(No Model.)

H. J. BELL.

GAS INCANDESCENT.

No. 413,484. Patented Oct. 22, 1889.

Fig. 1.

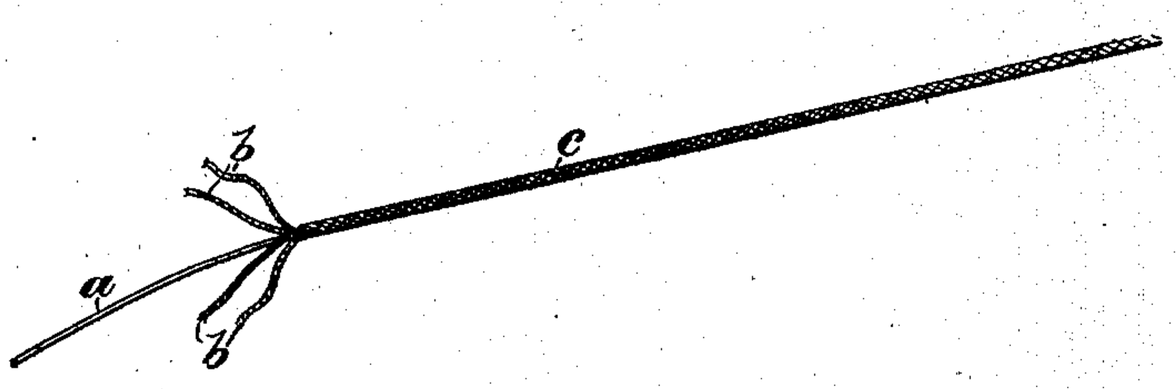
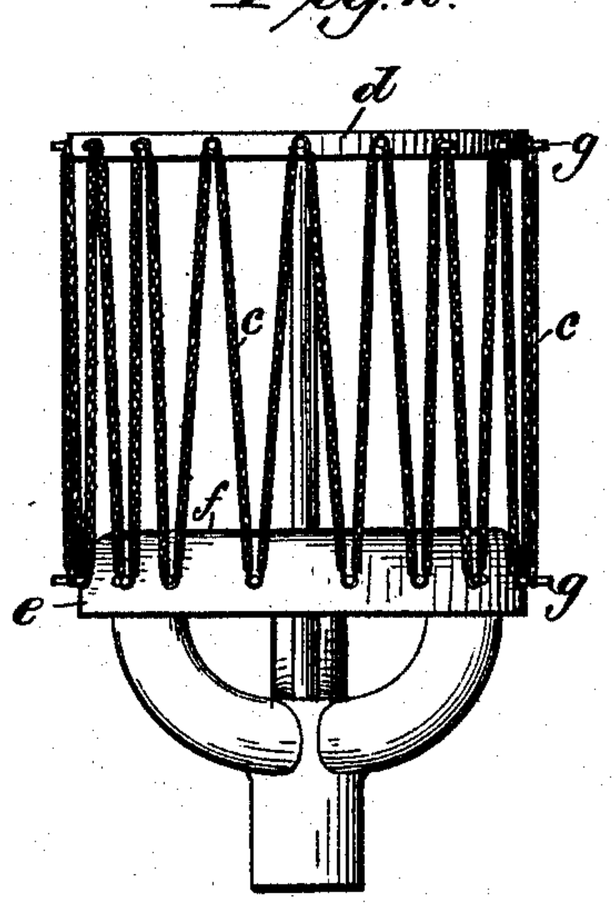


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

HAROLD J. BELL, OF GLOUCESTER CITY, NEW JERSEY, ASSIGNOR TO THE WELSBACH INCANDESCENT GAS LIGHT COMPANY, OF NEW JERSEY.

GAS-INCANDESCENT.

SPECIFICATION forming part of Letters Patent No. 413,484, dated October 22, 1889.

Application filed December 19, 1888. Serial No. 294,039. (No model.)

To all whom it may concern:

Be it known that I, HAROLD J. BELL, a citizen of the United States, residing at Gloucester City, in the county of Camden and State of New Jersey, have invented new and useful Improvements in Gas-Incandescents, of which the following is a specification.

