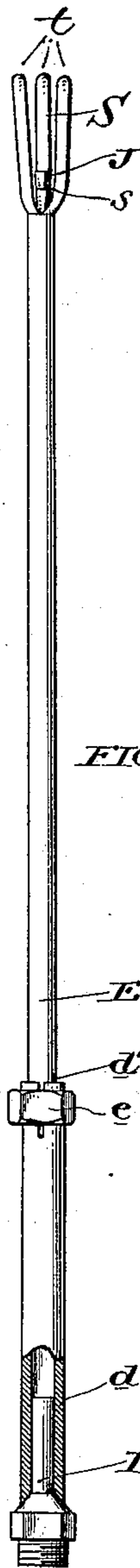
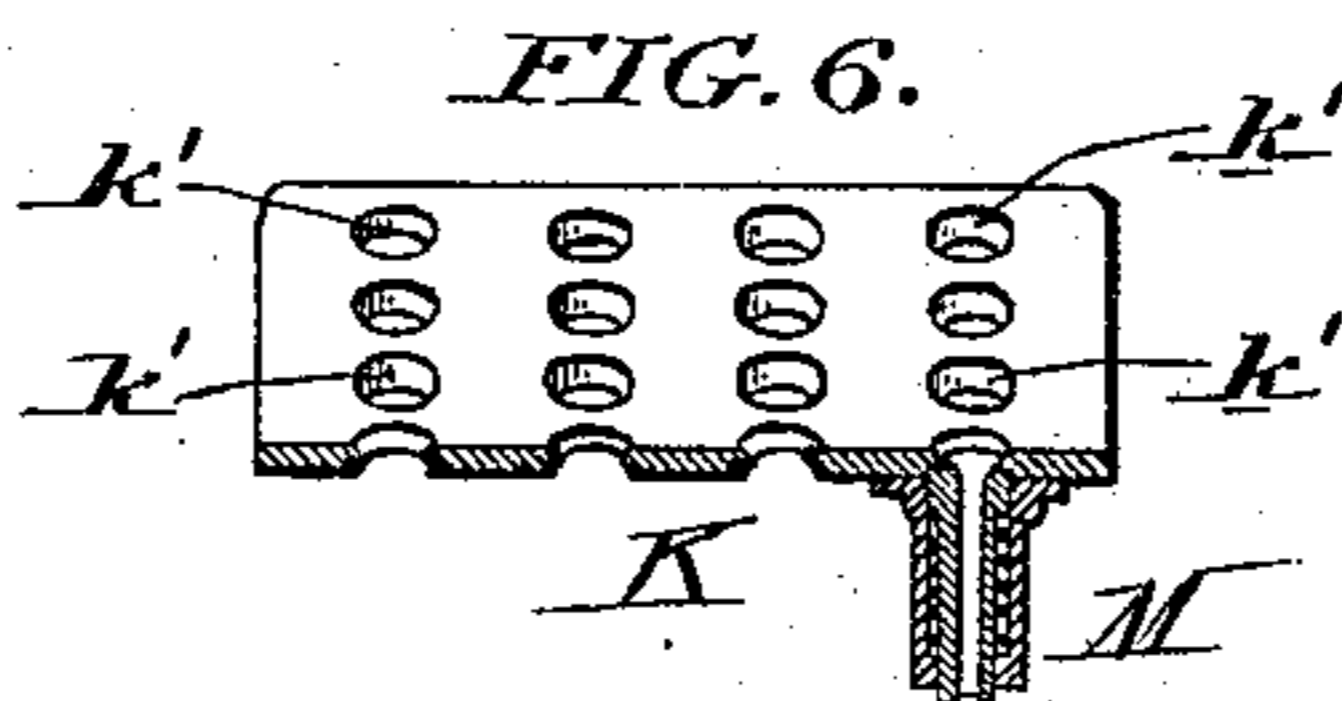
