

(No Model.)

4 Sheets—Sheet 1.

H. C. HEMINGWAY & C. E. BARBER.

CAN FILLING MACHINE.

No. 535,373.

Patented Mar. 12, 1895.

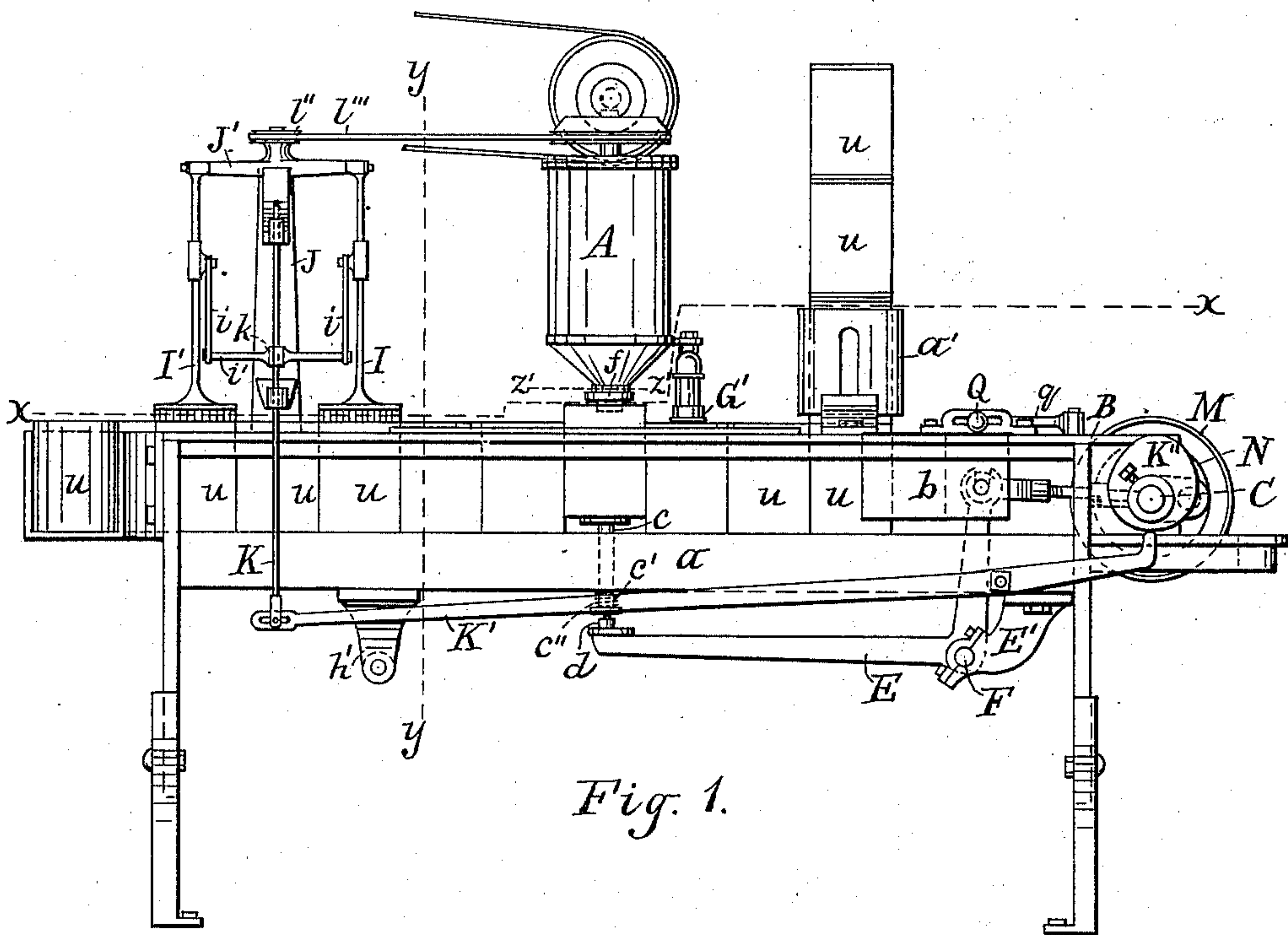


Fig. 1.

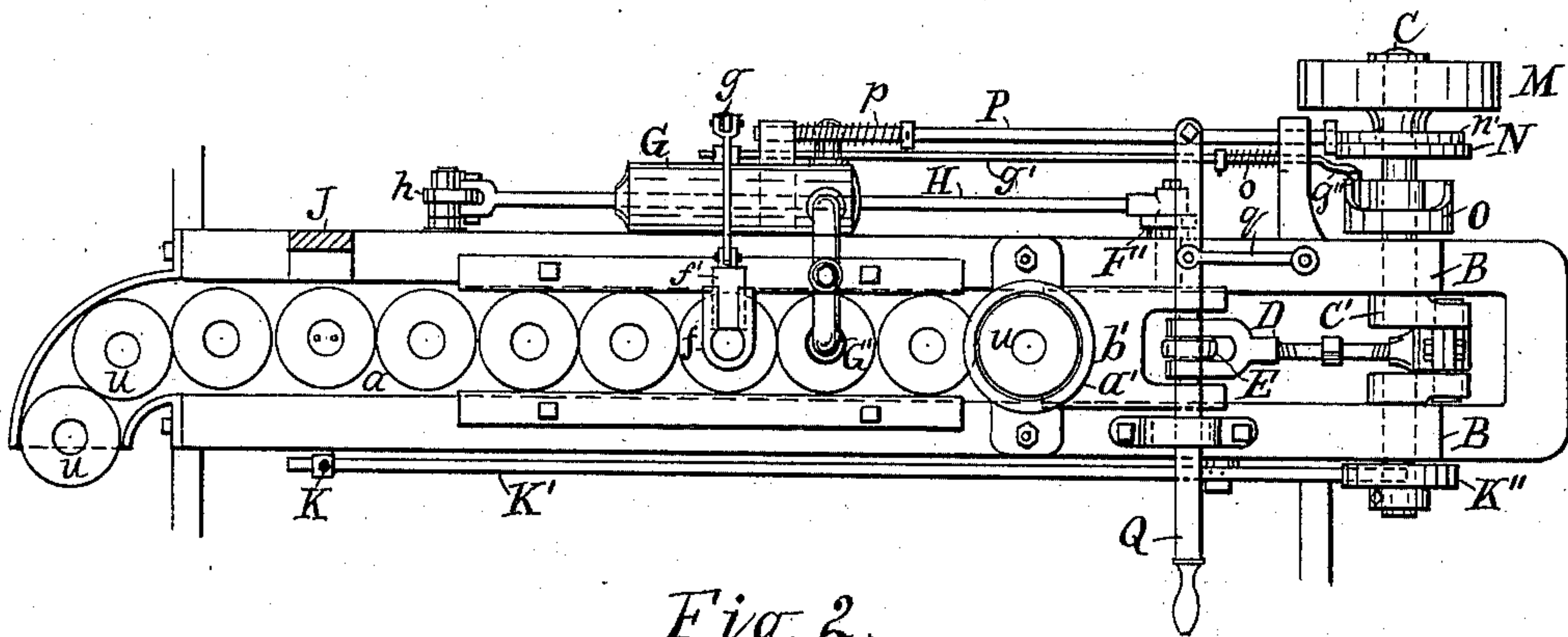


Fig. 2.

