(No Model.) 2 Sheets—Sheet 1.

W. R. PATTERSON.

METHOD OF MANUFACTURING ELECTRIC CABLES.

No. 382,768. Patented May 15, 1888.

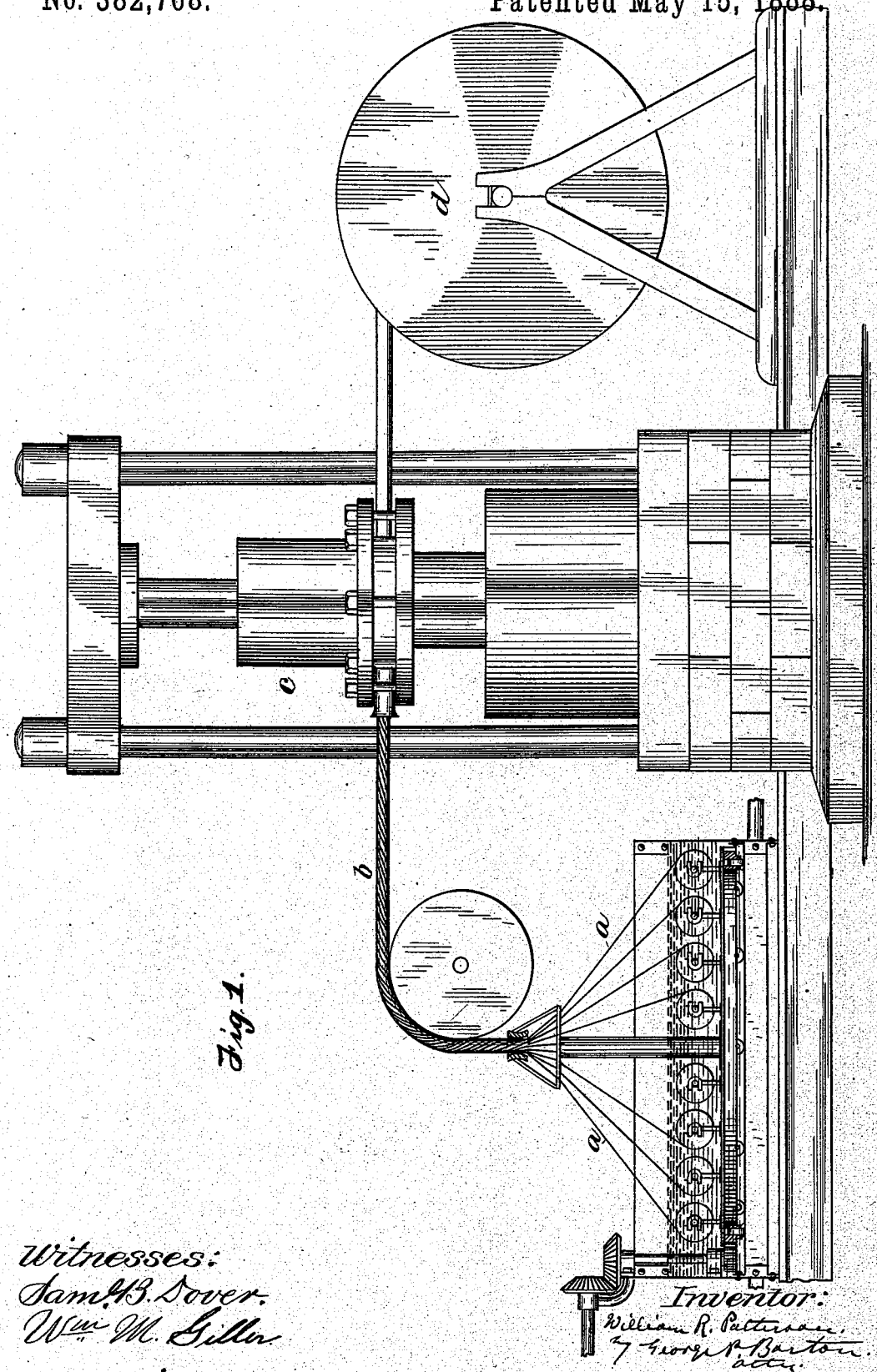

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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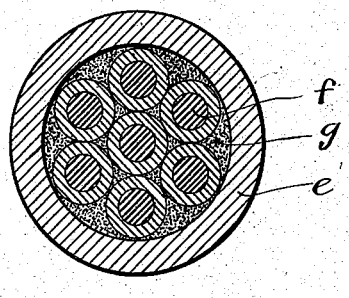

Fig. 2.

