

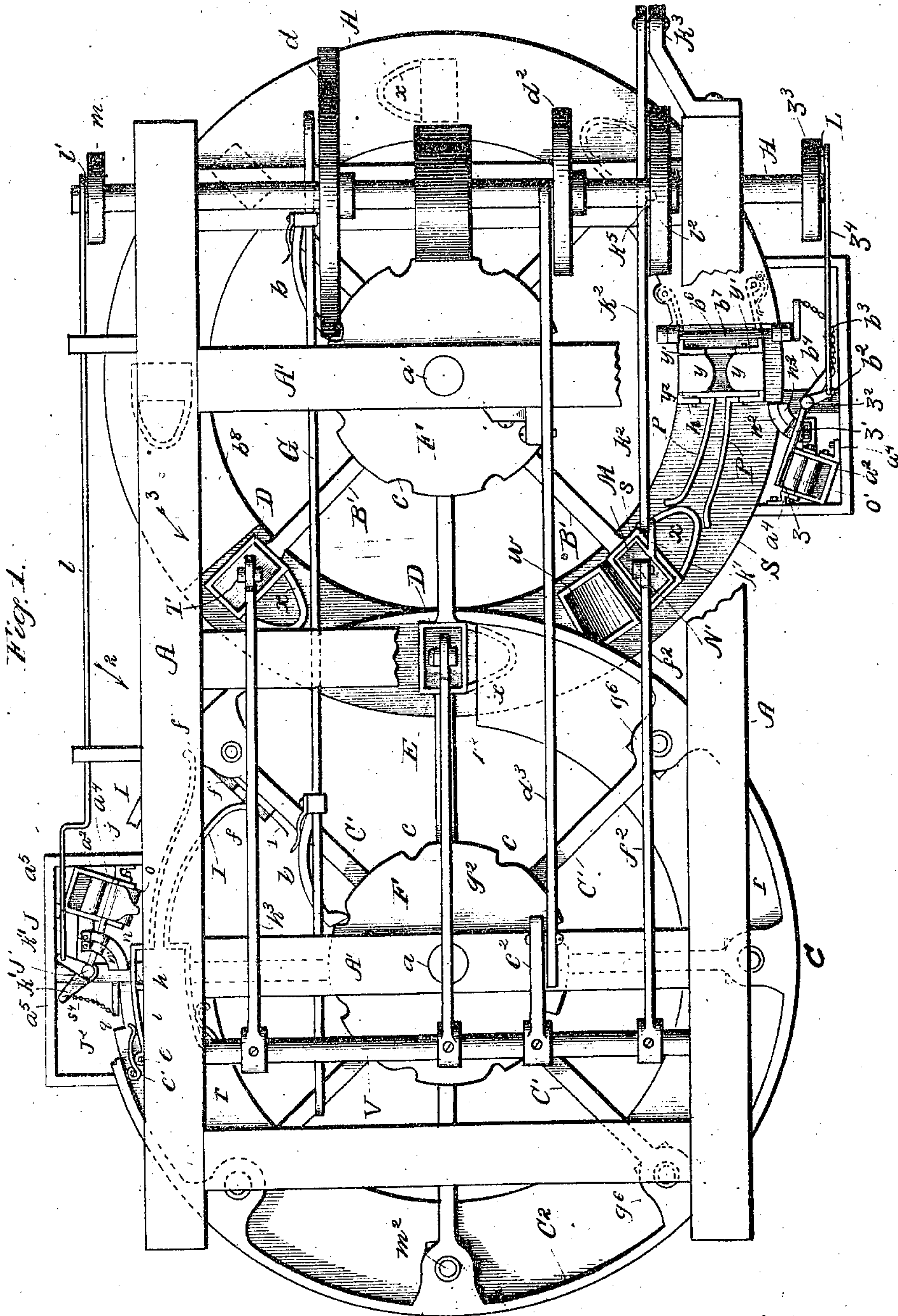
(No Model.)

4 Sheets—Sheet 1.

E. B. OLMSTED.
MACHINE FOR PUTTING UP PACKAGES.

No. 494,688.

