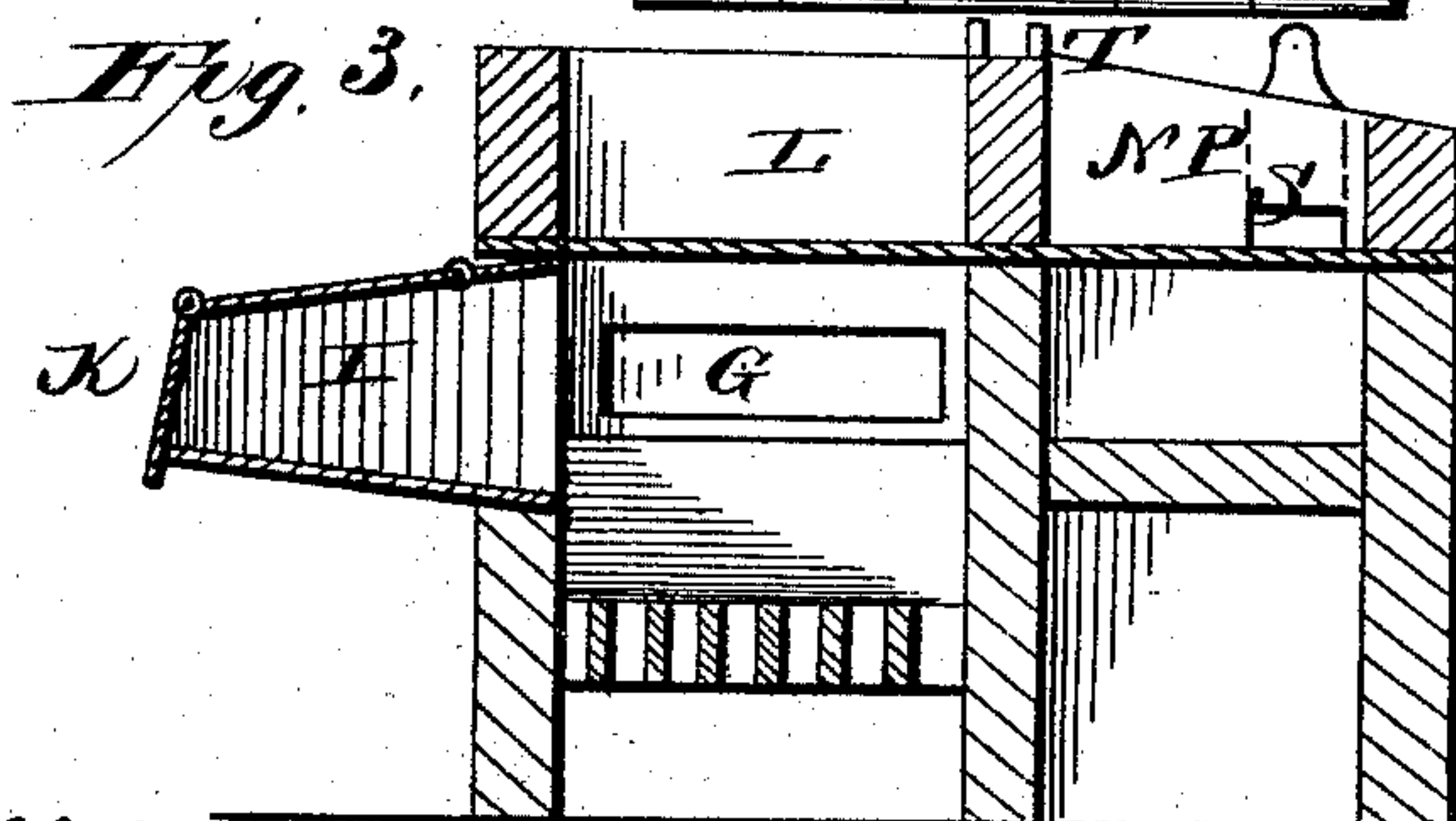
