

No. 614,773.

Patented Nov. 22, 1898.

J. E. SIMON.

APPARATUS FOR MAKING CLEAR CAN ICE.

(Application filed Sept. 28, 1897.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

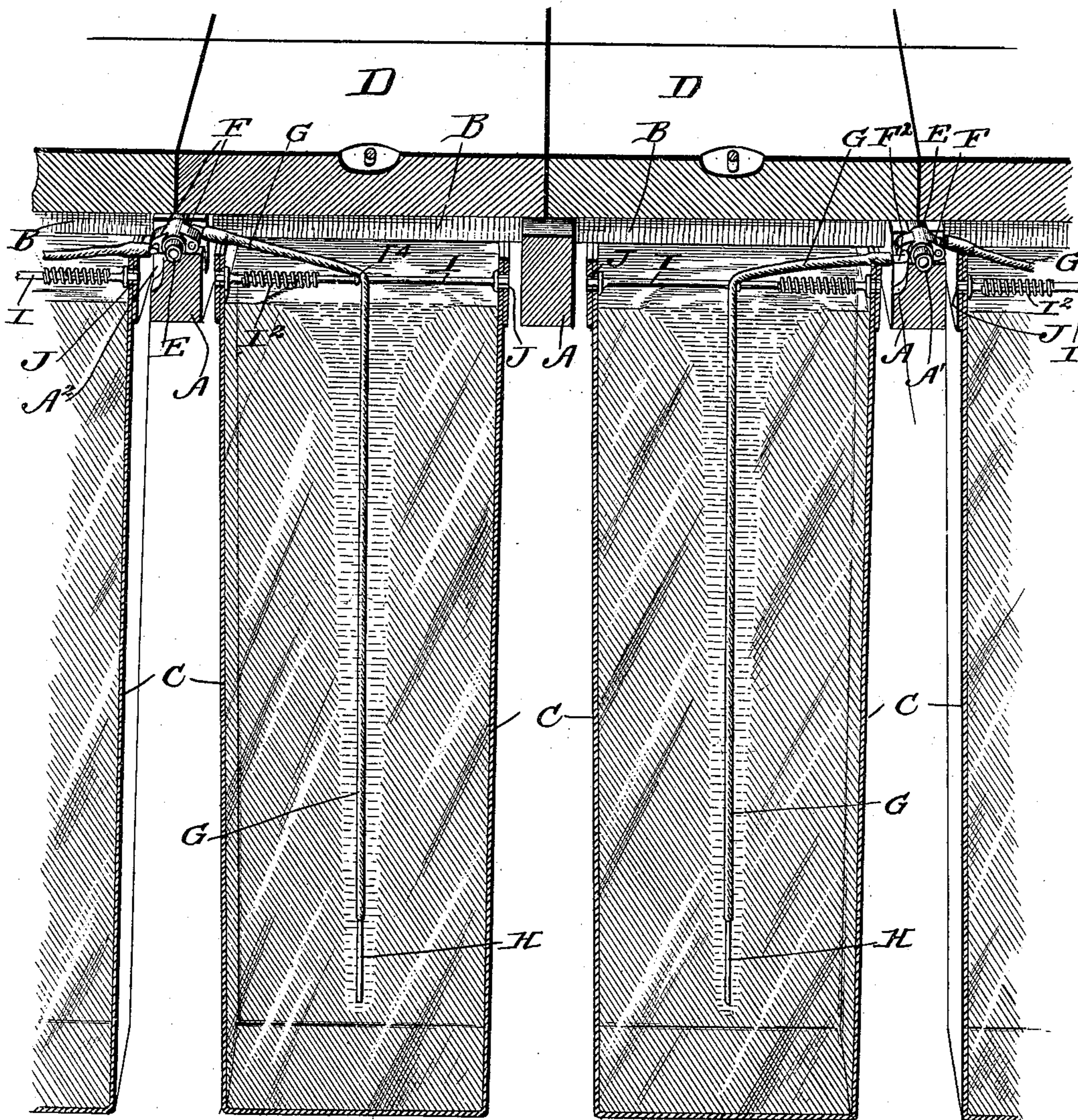
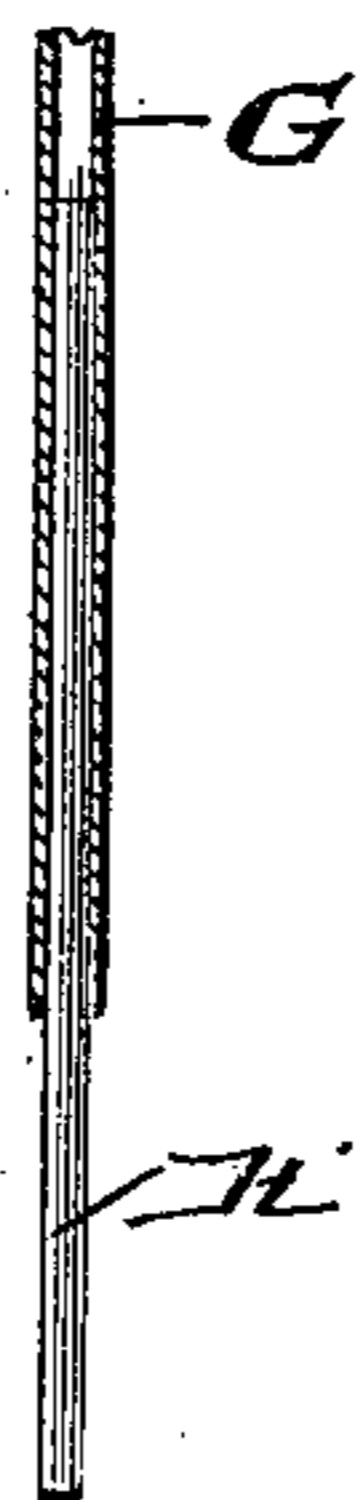