Patented Apr. 4, 1893.



WITNESSES.

Victor J. Evans
E. B. Olmsted, Jr.

INVENTOR.

Edwin B. Olmsted;
by W. A. Redmond, Atty.

(No Model.)

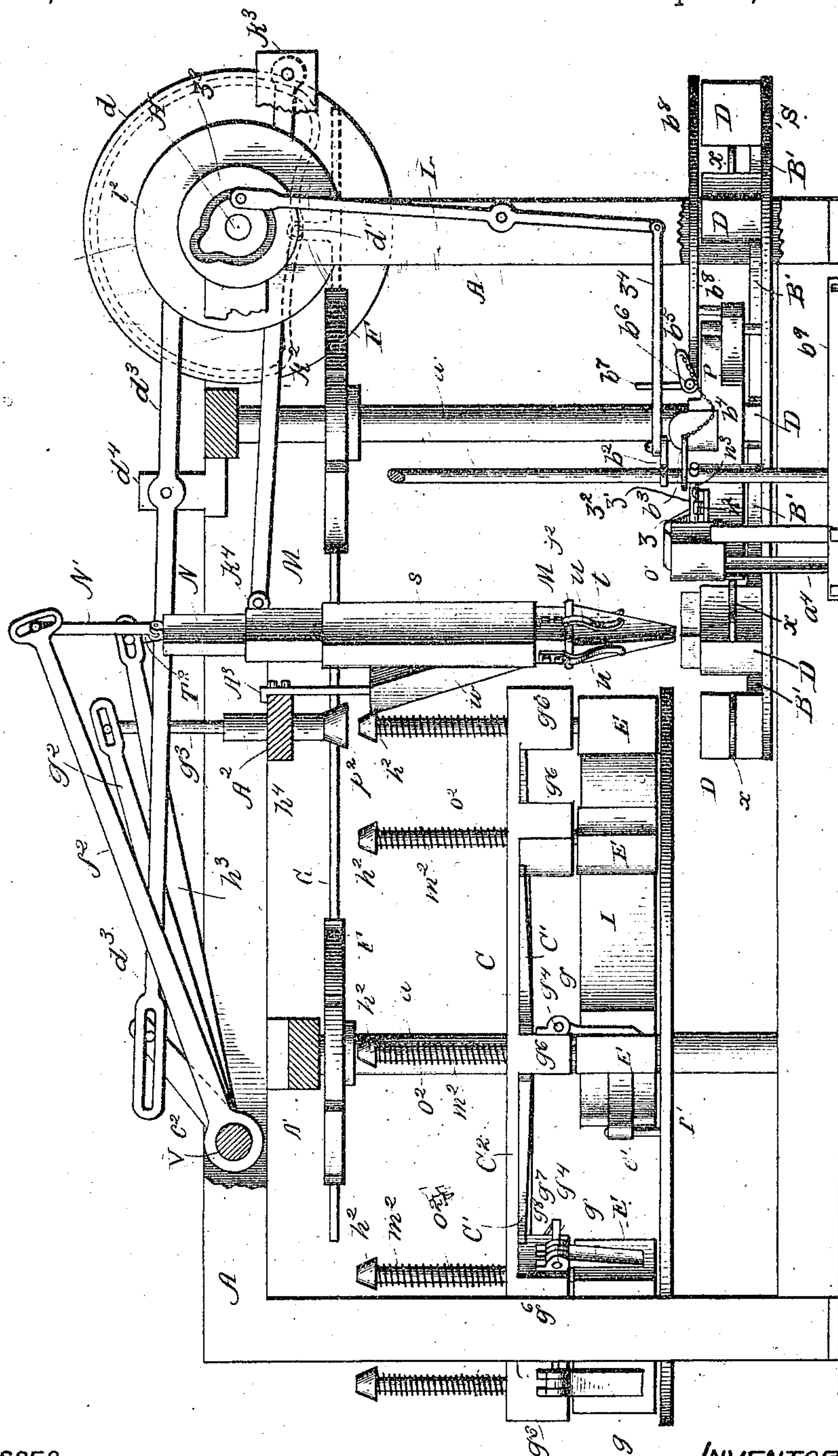
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Fig. 2.



