

No. 647,904.

Patented Apr. 17, 1900.

E. L. RANSOME.
CONCRETE CONSTRUCTION.

(Application filed Jan. 4, 1900.)

(No Model.)

Fig. 1.

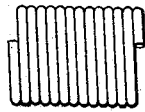


Fig. 2.



Fig. 3.

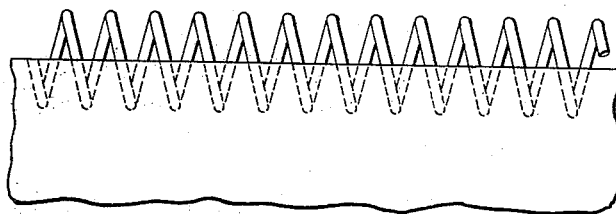


Fig. 4.

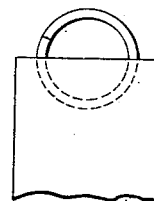


Fig. 5.

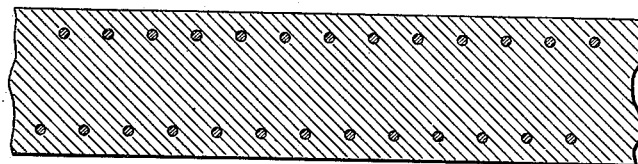
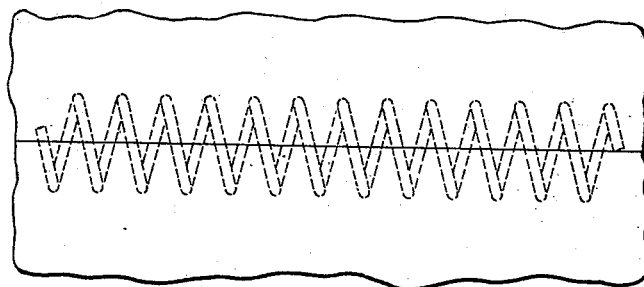


Fig. 6.



Witnesses.
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CONCRETE CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 647,904, dated April 17, 1900.

Application filed January 4, 1900. Serial No. 403. (No model.)

To all whom it may concern:

Be it known that I, ERNEST LESLIE RANSOME, a citizen of the United States, residing at New York, in the State of New York, have
5 invented a new and useful Improvement in Concrete Construction, of which the following is a specification.

My invention relates to concrete joints; and it consists of an improved bond by which
10 fresh and newly-mixed concrete can be joined to that which has become partially or entirely set or hardened in so excellent a manner as to make the joint the strongest part of the mass.

Workers in Portland-cement concrete are well aware of the extreme difficulty of thoroughly bonding new to old concrete. To this end it has been customary to break off the face of the old work before applying the new.
15 This is a costly method, and even then the joint is often faulty.

My invention consists of the use of a coil of wire which is buried longitudinally for about half its diameter in the concrete at the place
25 where the joint is to be made while the concrete is yet soft and unset. After the concrete has wholly or partially set when fresh concrete is subsequently added it embeds within itself the exposed half of the coil, and
30 the joint is completed. Such a joint has, in addition to the adhesion of the concrete, the full tensional strength of the metal employed.

In practice I prefer making the concrete a little softer and richer than usual in the joint-layers. This I do by placing upon the final layer for the time being of the ordinary concrete concrete or grout richer in cement to the depth of about half the diameter of the coil, and in this the coil is embedded. In
40 like manner in restarting the work I prefer commencing with a similar rich grouting of sufficient depth to cover the coil more or less and then proceeding with the ordinary concrete. When these precautions are skillfully
45 observed, the joint becomes the strongest part of the concrete.

For convenience I wind my wire or rod into close coils and then open them out to any desired extent before using. For example, if I
50 was using a coil of one-eighth by one-eighth twisted steel wire having a tensional strength of, say, one-half ton and I required to join a wall three inches wide, the concrete of which

had a cohesive strength of ten tons to the linear foot, then in order to make a joint that
55 would certainly be stronger than the rest of the wall I should cease drawing out the coil when it was reduced to ten turns to the linear foot. This would give in cross-section twenty wires of one-half ton each, or ten tons, and it
60 would be necessary to break all these or else tear apart the strongest concrete in the mass before the joint would open.

In the accompanying drawings, Figure 1 illustrates a close coil of wire. Fig. 2 illustrates the same when drawn out. Fig. 3 is a
65 side view of a portion of a wall in which the wire is embedded ready for the joint. Fig. 4 is an end view of the same. Fig. 5 is a horizontal section through the center of the joint.
70 Fig. 6 is a complete joint, showing wire in dotted lines.

The coils may be of iron, steel, or any other suitable material having sufficient tensional strength. They may be of any desired size
75 and shape, and wire or rods of any suitable dimensions may be used.

In place of using one coil in the width of the wall two or more may be used.

I do not claim, broadly, the use of metal
80 coils in concrete. My invention consists in the application of such coils to the joint between concrete that has set and that which is fresh, and for the purpose of this invention under the term "concrete" I include all
85 compositions that are cast or flow in layers and that afterward set.

Having fully described my invention, what I desire to claim and secure by Letters Patent is—
90

1. A concrete joint strengthened with a metallic coil substantially as described.

2. A concrete joint strengthened with a metallic coil and layers of stronger concrete substantially as described.
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3. The union of two bodies of concrete by means of an open coil of metal embedded in both, substantially as described.

4. A metallic coil so embedded in a concrete joint that the axis of the coil is about
100 in line with and parallel to said joint, substantially as described.

ERNEST LESLIE RANSOME.

Witnesses:

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