

(No Model.)

C. L. HART.
METHOD OF MAKING SPIRALLY SEAMED PIPE.

No. 435,419.

Patented Sept. 2, 1890.

Fig. 1.

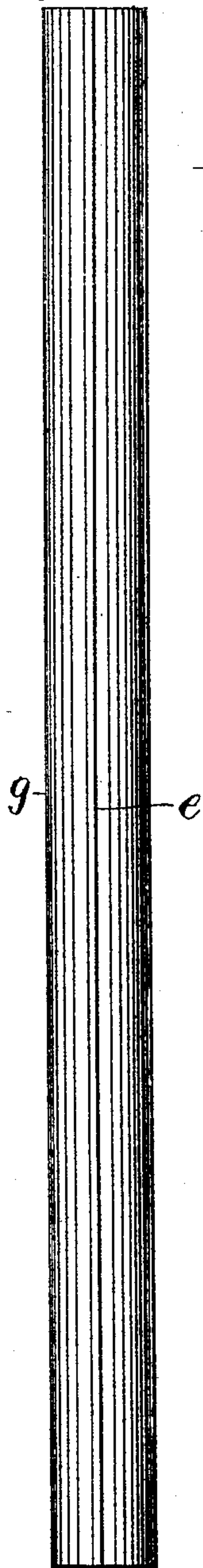


Fig. 2.

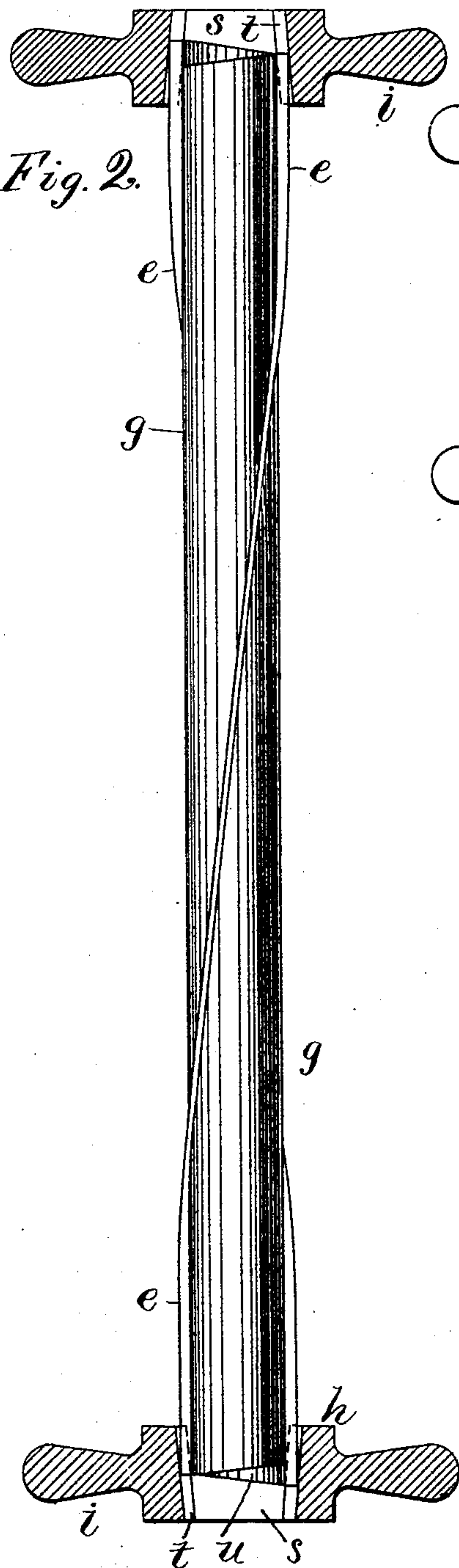


Fig. 3.

