

No. 705,490.

Patented July 22, 1902.

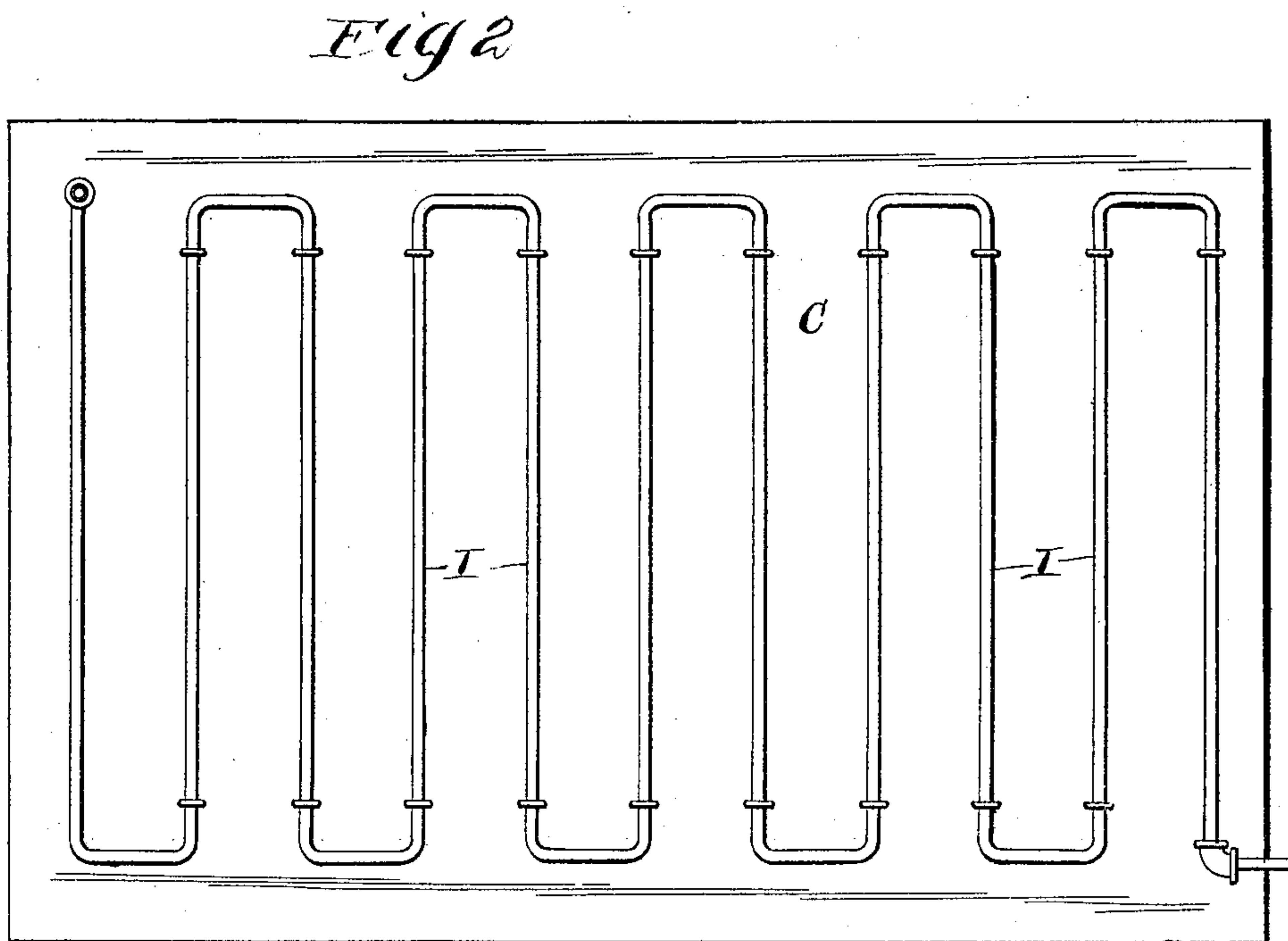
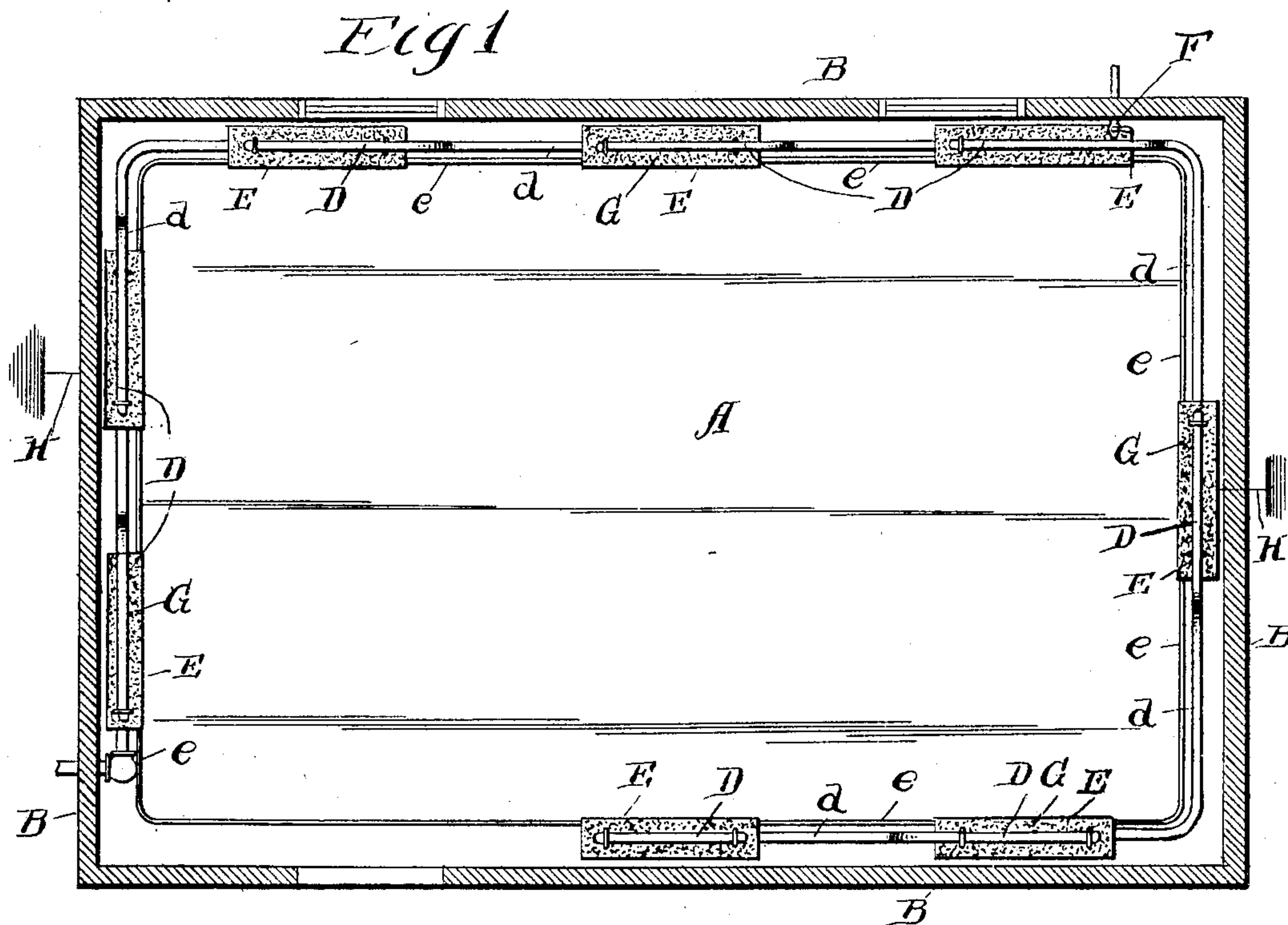
R. O. VANDERCOOK.

