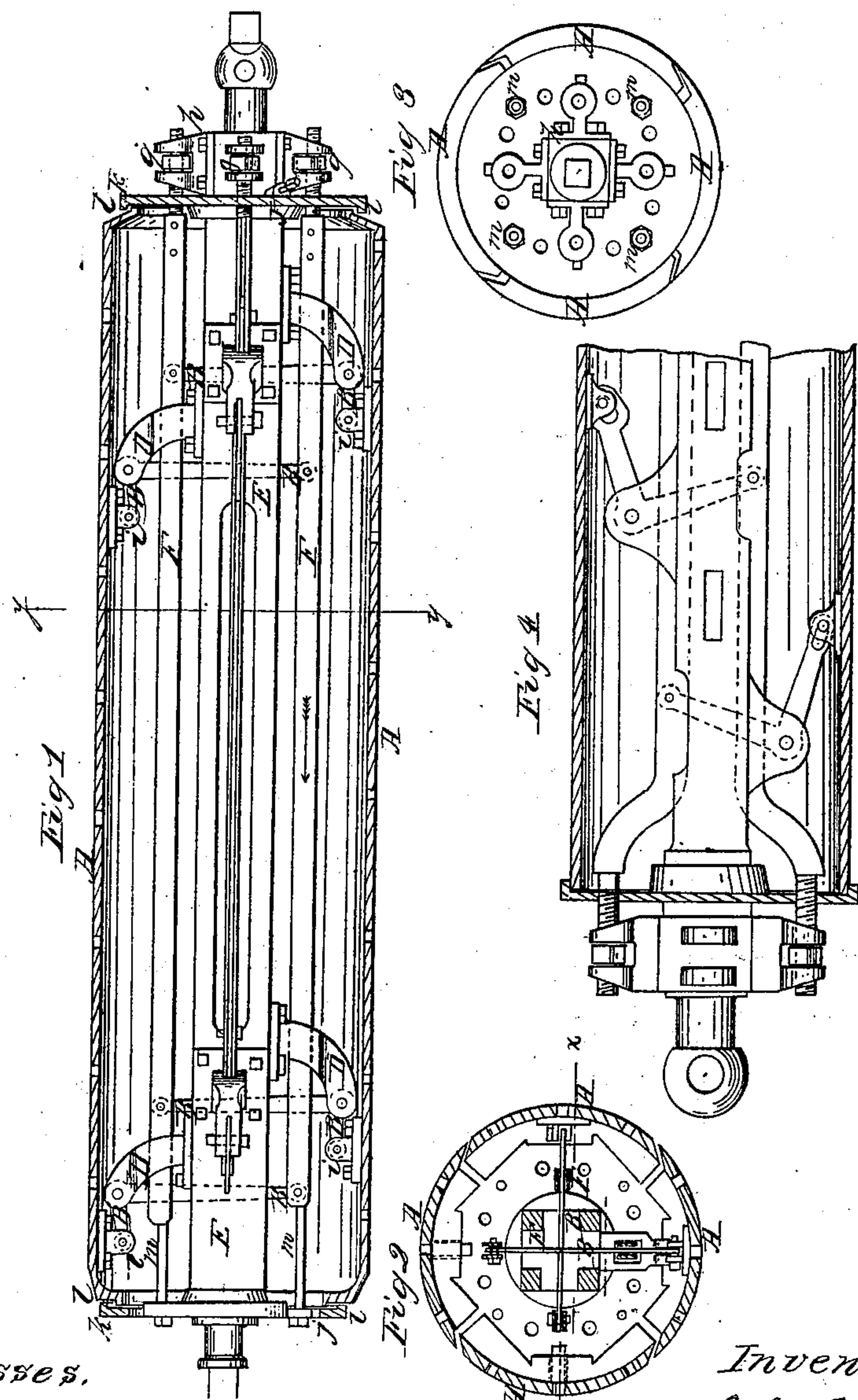


*J. Enright,
Casting Pipe.*

N^o 82,931.

Patented Oct. 13, 1868.



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UNITED STATES PATENT OFFICE.

JOHN ENRIGHT, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO HIMSELF,
WILLIAM WALL, AND THOMAS ENRIGHT, OF SAME PLACE.

IMPROVEMENT IN CORE-BARS FOR CASTING PIPES.

Specification forming part of Letters Patent No. **82,931**, dated October 13, 1868.

To all whom it may concern:

Be it known that I, JOHN ENRIGHT, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in Cast Pipe Cores; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to the construction of cores used in iron-foundries in the manufacture of cast-iron pipe; and it consists in forming the core of iron or other metal, and in such a manner that the core is made so as to be expanded and contracted, and therefore adapted to the purpose, as will be hereinafter described.