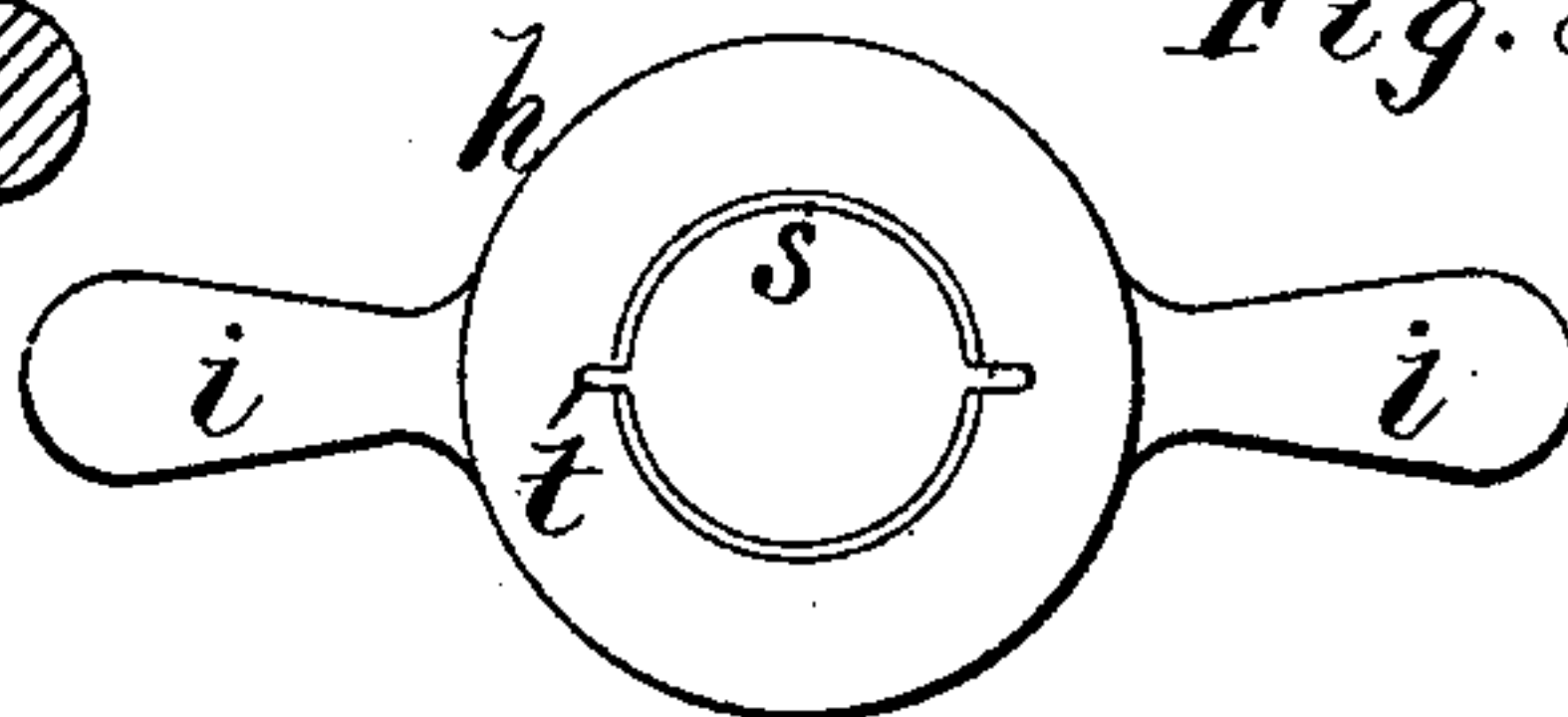


Fig. 4.

