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A. E. LINGO

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APPARATUS FOR FORMING TAPERED COLUMNS AND THE LIKE

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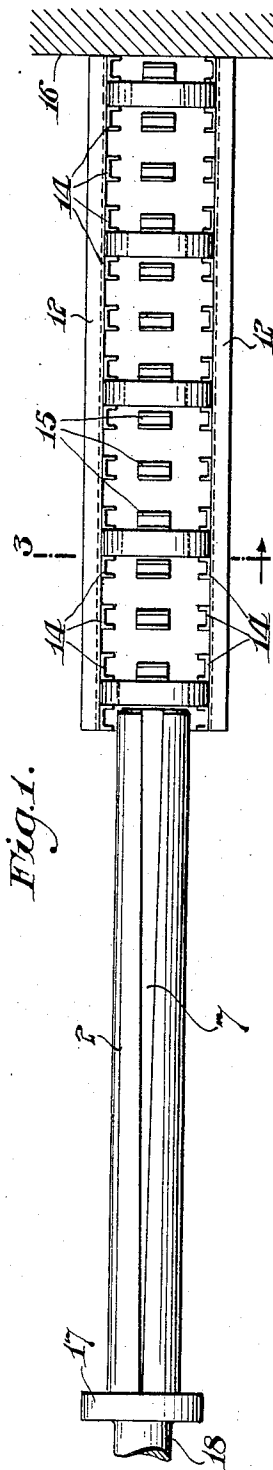


Fig. 1.

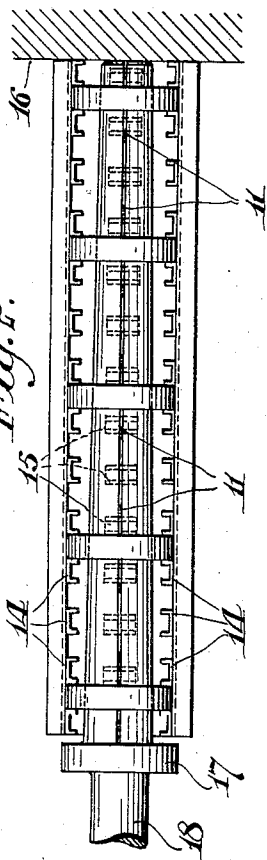


Fig. 2.

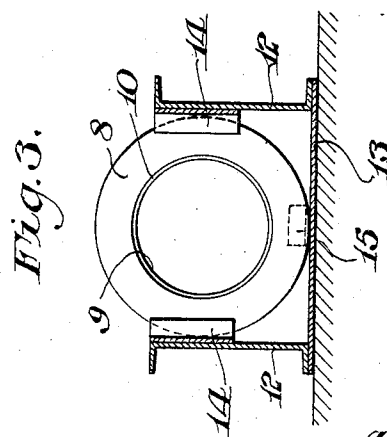
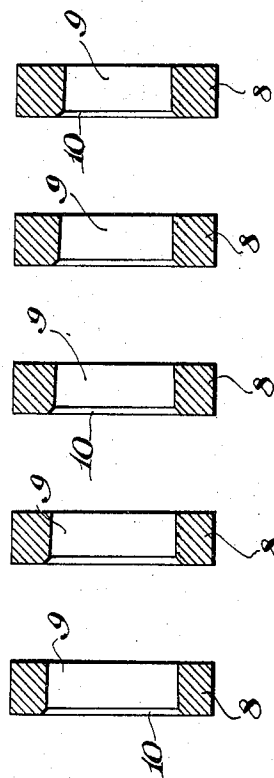


Fig. 3.

Fig. 4. Fig. 5. Fig. 6. Fig. 7. Fig. 8.



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UNITED STATES PATENT OFFICE

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APPARATUS FOR FORMING TAPERED COLUMNS AND THE LIKE

Application filed April 10, 1930. Serial No. 443,045.

My invention relates to apparatus for forming tapered columns and the like, and it relates more particularly to apparatus for more expeditiously carrying out the method of making columns described and claimed in my previous Letters Patent No. 1,722,671, dated July 30, 1929, and No. 1,741,704, dated December 31, 1929.

The object of my present invention is to provide improved apparatus for carrying out the method of my said previous Letters Patent Nos. 1,722,671 and 1,741,704, by means of which the process is greatly simplified and rendered still more economical.

The nature and characteristic features of my invention will be more readily understood from the following description, taken in connection with the accompanying drawing forming part hereof, in which:

Figure 1 is a top or plan view of apparatus, for forming tapered columns and the like, embodying the main features of my present invention, the parts being shown in the positions assumed at the beginning of the forming operation;

Fig. 2 is a similar view, but with the parts being shown in the positions assumed at the termination of the forming operation;

Fig. 3 is a transverse section, enlarged, taken approximately on the line 3—3 of Fig. 1; and

Figs. 4, 5, 6, 7 and 8 are, respectively, cross sectional views, enlarged, of a series of ring members constituting part of the apparatus and used for shaping the sections of the columns in the manner illustrated in Figs. 1 and 2.

