

(No Model.)

J. H. DAVIS.
SLOT MACHINE FOR DELIVERING LIQUIDS.

No. 509,119.

Patented Nov. 21, 1893.

FIG. 1.

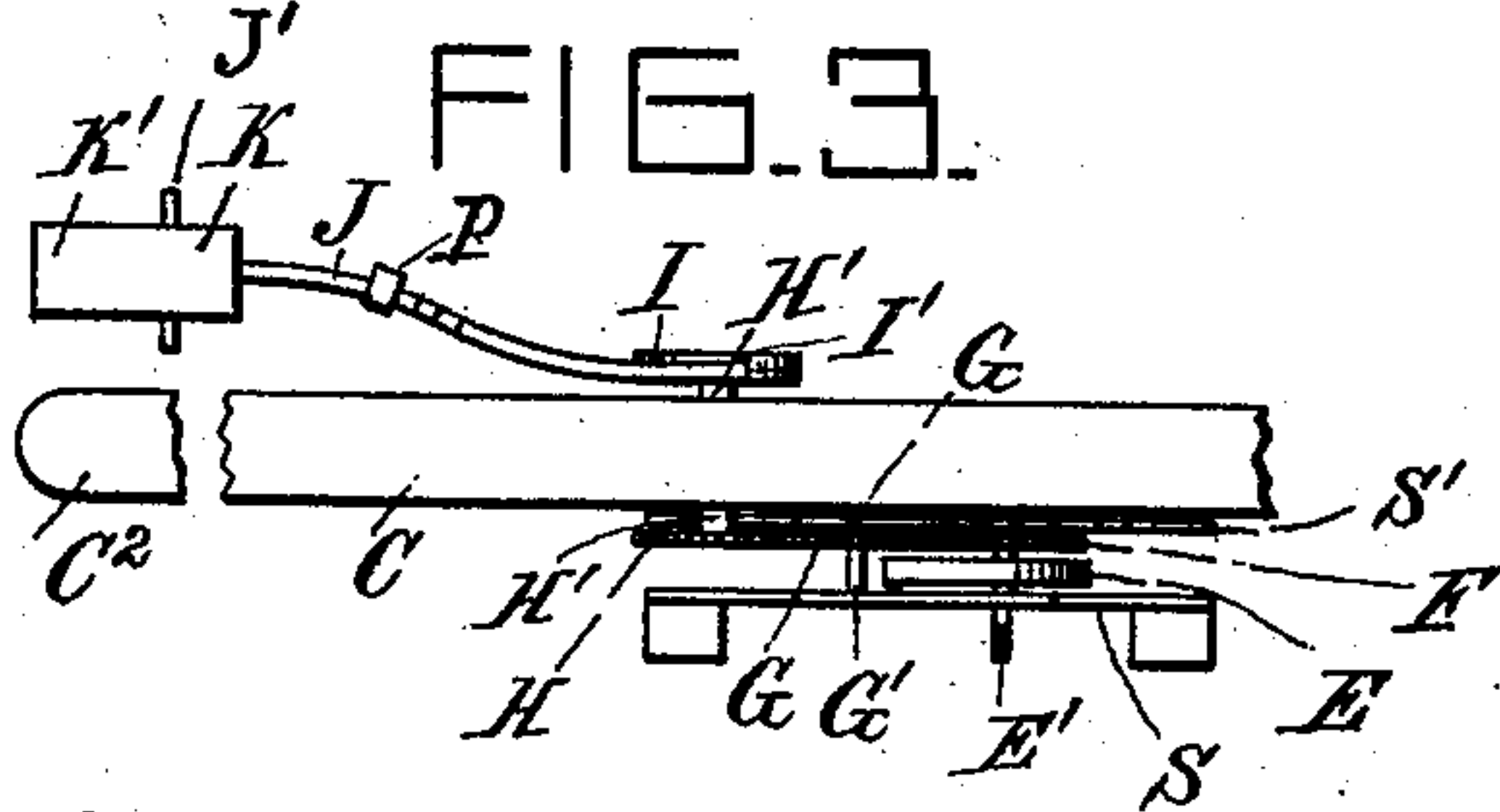
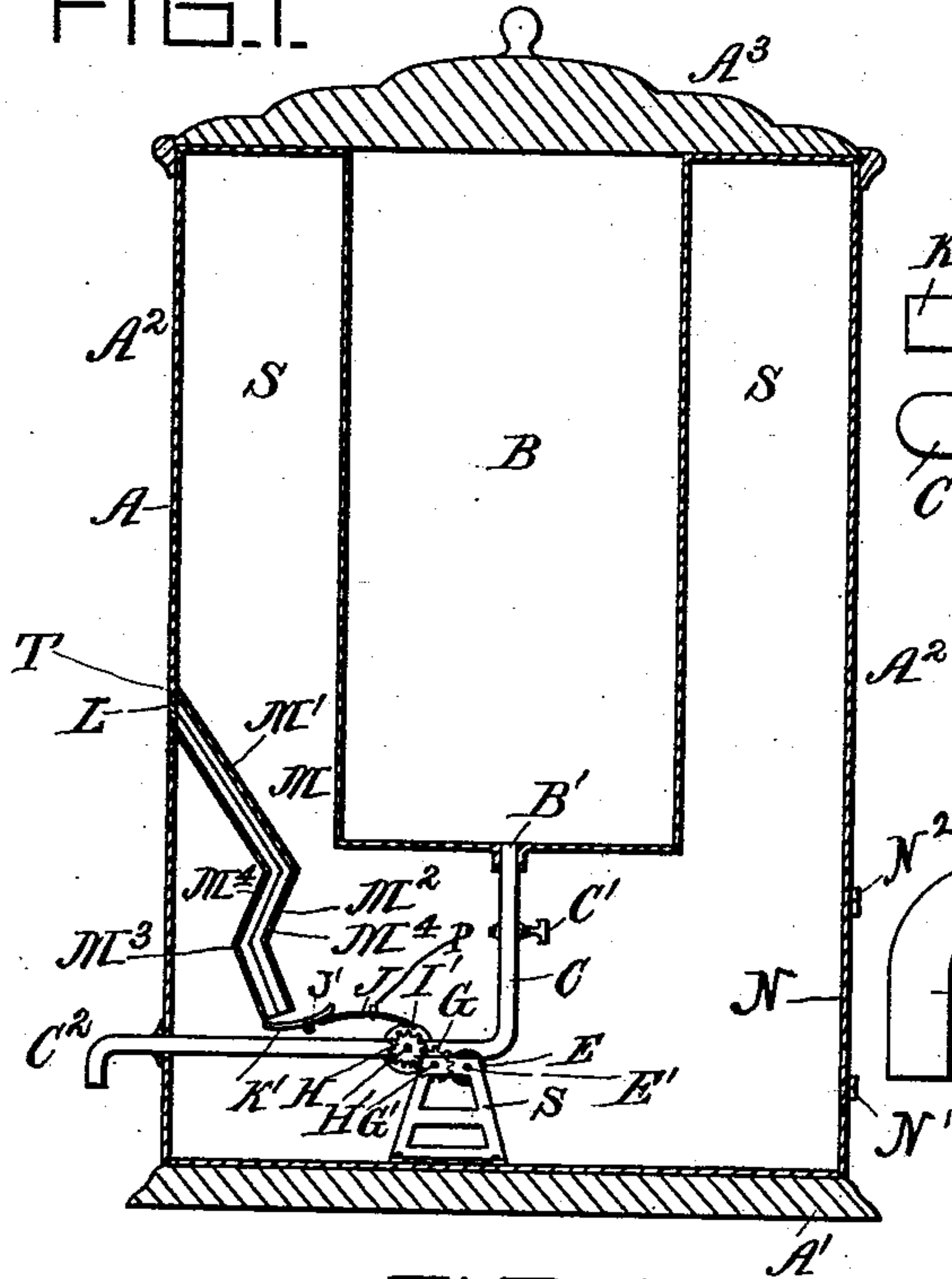