Fig. 7.



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2 Sheets—Sheet 2.

Fig. 2.

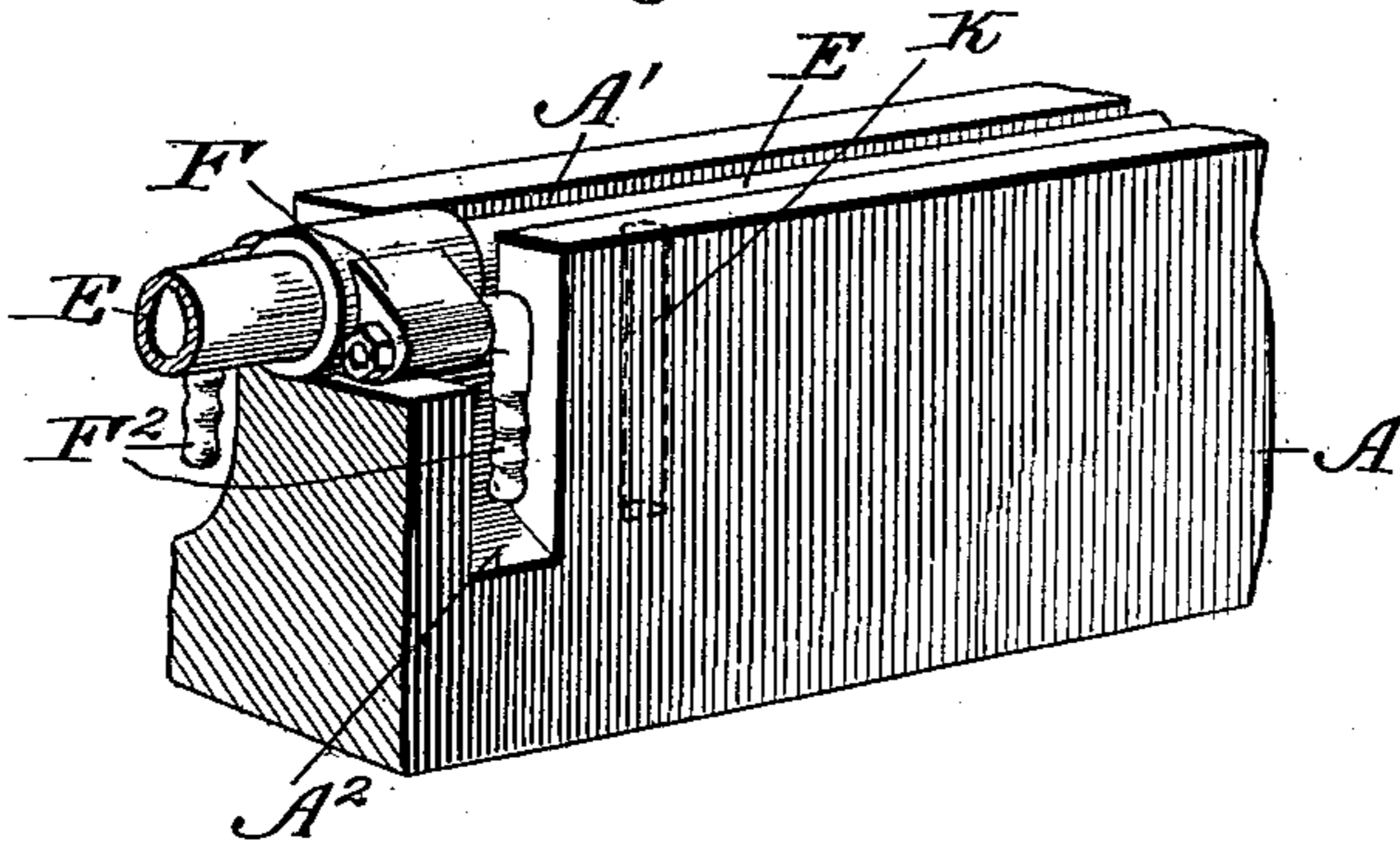


Fig. 3.

