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MEANS FOR ROLLING OUT A TUBE WITH AN INTERNAL
THICKENING AT THE REAR END FROM A TUBULAR BLANK
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Fig. 1

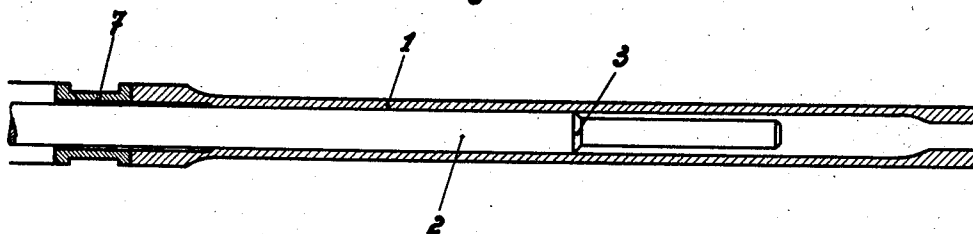
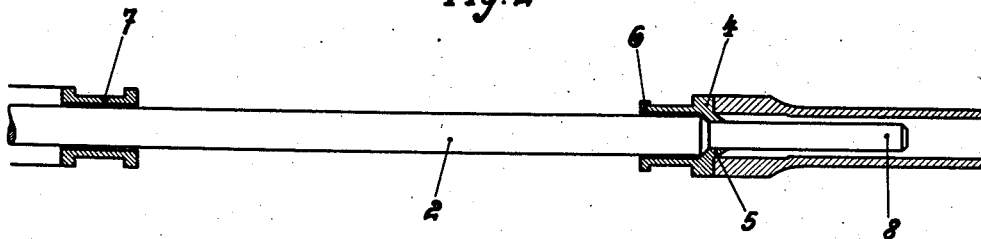


Fig. 2



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MEANS FOR ROLLING OUT A TUBE WITH AN INTERNAL THICKENING AT THE REAR
END FROM A TUBULAR BLANK

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For making tubes with an internal thickening at either end by the pilgering method, it has already been proposed, after rolling out the forward end thickening and after rolling the portion of the tube of normal thickness, to withdraw the mandrel used for this purpose out of the blank and to produce the thickening at the rear end by inserting a second mandrel in the tube which has a smaller diameter than the mandrel on which the normal part of the tube was rolled out.

This method has the great disadvantage that for rolling out the rear end thickening it is necessary to change the mandrel which is both inconvenient and wastes time, so that owing to the cooling down of the blank during this period it is no longer possible when rolling the rear end thickening to obtain satisfactory texture.

There is the further serious disadvantage that, when commencing to roll out the rear end thickening over this second thinner mandrel, the blank is no longer internally guided by the mandrel so that, owing to the sudden action of the pilgering rolls, the end thickening will in most cases not lie perfectly concentric with the outer diameter and undesirable overlapping occurs.

According to the invention these disadvantages are entirely overcome by the withdrawn mandrel being provided with a removable abutment which bears against its shoulder and against which, after the insertion of the thinner mandrel end, the end of the part of the blank rolled out over the thicker part of the mandrel rests during the rolling out of its rear internal thickening.

In order to obtain a satisfactory internal guide for the end of the blank the abutment member can engage with an annular projection in the rear end of the blank, which annular projection of the abutment member may be made entirely conical or conical at its forward end for enabling it to be inserted in a satisfactory manner.

As the supporting surface of the abutment member resting against the shoulder on the mandrel is relatively small and is very heavily stressed owing to the blow-like action of

the pilgering rolls, in accordance with the invention the abutment member is so constructed that it has a guiding portion which engages over the thicker part of the mandrel so that it is thereby secured against canting.

In contradistinction to the known method of manufacture used in the pilgering process when making thickened rear ends, the new arrangement provides the advantage that it is not necessary to exchange mandrels and that therefore there is no unnecessary loss of time between the end of the pilgering of the normal part of the tube and the commencement of the pilgering of the rearward end thickening, as the abutment ring can be pushed over the withdrawn mandrel and the mandrel re-introduced within a very short time.

A further great advantage of the invention consists in this, that the annular projection of the abutment member which engages in the blank provides a perfectly satisfactory internal guide for the end of the blank.

In the accompanying drawing a constructional example of the invention is shown,

Fig. 1 representing the end of the pilgering operation and the portion of the tube having a normal wall thickness, the blank being also provided at its forward end with a thickening.

Fig. 2 shows the commencement of the pilgering of the rear end thickening. After the blank 1 has been rolled down all but a portion corresponding to the thickening at the rear end of the tube, the mandrel 2 is withdrawn from the blank and is provided with an abutment ring 4 which rests against the shoulder 3 on the mandrel. The abutment ring 4 has an annular projection 5 with which it engages in the rear end of the blank when the mandrel is inserted and a guiding part 6 which embraces the thicker part of the mandrel. 7 is the stripping sleeve.

After the reintroduction of the mandrel 1 proper with the abutment member 4, the rear end thickening is rolled down on the mandrel shoulder on which, at the commencement of the pilgering operation, the forward end thickening of the tube was rolled out.

What I claim is:

1. Method of rolling out a tube with internally thickened ends from a tubular blank in a pilgering mill by means of a mandrel with a portion of reduced diameter and a shoulder, where said portion commences, consisting in rolling down the forward thickened end on the reduced portion of said mandrel, thereupon rolling down the tube on the thicker portion of said mandrel throughout the length of the tube all but a portion corresponding to the thickened rear end of the tube, thereupon withdrawing said mandrel from the blank, providing it with an abutment member so as to rest against the shoulder of the mandrel and to act as an abutment for the rear end of the blank, reintroducing the reduced portion of said mandrel into the tube and rolling down the rear end of the tube on said reduced portion to form an internal thickening as set forth.

2. A mandrel for rolling tubes with an internal thickened portion each end having a portion of reduced diameter at one end, a shoulder where said portion commences, and an abutment member capable of being slipped on to said reduced portion when the mandrel has been withdrawn so as to rest against said shoulder and acting as an abutment for the rear end of the blank on the reduced end of the mandrel being reintroduced into the blank for rolling out the rear end thickening.

3. A mandrel for rolling tubes with an internal thickened portion at each end having a portion of reduced diameter at one end and a shoulder where said portion commences, and an abutment member capable of being slipped on to said reduced portion when the mandrel has been withdrawn so as to rest against said shoulder and acting as an abutment for the rear end of the blank on the reduced end of the mandrel being reintroduced into the blank for rolling out the rear end thickening, said abutment member having an annular extension for engaging inside the end of the blank.

4. A mandrel for rolling tubes with an internal thickened portion at each end having a portion of reduced diameter at one end and a shoulder where said portion commences, and an abutment member capable of being slipped on to said reduced portion when the mandrel has been withdrawn so as to rest against said shoulder and acting as an abutment for the rear end of the blank on the reduced end of the mandrel being reintroduced into the blank for rolling out the rear end thickening, said abutment member having a conical annular extension for engaging inside the end of the blank.

5. A mandrel for rolling tubes with an internal thickened portion at each end having a portion of reduced diameter at one end and a shoulder where said portion commences, and an abutment member capable of being

slipped on to said reduced portion when the mandrel has been withdrawn so as to rest against said shoulder and acting as an abutment for the rear end of the blank on the reduced end of the mandrel being reintroduced into the blank for rolling out the rear end thickening, said abutment member having a guiding part for engaging over the thicker part of the mandrel.

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