

No. 747,935.

E. M. CAFFALL.

PATENTED DEC. 29, 1903.

PROCESS OF TREATING SURFACES FOR WATERPROOFING OR
PRESERVATIVE PURPOSES.

NO MODEL.

APPLICATION FILED MAR. 28, 1903.

2 SHEETS—SHEET 1.

Fig. 1.

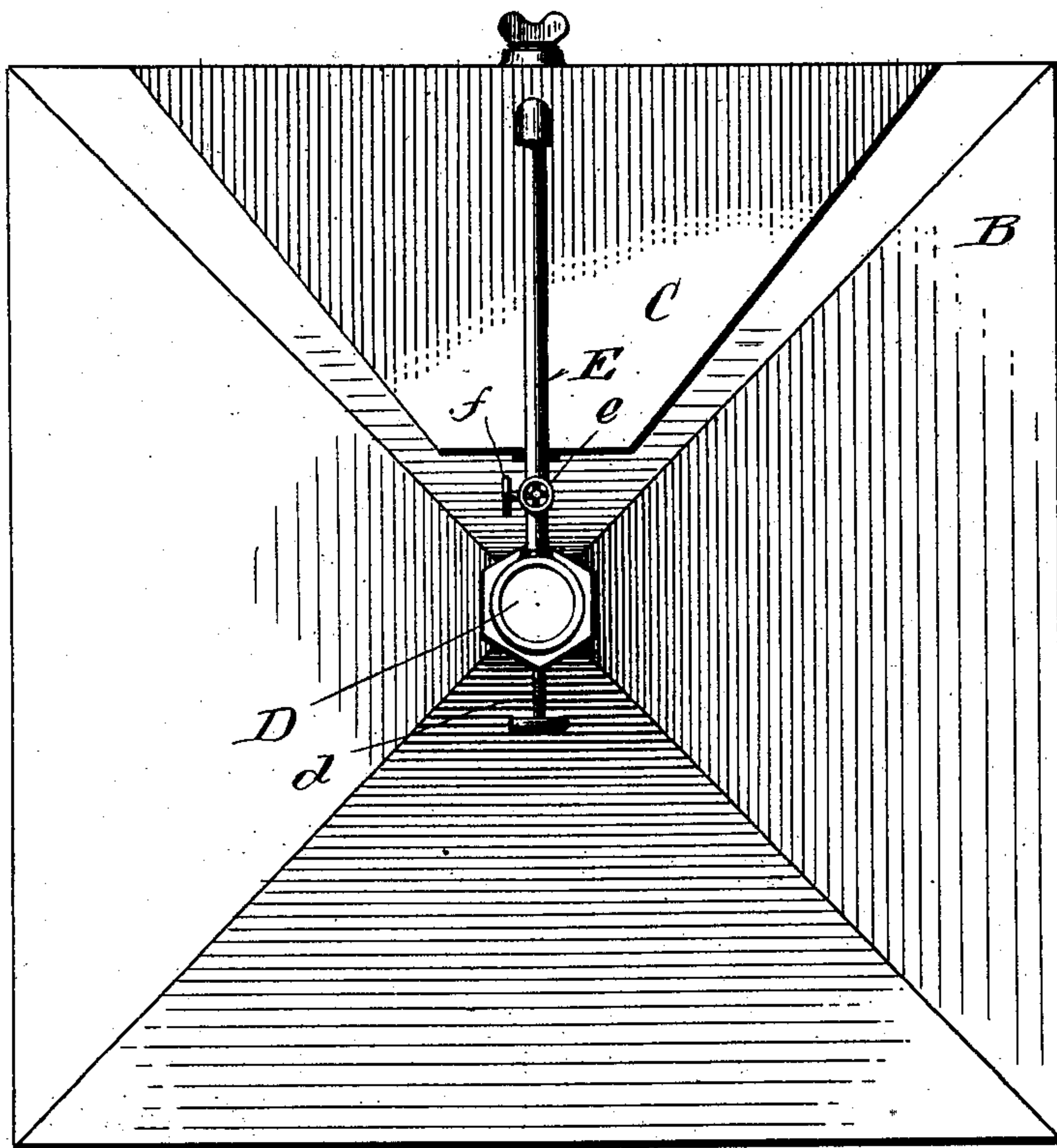
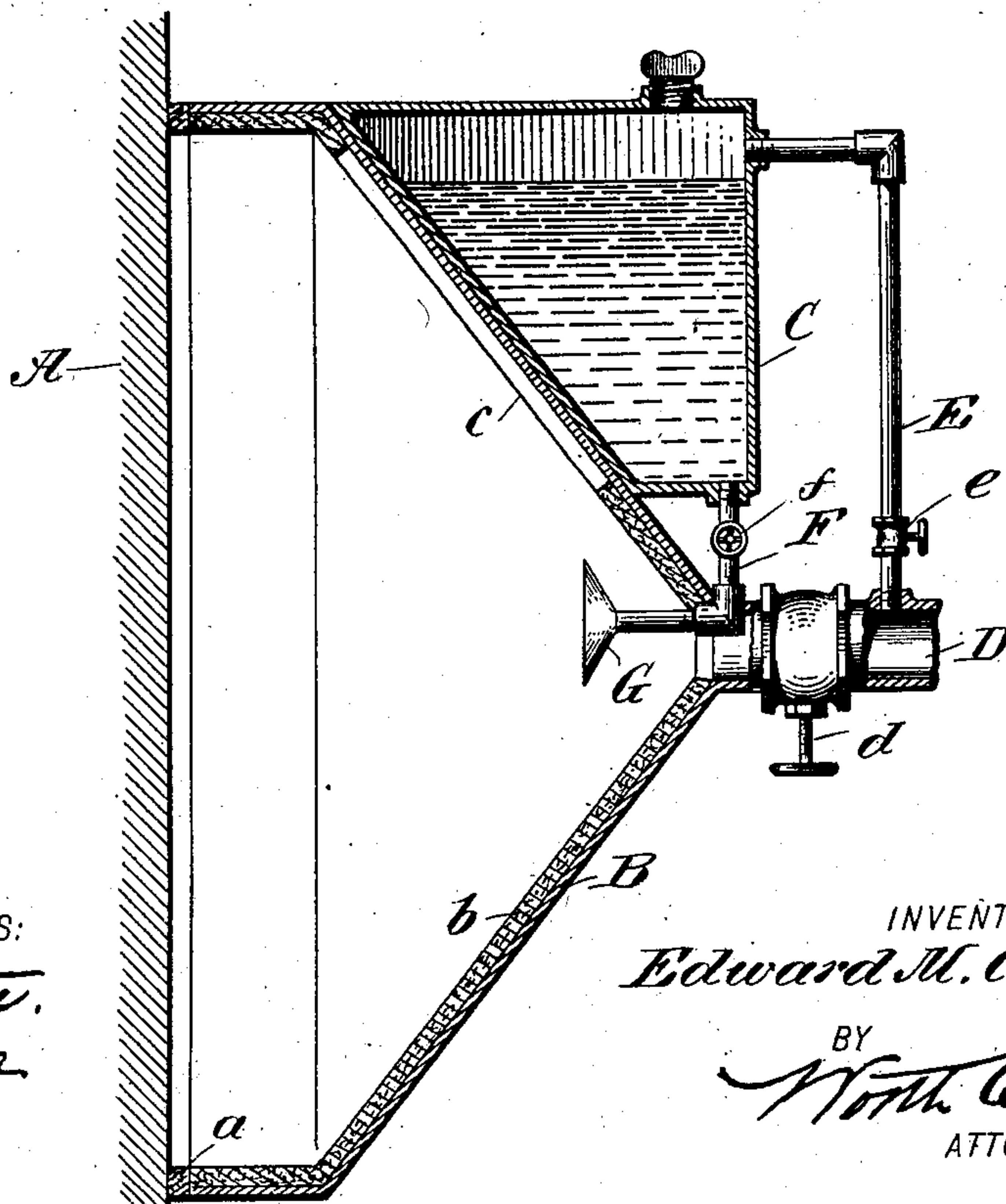