FIG. 2.

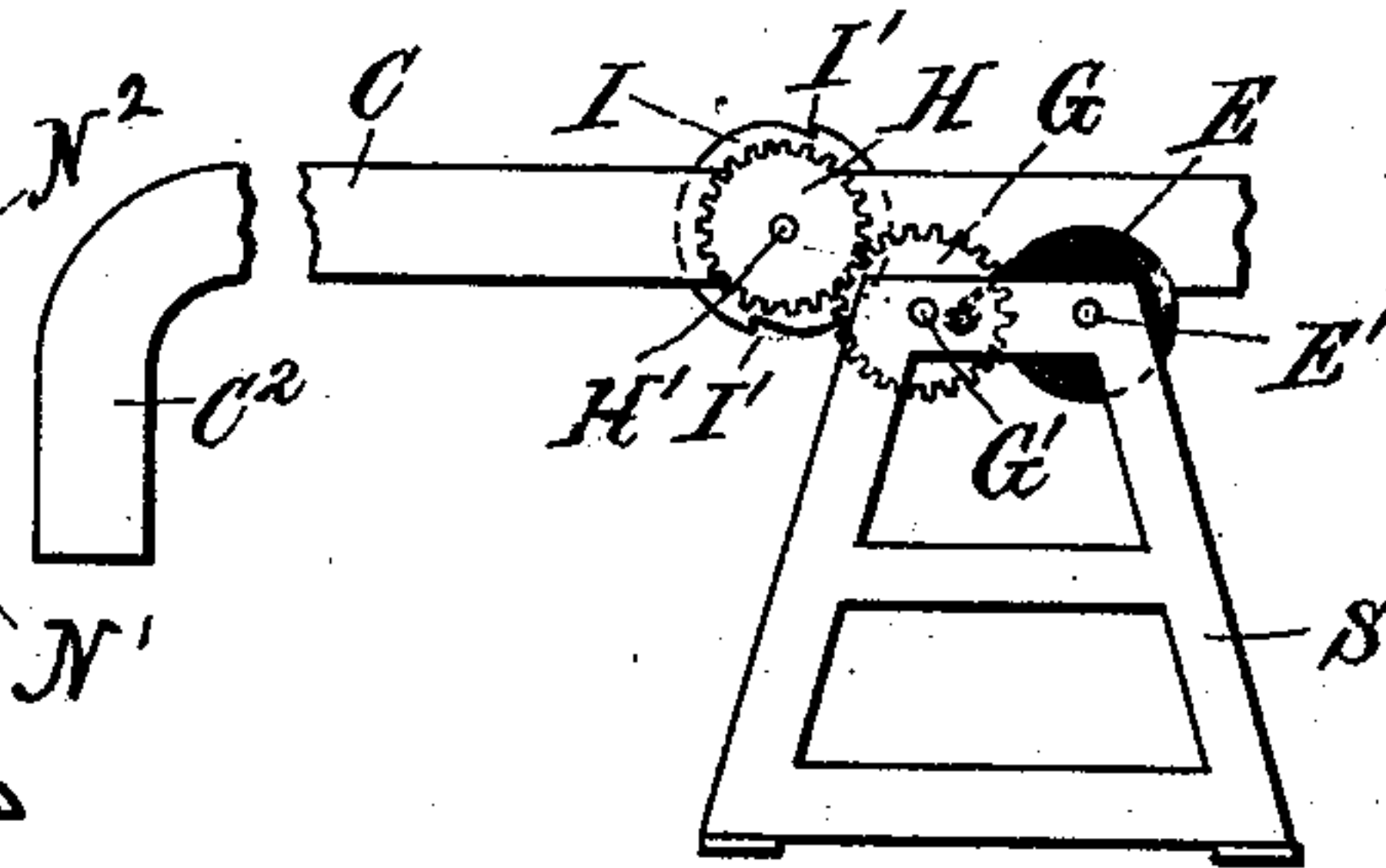


FIG. 4.

