

(No Model.)

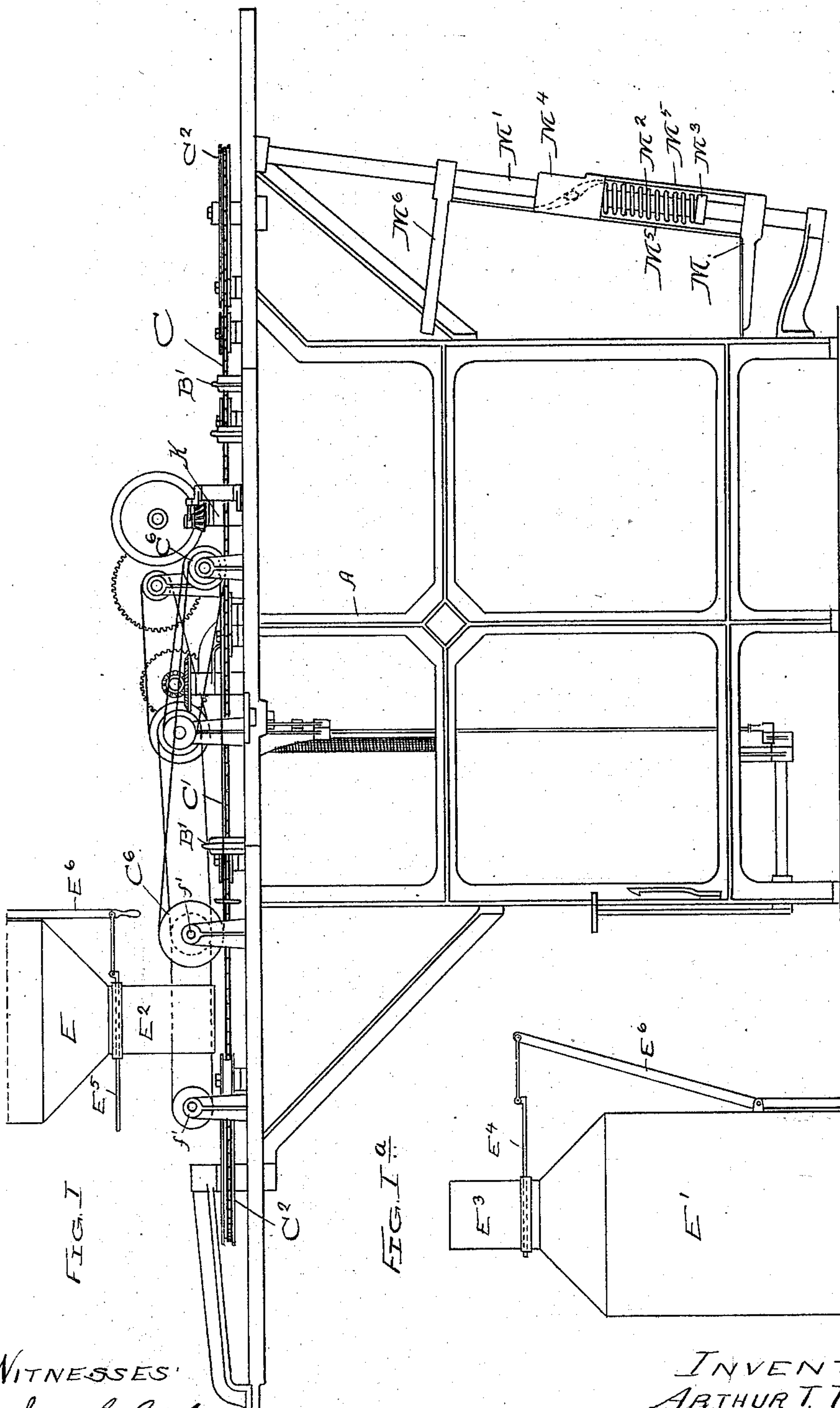
7 Sheets—Sheet 1.

A. T. TIMEWELL.

# MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.



WITNESSES:

Sen. C. Curtis  
H. W. Munday.

INVENTOR:  
ARTHUR T. TIMEWELL

By Thursday, Warts & Adcock,  
HIS ATTORNEYS.

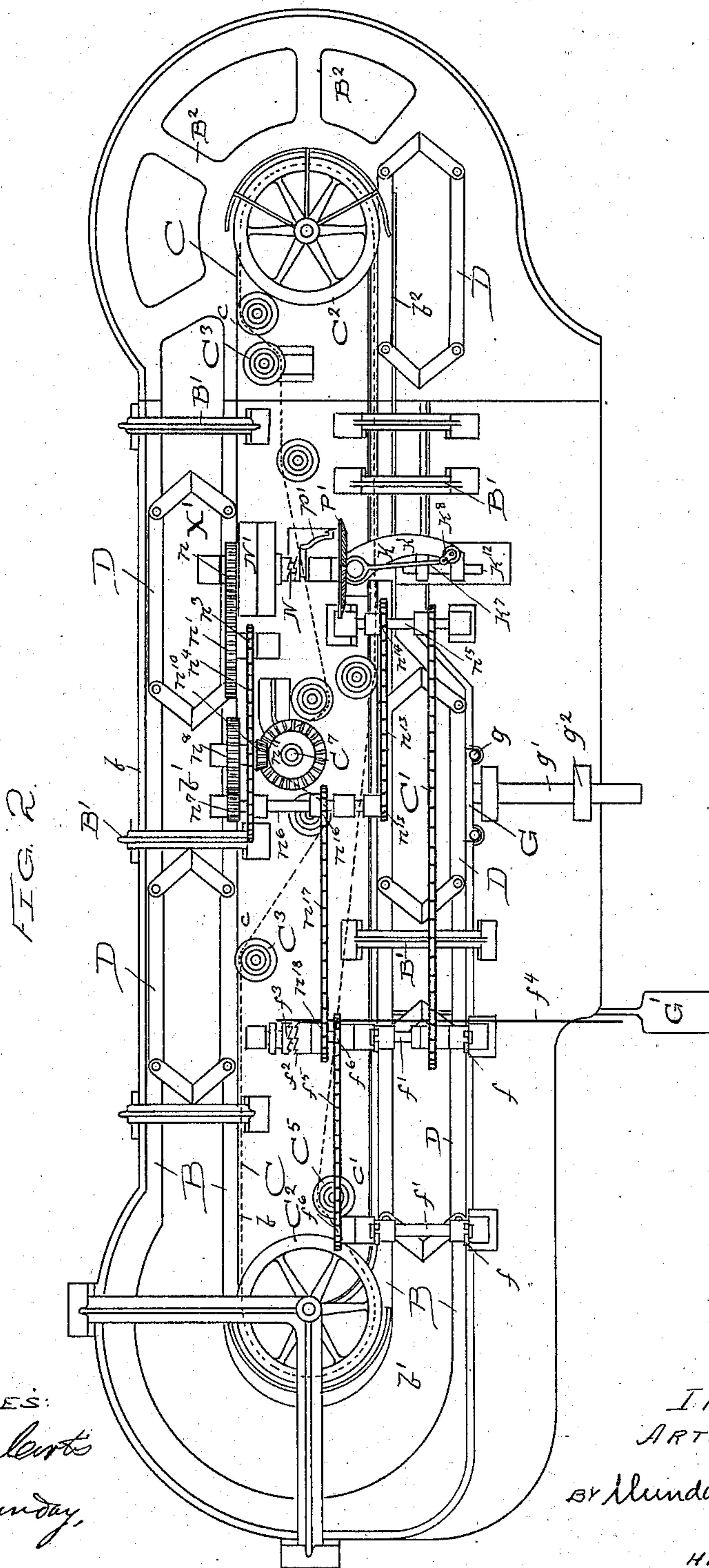
(No Model.)

7 Sheets—Sheet 2.

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.



WITNESSES:  
*Lev. E. Coats*  
*A. T. Munday*

INVENTOR:  
ARTHUR T. TIMEWELL  
By *Munday, Coats & Adcock.*  
HIS ATTORNEYS.



(No Model.)

7 Sheets—Sheet 3.

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.

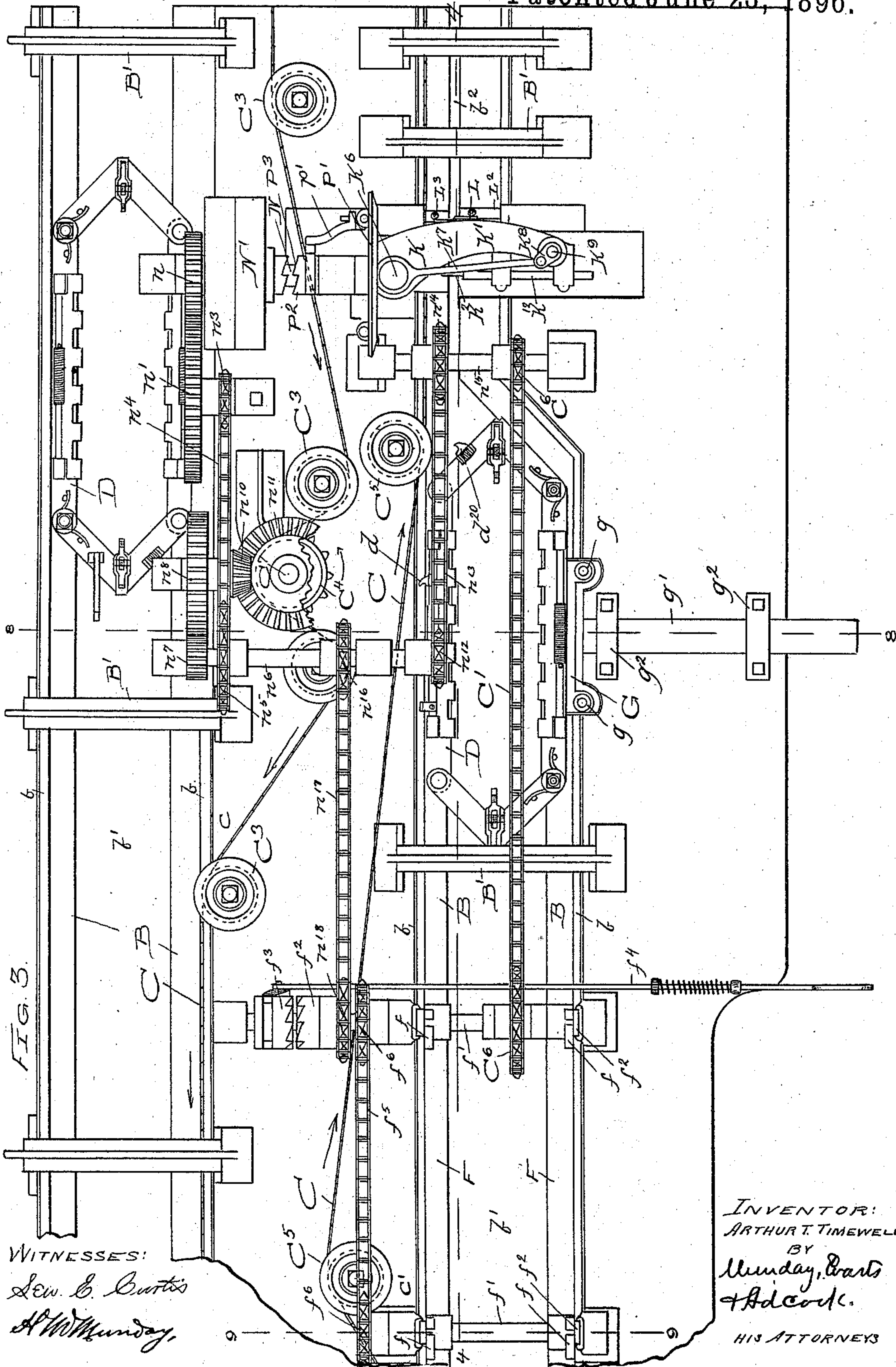


FIG. 3.

