

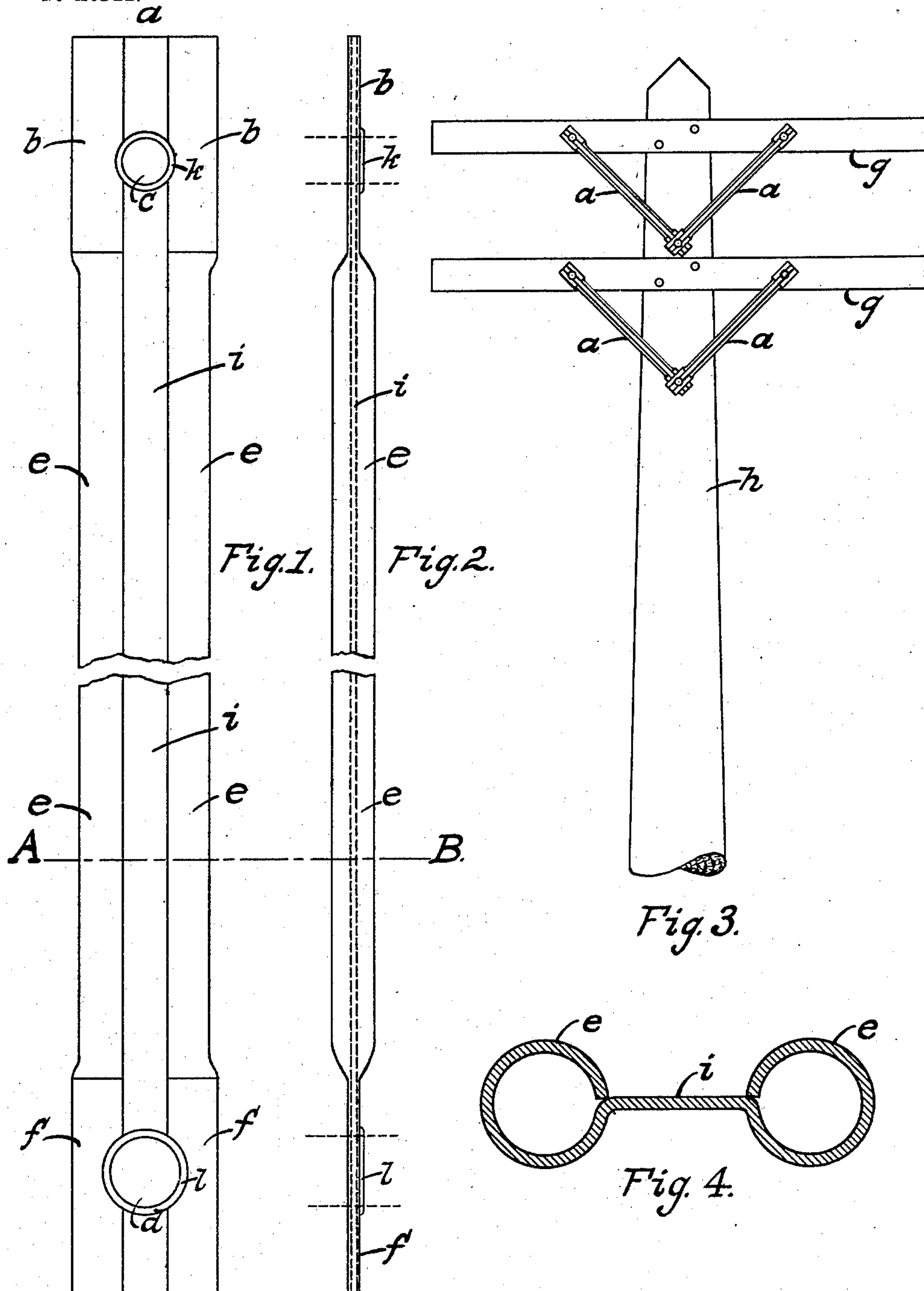
No. 752,655.

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F. B. COOK.
CROSS ARM BRACE.