Witnesses:

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H. M. Seaman

Inventors

Harvey C. Hemingway &  
Charles E. Barber  
by C. H. Duell  
their Attorney.

(No Model.)

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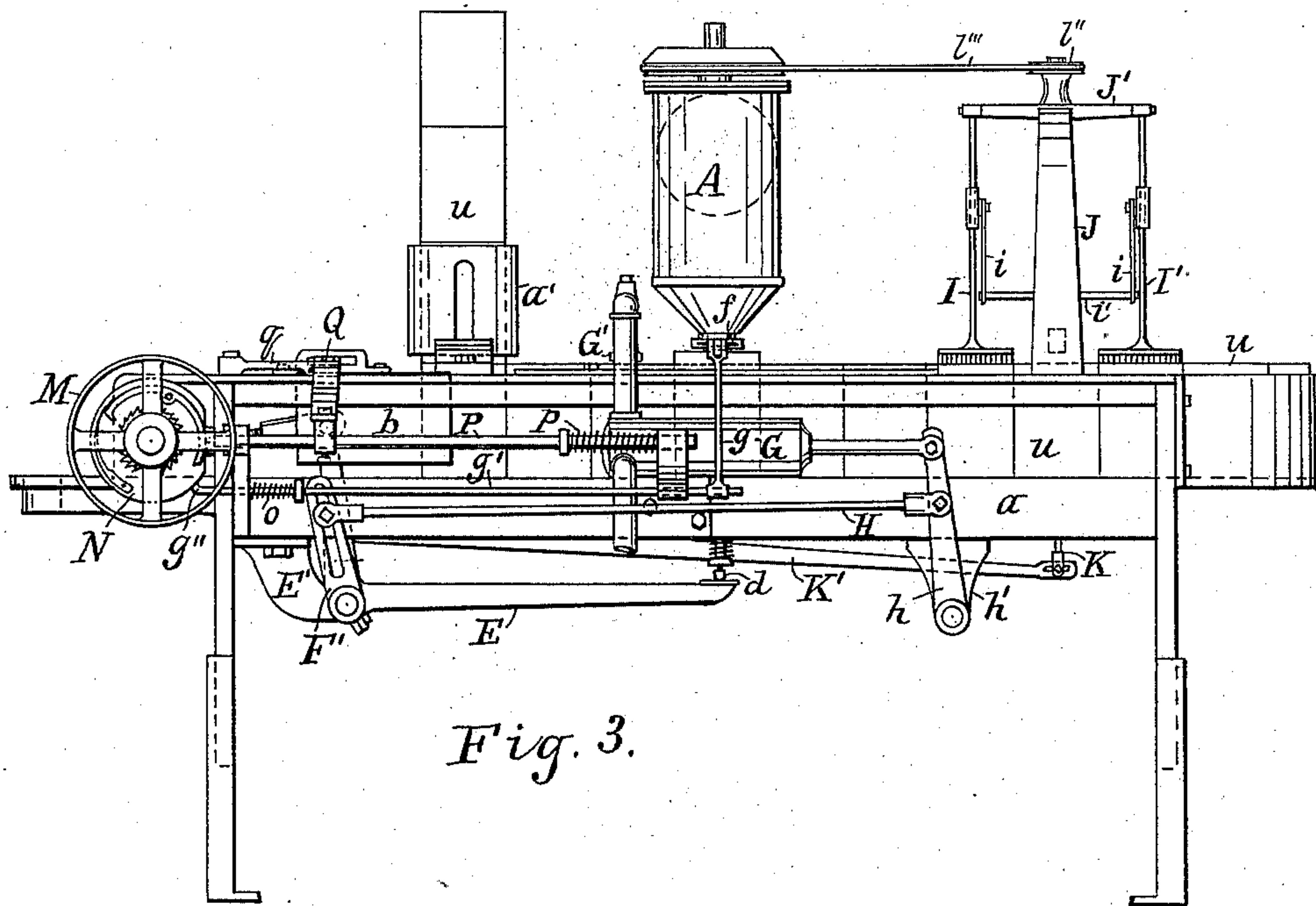


Fig. 3.

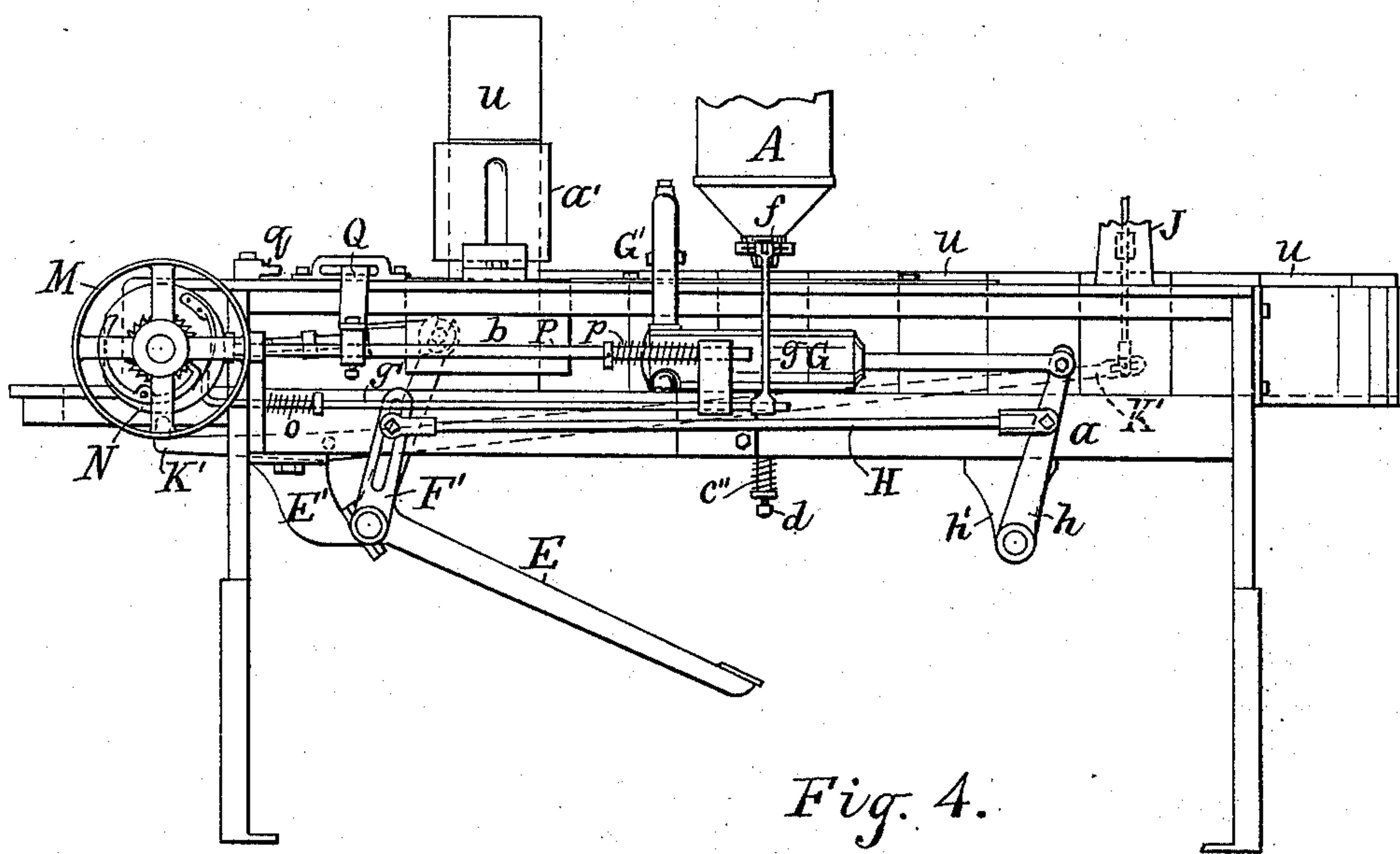


Fig. 4.

