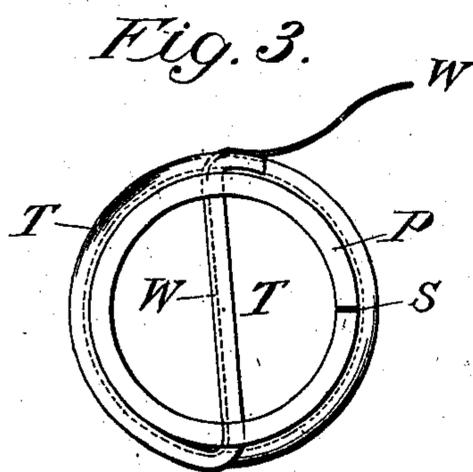
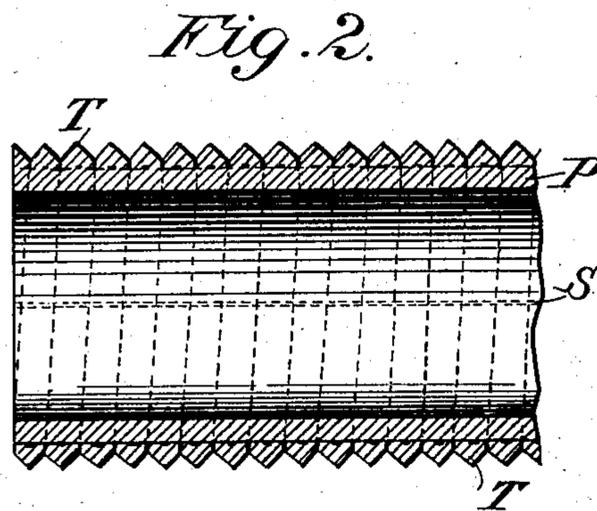
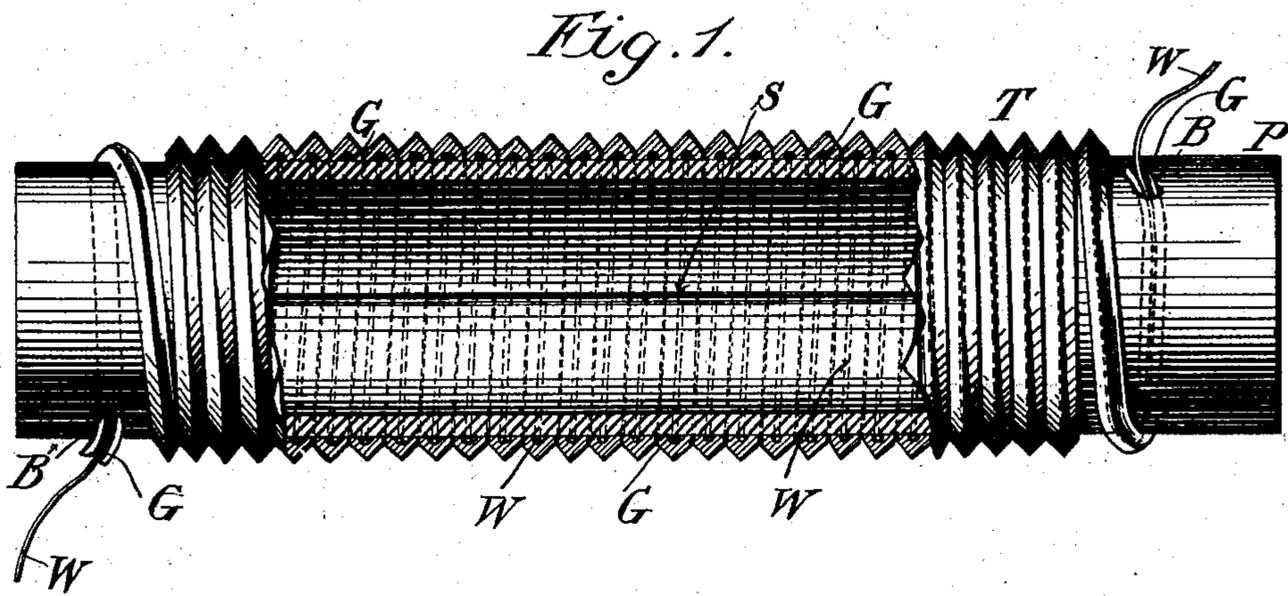


No. 720,580.

