No. 662,247. Patented Nov. 20, 1900.

J. H. VINTON.

COATED WIRE.

(Application filed May 4, 1900.)

(No Model.)

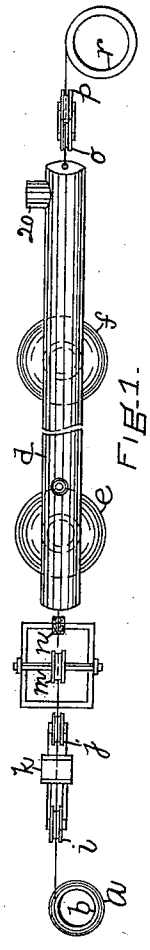


FIG. 1.

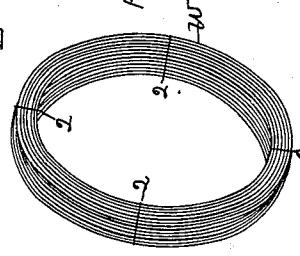


FIG. 3.

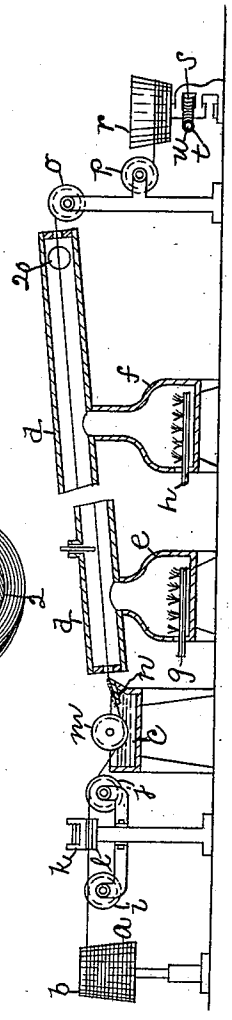


FIG. 2.

WITNESSES.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN H. VINTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO GEORGE E. PARKER, OF SAME PLACE.

COATED WIRE.

SPECIFICATION forming part of Letters Patent No. 662,247, dated November 20, 1900.

Application filed May 4, 1900. Serial No. 15,483. (No specimens.)

To all whom it may concern:

Be it known that I, JOHN H. VINTON, a citizen of the United States, residing in Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Coated Wire, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to a coated wire especially designed and adapted for use with machines which automatically unwind the wire from a coil, cut it into suitable lengths, and bend said cut portions into articles without stripping, cracking, or otherwise injuring the coating on said wire.

Prior to this invention the staples or fastenings employed for attaching buttons to boots or shoes were cut from a coil of blue wire—that is, a wire which has been heated so as to give the same a blue color; but this wire in time becomes oxidized, and as a result the use of wire fastenings or staples for attaching buttons to boots and shoes has been materially diminished owing to the discoloration of the outside of the shoe and the damaged appearance of the same due to the oxidation of the wire-fastenings.

This invention has for its object to produce a coated wire capable of being wound into a coil composed of a plurality of contiguous convolutions, unwound therefrom, and bent without stripping, cracking, or otherwise disturbing the coating of the wire and which may be made from a wire of any desired length, so that the coil of coated wire may be placed on a suitable reel of a button-fastening or other machine and unwound as needed without stripping the coating from the wire and bent or shaped over a former without cracking or breaking off the said coating. The fastenings formed from the coated wire do not oxidize and discolor the outside of boots or shoes, thus removing the objection now urged against this class of machines. The above objection also applies to the use of wire not coated, as staples in boots and shoes and other leather articles, where it is desirable that no oxidation should take place.

A coated wire suitable for use on an automatic machine, as above referred to, requires that the coating material should be in the nature of a film which is hard, smooth, tough, and capable of permitting the wire to be coiled and uncoiled and bent over a former to make small articles like staples without cracking or breaking off the coating, and by a series of long-continued experiments with a large variety of substances I have ascertained that a coating possessing the requisite properties may be made by means of a mixture of gum-copal, linseed-oil, turpentine, and bone-black, which is applied to the wire in a very thin film and subjected to a substantially high temperature in an oven to firmly bake the coating onto the wire. In other words, I employ as the basis of the coating liquid copalv-arnish, to which is added bone-black to give the coating a black color, which is the color desired on boots and shoes.

