

No. 626,772.

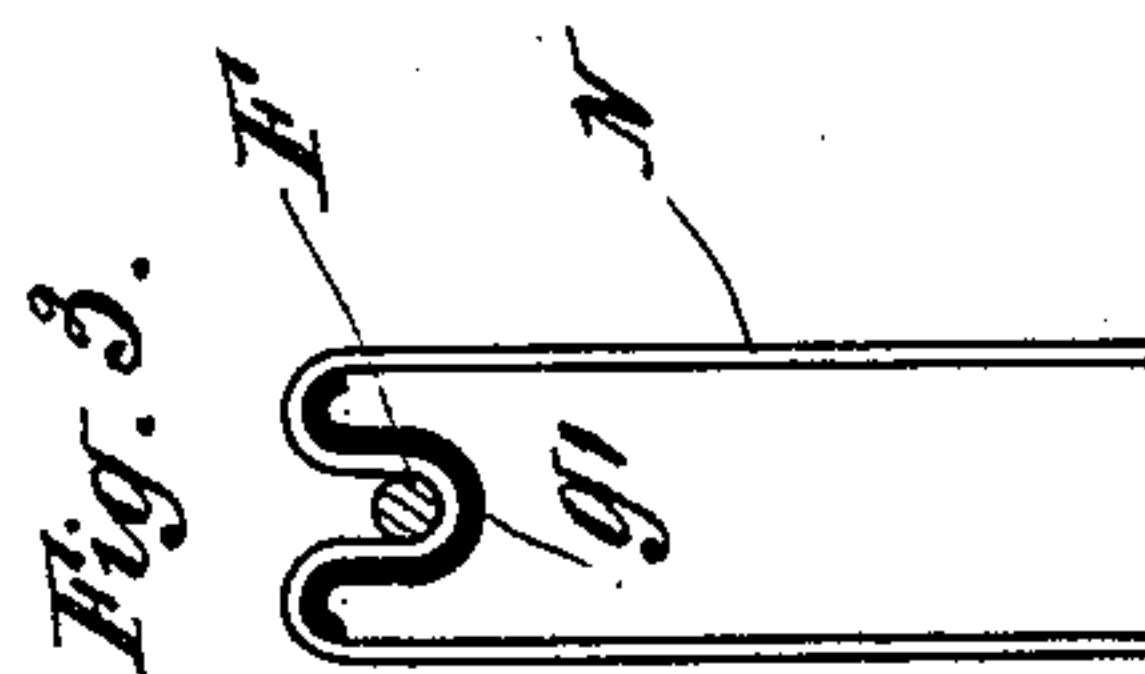
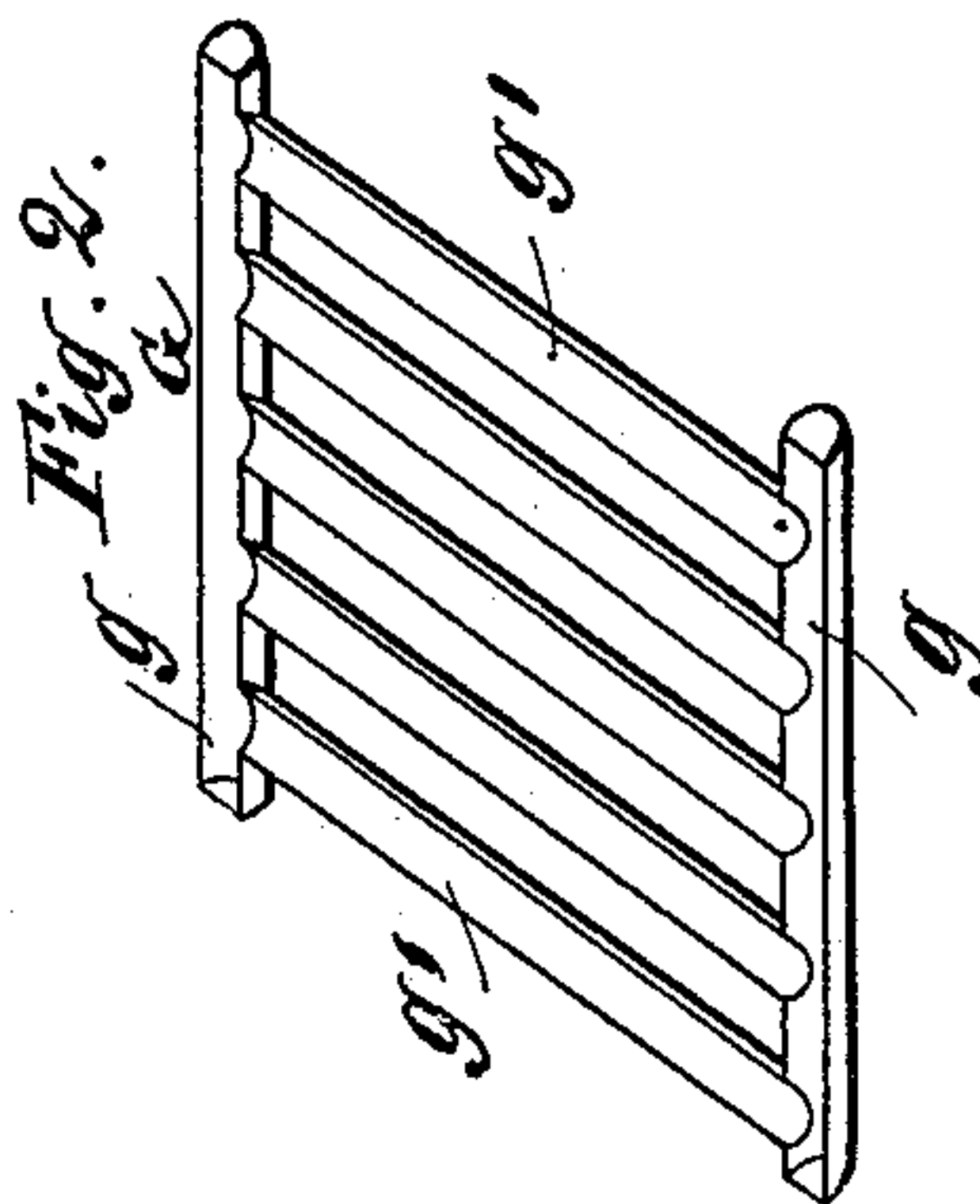