PATENTED FEB. 17, 1903.

E. T. GREENFIELD.  
SCREW THREADED PIPE, TUBE, OR ROD.  
APPLICATION FILED APR. 14, 1902.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDWIN T. GREENFIELD, OF MONTICELLO, NEW YORK.

## SCREW-THREADED PIPE, TUBE, OR ROD.

SPECIFICATION forming part of Letters Patent No. 720,580, dated February 17, 1903.

Application filed April 14, 1902. Serial No. 102,850. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN T. GREENFIELD, a citizen of the United States, residing at Monticello, in the county of Sullivan and State of New York, have made a new and useful Invention in Screw-Threaded Pipes, Tubes, or Rods, of which the following is a specification.

There are many places in the arts where it is desirable to use screw-threaded pipes, tubes, or rods of an indefinite length, and as the process of cutting screw-threads upon the exterior surfaces thereof is expensive my invention was devised for constructing such a pipe, tube, or rod as could be produced at a minimum expense. I have arrived at this result by the construction of a pipe, tube, or rod having a screw-thread brazed upon its outer surface.

My invention has for its objects, first, to construct a screw-threaded pipe or tube in which the threads are integrally secured to the outer surface of the same and have the fiber or grain of the metal thereof located in the direction of their length; second, to construct a screw-threaded pipe or tube in which the body part of the pipe or tube proper shall be as light or thin as possible and in which the method of forming the screw-threads upon the exterior surface thereof shall not weaken the pipe, but shall materially strengthen it.

For a full and clear understanding of my invention, such as will enable others skilled in the art to construct and use the same, reference is had to the accompanying drawings and following specification, the especial points of novelty being particularly pointed out in the claims at the end thereof.

Figure 1 is a side elevational view of a short section of pipe, tube, or rod constructed in accordance with my invention, the central portion thereof being broken away and shown in section for the purpose of more fully illustrating the manner in which the threads are secured to the exterior surface of the pipe and to each other. Fig. 2 is a short sectional view of a completed screw-threaded pipe, tube, or rod having the screw-threads secured thereto in a manner hereinafter described. Fig. 3 is an end view as seen looking at Fig. 1 from right to left.

Referring now to the drawings in detail, in all of which like letters of reference repre-

sent like parts wherever used, P represents an iron or Bessemer steel skelp or tube drawn in the usual way, with a seam or slit S at one side, and placed, before being subjected to my process, in a pickling-bath, preferably of dilute sulfuric acid, for removing all extraneous matter.

T represents a metal thread, which is made preferably of wire and of the conformation shown by drawing it through a die in such manner as to give to its outer surface the angular or screw-threaded inclinations as shown, at the same time forming within the inner face a groove G of sufficient depth to receive a brazing-wire W of brass, said wire being placed within the groove. The ends of the two are then passed through two openings B at opposite sides of the skelp P, (see Fig. 3,) and the two are then wound around the outer surface thereof, with the lateral edges of the thread T resting snugly against each other, being careful to put sufficient tension upon the two, so as to cause them to effectually bind or inclose the wire W within the groove G and between the thread T and the outer surface of the skelp P, finally securing the completed end of the thread T and wire W in a second pair of openings B at the opposite end of the completed tube. The thread T and its inclosed wire W are thus tightly wound upon the skelp P at any desired pitch and to any desired length. As the two wires are being thus wound upon the outer surface of the tube or skelp P they are passed through or subjected to a liquid flux, such as borax in solution, so that this flux in sufficient quantity adheres to them and the skelp for effecting the proper union of the combined metals when heated. The completed article is then placed in a furnace, where it is heated to a white heat or to such a temperature as will cause the brazing-wire W to fuse and thoroughly unite the inner faces of the screw-thread T to the pipe or skelp P and the lateral faces of said screw-threads to each other when allowed to cool, there being sufficient brazing material, as I have found in practice, to also effectually braze together the edges of the pipe or skelp P at the seam or slit S. The completed pipe or tube is illustrated in Fig. 2. By thus constructing a screw-threaded pipe or tube I am enabled to make

