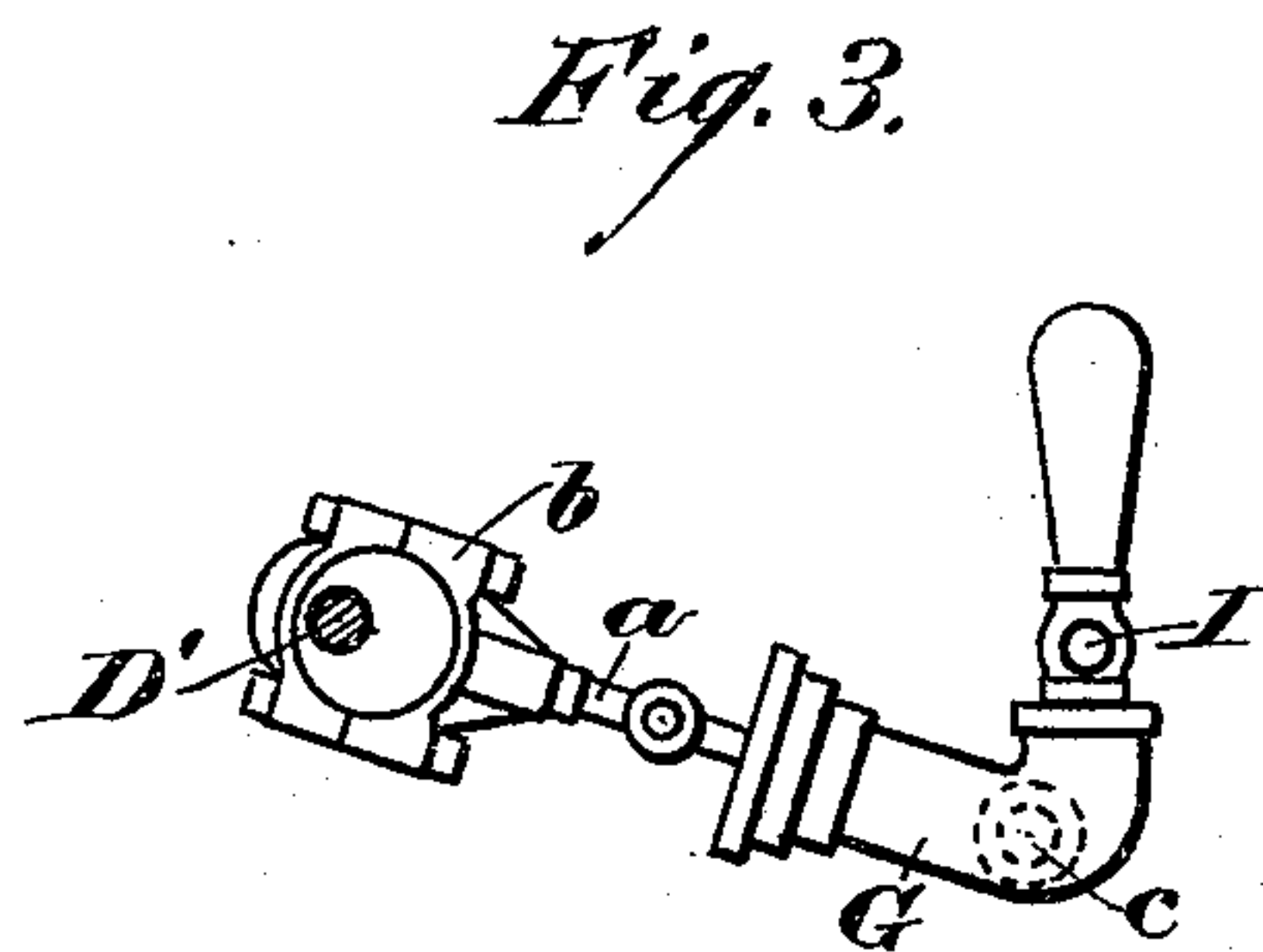
