

(No Model.)

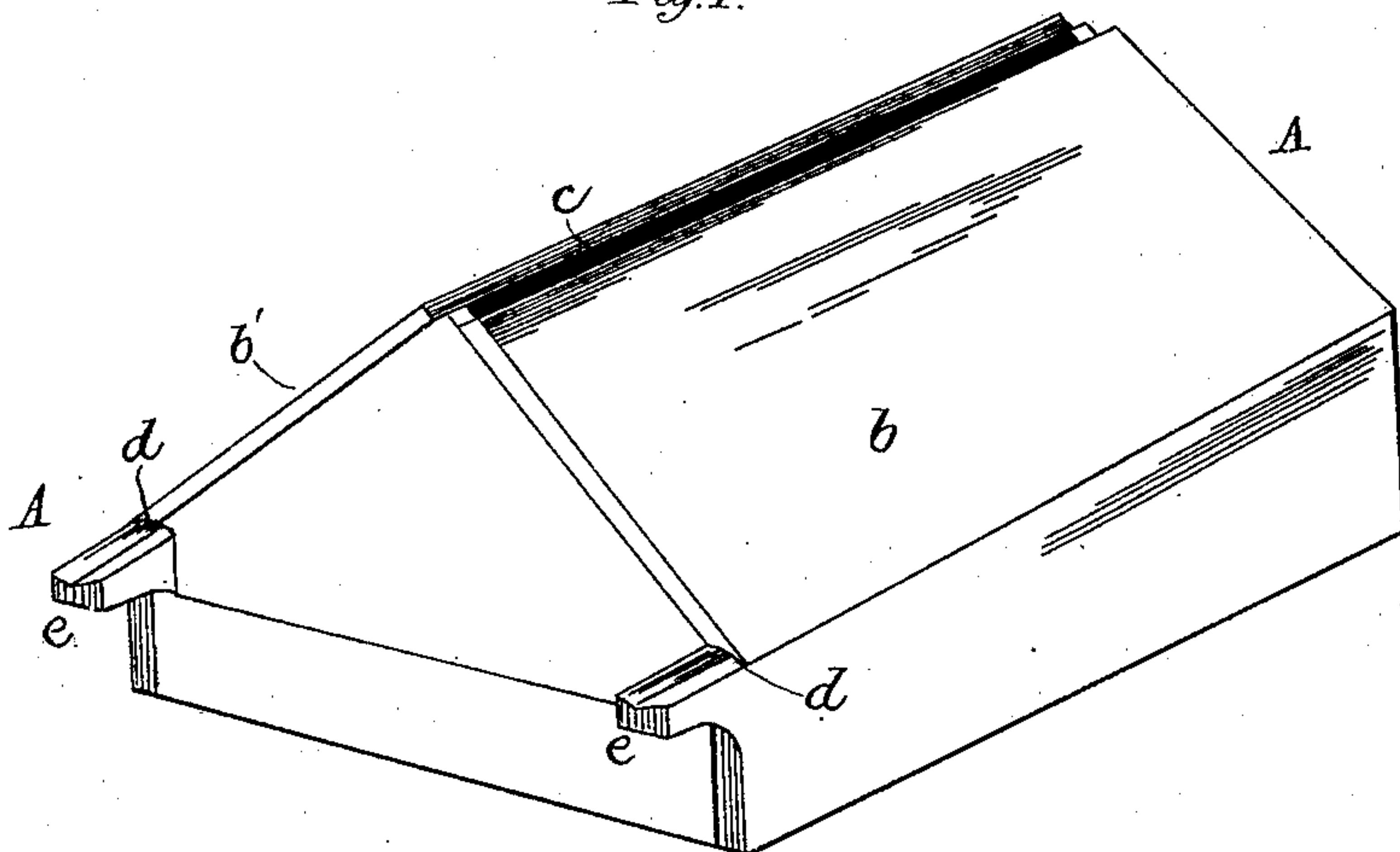
O. W. DAVIS & L. A. LYON.

