

PUBLISHED

MAY 4, 1943.

BY A. P. C.

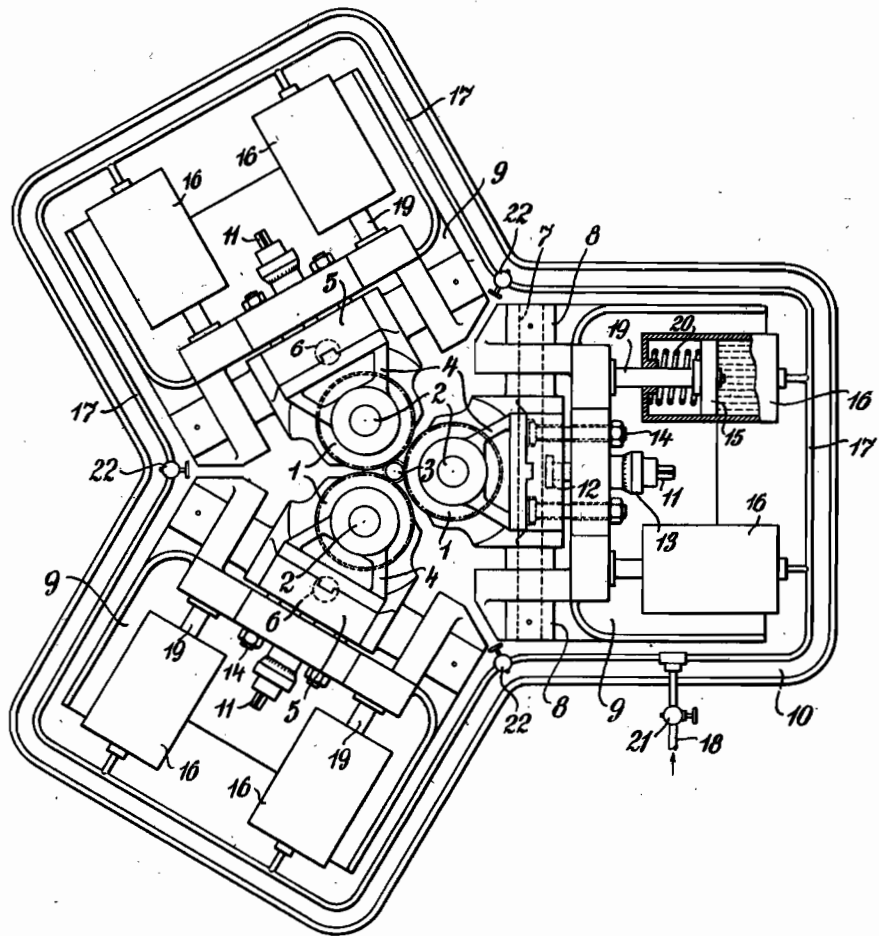
W. PLAGEMANN

SCREW THREADING MACHINES

Filed Oct. 7, 1940

Serial No.

360,152



Inventor:  
*Werner Plagemann*  
by *Frank Reinhold*  
Attorney.

# ALIEN PROPERTY CUSTODIAN

## SCREW THREADING MACHINES

Werner Plagemann, Berlin, Germany; vested in  
the Alien Property Custodian

Application filed October 7, 1940

My invention relates to improvements in screw-threading machines, and more particularly in screw-threading machines of the type comprising externally screw-threaded roller dies placed one beside the other, and adapted to be rotated in the same direction for rolling a screw thread into a blank placed between the same. A machine of this type has been described in the copending application for Patent of Wenhöner and Plagemann, Ser. No. 214,733, filed June 29, 1938. In machines of this type the diameter of the screw threads of the roller dies is in such relation to the diameter of the threads to be rolled, the pitch of the said threads and the number of the threads, that there is no axial displacement of the blank being rolled. Further, in the said machine means are provided for advancing the roller dies relatively to each other while the blank is being rolled.