Figure 1 is a plan view of an apparatus with which the coated coil may be produced; Fig. 2, a partial section and elevation of the apparatus shown in Fig. 1, and Fig. 3 a perspective of a coated coil ready for use.

Referring to Figs. 1 and 2, a represents a coil of wire which is supported by a reel b, from which it is unwound and drawn through a bath c of thin coating liquid of a composition as will be described and through a substantially long baking-oven d, forming the outlet-pipe for furnaces $e f$, heated, as shown, by gas-burners $g h$, the pipe d having a branch outlet 20, leading to the chimney.

The uncoated wire a on its way to the bath c is passed over guide-rolls $i j$ and between the jaws $k l$ of a friction device and is carried down into the bath c by a wheel or roll m. The wire a is thus coated with the liquid, which is laid smooth and uniform thereon by a felt or other fibrous wiper n, which is partially immersed in the liquid, and on the passage of the coated wire through the oven d the said coating is subjected to a substantially high temperature and is firmly baked on the wire, and the coated wire issuing from the oven is passed over the guide-roll o and under a guide-roll p and is then wound to form the coil w (shown in Fig. 3) upon a reel r, rotated, as shown, by a worm-gear s and worm t on a shaft u, driven in any suitable manner.

The coated wire on its passage through the baking-oven is under tension and is kept taut by the friction device at one end and by the guide-rolls *o p* at the other end of said oven, so as to prevent the wire from touching the walls of the oven, which would take off the unbaked coating from the wire. In this manner all or substantially all of the coil of wire on the reel *b* may be provided with a smooth, thin, tough, and uniform coating thoroughly baked thereon and which is then wound upon the reel *r* into the coil, (shown in Fig. 3,) which is suitably tied together by pieces or bands 2 of wire, and when in the condition shown in Fig. 3 the coil of coated wire is ready for use.

The coil of coated wire shown in Fig. 3 may be unwound without danger of stripping or otherwise injuring the coating and may be cut and bent into any desired form without cracking or breaking off the coating, and besides the particular use above referred to it can be employed for any desired purpose. The coil of coated wire employed with button-setting and other automatic machines, as above referred to, may and in practice will be composed of a wire hundreds of feet in length.

The bath *c* is composed of gum-copal, linseed-oil, and turpentine in suitable proportions to form a thin liquid of the consistency of water, which has imparted to it the black color desired by the addition of bone-black, which I have found is particularly efficacious in connection with the copal-varnish to produce the coating desired, and the proper or desired consistency of the coating-bath may be obtained by first making the black liquor by adding one part of bone-black to eight parts of the copal-varnish and then thinning down this black liquor by mixing one part of black liquor with about twenty parts of the copal-varnish. During the process of coating the wire the bath *c* if permitted would become more or less concentrated and too much of the coating material would be applied to the wire, which would result in too thick a coating that is liable to be stripped off in the automatic machine and is further liable to crack or break off when the wire is bent over a small former to form a small article, such as a staple, and therefore the bath is maintained very thin and at a substantially constant consistency, like water, by the addition from time to time of the thin copal-varnish without the bone-black.

The apparatus herein shown and the process herein described are not herein claimed, as they respectively form the subject-matter of applications Serial No. 7,639, filed March 7, 1900, and Serial No. 15,484, filed May 4, 1900.

I claim—

As a new article of manufacture, a wire having a thin coating of copal-varnish and bone-black firmly baked thereon, and possessing the following characteristics, viz: capability of being wound into the form of a coil, unwound therefrom, used in automatic machines and bent into small articles without stripping, cracking or breaking off the said coating, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN H. VINTON.

Witnesses:

JAS. H. CHURCHILL,

J. MURPHY.