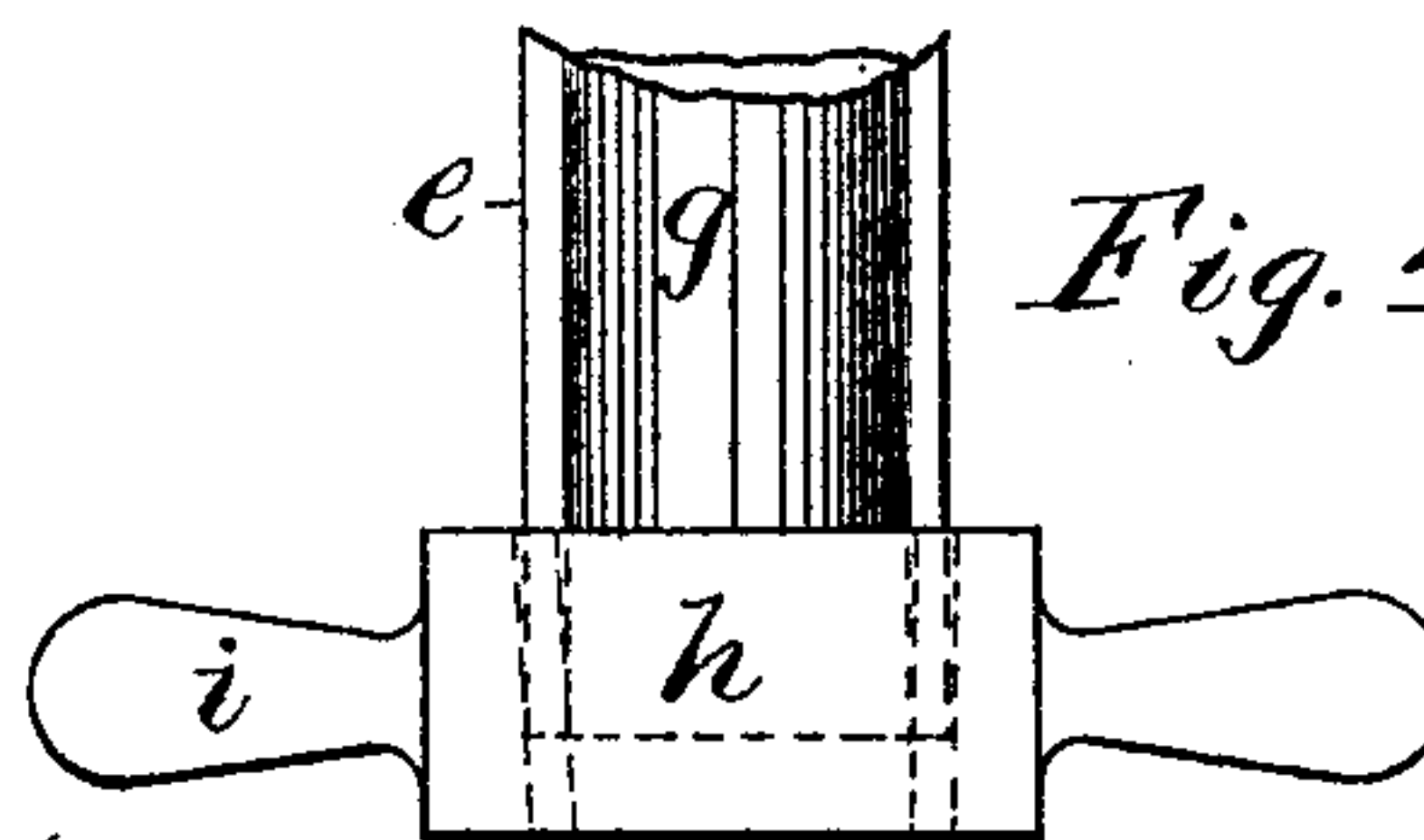


Fig. 5.

