D. E. PHILLIPS.

METHOD OF TREATING OLD IRON AND STEEL PIPE.

APPLICATION FILED JULY 26, 1913.

1,106,109.

Patented Aug. 4, 1914.

2 SHEETS—SHEET 1.

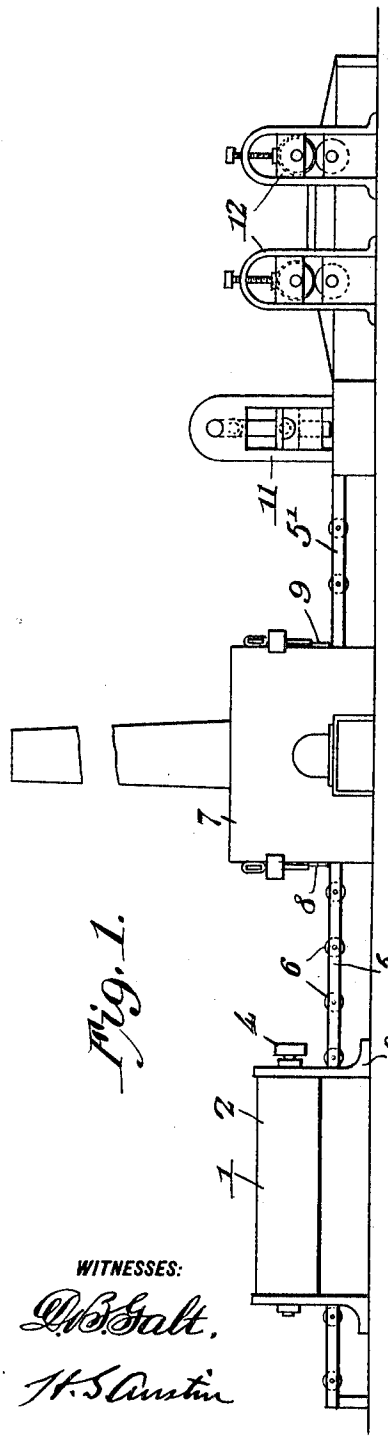


Fig. 1.

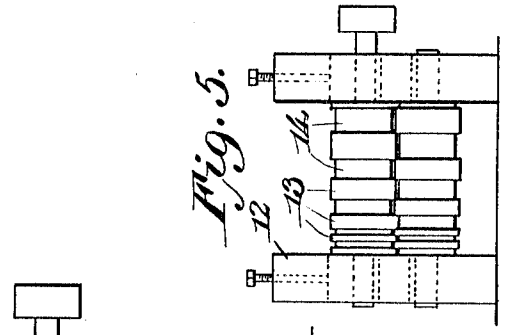


Fig. 5.

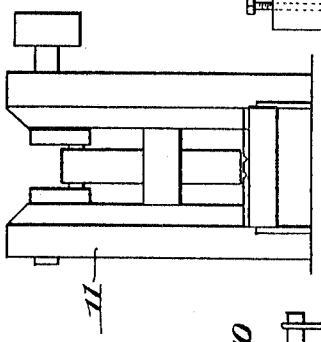


Fig. 4.

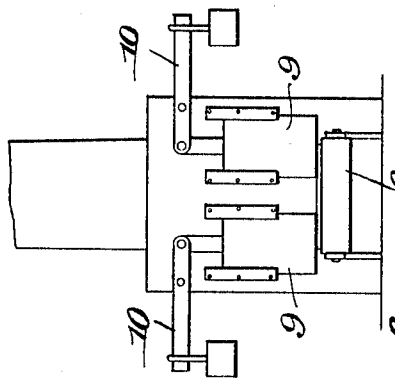


Fig. 3.

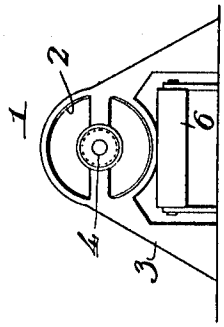


Fig. 2.