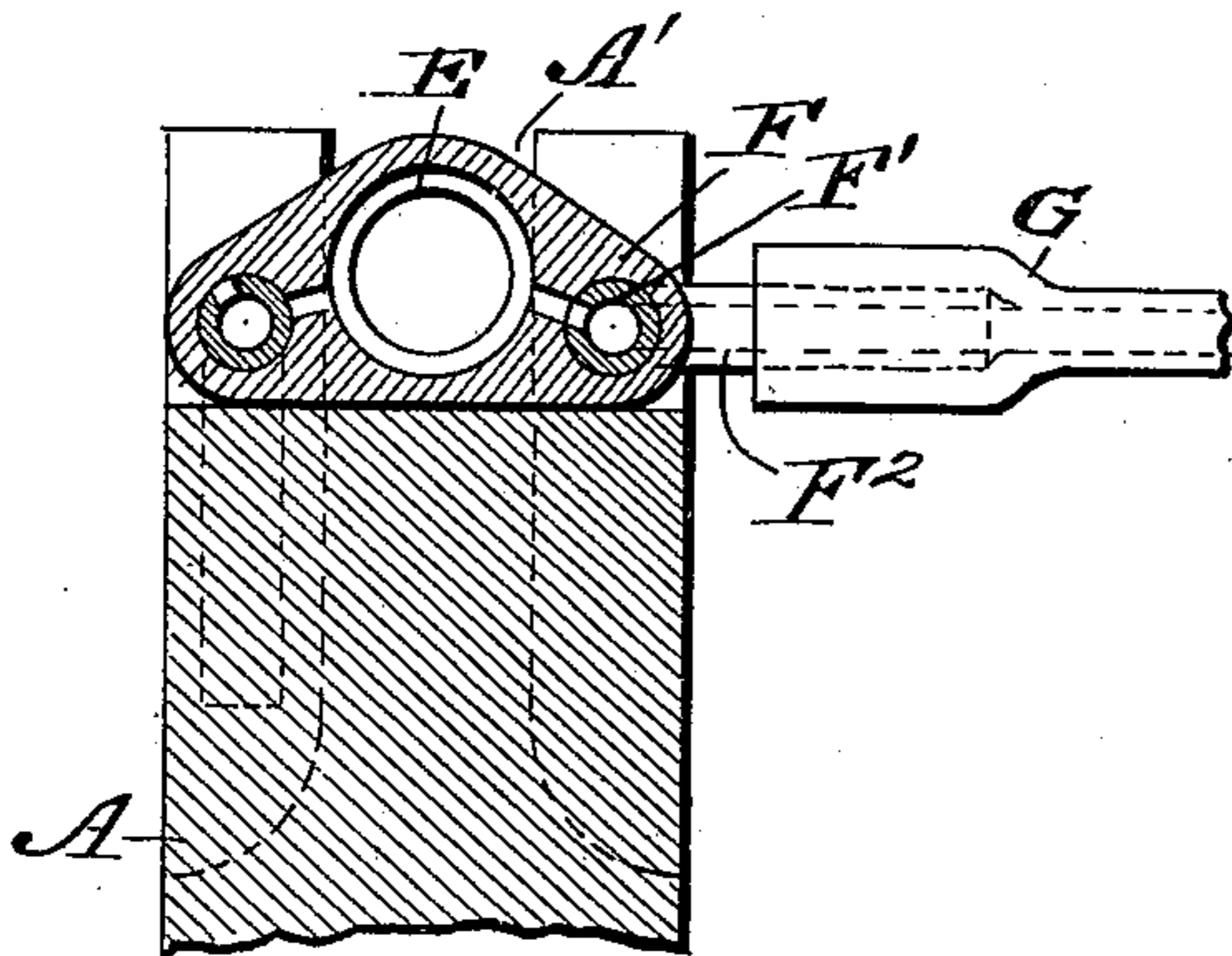


Fig. 4.