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Charles E. Barber  
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(No Model.)

4 Sheets—Sheet 3.

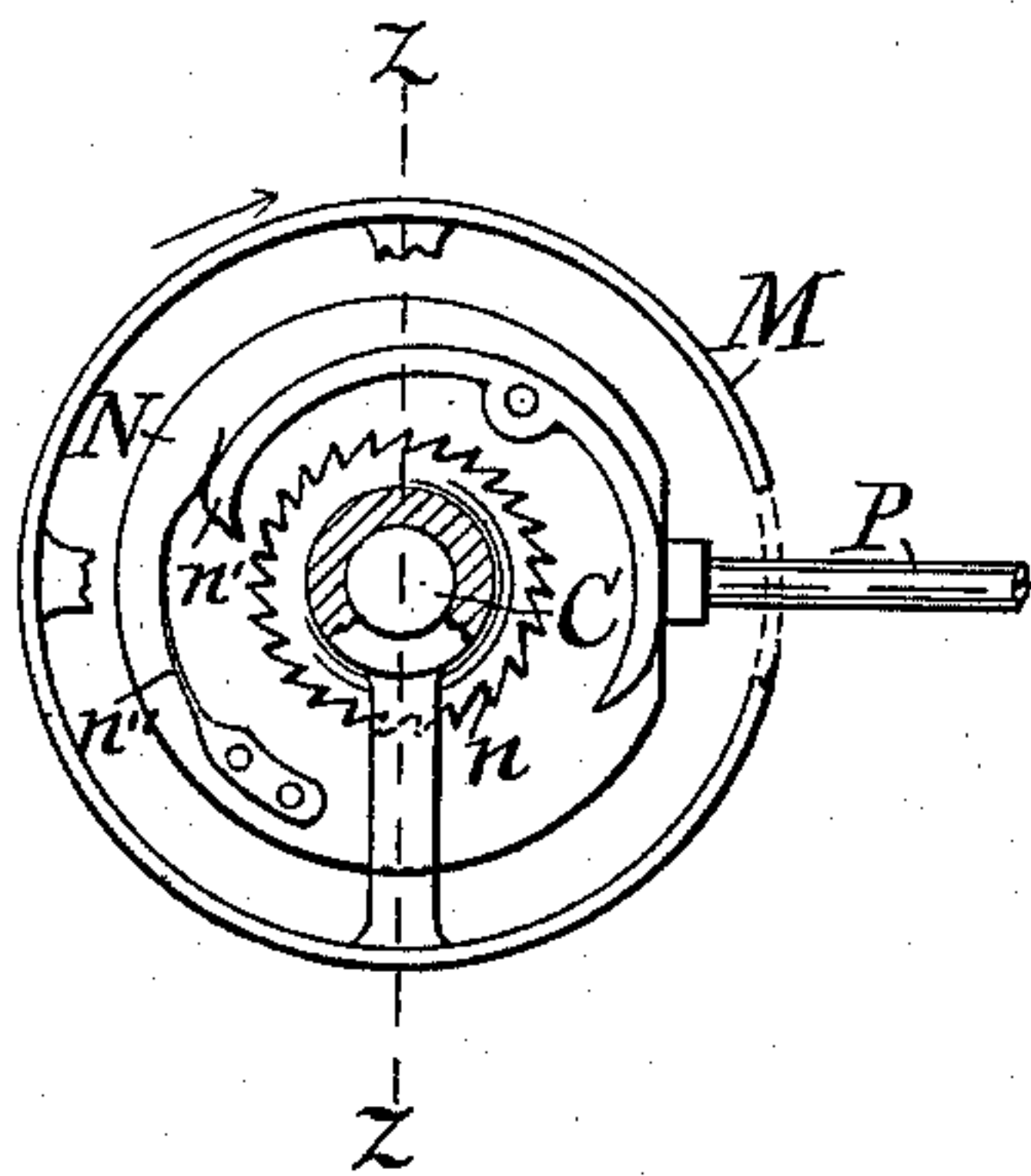
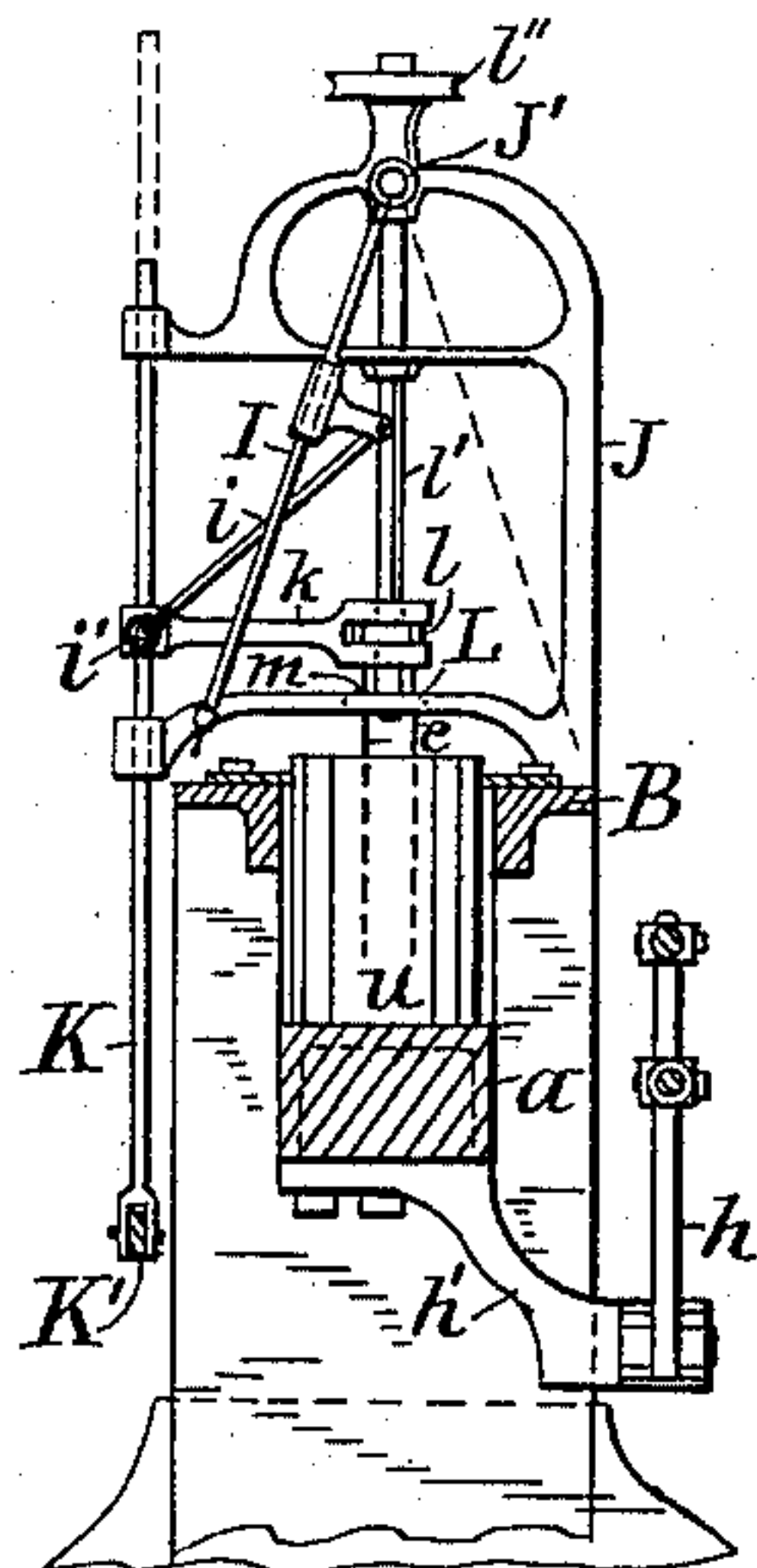