APPLICATION FILED OCT. 30, 1903.

NO MODEL.



Witnesses:

Fred R. Parker.
Harry B. Elmers.

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UNITED STATES PATENT OFFICE.

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CROSS-ARM BRACE.

SPECIFICATION forming part of Letters Patent No. 752,655, dated February 23, 1904.

Application filed October 30, 1903. Serial No. 179,217. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. COOK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Cross-Arm Braces, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a cross-arm brace, my object being first to provide a brace of great strength and in so doing to dispense with a large quantity of the material generally used, and thereby reduce the weight of the brace to a minimum, and, second, to provide a brace which may be readily and cheaply manufactured.

It has been the usual practice heretofore in bracing or supporting cross-arms of telephone-poles, telegraph-poles, &c., to employ a bar of metal, usually rectangular in cross-section, one end of which is fastened to the pole and the other end of which is fastened to the cross-arm at some distance from the pole. This form of brace is generally very heavy, as it contains much unnecessary material. If the brace is made thin, it still contains an abundance of material, but is then liable to buckle, in which case its value as a brace is very inferior.

In my present invention my object is to do away with a large part of the material usually employed in such braces and to form the small amount of material which I retain in such a manner as to give it great strength to withstand both longitudinal stresses and side buckling.

The method of bracing the cross-arms used in this present invention is similar to that generally in use. The improvement is in the construction of the brace itself, not in its relation with the pole and cross-arm.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a view showing the flat side of the cross-arm brace. Fig. 2 is a view showing the edge of the brace. Fig. 3 is a view showing a pole and cross-arms with the cross-arm braces supporting the said cross-arms. Fig. 4 is a cross-sectional view of Figs. 1 and 2, taken on line A B.

Like characters refer to like parts in the the several figures.

The cross-arm brace, as shown in Figs. 1, 2, and 4, consists, essentially, of two cylindrical tubes *e e*, joined together by a thin plate *i*. This arrangement is somewhat similar to an I-beam, the plate *i* corresponding to the web-plate of the I-beam and the tubes *e e* corresponding to the flanges of the I-beam. The similarity may be best seen in Fig. 4, which shows a cross-sectional view of the brace. It will be readily seen that the brace offers a great resistance to lateral forces applied to either of the tubes *e e* in the plane of the plate *i* or parallel thereto. In order to overcome lateral forces applied to the brace perpendicularly to the plate *i*, the tubes *e e* are made of a diameter somewhat larger than the ordinary thickness of braces generally in use. This is equivalent to using a brace of a greater thickness than the ordinary; but as a matter of fact the material used in my invention is considerably less than in the ordinary brace.

In the construction of the brace shown in this present invention I preferably employ one piece of material and form it as shown in Fig. 4 of the drawings. It is not necessary, however, to use a single piece of material to accomplish the desired results, and I do not, therefore, wish to limit myself to this particular construction. At each end of the brace the tubes *e e* are flattened, as shown in Fig. 2, thus forming the portions *b b* and *f f* in a plane with the plate *i*, but of somewhat greater thickness than *i*. These flat ends of the brace afford means for fastening the brace in place. The hole *d* is punched through one end of the brace, and the hole *c*, preferably somewhat smaller than *d*, is punched through the other end. In punching the holes *c* and *d* all the material from the holes is not thrown away. Part of the material from hole *c* is utilized in forming a rim *k* around the hole *c*. Likewise part of the material from hole *d* is utilized in forming a rim *l* around hole *d*. These rims *k* and *l* serve the purpose of strengthening the respective holes *c* and *d*, thereby overcoming the tendency of the holes to tear out. It is obvious that where the tubes *e e* are flattened the total width of the brace is greater than where the tubes are not flattened.

In Fig. 3 I have shown some of the cross-arm braces in use. The cross-arms *g g* are secured to the pole *h* in the usual manner. Each cross-arm is supported by two braces *a a*.