WITNESSES.
Victor J. Evans.
E. B. Olmsted, Jr.

INVENTOR.
Edwin B. Olmsted
by W. A. Redmond
Asso. Atty

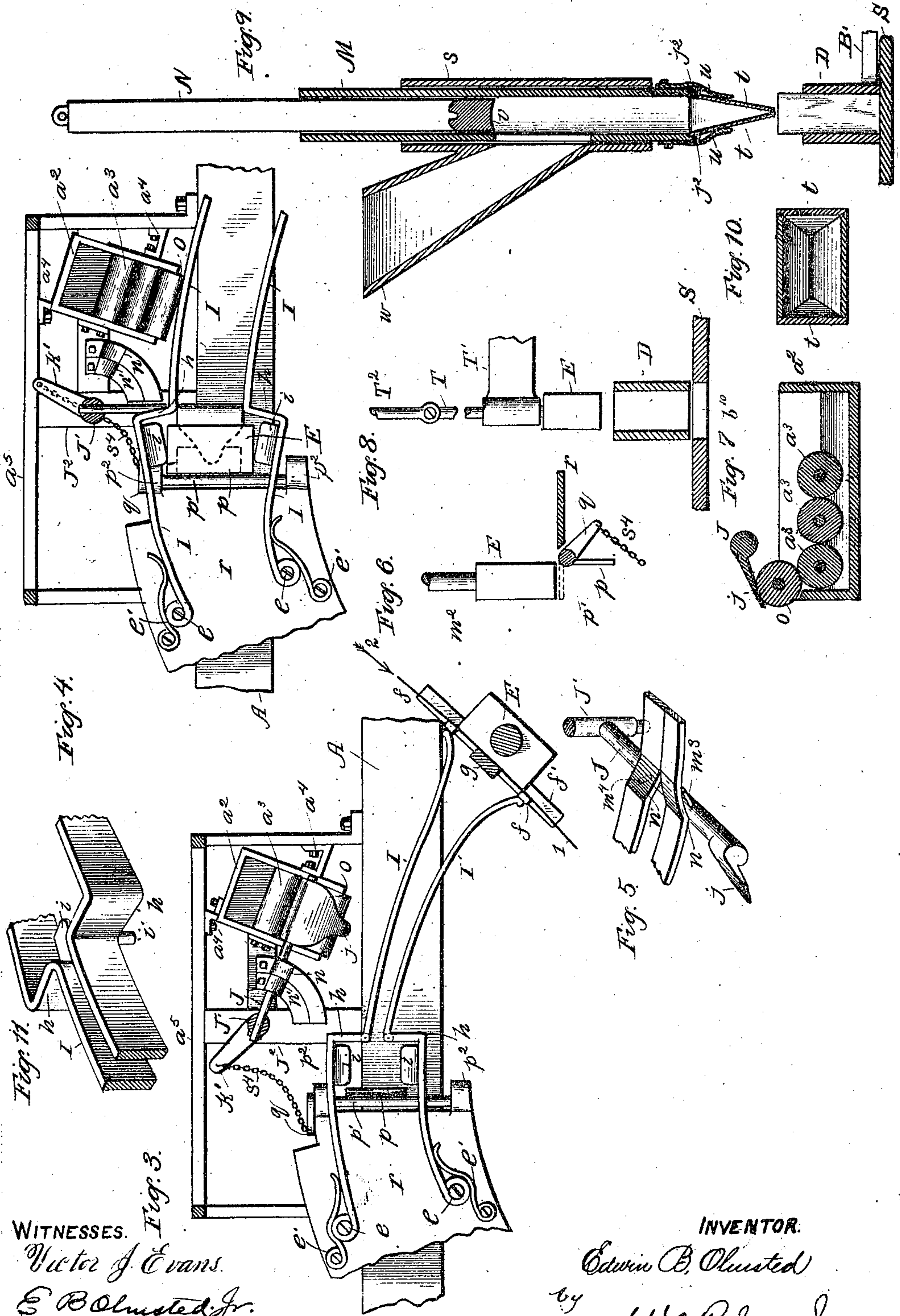
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Victor J. Evans.
E. B. Olmsted, Jr.