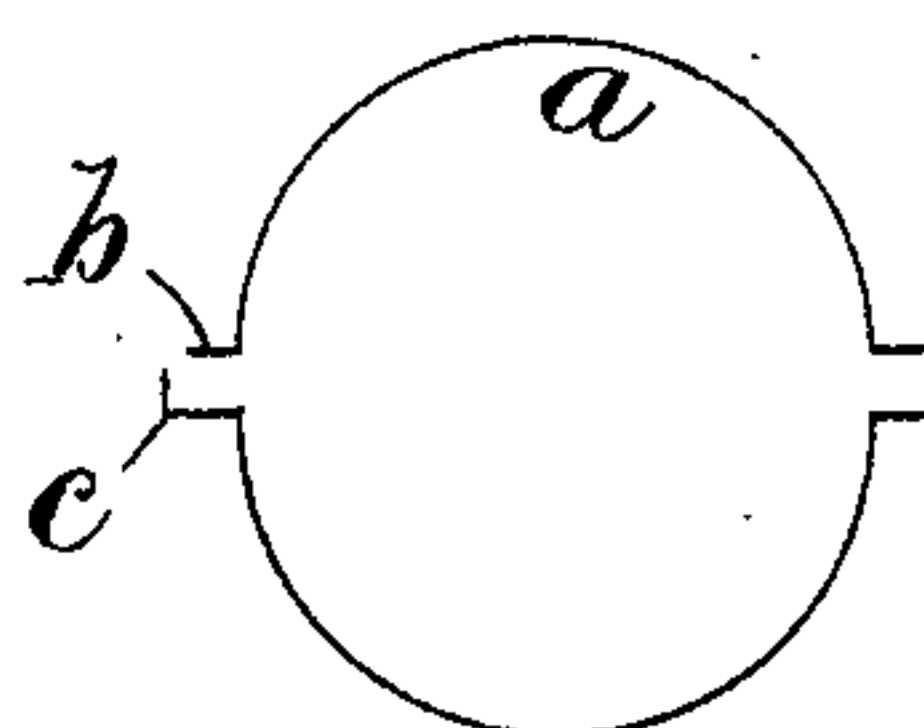


Fig. 6.

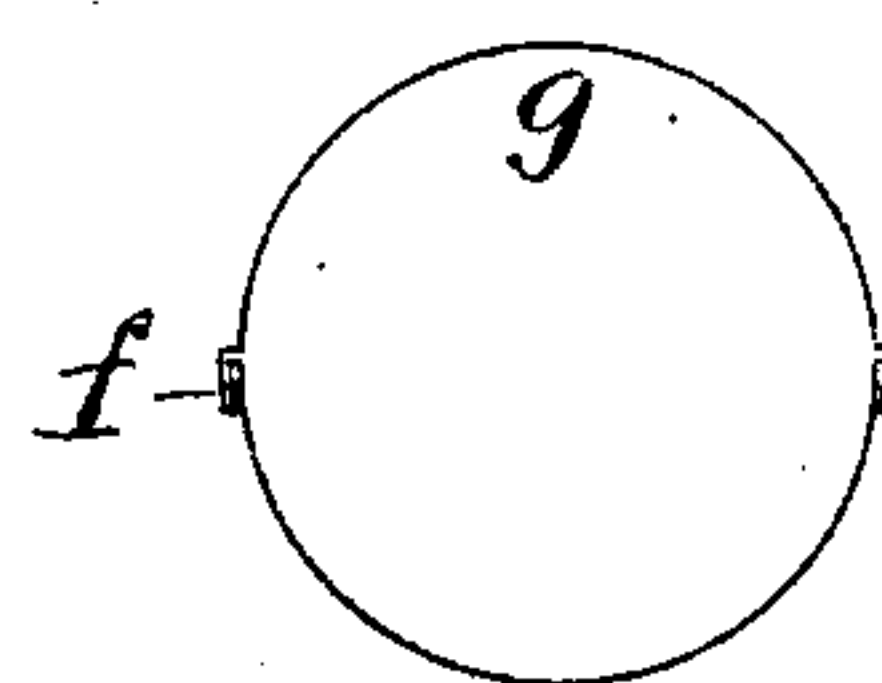
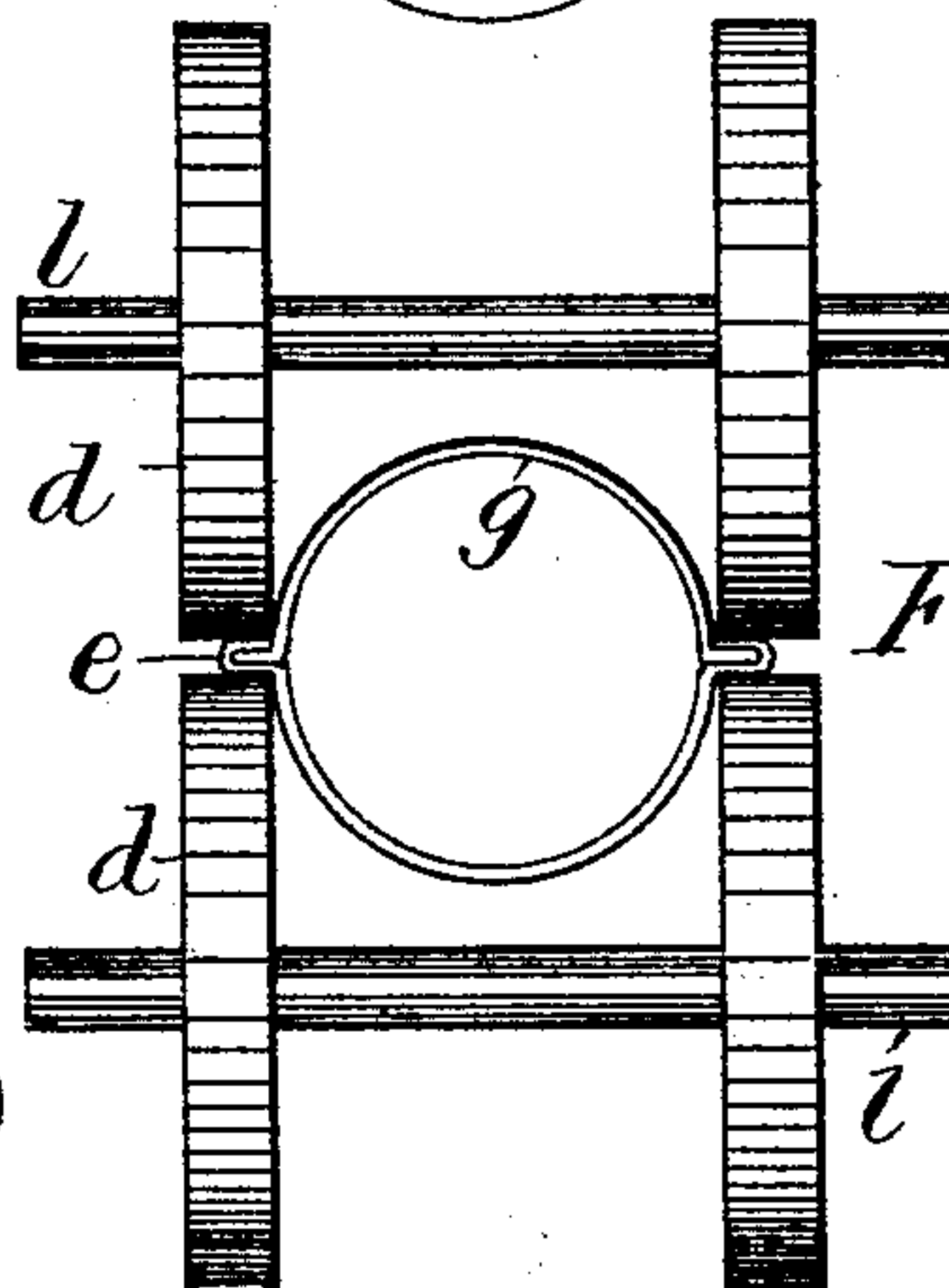