MEANS FOR DISSIPATING STATIC ELECTRICITY.

(Application filed Mar. 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
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Inventor:
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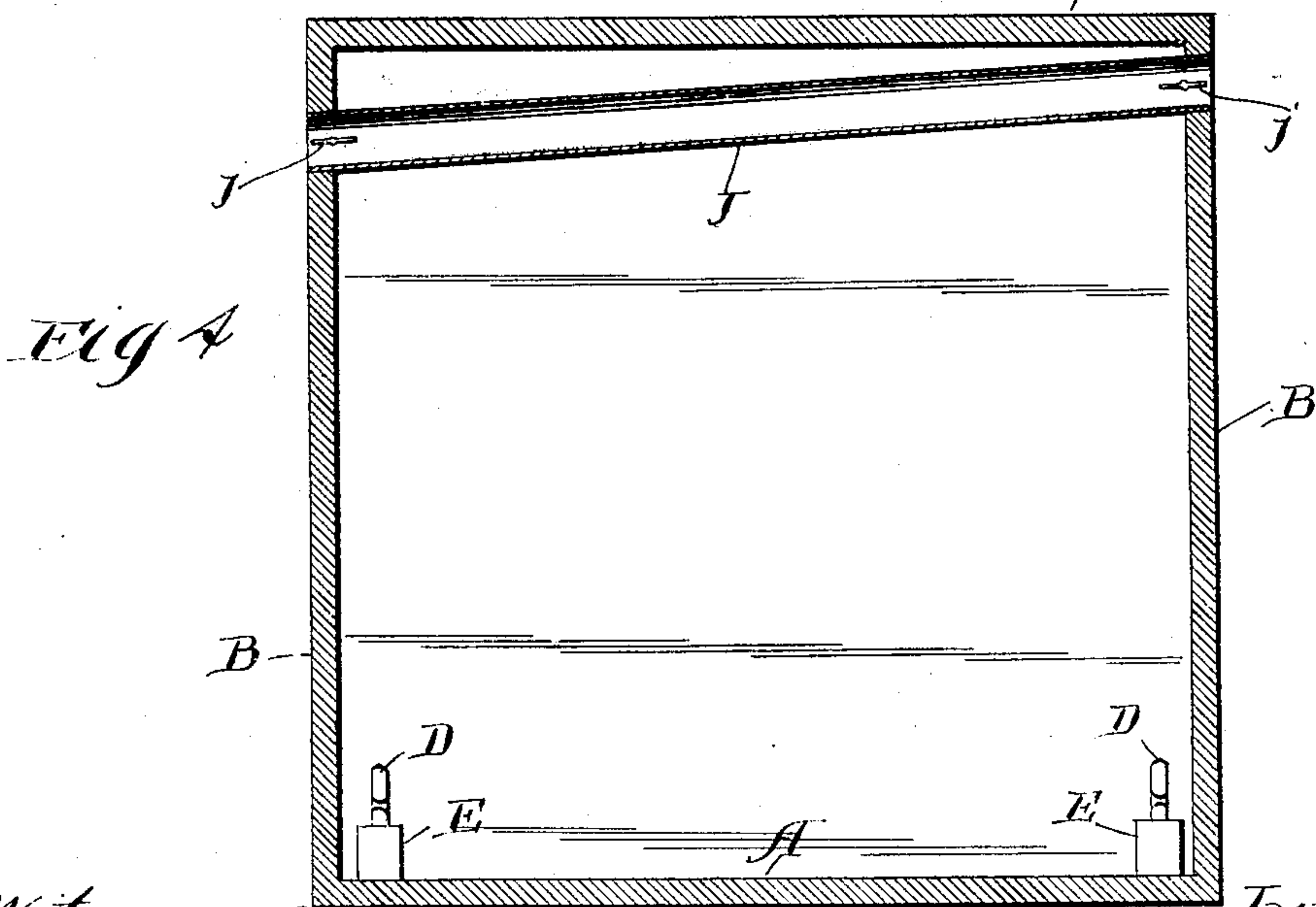
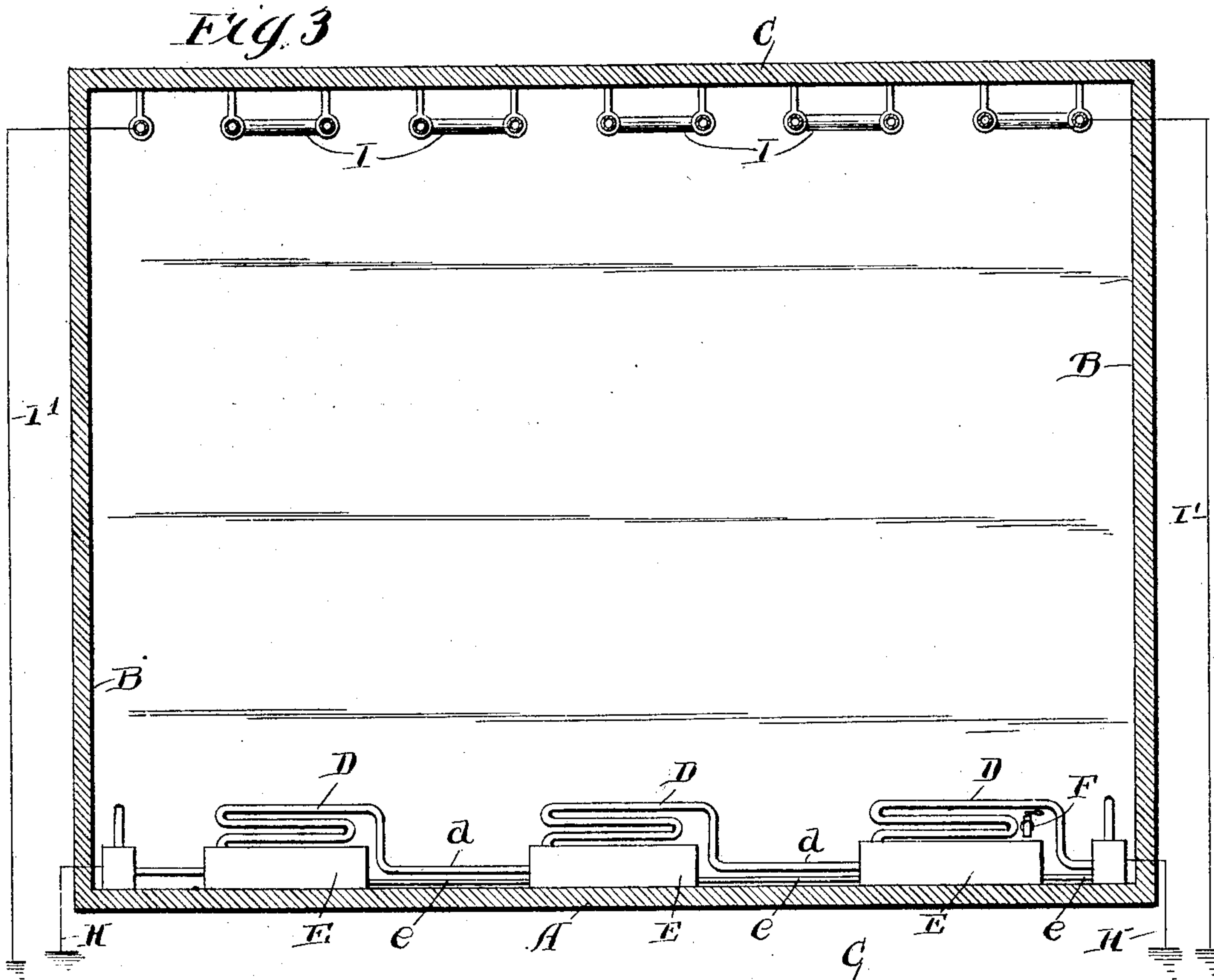
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MEANS FOR DISSIPATING STATIC ELECTRICITY.