INVENTOR.
Edwin B. Olmsted
by W. A. Edmunds
Assoc. Attys.

(No Model.)

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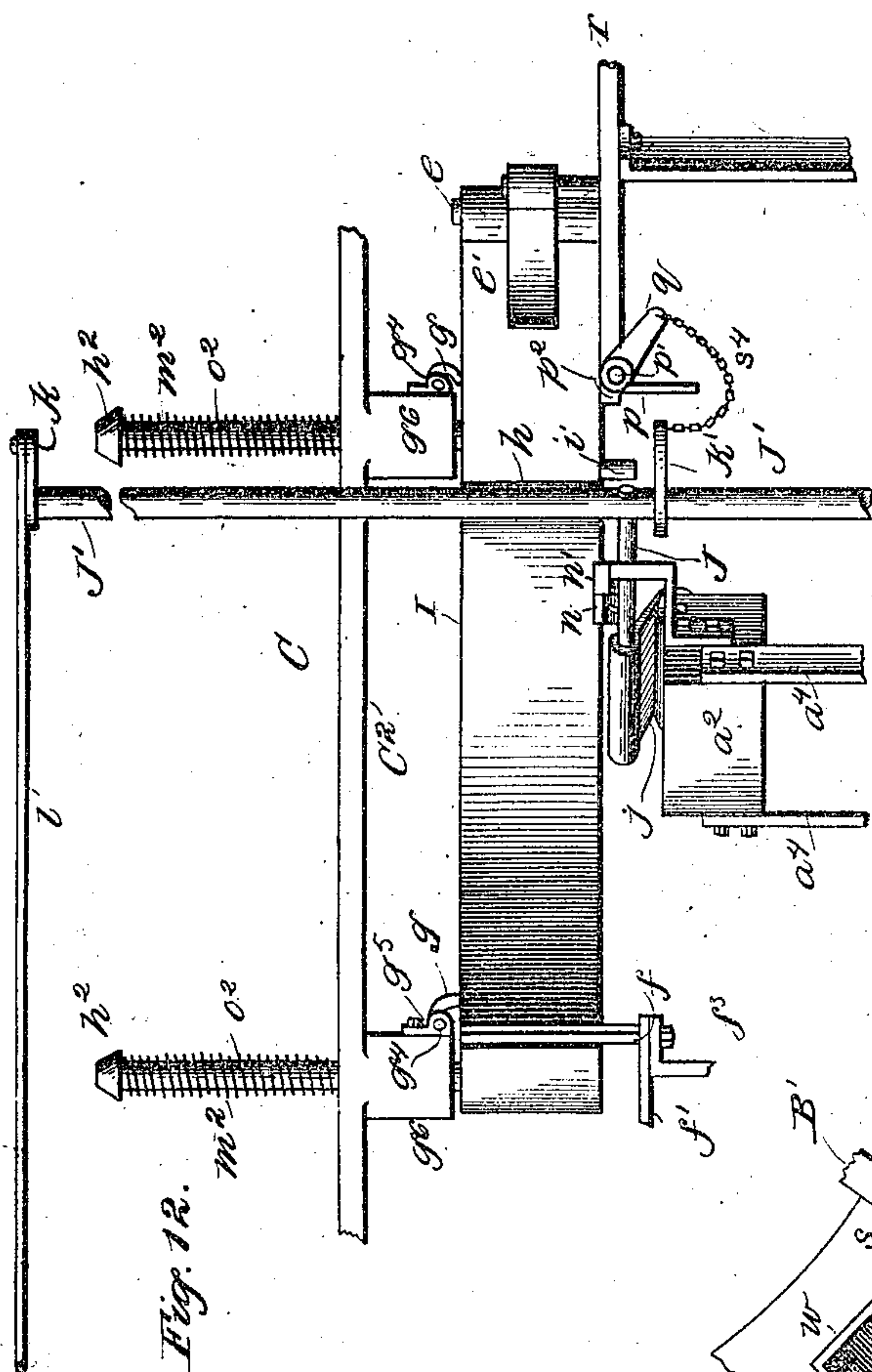


Fig. 12.

