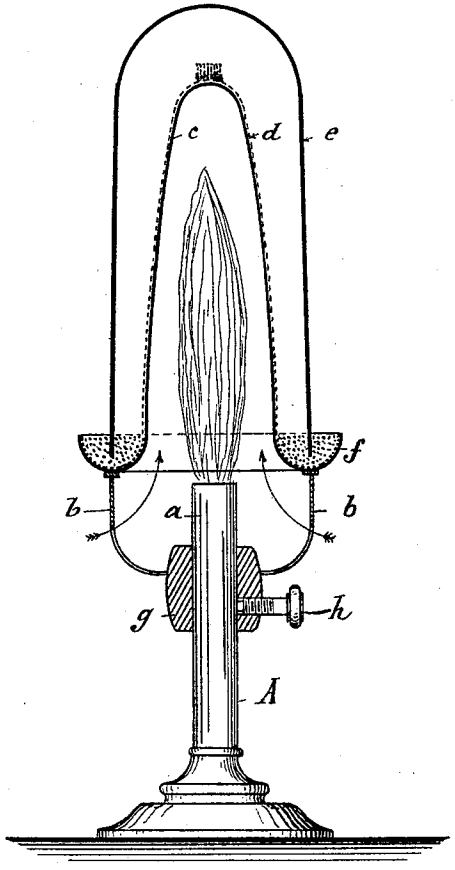
(No Model.)

K. TROBACH.

MANUFACTURE OF MANTLES FOR INCANDESCENT GAS LIGHTS.

No. 589,376. Patented Aug. 31, 1897.



WITNESSES:
George W. Jaekel
H. Willard Griffiths

INVENTOR
Konrad Trobach
by Goepel & Weisenberger
his attorneys

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

UNITED STATES PATENT OFFICE.

KONRAD TROBACH, OF PANKOW, GERMANY, ASSIGNOR TO MAX ARENDT, OF BERLIN, GERMANY.

MANUFACTURE OF MANTLES FOR INCANDESCENT GAS-LIGHTS.

SPECIFICATION forming part of Letters Patent No. 589,376, dated August 31, 1897.

Application filed January 30, 1895. Renewed July 15, 1897. Serial No. 644,728. (No specimens.) Patented in England January 12, 1895, No. 811; in Switzerland March 22, 1895, No. 10,287, and in Germany September 26, 1896, No. 88,437.

To all whom it may concern:

Be it known that I, KONRAD TROBACH, a subject of the King of Prussia, German Emperor, residing at Pankow, near Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in the Manufacture of Mantles for Incandescent Gas-Lights, (for which patents have already been obtained in England, dated January 12, 1895, No. 811; in Germany, No. 88,437, dated September 26, 1896, and in Switzerland, No. 10,287, dated March 22, 1895,) of which the following is a specification.

This invention relates to the manufacture of mantles for incandescent gas-lights, and more especially to a simplified manufacture of the mantles, in which a peculiar structural formation is imparted to the carbonized body used for the mantles, which body possesses the characteristic of having nearly the same flexibility, combined with an increased absorbability, as that inherent to the original knit fabric from which the body of the mantle is made. The described result is accomplished by partly carbonizing a knit blank by subjecting it to dry distillation under exclusion of atmospheric air while holding it in distended form, then impregnating the partly-carbonized blank with a solution of the salts of the refractory earths, then drying the blank, and, lastly, subjecting it to final carbonization in a distended condition under exclusion of air. As the carbonization of the knit fabric takes place at a comparatively low temperature—that is to say, at a temperature at which the knit structure which is used for producing the mantle retains its flexibility and in a certain sense its cohesion, together with an increased absorbability—the carbonized structure can be readily shipped, treated with the solution, and subjected to the action of a non-illuminating heating-flame. The deformation of the carbonized structure is precluded while being subjected to the action of the heating-flame, as it is placed during the carbonization of the knit structure on a suitable form, so that the shrinkage of the mantle is fully controlled, as will be more fully described hereinafter.

