S. R. HONEY.

Manufacture of Pipe-Encased Telegraph-Wire.

No. 158,086. Patented Dec. 22, 1874.

Fig. 1.

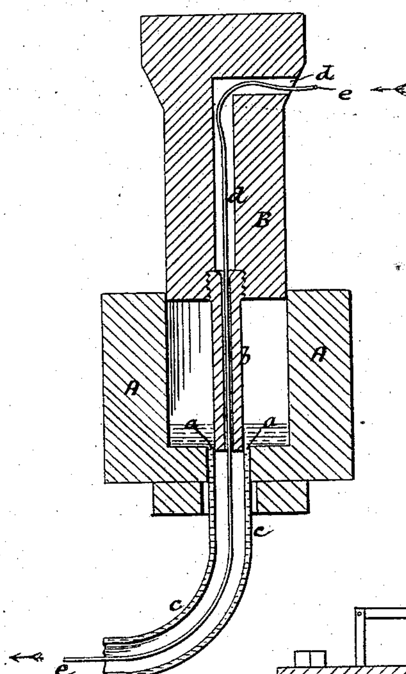


Fig. 2.

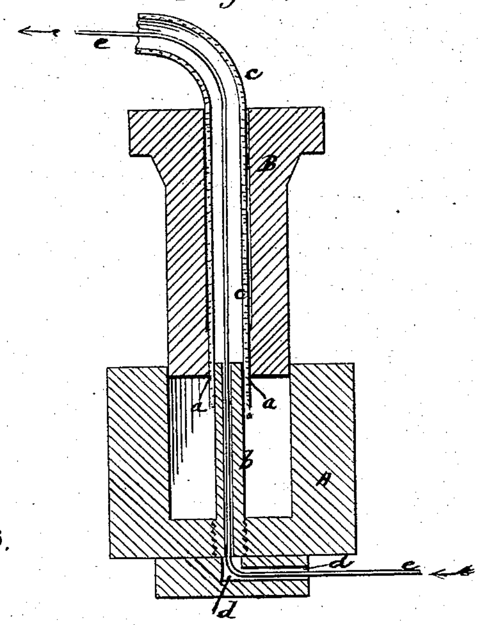
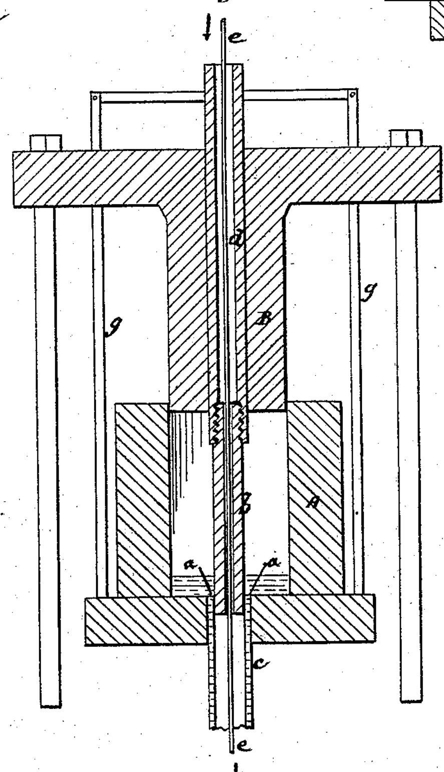


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

SAMUEL R. HONEY, OF NEWPORT, RHODE ISLAND.

IMPROVEMENT IN THE MANUFACTURE OF PIPE-INCASED TELEGRAPH-WIRE.

Specification forming part of Letters Patent No. **158,086**, dated December 22, 1874; application filed November 9, 1874.

To all whom it may concern:

Be it known that I, SAMUEL R. HONEY, of Newport, Rhode Island, have invented certain new and useful Improvements in the Production of Pipe-Incased Wire for Telegraphic and other Purposes, of which the following is a specification:

My invention is designed with a view of incasing, in a speedy and economical way, wire in a pipe of lead or other ductile metal or alloy. To this end I introduce the wire into the pipe simultaneously with the manufacture of the latter, it being understood that the wire is loose in the pipe. This result I accomplish by passing the wire axially through the core of the ordinary pipe-press, which core is made tubular for the purpose, so that said wire will pass out from that end of the core around which the pipe passes as it is formed and emerges from the press. The end of the wire thus projected from the core is attached to the same drum upon which the pipe is wound, so that the operation of rotating the drum, which moves to take up the pipe in proportion as it is projected from the press, will draw the wire through the core and along with the pipe, the result being that the whole length of pipe wound upon the drum will contain a wire loose within it. This method of procedure enables me expeditiously and economically to effect an operation which otherwise, and especially in the case of a pipe of long length, would be most difficult of accomplishment, if not, indeed, impossible.

