Sept. 1, 1931. E. J. McILVRIED 1,821,845

WIRE DRAWING MACHINE AND PROCESS OF THREADING THE SAME

Filed July 8, 1929

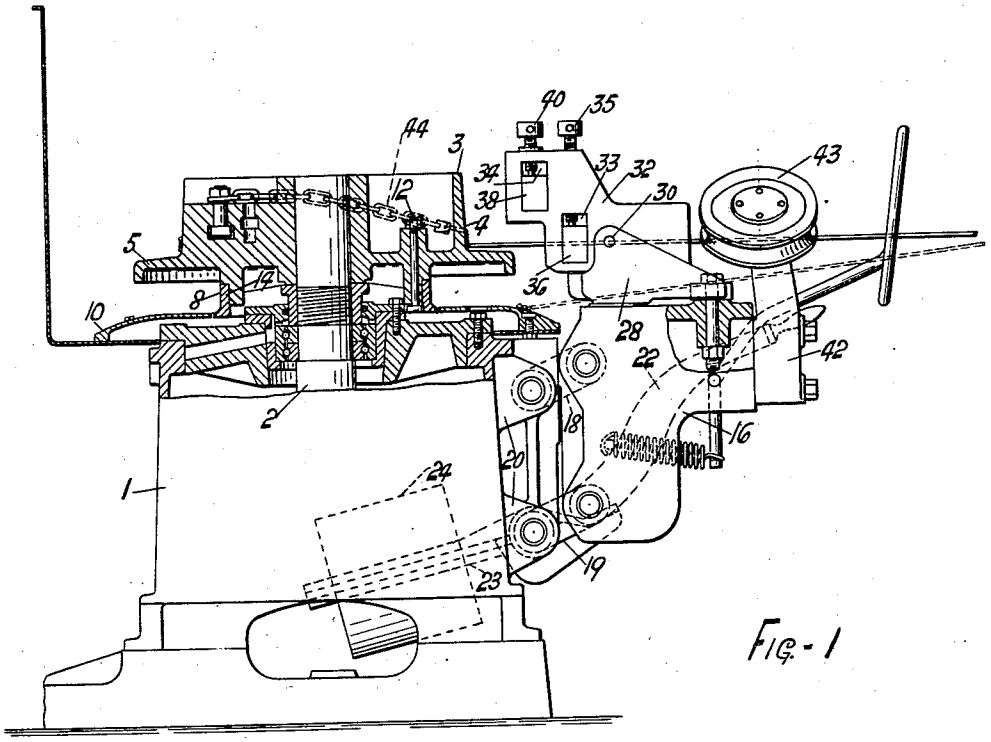


FIG. 1

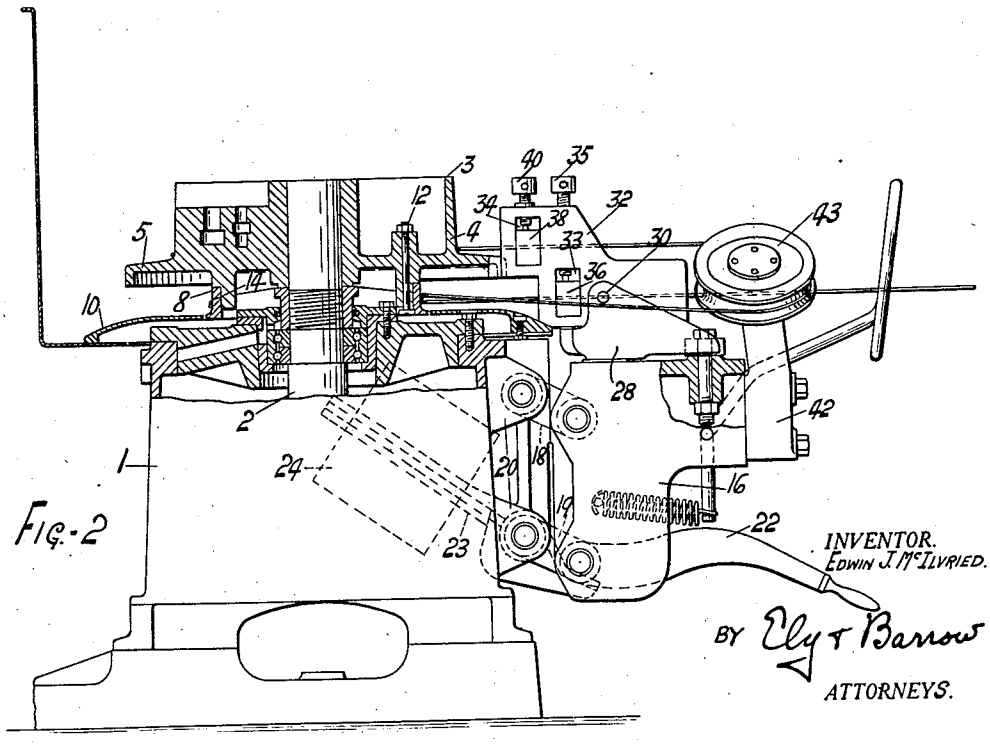


FIG. 2

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WIRE DRAWING MACHINE AND PROCESS OF THREADING THE SAME

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The present invention relates to the art of wire drawing and particularly to improvements in wire drawing machines and processes of threading the same. The invention relates particularly to that type of machine for making two drafts simultaneously in one machine. In this form of machine the wire is led through a die, around one surface of a rotary block, through a second die, and then on to the second surface of the block, the two surfaces being of differential diameters to take care of the attenuation of the wire resulting from the successive drawing operations. This type of machine is sometimes referred to in the art as a "double deck" machine. The invention relates to an improvement in that type of machine whereby the threading of the machine is simplified and improved.