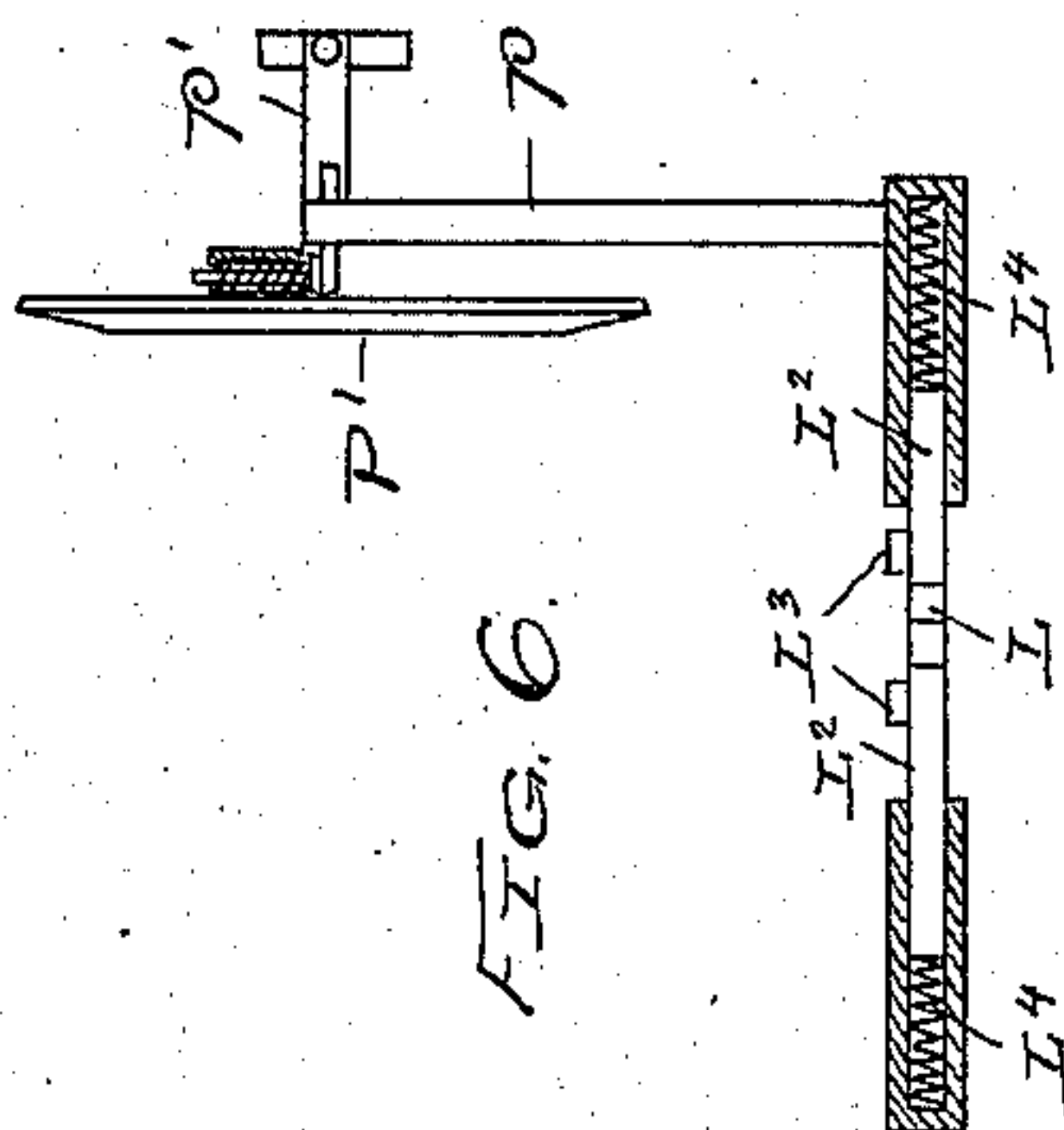
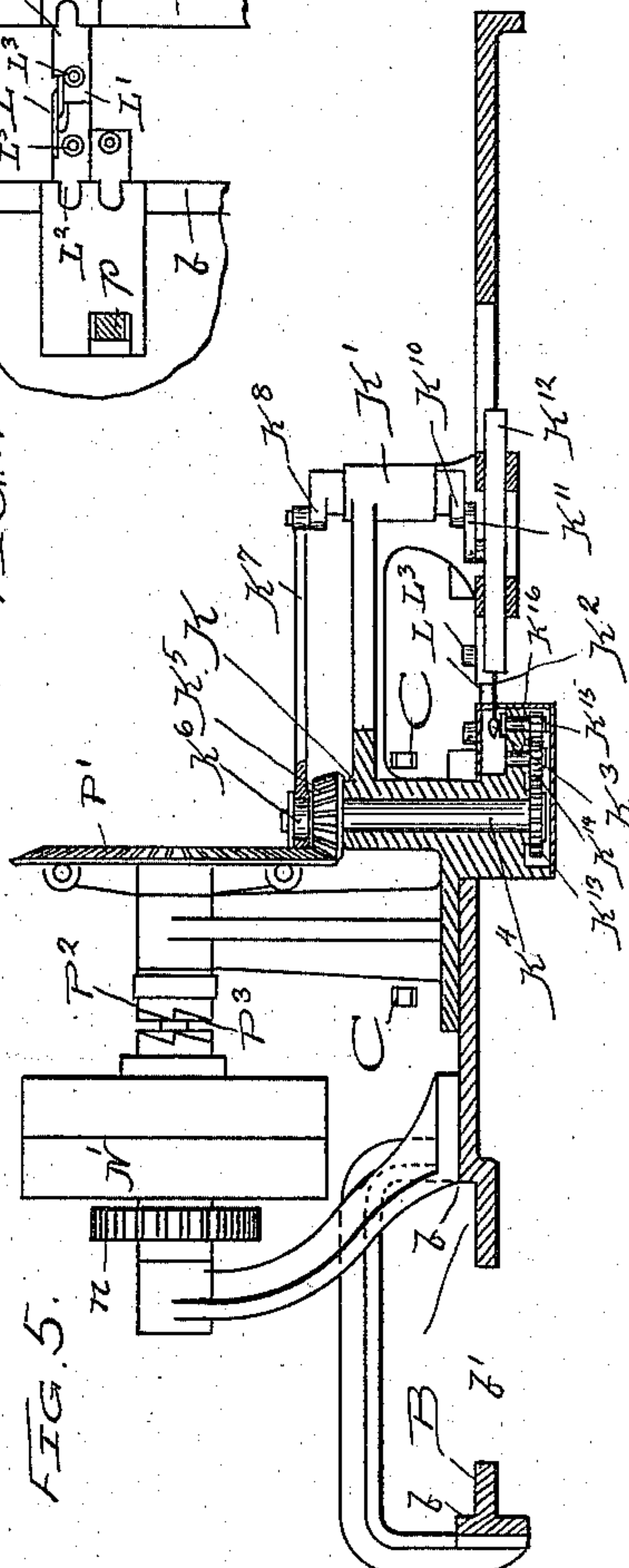
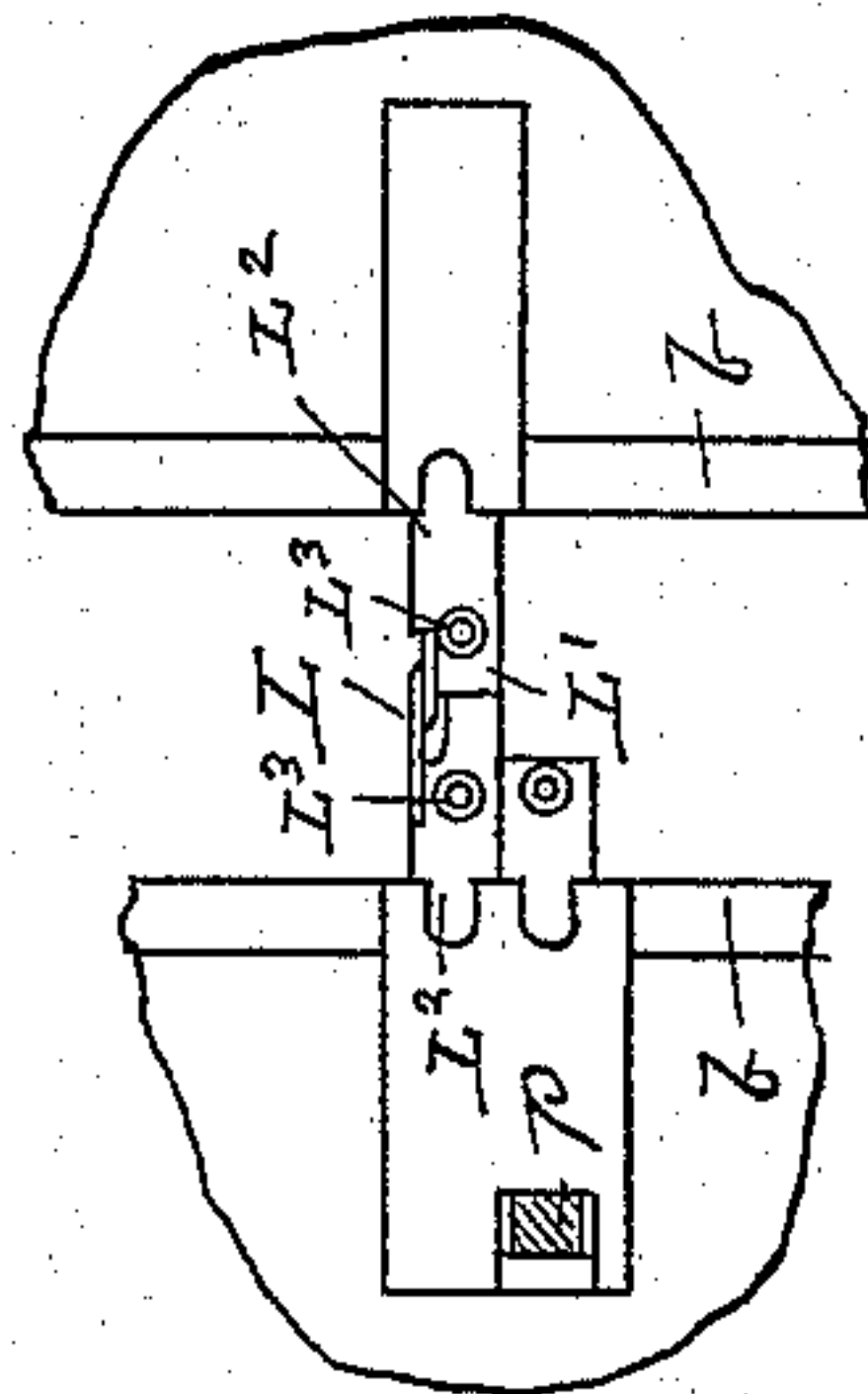
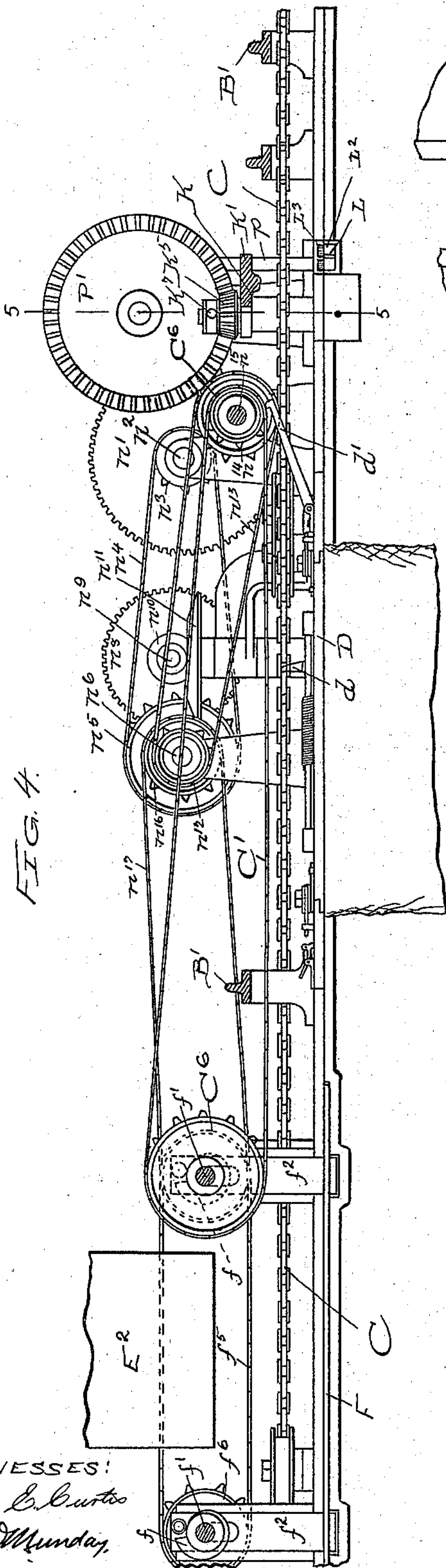
WITNESSES:  
SEN. E. Curtis  
H. W. Munday.