Figure 1 represents a longitudinal section of a core constructed according to my invention, the section being through the line *x x* of Fig. 2. Fig. 2 is a cross-section of Fig. 1 through the line *y y*. Fig. 3 is an end view. Fig. 4 represents a modification of the core as adapted to small pipe.

Similar letters of reference indicate corresponding parts.

In casting iron pipe for conducting water and for other purposes, a perforated iron shell or cylinder is usually employed, which is wound with hay rope, thereby forming an elastic body on the cylinder, which elastic body is covered with the properly-prepared clay. The core-shell rests on central bearings, so that it may be readily revolved by cranks on the ends of the journals, and the clay thus put on the elastic body is turned or scraped off with a "straight-edge" by revolving the core until the core is made straight and true and of the proper diameter. This operation, or a similar one, is well understood in all iron-foundries; but this method of forming the core involves a large amount of labor and much expense for material. Besides, the core, when thus formed, is very imperfect in itself, as the elastic surface is frequently insufficient to withstand the pressure of the melted metal at certain points. Consequently the interior surface or "bore" of the cast pipe is rough and uneven.

My object in this improvement is to present

a more solid substance to the metal than the hay rope, one much better adapted to the purpose, and one by which the labor and expense of forming the hay-rope body for every pipe cast are avoided; for when one of the collapsible metal cores is formed according to my plan, or in any similar manner, so that a metallic surface instead of a hay surface is presented for the exterior clay coating, it becomes a complete core-bar, at all times ready, and perfectly adapted to the purpose intended.

In carrying out my invention, I form a cylinder of longitudinal segments *A*, of roughened exterior surface, so that the clay or mud of the outer coating will readily adhere, and with perforations for the escape of gases, and with hand-holes to allow of the proper adjustment of the levers within the cylinder. These segments are lapped together at their edges, and their inner surfaces are connected with the short ends of bent levers *B*. These levers have their fulcrum on brackets *D*, which are rigidly attached to the central core-shaft *E*.

The long ends of the bent levers *B* are attached to movable longitudinal bars *F*; and it will be seen that the levers pass directly through the central core-shaft *E*, which is made hollow and slotted for the purpose.

The bars *F* extend entirely through the core at one end, where they are made movable and adjustable by a screw thread and nut, *g*, in a spider, *h*, which spider has double arms, as distinctly seen in Fig. 1. There are four of these bars, the other ends being attached to the long ends of the levers *B*.

It will be seen from the drawing that by turning the screw-nuts *g* between the double arms of the spider *h* the segments *A* will be expanded or contracted. It is this action of the levers on the segments through the movable bars *F* which adapts the metallic surface core to the purpose designed.

When the cylinder is prepared for the exterior clay coating, the segments are expanded or thrown out by turning the nuts *g* so as to move the bars *F* in the direction of the arrow. In this position the segments are rigidly held, so that the pressure of the fluid iron will not affect them. When the iron begins to set or cool on the surface of the cylinder, the nuts

are turned the other way, so that the bars are moved in an opposite direction, and the segments are consequently drawn inward and the core-cylinder contracted, thereby allowing the iron pipe to shrink or contract in cooling.

There are two sets or systems of the bent levers, one near each end, as seen in the drawing. The short ends are attached to lugs on the inner sides of the segments, as seen at *i*. This connection, as well as that with the fulcrum D and bar F, forms pivot-joints, so that the lever plays freely each way.

J represents the heads of the core, which have inside lips or flanges *k*, which inclose the ends of the segments, as seen at *l* in the drawing.

In the end view, Fig. 3, the form of the spider *h* is seen. As represented in the drawing, this spider is formed in sections, which are attached to the four sides of the central core-shaft E by bolts or screws; but it may be cast in a single piece and fitted to the shaft, if desired.

m represents rods which run longitudinally through the core, with nuts, or with a head and nut, at the ends, outside of the heads J, for holding the heads in place.

In the modification shown in Fig. 4 the core-cylinder is adapted to pipe of less diameter, but with the bent levers operating upon the segments through the action of screw-nuts and double arms, the effect, as well as the principle involved, being the same in both cases.

I claim as new and desire to secure by Letters Patent—

The collapsible metallic core rod or cylinder, having four longitudinal segments, A, so constructed and arranged as to be operated independently of each other, as herein shown and described.

JOHN ENRIGHT.

Witnesses:

JOS. CLEMENT,

JAS. C. ROBINSON.