

(No Model.)

J. K. HOWIE.
GRAIN STEAMER.

No. 552,127.

Patented Dec. 31, 1895.

Fig. 1.

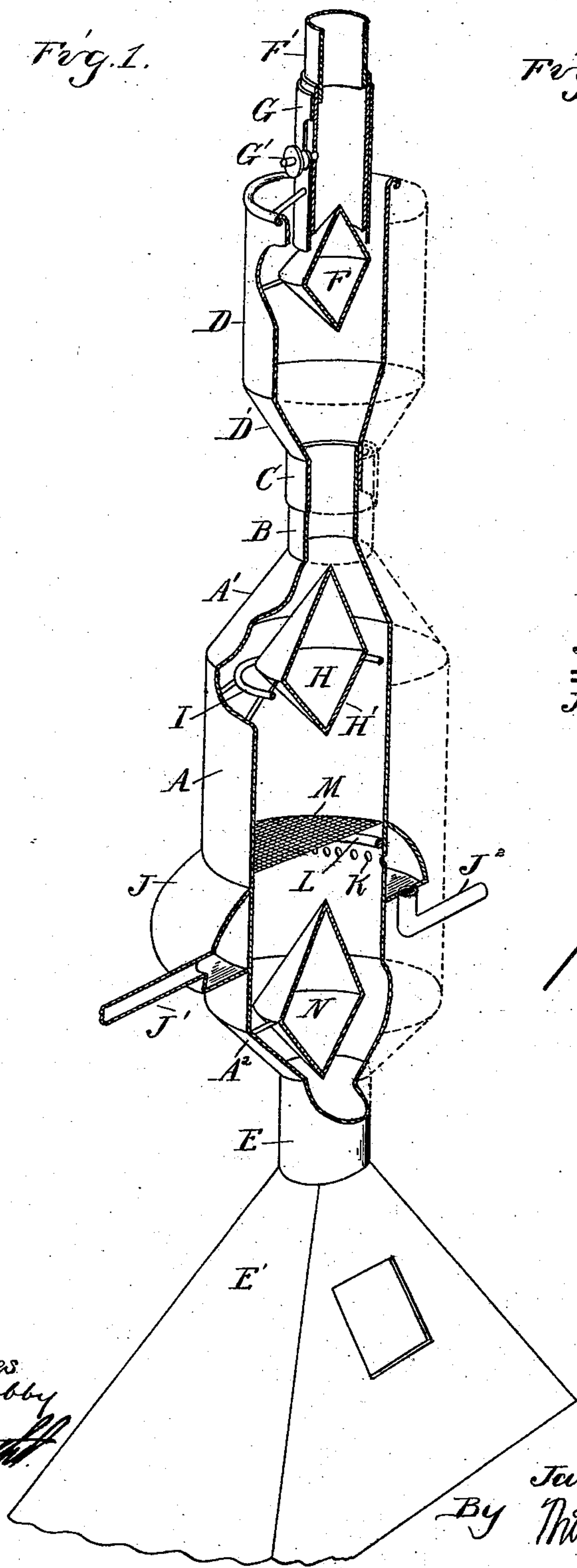
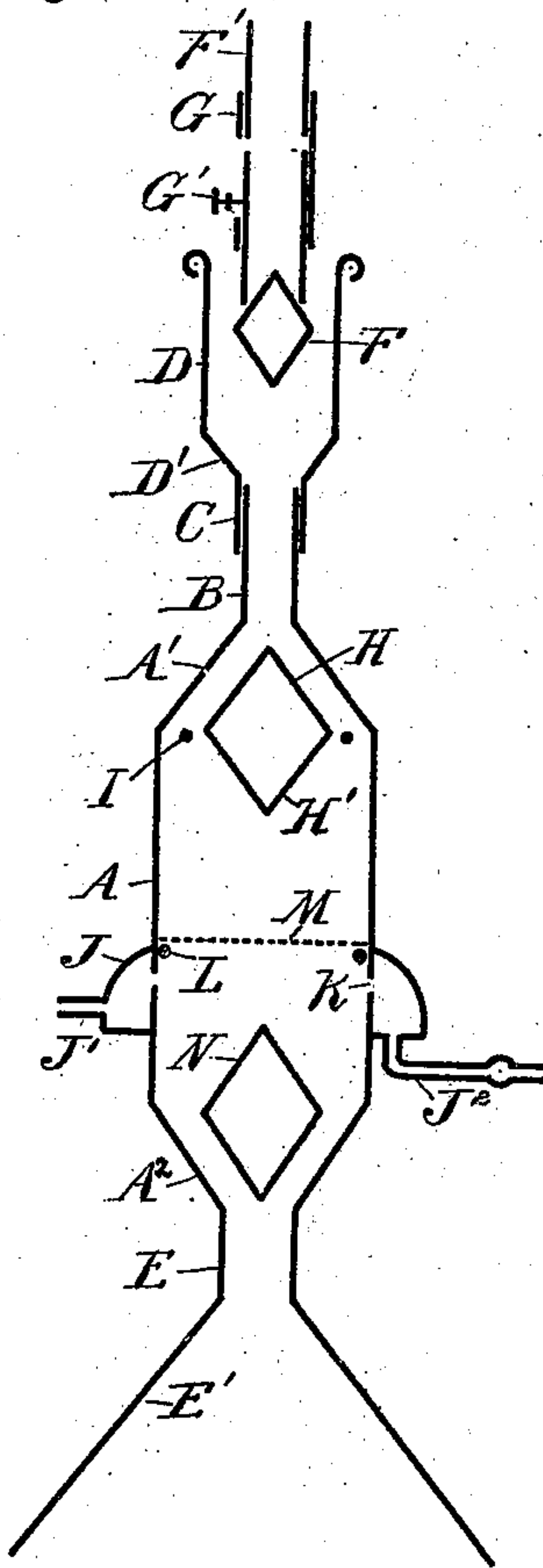


Fig. 2.



