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F. A. MACZIOSSEK.  
BODY OF WOVEN FABRIC FOR INCANDESCENT LIGHTS.  
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Fig. 1.

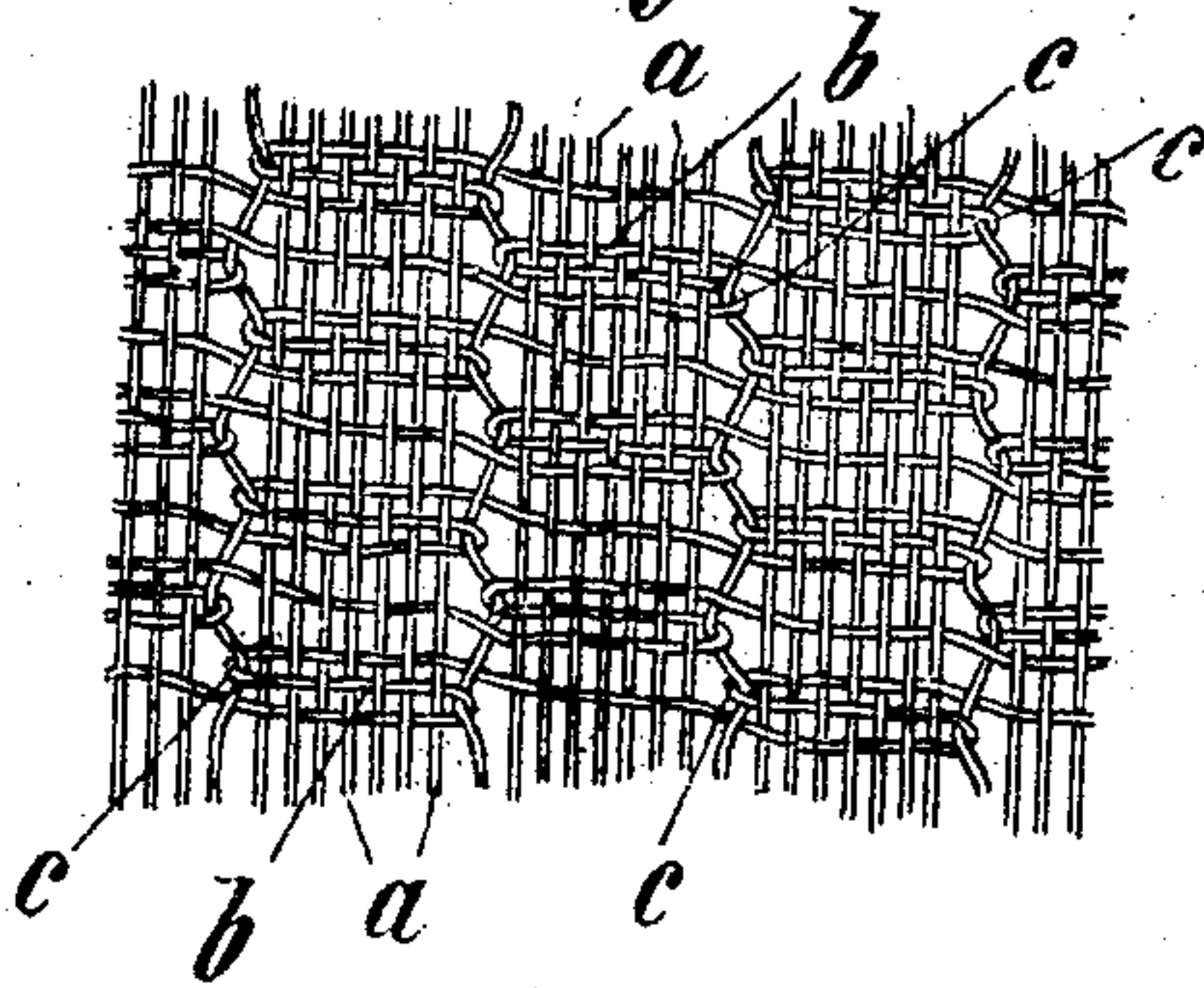
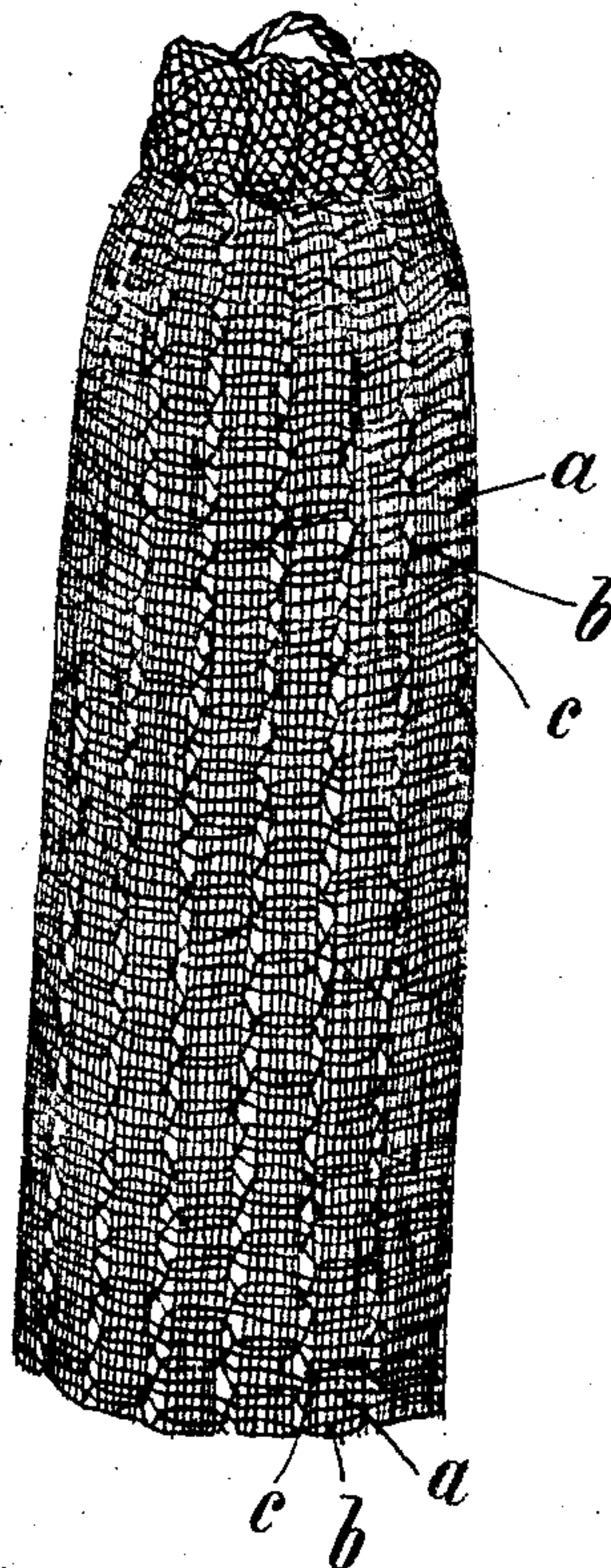