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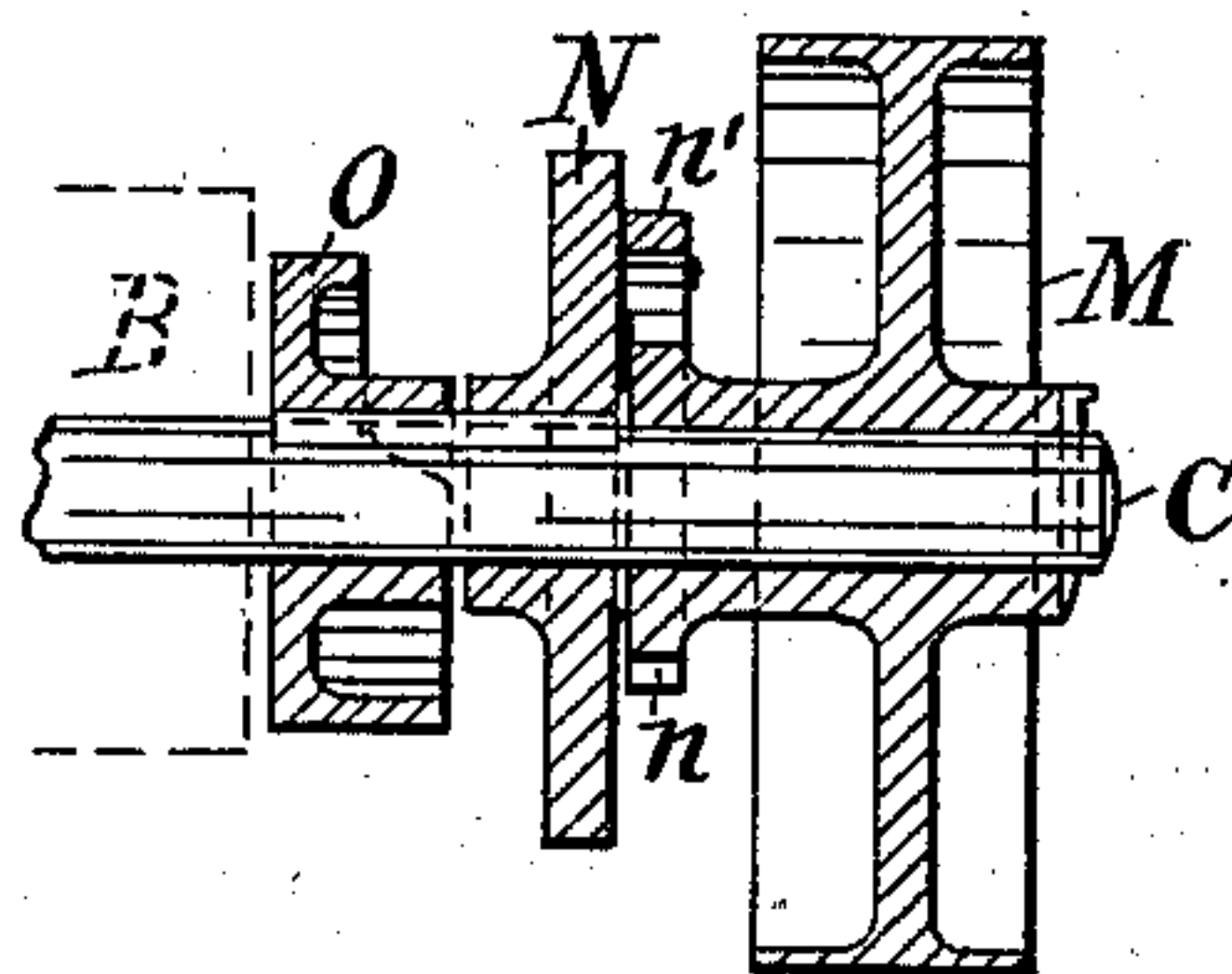
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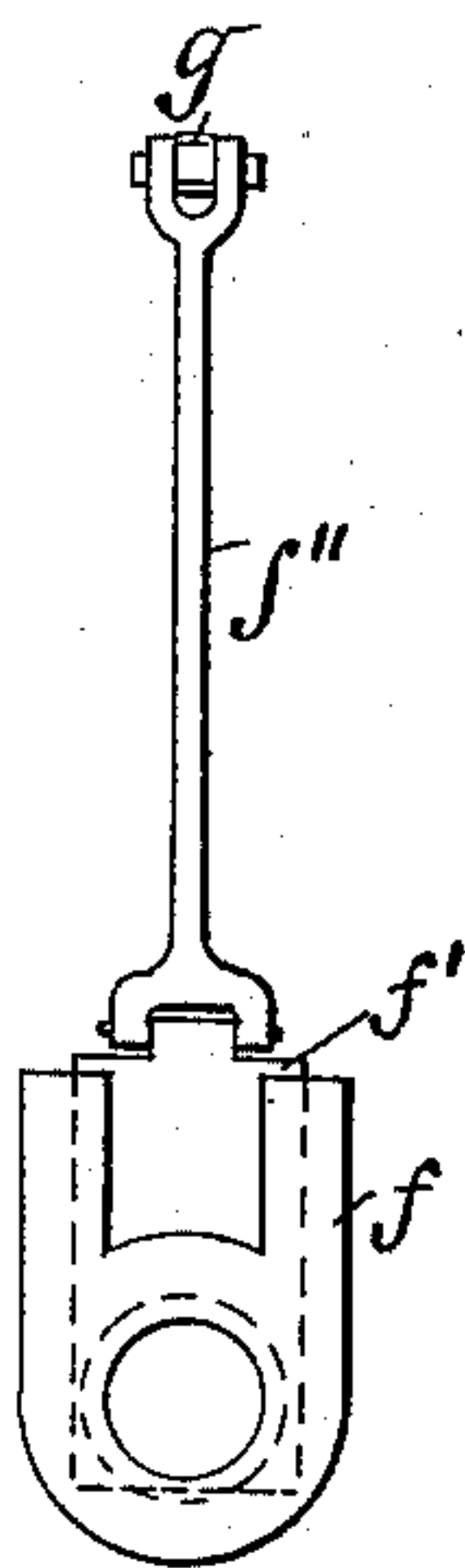
*Fig. 5.*



*Fig. 6.*



*Fig. 7.*



*Fig. 8.*

Witnesses:

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(No Model.)