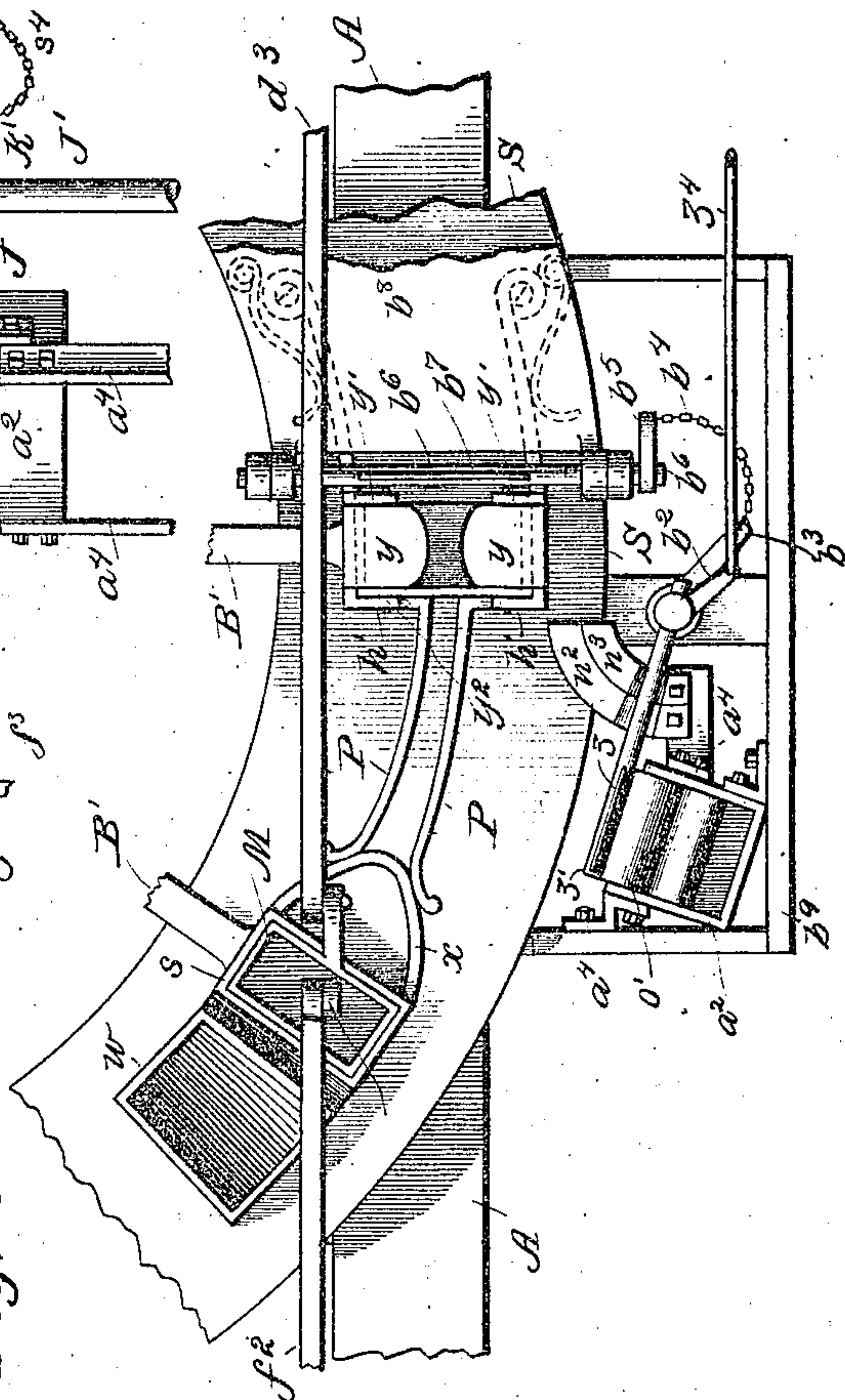


Fig. 13.