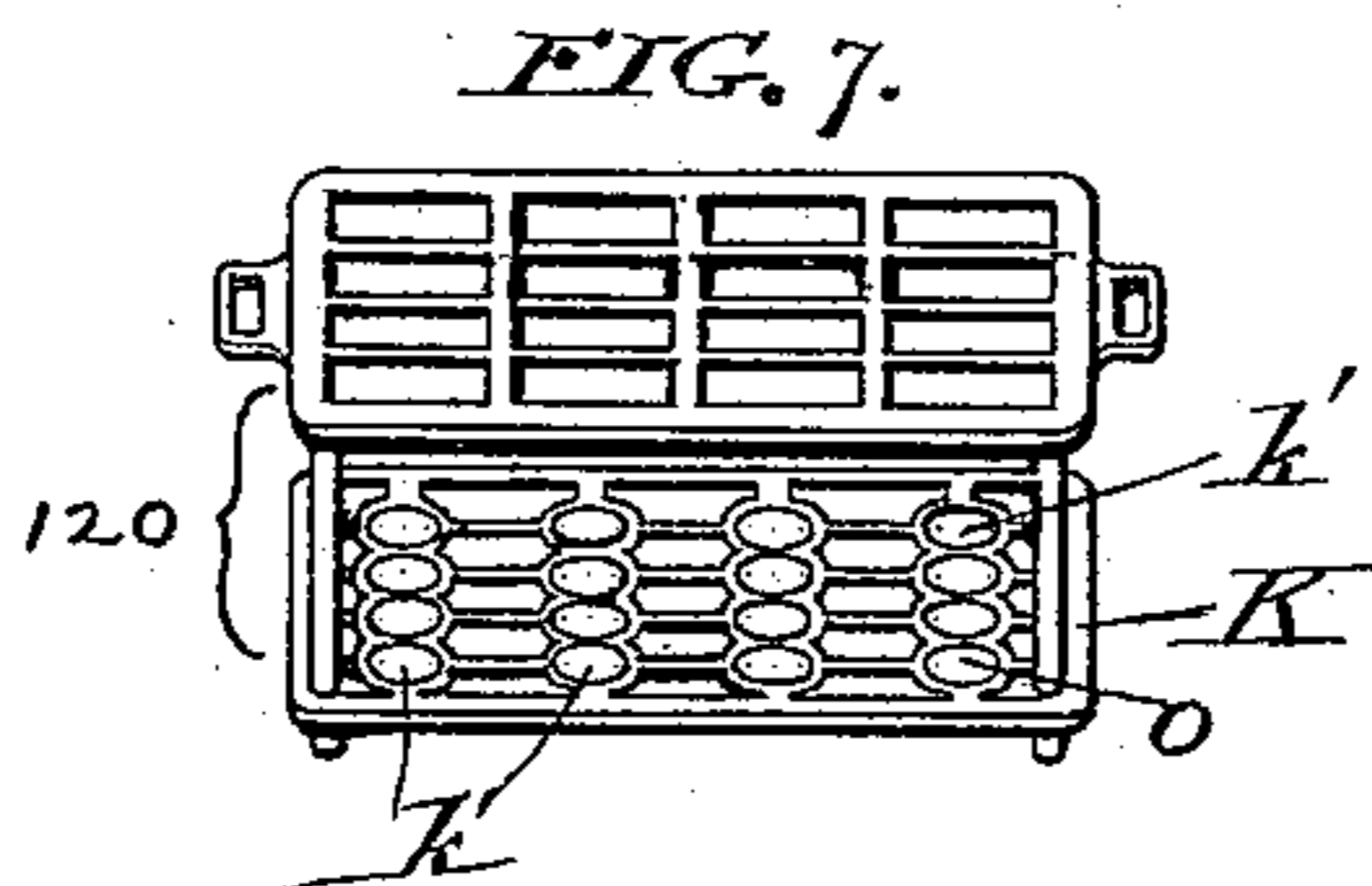
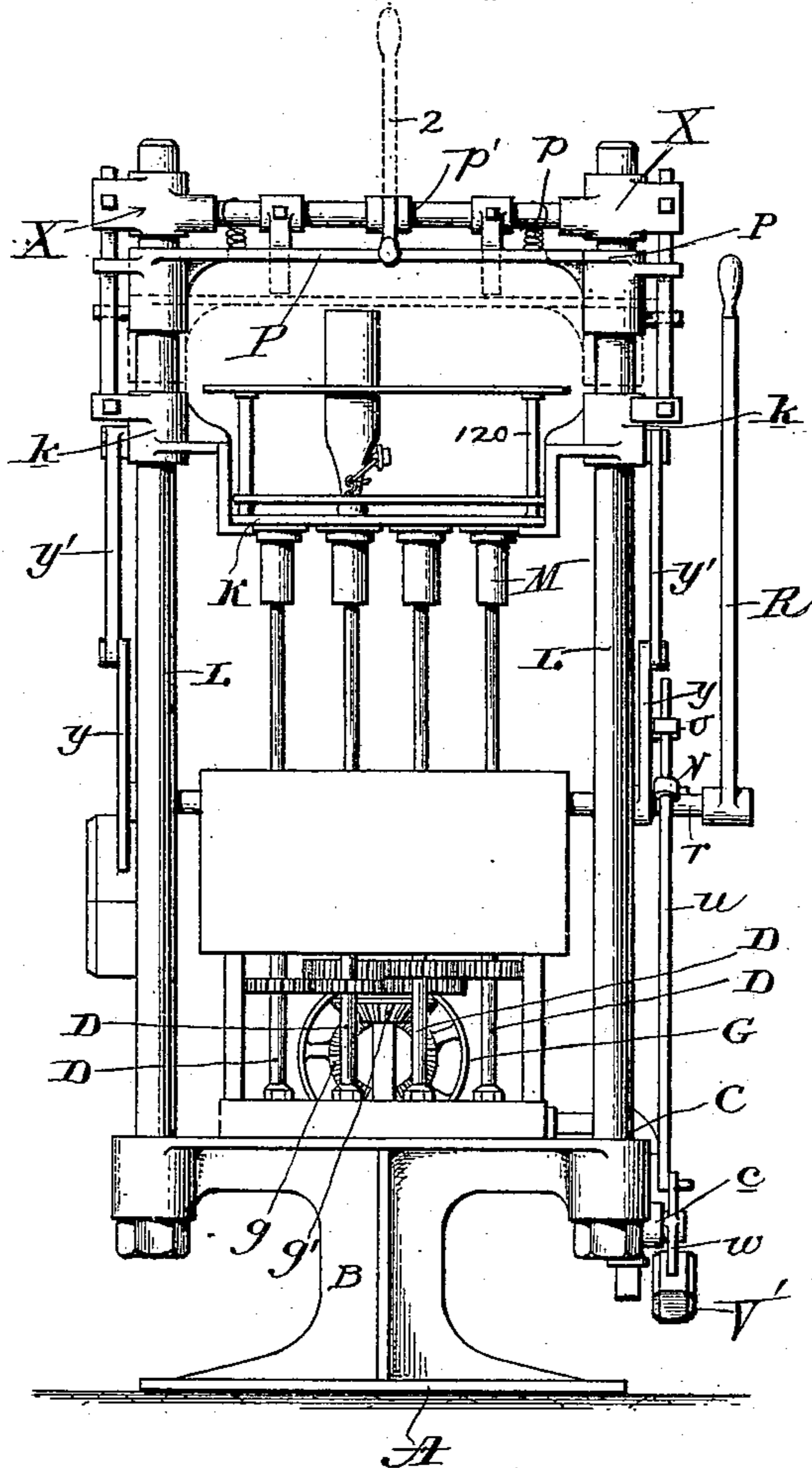
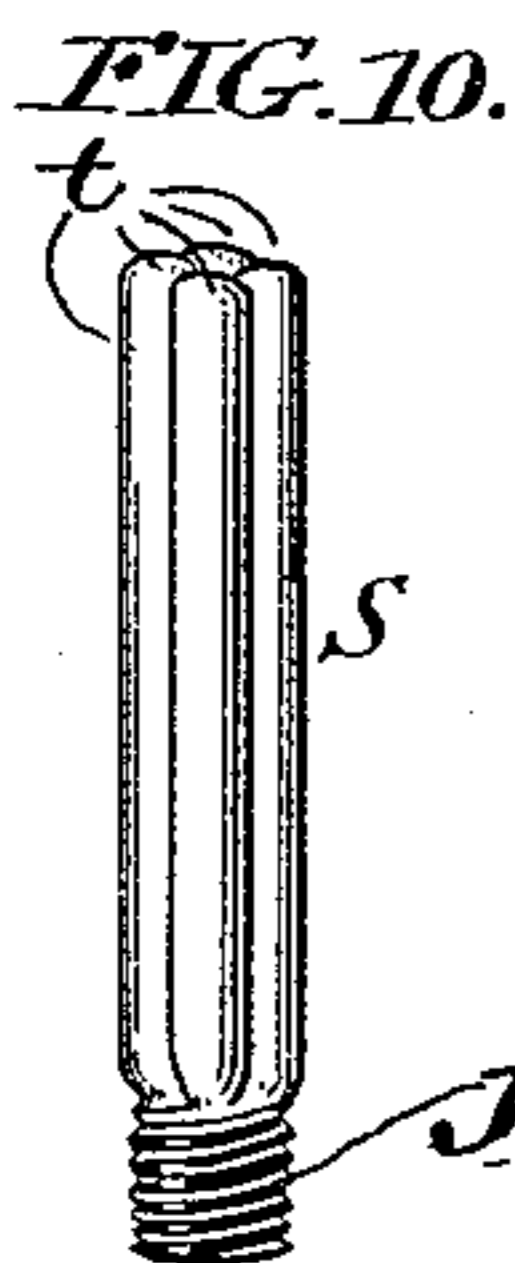