(Application filed Mar. 13, 1901.)

(No Model.)

2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

ROBERT O. VANDERCOOK, OF EVANSTON, ILLINOIS.

MEANS FOR DISSIPATING STATIC ELECTRICITY.

SPECIFICATION forming part of Letters Patent No. 705,490, dated July 22, 1902.

Application filed March 13, 1901. Serial No. 50,926. (No model.)

To all whom it may concern:

Be it known that I, ROBERT O. VANDERCOOK, of Evanston, in the county of Cook and State of Illinois, have invented certain new
5 and useful Improvements in Means for Dissipating Static Electricity; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the let-
10 ters of reference marked thereon, which form a part of this specification.

It is a well-known fact that press-feeders and other persons employed in handling paper in the press-room of a printing-office are
15 greatly inconvenienced by the electrical conditions prevailing at times when the atmosphere is dry and cold through the sheets of paper adhering together and to objects with which they may be brought into contact.
20 This is especially true in northern latitudes, where the atmospheric conditions in cold weather are such that the sheets of paper often become so highly charged with static electricity that it becomes practically impos-
25 sible to handle the paper at all and presses cannot for this reason be operated. I am aware that various efforts have been made to avoid the effects of static electricity by connecting the various metallic parts of presses
30 and other machinery with the ground; but this has proved ineffective, for the reason that the electricity accumulates in the paper itself and tends to remain therein unless the atmospheric conditions are such as to remove
35 or dissipate it.