Fig. 7.



Attest:
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C. L. Hart, per
Crane & Miller, Atty.

UNITED STATES PATENT OFFICE.

CHARLES L. HART, OF BROOKLYN, NEW YORK.

METHOD OF MAKING SPIRALLY-SEAMED PIPE.

SPECIFICATION forming part of Letters Patent No. 435,419, dated September 2, 1890.

Application filed August 14, 1889. Serial No. 320,719. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. HART, a citizen of the United States, residing at Brooklyn, Kings county, New York, have invented certain new and useful Improvements in the Process of Making Spirally-Seamed Pipes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The invention consists in forming a pipe with two or more straight longitudinal seams and then twisting the pipe to twist the seams in a spiral direction around the pipe. The processes require that the pipe shall be first formed with straight longitudinal seams, so constructed as to slip longitudinally in the twisting operation, and the seams being, if desired, subsequently closed more tightly, either to hold the sections in their twisted position or to make the seam-joint proof against leakage.

This invention will be understood by reference to the annexed drawings, in which—

Figure 1 represents a section of pipe with straight longitudinal seams prepared for twisting. Fig. 2 represents the pipe twisted, with the twisting-dies in section at the opposite ends of the pipe. Fig. 3 is an end view of one of the twisting-dies constructed to receive standing seams. Fig. 4 is a side view of the same with the end of a pipe fitted thereto. Fig. 5 represents in end view the sections stamped to the form required for seaming. Fig. 6 is an end view of the pipe with the sections united and the seams flattened down, and Fig. 7 is an end view of the pipe with rollers for closing the standing seam.

