W. R. HUME.

REINFORCEMENT FOR PIPES AND CONDUITS.

APPLICATION FILED JAN. 18, 1916.

1,326,594. Patented Dec. 30, 1919.

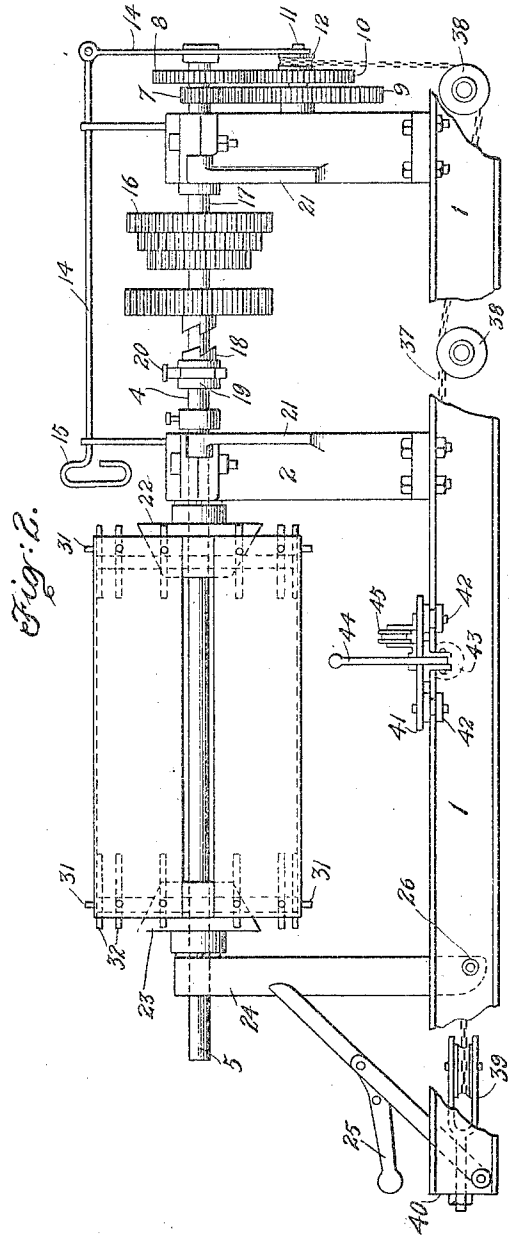


Fig. 2.

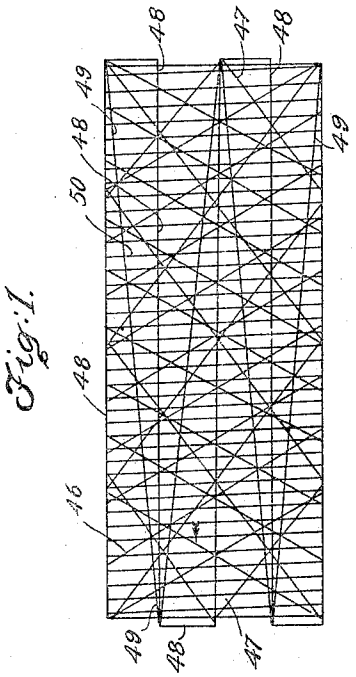


Fig. 1.

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UNITED STATES PATENT OFFICE.

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REINFORCEMENT FOR PIPES AND CONDUITS.

1,326,594. Specification of Letters Patent. Patented Dec. 30, 1919.

Original application filed January 13, 1914, Serial No. 811,870. Divided and this application filed January 18, 1916. Serial No. 72,796.

To all whom it may concern:

Be it known that I, WALTER REGINALD HUME, a subject of the King of Great Britain, residing at Adelaide, in the State of South Australia and Commonwealth of Australia, have invented certain new and useful Improvements in Reinforcements for Pipes and Conduits, of which the following is a specification.

This invention relates to reinforced pipes and conduits and has for its primary object to provide a simple, efficient and inexpensive construction for the same, embodying various lengths of wire superimposed upon each other without interlacing. One of the objects of the invention is to provide a construction which facilitates its manufacture. Other and further objects will appear in the specification and claims, reference being had to the accompanying drawings in which:

Figure 1 is a diagrammatic view of the reinforcement for a pipe or conduit section.

Fig. 2 is a fragmentry side elevation of the machine shown in my copending application, Serial No. 811,870, filed January 13, 1914.

The construction hereinafter described and claimed is preferably carried out on a machine such as that shown in my above identified copending application, of which the present application is a division.