According to my improved process the objectionable and arbitrary deformation of the mantle is avoided, as the textile structure of the mantle is first carbonized on a form corresponding in shape thereto and in such a manner that the shrinkage of the structure during the carbonization is fully controlled, then saturated, and, lastly, heated, so as to produce the mantle.

The invention further consists of a mold for carbonizing knit fabrics or blanks for the mantles of incandescent gas-lamps, which consists of a heating-burner of tubular form corresponding to the shape of the mantle to be produced, said form being provided with an annular trough-shaped base, means for supporting said form above the burner, a cover or hood placed over the form, and means for sealing the lower edge of the cover or hood in the annular base of the form.

The accompanying drawing represents a vertical central section of my improved device for producing the carbonization of the knit tube or blank for incandescent gas-mantles.

The device consists of a lamp A, having a burner *a*, in which the flame is obtained by a mixture of air and gas under pressure. To the lamp A is applied a sleeve *g* by means of a set-screw *h*. To the sleeve *g* is attached an annular support *b*, which is provided with openings at its lower part, so that the air can enter freely to the burner *a*. A hollow form *c*, of sheet metal or suitable refractory material, is provided with an annular trough-shaped base *f*, that is attached to the support *b*. A hood or bell-shaped cover *e* is placed over the form, its lower edge being hermetically sealed into the annular trough *f* by means of a pulverized refractory substance—such as, for instance, pulverized fire-brick or pulverized graphite.

The knit tube or blank for the mantle is placed loosely on the hollow form *c*. The hood or cover *e* is placed over the same and closed tightly at its lower end by means of the refractory substance. The burner *a* is then lighted and the knit tube *d* carbonized under exclusion of atmospheric air and at a temperature of about 500° Celsius. The carboni-

zation takes place in the gaseous products of combustion, which are retained in the space between the form *c* and the cover *e*. As the carbonization takes place at a comparatively low temperature under exclusion of atmospheric air, and as the carbonization in an atmosphere formed by the gaseous products of the dry distillation of the blank, the individual threads or fibers of the blank become loosened and assume a sponge-like character, so that a carbonized structure is obtained which has almost the same flexibility as that possessed by the threads or fibers of the blank. The so carbonized body is next impregnated with a solution of suitable salts, next dried, and then subjected to the heat of a non-luminous heating-flame, so that a cohesive ashy mantle is obtained which has exactly the same form and continuity as the carbonized body, as during the second heating of the same no shrinkage can take place, and as the sudden and objectionable generation of gaseous products is obviated by the preceding carbonization of the structure.

It is obvious that the construction of the device for carbonizing the knit blanks can be readily changed without departing from the spirit of the present invention, which consists, mainly, in the avoidance of deformations in the mantles for incandescent gas-lights by substituting in place of the impregnated structure which was heretofore used for the same a carbonized structure of exactly determinable form and retaining by the novel treatment of the same the original flexibility of the tube or blank and the full absorptive capacity of the same.

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

1. The process herein described of making mantles for incandescent gas-lights, which consists in partly carbonizing a knit blank by subjecting it to dry distillation under exclusion of atmospheric air while holding it in distended form, then impregnating the partly-carbonized blank with a solution of the salts of the refractory earths, then drying the blank and lastly subjecting it to final carbonization in distended condition under exclusion of air, substantially as set forth.

2. A mold for carbonizing knit fabrics or blanks for the mantles of incandescent gas-lights, which consists of a heating-burner of tubular form corresponding to the shape of the mantle to be produced, said form being provided with an annular trough-shaped base, means for supporting said form above the burner, a cover or hood placed over the form, and means for sealing the lower edge of the cover or hood in the annular base of the form, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

KONRAD TROBACH.

Witnesses:
CHAS. KRÜGER,
W. HAUPT.