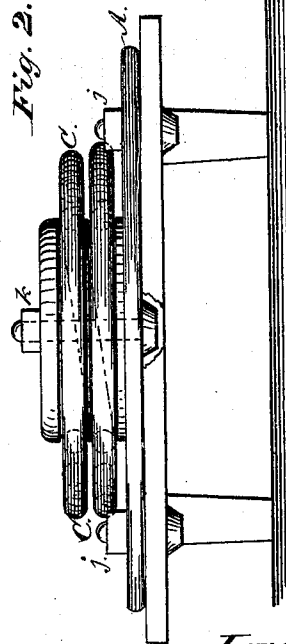
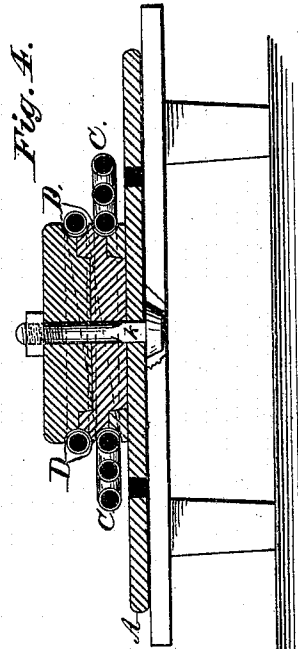
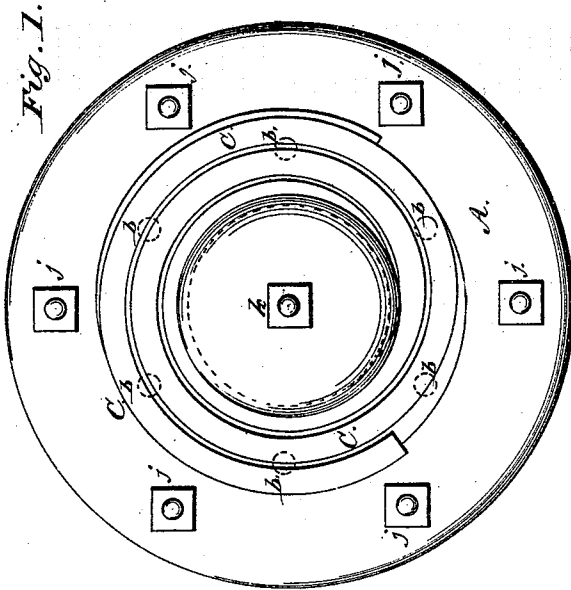
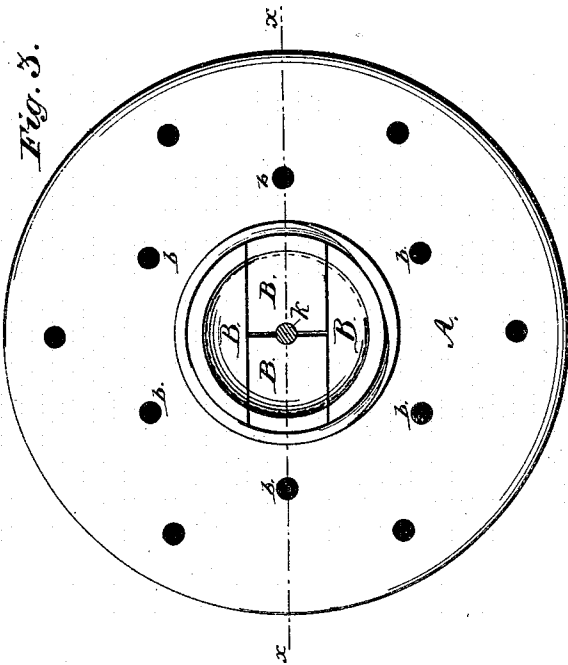


E. C. HUBBARD.

MANUFACTURE OF COILED METALLIC PIPE.

No. 179,856.

Patented July 18, 1876.



Witnesses:

Geo. C. Sullivan
A. S. Coleman

Inventor:

E. C. Hubbard

UNITED STATES PATENT OFFICE.

ERWIN C. HUBBARD, OF MARSHFIELD, MISSOURI.

IMPROVEMENT IN THE MANUFACTURE OF COILED METALLIC PIPES.

Specification forming part of Letters Patent No. **179,856**, dated July 18, 1876; application filed June 20, 1876.

To all whom it may concern:

Be it known that I, ERWIN C. HUBBARD, of Marshfield, Webster county, Missouri, have invented a new and useful Device for Coiling Metal Pipes, of which the following is a full and particular description, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a plan view of the coiling-hub, with the coil in place; Fig. 2, a side elevation of the same; Fig. 3, a plan view of the coiling-hub, with the coil removed, showing the sectional blocks; and Fig. 4, a section on line *xx*, showing the grooves of the hub with the coil inserted.

A represents the base-plate of the hub, in which are holes *b*, for inserting pins to hold the pipe in place. B represents removable sections of the hub. C is the coil in place on the hub. D represents the grooves in the hub. *k* is a bolt, passing through the hub sections. *jj* are bolts, for securing the base-plate of the hub to any solid foundation.

This machine or device is for bending metal pipes of any required diameter into right and left coils; and the operation is as follows: The hub-sections are first firmly secured together by the bolt *k*. The pipe is then placed across the base-plate near the middle of its length, and inserted in the lower groove. It is then carried nearly one turn around. It then rises through a channel between the grooves into the upper groove, and one full turn is taken around the hub in the upper groove. The end of the upper coil is then secured by inserting a pin in one of the holes *b* in the base-plate. The lower coil is then turned to completion, and when completed and resting upon the base-plate, serves as a base upon which to complete the upper coil.

In order to remove the pipe when thus formed into a right and left flat coil, the bolt which holds the hub in place is removed, and, by displacing the middle section of the hub, which is in four pieces, the coil is readily taken off.

This invention consists not only in the device for bending metal pipes in the peculiar

form described, but also in the product, which is a right and left double flat coil.

Coiled pipes are in use for various purposes, and they have been constructed in flat and cylindrical forms; but heretofore great difficulty and expense have been encountered in producing flat coils for the want of a device with which to bend them into true and perfect form, nor has it heretofore been attempted to produce a right and left double flat coil.

By the use of this device metal pipes can be bent with comparatively little expense, and in the forms best adapted for any of the purposes known in the utilization of steam and water.

The second part or product of my invention consists in the double flat coil. The uses of coiled pipe are for condensing and generating steam, for heating feed-water for boilers, and for radiating purposes. My double or right and left coil is designed for these and all similar purposes, and the advantages of constructing it in this form are the economy of space, and the large extent of heating, condensing, generating, or radiating surface produced. In using it for generating and condensing, any number of the double coils may be employed, the sections being joined by proper connections.

Hitherto metal pipe has been bent in spiral or cylindrical forms by the usual methods; but flat coils have only been produced by heating and bending, and then only in single form and at great expense; whereas, my invention gives an entire new form, with the advantages named, and by an expeditious and economical process.

Having described my invention I claim—

1. A coil-bending machine, consisting of the base-plate A, grooved sectional hub D, with its removable sections B and fastening-bolt *k*, all as shown and described.
2. The right and left double flat coiled metal pipe, as shown and described.

E. C. HUBBARD.

Witnesses:

GEO. C. MULLIKEN,
A. S. COLEMAN.