EVAPORATOR COVER.

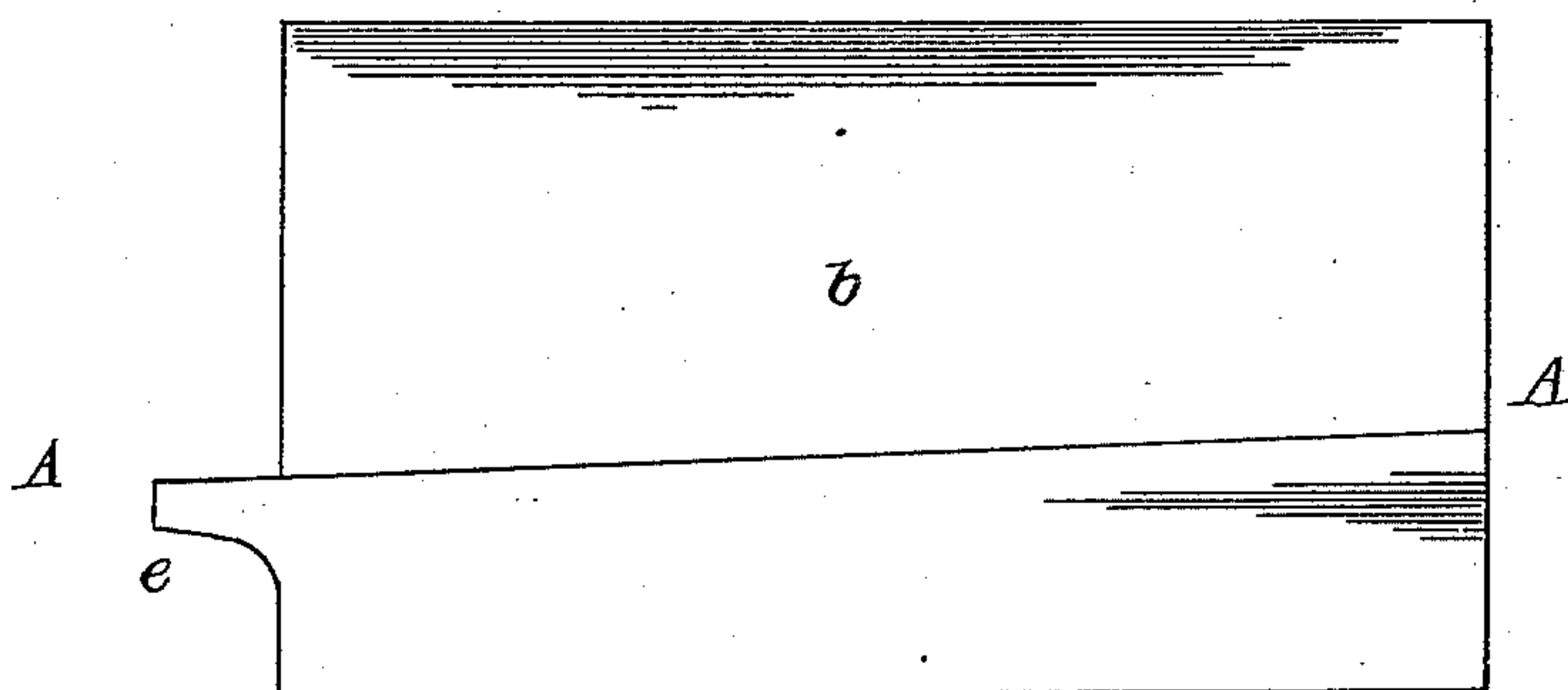
No. 353,444.

Patented Nov. 30, 1886.