The purpose of my invention is to prevent the accumulation of static electricity in the paper or to dissipate the same when accumu-
40 lated by producing in the press-room or apartment wherein the paper is handled atmospheric conditions such as ordinarily obtain in summer or at times when electric phenomena of the kind referred to are not sufficiently energetic to be observable or troublesome.
45 Such conditions of the atmosphere I purpose to bring about by providing in the press-room or apartment means for evaporating water or for supplying water-vapor in limited quantities and by providing in the top of the
50 press-room or apartment cooling means—such as water-pipes, cold-air pipes, or the like—by which the moisture-laden air or

water-vapor rising to the top of the room is chilled, and thereby caused to descend and become disseminated throughout the atmos- 55
phere of the room or apartment.

I have found that the mere introduction of steam or generation of water-vapor from boiling water in a room will not produce the desired result. It is highly undesirable in a 60
printing-office or press-room that the atmosphere should be too damp or contain too much moisture, for the reasons that presence of moisture injures the paper, is liable also to injure the printing-rolls and ink, and is in 65
other ways undesirable. It follows that if steam be introduced in the apartment or water-vapor formed therein in sufficient quantities to entirely saturate the air of the room, and thereby do away with the dry condition 70
of the air which results in the accumulation of static electricity, the room will become objectionably damp. I have also found that if an attempt be made to limit the quantity of moisture by evaporating only a small quan- 75
tity of water in the room it is not practicable to properly disseminate such moisture, for the reason that the small quantity produced is carried upwardly by ascending air-cur-
80 rents to the ceiling of the room and escapes from the room or is carried away through ventilating-openings by lateral air-currents. As, for instance, if a vessel of water were placed upon a radiator the vapor generated would be carried upwardly to the 85
ceiling of the apartment with the current of warm air rising from such radiator and would find its way out of the apartment or remain adjacent to the ceiling with such hot air or find its way out of the apartment with the air 90
escaping from the top of the same through windows or ventilating-openings. If, however, as is proposed by me, a limited quantity of water-vapor be produced in or intro- 95
duced into the room and provision be made for chilling the same at the top of the room or when it reaches the vicinity of the ceiling, the air containing the water-vapor will descend as soon as it becomes chilled by con- 100
tact with such chilling means and be thereby equally disseminated or diffused throughout the atmosphere of the room. In other words, by the employment, in connection with means for generating water-vapor or for introducing

water-vapor in small quantities, of cooling or chilling devices located at the top of the apartment an atmospheric condition may be obtained and maintained within the apartment substantially like that existing on a summer day or under normal conditions of the atmosphere. By actual experiments and tests applicant has, when conditions were such as to make it practically impossible for operators to feed printing-presses and otherwise handle paper in a printing-office, within a few minutes obtained such atmospheric condition within the apartment that all evidences of the presence of static electricity have disappeared, and the workmen have been enabled to carry on their work without hindrance or trouble.

The limited amount of moisture or water-vapor required may be produced in an apartment in various ways. I prefer, however, to produce such water-vapor by evaporating water and have found the best results are produced by placing a mass of cotton-waste or other porous material saturated with water adjacent to a radiator or other similar heating device, water being supplied in small quantities or in a continuous flow to such cotton-waste to keep the same moist and to thereby keep up the supply of vapor arising therefrom. Cooling or chilling devices at the top of the apartment may consist of pipes containing cold running water or of air-pipes extending across the ceiling of the apartment and communicating at their ends with the outer air.

In order to obtain the best results, it is desirable that ample ground connections be provided for carrying away the static electricity, and, as hereinbefore indicated, these may be provided by conductors connecting the receptacles used for containing the water to be vaporized and also the water-pipes, air-ducts, or the like at the top of the room with the ground or grounded metallic parts of or in the building.

My invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a plan view of an apartment containing the means or devices constituting my invention. Fig. 2 is a view of the ceiling of said compartment with devices adjacent thereto. Fig. 3 is a vertical section through the apartment, showing the devices illustrated in Figs. 1 and 2. Fig. 4 is a similar section showing a modified form of said devices.