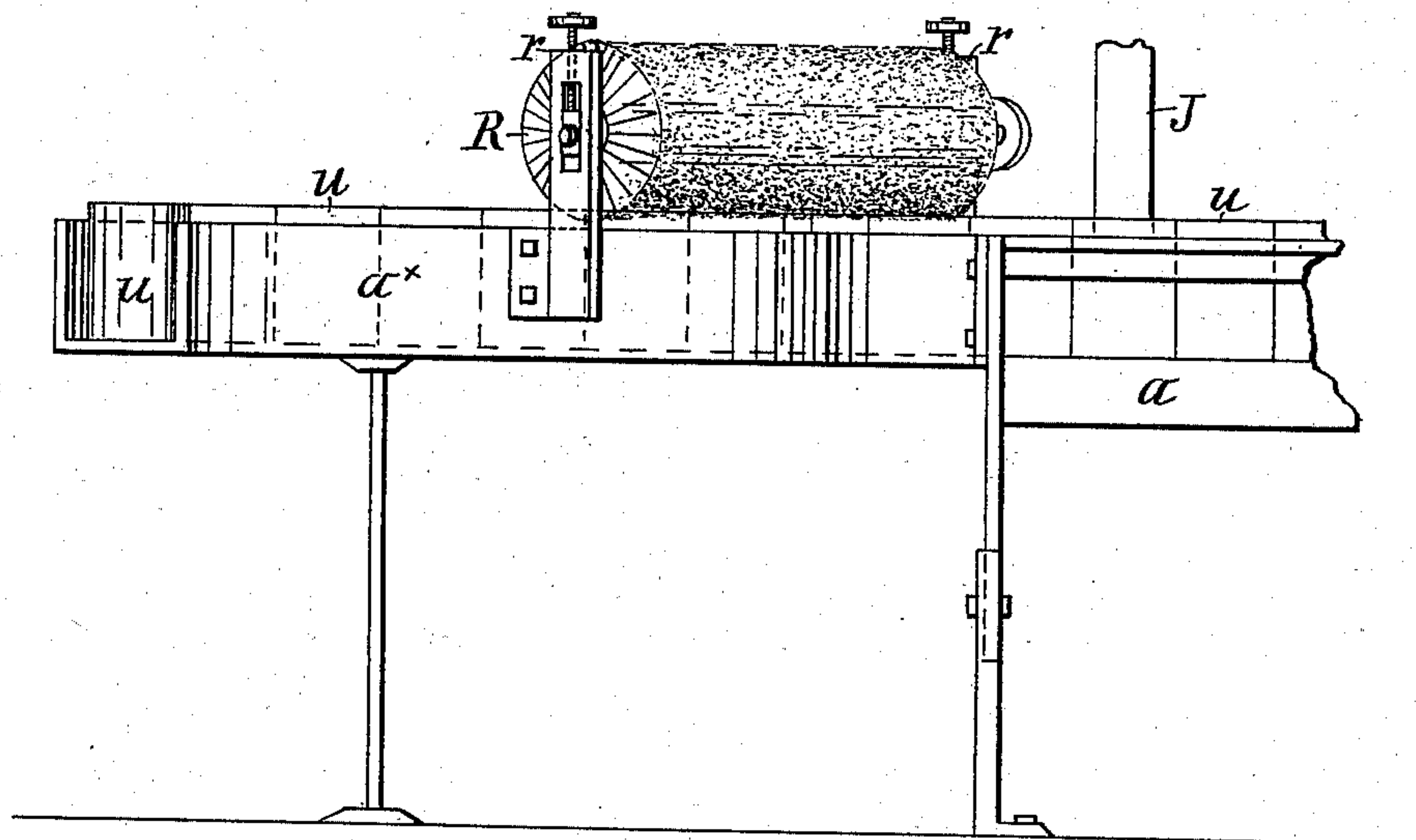
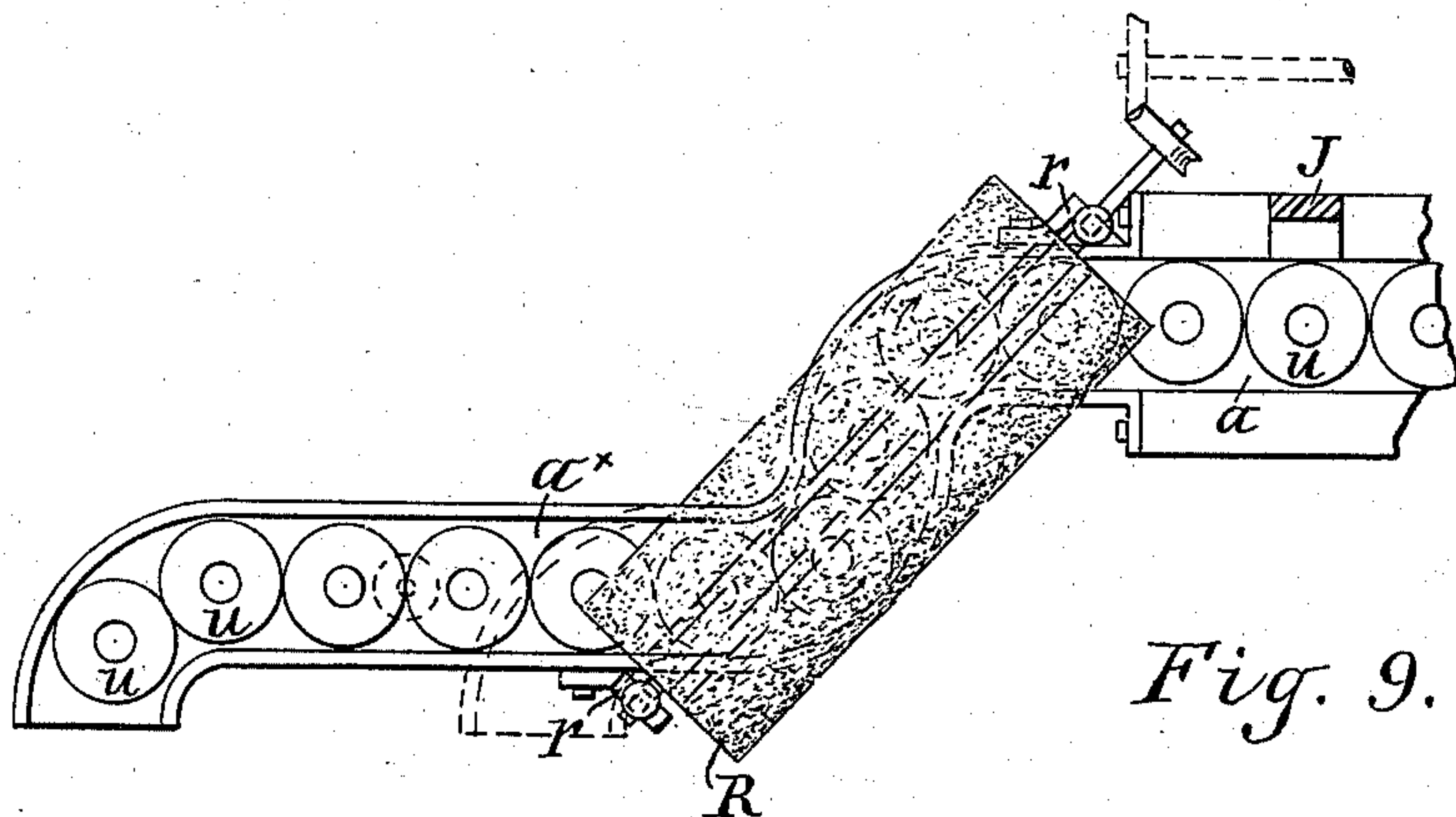
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Witnesses:

Mark W. Dewey  
H. M. Seamans

Inventors,

Harvey C. Hemingway &  
Charles E. Barber  
by C. H. Duell  
their Attorney.