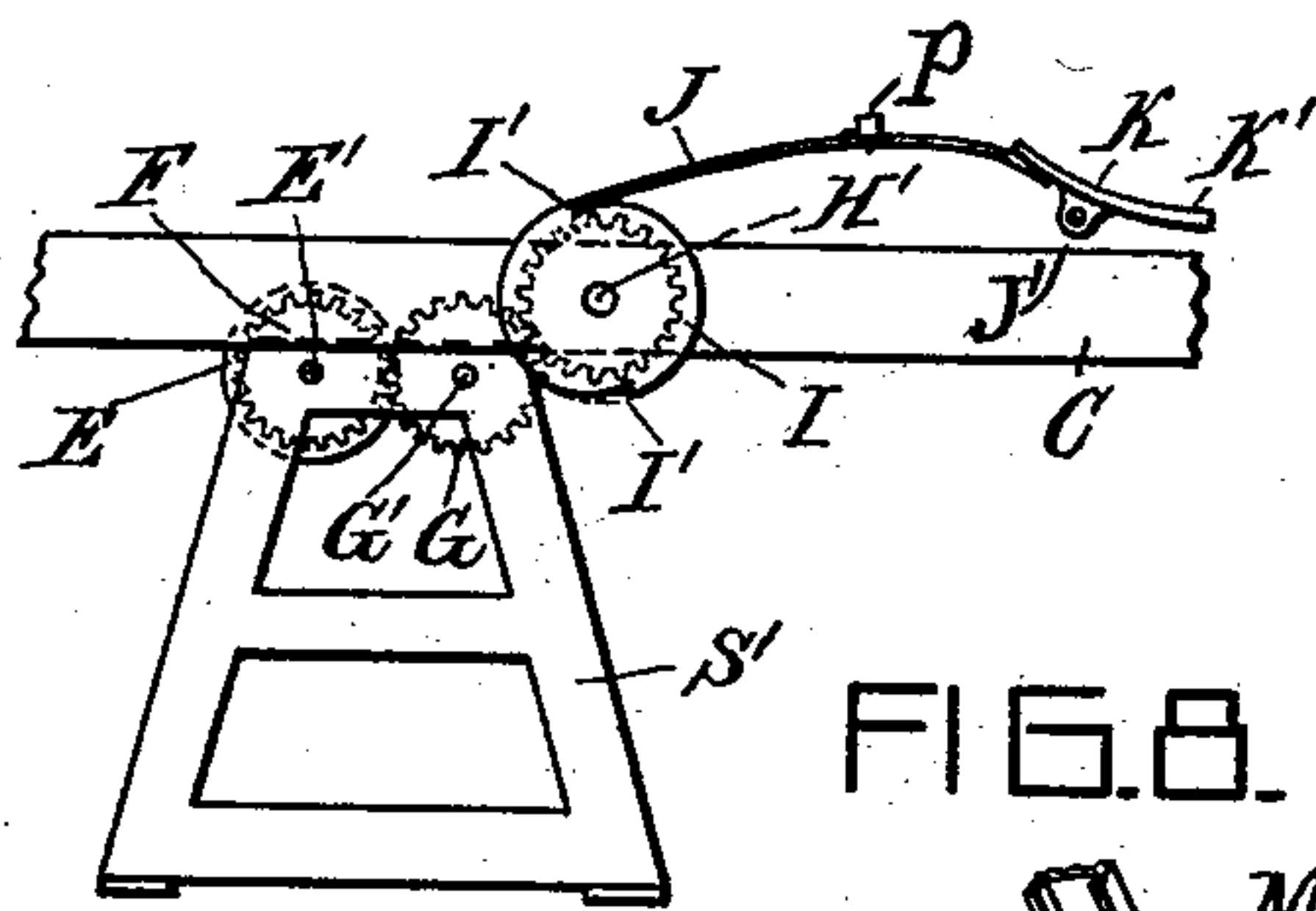


FIG. 5.

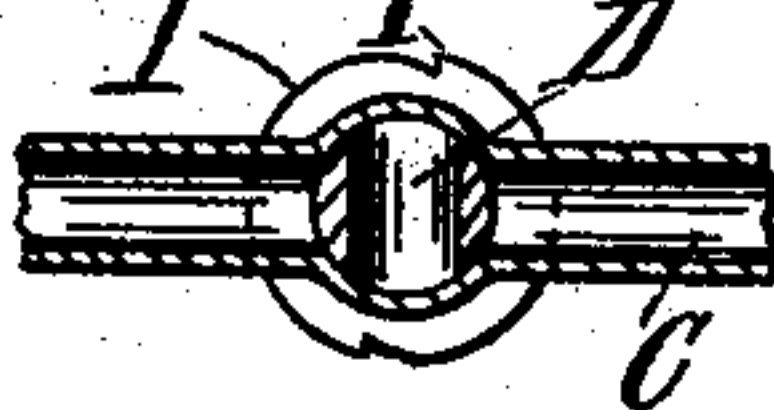


FIG. 7.