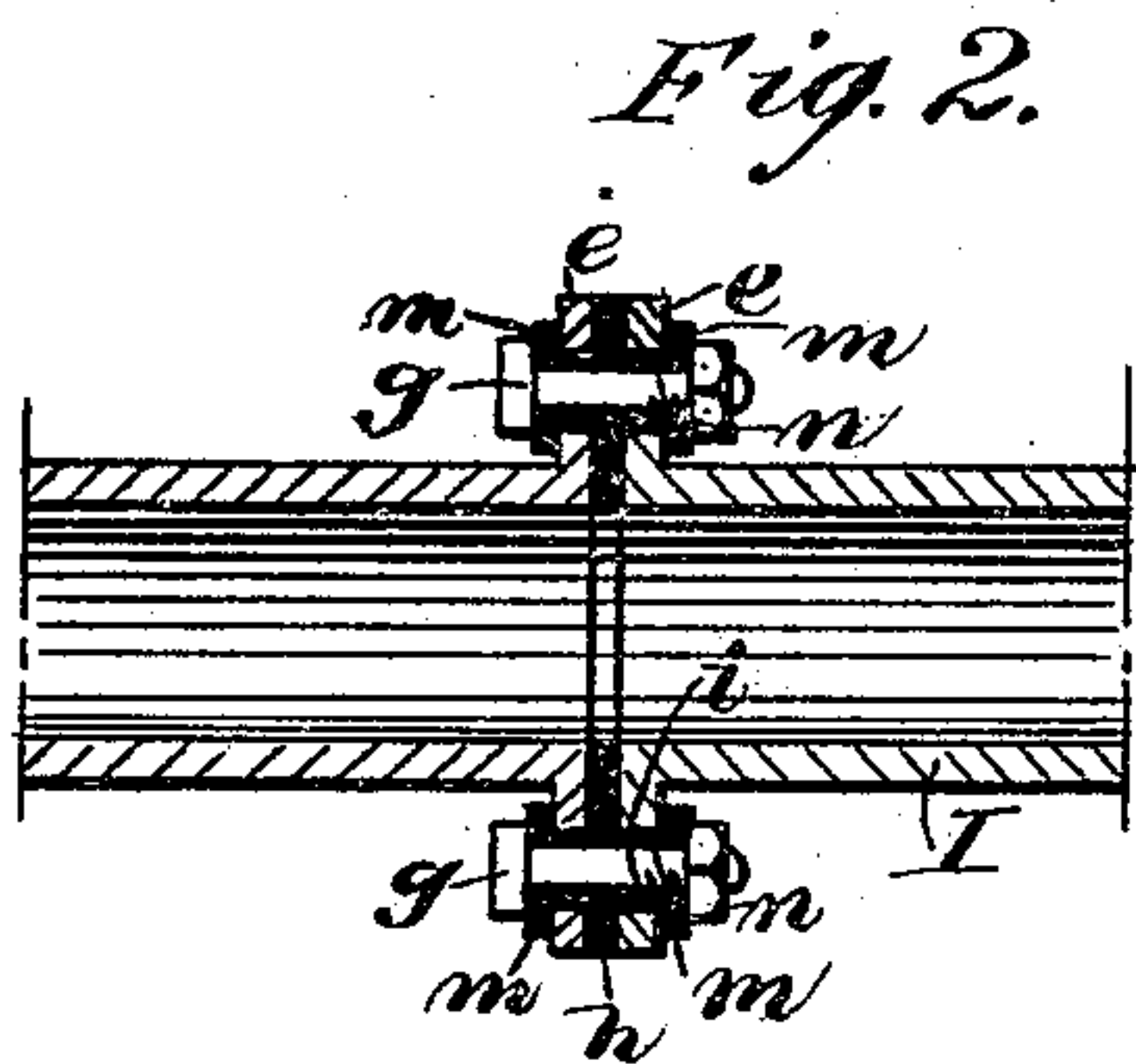