In the accompanying drawing I have, for the purpose of a better understanding of my invention, represented apparatus that may conveniently be used in carrying the same into effect.

Figure 1 is a diagram representing, in vertical central section, the principal parts of one form of pipe-press, which is of ordinary construction, except as regards the hollow core.

A is the cylinder; *a*, the die-opening in the bottom of the cylinder; B, the ram or plunger, and *b* the core fixed to and moving with the ram. The free end of the core, when the ram is in its normal elevated position, just enters or passes through the die-opening, leaving between the walls of the die and the core an annular space of a width corresponding to the thickness desired to be given to the walls of the pipe. The descent of the ram upon the charge of lead or other ductile metal or alloy in the cylinder will force said metal out from the die-opening in the form of a pipe, *c*, as is well known to lead-pipe manufacturers.

To carry out my invention I make the core tubular, as seen, this opening being continued up through and out at one side of the ram, as shown at *d*. The wire *e* to be incased is passed through the passage *d*, down through the core, from the lower end of which it emerges. This is done before the press is put in motion to make the pipe, and the end of the wire projecting from the lower end of the core is attached to the drum or other device upon which the pipe is coiled or wound as it emerges from the press. When, therefore, the press is put in operation to make the pipe, and the pipe thus made is wound upon the drum, the rotary movement of the latter will draw along the wire which is fed in through the passage *d*, so that the wire will be introduced loosely into the pipe simultaneously with the manufacture of the latter, and, no matter what the length of the pipe may be, the wire will extend continuously through it from end to end.

Fig. 2 represents a like section of another known form of pipe-press, in which the core *b* is fixed to the bottom of the cylinder, and the die-opening is formed in the movable ram or plunger B. In this instance the passage *d* for the wire leads from the tubular plunger laterally out from the bottom of the cylinder.

Fig. 3 is a like section of still another known form of press, in which the ram B is stationary, the core *b* is fixed to the ram, and the cylinder A is movable up and down, being guided in its movements by guide-rods *g* passing through the cross-head that supports the ram. The wire-passage *d* in this case is shown as extending vertically up through the ram.

The wire, when used for telegraphic or electric purposes, can be insulated, coated, or protected by suitable means before it is fed into the pipe. When the wire is to be used for other purposes—for instance, for bell-wire—such insulation will not be necessary.

I have specified particularly lead as the material for the pipe; but I wish it understood that any other of the ductile metals or

alloys, or, indeed, any other material, as gutta-percha, suitable to be made into pipe, may be employed, in which pipe, of whatever material, the wire by my method will be loosely contained.

The particular feature in the pipe-making apparatus is the passage leading from the exterior of the apparatus through the core, and terminating at the free end of the latter, so that the material fed through this passage may pass out from the core into the space inclosed by the pipe as it emerges from the die-opening in the press. This passage may, indeed, be useful for other purposes—for instance, for injecting oxidizing-gases into the pipe, or for introduction of a cooling stream of water.

I do not broadly claim wire loosely incased in pipe; but

What I claim, and desire to secure by Letters Patent, is—

1. The herein-described manufacture of pipe-incased wire—that is to say, pressing out the pipe through the die of a pipe-press, and introducing the wire through the core of the press loosely within the pipe simultaneously and progressively with the formation of the latter, in the manner and by the means substantially as shown and set forth.

2. In the apparatus of the kind herein referred to, the passage *d*, leading from the exterior of the apparatus through the core, and terminating at the free or outer end of the latter, substantially as shown and described.

In testimony whereof I have hereunto signed my name this 28th day of October, A. D. 1874.

SAML. R. HONEY.

Witnesses:
JOHN B. COZZENS,
CHARLES N. TILLEY.