INVENTOR:  
ARTHUR T. TIMEWELL  
BY  
Munday, Brants  
& Adcock.  
HIS ATTORNEYS

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.



WITNESSES:  
Sew. C. Curtis  
H. M. Munday,

INVENTOR:  
ARTHUR T. TIMEWELL  
By Munday, Curtis & Adcock,  
HIS ATTORNEYS.



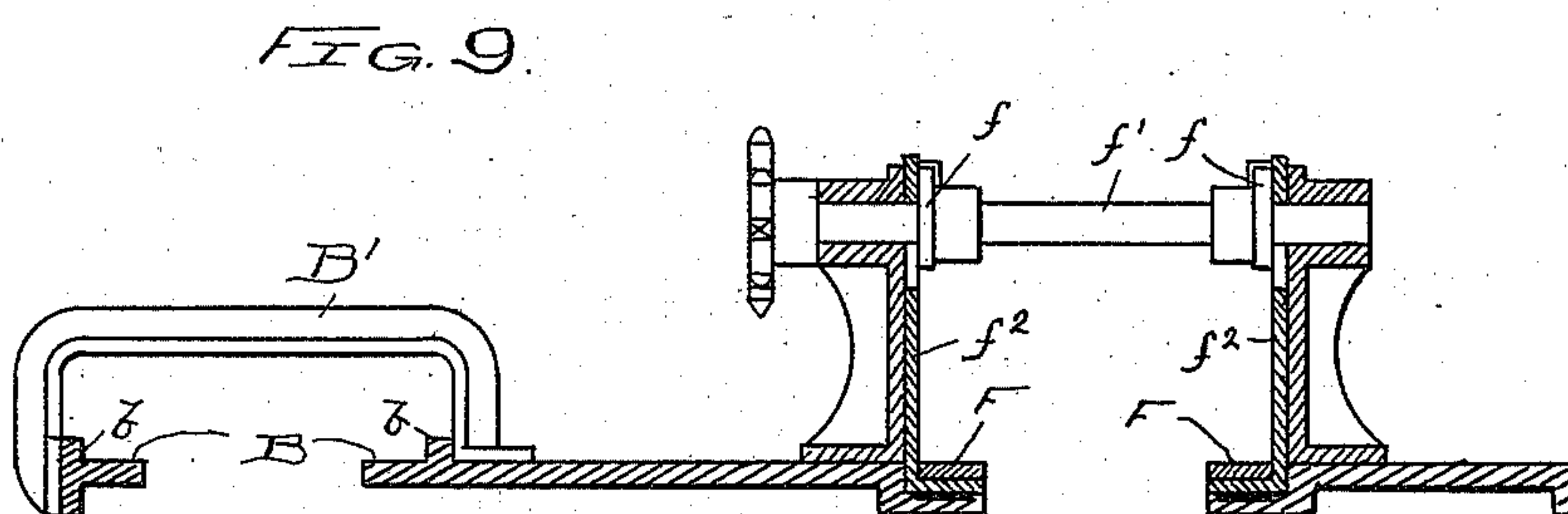
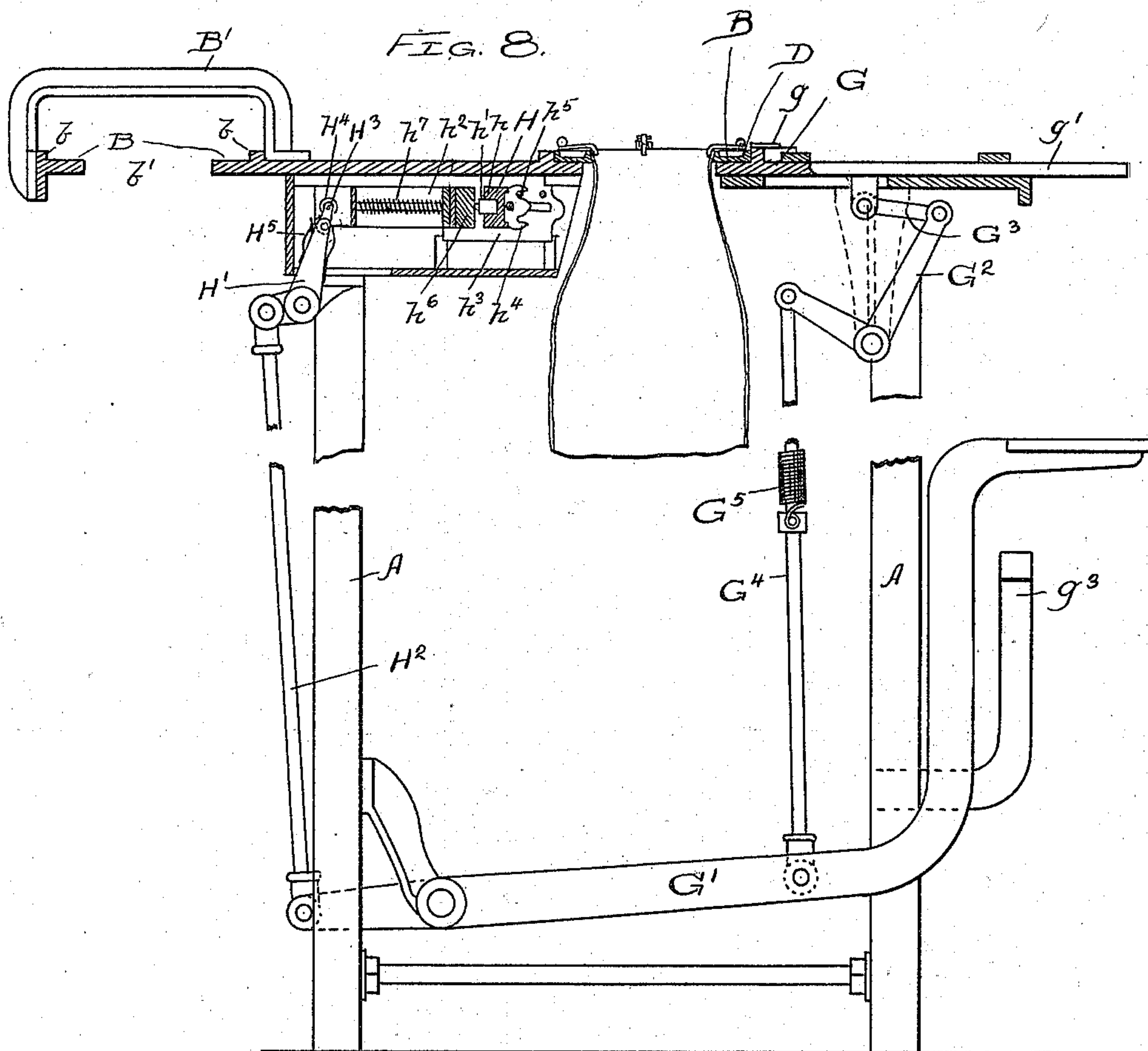
(No Model.)

7 Sheets—Sheet 5.

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.



WITNESSES:

*Sen. C. Curtis*  
*A. W. Munday*

INVENTOR:

*ARTHUR T. TIMEWELL*

*By Munday, Warts & Adcock*

HIS ATTORNEYS.

(No Model.)

7 Sheets—Sheet 6.

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.