5 The braces are also secured to the pole and cross-arms in the usual manner by means of bolts.

While I have described a particular construction for my invention, I do not wish to
10 confine myself to the exact details as herein shown. I therefore wish it to be understood that the principles employed in this invention are the features I desire to hereinafter claim and not merely the particular details of construction.
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Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cross-arm brace, the combination of
20 two parallel tubes and a connecting-plate therefor, the said tubes being flattened at one end of the brace, substantially as described.

2. In a cross-arm brace, the combination of
25 two parallel tubes and a connecting-plate therefor, the said tubes being flattened at both ends thereof, substantially as described.

3. In a cross-arm brace, the combination of
30 two parallel tubes, a connecting-plate for same, the said tubes being flattened at one end of the brace, and a hole through the flattened end of the brace between the said tubes, substantially as described.

4. In a cross-arm brace, the combination of
35 two parallel tubes, a connecting-plate for same, the said tubes being flattened at both ends thereof, and a hole through each flattened end of the brace, the said holes being between the said tubes, substantially as described.

40 5. In a cross-arm brace, the combination of two parallel tubes, a plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, in a plane with the said plate, and a hole through each flat-
45 tened end of the brace, the said holes being reinforced by respective rings of material therearound, substantially as described.

6. In a cross-arm brace, the combination of
50 two parallel cylindrical tubes, a flat plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, in a plane with the said plate, a hole through each flattened end of the brace, and respective reinforcement-rings around the said holes, sub-
55 stantially as described.

7. The combination with a pole and a cross-arm fastened thereto, of a cross-arm brace comprising two parallel tubes connected by a connecting-plate, the said tubes being flat-
60 tened at both ends thereof, in a plane with the axes of the tubes, a hole in each flattened end of the brace between the said tubes, and bolts or pins for the said holes, adapted to secure the ends of the said brace to the pole and

cross-arm, respectively, for the purpose of
65 supporting the said cross-arm, substantially as shown.

8. The combination with a pole and a cross-arm fastened thereto, of cross-arm braces
70 therefor, each said brace comprising two parallel tubes connected by a connecting-plate, the tubes of each brace being flattened at both ends thereof, in a plane with their connecting-plate, a hole in each flattened end of each
75 brace, the holes in each brace being between the said tubes thereof, and bolts or pins for the said holes, adapted to secure the said braces to the pole and cross-arm, one of said bolts securing both said braces to the pole, for
80 the purpose of supporting the said cross-arm, substantially as described.

9. In a cross-arm brace, the combination of
two parallel tubes, a flat connecting-plate for same, the said tubes being flattened at one end
85 of the brace in a plane with the connecting-plate, and a hole through the flattened end of the brace, substantially as described.

10. In a cross-arm brace, the combination of
two parallel tubes, a flat connecting-plate for same, the said tubes being flattened at both
90 ends thereof, in a plane with the connecting-plate, and a hole through each flattened end of the brace, substantially as described.

11. In a cross-arm brace, the combination of
two parallel tubes, a plate to which the said
95 tubes are secured, the said tubes being flattened at one end thereof, a hole through the said flattened end of the brace, and a reinforcement-ring around the said hole, substantially as described.
100

12. In a cross-arm brace, the combination of
two parallel tubes, a plate to which the said
tubes are secured, the said tubes being flat-
105 tened at both ends thereof, a hole through each flattened end of the brace, and respective reinforcement-rings around the said holes, substantially as described.

13. In a cross-arm brace, the combination of
two parallel, cylindrical tubes, a flat plate to
110 which the said tubes are secured, the said tubes being flattened at one end thereof, a hole through the said flattened end of the brace, and a reinforcement-ring around the said hole, substantially as described.

14. In a cross-arm brace, the combination of
115 two parallel, cylindrical tubes, a flat plate to which the said tubes are secured, the said tubes being flattened at both ends thereof, a hole through each flattened end of the brace, and respective reinforcement-rings around the
120 said holes, substantially as described.

In witness whereof I hereunto subscribe my name this 28th day of October, A. D. 1903.

FRANK B. COOK.

Witnesses:

JAMES A. COOK,
FRED R. PARKER.