In Figs. 1 and 2, *g* is the pipe, and *e* a standing seam formed thereon.

Fig. 5 shows a simple method of preparing the pipe-sections *a*, two of which are shown embracing each one-half the circumference of the pipe and provided each at their opposite edges with straight flanges *b* and bent flanges *c*, adapted, when pressed together, to form a standing seam between the rolls *d*, as shown in Fig. 7. The flanges may also be bent to form a double seam, if desired, and may be left standing radially, as shown at *e* in Figs. 2 and 7, or flattened down upon the pipe *g*, as shown at *f* in Fig. 6.

h represents a die having opposite handles *i*, and formed with a tapering socket *s*, adapted to fit the end of the pipe, and with grooves *t* to receive the seams *e*.

Fig. 2 shows the pipe twisted by the application of such dies to its opposite ends, the seam being bent spirally around the pipe through an arc of one hundred and eighty degrees, and the ends of the sections being thus inclined to the axis of the pipe in the same degree as the seam. Such twisting causes a longitudinal slipping of one section upon the other at the seam, as indicated by a projection *u*, of one section beyond the other at its end, and the seams are therefore preferably closed only in such degree as to hold the sections together before the seaming operation. The sections may then be closed by any convenient means, as by the rolls *d*, (shown in Fig. 7,) the axles *l* of which would be mounted in suitable bearings and adjusted to press the rolls upon the opposite sides of the seam with the required force.

I have found by experience that when the sections are twisted the metal of the longitudinal sections is disposed in a spiral form around the pipe and retains its spiral position without reference to the closing of the seams. It is obvious that the spirally-twisted seams at one end of the pipe may be inserted between the rolls and closed tightly upon one another without any hinderance from the spiral form of the seams by allowing the pipe to rotate as the rolls revolve.

As my present invention is a process, other means may be used for twisting the pipes and closing the seams, and I do not therefore limit myself to the particular means shown herein.

As many different devices are used for grasping sheet metal, it is obvious that the ends of the pipes may be seized and rotated to twist the seams without engaging the projections which are formed upon the pipe by the seams, and which are shown herein as the means for engaging the die *h*.

The lengths of spirally-twisted pipe may be squared off at the ends and fitted in any suitable manner for joining the lengths together; but such devices are not shown herein, as I have filed a separate application for the article produced by my process.

I hereby disclaim the process of forming a

sheet-metal pipe by uniting the opposite edges of a sheet-metal blank by a straight longitudinal seam and twisting the same to give the seam a spiral form, as the same is claimed
5 generically in a patent application of James White, filed simultaneously herewith.

Having thus set forth my invention, what I claim herein is—

1. The process of making spirally-seamed
10 pipes, which consists in first forming pipe with two or more straight longitudinal seams and then twisting the pipe, substantially as herein set forth.

2. The process of making spirally-seamed
15 pipes, which consists in first forming pipe with two or more straight longitudinal seams, partially closing the seams, then twisting the pipe, and then closing the seams finally to retain the pipe in its twisted position, sub-
20 stantially as set forth.

3. The process of making spirally-seamed pipes, which consists in first forming two or more longitudinal concavo-convex sections with projecting flanges upon the edges there-

of, folding the flanges to form longitudinal
25 seams, partially closing such seams to hold the sections in place, twisting the pipe, and then closing the seams in a radial position to form a projecting ornamental rib, substan-
30 tially as herein set forth.

4. The process of making spirally-seamed pipes, which consists, first, in forming pipe with two or more straight longitudinal stand-
35 ing seams; secondly, partially closing such seams to hold the longitudinal pipe-sections in place; thirdly, grasping the pipe at the ends by means of such standing seams and twisting the pipe, and, fourthly, closing the seams to hold the sections in position, sub-
40 stantially as herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES L. HART.

Witnesses:

FREDK. M. HILTON,
A. O. KITTREDGE.