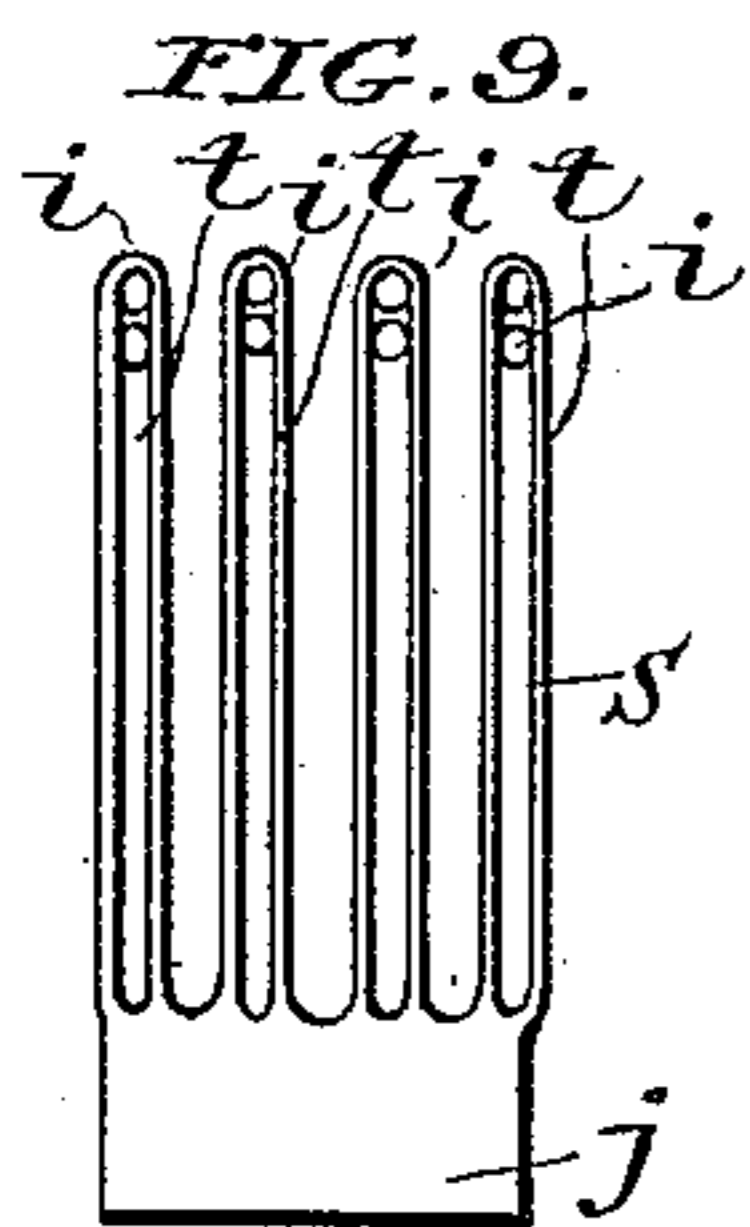
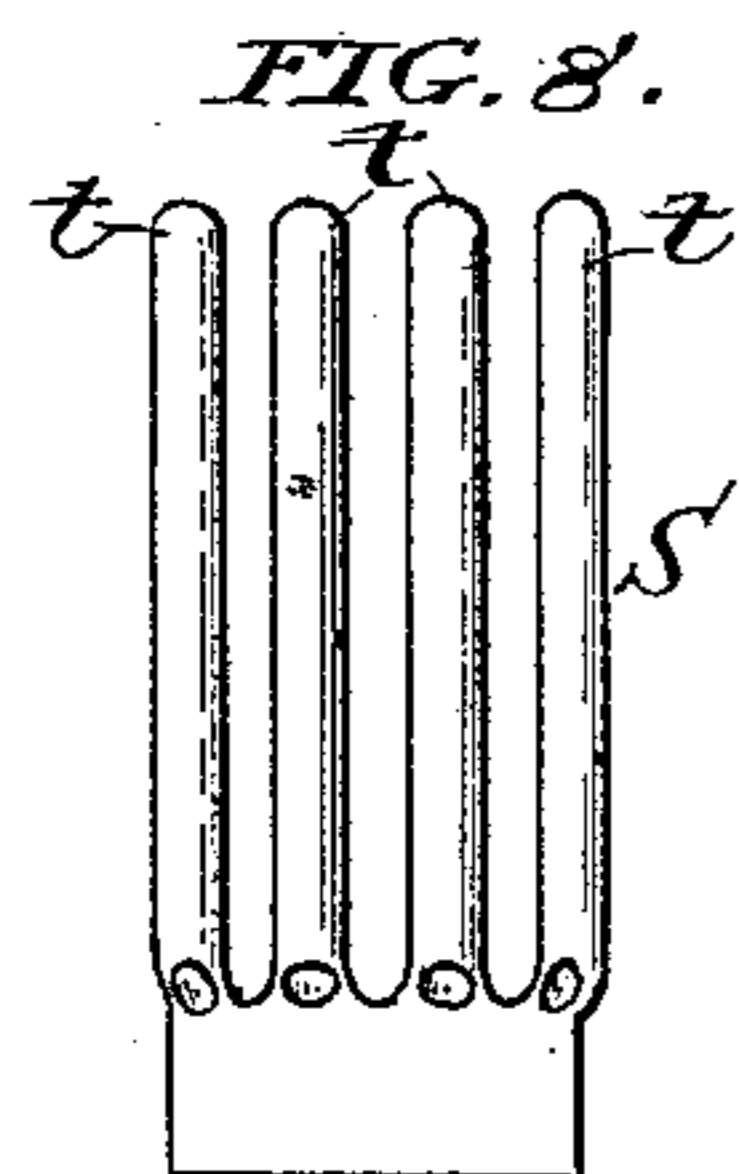