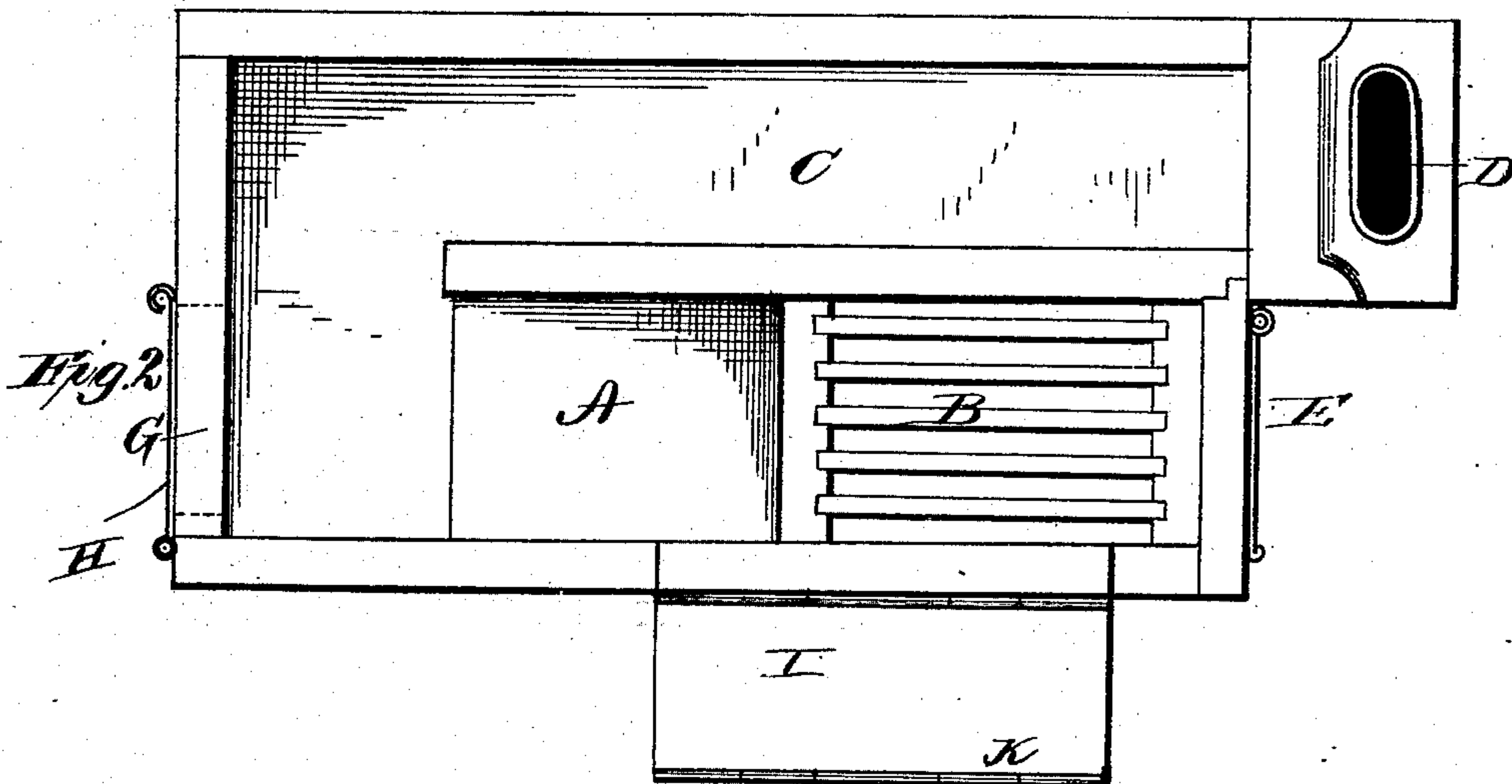