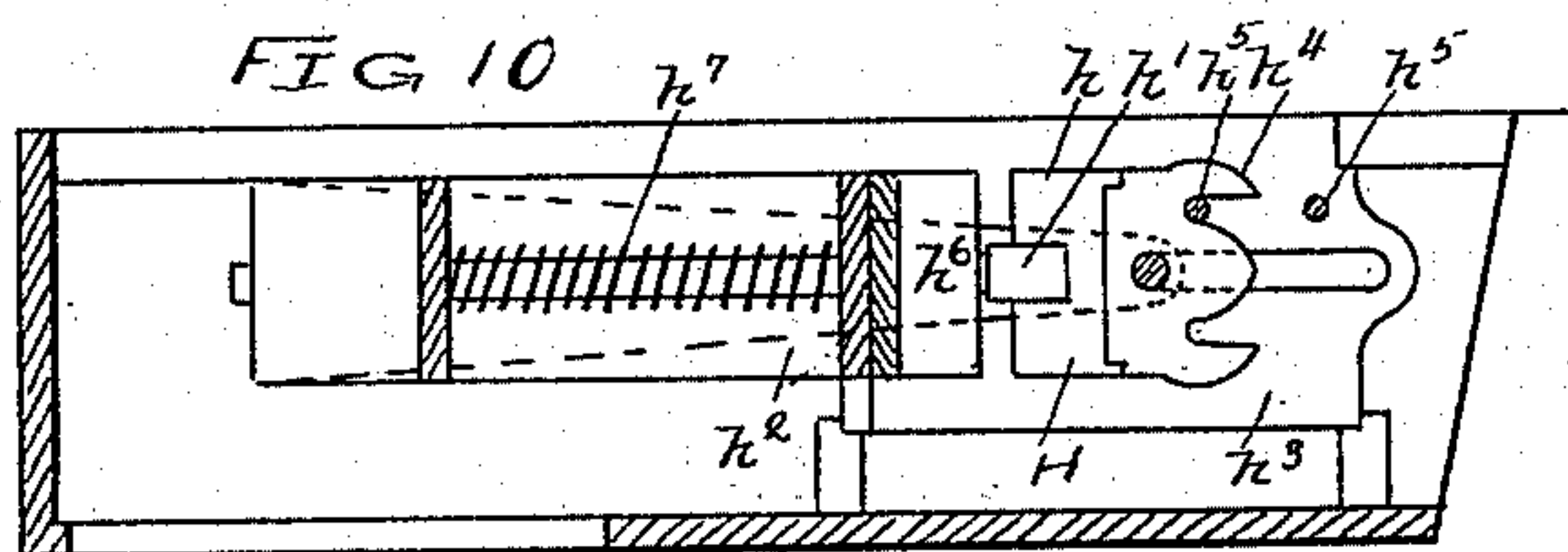


FIG. 11

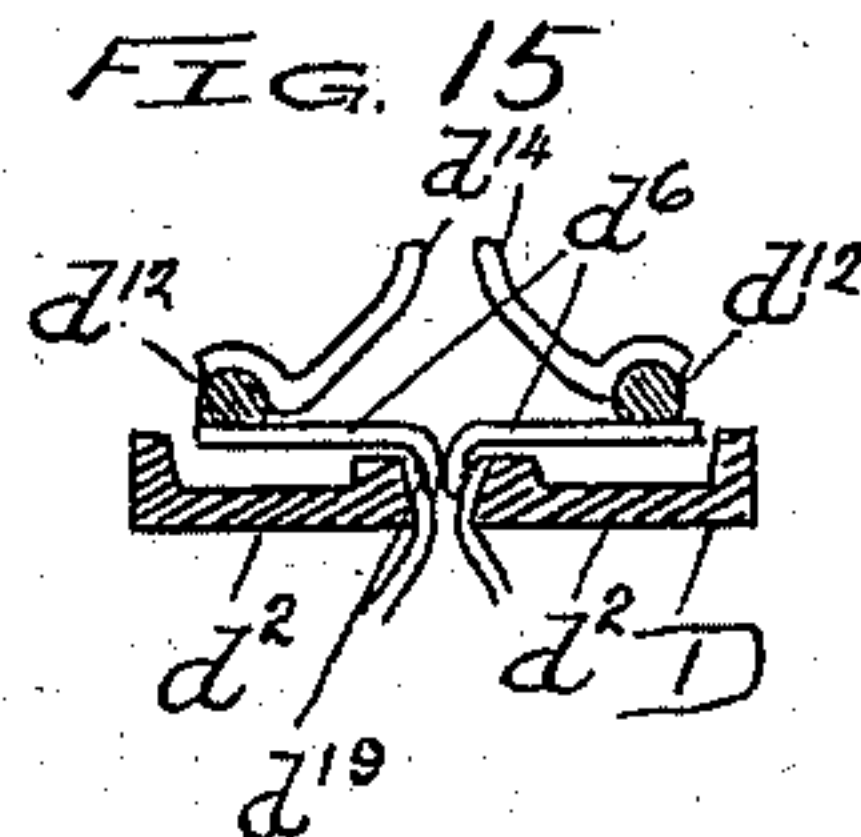
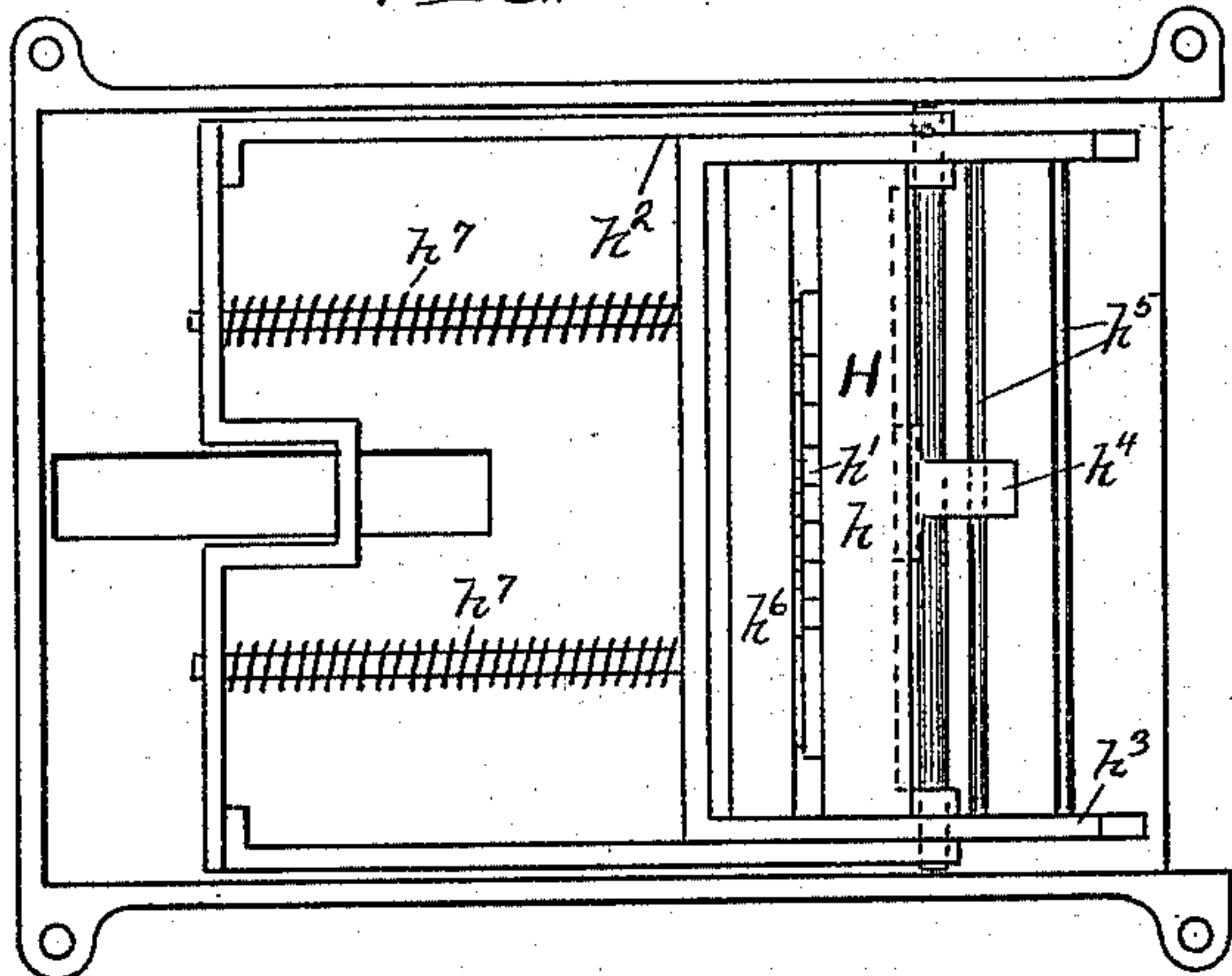


FIG. 16

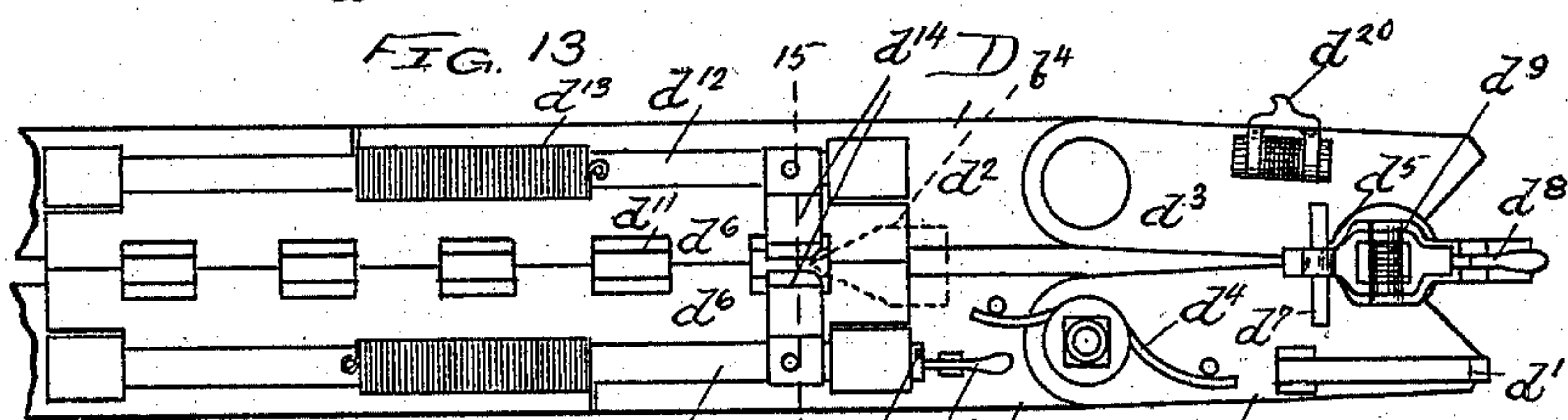
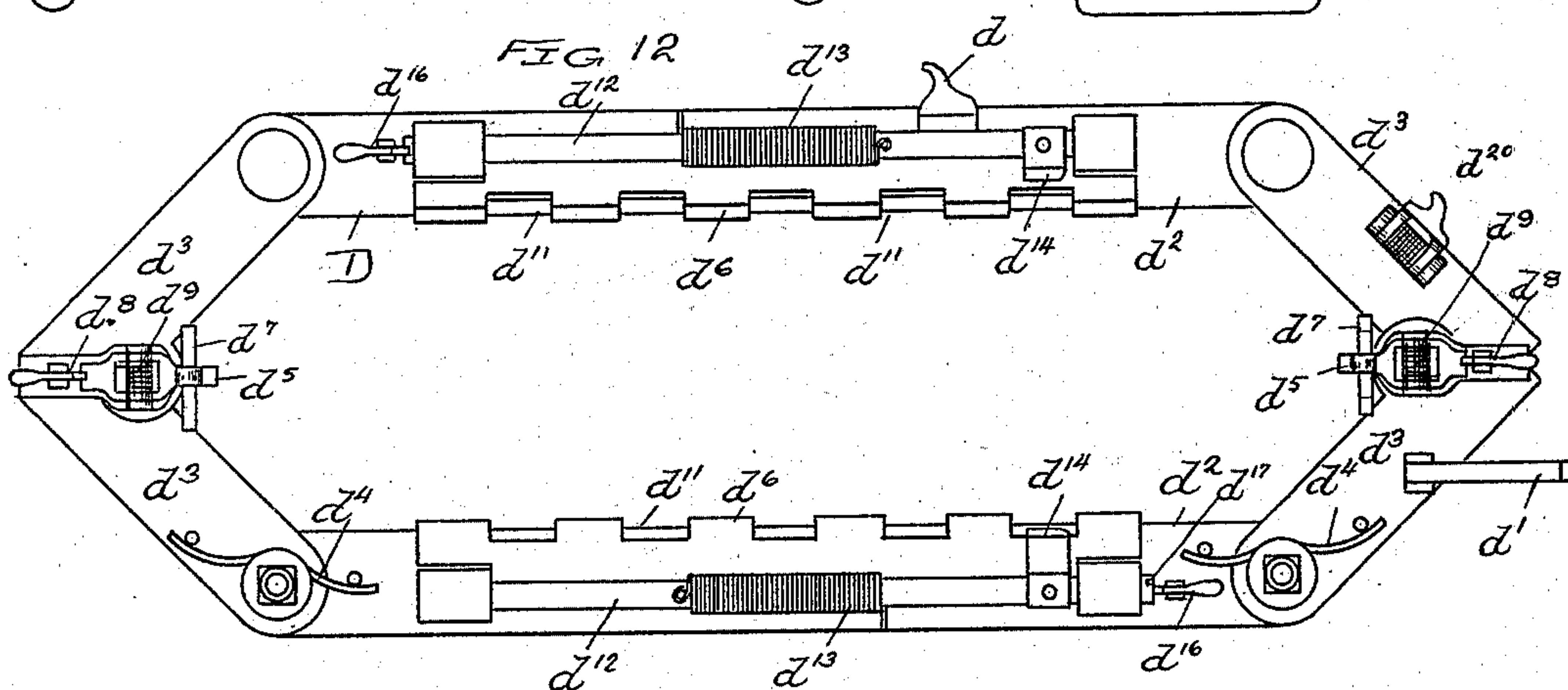
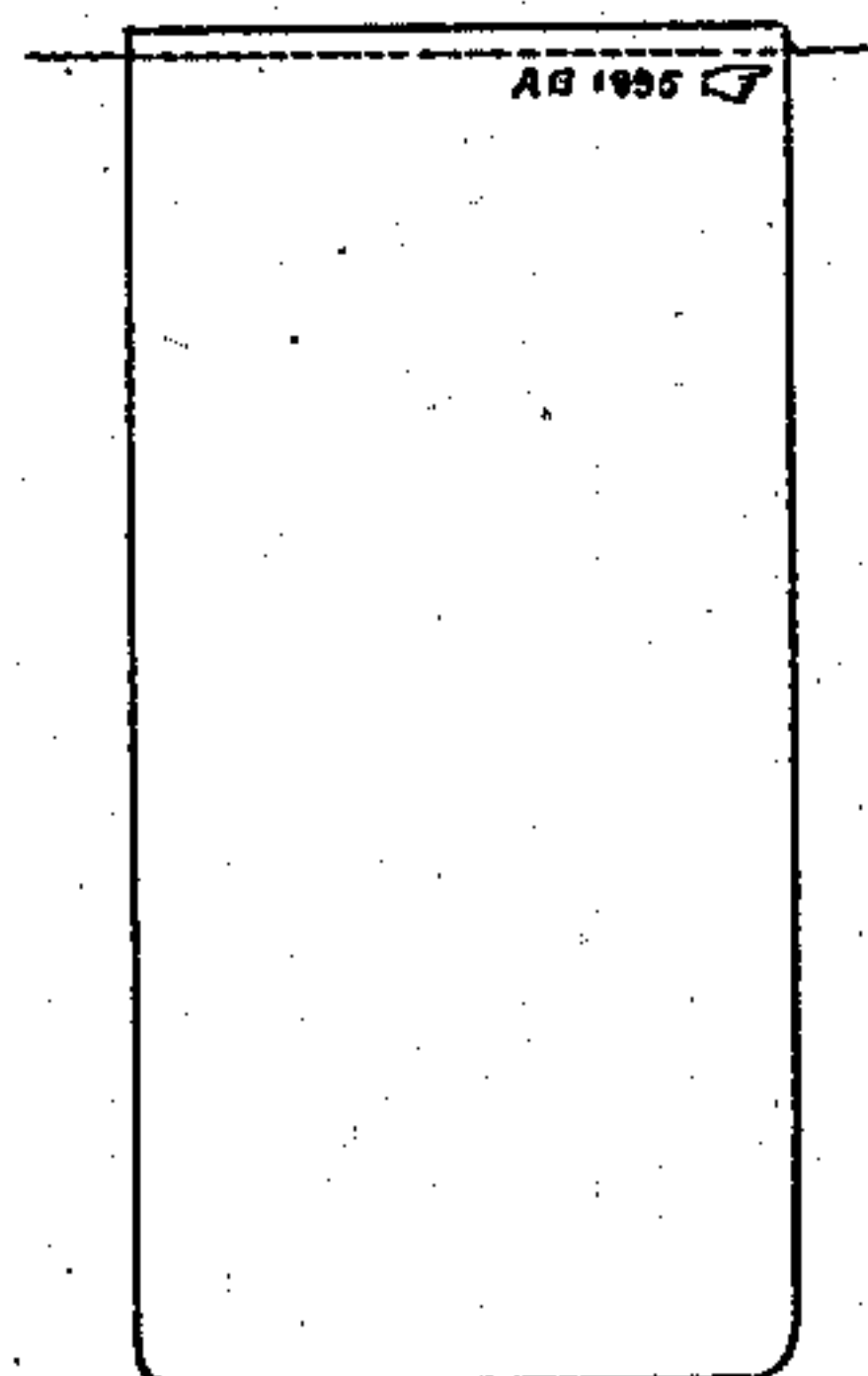
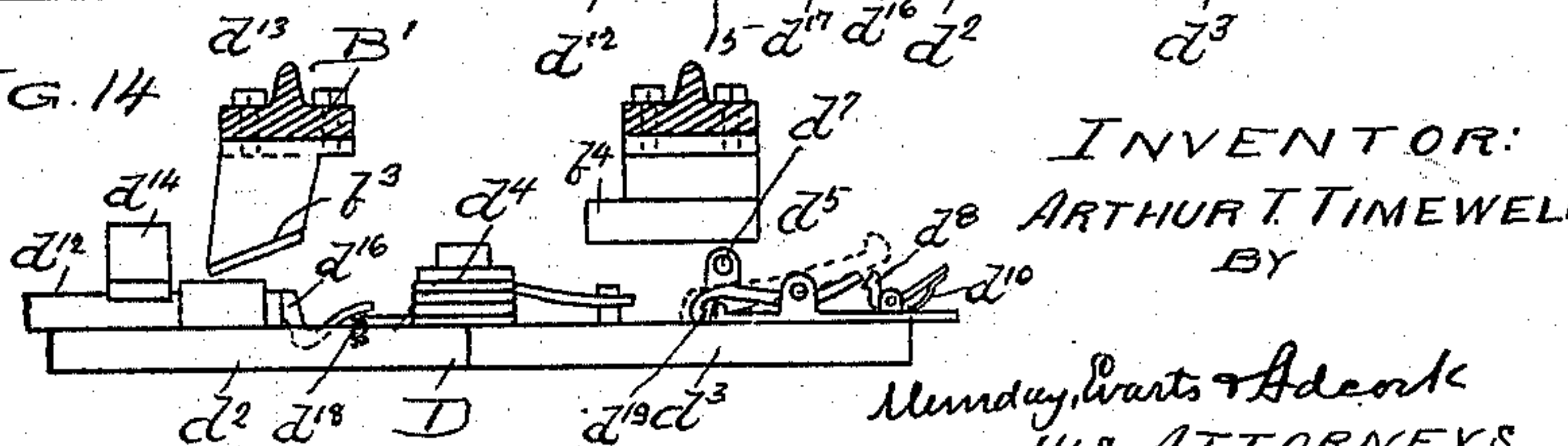