# UNITED STATES PATENT OFFICE.

HARVEY C. HEMINGWAY AND CHARLES E. BARBER, OF SYRACUSE, NEW YORK, ASSIGNORS TO THE HEMINGWAY MANUFACTURING COMPANY, OF SAME PLACE.

## CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 535,373, dated March 12, 1895.

Application filed April 30, 1894. Serial No. 509,460. (No model.)

*To all whom it may concern:*

Be it known that we, HARVEY C. HEMINGWAY and CHARLES E. BARBER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Can-Filling Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

Our invention relates to certain improvements in can filling machines and the object is to provide such machines, as hereinafter described, with improved means for operating them by power, for starting, and for stopping them automatically, &c.

This machine is designed and constructed to pass the empty cans to the filler, release and stop the flow of the filling material, inject the sirup, wipe the tops of the cans, stir the contents and again wipe the tops of the cans in the opposite direction, and is similar in some respects to the construction shown in United States Patent No. 516,326, dated March 13, 1894; and the invention consists in certain combinations of parts hereinafter described and particularly set forth in the claims.

In the annexed drawings, Figure 1 is the front side elevation of our improved can filling machine. Fig. 2 is a plan view of the machine taken on line *x, x*, of Fig. 1. Figs. 3 and 4 are rear side elevations of the machine showing the same in two of its operative positions. Fig. 5 is a vertical transverse section taken on line *y, y*, of Fig. 1 looking from right to left of the figure. Fig. 6 is an enlarged rear side view partly in section of the driving wheel and clutch. Fig. 7 is a vertical transverse section on line *z, z*, of Fig. 6. Fig. 8 is a top plan view of the cut-off for the filling material, the view being taken on line *z', z'*, of Fig. 1. Fig. 9 is a plan view of an auxiliary can wiper, and Fig. 10 is a side elevation of the same.

Similar letters of reference indicate corresponding parts.

Referring specifically to the drawings, A represents the filler which is attached to the end of the cooking cylinder as usual, the latter not being shown is not necessary to be de-

scribed herein. The cooked substance is conveyed in the usual manner to the filler A which latter is provided with a well known vertical spiral conveyer which forces the cooked substance into the can placed under the discharge opening or spout of the filler.

Beneath the filler and extending laterally therefrom is the can-guide, *a*, over and near one end of which is arranged a cylinder or suitable can-chute, *a'*, for the reception of the cans to be filled. Under said can-chute is a can pushing block, *b*, which is movable lengthwise of the can guide, *a*, and is provided on top of its outer end portion with a platform, *b'*, by which it supports the cans in the chute, *a'*, while said bar, *b*, pushes the bottom can from under the chute and toward the filler. Said block, *b*, has on its side facing the filler a curved surface by which it pushes the cans as aforesaid.

Directly under the filler, A, is the can lifter *c*, which raises the can from the can-guide sufficiently to cause the discharge spout of the filler to enter into the opening in the top of the can to charge the can with the cooked substance. Said can-lifter is held normally with its top flush with the top of the can-guide, by means of a spiral spring, *c'*, surrounding the downwardly extending stem, *c''*, of the lifter and bearing with its opposite ends respectively against the under side of the can-guide and against a collar attached to said stem.

The described can pushing block, *b*, and can-lifter, *c*, are both operated by means of a crank, *C'*, on the driving shaft C and a crank-arm, D. The driving-shaft extends across the machine some distance above the plane of the can-guide, *a*, but on the extreme right hand end of the machine as shown in Fig. 1. Said shaft is journaled in the frame, B, on each side of the said crank.

The crank-arm is pivoted at one end to the can pushing block, *b*, so that each revolution of the crank or shaft, C, will push the cans lengthwise of the guide a distance of the diameter of one can and return the block to its original position allowing the can in the cylinder, *a'*, to drop down upon the can-guide



ready to be pushed along at the next revolution of the shaft C. The crank-arm is made adjustable in length by a bolt intermediate of its length having right and left threads entering its end portions. The end pivoted to the block, *b'*, is bifurcated vertically to receive in the bifurcation and on the same pivot the end of an upwardly extending arm of a bell-crank lever E. The said lever is pivotally mounted on a shaft, F, extending across the machine some distance beneath the can-guide, *a*, and journaled in brackets, E', rigidly attached to or integral with the bottom of the can-guide which latter constitutes part of the frame of the machine. The long arm of the said bell-crank lever, E, is extended toward the center of the machine beneath the stem of the can-lifter, *c''*, to lift the same with the can thereon as before mentioned.

The movement of the can lifter or the distance that the can is raised above the guide is regulated by an adjusting screw, *d*, in the lower end of the stem *c''*. There is sufficient lost motion between the parts to allow the can to drop far enough to clear the discharge spout before the cans are pushed along on the guide *a*.

Keyed to the shaft, F, and extending upwardly from the same on the rear side of the machine is a rock-arm, F', which moves in unison with the said bell-crank lever E. The latter arm is utilized for operating the piston of the sirup pump, G, which has its discharge nozzle, G', over the can-guide, *a*, between the can lifter, *c*, and the can-chute, *a'*. The pump piston derives its motion from said rock-arm by a rod, H, which is connected to said arm adjustably lengthwise thereof so as to allow the thrust of the pump piston to be regulated according to the amount of sirup desired to be introduced into the cans. The adjustable connection is shown in the form of a longitudinal slot F'' in the rock arm receiving through it the bolt by which the rod, H, is connected to said arm.

The pump piston and rod, H, are both pivoted to an upwardly extending rock-arm, *h*, pivoted to a bracket, *h'*, secured to the lower side of the can-guide. The said piston is connected to the upper end of this rock-arm, *h*, and the latter is provided with a short vertical slot to receive the bolt connecting the parts together.

Beyond the filler, A, are the can wipers, I, I', arranged to sweep across the top of the filled cans, one on each side of the stirrer, to clean the same. Said can wipers are made of rubber or other suitable material where they come in contact with the cans and the upwardly extending stems of which are pivoted at their upper ends to the ends of a bar, J', extending parallel to the can-guide a distance above the latter and secured to or integral with a bracket, J, fixed upon the frame of the machine. The stems of the wipers swing in a vertical plane and in an arc extending transversely over the can-

guide. The can-wipers are operated by means of small rods, *i*, pivoted to the stems intermediate of their length, the said rods being pivoted to the ends of a bar, *i'*, extending parallel to the bar J', and secured to a vertical longitudinally movable rod, K, which slides through apertures in arms projecting from the bracket J. The lower end of the rod, K, is pivoted to one end of a long lever, K', which extends along parallel with the front side of the machine. The lever, K', is pivoted to the front side of the can-guide above the bracket, E, and is operated to raise and lower the rod, K, by means of a cam, K'', on one end of the main shaft C bearing with its periphery on the end of said lever. During each revolution of the cam the wipers swing back over the cans and return to their original position shown in Fig. 1. The said wipers are separated by the space of one can. This can has its contents stirred while the wipers are in their normal or original position. When the wipers are in this position the cans are still which allows the contents to be stirred, thoroughly mixing the sirup with the other substance, by the stirrer, L, shown clearly in Fig. 5 of the drawings. The stirrer is movable vertically to enter into the filled can and subsequently withdraw therefrom. The said stirrer is preferably constructed of a horizontal disk, *l*, arranged to slide on a square vertical shaft, *l'*, mounted to rotate in bearings on the bracket, J, said shaft being provided with a pulley *l''*, upon which runs the belt *l'''* by which rotary motion is imparted to the shaft.