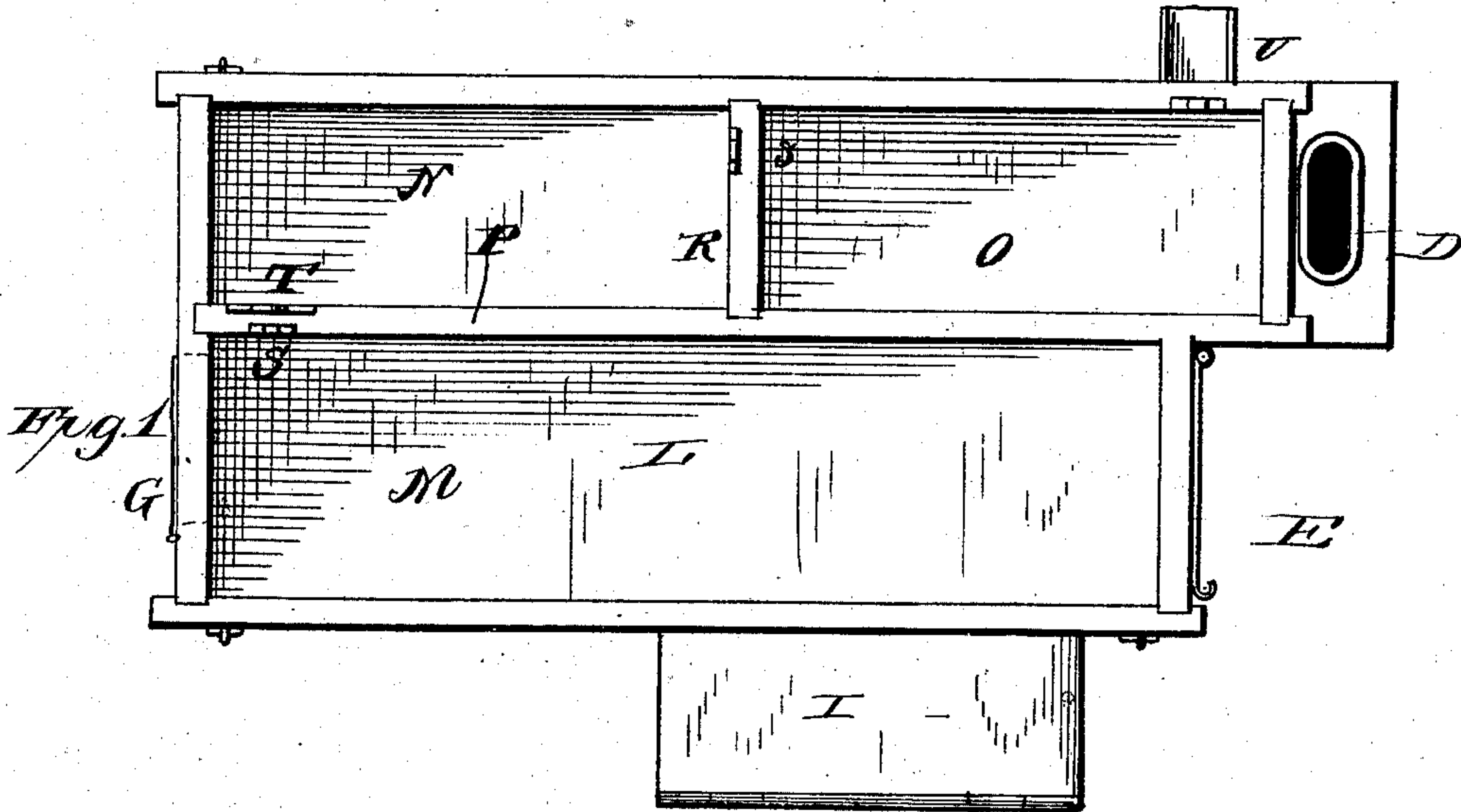