As shown in said drawings, A indicates the floor, B B the side walls, and C the ceiling of the apartment, such as a press-room or printing-office. Around the sides of the apartment and resting on the floor thereof are the usual radiators or heating-coils D D, the same being shown as connected by steam or hot-water pipes *d d*. Resting on the floor beneath said coils are sheet-metal receptacles E E, the same rising above the floor sufficiently far to inclose the lower coils or pipes

of the radiators. These receptacles are conveniently connected by means of water-pipes *e e*, located at the floor-level, and provision is made for supplying water to all of said receptacles, consisting in the instance shown of a faucet F, which discharges into one of the receptacles. The water flows from said receptacle adjacent to the faucet to the other receptacles through the several connecting-pipes *e e*. Within each receptacle is placed a mass G of cotton-waste or like porous material. The several receptacles have electric connection with the ground—as, for instance, by conductors H. Such ground connection will be desirable where the building is entirely of wood or fireproof construction; but if the floor should be of cement and rest directly from the ground, so as to afford direct electrical connections between the atmosphere of the room and the ground, it will not be necessary to make any special provision for grounding the metal of the several receptacles. The same will be the case if the room be provided with grounded pipes or contain metal structures which have ground connections.

As shown in Figs. 1, 2, and 3, a series of coils of water-pipe I are suspended from the ceiling. Such coils will be provided with means for supplying water thereto at one end and the exit of such water at the other end, so as to enable a constant flow of cold water to be maintained through the same. Such pipes may constitute part of the usual water-supply system of the building. Preferably these pipes will be provided with ground connections—as, for instance, by conductors I' I'—leading to the ground or to metallic pipes or other metallic parts connected with the ground.

If in a room or apartment equipped as above described the atmospheric conditions within the apartment are such as to give rise to the troubles usually experienced from the accumulation of static electricity water be delivered to the several receptacles and is absorbed by the cotton-waste or porous filling of the said receptacles, a limited quantity of water-vapor will be produced which will rise to the top of the room. There the water-vapor or the air bearing the same will come in contact with the cold-water pipes and becoming chilled, and therefore heavier than the supernatant air, will descend toward the floor, with the result of thoroughly disseminating or diffusing the moisture-laden air throughout the apartment. The quantity of water delivered to the receptacles will be regulated so as to prevent the production of too much dampness, but at the same time it will be necessary in order to keep up the supply of water and continue the production of water-vapor to maintain the air within the apartment in a uniformly-moist condition, for the reason that the moisture-laden air will continually escape from the apartment, or the moisture therein will be

condensed in cold-water pipes or on windows or other cold surfaces, and such moisture-laden air will be continuously supplanted by dry air from out of doors.

5 In Fig. 4 I have illustrated another form of cooling means, which may be used at the top of the press-room, the same consisting of air-pipes J, extending across the room near the ceiling and open at their ends to the out-
10 side air or to a space which is not heated. The ends of the air-pipes are shown as extending through the walls of the room, which in the instance illustrated constitute the outer walls of the building. The said pipes
15 are shown as inclined to facilitate the passage of cold air therethrough and are provided with dampers j at their ends to enable the cold air, rain, or snow to be excluded therefrom when desired.
20 It may be found desirable to localize the means for generating and disseminating moisture—as, for instance, where a printing-press is located adjacent to a window, so that the air in the neighborhood thereof is con-
25 stantly changing by the entrance of dry and cold air from out of doors, electrical conditions may prevail in such neighborhood which may not be present in other parts of the room. In such a case vapor-producing means may
30 be located in the part of the room occupied by such press and chilling means may be placed in the room above the same, the vapor constantly produced in such case serving to maintain constantly the desired atmos-
35 pheric conditions by supplying humidity to

replace that taken away by movements of the air in the room.

I claim as my invention—

1. As a means for obtaining non-electrical atmospheric conditions in a press-room or 40 apartment for like uses, cooling means at the top of the said room or apartment and means for introducing water-vapor into the room or apartment at a point distant from the cool-
ing means, said cooling means being disposed 45 uniformly throughout the area over the space to be maintained in non-electrical condition.

2. As a means for obtaining non-electrical atmospheric conditions in a press-room or 50 apartment for like uses, means located at the bottom of the room or apartment for evaporating water to produce water-vapor, and cooling means at the top of said room or apart-
ment, said cooling means being disposed uni- 55 formly throughout the area over the space to be maintained in a non-electrical condition.

3. As a means of obtaining non-electrical atmospheric conditions in a press-room or apartment for like uses, means for introduc- 60 ing water-vapor therein cooling means at the top of the room, and grounded electric conductors in said room.

In testimony that I claim the foregoing as my invention I affix my signature, in pres- 65
ence of two witnesses, this 27th day of Feb-
ruary, A. D. 1901.

ROBERT O. VANDERCOOK.

Witnesses:

C. CLARENCE POOLE,
WILLIAM L. HALL.