O. EICK.
BOTTLE WASHER AND RINSER.

No. 487,999.

Patented Dec. 13, 1892.

FIG. 1.



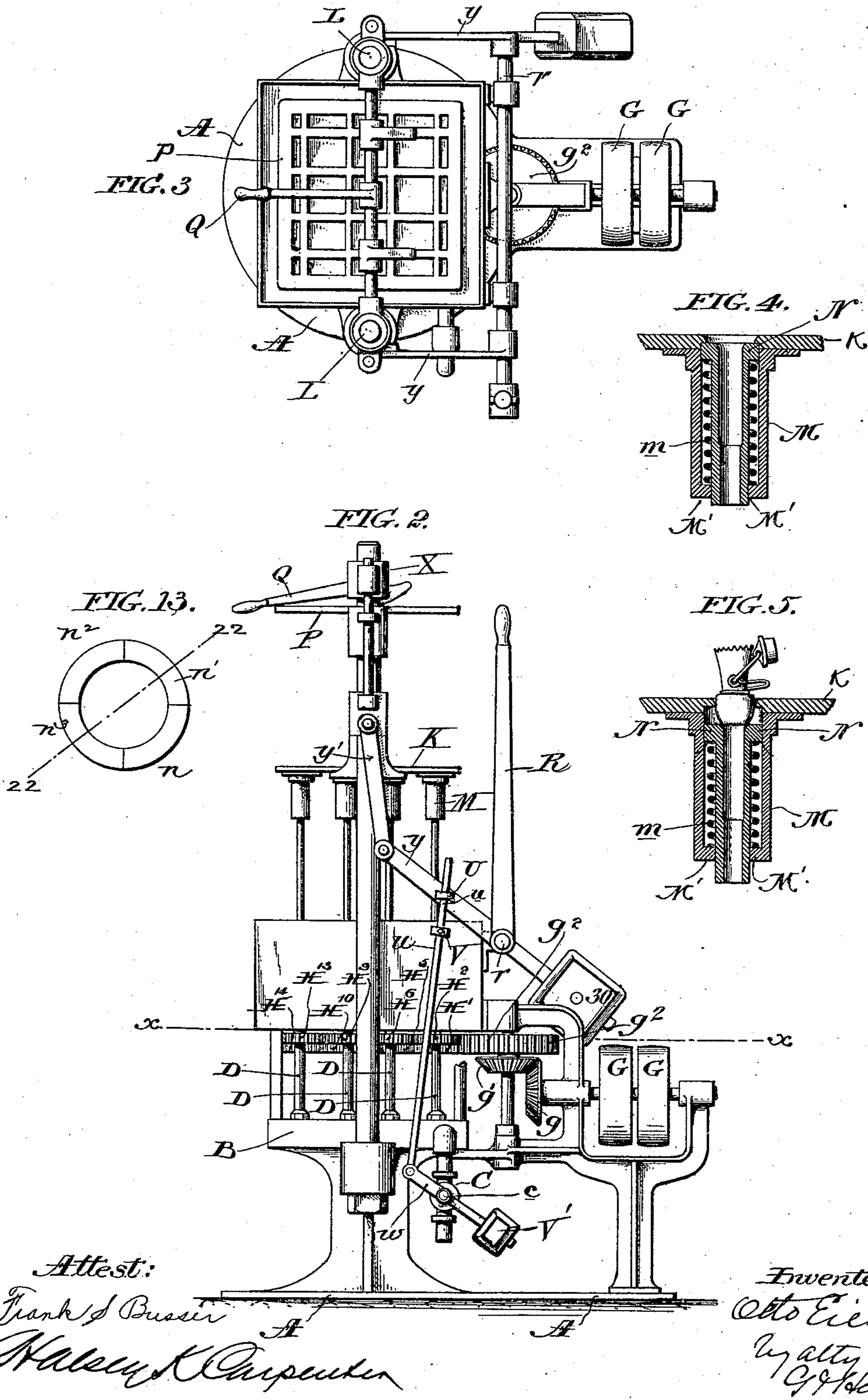
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FIG. 12.

