patent to Cobb to which reference has been made.

The block 1 is provided upon the end thereof adjacent to the forward end of the male die 5 with a recess 20, the circular wall 21 of which is provided with projections 22 at intervals and intermediate slots or spaces 23. The said recess is adapted to receive and hold a supporting member 25 which is adapted to support and carry female dies and their supports or carriers as will be hereinafter described. The member 25 is provided with a plurality of projections 26. The said member 25 is also provided with a polygonal portion 30 to rereceive a wrench by means of which it may be turned. The said member also includes an intermediate circular portion 31 which is adapted to fit the circular space 32 within the projections 22. The member 25 is interiorly threaded as indicated at 32 to receive a retaining or holding hollow nut 33 in which is situated a sleeve 35 which supports a female die holder 36. The inner end of the sleeve 35 is enlarged as indicated at 40 and is provided with a shoulder 41 against which the inner end of the retaining or holding nut 33 contacts. The inner end of the said sleeve is provided with an enlarged annular recess 42 in which is seated the enlarged end of the die holder 36.

50 designates a female die which is situated in the annular seat of the die holder 36.

In order that the female die 50 may be readily adjusted transversely and moved into axial alinement with the die 5 the opening through the sleeve 35 is eccentrically situated. The opening through the die holder 36 is also eccentrically situated. It will be apparent, therefore, that by rotating either the sleeve 35 or the die holder 36, or both of them independently, the die 50 will be adjusted transversely with respect to the said die so that it may be moved into exact axial alinement therewith.

In order to facilitate rotation of the members 35 and 36 I have provided the holes 53 and 54. The flange upon the retaining nut 33 is adapted to contact with the end of the member 25 whereby its movement inwardly is limited. It is evident that by adjusting the nut 33 so as to space the sleeve 34 from the end of the member 25 the distance between the female die and the point of the male die may be increased.

It will be understood that in assembling the parts the members 33, 35 and 36 and the female die 50 may be assembled as indicated in Fig. 1 of the drawings, after which the member 33 may be screwed into the member 25. This may be done either before or after the member 25 is placed in position in the recess 20. In placing said member 25 in position in the recess 20 it will be understood that the ears or projections 26 are first inserted into the notches or spaces 23 after which the said member 25 may be turned so as to bring the projections 26 underneath the inwardly extending projections 22, as is clearly shown in Fig. 2 of the drawings.

If preferred the retaining or holding nut 33 may be first screwed into the member 25 after which the other parts 35, 36, etc., may be assembled.

It is apparent from the drawings and from the above description that by my invention I have provided a construction in which the female dies may be readily inserted into and removed from operative position with respect to the coöperating male die.

It should be understood that sleeves 35, die holders 36 and dies 50 of different internal diameters from those shown may be substituted so that female dies and holders of different sizes may be used in connection with the retaining or holding plug 33 and the detachable support or carrier 25.

I claim:—

1. In a tube making machine the combination of a block having a die chamber therein and having a recess adjacent to one end thereof, said block also having projections extending inwardly over the said recess, said projections being spaced from each other, a die support having radial projections which are adapted to be inserted through said spaces into the said recess and thereafter turned into position underneath the projections upon the said block, a sleeve removably secured in the said support and having an enlarged inner end and a shoulder, a die holder supported in the said sleeve and having an enlarged inner end portion and a shoulder situated in the enlarged inner end portion of said sleeve with their shoulders in contact and a die supported in the said holder, substantially as described.

2. A die support adapted to be attached and detached from a tube making machine, said support including a tubular member having means whereby it is adapted to be attached and detached from the die chamber block of such machine, said tubular member being internally screw-threaded, a sleeve supported in the said tubular member said sleeve having an enlarged end and a shank portion and having a shoulder intermediate the two portions and also having an annular chamber in its enlarged end, a retaining plug having screw-threaded connection with the said supporting member and surrounding the shank of the said sleeve member and having its inner end in contact with the said shoulder, a die holder situated within the said sleeve and having an enlarged end seated within the said annular chamber in the said sleeve said die holder having an annular recess formed in its inner end and a die seated within the said last mentioned annular chamber.

3. In a tube making machine, the combination of a block having a die chamber therein, a male die supported in said chamber, a tubular member adapted to be detachably secured to the said die chamber block, an eccentric sleeve situated in the said tubular member, means for retaining the said sleeve in position therein, an eccentric die holder situated in and carried by said sleeve, and a die supported upon the inner end of said die holder the said die being adapted to be adjusted transversely of its axis by rotating either the said die holder or the said sleeve or both of them.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 9th day of March, A. D. 1915.

CORNELIUS D. GARRETSON.

In the presence of—
M. E. Leach,
B. P. Satman.