No. 649,469. Patented May 15, 1900.

J. A. McCONNELL.

PIPE COVERING.

(Application filed July 5, 1899.)

(No Model.)

Fig. 1.

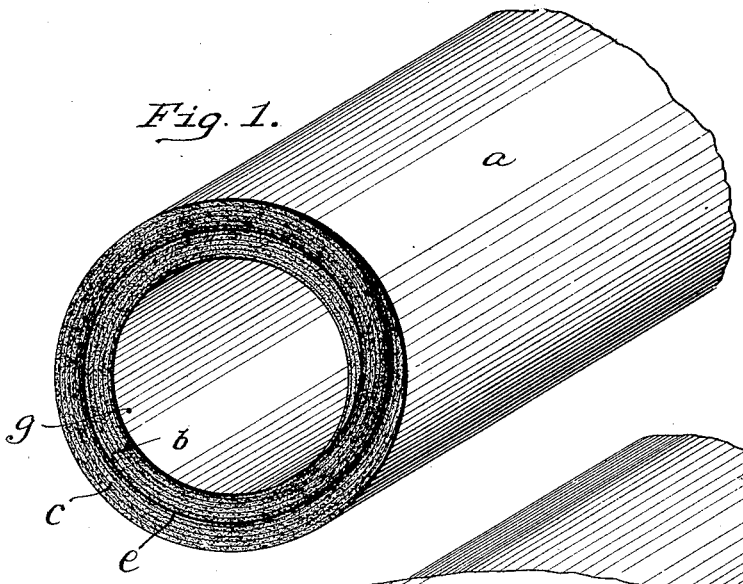


Fig. 2.

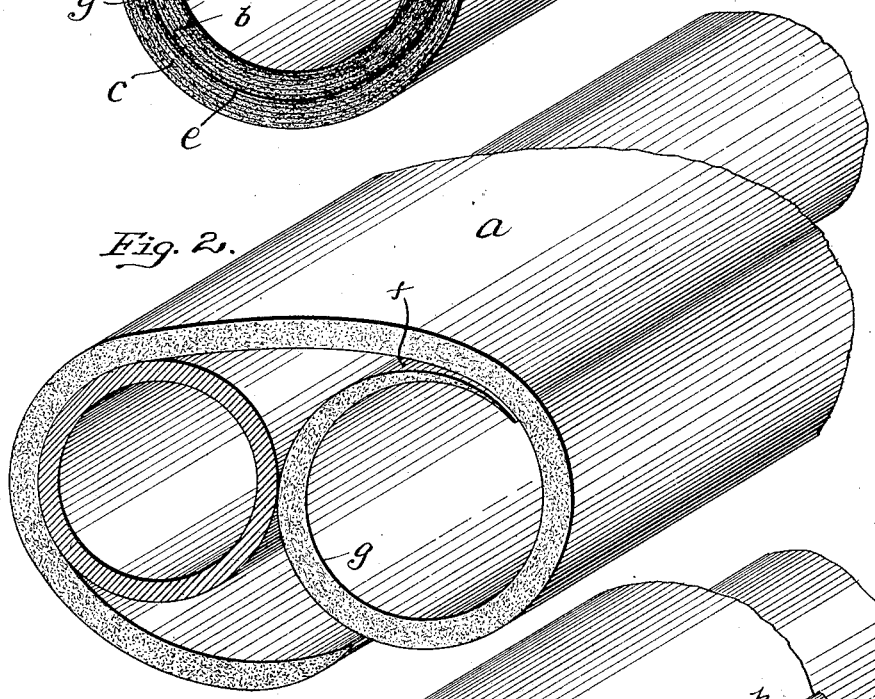
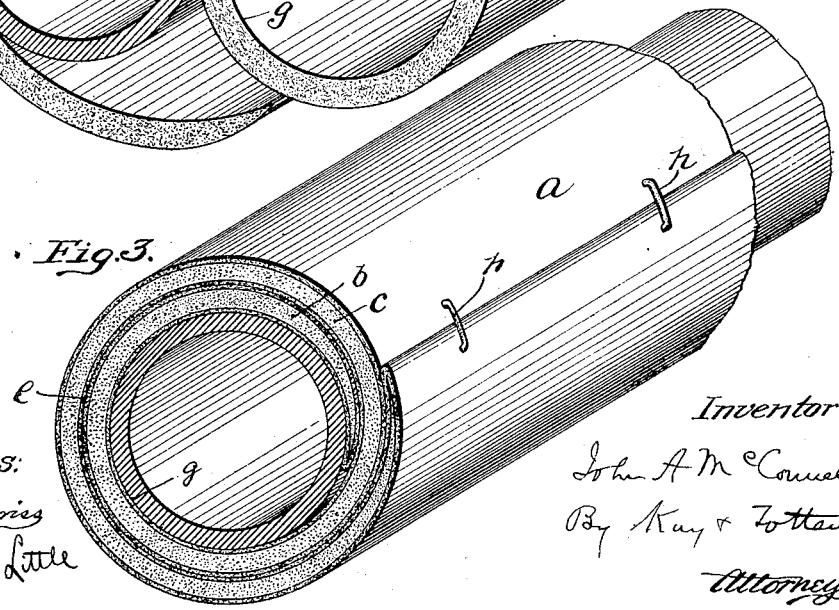


