Jan. 1, 1924 1,479,201

C. G. NAYLOR

SPIRAL PIPE

Filed Nov. 7, 1921

Fig. 1.

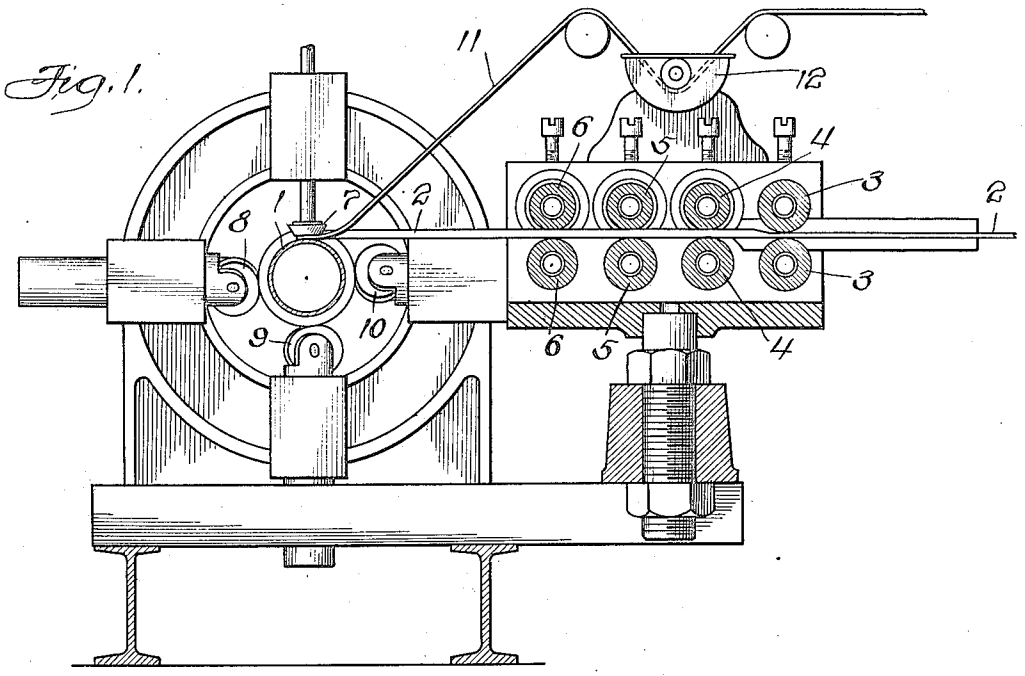
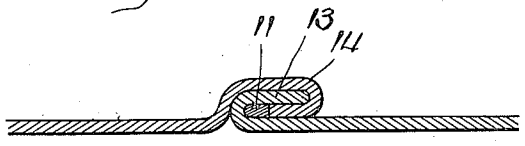


Fig. 2.



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UNITED STATES PATENT OFFICE.

CARL G. NAYLOR, OF CHICAGO, ILLINOIS, ASSIGNOR TO NAYLOR-ROBERTSON COMPANY, A CORPORATION OF DELAWARE.

SPIRAL PIPE.

Application filed November 7, 1921. Serial No. 513,377.

To all whom it may concern:

Be it known that I, CARL G. NAYLOR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spiral Pipes, of which the following is a specification.

This invention relates to spiral pipe.

One of the objects of the invention is to provide an improved spiral pipe.

Another object is to provide a spiral pipe particularly adapted to convey liquids and gases under high pressure.

Another object is to provide a method of making the pipe.

Another object is to provide an improved machine for making the pipe.

Another object is to provide a spiral pipe having an improved lock seam.

Other objects and advantages will hereinafter appear.

In the accompanying drawing

Fig. 1 is an end elevation of a portion of a machine for making the improved pipe, and

Fig. 2 is a cross section through the improved joint or seam.

A machine for making ordinary spiral pipe is set forth in United States Letters Patent No. 1,288,134, granted December 17, 1918. A machine such as disclosed in the aforesaid patent may be modified to produce the pipe and practice the method hereinafter set forth.

The improved pipe is produced by incorporating a compressible packing, for example an impregnated textile in the form of a cord or rope, in the spiral lock-seam interconnecting adjacent convolutions of the metal strip forming the pipe.

The machine in which the pipe is formed has, in general, a rotatable axially movable mandrel 1 upon which a strip or ribbon 2 of metal is spirally wound. The strip is drawn through a series of pairs of rollers 3, 4, 5 and 6 which serve to form a bead and a flange, respectively, along the opposite edges thereof. The flanged and beaded strip is then drawn over the rotating and axially moving mandrel. As the strip is drawn into a spiral upon the mandrel a series of seam forming rollers 7, 8, 9 and 10 serve to interlock the bead and flange along the adjacent edges of adjacent convolutions of the strip and to form and press the same together into an external rigid spiral lock-seam.

The details of the construction and operation of such a machine are set forth in the patent previously referred to.

To form the improved pipe the machine is caused to draw upon the mandrel and include and incorporate into the spiral lock-seam a compressible packing strip, such for example, as an impregnated textile cord or rope. The machine is provided with a hopper 12 for holding a suitable impregnating water-proof substance, such as an asphaltum compound. This compound is maintained in a heated liquid state by any suitable means such as a burner or steam coil. The rope or cord passes over suitable rollers through the bath of the heated liquid and between the flange and bead of adjacent convolutions of the metal strip. The lock-seam forming rollers form and press the bead and flange about the cord or rope.

The textile thus becomes an integral part of the rigid spiral lock-seam forming, in effect, a packing core therefor. The core is preferably compressed or compacted in the seam forming process to increase its density or fill any spaces which may occur and provide an exceedingly tight and dependable joint.

Fig. 2 shows a cross section of the spiral lock-seam produced. The two edges 13 and 14 of the strip are interlocked about cord 11 which is completely surrounded and protected by metal and held in a compacted packing mass completely sealing the joint.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. The process of making pipe from a ribbon of metal which consists in winding the ribbon into a series of spirally related convolutions, rigidly interlocking edges of adjacent convolutions of the ribbon to form a continuous spiral lock-seam, heating and including a continuous strip of impregnated compressible packing within the rigid lock-seam as the same is formed.

2. The process of making pipe from a metallic strip which consists in winding the strip into a series of spirally related convolutions, heating and impregnating a strip of compressible packing with adjacent edges of adjacent convolutions of the metallic

strip, and bending the adjacent edges of adjacent convolutions of the metallic strip about the strip of packing and each other to form a rigid, packed continuous spiral lock-seam.

3. A spiral pipe comprising a tube formed from a spirally wound metallic strip, a rigid continuous spiral lock-seam joining adjacent edges of adjacent convolutions of the spiral, and a compressible packing saturated with water resisting plastic material incorporated in the lock-seam.

4. A spiral pipe comprising a tube formed from a strip of metal bent into spiralled convolutions, a lock-seam interconnecting adjacent edges of adjacent convolutions of the metal strip, and a cord impregnated with a water resisting plastic material compressed within and surrounded by the lock-seam to produce a tight joint.

5. A pipe seam formed between adjacent strips of sheet metal in which the longitudinal edge of one strip is bent outwardly and folded upon itself; the longitudinal edge of the adjacent strip laid over and under the edge of the first mentioned strip, and a compressible packing under the fold of one strip and adjacent the end of the other edge.

In testimony whereof I hereunto subscribe my name.

CARL G. NAYLOR.