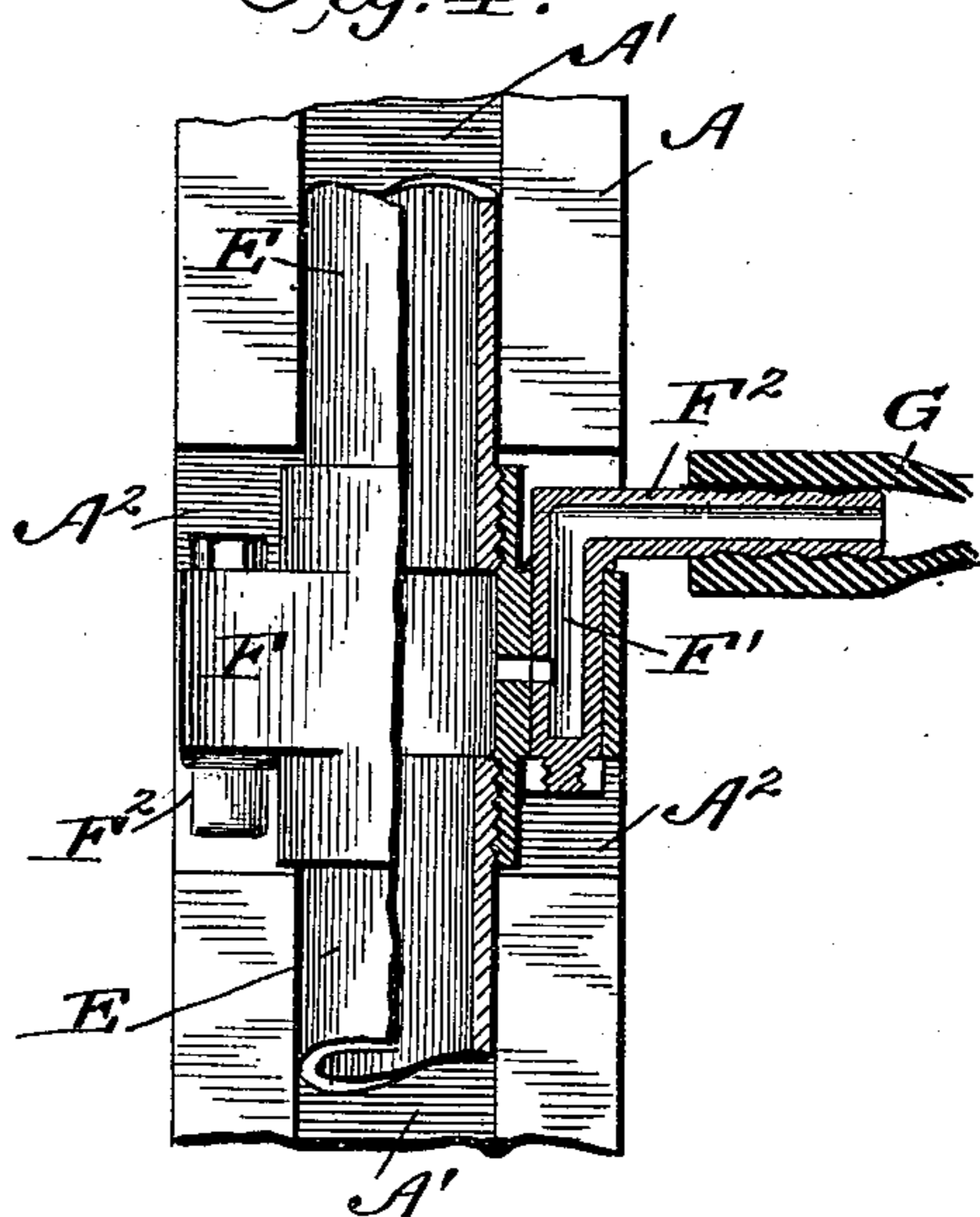


Fig. 5.

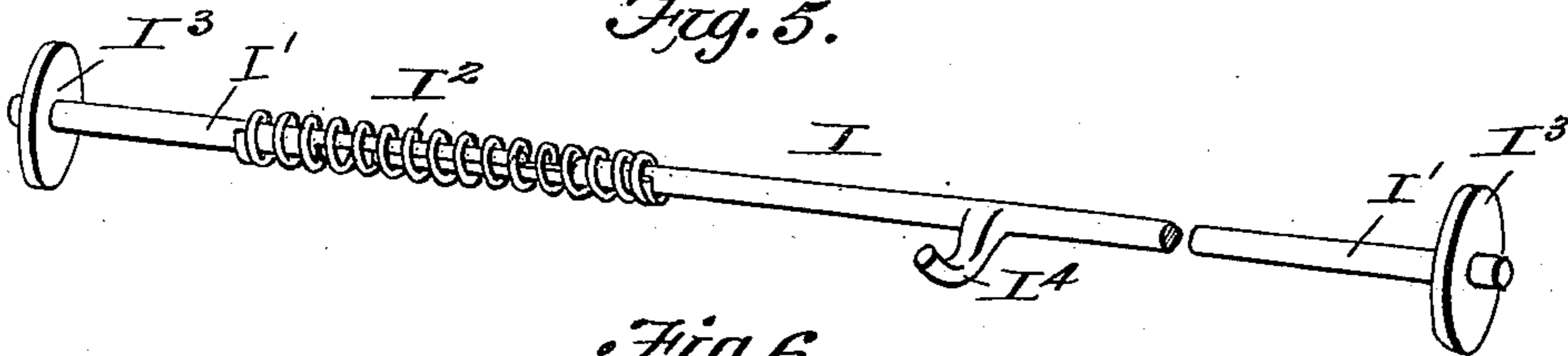
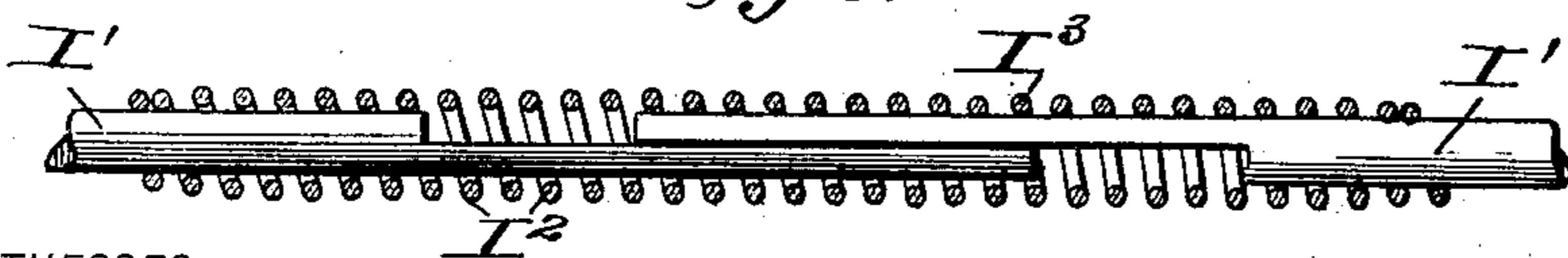


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN E. SIMON, OF LOUISVILLE, KENTUCKY.