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN A. McCONNELL, OF ALLEGHENY, PENNSYLVANIA.

PIPE-COVERING.

SPECIFICATION forming part of Letters Patent No. 649,469, dated May 15, 1900.

Application filed July 5, 1899. Serial No. 722,833. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. McCONNELL, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Pipe-Coverings; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to non-conducting coverings for steam-pipes, water-pipes, refrigerating-pipes, or other cylindrical bodies to protect them and to prevent the passage of heat or cold either from or to the same. For convenience of application the mass of pipe-coverings have been made in sections, and for this purpose the sections so introduced have either been cut longitudinally through one wall or both walls of the section, the sectional covering so produced being secured upon the pipe by iron bands or other means. These light iron bands soon rust away, and the pipe-coverings also being usually exposed to jars or vibrations the connecting devices are disturbed and the longitudinal joints open, so permitting the loss of much heat, while the covering itself under such actions becomes loosened or broken and drops from the pipe or leaves it practically exposed. For this reason cement coverings formed around the pipes themselves have in some cases been considered preferable, though the sectional coverings were easier of application and had the advantage that they could be transported and could be applied without injury to or marring of the machinery, walls, &c.

The object of the present invention is to provide a sectional covering in which the difficulties above referred to are overcome and which will naturally hold to the pipe, even if the fastening devices may have become loosened, while the liability of the opening of seams leading directly from the exterior to the pipe and radiation of heat from the pipe through the same are overcome.

To these ends the invention consists, generally stated, in a pipe-covering formed in sections of suitable length and composed of non-conducting or heat-insulating material set in coiled or convoluted form and having a circuitous passage within the coils through which the pipe passes in applying or removing the covering, so that after the covering has been applied to the pipes it will naturally fit around the same and hold thereto, even if the fastening devices should become loosened; while the long coiled circuitous passage through which the pipe passes forms a continuous lap-joint and naturally remains closed, so that there is little liability of loss of heat through the same.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of a short section of the covering. Fig. 2 is a view showing the application of the covering to the pipe, and Fig. 3 is a view showing the covering applied to the pipe.

Like letters of reference indicate like parts in each of the views.