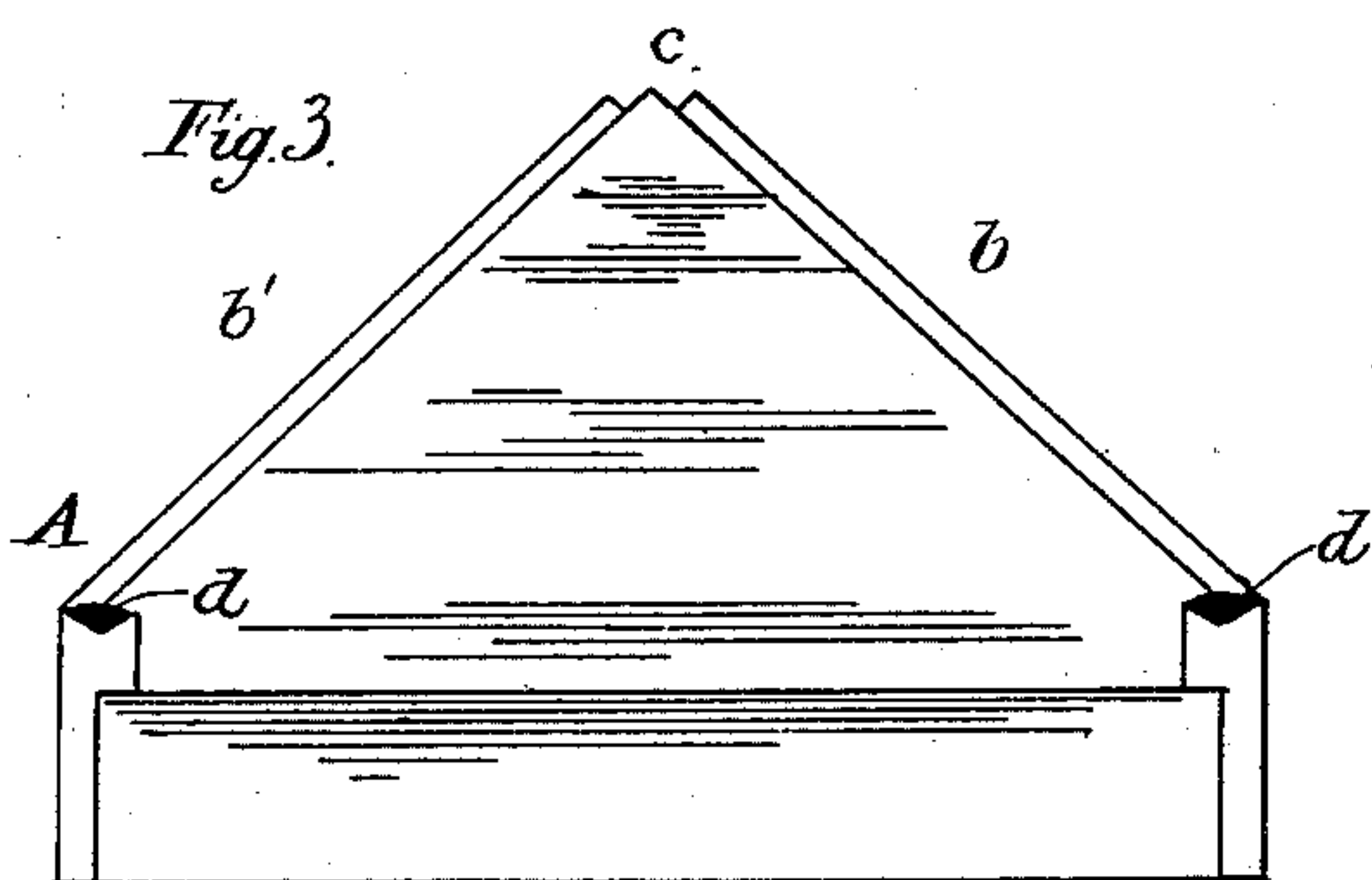
*Fig. 1.*



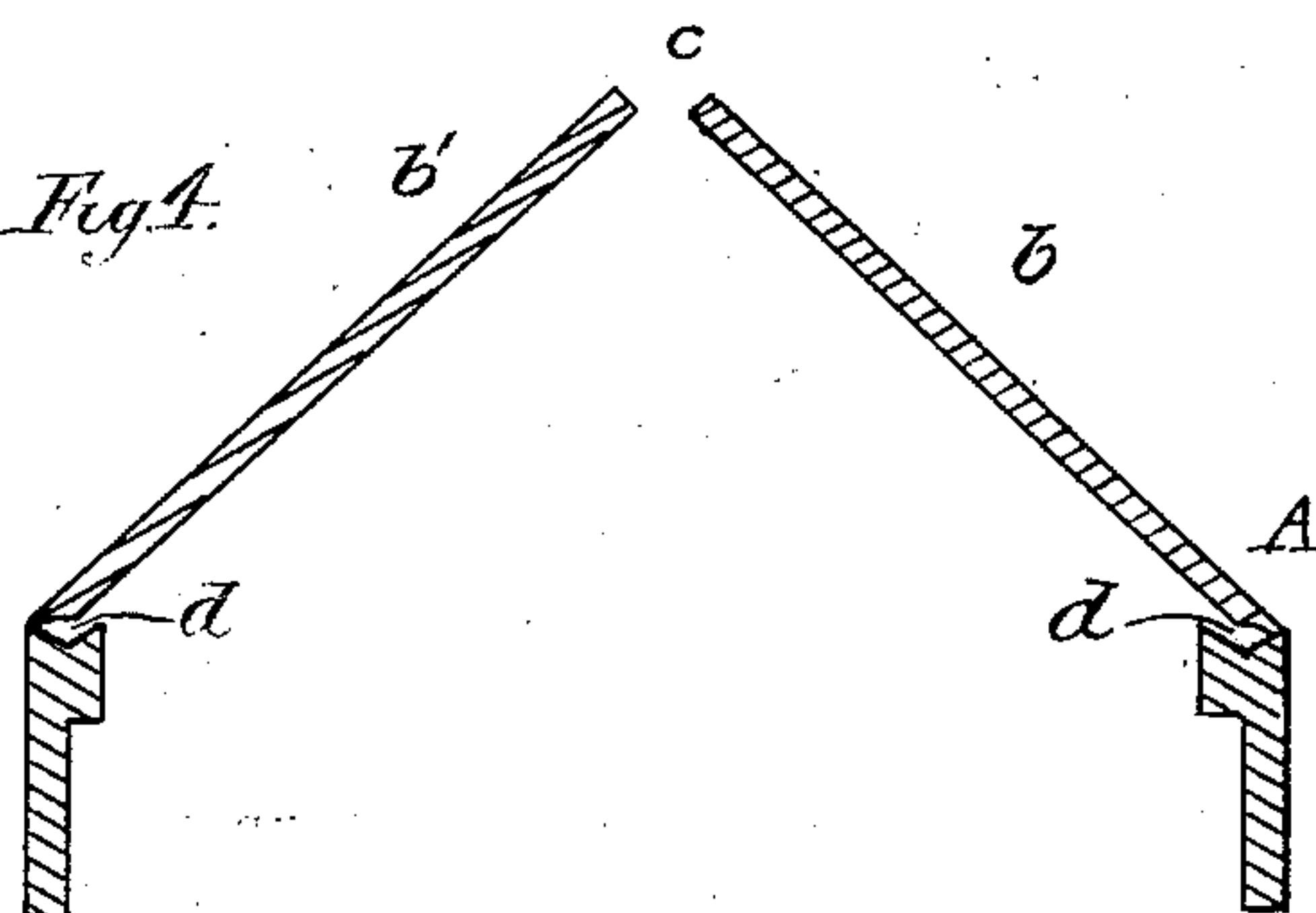
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## EVAPORATOR-COVER.

SPECIFICATION forming part of Letters Patent No. 353,444, dated November 30, 1886.