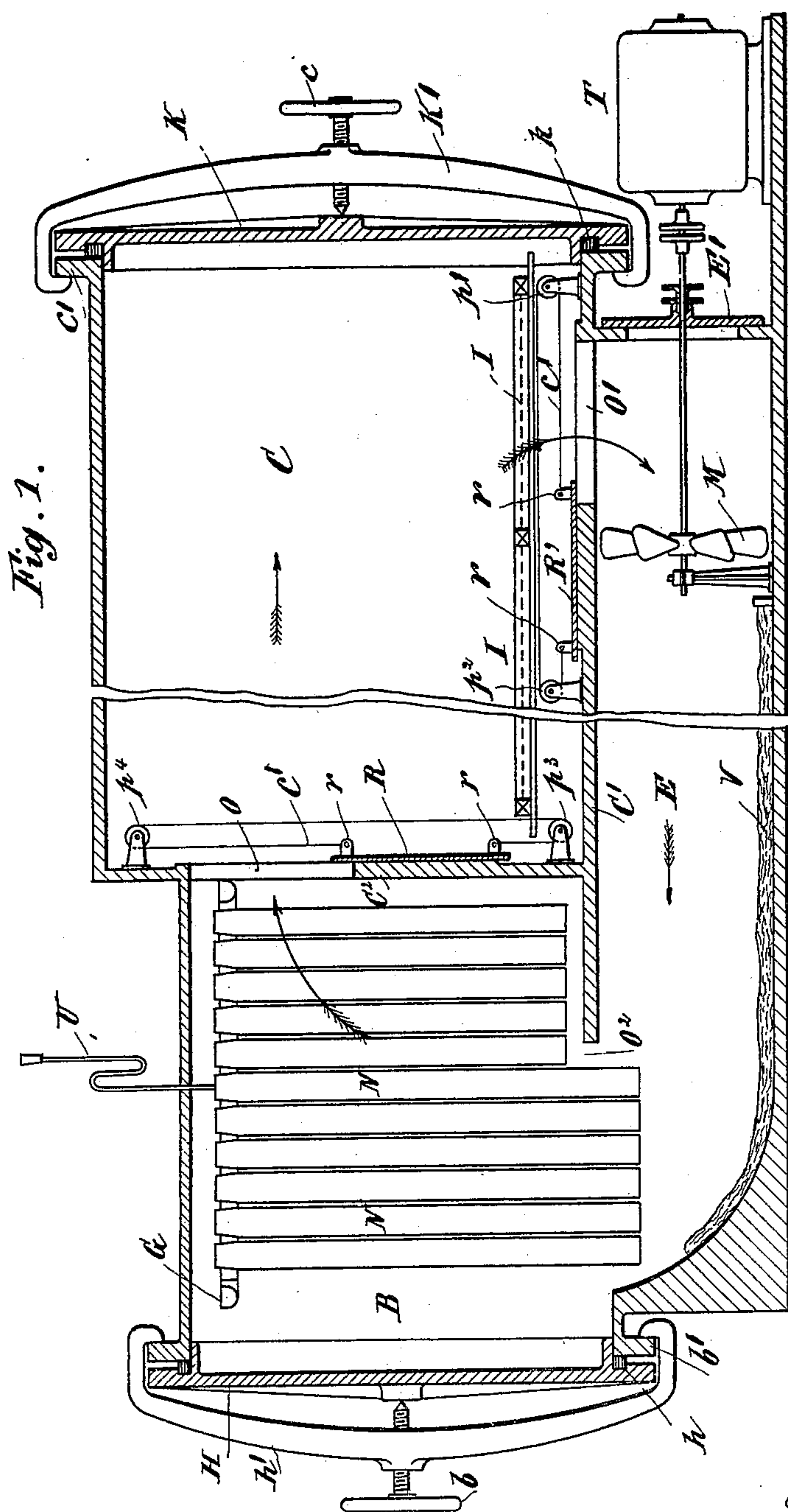
Patented June 13, 1899.