The usual type of double deck machine is threaded by pointing the end of the wire, passing the wire through a die, catching the point of the wire by means of a pincher on the end of the chain which is temporarily attached to the block, and coiling the wire with the chain around the lower or smaller primary drawing surface of the block. After a few turns of wire are made, the operator detaches the wire from the chain and pincher, unthreads a portion of the wire, leaving a sufficient number of turns subsequently to draw the wire through the first die. He then passes the leading end of the wire through the second die, reattaches the chain and pincher and coils the wire on the finishing surface of the block. This is a tedious and time consuming operation and necessarily lowers the efficiency of the machine.

The object of the present invention is to construct a machine in which the operation of threading may be performed more expeditiously than with the present known forms of drawing machines of this type, and as will be understood from the description and drawings, the improved drawing machine is more efficient and easier to operate than the former types of machines.

The drawings and description give a detailed disclosure of the preferred embodiment of the invention as known at the present time, but it will be understood and appreciated that exact conformity with those details is not essential to the practicing of the invention, and modifications and improvements may be made within the scope of the invention as set forth in the claims.

In the drawings:

Figure 1 is a side elevation of the improved wire drawing machine showing the machine as adjusted for the preliminary threading operation; and

Figure 2 is a similar view showing the machine fully threaded and in the condition in which it is operated for production.

The machine is mounted upon a base or stand 1 in which is located the vertical driving shaft 2, on which the rotary drums or blocks constituting the two decks of the machine are mounted. The blocks consist of the main or finished wire block 3, the surface 4 of which receives the coil of wire above the lower flange or apron 5. Beneath the main portion of the block and attached thereto by bolts 12 is located the primary block 8 which is smaller in diameter than the block 4 to compensate for the difference in gage of the partially drawn and the completed wire, and to give the required differential speeds between the drawing operations.

Below the surface 8 is mounted the annular cup-shaped or convex stationary shell 10.

Located at the side of the drum is the die carrier or support 16 which is movable or shiftable, being supported for vertical movement on two pivoted links 18 and 19 mounted in lugs or supports 20 on the side of the housing 1. In order to move the die carrier, the link 19 may be extended to provide an operating lever 22, the opposite end 23 of the lever being provided with a counterweight 24 which balances the weight of the carrier and the parts supported thereon. It will be observed that the extension 23 is not in alignment with the pivotal points on the lever 22 and the relative angularity of the arms of the lever is such that the movements of the counterpoised parts about the fulcrum or lever 23 will hold the die carrier in its rased or lowered positions.

On the upper surface of the carrier is lo-

cated the pivoted die block 28 which is mounted upon a vertical pivot so as to permit the block to oscillate to accommodate the wire as it accumulates upon the block. In the die block is located the horizontal pivot 30 on which is mounted the head 32 which is provided with the two openings or seats 33 and 34.

Secured in the seat 33 by bolts 35 is the first or primary die 36 and in the seat 34 is the finishing die 38 secured in position by the bolt 40. On the rear of the die carrier is mounted the bracket 42, on the upper end of which is located the sheave 43.

In threading the drawing machine, the movable carrier is raised until the lower or primary die is in alignment with the base of the block 3. The end of the wire is pointed, threaded through the die and attached to the pincher and chain 44 which coils it around the surface 4. The machine is then started in operation and run until slightly more than a sufficient number of turns of wire are wound around the block 4 to give the required traction, as shown in full lines in Figure 1. The rotation of the block is then stopped, the pincher and chain detached from the wire, and the coil of wire at 4 loosened and expanded so that it can be passed over the flange 5 on to the shell 10, as shown in dotted lines in Figure 1, and then the die carrier is lowered. The end of the wire which has been detached from the pincher and chain is then brought around the sheave 43 and passed through the upper or finishing die, attached to the pincher and drawn on to the surface 4. When the drum is again rotated, the wire will wrap around the surface 4 and the coil will tighten up on the surface 8, which will give the operative conditions shown in Figure 2.

It will be observed that the arrangement shown and described affords a simple and easily operated means for threading a "double deck" wire drawing machine. It is not necessary for the operator to work under the flange 5 for attaching the pincher and threading up the machine as in former types of this machine, and as the work of threading is done from above, the time consumed in this work is greatly reduced.

The principles of the invention, involving the use of a shiftable die holder or carriage, are believed to be wholly new, and as the results are highly advantageous, it is believed that the invention and the claims therefor are entitled to a broad scope of equivalents within the purview of the invention as defined by the prior art.

What is claimed is:

1. The process of threading a wire drawing machine of the double deck type comprising passing the leading end of the wire through the first die, coiling it around the finishing surface of the block, stopping the coiling operation, loosening the coil, shifting the coil bodily to the primary surface of the block, unwinding a sufficient length of wire from the coil to reach from the primary surface through the finishing die to the finishing surface, and passing the leading end through the finishing die and on to the finishing surface of the block.

2. In a machine for the uses and purposes set forth, the combination of a rotatable block having primary and finishing surfaces of different diameters, the diameter of the primary surface being the smaller, an apron upon the block separating the surfaces, a die carrier movable along the axis longitudinal of the block, said carrier having a primary and a finishing die therein normally in alignment with the primary and finishing surfaces of the block, means for shifting the die carrier to bring the primary die in alignment with the finishing surface while the machine is being threaded, and means to guide the wire from the primary surface to the finishing die.

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