The covering embodying the invention may be formed of any suitable material—paper, asbestos, or any other suitable material which can be brought to the desired shape, or these materials combined with hair felt, mineral wool, cotton, cork, plastic magnesia, or other fibrous, granular, or plastic materials. The covering, as shown, is formed in sections *a*, each section being composed of a coil or convolution set in coiled form, the different layers of the coil being shown at *b c d*, while, as indicated by the dividing-line *e* between such coils, a circuitous passage-way is formed, through which, by partially opening and revolving the covering, as shown in Fig. 2, the pipe to be covered can be passed through the coiled passage-way *f* until the pipe is brought within the central chamber *g* of the covering, after which the covering is again coiled closely around the pipe, where by its natural recoil it will stay, and it may be further bound around the same by any suitable means. For example, during the closing of the coil upon the pipe suitable glutinous material, cement, or other adhesive substance may be applied, so as to unite the covering in one solid mass, closing the coiled or convoluted passage through which the pipe has been introduced, or suitable staples *h* may be passed through the coils, so as to secure the covering around the pipe. In this way the covering is secured upon the pipe in such way that instead of having one or more passages leading directly

from the outer wall of the covering to the pipe itself, which would be liable to open, there is only an indirect passage extending with one or more convolutions around the pipe itself, forming a continuous lap-joint and which by the natural recoil of the covering when set in coiled form would probably be closed even without any fastening device whatever, so that on account of the contact of the surfaces of the coils composing the covering there would be practically no escape of heat, while when the covering is either pasted or held firmly around the pipe by fastening devices such coiled passage is held closed and there is no possibility of loss of heat through the same. The covering can therefore be easily applied by unskilled persons and can therefore be made as an article of manufacture and shipped as such for use, while the main difficulty in such sectional coverings of the natural opening up of the covering and the loss of heat through the joints is overcome.

The several coverings illustrated in the drawings are simply illustrative of different kinds of coverings included within the invention. For example, Fig. 1 illustrates a covering made of sheets of wool paper, Fig. 2 a covering made of padding of asbestos fiber incased between sheets of asbestos paper, and Fig. 3 a covering made of plastic magnesia mixed with asbestos fiber and inclosed between suitable outer binding-sheets.

In making the covering of sheets of paper I prefer to place rolls of paper upon reels of sufficient number that when they are unrolled simultaneously and the sheets laid upon each other they will form a pad of from one-fourth to one-half of the thickness which it is desired to make the covering. As the sheets of paper are being unrolled from the revolving reels I apply to their surfaces a coating of paste or other glutinous material, except that I do not apply such glutinous material to the outside surface of the outside sheet on each side of the group. These two surfaces I leave free from glutinous material, so that when rolled upon each other in two or more convolutions they will not adhere, and will thus leave open the coiled passage-way *f*, through which the pipe passes to the center of the covering. The covering is then dried and assumes a set form. In forming the covering of fibrous or plastic layers I form the padded layers from one-fourth to one-half the thickness that it is desired to make the covering and preferably inclosing these padded layers between sheets of paper, canvas, netting, or other suitable outer binding-sheets, one side of each sheet being coated with glutinous material, causing the fibrous or plastic mass to adhere to the inclosing sheets. The sheets or pads so built up may of course contain any suitable kind of fibrous, granular, or plastic material, the only requirement being that the covering as produced and set in coiled form will be elastic enough to permit its being opened sufficiently to be passed around the pipe or other cylindrical body without injuriously affecting either the coils or the material contained within the coils. I then coil these layers upon each other, making sufficient convolutions to produce the required thickness and leaving the passage-way between the coils free, so that the pipe may pass through it to the inside of the covering. I may sheath either kind of these coverings on the outside with canvas.

The covering can of course be made in any suitable way, the method of manufacture not forming the subject of this application. The methods of manufacture will of course vary according to the material used.

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

1. As a new article of manufacture, a tubular non-conducting covering for pipes and other cylindrical bodies formed in coiled or convoluted sections and having a circuitous passage for the pipe from the exterior to the central chamber of the covering.

2. As a new article of manufacture, a tubular non-conducting covering formed in sections and composed of layers of non-conducting materials set in coiled or convoluted form and having a circuitous passage within the coils through which the pipe passes in applying the covering.

In testimony whereof I, the said JOHN A. McCONNELL, have hereunto set my hand.

JOHN A. McCONNELL.

Witnesses:

JAMES I. KAY,

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