

(No Model.)

T. J. YOUNG.

CONDUIT FOR UNDERGROUND PIPES.

No. 384,948.

Patented June 19, 1888.

Fig. 1.

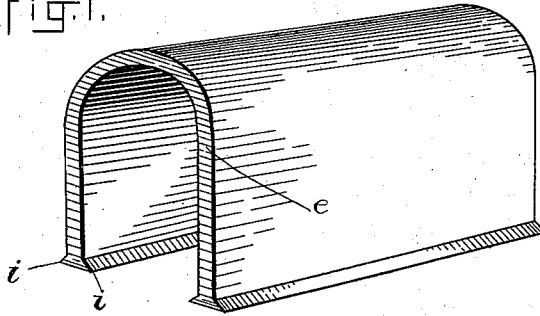


Fig. 5.

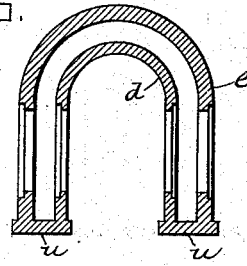


Fig. 2.

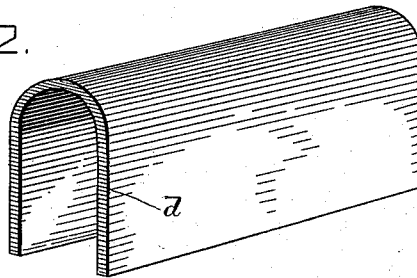


Fig. 3.

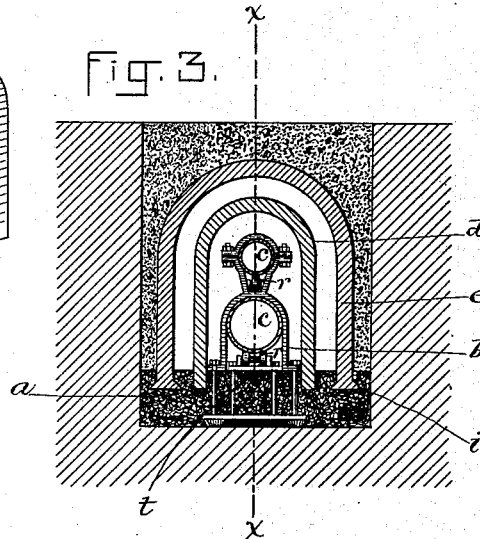
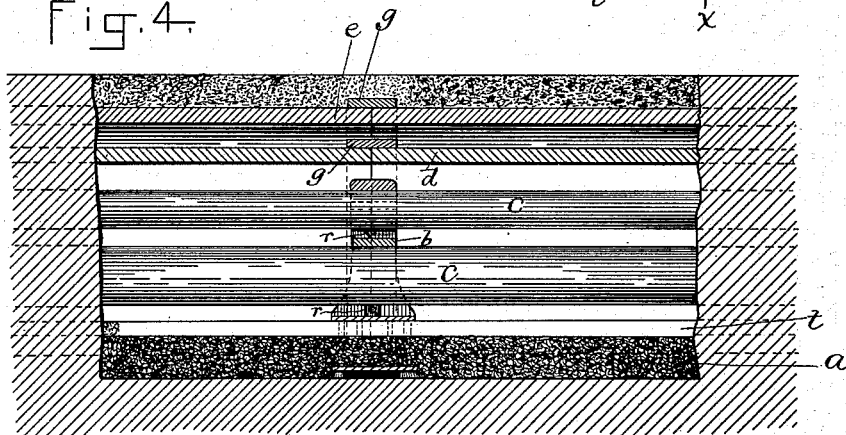


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

THOMAS J. YOUNG, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, C. L. PERRIN, AND MARK WILMARTH, ALL OF SAME PLACE.

CONDUIT FOR UNDERGROUND PIPES.

SPECIFICATION forming part of Letters Patent No. 384,948, dated June 19, 1888.

Application filed February 23, 1888. Serial No. 264,920. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. YOUNG, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Conduits for Underground Pipes, of which the following is a specification.

This invention has for its object to provide an improved conduit for pipes laid underground for the purpose of conveying hot water or steam.

The invention consists in a casing composed of a bed or base of a suitable plastic material which hardens quickly—such as cement or ordinary paving concrete—laid at the bottom of a trench, and two series of arched covers or casing-sections supported by said bed and placed end to end to form a continuous inner and outer casing separated by an air-space, the inner casing being of suitable size to receive the pipe or pipes which the casings are designed to protect. The brackets which support the pipes are embedded in the bed and firmly supported thereby against longitudinal strain exerted on them by the pipes.