the body part thereof of very thin metal—in fact, much thinner than it is possible to make pipes or tubes where the thread is cut thereon by the well-known methods, in which the cutting of the thread materially weakens the lateral strength of the pipe. With tubes made in the manner hereinbefore described by winding a thread laterally thereon with the fiber or grain of the thread in the direction of its length and securing the same integrally to the metal body I am enabled to strengthen the entire structure, thereby furnishing a very thin tube to which the threads give increased strength by reason of their binding action and their union with the body of the tube, to which they are integrally secured. These screw-threaded pipes or tubes may be made in any preferred length and after they are completed in the manner disclosed may be used in such lengths or may be cut up into short or sectional lengths and used by the trade. Such pipes or tubes have an especial utility in connection with interior or house conduits for electric wires, where it is found necessary often to vary the length of the tubes in accordance with the demands of the building where they are to be used.

It is obvious that the screw-threads T may be secured to the exterior surface of a cylindrical or any other shaped tube or rod, if preferred, and my claims hereinafter are designed to include all such structures, the essential novelty of my invention being an article of manufacture in the nature of a screw-threaded pipe, tube, or rod in which the screw-threads are secured to the exterior surface thereof and to each other by brazing.

I am not aware that any one has heretofore been enabled to construct a screw-threaded pipe, tube, or rod in which the screw-threads are secured thereto by brazing, owing to the fact that heretofore it has not been possible to hold the brazing material in place between the thread and the pipe during the process of heating.

I believe it is broadly new with me to construct a screw-threaded pipe, tube, or rod in which the screw-threads are secured thereto by brazing material which thoroughly unites the threads to the pipe and to each other, and my claims are generic as to this feature. I believe it is also broadly new with me to construct a pipe or tube of thin metal and to integrally attach a metal screw-thread on the outer surface thereof, the fiber of which thread lies or is located in the direction of the length thereof, and my claims are generic as

to this feature without any relation to the manner or means of effecting the integral union between said parts.

I make no claim hereinafter to the method of effecting the result above described, as this feature constitutes the subject-matter of a separate application filed by me in the United States Patent Office of even date herewith and bearing Serial No. 102,849.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. As an article of manufacture a pipe, tube, or rod having a screw-thread integrally secured to its exterior surface, the fiber or grain of said thread lying or being located in the direction of its length, substantially as described.

2. As an article of manufacture a pipe, tube, or rod, having a thread secured thereto by a mass of brazing metal, substantially as described.

3. As an article of manufacture a pipe, tube, or rod having a screw-thread secured to its exterior surface, consisting of a strip or wire of the desired cross-section, configuration, or shape and united to said surface by a mass of brazing metal, substantially as described.

4. As an article of manufacture a pipe, tube, or rod having a screw-thread secured to its outer surface by a mass of brazing metal which unites the thread to the pipe, tube, or rod and the individual spiral windings thereof to each other, substantially as described.

5. As an article of manufacture a pipe, tube, or rod having a screw-thread on its exterior surface, consisting of a spirally-wound metal strip and a mass of brazing metal which unites the individual windings of the strip to the pipe, tube, or rod and to each other, substantially as described.

6. As an article of manufacture a pipe, tube, or rod having a screw-thread on its exterior surface in the nature of a wire or strip of the desired cross-section and configuration or shape, and a groove in the face next the surface of the pipe, tube, or rod, the spirals of said thread being united to the pipe, tube, or rod and to each other by a mass of brazing metal, substantially as described.

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

EDWIN T. GREENFIELD.

Witnesses:

C. J. KINTNER,  
M. F. KEATING.