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

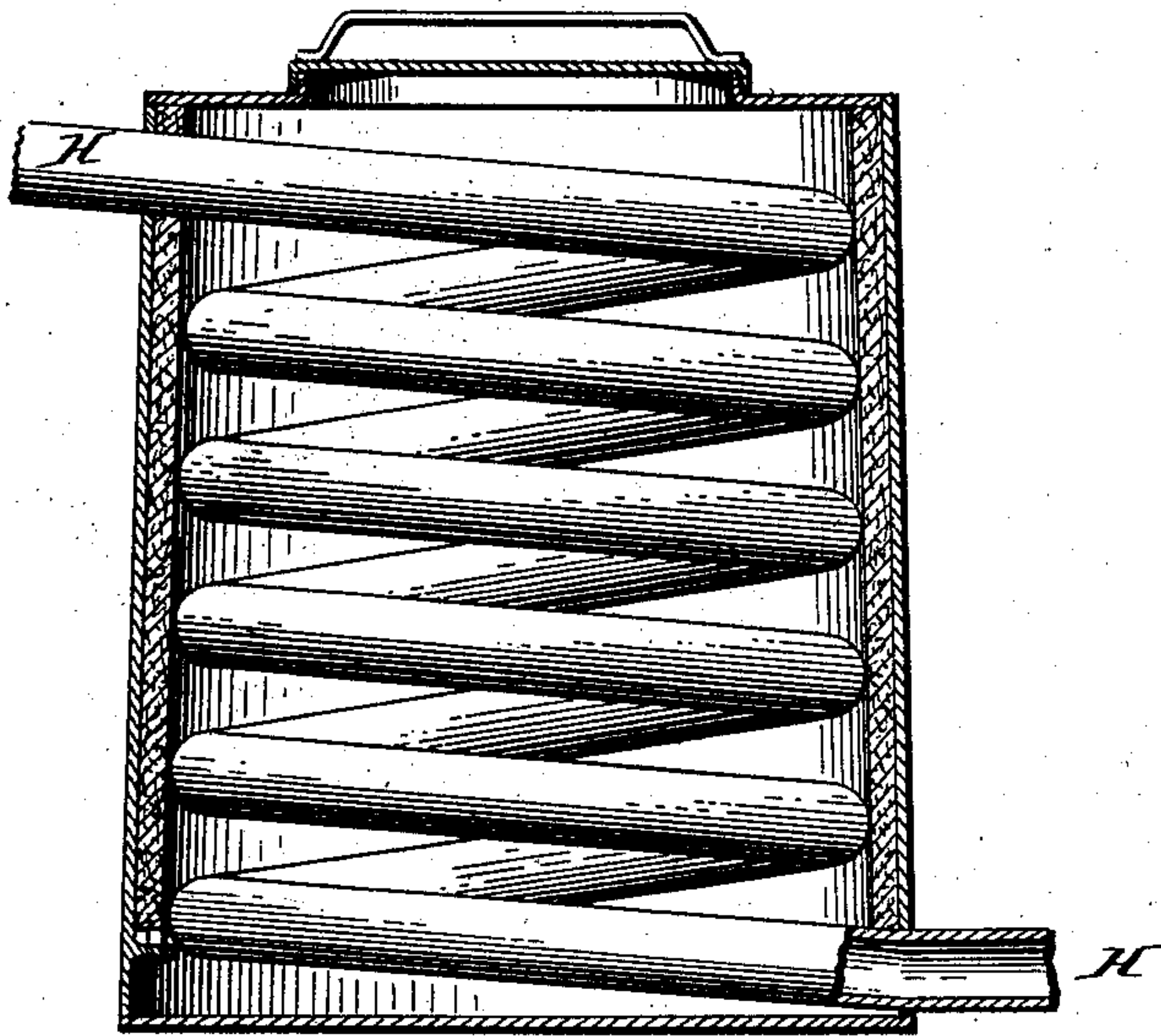
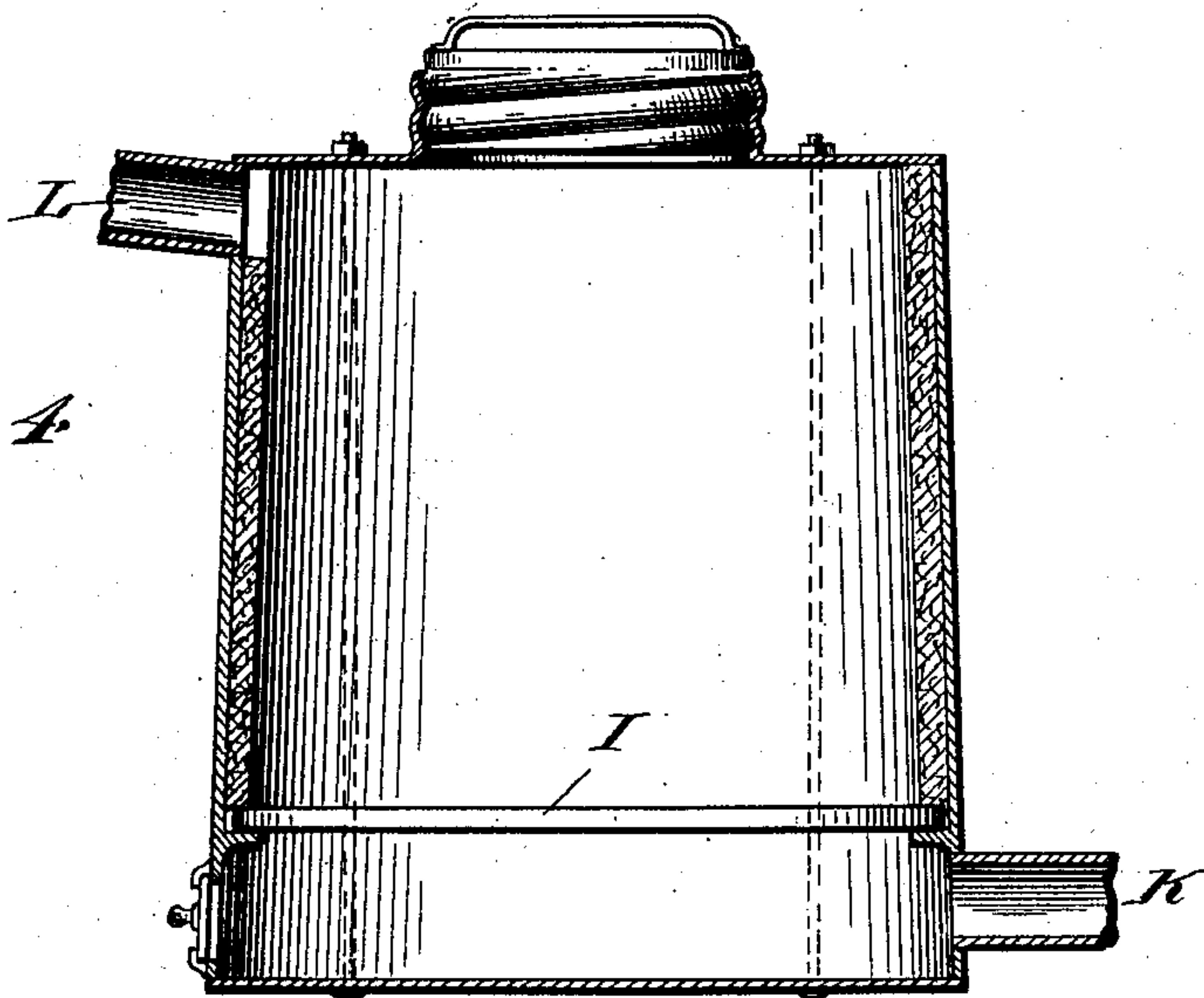