FIG. 14



WITNESSES:

Geo. C. Carter  
H. W. Munday

INVENTOR:

ARTHUR T. TIMEWELL  
BY

Munday, Carter & Adcock  
HIS ATTORNEYS.

(No Model.)

7 Sheets—Sheet 7.

A. T. TIMEWELL.  
MACHINE FOR FILLING AND SEWING SACKS.

No. 562,438.

Patented June 23, 1896.

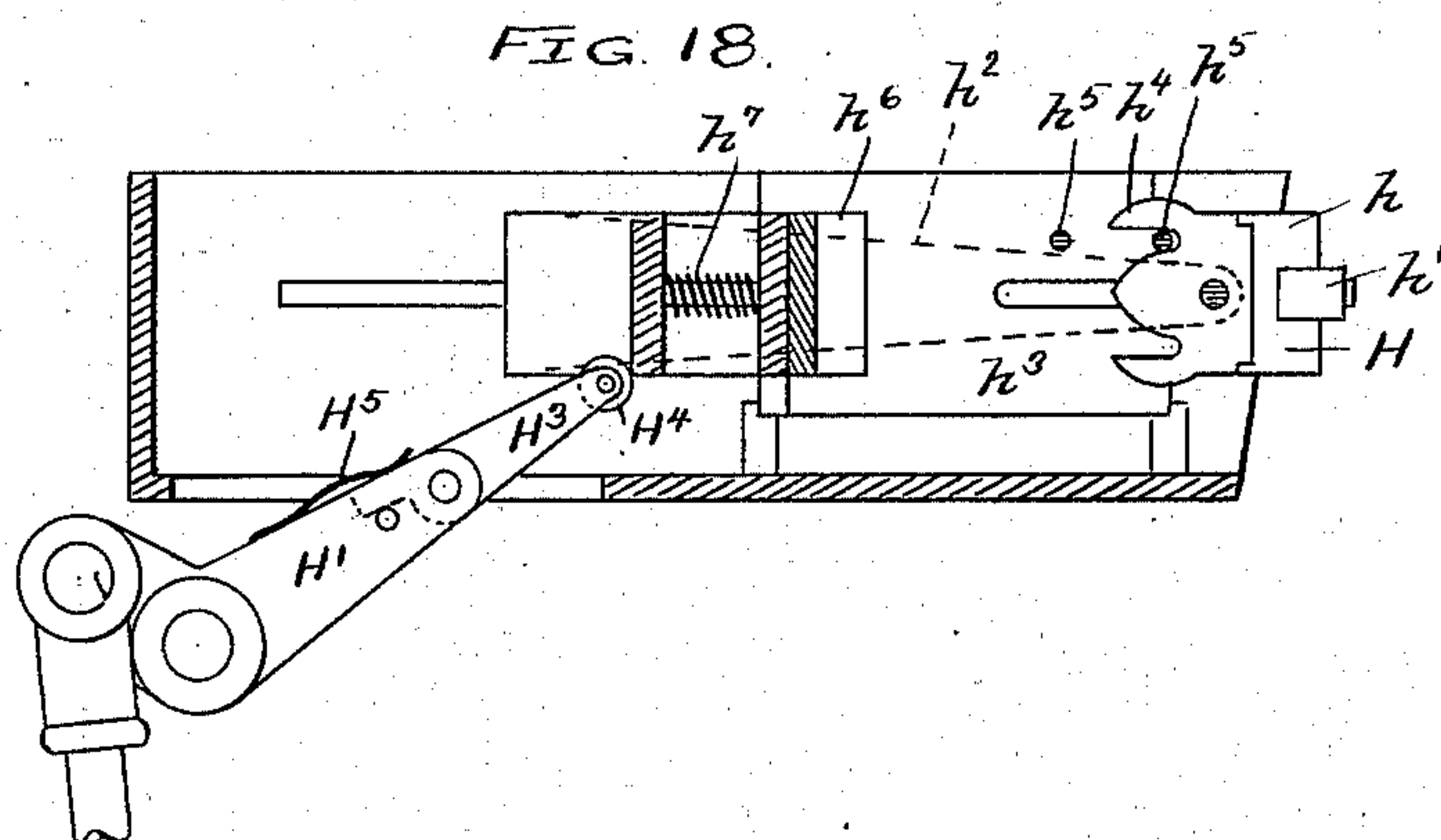
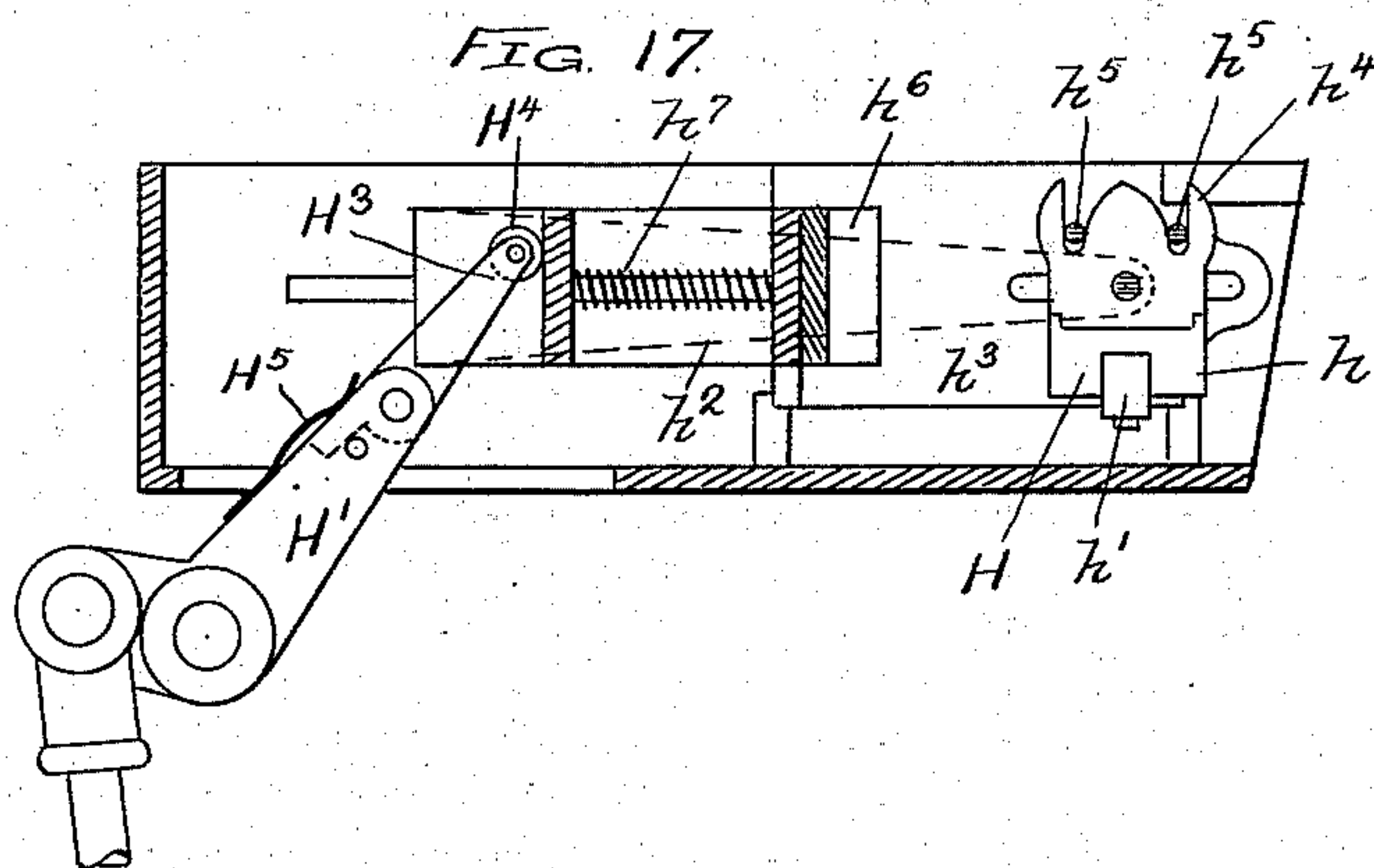