(No Model.)

C. AUTENRIETH.
Sugar Evaporator.

No. 238,076.

Patented Feb. 22, 1881.



Witnesses,
P. L. Giraud
C. H. Bradford.

Inventor,
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Atty.

UNITED STATES PATENT OFFICE.

CHRISTOPHER AUTENRIETH, OF MARENA, IOWA.

SUGAR-EVAPORATOR.

SPECIFICATION forming part of Letters Patent No. 238,076, dated February 22, 1881.

Application filed May 18, 1880. (No model.)

To all whom it may concern:

Be it known that I, C. AUTENRIETH, a citizen of the United States, residing at Marena, in the county of Ringgold and State of Iowa, have invented certain new and useful Improvements in Sugar-Evaporators; and I 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 or figures of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in apparatus for evaporating sorghum and other saccharine juices; and it has for its object to provide an improved means for feeding the furnace of such evaporators, and to regulate and control the draft therein to provide against burning the sirup, as more fully hereinafter specified. These objects I accomplish by the apparatus illustrated in the accompanying drawings, in which—

Figure 1 represents a top view of the apparatus; Fig. 2, a top view of the furnace with the evaporating-pan removed, and Fig. 3 is a transverse section.

The letter A indicates a furnace, constructed of brick-work; and B, the fire box or chamber, located at the forward end of the same.

The letter C indicates a return-flue located at one side of the furnace proper, leading from the combustion-chamber thereof to the smoke-stack or escape-flue D, which is located at the forward end of the furnace, at one side of the door E of the same.

The letter G indicates an opening at the rear of the combustion-chamber, provided with a door, H, by means of which cold air may be permitted to enter the furnace to regulate the heat of the same, to prevent the burning of the sirup.

The letter I indicates a chute located at one side of the furnace, and leading into the same. The said chute is provided with a hinged cover or door, K, formed of two hinged sections, by means of which the said chute may be opened or closed at will. The said chute is intended for the insertion of the refuse stalks of the sorghum, when such is employed as fuel, to prevent the same from smothering the fire,

which would occur if inserted through the door at the front, which would check the fire, and by retarding the boiling of the juice would result in the production of a dark and inferior grade of sirup.

The letter L indicates the evaporating-pan, which is constructed of suitable material, and is of such size and shape as to fit neatly upon the top of the furnace. The said pan is divided into three compartments, M, N, and O, by means of the partitions P and R, which are provided with gates S, by means of which the sirup may be transferred from one compartment to another at will, as required. The partition P, at its gate, is provided with a strainer, T, by means of which the sirup may be strained in its passage, and the compartment O is provided with a gate and spout, U, by means of which the sirup may be discharged into a suitable receptacle.

The operation of my invention is as follows: The juice to be evaporated is placed in the compartment M, which is immediately over the fire-box and combustion-chamber of the furnace, and is subjected to the direct heat of the fire until evaporated to a proper consistency, after which it is successively transferred to the compartments N and O as it becomes thickened, and more liable to burn, being gradually evaporated at a lower temperature.

When ordinary fuel is employed it is fed, in the usual manner, through the door at the front of the furnace; but when refuse cane is employed it is fed through the chute at the side. When there is danger of burning the sirup, the door at the rear of the furnace is opened and air admitted to the furnace, to regulate the draft and decrease the heat.

I am aware that tortuous chambers and tortuous outlets therefrom in evaporating-pans are old and well known; and I am also aware that it is not new to burn the bagasse as fuel, and such is not sought to be covered in this application.

I deem the chute I K at the side, and near the end at which the feed-door is situated, of importance, as the refuse bagasse may be fed to the fire without cooling the liquid or smothering the fire.

Having thus described my invention, what I claim is—

In a sorghum-evaporator, the furnace formed

into a direct flue and a return-flue by a partial partition, and having the bagasse-feeding flue I K on one side only, within easy and convenient reach with the door E, and having heat and draft regulating door H G, the
5 pan L, having a partition upon the same plane and directly above the furnace-partition, said pan having three compartments communicating by gates, and the first gate-opening having a screen, the whole constructed, combined,
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and adapted to have the flow of liquor correspond with the flow of the products of combustion, to regulate the heat and to conveniently supply the refuse bagasse, as specified.

In testimony whereof I affix my signature 15
in presence of two witnesses.

CHRISTOPHER AUTENRIETH.

Witnesses:

T. J. WYANT,

W. D. PRATT.