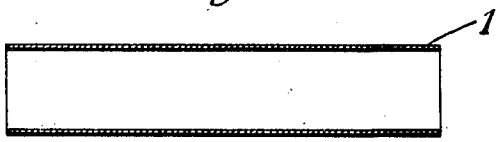
Oct. 26, 1926. 1,604,489

F. SEIFFERT

METHOD OF MAKING PIPE BENDS

Filed May 25, 1925

Fig. 1.



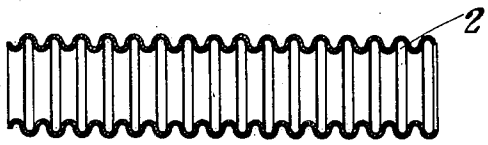


Fig. 2.

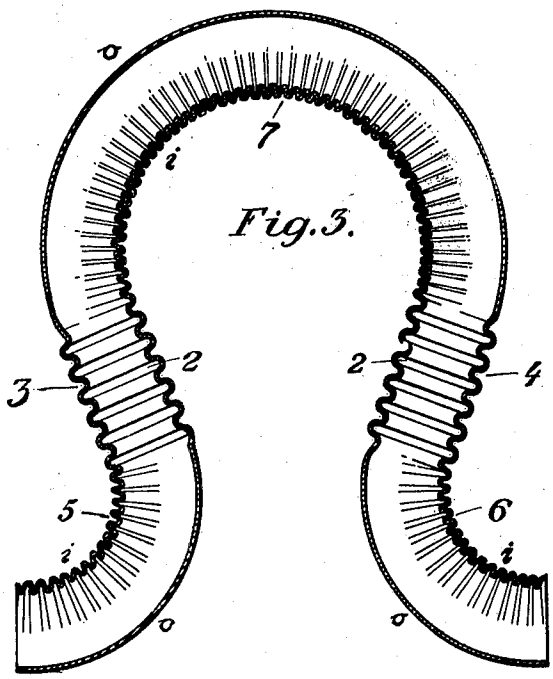


Fig. 3.

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by
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UNITED STATES PATENT OFFICE.

FRANZ SEIFFERT, OF BERLIN, GERMANY, ASSIGNOR TO THE FIRM FRANZ SEIFFERT & CO., AKTIENGESELLSCHAFT, OF BERLIN, GERMANY.

METHOD OF MAKING PIPE BENDS.

Application filed May 25, 1925, Serial No. 32,807, and in Garmany November 14, 1923.

My invention relates to a method of making pipe bends, for instance bends to be inserted in steam and hot water pipe lines in order to make up for variations in their length. Such bends may be made of smooth or corrugated blanks. In the case of corrugated blanks, the corrugations may be helical or parallel.

When a smooth pipe is bent, it will buckle at the inside of the bend and corrugations will appear at this point as is well known in the manufacture of stove pipes, where corrugations are artificially formed. In bends for pipe lines, these corrugations were considered inconvenient and not good looking so that it was attempted to remove them for instance by planing down the crests of the corrugations by hammering.

However it has been found that such corrugations increase the resilience of the pipes which is so important in bends of this kind. The flow of liquid in the bend tends to hug the outside under the action of centrifugal force so that the steady flow of the fluid is not interfered with by the corrugations on the inside of the tube.

For this reason, the corrugations are no longer removed but on the contrary it has often been attempted to produce them artificially by indenting the tubes with a suitable hammer at the points where corrugations are to be formed. This method, however, and also the spontaneous formation of corrugations by merely bending the tubes does not produce uniform material, while it is desirable to form regular and comparatively deep corrugations on the inside of the bend.

It is an object of my invention to obtain such regular and uniform corrugations.

In carrying out my invention I form corrugations on a pipe by heating annular zones of the pipe by a flame and protecting the adjacent portions against the action of the heat, as described for instance in U. S. Patent No. 1,010,931. When a blank which by this method has been provided with slight corrugations, is filled with sand and then heated and bent, the corrugations at the inside of the bend will become comparatively deep and will be compressed so that here the pipe has a plurality of closely adjacent corrugations or folds. At the same time the corrugations at the outside will be planed out so that a smooth surface is obtained without reduction of the wall thickness of the pipes so that the strength is not reduced. Preferably the blank is heated to a lower temperature at the outside than at the inside of the bend. In this manner a bend is obtained which is corrugated on the inside only without deformation of its structure and having the same wall thickness on the inside as on the outside, this being equal to the original wall thickness of the blank so that it is possible to prepare the calculated bends for a predetermined inside pressure.

In the drawings affixed to this specification and forming part thereof the new method is illustrated diagrammatically by way of example. In the drawings

Fig. 1 is an elevation of the untreated blank,

Fig. 2 shows the blank after having been corrugated as described in U. S. Patent No. 1,010,931, and

Fig. 3 shows the finished pipe bend.

Referring now to the drawings, 1 is the blank which is provided with a plurality of corrugations 2 as shown in Fig. 2. This blank is bent into the usual horseshoe (or any other) form illustrated in Fig. 3. It will appear that in the straight parts 3 and 4 of the bend the corrugations 2—2 of the blank remain unaltered while in the bent parts 5, 6, and 7 the corrugations disappear on the outside *o* of the bend and on the inside *i* their pitch is reduced and the depth correspondingly increased.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. A method of manufacturing bent tubes corrugated on the inside and substantially smooth on the outside, comprising corrugating a tubular blank by heating the blank along circumferential bands or zones so as to form slight initial corrugations therein, filling the blank with a core of granular material, heating the blank and bending it so as to compress and accentuate the corrugation on the inside of the bend and to straighten them out on the outside of the bend.

2. A method of manufacturing bent tubes corrugated on the inside and substantially

smooth on the outside, comprising corrugating a tubular blank by heating the blank along circumferential bands or zones so as to form slight initial corrugations therein, filling the blank with a core of granular material, heating the blank to a higher temperature on the inside than on the outside, and bending it so as to compress and accentuate the corrugations on the inside of the bend and to straighten them out on the outside of the bend.

In testimony whereof I affix my signature.

FRANZ SEIFFERT