F. & G. DE RECHTER.

APPARATUS FOR PRESERVING ORGANIC MATERIAL.

(Application filed May 3, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

FRANÇOIS DE RECHTER AND GUSTAVE DE RECHTER, OF BRUSSELS,
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APPARATUS FOR PRESERVING ORGANIC MATERIAL.

SPECIFICATION forming part of Letters Patent No. 626,772, dated June 13, 1899.

Application filed May 3, 1898. Serial No. 679,649. (No model.)

To all whom it may concern:

Be it known that we, FRANÇOIS DE RECHTER and GUSTAVE DE RECHTER, subjects of the King of Belgium, residing at Brussels, Belgium, have invented certain new and useful Improvements in Apparatus for Preserving and Disinfecting Organic Bodies or Substances; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention has relation to the art of disinfecting, sterilizing, and conserving perishable organic substances or bodies, as well as to the art of disinfecting and sterilizing other substances, bodies, or materials, such as textiles, &c.

Before our invention the conservation of organic, particularly animal, specimens of all kinds for collections, museums, colleges, &c., has been an imperfect one in that the processes resorted to invariably resulted in such changes as to alter more or less completely the normal or natural condition and appearance of the specimen, while in general it is necessary for the preservation of such specimens—as, for instance, when preserved by desiccation or by immersion in a preserving liquid—to provide specially-constructed cases or receptacles or other means to protect them against the destructive action of arthropods—such as the dermestes, &c.—and other so-called “vermin.” The inconveniences inherent to the preservation of such bodies or substances by refrigeration are well known, the greatest of which is the rapid putrefaction which sets in immediately after thawing. It has also been proposed to preserve such bodies by immersion in a more or less attenuated solution of formaline, which although superior to the other methods referred to does not answer all the purposes, while the constitution, as well as the consistency of the organs, become so modified as to render dissection, for instance, very difficult.