One of the objects of the improvements is to provide a machine in which non-threaded supporting means for the blank being rolled are dispensed with. Another object of the improvements is to provide a machine which is capable of heavy work, and by means of which blanks of a diameter of more than 60 millimeters may be rolled, and by means of which the threads may be rolled in a material having a strength of about 120 kg per square millimeter. With these objects in view my invention consists in providing more than two externally screw-threaded rollers simultaneously engaging the blank, one or more of the said rollers being provided with means for advancing the same towards the blank while the said blank is being rolled.

For the purpose of explaining the invention an example embodying the same has been illustrated in the accompanying drawing, the said drawing showing a top plan view of the machine partly in section.

In the machine shown in the said application for patent, the roller dies are disposed with their axes horizontal. In the machine shown in the annexed drawing, the roller dies are disposed with their axes vertical. But I wish it to be understood that my invention is not limited to this feature. Further, in the aforesaid machine mechanism has been described for driving the roller dies, the said mechanism being constructed so that the roller dies may be advanced towards the blank being rolled without interfering with the transmission of the rotary movement. Further, means have been described for adjusting the roller dies relatively to each other in axial direction and also angularly of each other. It will be

understood that also in the improved machine driving mechanism and adjusting means of similar construction are provided. But I deem it not necessary to describe such means, because per se the said means do not form parts of the present invention.

In the example shown in the drawing a machine has been illustrated which is provided with three roller dies 1 mounted on vertical axes 2 and disposed so as to be able to act on a blank 3 placed between the same. The said axes are connected with driving mechanism for rotating the same in the same direction, and the said driving means are constructed so as to permit radial displacement of the roller dies towards and away from one another.

The roller dies are rotatably mounted in slides 4 which are vertically adjustable in blocks 5, screws 6 being provided for thus adjusting the said slides within the blocks 5. The blocks 5 are pivotally mounted on shafts 7 fixed in eyes 8 rising from a slide 9 guided in suitable guide ways provided on a bed plate 10. The blocks 4 are adapted to be slightly pivoted about the axes 7 for setting the same into positions with the axes 2 parallel to each other, and after being set they are fixed in position on the slides 9. As shown, setting screw bolts 11 are passed through bores made in the slide 9 and the said bolts are formed with heads 12 engaging in slots of the blocks 4. On the screw bolts 9 nuts 13 are located. After the blocks 4 have been set they are fixed in position by means of screws 14 screwing in screw-threaded bores in the slide 9 and engaging the outer faces of the blocks 4.

The slides 9 are adapted to be moved towards the blank 3 by means of pistons 15 which are slidable in cylinders 16 fixed to the bed 10 and having a supply of a suitable non-elastic fluid under pressure through supply pipes 17 and 18. The rods 19 of the pistons are fixed to the slide 9, and within the cylinders springs 20 are located which tend to retract the slides 9 outwardly and away from the blank 3.

The pipe 18 includes a valve 21 which controls the supply of pressure fluid to all the cylinders 16.

The operation of the machine is as follows:

The roller dies are set in the proper positions by means of the screws 6 and 11, 13, 14, whereupon a blank 3 is placed between the same. Fluid is supplied to the cylinders 16 through the pipes 18, 17 until the dies engage the blank 3 with their screw threads. Now the driving mechanism is set into operation for rotating the roller dies 1, while the pressure of the fluid acts on the

slides 9. Thus the screw threads of the roller dies are gradually forced into the blank being rotated. When the threads have been made in the blank to the desired depth the operation of the machine is interrupted, for which purpose automatic means are preferably provided such as have been described in the aforesaid application for patent of Wemhöner and Plagemann.

From the above description it will be understood that all the roller dies are advanced towards one another and towards the blank while they are in rolling operation. But I wish it to be understood that my invention is not limited to the method of operation described herein and

that the machine may also be operated in such a way that only one of the roller dies is movable, while the bearings of the other roller dies are stationary, or that two roller dies are movable towards and away from the blank, while the bearing of the third roller die is stationary. To illustrate this method of operation additional valves 22 have been shown, by means of which one or two sets of cylinders 16 mounted on the slides 9 may be disconnected from the supply of pressure fluid after they have been brought into positions with the threads of their roller dies into engagement with the blank.

WERNER PLAGEMANN.