It will, of course, be understood that the drawing and description herein contained are illustrative merely, and that various modifications and changes may be made in the structure disclosed without departing from the spirit of my invention.

Referring to the drawing, 2 is a section of a column, which, as explained in my previous letters patent hereinbefore referred to, may be made from a length of pipe such as is readily procurable in the open market in various diameters and various thicknesses.

A slot 7 is first cut in the pipe, as shown

in Fig. 1 of the drawing. This slot is usually of elongated V-shape, and if the column is to be given an entasis, the edges of the slot are correspondingly curved. This slot may run from end to end of the pipe, or for only a portion of the length thereof.

For the shaping of the sections of the column, there are provided a plurality of forming rings 8. These rings are provided in series, and the aperture 9 of each ring is of a diameter slightly less than the diameter of the aperture 9 of the next ring in the series. At the end of each aperture 9 of each ring a chamfer 10 may be provided.

The foregoing is substantially as described in my previous Letters Patent No. 1,741,704, but in the practical application of the method of my said patent as originally practiced, the forming rings were forced over the end of the section one at a time, each ring being pushed along the pipe 2 by means of a suitable press until the same was brought to a point where the diameter of the aperture 9 of said ring corresponded to the diameter of the finished section of the column.

However, in the use of the apparatus of the present invention, all of the forming rings are forced over the pipe simultaneously, being previously amounted at proper locations in a suitable framework.

As shown in the drawing, the framework comprises side channel beams 12, the lower flanges of which may be connected to each other by plate members 13, thus forming a trough-like structure in which the forming rings 8 may be mounted. Suitable grooves may be provided in the framework for positioning the forming rings at desired locations therein. These grooves may be provided by means of short lengths of rolled steel channels 14, secured at proper locations to the webs of the side members 12, whereby the grooves may be located at intervals in the framework.

Abutting shoulders for the forming rings may also be provided, if desired, on the bottom plate member 13, these shoulders being formed by short lengths of rolled steel channels 15, secured to the plate member 13.

In the use of the apparatus, one end of the framework is abutted against the stationary head 16 of a suitable press, the forming rings 8 being positioned in the framework at such places as will result in the proper shape being given to the pipe 2.

The head 17 of the ram 18 of the press is brought against one end of the pipe 2, the other end of the pipe being guided into the first forming ring. The pipe is then pushed through the forming rings, by the ram 18, so that the same will be formed to the proper shape as it is pushed to the end of its movement through the forming rings.

The section of column being thus brought to the finished shape, the abutting edges of the slotted portion may be welded at one or more points 11 between the various rings 8, after which the rings may be removed, as heretofore.

It will be noted that the apparatus is so constructed and arranged that a wide variety of sizes and shapes of the columns may be made by merely selecting the proper size rings and positioning the same in the framework in the respective grooves at the proper longitudinal locations.

The forming rings may be readily and expeditiously placed in the proper grooves of the framework, and after being so placed no further attention with respect thereto will be required on the part of the operator other than to see that the pipe is pushed to its proper final position with respect to the frame.

As the grooves are open on the upper side of the framework, the formed column with the rings thereon may be removed as an entirety, so that, if desired, the welding of the abutting edges between the rings may be done outside of the framework, thus permitting the framework and the press associated therewith to be used for the formation of other column sections while the welding is being done. In this manner, the equipment may be used for the greatest possible production. In any event, the stripping of the rings from the formed column will be greatly facilitated by the removal of the formed column from the framework with the rings thereon.

By the use of the apparatus of the present invention, a considerable increase in speed and diminution of labor, in carrying out the method of my previous letters patent heretofore referred to, are effected.

I claim:

1. Apparatus for forming a tapered column or the like from a tube having an elongated V-shaped portion removed therefrom, said apparatus comprising a series of forming rings of varying internal diameters, and a framework for supporting said rings during the forming operation, said framework being provided with means for selectively

positioning the forming rings at desired longitudinal locations with respect to each other, and means for pushing the tube within the rings to a definite end position with respect to said framework whereby the tube will be formed into a tapered shape.

2. Apparatus for forming a tapered column or the like from a tube having an elongated V-shaped portion removed therefrom, said apparatus comprising a series of forming rings of varying internal diameters, a framework for supporting said rings during the forming operation, said framework being provided with a plurality of grooves at spaced locations in which the forming rings are adapted to be selectively positioned, at desired longitudinal locations with respect to each other, and means for pushing the tube within the rings to a definite end position with respect to said framework whereby the tube will be formed into a tapered shape.

3. Apparatus for forming a tapered column or the like from a tube having an elongated V-shaped portion removed therefrom, said apparatus comprising a series of forming rings of varying internal diameters, a framework for supporting said rings during the forming operation, said framework being provided with a plurality of grooves at spaced locations in which the rings are adapted to be selectively positioned at desired longitudinal locations with respect to each other, and means for pushing the tube within the rings to a definite end position with respect to said framework whereby the tube will be formed into a tapered shape, the grooves being open at one side of the framework whereby the formed column with the rings thereon may be removed from the framework as an entirety.

In testimony whereof, I have hereunto signed my name.

ARCHIBALD E. LINGO.