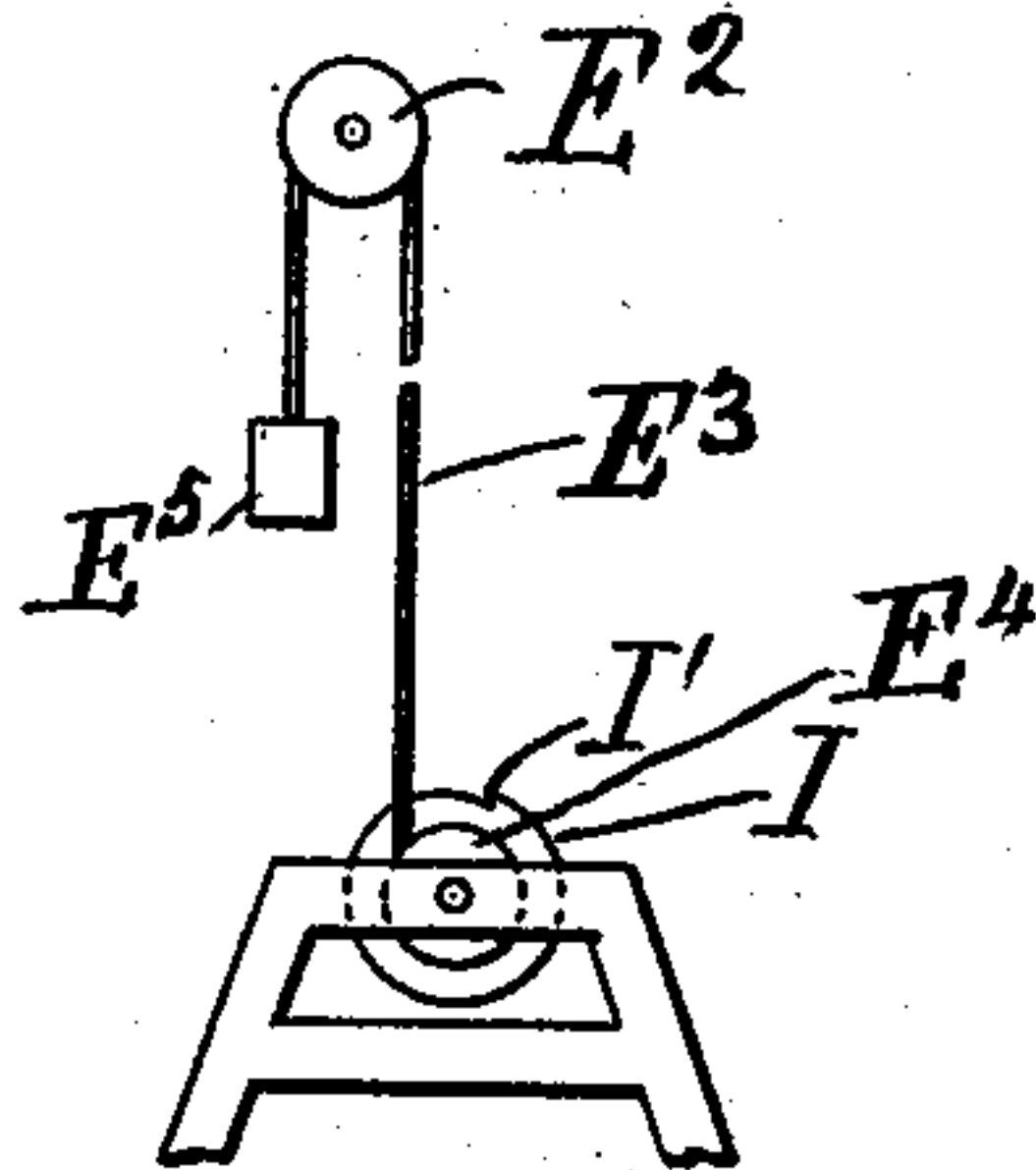


FIG. 8.

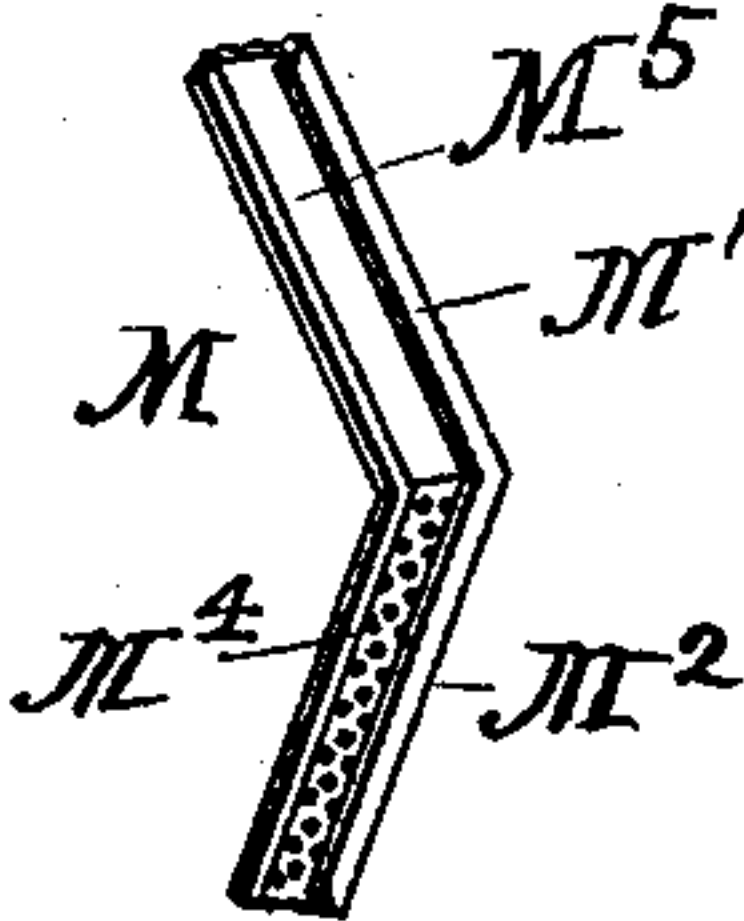


FIG. 6.