Fig. 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## BODY OF WOVEN FABRIC FOR INCANDESCENT LIGHTS.

No. 828,492.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, FRIEDRICH ANTON MACZIOSSEK, a subject of the King of Prussia, German Emperor, and a resident in the city of Hamburg and German Empire, have invented certain new and useful Improvements in Bodies of Woven Fabric for Incandescent Gas-Lights, of which the following is a specification.

Ordinary incandescing bodies or mantles consist of woven fabrics in which meshes are suspended one in another. Now in the burning-off process, and even more so in use, contractions of the threads and alteration of form of the exceedingly-fragile fabric are caused by incineration, so that there is a danger of the meshes giving way where they interlace and prematurely destroying the mantle, because owing to the tensions in the threads the brittle interlocking mesh-turns are also subjected to friction, and then as a result of their sharp curvature and kinks and their small strength they break and give way, thereby at once forming holes in the mantle, so that it is speedily rendered useless and its life is unduly shortened.

Now in accordance with the present invention the texture hitherto employed is replaced by a fabric consisting of longitudinal or warp threads stretched as much as possible or running slightly zigzag and connected by random weft-threads. Owing to this arrangement the alteration in form of the mantle is able to take place during incandescing or incineration without the thread, which is subjected to tensional and other strains, being so firmly held as to alter or destroy the fabric, as when vertical modifications in the form of the mantle occur the longitudinal threads, being almost straight, are readily able to contract during incineration, and, further, the transverse threads, which only connect groups of these longitudinal threads, present no impediment to the former and are able to participate in their displacement and are also themselves free to extend. By this means an incandescing body of specially-strong structure is obtained, which is necessary owing to the strain placed upon it in the alternate expansions and contractions resulting from the wide variations of temperature. When the mantle undergoes radial alterations in form, rupture of the transverse

connections is prevented, because the multiple wefts referred to above, owing to their great slackness in this arrangement, permit of a peripheral contraction or expansion of the mantle. The arrangement of having the longitudinal threads of the mantle interwoven with one or more threads provided with looped bundles gives these latter great freedom of movement, owing to their looped form, for extension and contraction in heating and cooling without exerting any prejudicial effect upon the fabric. If in place of these loops only a single stretched thread held the longitudinal threads together, it is clear that upon the extension or contraction of the horizontal thread it would have during these operations no such freedom of movement; but would exert a tying action upon the fabric unit and would oppose a powerful resistance to any alteration in the circumference or diameter of the mantle, such as frequently takes place in mantles above the burner-head during burning, and more especially in the case of compressed gas, because owing as already explained to there not being sufficient slackness. Owing to these circumstances incandescent mantles as hitherto manufactured readily crack and become deformed, the jets of flame which then issue therefrom rendering the glass chimney very liable to break.

Figure 1 is a fragmentary view, on an enlarged scale, showing the weave; and Fig. 2 is a view of a mantle made of such fabric.

In Fig. 1 of the accompanying drawings a portion of the fabric of a novel incandescing mantle, Fig. 2, is shown on a slightly-enlarged scale, in which groups of longitudinal threads *a* are traversed by the random weft-threads *b* in such a manner that these latter lie side by side a number of times and pass in the groups of thread lengths *a* and are connected one with the other through the longitudinal threads. In the example here represented three wefts have been shown; but a greater number of wefts may be placed side by side.

While on the one hand the wefts effect an especially secure connection of the longitudinal and transverse threads, on the other hand the numerous mesh-turns engaging one in the other and presenting sharp curves and kinks, as in mantles hitherto manufactured, are ob-



viated. Each weft-thread loop *c* of the novel mantle does not engage with another sharply-curved loop, but around a stretched or but slightly-bent thread, so that it is less exposed to rupture than in the fabric hitherto employed. Even if isolated loops in the novel mantle should break, holes are not thereby formed in it so long as the ties between the longitudinal and connecting lengths of the loops and threads hold together.

I claim—

1. An incandescent-mantle fabric having threads in one direction arranged in sets and weft-threads woven back and forth through the alternate sets and only once across and through the other sets, substantially as and for the purpose set forth.
2. An incandescent-mantle fabric having longitudinal threads arranged in sets and weft-threads woven back and forth a number of times through the alternate sets and a lesser number of times across and through the other sets, substantially as and for the purposes set forth.
3. An incandescent-mantle fabric having longitudinal threads arranged in sets and weft-threads woven back and forth a number of times through the alternate sets and a lesser number of times through the other sets, the greater number of back-and-forth weaves of one weft-thread in a set being adjacent the lesser number of weaves of the ad-

jacent weft-thread in the same set of longitudinal threads, substantially as and for the purpose set forth.

4. An incandescent-mantle fabric having longitudinal threads arranged in sets and weft-threads woven back and forth a number of times through the other sets, the greater number of back-and-forth weaves of one weft-thread in a set being adjacent the lesser number of weaves of the adjacent weft-thread in the same set of longitudinal threads, and the side threads of adjacent sets of longitudinal threads being held in the loops of adjacent weft-threads where they have the greater number of back-and-forth weaves to form a substantially zigzag line, substantially as and for the purpose set forth.

5. An incandescent-mantle fabric having longitudinal threads arranged in sets, a weft-thread woven through alternate sets three times and through the other sets once, and adjacent weft-threads woven through the same alternate sets once and the remaining sets three times, whereby the side threads of a set are held by loops of adjacent weft-threads, substantially as and for the purposes set forth.

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