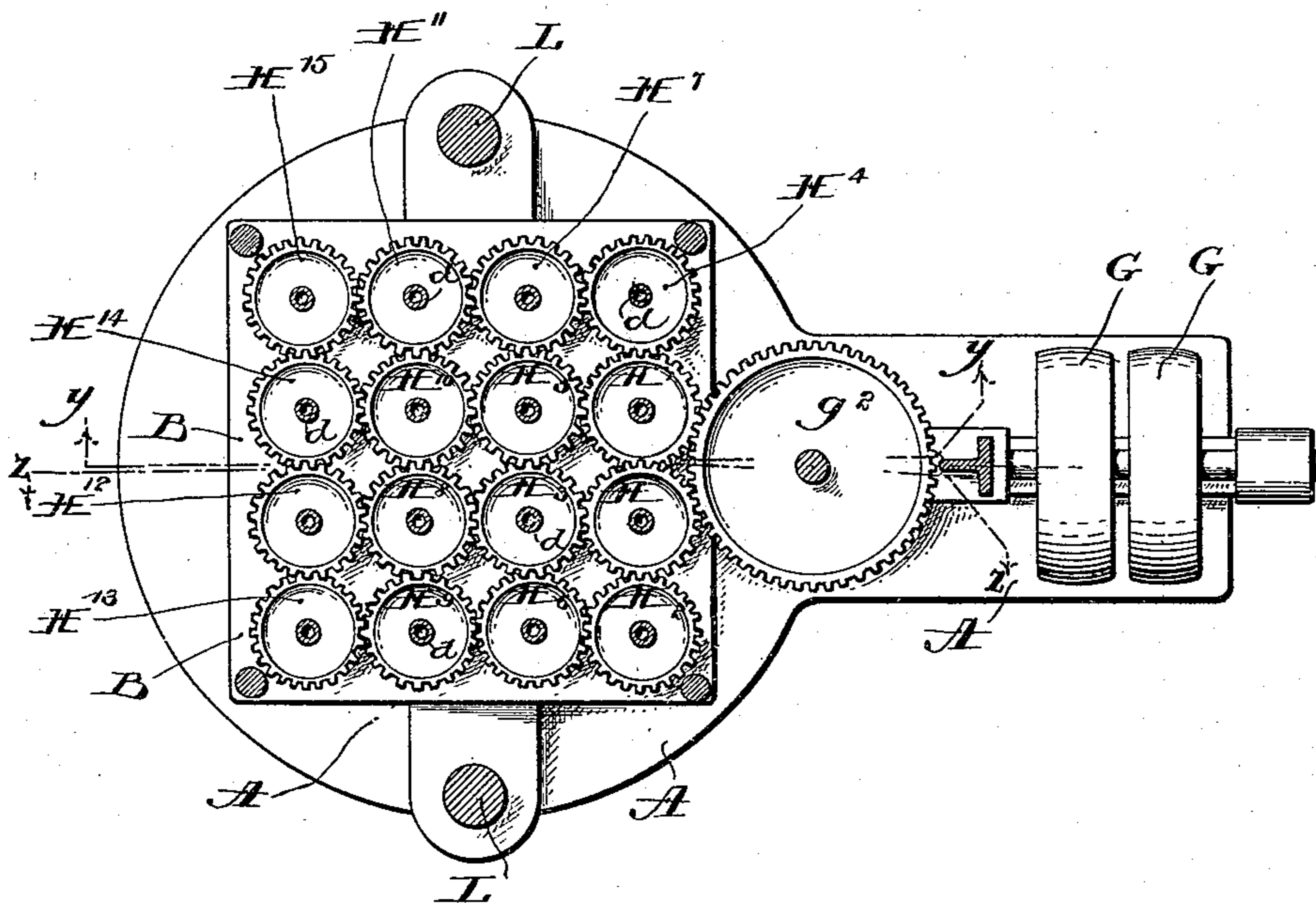


FIG. 14.

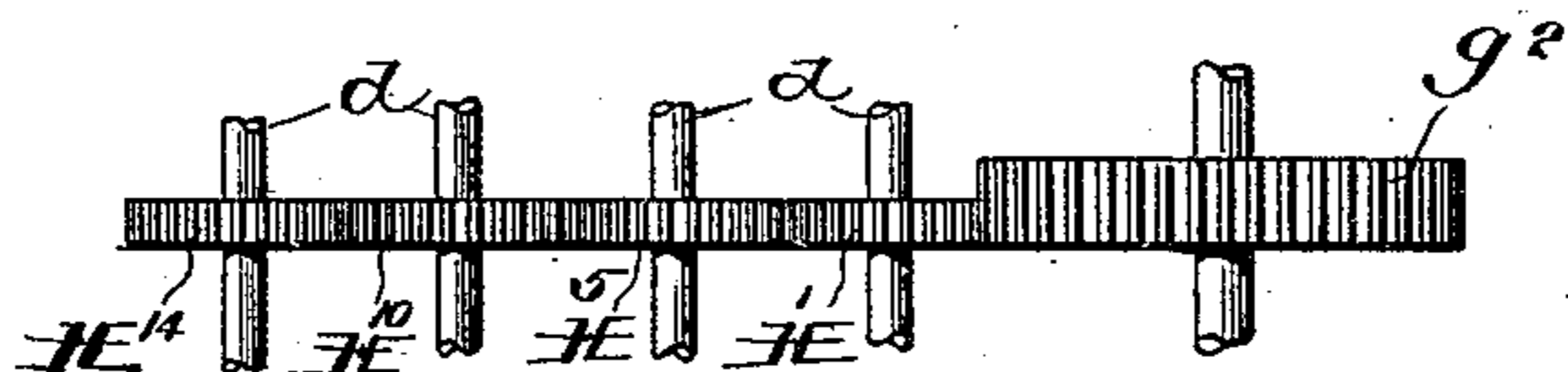
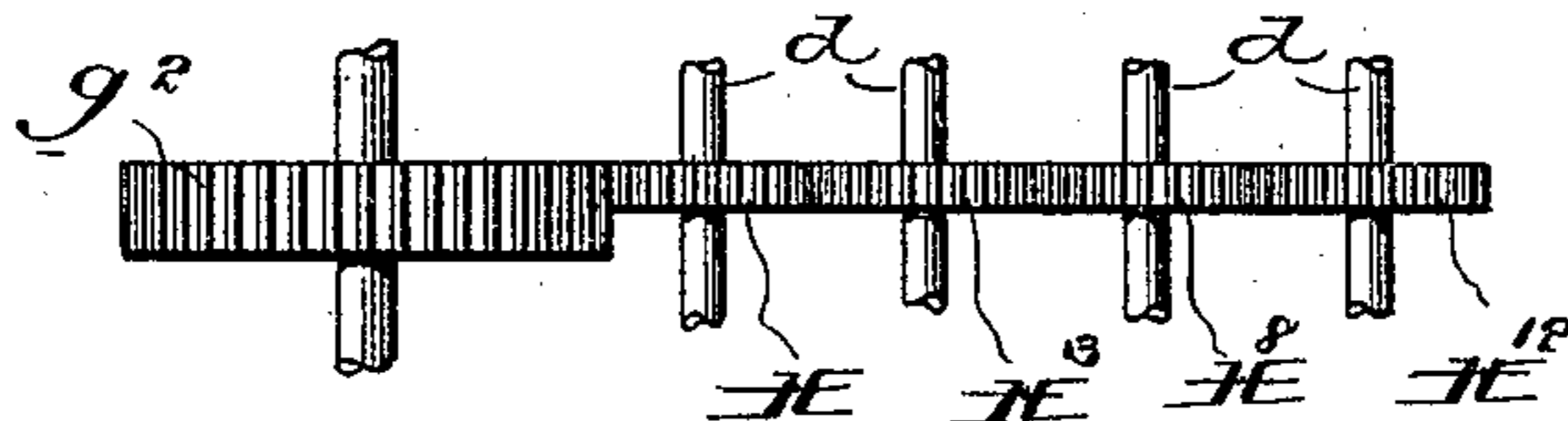


