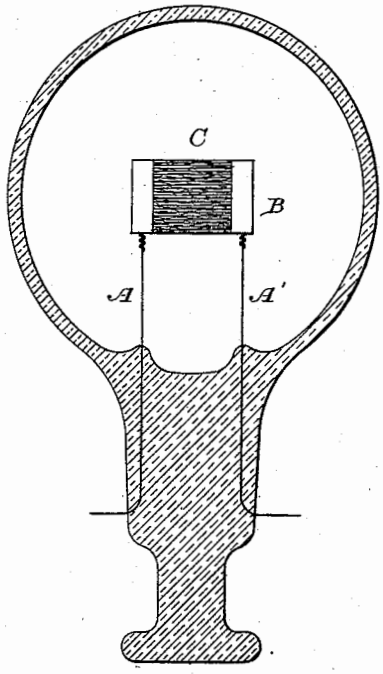
(No Model.)

C. J. VAN DEPOELE.

INCANDESCENT LAMP.

No. 323,983. Patented Aug. 11, 1885.



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UNITED STATES PATENT OFFICE.

CHARLES J. VAN DEPOELE, OF CHICAGO, ILLINOIS.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 323,983, dated August 11, 1884.

Application filed November 3, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. VAN DEPOELE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification, reference being had to the accompanying drawings.

The present invention relates to improvements in filaments or conductors for electric lamps of the incandescent type; and it consists in the production of a filament of large surface and high resistance, whereby I am enabled to construct and operate incandescent lamps of much greater candle-power than have heretofore been constructed, and also to use currents of higher tension than has previously been found practicable.

It has been usual hitherto to form the incandescing filament of a continuous conductor through which current of a certain intensity and electro-motive force was caused to pass. As usually constructed the filament is necessarily of very small cross-section, and therefore extremely delicate and easily broken, limiting its heat-enduring capacity to a comparatively low temperature, occasioning a smaller efficiency than if it were practicable to operate the lamp with a current of electro-motive force sufficient to heat a filament of the same size to a higher degree. The aim of the present invention is to provide a conducting medium which is not homogeneously continuous, and which, by virtue of its construction, will safely carry a current of an intensity and electro-motive force much greater than is at present used.

The method of manufacture is as follows, viz.: Loose cotton, silk, hemp, manila, or other fibers are assembled or arranged in proximity to each other in the form of an open untwisted band or tress having its fibers so interlaced with each other as an ordinary process of combing would leave them, these bands, tresses, or skeins being of greater or less thickness, width, and length, but in all cases the individual fibers are to be only in loose contact with each other.

I do not limit myself to the size or length of fiber in the material used, as that will be selected according to the effect desired.

In practice, bands are formed of, say, three inches in length, having a cross-section of one sixteenth to one-half inch or any other proportions found desirable. The bands thus formed are properly carbonized, after which they are cut up into length suitable to be placed between the prongs or clamps attached to the conductors leading into the lamp.

The connection between the incandescing filament and the supporting-conductors may be rendered more perfect by the application of any carbonizable cement. The conductors and filament having been assembled, they are, with the exception of the ends of the wires, inclosed in a bulb or flask from which the air is exhausted in any suitable or well-known manner.

It will be understood from the foregoing that it is designed to assemble a comparatively large quantity of fiber in sufficiently close proximity that portions of said fibers will touch adjoining fibers, and thereby afford continuous passage to the current without necessitating the absolute continuity of each member of the strand. The individual fibers will not generally extend through the entire length of the conductor, nor is it requisite that all the fibers should be parallel to each other, since they may be crosswise, oblique, parallel, or spiral, or be brought together in any way that will, by making a large number of contacts, afford numerous paths for the current, each of very small cross-section, and therefore of high resistance, and thereby produce a filament of large surface having a high resistance and great heat-enduring, and, consequently, light-giving, capacity. The reason this filament will stand more heat than the ordinary so-called homogeneous continuous filament is that the former, being composed of a large number of small conducting-paths, is better able to accommodate the expansion and contraction than the ordinary filament formed of one continuous and homogeneous conductor. Another advantage gained is that the light-giving capacity of the improved filament is greater with the same current, which is due to the infinitesimally small surface of each individual conductor, which is more readily heated, and the aggregate number of individual fibers forms a much larger exposed surface than it is possible to use in the form of a single homogeneously continuous conductor.