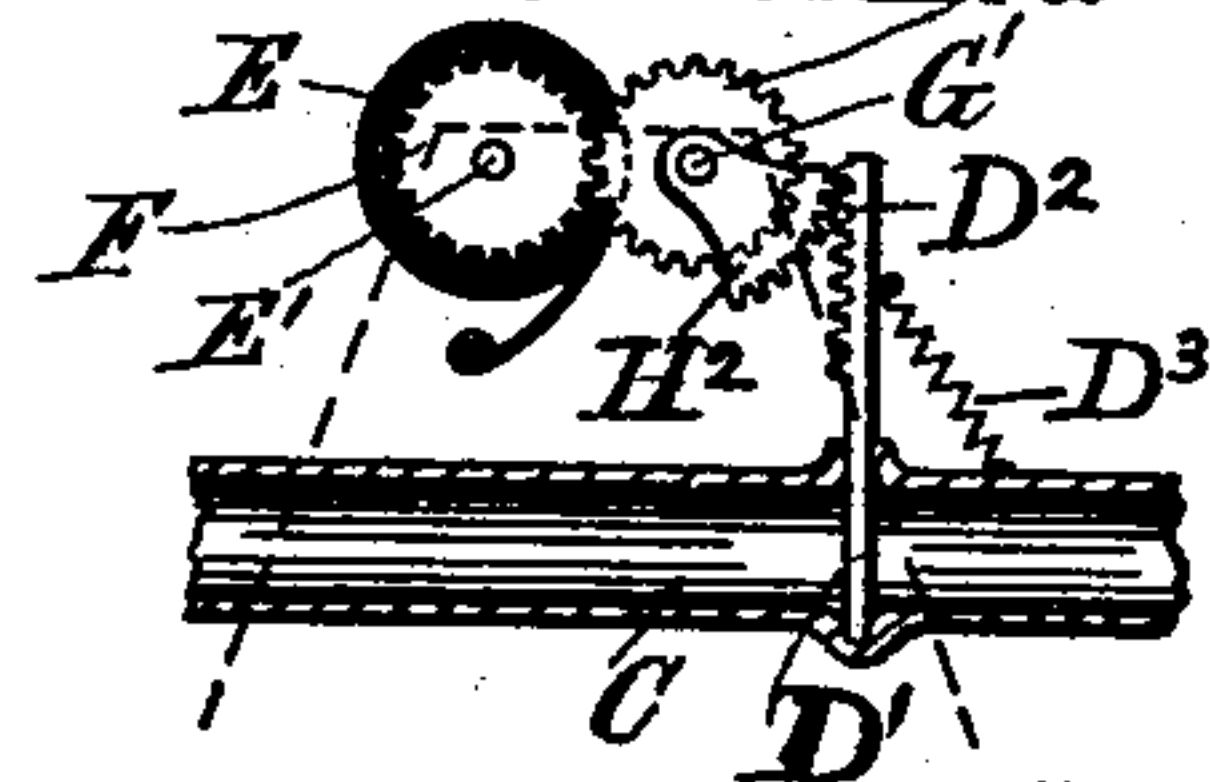
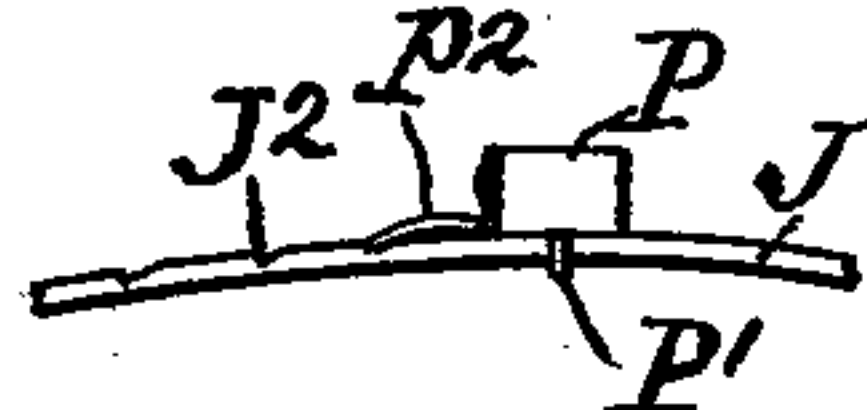


FIG. 9.



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UNITED STATES PATENT OFFICE.

JOHN H. DAVIS, OF CINCINNATI, OHIO.

SLOT-MACHINE FOR DELIVERING LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 509,119, dated November 21, 1893.

Application filed February 3, 1893. Serial No. 460,898. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DAVIS, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Slot-Machines for Delivering Liquids, of which the following is a specification.

The several features of my invention and the various advantages resulting therefrom will be fully apparent from the following description and claims.

In the accompanying drawings making a part of this specification, and to which reference is hereby made, Figure 1 is a vertical central section of a machine illustrating my invention, taken from front to rear, certain parts of the device being in elevation. Fig. 2 is an elevation of a part of the delivery tube and of the valve, and the mechanism for immediately actuating it,—the elevation being of the same side as that shown in Fig. 1. Fig. 3 is a top view of the device shown in Fig. 2, and of the pawl and plate for receiving the coin. Fig. 4 is an elevation of the opposite side of the device shown in Figs. 1 and 2, from that shown in said figures. Fig. 5 is a vertical transverse section of the valve controlling the egress of liquid from the machine. Fig. 6 is a modification of a part of the immediate devices for actuating the valve. Fig. 7 is a mode of exchanging a weight for a spring as the motive power. Fig. 8 is a side (detail) elevation of the tube whereby the coin is conveyed from the point where it enters the casing to the mechanism within the latter, hereinafter described. Fig. 9 is a view, in detail, of the pawl and the weight as adjustable thereon.

A indicates a casing, having a bottom A', sides A², and top A³. The latter is removable at the will of the owner of the machine,—being locked to the casing by a suitable lock, of which the owner has the key. Within the casing is a vessel, i. e. reservoir B, for the reception of the liquid to be subsequently dealt out by the machine.