FIG. 15.



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(No Model.)

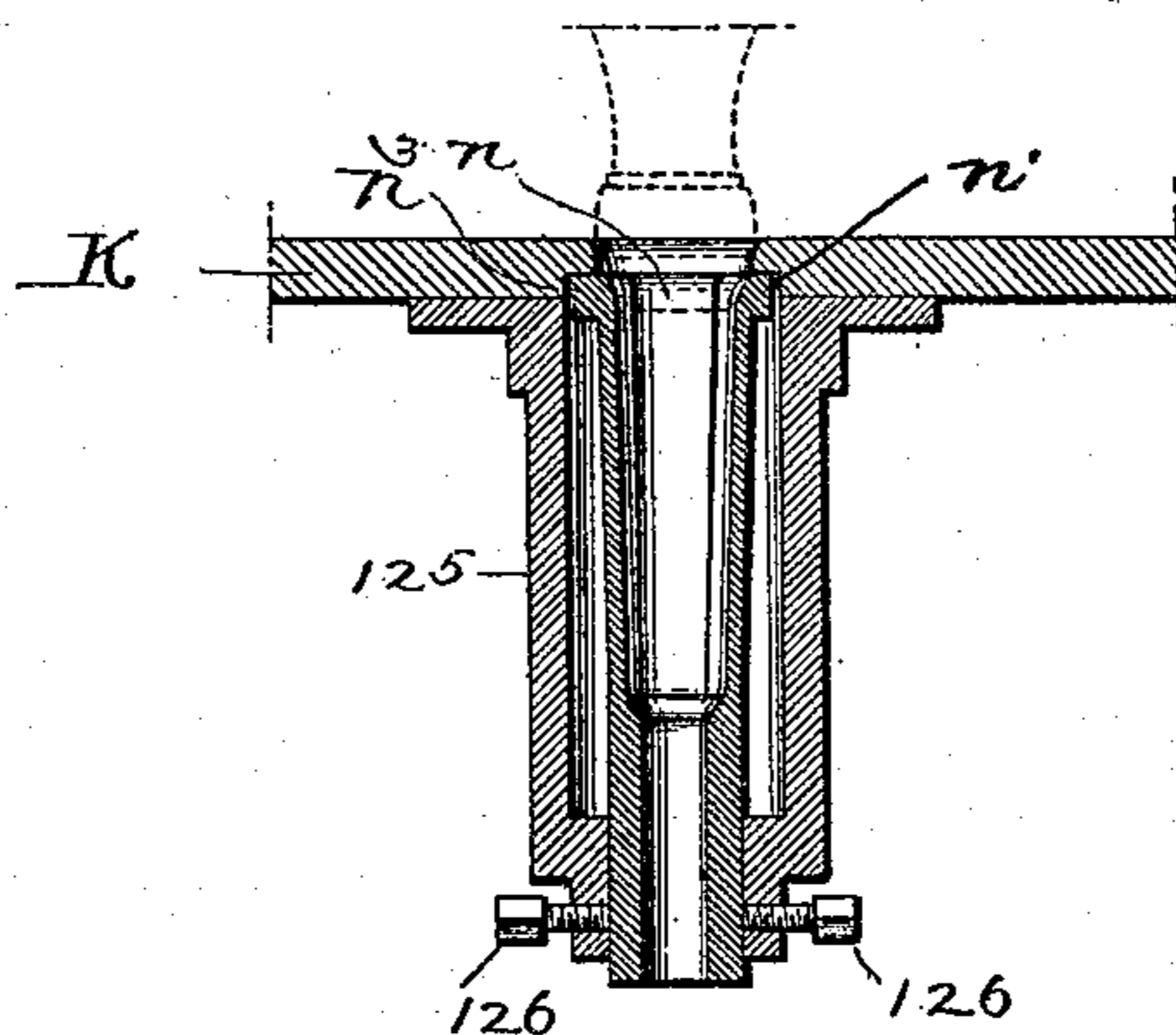
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Fig. 16.



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UNITED STATES PATENT OFFICE.

OTTO EICK, OF PHILADELPHIA, PENNSYLVANIA.

BOTTLE WASHER AND RINSER.

SPECIFICATION forming part of Letters Patent No. 487,999, dated December 13, 1892.

Application filed March 2, 1891. Serial No. 383,356. (No model.)

To all whom it may concern:

Be it known that I, OTTO EICK, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Bottle Washers and Rinsers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object the production of a bottle-washer which shall be simple, efficient, and capable of cleansing bottles of various sizes, all of which will hereinafter be more fully described.