Fig. 4.



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PROCESS OF TREATING SURFACES FOR WATERPROOFING OR PRESERVATIVE PURPOSES.

SPECIFICATION forming part of Letters Patent No. 747,935, dated December 29, 1903.

Application filed March 28, 1903. Serial No. 149,937. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD M. CAFFALL, a citizen of the United States, and a resident of Sparkill, Rockland county, New York, have
5 invented a new and useful Process of Treating Surfaces for Waterproofing or Preservative Purposes, of which the following is a full, clear, and exact specification.

The principal objects of my invention are
10 to treat surfaces of brick, stone, plaster, metal, wood, and other materials so as to insure a thorough and effective waterproofing or preservation or protection thereof without damage to them and with little ex-
15 pense and without the necessity of employing skilled labor. Subordinate objects are to dispense with the use of flames for contacting with the surfaces to be treated and to insure a practically uniform treatment of
20 all parts of the surfaces, so that they will present a uniform color or appearance and the applied material made to penetrate to about the same extent. To accomplish these objects and to secure other and further ad-
25 vantages, my invention involves a new and useful process and particular steps in the process, as will be herein first fully explained and then pointed out in the claims.

The process is independent of any special
30 form or construction of apparatus; but for convenience of explanation I have represented in the accompanying drawings an apparatus by which the process may be practiced.

35 Figure 1 is an elevation, and Fig. 2 a vertical section, of a convenient form of hood or oven with necessary appliances or adjuncts and which may be employed in practicing my invention. Fig. 3 is a sectional elevation of
40 a form of heater wherein the air which passes through it for use is kept free from contact with the fire, and Fig. 4 is a similar view of a heater for the air wherein the air is passed through the fire or coals.

45 Similar reference-letters for similar parts are employed in all the figures.

For preserving brick and other walls, for instance, the application of a direct flame has been common to first bring a section of the
50 surface to the desired temperature, then hot paraffin or asphaltum has been applied to the section previously heated, and the flame

again directed against the section. The material applied is highly inflammable, and much difficulty is experienced in avoiding fire or ex- 55
plosion, which on scaffolds, staging, and the like is very dangerous. The flame, moreover, heats only a very small section and that not uniformly, causes the stone, &c., to chip or crack, destroys the uniform color of the 60
finished work, and fails to secure a uniform penetration of the applied substance.

