

(No Model.)

T. A. EDISON.

INCANDESCING CONDUCTOR FOR ELECTRIC LAMPS.

No. 297,585.

Patented Apr. 29, 1884.



ATTEST:

E. C. Rowland
Witness

INVENTOR:

Thomas A. Edison
By Richd. A. Dyer
Atty.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY.

INCANDESCING CONDUCTOR FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 297,585, dated April 29, 1884.

Application filed October 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Incandescing Conductors for Electric Lamps, (Case No. 593,) of which the following is a specification.

The object of this invention is to produce incandescing conductors for electric lamps of even size, density, and resistance, and each of which shall be a homogeneous carbon filament. I accomplish this by twisting a strip of paper or other suitable carbonizable material tightly into an even cylindrical filament. I preferably employ a carbonizable cementing material to hold the twisted strip together. The filament thus formed is a homogeneous one, not made up of a number of separate strands, like the conductors of thread which have been sometimes used, while it possesses the advantages of such thread conductors, being cylindrical and of small area and radiating-surface. Being all in one homogeneous piece, all its parts contract and expand evenly, and all are of the same texture and resistance. The strips of paper can be cut with great exactness, so that all will be of precisely the same size, and, being cut from the same quality of paper, very even blanks are produced. Such blanks are then drawn through a die of the desired size and twisted evenly by suitable machinery, so that all the blanks will be twisted to the same extent and all the filaments will be of the same size and density. Preferably the strips of paper are formed with broadened ends, and such ends are also tightly twisted. The carbonizable cementing material binds the filament into a solid mass. Such material is preferably gum-tragacanth or other viscous carbonizable substance, with which the strip is covered before twisting. I may, however, first twist the strip, and then treat the twisted filament with hydrofluoric acid or other gelatinizing agent, gelatinizing a portion of its cellulose, and thus forming the carbonizable cementing material upon and within the filament itself; or the twisted strip might be parch- mentized by sulphuric acid or chloride of zinc. The filament, prepared as described, is carbonized in a suitable manner, and may then be attached to leading-in wires and placed in the lamp.

The accompanying drawing represents a paper strip or blank partly twisted. The flat blank, as shown at A, is twisted tightly into the filamentary form shown at B. The blank is formed with enlarged ends *a*, which are twisted into cylindrical form, as at *b*.

What I claim is—

1. The incandescing conductor for an electric lamp, consisting of a carbonized tightly-twisted strip of paper or other suitable carbonizable material, substantially as set forth.
2. The incandescing conductor for an electric lamp, consisting of a carbonized tightly-twisted strip of paper or other suitable carbonizable material provided with a carbonizable cementing material, substantially as set forth.
3. The filament for forming, on carbonization, the incandescing conductor of an electric lamp, consisting of a tightly-twisted strip of paper or other suitable carbonizable material, substantially as set forth.
4. The filament for carbonization, consisting of a tightly-twisted strip of paper provided with a carbonizable cementing material, substantially as set forth.
5. The method of forming incandescing conductors for electric lamps, consisting in twisting a strip of carbonizable material into a homogeneous filament and carbonizing the same, substantially as set forth.
6. The method of forming incandescing conductors for electric lamps, consisting in twisting a strip of carbonizable material into a homogeneous filament, providing it with a carbonizable cementing material, and carbonizing the whole, substantially as set forth.
7. The method of forming incandescing conductors for electric lamps, consisting in twisting a strip of carbonizable material into a filament, treating the same with hydrofluoric acid or other gelatinizing or parch- mentizing agent, to form a cementing material, and carbonizing the whole, substantially as set forth.

This specification signed and witnessed this 14th day of September, 1883.

THOS. A. EDISON.

Witnesses:

H. W. SEELY,
EDWARD H. PYATT.