A convenient and economical mode of supporting the reservoir B is shown and consists in bending over the sides of the casing and uniting them to the upper end of the latter. In the lower part of the reservoir B is an

opening B', connected to the delivery tube C. The latter is continued through the space in the casing, and passes through the casing and terminates outside of the latter in the spout C², it being understood that no portion of the tube C is higher than the point where it takes the liquid in the reservoir B. The tube is preferably shaped and located as shown. In the tube, near the reservoir B is a stop cock C', which entirely controls the flow of liquid from the reservoir B through the tube C. At a suitable point in the tube C between the cock and the side of the casing through which the tube passes out, is located a cock D, a preferred form of which is the one shown in Fig. 5 and which when turned a given distance, cuts off the flow of liquid through the said tube, and which when further operated, allows the liquid to pass through it. A motor is present to operate the valve, and the preferred description of motor consists of the spring E, wound on and fixed at one end to spindle E', journaled in frames S, S', the other end of the spring being fastened to the frame S. On the spindle E' is fixed a pinion or gear wheel F, which meshes with a pinion or gear wheel G, rotating on a suitable shaft G', and this latter wheel G in turn meshes with the pinion or gear wheel H, rigidly fixed on the shaft H', supported in a suitable frame piece as S'. One end of this shaft is concentrically fixed to one side of the valve D, so that the latter must rotate with the shaft. Connected concentrically to these last named devices, and preferably at the other side of the tube C, is a ratchet or notched wheel I, containing one or more teeth or notches I'. A pawl J pivoted at J' to a suitable support (in the present instance upheld by the casing) is arranged so that its free end rests upon the periphery of the wheel I, and as the latter revolves enters the notch I'. This pawl is connected to a plate K, extending out on that side of the pivot opposite where the pawl J is located.

The coin for setting the machine in operation falls upon the portion K' of the plate K.

In the casing is a slot L of a size sufficient to admit the coin which is to operate the machine. The slot opens to a tube M, straight for a given distance and then continued at a different angle, and after a given distance

again continued at a another angle. Thus the tube M is crooked, and consists of the three straight lengths M', M², and M³. The object of making the tube thus crooked is to prevent boys, or others, from introducing a stick or wire through the slot L, and depressing the plate K and operating the machine. The crooked path of the tube prevents the wire being successfully inserted as far as the plate K. The lengths M', M² and M³ of the tube M are enlarged in order that in case a wad or piece of paper is stuffed through the slot L, into the tube M, it will fall through the tube and pass off the plate K with the coin next introduced into said tube.

The tube M is perforated and the portions perforated are the lengths M² and M³. These perforations M⁴ are for preventing a person from operating the machine by blowing into the tube, and thereby depressing the plate K. The size and number of these perforations are to be sufficient to accomplish this object. The perforations are also for catching the wire or stick poked in through the slot L, and preventing the wire or stick from reaching the plate K.

The spaces S are usually present between the casing and the reservoir B, and will ordinarily be to a greater extent packed or filled with a substance whereby the temperature of the liquids in the reservoir will not be subject to the temperature of the air outside of the casing. In other words, if a hot liquid as coffee is in the reservoir, it will not be cooled by the atmosphere without the casing, and if ice cool lemonade be the liquid in the reservoir, this liquid will not be warmed by the atmosphere outside of the casing.

The mode in which my machine operates is substantially as follows:—The reservoir B is filled with the desired liquid. The pawl is in the notch I' of the wheel I, and the cock is closed. The cock C' is opened and the liquid fills that portion of the pipe between said cock C' and the cock D. The cover A³ is now put in place on the casing, and locked there. The machine is now ready for operation. The person desiring to obtain a cup of the liquid from the machine, places the requisite coin in the slot. The coin descends through the tube M and falls onto the portion K' of plate K. The weight of the coin causes the end K' to descend and lifts the pawl out of engagement with the notch in the wheel I. The spring E is thereby permitted to act, and it turns the gear F, and thereby gear G is turned, and by the latter the gear H is turned, thereby gradually rotating the cock D. As the latter turns, it allows the liquid to flow past it and through the delivery end of the pipe. The liquid thus flows from delivery spout C² into a cup or glass held beneath. As soon as the pawl I ascended, the plate K dropped, and the coin slid therefrom, and fell into a receptacle within the machine. The pawl I being heavier than plate K, then descended and its free end travels over and

on the periphery of the wheel I, in readiness to drop into notch I' as soon as the latter shall reach it. As the cock continues to turn, it will shortly shut and again open the tube, and when the wheel I has made a half revolution, the pawl J will engage the notch I' and stop the wheel I from further movement. The amount of liquid thus delivered through the tube C in exchange for the coin given to the machine, will fill a cup of a given size and preferably chained to the machine.

The amount of liquid to be delivered can be regulated by the strength of the spring, or the number and size of the gear introduced, or by the number of notches on the wheel I. A very convenient mode of regulating within certain limits the amount of liquid delivered is by turning the cock C' more or less, thus allowing a greater or less amount of liquid from the reservoir to be supplied to the tube in a given time.

A modified means of controlling the delivery of liquid through tube C is shown in Fig. 6, and consists of the sliding valve D' taking the place of the rotary valve or cock D, and having a stem provided with a rack D² meshing with the sector gear H², fixed on the shaft G', after the manner shown in Fig. 6. As the gear G revolves, the sector H² engages the rack D², and lifts the sliding valve D', and then leaves the rack, whereupon the spring D³ draws down said valve D', and shuts off the flow of liquid.