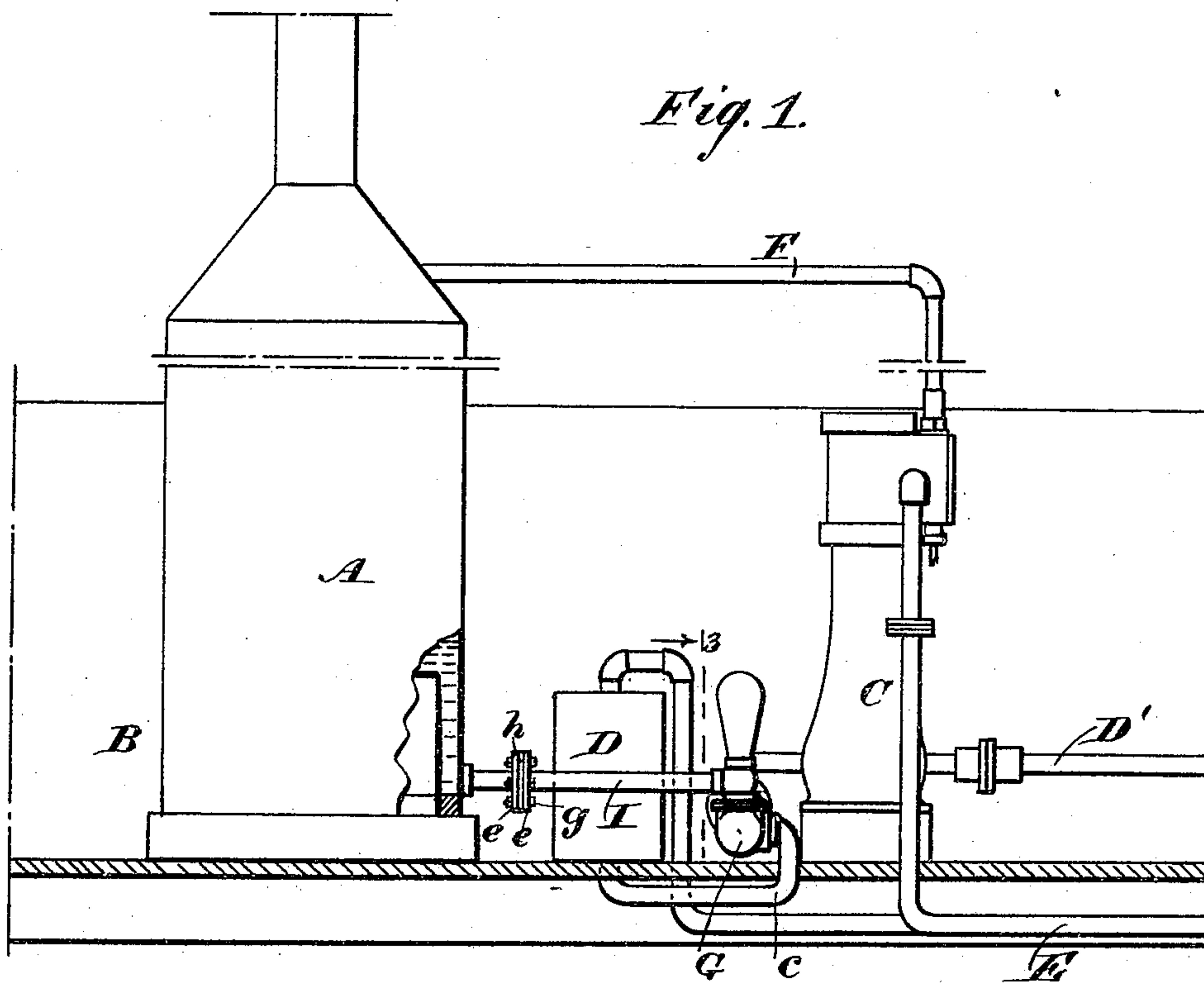