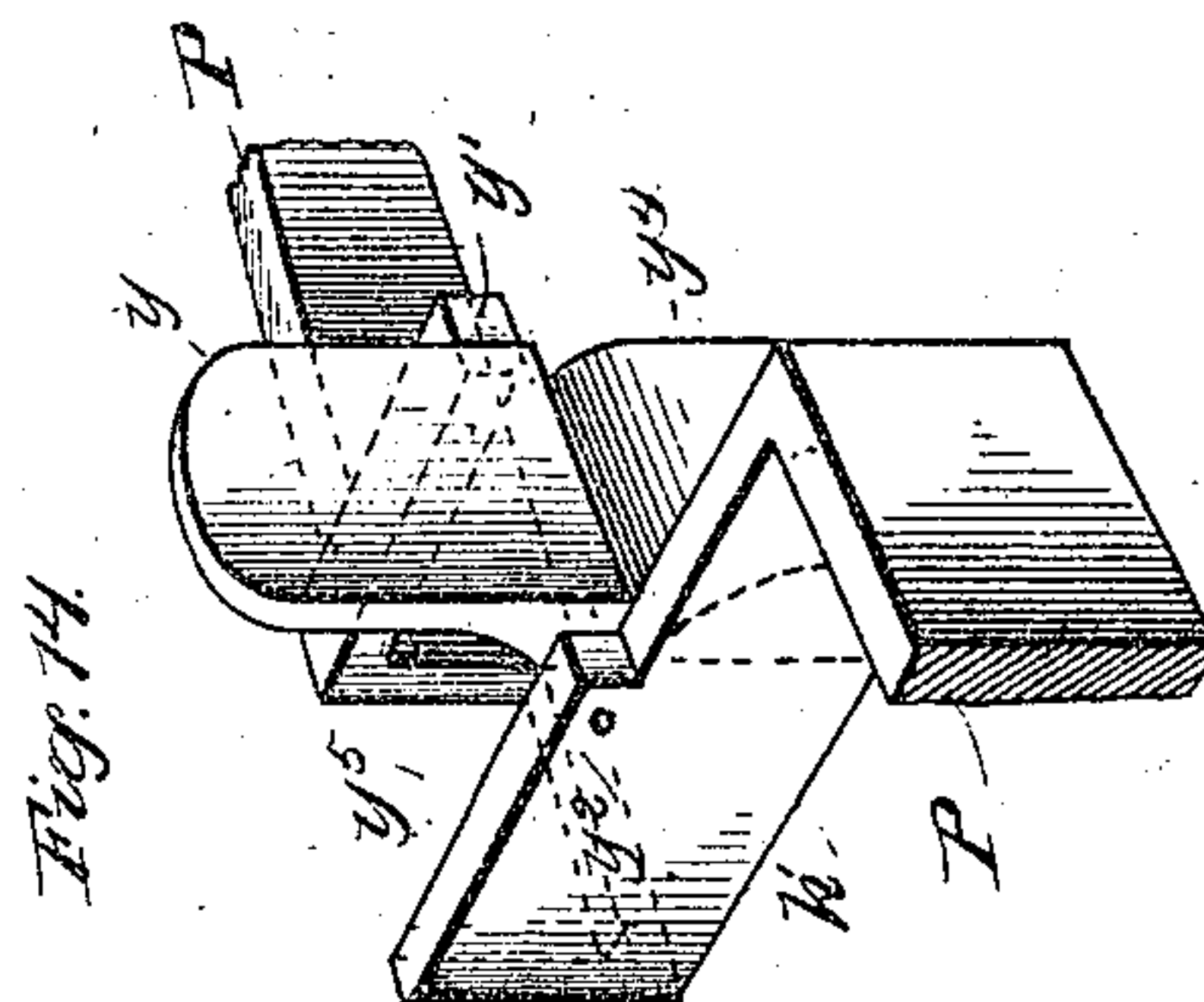


Fig. 14.