Extending downward from the said disk, *l*, are the stirring wires, *e*, which pass freely through apertures in a disk, *m*, mounted in and extending through the base of the bracket J and rigidly attached to the vertical shaft *l'*. The said disk or collar, *l*, is connected to the vertical sliding rod, K, by a bar, *k*, which is rigidly attached to the rod. The stirrer when released by the cam, K'' turning to the position shown in Fig. 1 drops by gravity into the can and is not forced therein as heretofore. When the stirrer is forced downward, the stirrer and can are sometimes injured if the can has not been moved perfectly, but this is overcome by my construction as the stirrer will simply bear on the top of the can if it has not moved to allow it to enter therein.

The cut-off of the filler, A, consists of a frame or shield, *f*, suitably secured to the mouth of the filler. Sliding in this shield transversely across the mouth of the filler is a gate, *f'*, which is moved to open and close the mouth of the filler, by a link, *f''* connecting the gate with a rock-arm, *g*, mounted on a shaft, *g'*, extending parallel with and on the rear side of the machine and journaled in brackets thereon. The said shaft, *g'*, is provided with another rock-arm *g''* on its opposite end which engages with a cam O keyed to the main shaft C. A spiral spring, *o*, on



the shaft,  $g'$ , connects the shaft with one of the brackets and holds the rock-arm in engagement with the cam O.

M is the driving wheel loosely mounted on one end of the driving shaft, C, so that said wheel may turn continuously with turning the shaft or operating the machine. The wheel M is provided with a ratchet wheel,  $n$ , on the inner end of its hub to be engaged by a pawl,  $n'$ , pivoted to the face of a disk, N, keyed to the shaft C. The said pawl is pressed toward the ratchet wheel,  $n$ , by a spring,  $n''$ , also secured to the face of the disk. The said disk has its periphery flattened at one point so that the end of a rod, P, which bears continuously upon said periphery, may be moved longitudinally by means of a spiral spring,  $p$ , on the rod, to throw the pawl out of engagement with the ratchet wheel and stop the machine. The rod, P, is connected and pivoted to a lever, Q, which latter has for its fulcrum a link,  $q$ , pivoted to the frame of the machine. The lever, Q is provided on one end with a handle by which the operator may move the lever in a horizontal plane to move the end of the rod from the flattened part of the periphery of the disk, N, to allow the pawl to engage the ratchet wheel to start the machine. After the machine is started the end of the rod, P, rides on the periphery and cannot remove the pawl from the ratchet until the disk has made a complete revolution or until the flattened part of the periphery has returned to its original position opposite the said rod. When this position is reached the spring,  $p$ , forces the rod toward the center of the disk, N, strikes one end of the pawl and removes the other end from the ratchet wheel which releases the driving wheel and allows the machine to stop. The operation of the machine is as follows: The cooker (not shown) being in operation forces the cooked corn or other substance into the filler, A. The empty cans,  $u$ , to be filled may be placed one above another in the cylinder,  $a'$ , one can being in contact with the pushing block  $b$  on the can guide. Then, by moving the handle of the lever, Q, to the right, the rod, P, is withdrawn from the disk, N, and the pawl,  $n$ , is allowed to grip the ratchet wheel,  $n$ , which revolves continuously with the driving wheel, M, causing the main shaft, C, to turn the crank,  $C'$  and by means of the connecting rod or pitman, D, connected to the pushing-block,  $b$ , moving the cans to the left a distance corresponding to the diameter of one of said cans, the platform,  $b'$ , passing under the cans in the cylinder,  $a'$ , and supporting them thereon and then withdrawing the platform,  $b'$ , from under the cans which then drop down onto the can guide  $a$ . During or at the end of the first semi revolution of the shaft, C, the machine is moved to the position shown in Fig. 4 of the drawings; that is, the cut-off of the filler is closed through the cam, O, rock-arms,  $g''$ ,  $g$ , and shaft  $g'$ . The wipers are swung to the rear of the machine across the tops of the cans by means of the cam,  $K''$ , le-

ver  $K'$ , vertical rod, K, &c. The stirrer, L, is lifted or raised out of the can by the same means and the bar,  $k$ ; the shaft,  $l'$ , and stirring wires attached thereto being rotated continuously by the pulley  $l''$  and belt  $l'''$ . During the same semi revolution the pump piston is withdrawn by means of rock-arm,  $h$ , rod, H, rock-arm,  $F'$ , shaft, F, lever, E, pitman, D, and crank  $C'$ , also the can lifter is permitted to drop by the removal of the end of the bell-crank lever, E, from the stem,  $c''$ , of the lifter. During the last semi revolution of the shaft, C, the parts return to their normal or original position which has been described above and is clearly shown in all the figures of the drawings except Fig. 4, and is not necessary to be here repeated.

In Figs. 9 and 10,  $a^x$  represents an extended can-guide secured to the end of the machine and otherwise suitably supported horizontally on the plane of the can guide  $a$ . This can-guide,  $a^x$ , is made winding, sinuous or serpentine in form in order that the cans may be rotated during transit. It will be obvious that as the cans strike the curved sides of the guide while being moved or pushed along lengthwise by the can-pushing block,  $b$ , they will be rotated first in one direction and then in the opposite direction. This construction is given to the can-guide in order that a rotary horizontal brush, R, arranged diagonally across the top of the guide may more thoroughly brush or wipe the cans,  $u$ , clean. This arrangement causes the cans to be brushed in various directions by a single revolving brush. The said brush is supported by brackets,  $r$ ,  $r$ , at each end extending upward from the can-guide. The shaft of the brush is journaled in blocks sliding in grooves in these brackets and provided with adjusting screws so that said brush may be raised or lowered. On one end of the brush shaft is shown a pulley which may be connected by a belt with any driven shaft, preferably the cooker shaft, not shown; or said brush may be operated by any suitable and well known means.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination of the filler, a can-guide extending laterally below the filler, a can-pushing block movable lengthwise of said can-guide, a can-lifter under the filler, a sirup-pump having its discharge nozzle over the can guide, two rock-arms mounted on a shaft journaled in bearings beneath the can-guide, one of said arms extending upward and connected to the pushing block, and the other arm extending under the can lifter to raise the same, a third rock-arm on the said shaft, a pitman connecting the pump piston to the latter rock-arm, with a shaft provided with a crank and pitman to move the pushing block, a driving pulley mounted to turn loosely on the shaft, and a clutch comprising a ratchet-wheel on the driving pulley, a disk keyed to the shaft,



a pawl pivoted to the disk to engage the ratchet wheel, and means to release and engage the pawl, as set forth.