FIG. 20

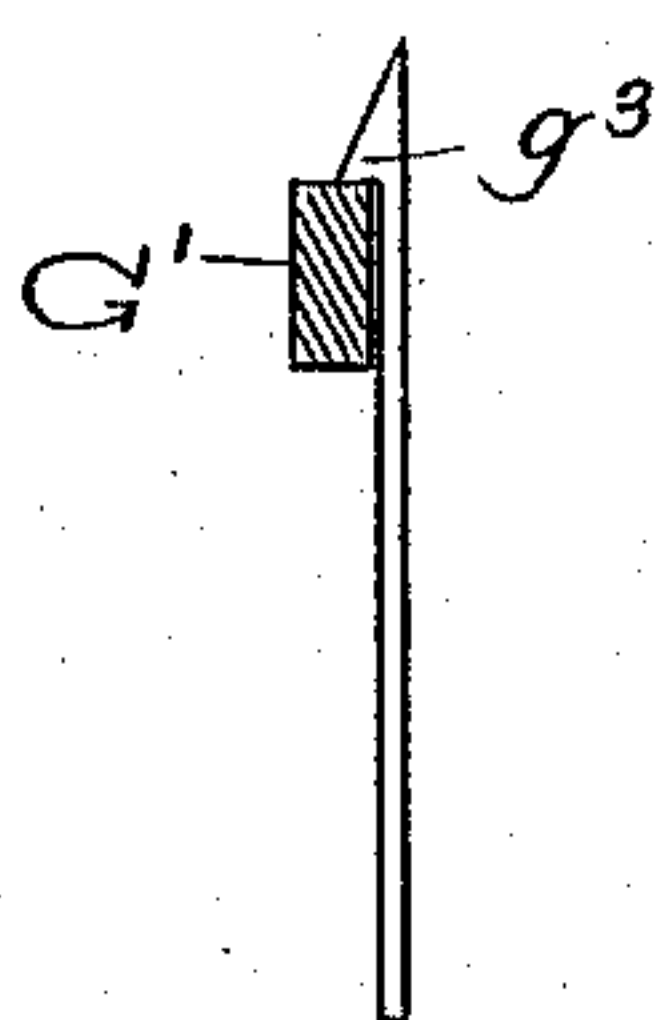
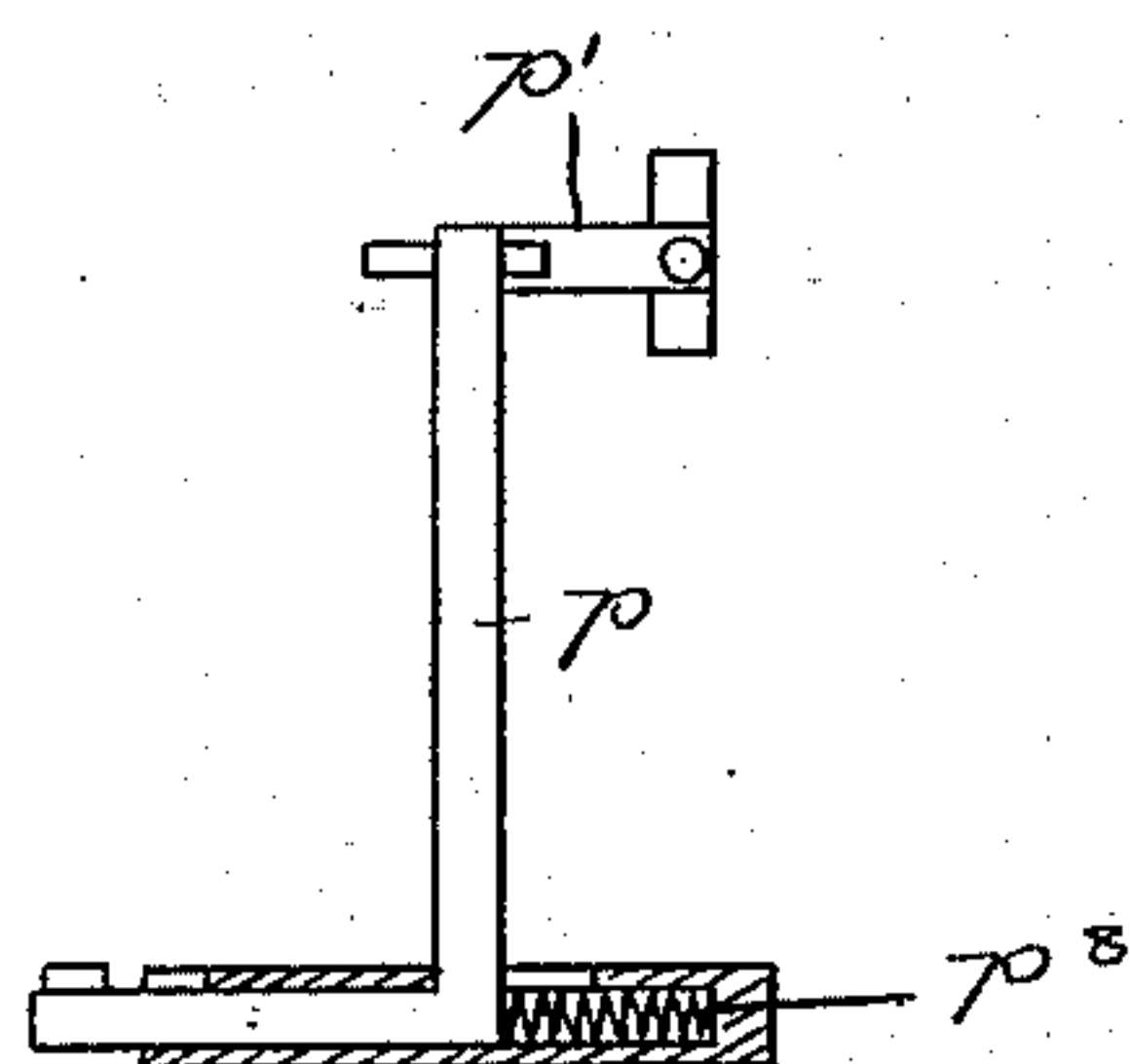


FIG. 19.



WITNESSES:

*Geo. C. Curtis*  
*H. W. Munday*

INVENTOR:

ARTHUR T. TIMEWELL

*By Munday, Curtis & Adams.*

HIS ATTORNEYS.



# UNITED STATES PATENT OFFICE.

ARTHUR T. TIMEWELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ALBERT DICKINSON, OF SAME PLACE.

## MACHINE FOR FILLING AND SEWING SACKS.

SPECIFICATION forming part of Letters Patent No. 562,438, dated June 23, 1896.

Application filed March 15, 1895. Serial No. 541,865. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR T. TIMEWELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Filling and Sewing Sacks, of which the following is a specification.

My invention relates to improvements in machines for filling sacks or bags and sewing up the mouths of the same after they are filled.

My present invention is an improvement upon the sack filling and sewing machine shown and described in my application, Serial No. 524,164.

My present improvement consists in combining with the series of sack-holders, filling mechanism, and sewing device, an endless track along which the sack-holders are conveyed first to the filling mechanism and then to the sewing device, so that the holders are not discharged from the machine and do not require to be replaced in the machine.

It also consists in the combination of these parts with a device for automatically printing desired marks or data upon the sack. In my new machine I also convey the sack along solely by the holders, and thus materially simplify the machine by entirely dispensing with the carriers which I heretofore employed for supporting and carrying the sack.

It also consists in providing the track for the holder with a movable section adapted to be vibrated up and down, and thus accomplishing the shaking of the sack from the holder, that is to say, from the mouth or top edge of the sack, which is better adapted to settle and compact the material in the sack. By this means the sack is automatically shaken in much the same manner that it is done by hand.

It also consists in certain novel constructions of parts and devices and in certain novel combinations of parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, which form a part of this specification, Figures 1 and 1<sup>a</sup>, taken together, are a side elevation of a ma-

chine embodying my invention. Fig. 2 is a plan view. Fig. 3 is an enlarged partial plan view. Fig. 4 is an enlarged partial side elevation of the machine. Fig. 5 is a vertical section on line 5 5 of Fig. 4. Fig. 6 is a detail vertical section showing the thread cutting and holding device. Fig. 7 is a detail plan view showing the thread-cutting device. Fig. 8 is a cross-section on line 8 8 of Fig. 3. Fig. 9 is a cross-section on line 9 9 of Fig. 3. Fig. 10 is a detail vertical sectional view showing the printing device. Fig. 11 is a detail plan view of the printing device. Fig. 12 is a detail plan view of the holder, showing the same open. Fig. 13 is a detail plan view of the holder, showing the same closed. Fig. 14 is a detail view showing a portion of the holder and the devices for opening the sack-clamping jaws of the holder. Fig. 15 is a cross-section of the holder on line 15 15 of Fig. 13; and Fig. 16 is a view of the sack, showing the printing thereon. Figs. 17 and 18 are detail views of the printing mechanism. Fig. 19 is a detail view showing the operation of the spring for disengaging the clutch of the sewing mechanism. Fig. 20 is a detail view of the spring hook or pawl for holding the bag-holder-operating lever in position to keep the bag-holder closed.

Like letters of reference indicate like parts throughout all the figures of the drawings.

In the drawings, A represents the frame of the machine.

B is an endless track on the frame of the machine for the series of holders to ride or travel upon.

C is an endless conveyer consisting, preferably, of a chain for moving the holders D along the track B.

E is a sack filling and measuring device.

F represents a movable section of the track B and which is adapted to be vibrated up and down for the purpose of shaking the sack and settling and compacting its contents.

G is a reciprocating slide or device for closing the holder after the sack is filled.

H is a printing device.

K is the sewing mechanism.

L is the thread-cutting device, and L' the thread-holding device.



M is the device for discharging and delivering the filled and sewed sacks from the machine.

The endless track B is furnished with flanges  $b\ b$  for the opposite side edges of the holders D to fit against, so that the holders will be properly guided in their path by these flanges of the track. The track B has a wide slot or open space  $b'$  extending along that portion of the track at which the holder D is open, and a narrow slot  $b^2$  extending along that portion of the track where the sack-holder is closed, and the guiding-flanges  $b\ b$  are brought close together at that portion of the track having the narrow slot  $b^2$ , and where the holder is closed when passing along such portion. The track B is provided with suitable bridges  $B'$ , spanning the slots  $b'\ b^2$  at suitable intervals, so as to properly support both sides or portions of the track. At the portion of the track B extending from the point where the filled and sewed sack is discharged to the point where the empty sack is put into the holder the slot  $b'$  or  $b^2$  is of course not necessary, and the two flanges or portions  $b\ b$  of the track may be here connected together by webs  $B^2$ .

The endless conveyer C, by which the series of holders D are moved or conveyed along the track B, consists, preferably, of a link-chain traveling around the pulleys or sprocket-wheels  $C^2\ C^2\ C^3\ C^3\ C^4\ C^5\ C^5$ , the sprocket-wheel  $C^4$  being the driving-wheel. The general path of the conveyer-chain C is along the inner guide-flange  $b$  of the track B, so that the open links of the chain are adapted to engage the hooks  $d$  on the inner sides of the holders D. At the place or portion of the track B where the empty sacks are put into the holders the path of this flexible conveyer C is deflected inward or away from the track of the holder, so that the holder will be thus automatically disengaged from the conveyer-chain and remain stationary on the track B while the sack is being put into the same; and, after the sack is placed in the holder, the holder is pushed by hand forward to that portion of the track where the conveyer-chain again meets it, and can thus again engage the hook  $d$  of the holder. The flexible conveyer-chain C is thus deflected at  $c$  away from the track B by properly locating the guiding wheels or pulleys  $C^3\ C^3$  of the chain. The path of the conveyer-chain C is also deflected inward or away from the track B of the holder at the place  $c'$  where the sack is to be filled and where the holder is stopped or remains stationary for this purpose, so that at this time also the hook of the holder will be disengaged from the conveyer C, this second deflection of the conveyer C being effected by the guide pulleys or wheels  $C^5$ . For convenience and also for the purpose of giving the holder a quicker movement from the filling position to the holder-closing position, I preferably provide a supplemental conveyer-chain  $C'$ , mounted on pulleys  $C^6\ C^6$  above the track B,

adapted to engage a movable or hinged hook  $d'$  on the holder and move the holder forward to the position where the holder is closed. 70

The series of sack or bag holders D each consist, preferably, of six hinged bars, the same comprising two opposite side or long bars  $d^2\ d^2$  and four short or end bars  $d^3\ d^3\ d^3\ d^3$ . All these bars are hinged or pivoted together at their adjoining ends, so that the holder may be opened, as shown in Fig. 12, to receive the sack to hold it open while the sack is being filled, and again open to discharge the sack after it has been sewed, and so that the holder may be closed, as shown in Fig. 13, to hold the mouth of the sack closed while it is being sewed. 75 80

To automatically open the holder, it is provided with one or more, preferably two, springs  $d^4$  at two of its pivots or hinges. 85

