(No Model.)

J. L. WELLS.

WIRE BRAIDING MACHINE.

No. 341,974. Patented May 18, 1886.

Fig. 1.

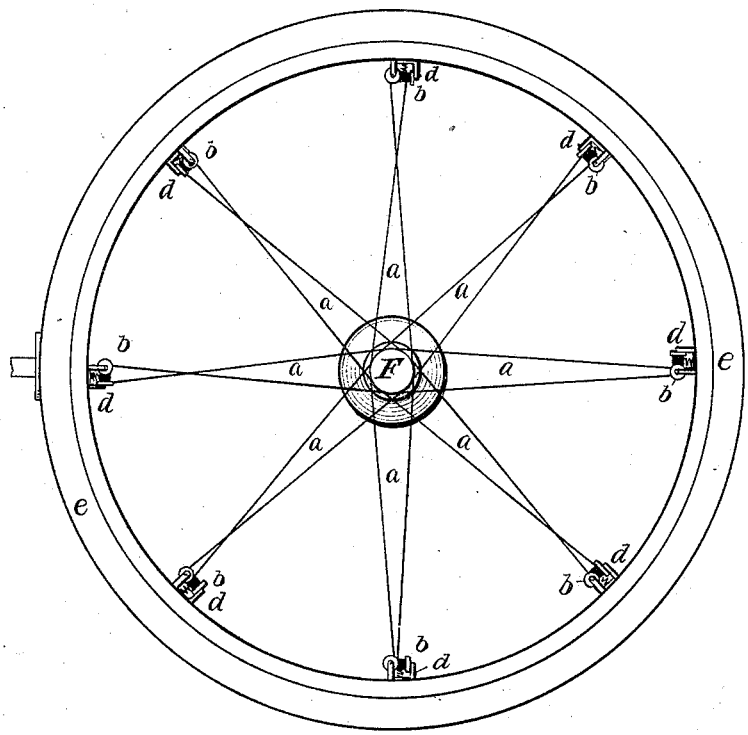
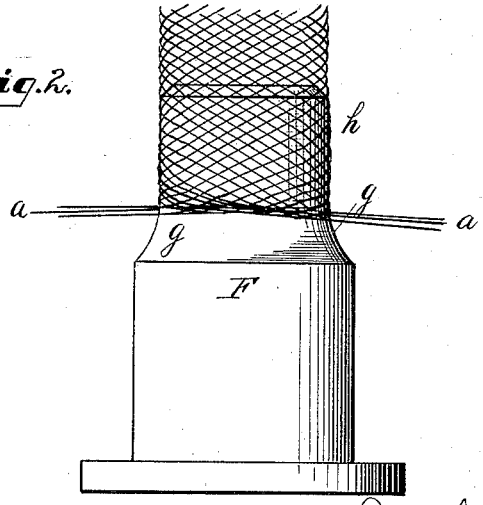


Fig. 2.



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WIRE-BRAIDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 341,974, dated May 18, 1886.

Application filed March 12, 1885. Serial No. 158,536. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH L. WELLS, a citizen of the United States, residing at the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Wire-Braiding Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a plan view thereof in connection with so much of a wire-braiding machine as is necessary to show the invention. Fig. 2 is a side elevation of the tapering core with wire braiding thereon.

My invention consists of an improved core or former for wire-braiding machines, as hereinafter described.

Heretofore such braiding has been done over a long slightly-tapering core, from which the fabric braided thereon was afterward removed, and also over a collapsible cylindrical core several feet in length. When the length of the core had been braided over, the machine was stopped, the core collapsed, and the hollow cylinder of wire removed therefrom. The core was then expanded to its normal diameter, and so on in continuous succession.

The object of my improvement is to provide a self-freeing fixed or permanent core—that is to say, a core or former from which the tubular fabric continuously or automatically shuffles off, so to say, as the braiding proceeds.

Referring to the annexed drawings, *a* are the wires, of steel or other suitable filamentoid material, running from spools *b* in carriages *d*, which travel in races in the circular frame-work *e* of a wire-braiding machine, only such parts of which are shown as are necessary to illustrate the present invention.

F is my improved core or former, which is of iron or steel, firmly secured by bolts to the floor or otherwise in the usual position—*i. e.*, substantially concentric with the circular or spool frame of the braiding-machine. That portion of the core which comes about in a plane horizontally with the series of wires, or more specifically that circular line upon which comes the stress of the interbraiding and interbraided wires, is made tapering, as at *g*, Fig. 2, thence cylindrical, as at *h*, to its free extremity. Now, it will be seen that as the braiding proceeds, the wires in the operation of being interlaced draw with considerable force upon the periphery of the core on a line upon the said tapering portion thereof. The angle or taper is not so acute, however, as to permit the round of wires to slide up on the core under the stress of the braiding, but will retain their bite or hold until the succeeding round or rounds gradually shove the same up off the tapering portion to the cylindrical part, and so on continuously, and thus the braided cylinders of wire can be made of any desired length, and that without stopping the machine. The degree of taper to be given at *g* depends upon the gage and the number of wires, the size of cylinders to be made—*i. e.*, the diameter of the core—the smoothness of wire and core, and other factors.

I find it to be important that the taper should be of a certain relative character, in order to produce entirely satisfactory results, and it requires some experience or judgment in order to secure the proper angle or taper without some experimentation, in order to determine the same under each particular set of circumstances. It usually varies very slightly, however, from the taper represented in Fig. 2. The remainder of the core extending above what may be termed the "working line" of the braiding thereon may be of any desired length, and may be somewhat tapering or cylindrical, as shown, so that it does not interfere with the free sliding off of the braided coil. I prefer, however, to extend the same some three or four inches beyond the tapering part sufficient to support that part of the braided cylinder in the upright position, and thus prevent it from drawing on one side and interfering with the hold of the wire on the line of braiding, which it would be apt to do if not thus supported.

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

In combination with a wire-braiding machine, a tapering core or former, upon which the wires are braided, adapted to temporarily

retain in place by friction the wires on the circumferential line of braiding, and to permit the same to be forced off from said line by the stress of the next succeeding circumferential line or lines of braiding and gradually from the core, and so on continuously, substantially as and for the purpose set forth.

In testimony whereof I have hereunto affixed my signature.

JOSEPH L. WELLS.

Witnesses:
JOHN NOLAN,
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