According to my invention I keep the fire well removed from the surface or wall and heat the latter by application of hot air, then 65
apply the heated substance by which the treatment is to be effected, and again heat the particular section by hot air. The air is under more or less pressure, according to circumstances. I force this by suitable mechanical 70
means into a sealed chamber or stove containing charcoal, coke, or other preferred fuel under combustion, and then conduct the heated compressed air through suitable channels to an oven with an open face. This 75
face is placed against the surface to be treated and the hot blast allowed to escape into the oven. The hot air forces its way into the pores of the surface to be treated and also into any flaws or cracks which may exist in 80
the same and drives out and carries away all moisture. As soon as sufficient air has played upon the surface the treating material is projected or sprayed over the heated section from a suitable reservoir, and when the section is 85
properly saturated the supply of treating material is cut off and the hot air again applied until the material has become absorbed by the surface. Then the apparatus is moved to the 90
next section, and so on.

In the drawings, A represents any surface to be treated.

B is a suitable oven which may be lined, as at *b*, with asbestos or any suitable non- 95
conducting substance, and it has by preference a flexible edge, as *a*, by which it can be held tight against the surface.

C is a suitable metallic tank for containing the material by which the treatment is to be effected, the same being conveniently 100
heated by the hot air within the oven B, for which purpose a portion of the lining *b* is omitted, as at *c*.

D is a pipe through which the heated air is

introduced to the interior of the oven, this pipe leading from the air-heating apparatus, which is located at a considerable distance from the oven, the pipe being made flexible
5 or jointed, as occasion may require.

d is the stem of the valve in pipe D, by which the flow of air to the oven may be interrupted or regulated.

E is a pipe leading from the pipe D to the
10 upper part of the tank C, and in this pipe E is a valve, as at e . When this valve e is open, the air-pressure tends to drive the material from the tank C.

F is a pipe leading from the bottom of the
15 tank C, and in this is a valve f . On the inner end of this pipe is any suitable form of spraying-nozzle, (represented at G.)

When the valve f is open and the air-pressure allowed to enter the top of tank C, the
20 material will be forced down through pipe F and sprayed by nozzle G against the previously-heated surface. Then the air is again admitted to the oven D and further heats the material on the surface and forces it into the
25 pores thereof.

For heating the air I employ any suitable furnace or stove. When it is desirable or necessary to keep the air pure and clean and avoid the presence of carbonic acid, I prefer
30 to pass it through a pipe, as H, Fig. 3, this being located within the stove wherein the fire is maintained. In other cases the air for use in the process may be heated by an apparatus substantially as represented at Fig. 4,
35 wherein I represents a grate, and K a tube to admit the air under pressure. The air then passes up through the grate I and through the coals thereon and passes out through a suitable outlet, as at L. As the stoves are
40 intended to heat air under more or less pressure, they should be substantially tight and well made.

The process may be practiced by use of the illustrated apparatus or by any other suitable
45 for the purpose. It has not been deemed necessary to represent any means for compressing the air. The compression may be

accomplished by a fan-blower or a pump of any suitable form.

Some of the principal surfaces to be treated
50 are those of brick and stone walls, interior walls, and ceilings, as well as floors, monuments, statuary, pavements, and so on.

This new method of treatment will be found to answer all the purposes or objects of the
55 invention previously set forth.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The herein-described process of treating
60 surfaces for waterproofing and preservative purposes, the same consisting in heating the surface to be treated by application thereto of heated compressed air, then spraying upon the surface thus heated the treating material
65 while it is in a heated condition, and then heating the treated surface by application thereto of heated compressed air, substantially as and for the purposes set forth.

2. In a process of treating surfaces, the application thereto of heated air confined under pressure in contact with the surface to be treated, subsequently spraying the heated material upon the surface thus heated, and then reheating the treated surface by air
75 confined against it and under pressure, substantially as and for the purposes set forth.

3. In a process for treating surfaces, first heating the compressed air out of contact with the fuel, confining this air under pressure
80 against this section to be treated, spraying the section with the treating material which has been heated by the compressed air, and then subjecting the treated surface again to the action of the heated air confined against
85 it under pressure, substantially as and for the purposes set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD M. CAFFALL.

Witnesses:

C. SEDGWICK,
WORTH OSGOOD.