To adapt the holder to properly and firmly grasp the mouth edge of the bag, so that the bag and its contents may be securely supported from and carried by the holder without any separate carrier for the bag, and to enable the sacks to be quickly and conveniently inserted in the holder, the holder is provided at its two opposite pivotal ends with pivoted spring-actuated clamping-jaws  $d^5\ d^5$ , and at its two long or side bars  $d^2$  with spring-actuated clamping-jaws  $d^6\ d^6$ . The pivoted clamping-jaw  $d^5$  is provided with a pin or projection  $d^7$ , adapted to engage a stationary cam or projection  $b^3$  on one of the bridges  $B'$  over the track B, and thus automatically open the clamping-jaw  $d^5$  when it passes under the bridge and shown in Fig. 14; and the clamping-jaw  $d^5$  is further provided with a pivotal pawl or latch  $d^8$  to hold the clamping-jaw  $d^5$  open against the pressure of the spring  $d^9$  of the clamping-jaw after the clamping-jaw has been opened. A spring  $d^{10}$  holds the latch or pawl  $d^8$  in position for automatically engaging the pivoted jaw  $d^5$  when said jaw is opened. The clamping-jaw  $d^6$  consists, preferably, of a long sectional blade, that is to say, a blade having notches  $d^{11}$  at intervals. It is secured to a rock-shaft  $d^{12}$ , which is provided with a torsion-spring  $d^{13}$  to hold the clamping-jaw closed with the requisite pressure. The rock-shaft  $d^{12}$  is furnished with an arm or projection  $d^{14}$ , adapted to engage a cam or projection  $b^4$  on one of the bridges  $B'$  over the track B, and thus open the clamping-jaw  $d^6$  as the holder passes under said bridge. To automatically hold the clamping-jaw  $d^6$  in its open position after it has thus been opened, a pivoted pawl or latch  $d^{16}$  is provided, which engages a notch or projection  $d^{17}$  on the clamping-jaw  $d^6$ , and thus holds the same open. The pawl or latch  $d^{16}$  is held in position for engaging the notch or projection  $d^{17}$  by a spring  $d^{18}$ . To put a bag in this holder, the holder being of course open, the operator first puts the edge of the bag under one of the end clamping-jaws  $d^5$ , then touches the latch or pawl  $d^8$ , and thus clamps the mouth of the bag at one point to one end of the holder. He 90 95 100 105 110 115 120 125 130



then takes the diametrically opposite edge of the bag and in like manner clamps it at the opposite end of the holder by the other end clamp  $d^5$ . He then places one side edge of the mouth of the bag under one of the long clamps  $d^6$ , releases the latch  $d^{16}$ , and thus secures this side edge of the bag in the holder. He then in like manner secures the other side edge of the bag under the other side clamp  $d^6$ . By this means, and in this way, the bags may be placed in the holders with great rapidity. To increase the holding power of the clamps  $d^5$   $d^6$  and enable them to better support the weight of the filled bag, the clamping-faces are preferably provided with serrations  $d^{19}$ .

The filling and measuring device E may be of any suitable construction known to those skilled in the art, and adapted to deliver a fixed or measured quantity of material into each bag, whether the measuring is done by weight or by bulk. The device for this purpose illustrated in the drawings is constructed to measure by bulk instead of by weight, and comprises a measuring-chamber  $E^1$  equal in capacity to that of the bag, a discharge-spout  $E^2$ , delivery-spout  $E^3$ , two valves  $E^4$   $E^5$ , an operating-lever  $E^6$ , the upper valve closing completely before the lower one begins to open.

The bag-shaking device F, which operates to settle and compact the material in the bag as it is being filled, consists of or comprises a movable section of the bag-holder track B, adapted to be automatically vibrated up and down. This up-and-down vibrating movement may be communicated to the bag-holder-shaking device F by any suitable means or mechanism, but preferably, as illustrated in the drawings, by revolving cams or eccentrics  $f$   $f'$  on the shafts  $f'$ , connected with the sectional track or device F by straps or hangers  $f^2$ . After the sack has been filled and duly shaken the holder D is moved along the track B by the supplemental conveyer C' into position opposite the sack-holder-closing slide or device G, and opposite the printing device H, the printing device being preferably arranged directly opposite the closing device G.

The sack-holder-closing device G preferably consists of a transversely-reciprocating slide furnished with antifriction-rollers  $g$  to bear against one of the long bars  $d^2$  of the holder. The slide G or its stem  $g'$  reciprocates in suitable guides  $g^2$  on the frame of the machine.

The printing or stamping device H may be of any suitable construction known to those skilled in the art. That, however, which I prefer to employ is illustrated in the drawings, and comprises a reciprocating and revolving or reversible type-carrying head  $h$ , in which the type  $h'$  are mounted, the head being pivoted to a reciprocating slide  $h^2$ , working back and forth in the frame  $h^3$ , and the rocking head being provided with cam-forks  $h^4$ , adapted to engage pins  $h^5$  on the frame  $h^3$ , and thus half revolve or reverse the type-carrying head as it reciprocates, so that when the head re-

ciprocates backward the face of the type will engage the inking-pad  $h^6$ , and when the head reciprocates forward the face of the type will be turned into proper position for engaging and stamping the sack. This is an old and familiar kind of printing and stamping device, and is shown in the drawings for convenience, although it will be obvious to those skilled in the art that other suitable or known forms of printing devices may be used in the place of that shown. The reciprocating slide of the printing device is operated, or preferably operated, by the same lever  $G'$  which actuates the bag-holder-closing device G, this being done by connecting the lever  $H'$  which operates the slide of the printing device with the lever  $G'$  by a link  $H^2$ . The printer-operating lever  $H'$  is a bent lever, and is provided at its upper end with a pivoted spring-held arm  $H^3$ , having a roller  $H^4$  to engage the slide  $h^2$  of the printing device and push it forward. To permit the printing-head and its slide to be quickly withdrawn and thus prevent blurring of the impression, the slide  $h^2$  is automatically withdrawn by springs  $h^7$ , the roller-carrying spring-held arm  $H^2$  being adapted to pass under the slide the moment the impression is made. As the arm  $H^2$  is pivoted to the lever  $H$ , this permits the lever to be swung back into position at the rear of the slide  $h^2$  to repeat the operation on the next bag. The spring  $H^5$  returns the pivoted arm  $H^3$  to position after it passes out from beneath the slide  $h^2$ .

The bag-holder-closing slide G is reciprocated by the treadle or lever  $G'$  through the intermediate bent lever  $G^2$  and connecting-links  $G^3$   $G^4$ , the connecting-link  $G^4$  being provided with a spring  $G^5$  to retract the slide G and lever  $G'$ , and also the printer-operating lever  $H'$ . A spring hook or pawl  $g^3$ , engaging the lever  $G'$ , serves to hold the slide G closed until the holder passes.

The sewing device K may be of any suitable construction, but preferably comprises, as shown in the drawings, a frame arm or bracket  $K'$ , attached to the frame of the machine, a reciprocating needle  $K^2$ , a continuously-revolving looper  $K^3$ , and suitable means for reciprocating the needle and revolving the looper. This operating mechanism may be, as shown in the drawings, an upright shaft  $K^4$ , carrying a gear  $K^5$ , which is provided with a crank-pin  $K^6$ , connected to a pitman  $K^7$ , which is connected at its other end to a crank-arm  $K^8$  on a crank-shaft  $K^9$ . This crank-shaft  $K^9$  has another arm  $K^{10}$ , which is connected by a pivoted link  $K^{11}$  to the slide or bar  $K^{12}$  to which the needle is attached, and for operating the looper the upright shaft  $K^4$  is provided with a gear  $K^{13}$ , which meshes with an intermediate gear  $K^{14}$ , that meshes with a gear  $K^{15}$  on the revolving shaft  $K^{16}$  of the looper.

The thread-cutting device or mechanism L consists of two reciprocating knives, and the thread-holding device  $L'$  consists of two re-



reciprocating jaws between which the severed end of the thread is clamped or held after being severed by the knives. The two knives  $L$  and the two thread-holding jaws  $L'$  are preferably, one of each pair, connected to the same reciprocating spring-actuated slide  $L^2$ . Each of the sliding jaws  $L^2$  is furnished with a pin or roller  $L^3$ , projecting in the path of the holder in the track  $B$ , so that the instant each holder passes the projection  $L^3$  the sliding bars  $L^2$ , carrying the knives and thread-holding jaws, will be actuated or closed against each other by their springs  $L^4$ , and thus automatically sever the thread and grasp or hold the free end thereof.

The device  $M$  for automatically discharging or delivering the filled and sewed sack from the machine consists, preferably, of an inclined, revolving, spring-supported platform, so that, when the filled bag drops onto it, it will by the weight and impulse of the bag automatically be swung around and thus discharge or deliver the bag out of the way. This inclined and revolving platform  $M$  is adapted to rock or rotate and also reciprocate up and down on a stationary inclined shaft  $M'$ , and is supported by a spring  $M^2$ , which bears at one end against a collar  $M^3$ , fixed to the shaft  $M'$ , and the other end against a sleeve  $M^4$  to which the platform  $M$  is connected by rods  $M^5$ . The spring also acts torsionally, being connected at one end to the sleeve and at the other to the collar, and thus serves to automatically return the platform to position after swinging outward to discharge a sack. An arm  $M^6$ , secured to one of the rods  $M^5$ , serves by striking against a brace of the frame to limit the torsionally-inward throw of the spring.

$N$  is the main driving-shaft of the machine, and  $N'$  is the driving-pulley. Motion may be communicated from the driving-shaft  $N$  to the shaft  $C^7$ , which carries the sprocket-wheel  $C^4$ , that drives the endless conveyer-chain  $C$  by any suitable means or mechanism; but it is preferably done, as illustrated in the drawings, by a gear  $n$  on the shaft  $N$  meshing with a gear  $n'$  on the short shaft  $n^2$ , said short shaft having a sprocket-wheel  $n^3$ , which communicates motion by a chain  $n^4$  to the sprocket-wheel  $n^5$  on a counter-shaft  $n^6$ , which counter-shaft carries a gear  $n^7$ , meshing with the gear  $n^8$  on the short shaft  $n^9$ , which is provided with a bevel-gear  $n^{10}$ , that meshes with a bevel-gear  $n^{11}$  on the shaft  $C^7$ , to which said sprocket-wheel  $C^4$  is secured.

Motion may be communicated to the supplemental carrier-chain  $C'$  by any suitable means or mechanism, but preferably, as illustrated in the drawings, by providing the shaft  $n^6$  with a sprocket-wheel  $n^{12}$ , which communicates motion by a chain  $n^{13}$  to a sprocket-wheel  $n^{14}$  on a shaft  $n^{15}$ , to which the driving-pulley  $C^6$  of the supplemental carrier  $C'$  is secured.

Motion may be communicated to the shaft  $f'$ , which actuates the shaker  $F$ , by any suit-

able means, but preferably, as illustrated in the drawings, by providing the shaft  $n^6$  with a sprocket-wheel  $n^{16}$ , by which motion is communicated through a chain  $n^{17}$  to a sprocket-wheel  $n^{18}$  on a clutch-sleeve  $f^2$ , loose on the shaft  $f'$ , said clutch-sleeve being engaged by an opposing clutch-sleeve  $f^3$ , which rotates with the shaft  $f'$ , so that when the operator by means of the clutch-rod  $f^4$  pulls the clutch-sleeve  $f^3$  into engagement with the clutch-sleeve  $f^2$  the shaft  $f'$  will be rotated. It should here be observed that the pulley or wheel  $C^6$  of the supplemental carrier-chain  $C'$ , which is on this shaft  $f'$ , is a loose or idle pulley on the shaft, so that the carrier-chain  $C'$  can receive no motion from the shaft  $f'$ , but only from its driving-shaft  $n^{15}$ , as before explained. The other shaker-operating shaft  $f'$  is actuated from its companion shaft  $f'$  by means of a chain  $f^5$ , engaging sprocket-wheels  $f^6$  on said shafts  $f' f'$ .