2. The combination of the filler, a can-guide  
5 extending laterally below the filler, a can-  
pushing block movable lengthwise of said can-  
guide, a can-lifter under the filler, a sirup-  
pump having its discharge nozzle over the  
can guide, two rock-arms mounted on a shaft  
10 journaled in bearings beneath the can-guide,  
one of said arms extending upward and con-  
nected to the pushing block, and the other  
arm extending under the can lifter to raise  
the same, a third rock-arm on the said  
15 shaft, a pitman connecting the pump-pis-  
ton to the latter rock-arm, with a shaft pro-  
vided with a crank and pitman to move the  
pushing block, a driving pulley mounted to  
turn loosely on the shaft, and a clutch com-  
20 prising a ratchet-wheel on the driving pulley,  
a disk keyed to the shaft, a pawl pivoted to  
the disk to engage the ratchet wheel, a rod to  
bear upon the periphery of said disk, said disk  
having a flattened part on the periphery to  
25 permit the rod to approach the shaft and re-  
move the pawl from the ratchet-wheel, a  
spring to move the said rod toward the shaft,  
and a lever connected with the rod to release  
the pawl, as and for the purpose described.

30 3. The combination with the filler and can-  
guide, a can pushing block movable length-  
wise of said guide, a shaft provided with a  
crank and pitman to move the pushing block,  
a driving pulley mounted to turn loosely on  
35 the shaft, and a clutch comprising a ratchet-  
wheel on the driving pulley, a disk keyed to  
the shaft, a pawl pivoted to the disk to en-  
gage the ratchet wheel, and means to release  
and engage the pawl, as set forth.

40 4. The combination with the filler and can-  
guide, a can pushing block movable length-  
wise of said guide, a shaft provided with a  
crank and pitman to move the pushing block,  
a driving pulley mounted to turn loosely on  
45 the shaft, and a clutch comprising a ratchet-  
wheel on the driving pulley, a disk keyed to  
the shaft, a pawl pivoted to the disk to en-  
gage the ratchet wheel, a rod to bear upon  
the periphery of said disk, said disk having  
50 a flattened part on the periphery to permit  
the rod to approach the shaft and remove the  
pawl from the ratchet-wheel, a spring to move  
the said rod toward the shaft, and a lever con-  
nected with the rod to release the pawl, as  
55 and for the purpose described.

5. The combination with the filler and can-  
guide extending laterally beneath the filler,  
a can-pushing block movable lengthwise of  
said guide, a can wiper beyond the filler, a  
60 vertically movable rod connected with said  
wiper, a driving shaft, a cam on said shaft,  
a lever pivoted to the frame of the machine  
and connected at one end to the vertical rod  
and bearing with the other end upon said  
55 cam, a driving pulley mounted to turn loosely  
on the shaft, and a clutch comprising a ratchet-  
wheel on the driving pulley, a disk keyed to

the shaft, a pawl pivoted to the disk to engage  
the ratchet-wheel, and means to release and  
engage the pawl, as set forth.

6. The combination with the filler and can-  
guide extending laterally beneath the filler,  
a can-pushing block movable lengthwise of  
said guide, two can wipers, a distance apart  
beyond the filler, a vertical longitudinally  
75 movable rod sliding in brackets and pivotally  
connected with said wipers, a driving shaft,  
a cam on said shaft, and a lever pivoted to  
the frame of the machine and connected at one  
end to the said rod and bearing with the other  
80 end upon said cam, as set forth.

7. The combination with the filler and can-  
guide extending laterally beneath the filler,  
a can-pushing block movable lengthwise of  
said guide, two can wipers a distance apart  
85 beyond the filler, a vertical longitudinally  
movable rod sliding in brackets a connection  
between the said rod and said wipers, a driv-  
ing shaft, a cam on said shaft, a lever pivoted  
to the frame of the machine and connected at  
90 one end to the said rod and bearing with the  
other end upon said cam, a driving pulley  
mounted loosely on the shaft, and a mechani-  
cal clutch for throwing the shaft into engage-  
ment with the pulley, as set forth.

8. The combination with the filler and can-  
guide extending laterally beneath the filler,  
a can-pushing block movable lengthwise of  
said guide, two can wipers, a distance apart  
beyond the filler, a vertically movable rod  
100 sliding in brackets a connection between said  
rod and said wipers, and a driving shaft, a  
cam on said shaft, a lever pivoted to the frame  
of the machine and connected at one end to  
the said rod and bearing with the other end  
105 upon said cam, a combined rotary and verti-  
cally reciprocating stirrer between the wipers  
connected to the said vertically movable rod  
and means for imparting a combined rotary  
and vertically reciprocating motion to the  
110 stirrer, as set forth.

9. The combination with the filler and can-  
guide extending laterally beneath the filler, a  
can-pushing block movable lengthwise of said  
guide, a can wiper beyond the filler, a stem  
115 connected to the wiper, a vertical longitudi-  
nally reciprocating rod, another rod pivotally  
connecting the reciprocating rod with the said  
stem, a driving shaft, a cam on said shaft, a  
lever pivoted to the frame of the machine and  
120 connected at one end to the said vertical rod  
and bearing with the other end upon said cam,  
a combined rotary and vertically reciprocating  
stirrer beyond the wiper connected to the  
said vertically movable rod and means for  
125 imparting a combined rotary and vertically re-  
ciprocating motion to the stirrer, as set forth.

10. The combination with the filler and can-  
guide, a can pushing block movable length-  
wise of said guide, a driving shaft provided  
with a crank connected by a pitman with the  
pushing block, a cam-wheel keyed to the driv-  
ing shaft, a rock-arm engaging the cam, a  
shaft on which the rock-arm is secured to an-



other rock-arm on said shaft, the shaft turning in brackets on the frame of the machine, a suitable cut-off for the filler, a rod connecting the movable part of the cut-off with the latter rock-arm, and a spring to hold the rock-arm in contact with the cam wheel as and for the purpose set forth.

11. The combination of a can-guide extending horizontally, a can-pushing block movable lengthwise of said can-guide, a sirup pump having a discharge nozzle over the can-guide, a rock-arm mounted on a shaft journaled in bearings beneath the can-guide said arm being connected to the pushing-block, a second rock-arm on said shaft, a pitman connecting the pump piston to the latter rock-arm, with a shaft provided with a crank and pitman to move the pushing-block, a driving pulley mounted to turn loosely on the shaft, and a clutch comprising a ratchet-wheel on the driving pulley, a disk keyed to the shaft, a pawl pivoted to the disk to engage the ratchet-wheel, and means to release and engage the pawl, as set forth.

12. The combination of the filler, a can-guide extending laterally below the filler, a can-pushing block movable lengthwise of said

can-guide, a can-lifter under the filler, a sirup-pump having its discharge nozzle over the can-guide, two rock-arms mounted on a shaft journaled in bearings beneath the can-guide, one of said arms extending upward and connected to the pushing block, and the other arm extending under the can lifter to raise the same, a third rock-arm on the said shaft, a pitman connecting the pump piston to the latter rock-arm, with a winding can-guide at the end of the first can-guide, a horizontal rotatable brush above the latter can-guide, means for raising and lowering said brush, a driving pulley mounted to turn loosely on the shaft, and a clutch comprising a ratchet-wheel on the driving pulley, a disk keyed to the shaft, a pawl pivoted to the disk to engage the ratchet-wheel, and means to release and engage the pawl, as set forth.

In testimony whereof we have hereunto signed our names and affixed our seals.

HARVEY C. HEMINGWAY. [L. S.]  
CHARLES E. BARBER. [L. S.]

Witnesses:

MARK W. DEWEY,  
H. M. SEAMANS.