(No Model.)

P. DECKER.  
ELECTRIC INSULATOR FOR BOILERS.

No. 467,085.

Patented Jan. 12, 1892.



WITNESSES:

*Donn Twitchell*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

PETER DECKER, OF NORWALK, CONNECTICUT.

## ELECTRIC INSULATOR FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 467,085, dated January 12, 1892.

Application filed September 25, 1891. Serial No. 406,793. (No model.)

*To all whom it may concern:*

Be it known that I, PETER DECKER, of Norwalk, in the county of Fairfield and State of Connecticut, have invented a new and useful  
5 Electrical Insulator for Boilers, of which the following is a full, clear, and exact description.

The flues of land and marine boilers are found to corrode rapidly in many instances  
10 where quick-speed engines are directly connected to the boiler by steam and feed-water pipes. Experiment has demonstrated that the excessive oxidation of the interior of a boiler used to generate steam is frequently  
15 due to electrolytic action resulting from currents of electricity pervading the water in the boiler and which are generated by friction of working parts in a quick-speed engine, an electric circuit being established between the  
20 boiler and engine through the steam-pipe and feed-water pipe connecting the same.

The object of my invention is to prevent the excessive oxidation of the interior parts of a steam-boiler due to electrolysis; and it  
25 consists in the introduction of an electrical insulator in one of the pipes extending between the engine and boiler, whereby the current of electricity is broken between them and the oxidation of the boiler interior from  
30 electrolysis is prevented.

My invention further consists in the combination of parts, as is hereinafter described and claimed.

While the insulation is effective to prevent  
35 injury to all types of boilers that are attached to quick-speed engines, so as to break an electrical circuit between them, it is herein shown and described in connection with a marine boiler of the vertical type and a vertical  
40 quick-speed steam-engine.

In the drawings forming a part of this specification similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view, partly in section, of  
45 a vessel amidships broken away at each end, an upright boiler therein, a vertical steam-engine, a pump, water-supply tank therefor, a steam-pipe, and a water-supply pipe extending from the boiler and in connection with  
50 the engine, and the improvement placed in a joint in the water-pipe. Fig. 2 is an enlarged longitudinal section of the water-feed pipe

broken away on each side of the improved insulating-joint shown in connection with the pipe, and Fig. 3 is a transverse section of parts  
55 taken on the line 3 in Fig. 1.

A represents an upright steam-boiler located in the hull of a vessel B.

C is an upright quick-speed steam-engine.

D is a hot-well to receive water from the  
60 tube condenser E, through which the exhaust-steam of the engine traverses and is exposed to the water of flottage.

The boiler A is connected to the engine by a steam-supply pipe F, (shown broken,) the  
65 usual steam-controlling valve being removed therefrom, as well as the safety-valve for the boiler. These features may be of any approved form, and, as they are not necessary to illustrate the invention, are omitted from the  
70 drawings.

The pump G has its plunger *a* connected with the main shaft *D'* of the engine by an eccentric *b*, and the pump is fed with water from the tank or hot-well D by a connecting-  
75 pipe *c*.

The several parts briefly described are of well-known form in common use and are shown to facilitate an understanding of the invention, which consists in the introduction  
80 of an insulating-joint in the water-feed pipe I, that extends between the boiler A and pump G.

As shown in Fig. 2, the pipe I is divided into two parts and at the opposing ends is pro-  
85 vided with a radial flange *e* on each terminal, which flanges are perforated for the reception of securing-bolts *g*. There is a joint ring or washer *h* introduced between the flanges *e*, which is made of any good non-conductor of  
90 electricity that will also provide a water-tight joint for the pipe I.

Around each of the bolts *g* a sleeve *i* is placed and washers *m* between the flanges *e* and bolt-heads and nuts *n*, which sleeves and  
95 washers are formed of material that is a non-conductor of electricity.

The insertion of the insulators as explained will prevent a current of electricity passing through the boiler from the engine and con-  
100 sequently arrest electrolytic action in the boiler that would result if such an insulator was not provided.

It will be evident that an equally beneficial



result will be afforded if the steam-pipe F is severed and connected by flanges that are completely insulated from each other. Hence I do not desire to confine the location of the  
5 insulators for the flanges and bolts to the water-feed pipe, while preference is given to such a location.

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

1. An electric insulator introduced in a pipe-connection between a steam-boiler and a steam-engine to break an electric circuit between them, substantially as described.

2. An electric insulator for a steam or wa- 15  
ter pipe extending between a steam-boiler and a steam-engine, consisting of an insulating-joint located between opposing coupling-flanges on the pipe-sections, a sleeve of non-conducting material on each bolt-body, and 20  
a washer of non-conducting material under each head and nut on said bolts, substantially as described.

PETER DECKER.

Witnesses:

HENRY W. BODWELL,  
GEORGE F. BEARSE.