Of the accompanying drawings, forming part of this specification, Figure 1 represents a perspective view of one of the sections of the outer casing. Fig. 2 represents a perspective view of one of the sections of the inner casing. Fig. 3 represents a transverse section of the entire casing and the pipes therein. Fig. 4 represents a longitudinal section on line *x x*, Fig. 3. Fig. 5 represents a sectional view of a modification.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I form in the bottom of a trench dug in the ground a bed or base, *a*, of any suitable cement or concrete, or other plastic material which becomes hard after being laid. The supporting brackets or frames *b* for the pipes, *c c*, to be protected are embedded in said bed or base, as shown in Figs. 3 and 4, and are thus firmly supported so that they will resist longitudinal pressure caused by the expansion and contraction of the pipes, the latter resting on rollers *r r* in said brackets or frames. A groove or drain,

t, is formed in the bed under the pipes for the purpose of carrying off water that may accumulate upon the bed *a* from any source. The pipes being in place over the bed *a*, I place over said pipes a series of sections, *d*, of inverted-U shape, the edges of said sections being embedded in the bed or base *a* while the latter is in a plastic condition. The sections *d* are placed end to end to form a continuous casing, and the joints of their ends are preferably covered by joint-protectors *g*, of suitable form, or made with regular socket ends, as in the case of sewer-pipes. Over the sections *d* I then place a series of casing-sections, *e*, formed like the sections *d*, but of larger size, so that when the lower edges of the sections *e* are embedded in the bed or base *a* an air-space, *s*, will exist between the inner and outer casings. The joints of the outer casing thus formed are also covered by joint-protectors *g*.

The casing-sections may be made of any suitable material which can be molded into the form shown and subsequently made suitably hard and strong by firing, or by the chemical change known as "setting," in case the sections are composed wholly or in part of cement. Fire-clay, terra-cotta, terra-cotta wood, a mixture of cement, sand, and water, and the material of which agricultural drain-pipe is made may be specified as suitable materials for the casing-sections of my invention, although I do not limit myself to these materials.

After the outer casing-sections are in place the trench may be filled in, the outer casing supporting the weight of the superincumbent earth.

It will be seen that the casing composed of the cement bed and the arched sections laid upon said bed and held in place laterally thereby may be very rapidly constructed, and constitutes an efficient and economical substitute for arches of brick.

I do not limit myself to the embedding of the casing-section edges in the bed while the latter is in a plastic condition, as the result will be the same if the sections are laid on the bed after the latter has hardened and then secured by additional cement laid upon the bed and becoming a part thereof.

I prefer to form ribs or flanges *ii* on the edges of the outer casing-sections, so that when said edges are embedded in the bed or base *a* they will be firmly interlocked with the latter.

The casing sections may be connected at their lower edges by webs *u u* of the same material, as shown in Fig. 5, the inner and outer sections being made in practically one piece.

The casing-sections are provided at suitable intervals with side openings to receive house-connections from the main supply-pipe. Said openings are elongated, as shown, to permit the movement of the house-connections caused by the expansion and contraction of the main pipe.

My invention is not limited to arched casings made in molded sections, as here shown, as the concrete bottom having the pipe-brackets embedded in it may be used with brick casings. I greatly prefer the molded sections, however, on account of the cheapness and facility with which they may be laid.

I claim—

1. The combination, with a trench and a pipe or pipes therein, of a bed of concrete or like material and supports for said pipes embedded in said concrete, and arched casings supported by said bed and covering the pipe or pipes.

2. The combination, with a trench and a pipe or pipes therein, of a supporting bed of concrete or like material having a water conducting drain or groove formed in it under said pipes, pipe supporting brackets embedded in said concrete, and arched casings supported by said bed and covering the pipe or pipes.

3. The combination of a trench, a heat-conducting pipe or pipes therein, inner casing-

sections covering said pipes, outer casing-sections covering the inner sections and separated therefrom by an air-space, whereby loss of heat is reduced, said sections being placed end to end, and protectors *g g* for the joints of said sections, as set forth.

4. The improved casing or conduit for underground pipes hereinbefore described, the same consisting of a bed or base formed in the bottom of a trench, and two series of arched casing-sections supported by said bed, one within the other, and separated by an air-space, the inner section containing the pipe or pipes to be protected and the outer section supporting the filling of the trench, as set forth.

5. The improved casing or conduit for underground pipes hereinbefore described, the same consisting of a bed or base of originally plastic material formed in the bottom of a trench, and two series of arched casing-sections having their edges embedded in the material of said bed, said sections being separated by an air space, as set forth.

6. The improved casing or conduit for underground pipes hereinbefore described, composed of the concrete bed, the smaller inner casing-sections having their edges embedded in said bed, and the larger outer sections having flanged edges also embedded in said bed, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 20th day of February, 1888.

THOMAS J. YOUNG.

Witnesses:

CHARLES L. PERRIN,
C. F. BROWN.