For pipes of from four to five inches in diameter up to twelve inches in diameter, a spiral winding of about six inches pitch is used as indicated at 46 on the drawing, this pitch being increased as the diameter increases. After this has been done, longitudinal or brace loops such as those indicated at 47, are carried under and over the previously mentioned winding.

The longitudinal brace loops, of which there may be four in number, can best be applied by hand, and for this purpose a length of wire is taken and looped over one of the pins at the center of the wire; the two ends are then bent under the drum, crossed at the middle, and from thence brought upward and on to the corresponding pin at the opposite end of the drum. After this operation I lay longitudinal straight wires from end to end of the reinforcement. These wires are indicated at 48 in Fig. 1 and are applied by attaching the end of a piece of wire to one of the pins, then bringing it horizontally to and around the corresponding pin on the opposite end of the drum, and returning it in the reverse direction after having coiled it at right angles one-eighth of a circle, that is to say, around the next pin on the same end. This backward and forward setting of the wire is continued until the whole circumferential of the drum has been covered by a length of wire longitudinally placed from pin to pin.

For pipes which require to be specially constructed for strength I provide a supplemental series of longitudinally curved wires as shown at 49. In spacing these supplemental wires a length of wire is attached to an end pin, and is stretched above the previously placed wires not quite in a horizontal line but slightly at an angle so as to pass around the next opposite pin in succession at the opposite end of the drum, and then back to the starting end, but missing the next pin in succession as illustrated.

The final winding is achieved by means of the machine, and is either a single or return winding of close pitch as indicated at 50, and by substantially the same operation of the machine as is described with regard to the first winding. These coils are preferably of about one inch pitch.

Variation in the winding pitch of the wires 46 and 50 may be obtained by varying the speed traverse of carriage 41 as pointed out in my copending application identified above.

It is to be understood that if the intermediate wires 47, 48 and 49 are placed in position by hand the first winding of the wire 46 and the final winding 50 may be regarded as a continuous or unbroken process, and as the first and last windings embrace the intermediate wires between the internal and external coils there is no necessity for the separate interlacing of the wires, which are contained between the first and last windings. This forms an important feature of the reinforcement.

All free ends of the intermediate wires are clipped off or turned inward so as not to protrude, and the end of the final winding is secured by any convenient method, and is then clipped off.

What I claim is:—

1. A cylindrical reinforcement for pipes and conduits, comprising an inner helical winding, lateral brace loops, embracing said

inner helical winding, longitudinal brace loops extending from end to end of said reinforcement and partly around the same, and an outer close wound helix.

2. A cylindrical reinforcement for pipes and conduits, comprising an inner helical winding, lateral brace loops embracing said inner helical winding, longitudinal brace loops extending from end to end of said reinforcement, and an outer close wound helix, said lateral brace loops passing over and under successive strands of the inner helical winding.

3. A cylindrical reinforcement for pipes and conduits, comprising an inner helical winding, lateral windings crossing said inner helical winding at an angle, longitudinal windings angularly disposed with respect to the axis of said reinforcement, longitudinal windings parallel to said axis, and a relatively close wound helix forming the outermost winding of said reinforcement.

4. A reinforcement for pipes and conduits, comprising a helical winding of relatively small pitch, a helical winding of relatively great pitch, longitudinal straight wires extending from end to end and parallel to the axis of the reinforcement, and longitudinal curved wires extending from end to end of the reinforcement and partly around the circumference thereof.

5. A reinforcement for pipes and conduits, comprising a helical winding of relatively small pitch, a helical winding of relatively great pitch, longitudinal straight wires extending from end to end and parallel to the axis of the reinforcement, and a closely wound outer helical winding.

6. A reinforcement for pipes and conduits, comprising a helical winding of relatively small pitch, a helical winding of relatively great pitch, longitudinal curved wires extending from end to end of the reinforcement and partly around the circumference thereof, and a closely wound outer helical winding.

7. A reinforcement for pipes and conduits, comprising a helical winding, longitudinal straight wires extending from end to end and parallel to the axis of the reinforcement, longitudinal curved wires extending from end to end of the reinforcement and partly around the circumference thereof, and a closely wound outer helical winding.

8. A cylindrical reinforcement for pipes and conduits, comprising an inner helical winding of relatively great pitch, a lateral winding wound in an opposite direction across the first-mentioned winding, longitudinal straight wires extending parallel to the axis and from end to end of said reinforcement, and supplemental brace wires extending from end to end of the reinforcement and at angles to said longitudinal straight wires.

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Witnesses:

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