Heretofore in the Welsbach system of incandescent gas-lighting an illumination device composed of a net-work of incombustible and infusible earthy oxides has been made by saturating a loosely-woven fabric of cotton threads with a solution of the salts of the rarer metals which produce earthy oxides, and subsequently burning out the textile foundation fabric in such manner as to leave a net-work composed entirely of the earthy oxides that result from the decomposition of the metallic salts contained in the saturating solution. An illumination device of this character, in which the textile fabric is destroyed or burned out during the process of manufacture, is extremely fragile, and requires great care in handling and transportation in order to prevent breakage.

My invention, as hereinafter described, consists in a gas-incandescent composed of cotton threads or suitable easily-combustible fibrous material braided or wound upon a supporting and strengthening core of platinum wire, or upon any suitable incombustible filamentous material, and then saturated with a solution of the salts of the rarer metals which produce earthy oxides.

This incandescing device can be safely shipped to the consumer without liability of breakage or injury, owing to the fact that the saturated textile and combustible covering material remains intact, as it need not be burned out during the process of manufacture. The burning out of the textile or fibrous material and consequent reduction of the metallic salt or salts to oxides take place after the consumer has placed the braided structure in or adjacent to the gas-flame with which it is to be used as an incandescent.

The invention is illustrated in the annexed drawings, in which—

Figure 1 represents a piece of my gas-incandescent braid or cord. Fig. 2 shows one way of using the braid or cord as an incandescent in connection with a gas-fixture.

In carrying my invention into effect I provide a supporting and strengthening core *a*, of some incombustible material, preferably platinum wire, though other wire may be used; or I may employ asbestus or other situable material. I cover this core *a* completely from end to end with a braiding of cotton threads or other easily-combustible fibrous material capable of absorbing a solution of metallic salts. The cord or braid *c* which is thus formed is immersed in or otherwise saturated with a solution of the salts of the rarer metals that produce earthy oxides when decomposed by heat—such, for instance, as the nitrates of thorinum, lanthanum, zirconium, yttrium, or other rarer metals, either alone or in combination. I do not confine myself to any particular solution of these or other salts, any salts of such metals being used as are capable of producing on decomposition by heat an infusible earthy oxide or oxides that will be capable of emitting light by incandescence. After saturation with the solution of metallic salts the braid or cord *c* is dried by exposure to the air, and may be cut into suitable lengths for incandescent purposes. This incandescent cord or braid *c* can be suspended in a gas-flame without further preparation. The heat of the flame will speedily consume the combustible textile covering or threads *b* and reduce the metallic salts contained therein to the form of oxides, which will remain as an incombustible and infusible light-emitting net-work surrounding the incombustible core *a*, which thus serves to support and strengthen the structure of earthy oxides. The braid *c* can be woven into various shapes and be utilized in a variety of ways for incandescent purposes.

As shown in Fig. 2, the incandescent braid *c* may be utilized by stretching it back and forth between an upper support *d* and a lower support *e*, placed around or adjacent to the gas-burner *f*, said supports being provided with lugs *g*, for attachment of said braid or cord. One end of the braid is fastened in any convenient manner to one of the lugs *g*, and the braid is then woven back and forth or

up and down about the several lugs and made fast by giving it a twist around the last lug. When the flame is applied and the cotton threads or textile material burned out, the abrasion at the bends of the lugs will cut the earthy structure or net-work at those points, so that each line of braid, if more than one be used, will be composed of the platinum wire or incombustible filamentous core *a* in a continuous thread from end to end, while the oxides will be broken at each lug, top and bottom, whereby the expansion and contraction due to the heating and cooling of the device as the gas is turned on and off will be responded to by the oxides slipping up and down along the platinum-wire or other core.

This incandescing device can be made and shipped direct to the consumer without the usual liability of breakage incident to the handling of fragile incandescents.

What I claim as my invention is—

1. A gas-incandescent comprising an incombustible filamentous core and a covering of combustible fibrous material surrounding said core and saturated with a solution of the salts of the rarer metals which produce earthy oxides, substantially as described.

2. In a gas-incandescent, the combination, with a platinum wire, of textile material braided on said wire and saturated in a solution of the salts of the rarer metals which produce earthy oxides, substantially as described.

3. The combination, with a gas-burner, of supports placed adjacent to the burner and a cord or braid of fibrous material surrounding a core of refractory metal, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD J. BELL.

Witnesses:

W. E. BARROWS,

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