Figure 1 is a front view of the machine. Fig. 2 is a side view of the machine. Fig. 3 is a top plan view of the machine. Fig. 4 is a sectional view of my improved mouthpiece. Fig. 5 is a section of the same, showing the bottle in position. Fig. 6 is a side view, partially in section, of the mouthpiece-plate and mouthpiece. Fig. 7 is a perspective view of the bottle basket or casing. Fig. 8 is a view of my improved brush opened out. Fig. 9 is a section of the same. Fig. 10 is a view of brush in position with screw for attaching spindle. Fig. 11 is a view of spindle with water connection. Fig. 12 is a sectional plan on line *xx*, Fig. 2, showing the method of connecting the gears of the spindle together. Fig. 13 is a plan of modified form of nozzle. Fig. 14 is a section on line *yy*, Fig. 12. Fig. 15 is a section on line *zz*, Fig. 12. Fig. 16 is a section on line 22 22, Fig. 13.

A is the bed-plate of the machine.

B is a water-reservoir having the water connection C, provided with valve *c*. This reservoir B has opening out of it various pipes D, which enter the casing *d*, as shown in section, Fig. 11. The upper end of this casing *d* is split as shown at *d'*, and in the split portion rests the hollow spindle E, and said spindle is held in place by means of the nuts *e*.

Upon the casing *d* are the gear-wheels H H' H² H³ H⁴ H⁵ H⁶ H⁷ H⁸ H⁹ H¹⁰ H¹¹ H¹² H¹³ H¹⁴ H¹⁵, which gear into each other, as shown in Fig. 12.

G are the driving-pulleys, the shaft of which carries the bevel-gear *g*, which works into the bevel-gear *g'*, and upon the shaft of the bevel-gear *g'* is the gear *g*², which, as shown in the

drawings, Fig. 12, works into the gears H H'. The gear H works into the gear H² and also into the gear H³. The gear H' works into the gear H⁴ and also into the gear H⁵. The gear H² works into the gear H⁶, and the gear H⁴ works into the gear H⁷, and so on throughout the spindles, as shown in the drawings.

Figs. 8, 9, and 10 are views of the washer or brush S, which consists of a series of rubber tubes *t t t t*, closed at one end and having inclosed at their upper ends shot or other heavy material *i*, as shown in Fig. 9, and having screw-thread *j* on the connecting rubber piece *j'*. The brushes are then wound round together and connected to the hollow plug J by wire or other suitable means, and the threaded portion *j* is screwed into the threaded end of the spindle E, the plug J securing it in position. The shot or heavy material causes the tubes to separate from each other more readily when revolved, and also gives a force to the action of the brushes.

K is the base-plate of the machine, supported upon collars *k*, which surround the two uprights L L of the machine and have in it the orifices *k' k'*, &c., equal in number to the bottle capacity of the machine and corresponding to the number of spindles. Secured beneath each one of these orifices is the guide-plate M.

N is the nozzle, which has a flaring mouth, and between the upper end or flaring mouth of this nozzle and on the inwardly-projecting portion M' of the guide-plate M is placed a spring *m*, so that this nozzle N has a capacity to slide up and down against the spring and in the guide M. The spindle E projects out through the nozzle N, so that it normally lies just below the plate K.

Fig. 7 shows the form of bottle-basket, the bottles being placed with their necks downward into the orifices marked *oo* in the drawings, the upper portion projecting beyond the upper portion of said receptacle.

P is a plate which is sleeved upon the uprights L L, and is connected by the spring *p* with the cross-piece *p'*. Q is a lever connected with this plate P, whereby upon the movement of the lever the plate P is caused to move up and down upon the uprights L L. When the basket 120 (shown in Fig. 7) is placed on the plate K, as shown in Fig. 1, the

moving of the lever Q brings the plate P down upon the tops of the bottles (see dotted lines, Fig. 1) and I am enabled to secure in firm position bottles of any size which may be used, 5 for when the bottle is placed in position, as shown in full lines, Fig. 1, and the lever Q operated the plate P is forced down until its limit is reached and rests upon the top of the bottle and holds the bottle in even and firm 10 position. By means of this spring-nozzle I am enabled to operate with bottles of different sizes and to always hold them in a proper position for the brush to project to the full extent of the bottle, for the plate P, having a 15 fixed movement, if the bottles be longer or shorter they are forced by the plate a greater or less distance downward with the nozzle, so that the top of the bottle always remains in the proper position and height, so that the 20 brush will extend the proper extent into it.

R is a lever connected to the shaft r , connected to the plate K by the lever $y y'$, and the sleeves of plate K are connected to sleeves X on cross-piece p' , so that when said lever R 25 is turned both the plate P and the plate K are moved up and down upon the uprights. The weight 30 on the end of lever y acts as a counterbalance for the weight upon plate K, so that the lever R may be easily operated. When the 30 bottles are placed in position, as shown in Fig. 1, the plate P being in the position shown in dotted lines, and the lever R is turned, the bottle is forced down, pressing down the spring-nozzle N, exposing and forcing the brush S 35 up into the bottle. Connected to the lever Y is the projection U, through which the rod u passes. V is a collar upon said rod. This rod u terminates in the lever w , which is connected to the valve c of the water-supply, so 40 that when the lever R is turned, so as to depress the bottle, the brush enters the bottle and the collar upon the rod u will strike the projection upon the lever y and open the valve of the water-supply. When the lever is turned 45 the other way so as to release the bottle, the counter-weight V' operates the valve and the water is turned off.

By means of this improved apparatus I am enabled, first, to more easily put my bottles 50 into position on the machine, inasmuch that the orifices being below the level of the plate upon which the basket is pushed they will not fall into other position, and by the use of my improved nozzle I am enabled to operate 55 upon various-sized bottles, and the upper plate P, by which the bottle is held in position being adjustable, I can also construct my machine so as to accommodate bottles of various heights. The brush which I use is es- 60 pecially adapted for the purpose. It is simple, economical, and works with great success. The rubber is formed in molds of the desired form, the shot placed in position, and then the rubber is turned around, so as to assume 65 the position shown in Fig. 10, with the water-pipe passing through the center, and it is then screwed into the end of the revolving

spindle. In my machine the neck or nozzle has no revolution, either when the brush is withdrawn into it or when the brush is in the 70 bottle; but it is always stationary.