APPARATUS FOR MAKING CLEAR CAN-ICE.

SPECIFICATION forming part of Letters Patent No. 614,773, dated November 22, 1898.

Application filed September 28, 1897. Serial No. 653,317. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. SIMON, of Louisville, in the county of Jefferson and State of Kentucky, have made a new and useful Improvement in Apparatus for Making Clear Can-Ice, of which the following is a specification.

This invention is an improvement in ice-making apparatus, and particularly in the making of so-called "can-ice," wherein the ice is frozen in cans. In such ice manufacture as ordinarily conducted there is formed an objectionable center core, which detracts from the appearance of the ice-block and is offensive to taste and smell. The present invention seeks to provide simple means for obviating such objection by the introduction of air in the can during the freezing operation; and it consists in certain novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a sectional perspective view of a part of a tank embodying my improvements. Fig. 2 is a detail perspective view showing the line-pipe and its valve in connection with the partition. Fig. 3 is a transverse section drawn through the valve and partition; and Fig. 4 is a top plan view showing the line-pipe, its valve, and the partition, parts being broken away and others shown in section. Figs. 5 and 6 are detail views of the tube-supporting rod, and Fig. 7 shows the weight-tube in the lower end of the flexible air-tube.

It is important in ice-making that the floor of the tank-house wherein the cans are arranged during the freezing operation should be entirely unobstructed, so that the tank-man, whose duty it is to manipulate the cans, can pass freely to and fro over the said floor, which is composed of the can-lids, for the purpose of attending the different cans during the filling thereof and when the ice is frozen to remove the same. To secure this desired unobstructed construction of the tank-floor, I arrange all the devices for feeding the air under the can-lids, as shown and more specifically described hereinafter.

By my improvements I provide for making the ice in the desirable clear quality from

either filtered or distilled water without the objectionable central core.

In the construction shown the tank has the partitions A and cross-plates B, forming the compartments for the cans C, whose lids D constitute the tank-floor. The partitions A are grooved in their upper sides at A' and are provided, preferably, about midway between the cross-plates B with recesses A², which communicate with and lead downward from the groove A' and receive the nipple on the air-valve when such valve is closed, so the said nipple will offer no obstruction to the insertion or withdrawal of the cans.

The line-pipes E are supplied with air under pressure in any suitable manner and are seated in the grooves A' of the partitions A so the lids may fit over them. At points opposite the recesses A² the pipes E are provided with valves F, having plugs F', which turn into and out of communication with the pipe-line and have the crank-like nipples F², which may be turned down into the recesses A² when adjusted to close the valves. This nipple F² connects with the air-feeding tube G, which may be readily applied to and removed from the nipple. When the tube G is applied to the nipple F², as shown in Fig. 1, the valve is open and the air passes from the line-pipe and out through the valve F and is delivered through the feeding-tube G into the can near the bottom thereof, where it tends to agitate the water therein, and so tends to remove the air therefrom both by the mechanical agitation and by the affinity of the air in the can for that discharged by the tube. This tube G is preferably flexible and of rubber and will by its inherent buoyancy and that of the air forced through it tend to rise at its lower end. To avoid this, I provide a metal weight-pipe H of suitable length, which is inserted at its upper end within the lower end of the flexible tube G. This weight-pipe H holds the tube G down in the can and is held to the said tube G by the binding thereof on the pipe H, and such tube serves to insulate the pipe H and reduce the liability of the water freezing therein. By this construction I also supply the weight for holding the tube down in the water in such manner as to avoid any considerable lateral pro-

jection on the air-feeding tube, and so permit the latter to be retained in the can until the contents are frozen solid almost from side to side.