When desired, a weight E⁵ a pulley E² cord E³, and drum E⁴ may be substituted for the motor (spring E), substantially as shown in Fig. 7.

When it is desired to greatly retard the revolution of the wheel I, and consequently to retard the delivery of liquid from the tube C, the gear may be provided with a governor or clock escapement, or a rotary fan, in any of the well known forms and modes.

Persons (usually children) are fond of putting various things such as chewing gum, buttons, &c., through the slot L and into the tube M. In order to enable the tube to be quickly and thoroughly cleaned, I make it open, that is to say there is a slot in the tube on one or both sides as desired. In the present instance, the slot L is vertical and the tube M will, in cross section, also be deeper from top to bottom than from side to side, and the slots M⁵ are in said sides. If the entrance slot L is horizontal, the flattened tube will be correspondingly turned, and in this case the slots will also be in the widened portions.

Should the tube become dirty, or should anything stop in it, the dirt or obstruction can be removed by a wire passed through the adjacent slot and across the tube and carried up and down, at right angles to the tube.

Access to the interior of the casing may be had by any suitable means. For example, N indicates a door in the casing hinged at N', and securely held shut by a lock N². When this door is open, access is had to the cock C',

to the mechanism whereby the cock for dol-
ing out liquid, is operated by a coin intro-
duced through slot L. Thus also the cash
dropped by plate K can be reached and re-
5 moved, the tube M cleaned, &c. I have adapt-
ed the machine, so that a coin of a given de-
nomination can be used therein. Inasmuch
as the coins differ not only in size, but in
weight, I rearrange the weight of the pawl so
10 as to be readily and properly lifted by the
weight of the given coin falling upon the
plate K. I accomplish this by a balance or
weight, carried by the pawl and adjustable
along it, and capable of being fixed at a de-
15 sired point thereon. One description of such
a device is shown in Fig. 9, and consists of a
weight P, having a yoke P', embracing the
pawl. A spring P² of the weight fits into
any one of a series of notches present on the
20 pawl, and a spring of the weight will as the
weight is moved along engage a given notch
J², there being one notch for each denomina-
tion of coin intended to be used in the ma-
chine.

25 What I claim as new and of my invention,
and desire to secure by Letters Patent, is—

1. The rotatable cock and a wheel connect-
ed thereto, the wheel being concentric with
the said cock and arranged to rotate in a for-
30 ward direction only, and a motor mechanism
combined therewith for automatically com-
pelling the cock to rotate forward, when per-
mitted so to do, and devices for enabling a
coin when dropped into the machine to allow
35 the wheel to rotate a given distance, and de-
liver a given quantity of liquid, substantially
as and for the purposes specified.

2. The rotatable cock and wheel on the same,
arranged to continually rotate forward, means
40 for automatically rotating them forward, and
a coin trip device, and means connecting said
device and said wheel whereby a coin strik-
ing said trip operates to allow said wheel and
cock to rotate, substantially as and for the
45 purposes specified.

3. The rotatable cock D arranged to rotate
in a forward direction, and wheel H connect-
ed concentrically to the rotatable cock D, and
a pawl J, and a stop rotatable with said cock
50 for engaging said pawl J, and means for en-

abling the coin to elevate the pawl out of con-
nection with the stop, substantially as and
for the purposes specified.

4. In combination, the coin delivery chute,
a plate K for receiving the coin and pawl J, 55
notched wheel I, rotatable only in a forward
direction, gear H, cock D concentrically con-
nected with said gear wheel I and gear H, and
a motor for communicating motion to gear H,
substantially as and for the purposes specified. 60

5. In combination, the coin delivery chute,
a plate for receiving the coin, and notched
wheel I, and a gear H, and rotatable cock D
rigidly fixed concentrically together, and
means for enabling the depression of the coin 65
plate K to allow the notched wheel to rotate
forward and means for communicating mo-
tion to cock D, substantially as and for the
purposes specified.

6. In combination, a coin delivery chute, a 70
coin plate for receiving the coin, a rotatable
cock D, a notched wheel fixed to the rotatable
portion of the cock, at one side thereof, and
a gear wheel H fixed to the other side thereof,
the rotatable portion of the cock and wheel I 75
and gear H being concentric, and means for
enabling the depression of the coin plate K
to allow the notched wheel to rotate forward,
and means for communicating motion to cock
D, substantially as and for the purposes speci- 80
fied.

7. The combination of a slot L in the cas-
ing, for the reception of a coin of a given de-
nomination, the delivery tube, plate K, and
pawl J, and an adjustable balance or weight 85
sliding thereon, and held in the desired place
by the notches with which the pawl is pro-
vided, substantially as and for the purposes
specified.

8. The combination of a slot L in the cas- 90
ing, for the reception of a coin of a given de-
nomination, the delivery tube, plate K, and
pawl J, having notches or openings J² and
weight P having yoke P', spring detent P²,
for engagement with a given notch, substan- 95
tially as and for the purposes specified.

JOHN H. DAVIS.

Attest:

WM. E. JONES,
K. SMITH.