In Fig. 13 is shown a modified form of nozzle in which the nozzle is made of spring-sections, so as to expand laterally and allow the bottle to pass down around the spindle and 75 brush. With this form of nozzle the nozzle has no vertical movement; but the neck of the bottle forces the sections outward.

N is the nozzle formed of the sections $n n' n^2 n^3$. 125 is a guide surrounding said sections and secured at the bottom by the screws 80 126.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is— 85

1. In a bottle-washing machine, in combination, a basket adapted to support the bodies of the bottles, and a plate, as K, provided with orifices adapted to receive the mouth-pieces of the bottles, the upward extension of 90 which orifices is limited by the upper surface of said plate K.

2. In a bottle-washing machine, in combination, a plate, as K, provided with orifices, a hollow spindle adapted to revolve, a brush 95 on the end of said spindle, a spring-nozzle which surrounds said spindle and brush.

3. In a bottle-washing machine, in combination, a plate, as K, adapted to move vertically provided with orifices, a guide, as M, secured to said plate, a spring secured to said 100 guide, a nozzle resting in said guide, a spindle adapted to revolve, and a brush in the end of said spindle.

4. A bottle-washing machine, a brush which 105 consists of tubes of flexible material connected around a core.

5. In combination, uprights, as L L, a plate, as K, provided with collars, as $k k$, surrounding said uprights and provided with orifices, 110 a lever, as R, connected to said plate K, a spring-nozzle adapted to be moved by said plate, a spindle adapted to revolve, and a brush at the end of said spindle, said nozzle surrounding said spindle and brush. 115

6. In a bottle-washing machine, in combination, uprights, as L L', a plate, as K, provided with collars, as k , surrounding said uprights, a lever, as R, connected to said plate K, orifices in said plate K, a guide, as M, secured to said plate, a spring secured in said 120 guide, a nozzle resting in said guide, a spindle adapted to revolve, a brush on the end of said spindle, and means to admit water to said spindle and means to cause said spindle 125 to revolve.

7. In combination, uprights, as L L, a plate, as K, provided with orifices, a plate, as P, provided with sleeves which surround said uprights, and a lever, as Q, connected to said 130 plate, whereby said plate may be moved vertically.

8. In combination, uprights, as L L, a plate, as K, provided with orifices, sleeves connected

to said plate K and surrounding said up-
rights, a plate, as P, provided with sleeves
which surround said uprights, and a lever, as
R, connected to both plates K and P, where-
by said plates are caused to move vertically
together.

9. In combination, a plate, as K, provided
with orifices, a plate, as P, and means, sub-
stantially as described, to move the plate P
vertically, and means, substantially as de-
scribed, to move plate P and plate K verti-
cally together, a spindle adapted to rotate, a
brush on the end of said spindle, and a spring-
nozzle surrounding said spindle.

10. In combination, uprights, as LL, a plate,
as K, provided with orifices, sleeves connected
to said plate K and surrounding said uprights,
a plate, as P, provided with sleeves which sur-
round said uprights, and a lever, as R, con-
nected to both plates K and P, whereby said
plates are caused to move vertically together,
a spindle adapted to rotate, a brush on the
end of said spindle, and a spring-nozzle sur-
rounding said spindle.

11. In combination, a plate, as K, provided
with orifices, a plate, as P, means, substan-
tially as described, to move the plate P verti-
cally, and means, substantially as described,
to move plate P and plate K vertically to-
gether, a spindle adapted to rotate, a brush
on the end of said spindle, a spring-nozzle
surrounding said spindle, and means, sub-
stantially as described, to automatically ad-
mit the water to said spindle when the plates
are moved downward and to cut off the water
when the plates are moved upward.

12. In combination, uprights, as LL, a plate,
as K, provided with orifices, sleeves connected
to said plate K and surrounding said up-
rights, a plate, as P, provided with sleeves
which surround said uprights, and a lever, as
R, connected to both plates K and P, whereby
said plates are caused to move vertically to-
gether, a spindle adapted to rotate, a brush
on the end of said spindle, a spring-nozzle
surrounding said spindle, and means, sub-
stantially as described, to automatically ad-
mit the water to said spindle when the plates
are moved downward and to cut off the water
when the plates are moved upward.

13. In combination, uprights, as LL, a plate,
as K, provided with orifices, sleeves connected

to said plate K and surrounding said uprights,
a plate, as P, provided with sleeves which sur-
round said uprights, a lever, as R, connected
to both plates K and P, whereby said plates
are caused to move vertically together, a spin-
dle adapted to rotate, a brush on the end of
said spindle, a spring-nozzle surrounding said
spindle, a water-reservoir connection between
said water-reservoir and the spindles, a source
of water-supply, connection between said
source and said reservoir, a valve, as C, con-
nection, substantially as described, between
said valve and the lever R, whereby when
said lever is operated the water is admitted
or shut off from said spindles.

14. In a bottle-washing machine, a brush,
which consists of a series of rubber tubes
closed at one end and connected to each other,
substantially as and in the manner described.

15. In a bottle-washing machine, a brush
which consists of a series of rubber tubes
closed at one end and containing weighty ma-
terial at their closed end.

16. In a bottle-washing machine, a brush
consisting of rubber tubes, as *t t t t*, closed at
one end and provided with weighty material
in their closed end, a surface, as *t*, common to
all the tubes, said tubes being wound round
a threaded core, as *j*, and provided with a cen-
tral hollow water-plug, as J.

17. In a bottle-washing machine, in combi-
nation, a spindle, as E, the interior end of said
spindle being threaded, a brush consisting of
rubber tubes, as *t t t t*, closed at one end and
provided with weighty material in their closed
end, a surface, as *t*, common to all the tubes,
said tubes being wound round a central water-
plug, as J, the threaded core of said brush
being adapted to be secured in the threaded
end of the spindle.

18. In a bottle-washing machine, a brush
which consists of tubes of flexible material,
with a flexible piece connecting said tubes,
said flexible tubes being connected around a
core.

In testimony of which invention I have
hereunto set my hand.

OTTO EICK.

Witnesses:

GEO. W. REED,
FRANK S. BUSSE.