5 It is important to support the tube so it will depend centrally within the can. To this end I provide a tube-supporting rod extending over the can and adapted to supply a tube centrally within the can. As shown and preferred, the rod I, as shown in Fig. 1, spans the
10 can. It is also preferred to make the rod I in sections I' I', sliding one upon the other and having a spring I², by which they are given an opposite tension, so the rod yields
15 longitudinally and can be sprung into engagement with the eyes or openings J of the can, stop-buttons I³ being provided to bear within the can, as shown. This extensible construction is important when the rod I is engaged
20 with the can, as the cans vary slightly in width at their mouths and the rods will readily adjust to suit the slight differences in size; but when the rod is supported in the partitions, which may be done, if desired, by notching the partition, as indicated by dotted lines
25 K, Fig. 2, to form seats for the rod, the extensible feature may be omitted. It is much preferred, however, to connect the rod with the can, as thereby it moves with such can and always preserves the tube G in proper
30 position in the can. It is also preferred to provide the supporting-rod at about its middle with a seat at I⁴ for the tube G, which is carried over said seats and depends centrally
35 within the can. If it is desired to adjust the height of the tube G within the can, this may be effected by winding it one or more times on the seat I⁴.

40 It will be seen that all parts of the air-feeding constructions are arranged under the lids, so the latter present the appearance of the ordinary tank-floor being entirely unobstructed.

When it is desired to remove a can, it is
45 only necessary to remove the tube-operating rod, detach the tube from the valve-nipple, and turn the latter down, when the can may be removed in the ordinary manner.

50 It will be understood that the valve may be arranged in pairs, so the line-pipes will only be needed in the alternate partitions, or such valves may be arranged singly, as desired.

What I claim is—

55 1. In an apparatus for manufacturing ice the combination with the freezing-can and its lids and a flexible tube adapted to depend in said can of a tube-supporting rod extending over the can such rod being independent of and adapted to support the tube centrally
60 within the can, such rod being located beneath the lid substantially as described.

2. In an apparatus for manufacturing ice the combination with the can and its lid of a tube-supporting rod, spanning the can and

65 arranged beneath its lid whereby to offer no obstruction above the tank-floor, and the air-feeding tube independent of and supported by the said rod substantially as described.

3. In an apparatus for manufacturing ice the combination with the can and its lid, of the
70 tube-supporting rod extended over the can beneath the lid thereof and provided over the center of the can with a seat for the air-supplying tube and the flexible air-supplying tube adapted to be supported on said seat
75 substantially as described.

4. In an ice-manufacturing apparatus the combination with the can having the opposite eyes or openings of the tube-supporting rod yielding longitudinally and fitted at its ends
80 to said eyes or openings substantially as described.

5. In an ice-making apparatus a tube-supporting rod composed of sections slidable one along the other and a spring between such
85 sections substantially as described.

6. In an ice-making apparatus the combination of the can having opposite eyes or openings, its lid, the air-feeding tube and the rod for supporting the same, such rod being longitudinally yielding whereby its ends may be
90 adjusted into said eyes, provided near said ends with stop-buttons and adapted at its middle to support the air-feeding tube over the center of the can substantially as described.
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7. An ice-making apparatus comprising the framing-partition grooved to receive the line-pipe and recessed in connection with such groove to receive the valves connected with the line-pipe, the line-pipe and its valves
100 seated in the groove and recess, and the air feeding and discharging tube connected with such line-pipe, substantially as set forth.

8. In an apparatus substantially as shown and described the combination of the cans,
105 the tank-frame having partitions provided in their upper sides with grooves, the line-pipes seated in said grooves, the lids over the said line-pipes the discharge-pipes and connections between said discharge-pipes and line-
110 pipes substantially as described.

9. In an ice-making apparatus the combination with the framing-partition having a recess, of the line-pipe and its valve provided with a turning-plug and with a nipple connected therewith and arranged to a seat in the recess of the partition substantially as described.
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10. In an ice-making apparatus the combination of the cans, the framing-partition, the
120 line-pipes seated in such partition, the lids covering said line-pipes and delivery-tubes connected with the latter substantially as described.

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Witnesses:

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