As far as the embalming processes now gen-

erally practiced are concerned it is well known that their success is problematic whether the embalming is effected by liquids injected into the vascular system or whether the subject or specimen is inclosed in bands saturated with aromatic substances, or whether both methods are combined, while in all cases evisceration is absolutely necessary.

The object of this invention is to overcome the difficulties and inconveniences above referred to by the provision of means whereby organic substances or bodies such as hereinbefore referred to may be indefinitely preserved without alteration either in their character or appearance, which may be exposed to atmospheric influences without danger of infection by destructive organisms, which may be freely handled, examined, or studied, and which when once properly treated for preservation will require no subsequent treatment. The importance of such means will be readily appreciated, especially when it is understood that the bulk of the body to be preserved does not in the least interfere with its indefinite preservation, while animal bodies can be so preserved without evisceration. We have thus succeeded in absolutely fixing not only animal and other bodies or parts thereof or their organs and other organisms, but also in permanently fixing the covering of the cutaneous envelop of bodies, as the hair, wool, feathers, or scales, without in the least altering either their normal condition or their appearance.

Our process not only serves as a means of permanently fixing the tissues, but also as a means of disinfection, applicable also to any other substances.

Experiments have demonstrated that by our means we are enabled even to destroy the glanders and anthrax bacilli or microbe in the carcasses of animals having died from these diseases without resorting to evisceration.

The application of our means to the preservation or embalming of bodies does not in the least interfere with subsequent toxicological investigations. This is of especial importance from a medico-legal standpoint. Furthermore, decomposition being definitely

arrested there is no danger of the formation of ptomaines, which often seriously interfere with the examination as to the presence of alkaloids which may have been administered with criminal intent.

That our invention may be fully understood, we will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of an apparatus adapted to the carrying out of our process; Fig. 2, a perspective view of a rack or grid for the saturation or impregnation of an absorbent with the formic-aldehyde solution; and Fig. 3 is a cross-section, on an enlarged scale, through one of the grid-bars g' .

The apparatus, which may be constructed of any suitable material, has two contiguous chambers B and C of different capacities. The larger chamber C, constituting the treating-chamber, will be of such dimensions as to properly accommodate the dead animal organism to be treated and is provided with a perforated false bottom I, on which such organism or organisms is or are placed. Both chambers B and C are accessible through entrances at their ends, closed by covers H and K, respectively, said covers closing their respective chambers fluid-tight, for which purpose a suitable packing h k is interposed between the covers H K, respectively, and the outer face of the chamber-walls encompassing the entrances thereto. These doors are securely held in position by clamping-bars h' k' , engaging a flange b' and c' , encompassing the entrances to the said chambers B and C, respectively, and by means of clamping-screws b and c , as shown.

The dimensions of the chamber B relatively to chamber C should be such as to provide sufficient space in chamber B for an absorbent material to absorb the required quantity of a solution of formic aldehyde to constantly maintain the atmosphere in chamber C saturated with this preserving agent.

The capacity of chamber C may of course vary in accordance with the uses made of it—that is to say, in accordance with the bulk of organic animal matter intended to be treated at one and the same time.

Below the bottom C' of chambers B and C is arranged a flue E, the opposite ends of which communicate with said chambers through openings O' and O^2 , respectively, and said chambers are in communication with each other through an opening O in the partition C^2 . The area of the openings O' and O can be varied by means of slides R' and R, respectively, each provided with two lugs or ears r , to which the ends of a cord or chain c are fastened, said cords or chains being carried about pulleys p' p^2 and p^3 p^4 , journaled in suitable brackets secured to the floor C' and partition C^2 of chamber C, one of the pulleys of each pair—for instance, the pulleys p' and p^3 —being secured to a shaft that extends

fluid-tight through the walls of said chamber C and carrying a crank, by means of which the slides R and R' are moved to more or less cover their respective openings O and O' , any suitable stop device being provided for the crank or shaft that carries the pulley p^3 to prevent the slide R from dropping back to a normal position after adjustment. Such devices we have deemed it unnecessary to show, as they are well known. The floor-opening O^2 , that leads from one end of the flue E to chamber B, extends clear across said chamber, and in the aforesaid flue E on the left of opening O' is located a suction and forcing fan M, driven from any suitable rotary motor, as a rotary fluid-motor T, though of course any other motor, as a steam or electric motor, can be used. This fan is so organized as to draw the air from chamber C through opening O' and force or drive it through opening O^2 and chamber B back to the chamber C through opening O, thus insuring a constant circulation of the air or atmosphere within the chamber C. This circulation of the atmosphere within said chamber C can of course be varied as to rapidity by correspondingly varying the speed of revolution of the fan M.