Application filed March 18, 1886. Serial No. 195,743. (No model.)

*To all whom it may concern:*

Be it known that we, OLIVER W. DAVIS and LEMUEL A. LYON, of Waterbury Centre, in the county of Washington and State of Vermont, have invented certain new and useful Improvements in Evaporator-Covers; and we do hereby declare that the following is a full, clear, and exact description of the invention, which 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.

Our invention has for its objects the more efficient surface-heating of the sap, the protection of the sap from the cold air or atmosphere while under treatment in the evaporator, the locating of the sap holder or pan between the fire and steam or heated air, and the ready carrying off of the water of condensation arising from the steam or heated air and moisture and preventing its dropping back into the pan, and the consequent saving of fuel.

In the accompanying drawings, Figure 1 is a perspective of an apparatus embodying our invention. Fig. 2 is a side view; Fig. 3, an end view, and Fig. 4 a transverse section of the same.

A is a roof or cover of any suitable material—such as wood, cloth, tin, or other metal—and adapted to be placed over any ordinary evaporator or evaporating-pan, preferably at its front end, and to rest on the ledges of the pan; but it should leave enough of the pan uncovered by it to permit the customary skimming. This roof has an  $\Lambda$  form, but its slanting sides  $b\ b'$  do not meet at the top or apex, but there is left between them a narrow open space,  $c$ , lengthwise of the roof and extending from end to end, to permit the escape of such portion of the steam as does not collect and adhere to the inside of the roof, and thereby preventing the dropping of the water of condensation from the roof into the pan, which would not only retard the evaporation but waste time and fuel. The lower edge of each of the sides  $b\ b'$  is slanting, as shown, and reaches to an inclined groove or gutter,  $d$ , extending lengthwise of the cover, the lower

ends of such gutters projecting through and beyond the roof, as seen at  $e$ , to permit the free discharge of the water of condensation at any desired point where it cannot fall or flow into the pan. This gutter may be formed in any way or of any material, so long as it serves to receive and collect from the inside faces of the roof the water of condensation and carry it away from the evaporator. We have shown it as made in the wood-work of the roof and discharging through small outlets in the end of the roof. It may be made of metal. The roof thus becomes a protector of the heated sap from the cold air, a heater, a condenser, and a drainer, and at the same time a protector of the sap from the dripping back into it of water or moisture from condensed steam.

It will be understood by those versed in the art that there will be intense heat within this cover, that the steam will rush to the open space  $c$  in the top, and that while this space, narrow as it is relatively to the entire space within the roof, will be sufficient to prevent any excessive condensation at that point and any consequent dropping of water into the pan, while that moisture which does remain adhering to the roof will find its way down to the gutter and carry itself off. This carrying off of the water avoids the necessity, which frequently occurs with evaporators, of boiling the water out from the sap a second time.

The apparatus may have legs to rest on, if desired.

By placing our cover over the front end of an evaporator dust and ashes are prevented getting into the sap when fuel is put into the stove or furnace.

The apparatus is in effect a surface-heater, heating intensely the upper surface of the sap while the fire heats it beneath, the sap being between these two bodies of heat. The heat which would otherwise escape into the outer air is by our invention mainly retained and utilized to facilitate and hasten the evaporation, and is also deflected back from the sloping roof directly upon the surface of the sap in the pan.

Our invention, it will readily be seen, is equally applicable for evaporating sea-water, brine, or other material where artificial heat is employed to evaporate the liquid and re-



cover and retain the valuable solid matter contained therein.

We claim—

1. A cover for evaporators, adapted for retaining and deflecting the heat upon the surface of the sap or material under treatment, as made with sloping sides and having the longitudinal slit or opening at its top, as set forth.

2. The double slanting roof A, having the

slit or gap *c* at its top and provided with the grooves or gutters *d* within and extending beyond the roof, all substantially as set forth.

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Witnesses:

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