Motion may be communicated to the sewing device or mechanism or to the upright shaft  $K^4$  thereof by any suitable means, but preferably, as illustrated in the drawings, by a bevel-gear  $K^5$  on said shaft  $K^4$ , which meshes with a bevel-gear  $P'$  on a clutch-sleeve  $P^2$ , which is thrown into gear with the driving-shaft  $N$  by a sliding clutch  $P^3$ , said sliding clutch  $P^3$  being automatically operated by a sliding arm  $p$ , projecting into the track  $B$  in the path of the bag-holder  $D$ , and which sliding bar  $p$  is provided with an arm  $p'$ , that engages the sliding clutch  $P^3$ , which thus throws it into engagement with the clutch-sleeve  $P^2$ . A spring  $p^8$  serves to retract the clutch and throw the sewing-machine out of gear when the sewing of the bag is completed and the bag-holder  $D$  is carried past such clutch-operating arm  $p$ .

The operation is as follows: At the station  $X'$ , where the conveyer-chain  $C$  is out of engagement with the holders  $D$ , the bags are placed in the holders one after another by the operator. After the operator has put a bag into one of the holders he pushes the holder forward along the track  $B$  to the point where its hook  $d$  will engage the conveyer-chain. The conveyer-chain then carries the holder along the endless track  $B$  to the point where the conveyer-chain  $C$  is deflected away from the track  $B$ , at which point the conveyer-chain is automatically disengaged from the holder, thus leaving the holder stationary on the track  $B$  at or near the filling-station. The operator at the filling-station then pushes the holder forward under the spout of the filling and measuring device. The operator then moves the valve-operating lever of the filling mechanism so that the material then runs into the sack or bag from the measuring-chamber. The holder is now resting on the shaker  $F$ , on the up-and-down movable portion of the track  $B$ , and the operator now moves the clutch-operating rod, which sets the shaker  $F$  into vibration. After the sack is sufficiently shaken the operator throws the



shaker out of gear and with his hand lifts the pivoted hook  $d'$  on the holder D into engagement with the supplemental carrier-chain  $C'$ , and the holder with the filled bag is thereby moved forward into position opposite the sack-holder-closing device G and the printing device H; the hook  $d'$  being automatically disengaged from the supplemental carrier-chain  $C'$  at the point where said carrier-chain turns upward or around its pulley or sprocket-wheel. The operator now depressing the treadle or lever  $G'$  actuates the closure-slide G and closes the holder, and at the same time actuates the printer-slide and thus stamps the necessary impressions or marks upon the bag. The holder D is now again brought into engagement with the endless conveyer C, and is by it conveyed past the sewing device K, the operating-clutch of which is thrown into gear by the engagement of the holder with the projecting arm  $p$ , which operates the clutch; and as the holder passes the thread cutting and holding device  $L L'$  the thread is automatically severed and its free end grasped and held. As the holder passes along the endless track the arms  $d^7$  and  $d^{14}$  engage the cams or projections  $b^3 b^4$  on the bridges  $B' B'$  and thus automatically release the clamping-jaws  $d^5 d^6$ , thus permitting the bag to drop out of the holder down upon the discharger M; and at the same time the springs  $d^2$  on the holder throw the holder open, as it has now reached the point where the guide-flange  $b$  of the track B is widely separated from the carrier C, so that the springs  $d^4$  can throw the holder open. It should also be observed that when the clamping-jaws  $d^5 d^6$  are automatically thrown open by passing under the bridges  $B' B'$  they are locked or held in this open position by the latches or pawls  $d^8 d^{16}$  until these latches or pawls are again released by the operator when he puts another bag into the holder. The conveyer C carries the holder back to the station where the bags are inserted, when the operation is repeated successively with each and all of the holders of the series.

When the holder D is closed by the slide G, the short bars  $d^3$  are brought into line with the long bars  $d^2$ , and this act of closing the holder thus throws the hook  $d^{20}$  on the front short bar  $d^3$ , adjacent to the conveyer-chain C, into engagement with the conveyer-chain, so that the moment the holder is closed by the slide G it will be caught by the chain C and carried forward along the track B past the sewing device. The holder-closing slide G holds the holder closed by reason of the spring pawl or hook  $g^3$  until the holder is advanced by the conveyer C into the contracted part of the track B, where the flanges  $b b$  converge to the width of the holder when it is closed, so that said flanges of the track will then keep the holder closed.

I claim—

1. The combination with a series of opening and closing movable sack-holders of an

endless and recurring or returning track for the holders, a conveyer for moving the holders along the track, a sack-filling device, a shaker a device for closing the holders, and a sewing mechanism, substantially as specified.

2. The combination with a movable opening and closing sack-holder of an endless and recurring or returning track for the holder and a sewing mechanism, substantially as specified.

3. The combination with a movable opening and closing sack-holder of a track for the holder, a device for closing the holder and a printing device for printing the sack as the holder is closed, substantially as specified.

4. The combination with a movable sack-holder of a track for the holder, a sack-filling device, and a device for vibrating the holder up and down and thus shaking the sack and settling and compressing its contents by the movement of the holder, substantially as specified.

5. The combination with a movable sack-holder of a track for the holder, an up-and-down movable or vibrating support  $f$  for the holder to shake the sack, means for moving the holder along said track, and means for vibrating said support  $f$ , substantially as specified.

6. The combination with a movable sack-holder of a track for the holder, said track having an up-and-down movable or vibrating section F for shaking the sack, and means for moving said holder along said track substantially as specified.

7. The combination with a movable sack-holder of a track for the holder, said track having an up-and-down movable or vibrating section F for shaking the sack, and mechanism for vibrating said section F, substantially as specified.

8. The combination with an opening and closing movable sack-holder, of a sack-filling device, a printing device, means for closing the holder, a sewing device, and means for supporting and moving the holder, substantially as specified.

9. An opening and closing sack-holder comprising four short bars and two long bars pivoted together, the two long parallel bars being provided with movable clamps for removably clamping a sack in said holder, substantially as specified.

10. An opening and closing sack-holder comprising four short bars and two long bars pivoted together and furnished with sack-clamping jaws at the two extreme ends of the holder where the two pairs of short bars are pivoted together, and also with movable clamps on the two long parallel bars constituting the sides of the holder, substantially as specified.

11. An opening and closing sack-holder comprising four short bars and two long bars pivoted together and furnished with sack-clamping jaws provided with springs for actuating the same, and latches or pawls for locking them open, substantially as specified.



12. The combination with a flexible conveyer of a sack-holder furnished with a hook for engaging and disengaging the conveyer, and a track for the holder, substantially as specified.

13. The combination with a sack-holder of a track for the holder a conveyer-chain above the track and a pivoted hook on the holder for engaging the conveyer, substantially as specified.

14. The combination with a sack-holder of a track for the holder, an endless conveyer, a device for closing the holder, and a hook on one of the holder-bars thrown into engagement with the conveyer by the closing of the holder, substantially as specified.

15. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, substantially as specified.

16. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, and a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental conveyer, substantially as specified.

17. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, and a sack-filling device, substantially as specified.

18. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device and a sack-shaking device, substantially as specified.

19. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, and a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental

conveyer, and a device for closing the holder, substantially as specified.

20. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental conveyer, a device for closing the holder, and a printing device, substantially as specified.

21. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental conveyer, a device for closing the holder, each of said holders being provided with a hook thrown into engagement with said first-mentioned conveyer by the act of closing the holder, substantially as specified.

22. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental conveyer, a device for closing the holder, and a printing device, each of said holders being provided with a hook thrown into engagement with said first-mentioned conveyer by the act of closing the holder, substantially as specified.

23. The combination with a series of holders of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a movable hook to engage said supplemental conveyer, a device for closing the holder, each of said holders being provided with a hook thrown into engagement with said first-men-



tioned conveyer by the act of closing the holder, and a sewing device, substantially as specified.

24. The combination with a series of holders  
5 of an endless track for the holders, an endless flexible conveyer, hooks on the holders adapted to engage the conveyer, said conveyer extending in part along the track and in part diverging therefrom, whereby the holders are  
10 automatically moved and stopped at intervals, a sack-filling device, a sack-shaking device, a supplemental endless flexible conveyer extending above and along the track a portion of its length, said holders having each a mov-  
15 able hook to engage said supplemental conveyer, a device for closing the holder, each of said holders being provided with a hook thrown into engagement with said first-mentioned conveyer by the act of closing the  
20 holder, a sewing device, and a device for discharging or delivering the filled and sewed sacks from the machine, substantially as specified.

25. The combination with a sack-holder  
25 comprising two long bars and four short bars hinged together, of two sack-clamping jaws at the opposite pivoted ends of the holder, and two sack-clamping jaws at the two long or side bars of the holder, substantially as specified.  
30

26. The combination with a sack-holder comprising two long bars and four short bars hinged together, of two sack-clamping jaws at the opposite pivoted ends of the holder,  
35 and two sack-clamping jaws at the two long or side bars of the holder, a track for the holder, bridges or arms projecting over the track provided with cams or projections and arms or projections on the clamping-jaws of  
40 the holder engaging said cams or projections to open the clamps of the holder and release the sack, substantially as specified.

27. The combination with a sack-holder comprising two long bars and four short bars  
45 hinged together, of two sack-clamping jaws at the opposite pivoted ends of the holder, and two sack-clamping jaws at the two long or side bars of the holder, a track for the holder, bridges or arms projecting over the  
50 track provided with cams or projections, and arms or projections on the clamping-jaws of the holder engaging said cams or projections to open the clamps of the holder and release the sack, and latches on the holder to hold  
55 said clamps open, substantially as specified.

28. The combination with a sack-holder, of an endless and recurring or returning track for the holder, an endless conveyer for the holder, and a sack-discharging device, sub-  
60 stantially as specified.

29. The combination with a sack-holder, of a track for the holder, a conveyer for the holder, a sack-discharging device comprising a revolving reciprocating spring-supported  
65 inclined platform, substantially as specified.

30. The combination with a sack-holder, of

a track for the holder, a conveyer for the holder, a sack-discharging device comprising a revolving reciprocating spring-supported inclined platform mounted on an inclined  
70 shaft and furnished with a torsional spring, substantially as specified.

31. The combination with an endless track, of a series of sack-holders each furnished with spring-actuated sack-clamping jaws adapted  
75 to hold and support the filled sacks, and a conveyer for moving the holders along said track and thus conveying the filled sacks along, substantially as specified.

32. The combination with an opening and  
80 closing sack-holder, of a track for the holder, a device for closing the holder and a pawl or hook for locking or holding the closing device in position to hold the holder closed, substantially as specified.  
85

33. The combination with an opening and closing sack-holder, of a track for the holder, a holder-closing slide G, lever G' for operating said slide, and a pivoted spring-held pawl or hook for holding said lever G' in position,  
90 substantially as specified.

34. The combination with an opening and closing sack-holder, of a track for the holder, a holder-closing slide G, lever G' for operating said slide, and a pivoted spring-held pawl  
95 or hook for holding said lever G' in position, a printing device H, a lever H' for moving said printing device forward to make the impression, and a spring for returning the printing device, substantially as specified.  
100

35. The combination with an opening and closing sack-holder, of a track for the holder, a holder-closing slide G, lever G' for operating said slide, and a pivoted spring-held pawl  
105 or hook for holding said lever G' in position, a printing device H, a lever H' for moving said printing device forward to make the impression, a spring for returning the printing device, said lever H' having a pivoted arm H<sup>2</sup> substantially as specified.  
110

36. The combination with a movable sack-holder, of an endless track for the holder, an endless flexible conveyer for the holder, a sack-filling mechanism and a sack-sewing mechanism, substantially as specified.  
115

37. The combination with a movable sack-holder, of an endless track for the holder, an endless flexible conveyer for the holder, a sack-filling mechanism, a sack-sewing mechanism, and a device for automatically dis-  
120 charging the filled and sewed sacks from the machine, substantially as specified.

38. The combination with an opening and closing sack-holder, of an endless track for the holder, an endless flexible conveyer for  
125 the holder, a sack-filling mechanism, a device for closing the holder and a sewing device, substantially as specified.

39. The combination with an opening and closing sack-holder, of an endless track for  
130 the holder, an endless flexible conveyer for the holder, sack-filling mechanism, a sack-



shaking device, a device for closing the holder  
and a sewing device, substantially as specified.

40. The combination with an opening and  
closing sack-holder, of an endless track for  
5 the holder, an endless flexible conveyer for  
the holder, a sack-filling mechanism, a sack-  
shaking device, a device for closing the holder,

a sewing device, and a sack-printing device,  
substantially as specified.

ARTHUR T. TIMEWELL.

Witnesses:

II. M. MUNDAY,  
EDMUND ADCOCK.