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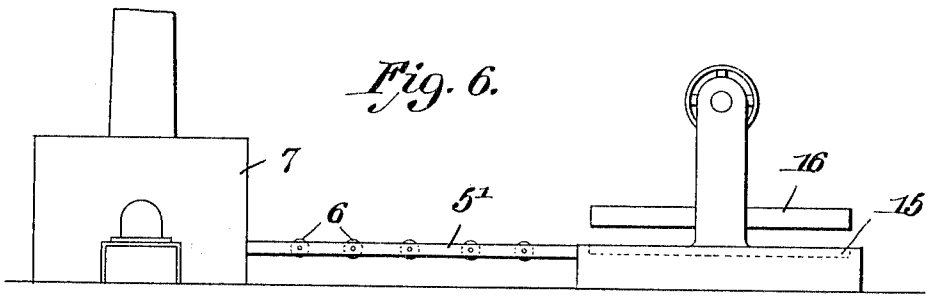


Fig. 6.

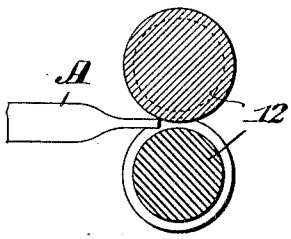


Fig. 8.

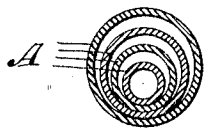


Fig. 9.

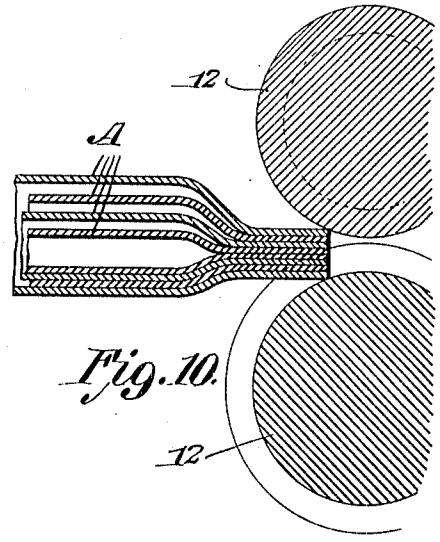


Fig. 10.

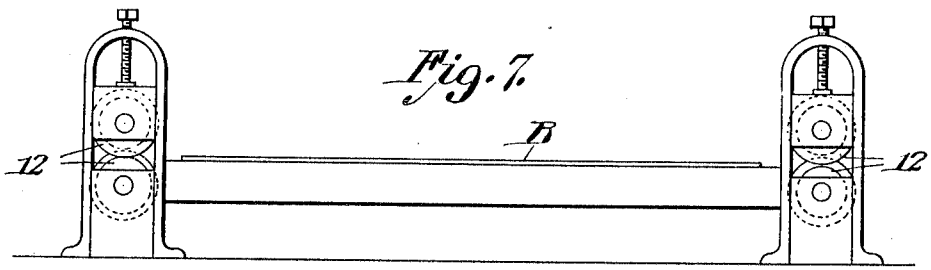


Fig. 7.

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UNITED STATES PATENT OFFICE.

DANIEL E. PHILLIPS, OF CLEVELAND, OHIO.

METHOD OF TREATING OLD IRON AND STEEL PIPE.

1,106,109. Specification of Letters Patent. Patented Aug. 4, 1914.

Application filed July 26, 1913. Serial No. 781,348.

To all whom it may concern:

Be it known that I, DANIEL E. PHILLIPS, a citizen of the United States, residing at Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Methods of Treating Old Iron and Steel Pipe, of which the following is a specification.

My invention relates to an improved method of treating old iron and steel pipe.

The object of my invention is to provide a method of treating old discarded iron and steel pipe whereby the same may be readily formed into bars for various uses wherein puddled iron has heretofore been used.

Other objects will appear hereinafter.