The fan-shaft passes fluid-tight through a door E' , giving access to flue E, and the floor of said flue is covered with an absorbent material V, capable of absorbing moisture, as felt or the like.

In chamber B, near its roof, is arranged a rack or grid G, made up of channeled material, or, in other words, of intercommunicating gutters—namely, of two longitudinal gutters g g , closed at their opposite ends, and a series of transverse gutters g' , communicating with gutters g . The edges of the gutters g' are bent outwardly and downwardly, and from these gutters are suspended strips of absorbent material N N, as felt or the like, those immediately over the opening O^2 being longer, so that their ends will extend through said opening partly into flue E, as shown.

For the purpose of insuring constant contact of the strips N at their point of suspension with the formic-aldehyde solution in the gutters g' these said strips are pressed into said gutters and a bar F, Fig. 3, sufficiently heavy to hold them in that position, is laid on them.

The formic aldehyde is supplied to one of the gutters, preferably to one of the longitudinal or side gutters g through a gooseneck feed-tube U.

By means of the apparatus described and our process we are enabled to methodically and economically utilize formic aldehyde and are enabled to cause the same to penetrate into or permeate every part of an animal organism, even when of great size or bulk, without being compelled to resort to evisceration and to permanently fix wool, hair, feathers, and scales without change either in their structure or appearance, and this we have accomplished with skins or hides which are known

to be rebellious to the treatment to which they have hitherto been subjected for this purpose, so that skins or hides of dogs, hares, rabbit, deer, &c., can be treated and utilized
5 by the furrier.

We are aware that it has been proposed to use formic aldehyde as a tanning agent, but in such use the skins prepared in the usual manner for tanning undergo a complete
10 change. On the other hand, we are aware that formic acid only coagulates albuminoids, so that in order to obtain a serviceable leather it is necessary to combine with the mass of skins or hides the special combination result-
15 ing from the action of tannin or tannic acid upon albuminoidal or other matter. Finally, instead of formic aldehyde its polymers can be used with equally good results, and although we prefer to use volatilizable or va-
20 porizable solutions of these within the apparatus for greater convenience it is obvious that the volatilization or vaporization may be effected outside of the apparatus and the gas or vapor forced into the same, as into the
25 chamber C.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. Apparatus such as described, comprising
30 a closed vessel divided into two chambers communicating with each other through an opening in the upper portion of the partition-wall, a flue below the chambers in communication therewith through openings in the floor, a
35 channeled support arranged near the roof of one of the chambers, strips of absorbent material depending from and held in the chan-

nels of said support, means for feeding liquid formic aldehyde to said channels, organized to prevent access of outer air to the chambers, 40 and means within the aforesaid flue for inducing a constant circulation of the atmosphere within the apparatus through the chambers and about the strips of absorbent material, for the purpose set forth. 45

2. Apparatus such as described, comprising a vessel divided into two chambers communicating with each other through an adjustable opening in the upper portion of the partition-wall, removable heads for said chambers, a 50 flue below them and communicating therewith through openings in the floor near the outer end thereof, means for varying the area of the flue-opening leading to one of the chambers, a channeled support arranged near the 55 roof of the other chamber, strips of absorbent material depending from and held in the channels of said support, means for feeding liquid formic aldehyde to the support, organized to prevent access of outer air to the chambers, 60 an absorbent covering for the floor of the aforesaid flue, and a suction and forcing fan therein near the aforementioned adjustable floor-opening, substantially as and for the 65 purpose set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

FRANÇOIS DE RECHTER.
GUSTAVE DE RECHTER.

Witnesses:

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