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM R. PATTERSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

METHOD OF MANUFACTURING ELECTRIC CABLES.

SPECIFICATION forming part of Letters Patent No. 382,768, dated May 15, 1888.

Application filed July 18, 1887. Serial No. 244,601. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. PATTERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Methods of Manufacturing Electric Cables, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the method of and apparatus for manufacturing electric cables, whereby a core of loosely-twisted conductors is covered by a lead pipe. The core is unserved and the wires are so disposed as to substantially fill the pipe. As the core is only loosely twisted, the fibrous insulating-covering of the conductors will not be compressed, and the wires being arranged so as to occupy substantially the whole space within the pipe and being substantially at uniform distances apart, the electrostatic capacity of a cable of a given size will be the lowest possible. The cable also will be quite flexible, and there will be little or no danger of breaking or injuring the pipe or conductors by bending.

I preferably force hot paraffine charged with gas into the pipe among the conductors of the core in my old and well-known way, as described in my Patent No. 284,226, dated September 4, 1883.

In the accompanying drawings, Figure 1, I have illustrated my apparatus for carrying out the process herein claimed. Fig. 2 is a sectional view of a cable made in accordance with my method. Fig. 3 is an elevation showing the loosely-twisted conductors.

The conducting-wires *a*, insulated with fibrous material, are wound upon spools, and as the conductors are unwound the spools are carried around upon a revolving carriage, so as to twist the strands or conductors together. As the core *b* passes to the press *c*, a jacket or tubing of lead is formed over the core by the press, and the cable thus formed is taken up by a reel, *d*. The core is thus loosely twisted and inclosed in a lead pipe. No serving is used to bind the conductors together, and thus the conductors are distributed substantially at uniform distances apart in the pipe and so as to occupy substantially the entire space, as shown in Fig. 1.

Fig. 3 is a detailed view of the conductors loosely twisted together.

In Fig. 2 the pipe *e* surrounds the core of conductors *f*, the space between the conductors being filled with paraffine or other insulating-filling *g*.

I preferably form the tubing or jacket loosely over the core, and subsequently force into the pipe and among the conductors hot paraffine in my well-known way, as shown in my said patent.

I have not shown the press mechanism in detail, since there are several well-known presses capable of doing the work.

I preferably place the revolving carriage containing the spools of conductors in a tank of melted paraffine, which may be kept hot by a steam-jacket, as shown, in order that the fibrous covering of the separate wires may be thoroughly saturated before they are formed into the core. The spools may, however, be revolved in a vertical plane without being saturated with any insulating material. The subsequent filling I have found sufficient to saturate and protect the conductors.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The method of manufacturing electric cables, which consists in loosely twisting the insulated conductors together and then covering the core with a jacket or tubing of lead, whereby the serving heretofore used is dispensed with and hurtful compression of the insulating-covering of the conductors avoided, thereby lowering the electrostatic capacity of the cable, as described.

2. The method of manufacturing electric cables, which consists in loosely twisting the insulated conductors together and then loosely covering the core with a jacket or tubing of lead, whereby the serving heretofore used is dispensed with and hurtful compression of the insulating-covering of the conductors avoided, thereby lowering the electrostatic capacity of the cable, as described.

3. The method of manufacturing electric cables, which consists in twisting the insulated conductors loosely together to form the core,

passing the core thus formed through a press, and forming a jacket or tubing of lead over the same, whereby objectionable compression of the insulating-covering is avoided, substantially as and for the purpose specified.

4. The method of manufacturing electric cables, which consists in loosely forming the conductors into a core, loosely covering the core with a flexible metallic jacket or tubing, and forcing melted insulating material into the tubing among the conductors, substantially as described.

5. The combination, with the spools, each carrying a different wire and mounted on a revolving carriage, of the press for forming the pipe over the core, as described.

In witness whereof I hereunto subscribe my name this 7th day of May, A. D. 1887.

WILLIAM R. PATTERSON.

Witnesses:
GEORGE P. BARTON,
WM. M. GILLER.