My invention consists generally in tumbling the pipes to remove dirt and rust, heating the same in a furnace, flattening an end of each of the pipes and passing the pipes through rollers or dies to form the same into bars.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which:

Figure 1 is a diagrammatic side elevation of apparatus for carrying my improved method into practical operation, Fig. 2 is an end elevation of the tumbler, Fig. 3 is an end elevation of the furnace, Fig. 4 is an end elevation of the hammer or parts for flattening the ends of the pipes, Fig. 5 is an elevation of the rollers such as may be used in the process, Fig. 6 is a view similar to Fig. 1 illustrating a slight modification of my invention, Fig. 7 is a detail view illustrating a still further modification, Fig. 8 is a detail view illustrating one portion of the process, and Figs. 9 and 10 illustrate a further modification.

Referring now to the drawings 1 indicates the tumbler which comprises a hollow rotary cylinder 2 supported upon a suitable base or frame 3. The pipes are first placed in the cylinder 2 and said cylinder rotated to tumble the pipes for the purpose of removing dirt and rust from the same, a pulley 4 being provided on the shaft of the cylinder to afford means for rotating the latter. After the pipes have been tumbled they are conveyed on the table 5 provided with rollers 6 to a furnace 7 provided at each end with doors 8 and 9 respectively, supported by a counter-balanced lever 10. If the pipes are very dirty or rusty the use of the table 5 is dispensed with and the pipes are turned on end after tumbling to remove the dirt and rust before placing them in the furnace. In the furnace the pipes are thoroughly heated to the desired degree and are conveyed upon a table 5′, similar to the table 5, to a hammer or press 11 where the forward ends of the pipes A are flattened to facilitate their entrance between the rolls or the dies of the shaping machine as illustrated in Fig. 8.

12 indicates the shaping machine which as above mentioned may be either a die or dies or rollers. In Fig. 5 I have illustrated the same as rollers, and these are formed of a pair of superimposed rolls each formed with a series of annular ribs or enlargements 13 defining a series of annular channels 14 between them, and arranged so that the ribs of one roll enter the channels of the other. By this construction the pipes, as they pass between the rolls are confined between the annular ribs so that the bars formed thereby are of uniform width. The ribs and channels in the rollers are of different widths and depths to accommodate pipes of various sizes and to form bars or flats of different dimensions. Any number of sets of rolls may be employed as found advantageous in practice. Furthermore if desired smaller pipes may be placed within those of larger diameter before heating as shown in Fig. 9; the ends being flattened in the manner above described, and as shown in Fig. 10; then rolled or passed through the shapers. In this way, two, three, four or more pipes may be rolled into one bar. If preferred a number of pairs of rollers 12 may be employed, the pairs being spaced a sufficient distance apart to permit the work passing from one pair before entering between the next pair, as shown in Fig. 7; by which arrangement the bars B, pressed by the first pair may be turned before entering between the next pair. This is particularly advantageous when a plurality of nested pipes are being rolled, so as to form a uniform homogeneous mass.

In the modified process shown in Fig. 6, the pipes are taken from the furnace and placed on a die or form 15, of a length as great as that of the pipes and there pressed into shape by hammering or by a press 16.

By the use of the method above described, old iron pipes which are in such condition that they have heretofore been considered fit for the scrap heap only, may be formed into high grade iron bars for various uses.

I claim:—

1. The herein described method of treating old iron and steel pipes consisting of tumbling the same, heating the pipes and passing the same through shaping machines.

2. The herein described method consisting of heating old iron and steel pipes, flattening the ends and passing the same through shaping machines.

3. The herein described method of treating old iron and steel pipes consisting of tumbling the same to remove the dirt and rust, heating the pipes in a furnace, flattening the ends and then passing them between shaping rollers.

4. The herein described method of treating old iron and steel pipes consisting of heating the same, flattening the ends and passing the same between rollers having restricted annular channels.

5. The herein described method of treating old iron and steel pipes consisting of heating the same and then passing the pipes through shaping machines to form bars, substantially as described.

6. The herein described method consisting of placing pipes of different diameters one within the other, heating, and then passing the same through a shaping machine.

7. The herein described method consisting of placing pipes of different diameters one within the other, heating, flattening the ends and then passing the same between shaping rollers.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL E. PHILLIPS.

Witnesses:

EDWARD BLYTHIN,

JOHN H. FREDERICK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."