WITNESSES:
Victor J. Evans.
E. B. Olmsted, Jr.

INVENTOR.
Edwin B. Olmsted,
by W. A. Redmond
Atty.

UNITED STATES PATENT OFFICE.

EDWIN B. OLMSTED, OF YORKSHIRE CENTRE, NEW YORK.

MACHINE FOR PUTTING UP PACKAGES.

SPECIFICATION forming part of Letters Patent No. 494,688, dated April 4, 1893.

Application filed September 24, 1891. Serial No. 406,709. (No model.)

To all whom it may concern:

Be it known that I, EDWIN B. OLMSTED, of Yorkshire Centre, in the county of Cattaraugus and State of New York, have invented a certain new and useful Improvement in Machines for Putting Up Packages; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this specification.

My invention relates to machines for wrapping and packing dry material, such as tobacco, starch, and the like substances, wherein paper or other flexible material is first formed into open top wrappers of a predetermined size and then filled with the material and the top folded and pasted down thereon, the whole operation of forming the wrappers, filling the same, and folding their tops and delivering the completed package from the machine being performed by the one machine, and the invention consists of the parts and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, Figure 1 is a plan view of my improved machine, a part of the frame work being broken away to show underlying parts; Fig. 2 a side elevation of the same, with the frame partly broken away; Fig. 3 an enlarged detail plan view of the devices for folding the end flaps of the body of the wrapper and making the bottom folds and the co-operating parts, showing the jaws closed; Fig. 4 a similar view showing the jaws open; Fig. 5 an enlarged detail perspective view of the device for operating the swinging folding plates; Fig. 6, a detail view, showing the device for making one of the bottom folds; Fig. 7 a vertical longitudinal section through the pasting device; Fig. 8 a detail view, partly in side elevation and partly in section, showing the means for discharging the package from the machine; Fig. 9 a vertical section of the filling device; Fig. 10 a detail plan view of the plates for the end of the feeding tube; Fig. 11 an enlarged detail perspective view of a portion of the jaws I I; Fig. 12 an enlarged detail view, in side elevation, of a portion of the forming block wheel and the folding devices; Fig. 13 an enlarged detail plan view of a portion of the receptacle wheel and the top folding devices; Fig. 14, an enlarged

detail perspective view of a portion of one of the jaws P.

Similar letters and figures refer to similar parts throughout all the views.

A represents the frame, which may be of any suitable form.

B and C represent horizontal wheels rigidly secured to vertical shafts $a a'$ resting in suitable bearings in the frame. The wheel B consists of a series of spokes B' radiating from the shaft a' on the ends of which are secured or are formed a series of open-ended receptacles D in which the wrappers, properly formed or shaped to receive the material to be packed, are deposited preparatory to being filled, and the wheel C, which consists of the spokes C' radiating from the shaft a and connected with a rim C^2 on the under side of which is secured or formed the downwardly extending projection g^6 , carries a series of forming-blocks E, the construction and arrangement of which will be hereinafter described, corresponding in number to the receptacles, around which the wrapping material is folded or bent to the desired shape preparatory to being deposited in the receptacles.

The forming-block wheel, C, stands or is arranged on its shaft above the plane of the receptacle wheel, B, a distance a little greater than the height of the forming-blocks, and its rim overlaps said wheel, B, a little more than the width of a forming block at the intersection of the wheels.

The wheels are so operated as to move and come to rest simultaneously and the series of forming blocks and the series of receptacles are so arranged relative to each other as to cause the forming blocks to register with the receptacles at the point of intersection of the wheels, so that the former may be forced down and into the latter at the proper time and the wrapper carried thereby, properly formed or shaped to receive the material to be packed, may be deposited in the receptacles to be filled with the material and to have the tops folded and gummed as hereinafter described.