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UNITED STATES PATENT OFFICE.

JAMES K. HOWIE, OF SAGINAW, MICHIGAN.

GRAIN-STEAMER.

SPECIFICATION forming part of Letters Patent No. 552,127, dated December 31, 1895.

Application filed February 20, 1895. Serial No. 539,098. (No model.)

To all whom it may concern:

Be it known that I, JAMES K. HOWIE, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Grain-Steamers, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention consists in the construction of the steaming-chamber and in the construction of the feed devices for the grain thereto and therefrom, and, further, in the peculiar construction, arrangement and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a sectional perspective view of my improved device. Fig. 2 is a diagram elevation thereof.

A is a casing preferably cylindrical and forming the steaming-chamber. This casing has the conical top A' and the inverted conical or hopper-shaped bottom A². The top A' terminates in the contracted tubular neck B, with which a corresponding neck C at the lower end of the feed-chamber D engages, the feed-chamber casing and the neck C being connected by a hopper-shaped bottom D'. At the bottom of the hopper-shaped section A² of the steaming-chamber is the neck E, which connects into the hood E', adapted to rest upon the top of the hopper above the feed-rolls. (Not shown.) Supported free from the sides of the chamber D is the conical spreader F, above which is the feed-pipe F'.

G is a cylindrical valve formed by a sleeve sliding over the pipe F' and embracing the upper portion of the spreader F, which may be adjusted up or down to increase the supply of grain which will flow from the pipe F' over the spreader F and into the feed-casing B.

G' is a clamping-screw for holding the sleeve or valve G in its adjusted position.

Within the conical top A' of the steaming-chamber is a cylindrically-arranged conical spreader H, supported free from the sides and preferably having an inverted conical bottom H', as shown. Around the lower edge of the spreader H is a ring I, this ring being separated from the sides of the steaming-chamber and from the spreader, as shown in Fig. 1.

Near the lower end of the steaming-chamber and exteriorly thereof is a ring-shaped steam-supply chamber J, having a suitable steam-inlet pipe J' and an exit-pipe J² for the water of condensation.

K are apertures through the wall of the heating-chamber above the bottom of the chamber J for admitting steam into the steaming-chamber. Above these apertures is the guarding L to prevent any of the grain from lodging in the apertures K.

M is a screen extending across the steaming-chamber above the apertures K.

N is a conical deflector similar to that at the top of the steaming-chamber arranged at the bottom thereof.

The parts being thus constructed, their operation is as follows: Grain being fed through the pipe F', the valve G being opened the desired extent, will fall upon the conical spreader F and pass into the feed-casing D, being collected by the conical bottom D' into the neck B, through which it will fall upon the spreader H, which will thoroughly separate and spread the material in falling into and through the steaming-chamber. This thorough separation and spreading of the grain is assisted by means of the ring I at the base of the spreader-cone H. It is further assisted by the screen M, which acts as a baffle and checks the speed of the grain and spreads it in a thin layer to receive an even steaming. It is to be understood that the mesh of the screen is sufficient to permit the passage of the grain therethrough, and owing to the position of the screen below the spreader H the grain is so deflected onto the screen that a momentary pause in the movement is had, which results in a complete action of the steam on the grain. From this screen the grain falls and is collected in the spout E by the hopper-bottom A² and the bottom spreader N, falling into the hopper for the rolls beneath.

It will be observed that the valve which controls the supply of grain is at the top of the device and acts only upon the dry grain, so that there is no danger of clogging if the grain is fed at the proper speed.

With my construction as described, the grain is always controlled and its regulation is perfect, and the steam is kept away from

the incoming grain until it is thoroughly separated by the spreader-cones.

By properly proportioning the amount of steam admitted, the downwardly-moving current of grain in such a device as this will take up all the moisture, so that no steam will rise above the spreader-cone at the top of the steaming-chamber.

By using the contracted neck between the steam-chamber and the feeder-chamber, the grain is allowed to perfectly separate before coming in contact with any moisture.

What I claim as my invention is—

1. In a grain steamer, the combination with a vertically disposed casing having a valved inlet at its top and a discharge at its base, a steam chamber surrounding the casing and connecting with the interior thereof, a spreader on a plane above the steam chamber,

and a baffle screen between the steam inlet and spreader, substantially as described.

2. In a grain steamer, the combination of a valve controlled supply spout, a steaming chamber, a spreader cone at the top thereof, the ring I around the cone at the base, the steam ring around the steam chamber near the bottom having apertures leading into the chamber, a guard ring around the chamber above the steam inlet apertures, a screen across the chamber, and a spreader cone at the bottom of the steaming chamber, substantially as described.

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

JAMES K. HOWIE.

Witnesses:

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