F represents two notched or ratchet wheels secured to the upper ends of the shafts $a a'$ in line with each other and G a horizontal sliding bar arranged at one side of said wheels, F, and supported in suitable guides depending from the cross beams A' said bar being

provided with two pivoted spring held pawls *b* arranged and adapted to engage the notches *c* of the wheels *F*, and thus impart motion simultaneously to said ratchet wheels and through the shafts *a* and *a'* to the wheels *B* and *C*. The notches *c* correspond in number to the forming blocks and receptacles and are sunken in the edges of the wheels and their rear walls are slightly curved so that the pawls may retain their hold therein at the extent of their throw and thus prevent the wheels slipping after the pawls have come to rest at the limit of their movement and so that, on the return movement of the pawls they may slip out of the notch. The rod *G* is operated by a cam wheel *d* secured to the driving shaft *H*, said wheel having an eccentric groove formed in one face in which a pin *d'* on the end of the rod *G* works so that each revolution of said shaft *H* causes a forward throw or movement of the rod and imparts a partial revolution in the same direction to the wheels *B* and *C* and brings the same into the proper positions for the various steps of forming the body of the wrapper, folding the ends, and filling the wrappers, and discharging the completed package.

The devices for attaching the wrapper to the forming block and for folding and gumming the lower end of the same are shown in Figs. 1, 3, 4, 5, 6, 7, 11 and 12.

In Figs. 1, 3, 4, 11, and 12 *I* represents a pair of jaws pivotally secured at their rear ends to studs *e* secured to a fixed plate *r* arranged under the wheel *C*. The jaws *I* are both slightly curved in the same general direction, and their free ends diverge, standing apart at their front ends sufficiently to permit the entrance between them of the forming blocks, and near their rear ends they are formed with off-sets *h*. Bent springs *e'* having one end secured to a pin or stud attached to plate *r* and having their free ends bearing against the jaws *I* serve to hold the jaws normally closed or in the position shown in Figs. 1 and 3. Immediately in front of the free ends of the jaws *I* two upright plates *f* are rigidly secured to a small platform *f'* which is secured to supports *f³* projecting from one of the longitudinal beams of the frame as shown in Figs. 3 and 12, one at each side of the entrance to the jaws, between which plates the forming blocks pass as they enter between the jaws, said plates being so arranged that only sufficient space is left between their contiguous edges for the passage of the blocks. The wrapping material is clamped or held against the face of the forming block by a spring clamp consisting of a tongue *g* (Figs. 2 and 12) pivotally supported through its shaft *g⁴* in lugs *g⁵* secured to the forward face of the downwardly projecting extension *g⁶* of the wheel *C*, one end of said shaft being formed square outside of its bearing in the lugs, as at *g⁷*, and on this square end the free end of a flat spring *g⁸* bears, the other end of said spring being secured in any

desired manner to the inner face of said extension *g⁶*, so as to hold the tongue in its set position, either horizontally up and out of contact with the forming block or downwardly and against the forward face of the block or the paper thereon. The tongue *g* is raised by hand and the wrapping material is inserted or fed to the machine in sheets of the desired size in front of the spreading or free ends of the jaws *I* on the platform *f'* at the point designated by the arrow marked with the numeral 2 in Fig. 1, and also as shown in Fig. 3, where a sheet of paper is shown clamped on the block and marked with the numeral 1 said wrapper being inserted edge-wise and placed on the forward face of the forming block *E*, so that its ends project beyond said block equally at each side thereof in which position it is held by the tongue *g*, which is turned down thereon by hand at the moment the wrapper is inserted, and is carried between the plates *f* and between the jaws *I* at the next movement of the wheel *C*. As the wrapping material is carried between the plates *f* it is bent back on the forming block thereby at each side, thus forming the front and two side walls of the body of the wrapper, and as the block leaves or passes the upright plates and enters between the jaws *I*, forcing the same apart as it progresses therebetween, the side folds or walls of the wrapper are held against the block by said jaws pressing thereagainst. As the wheel continues to move forward the forming block passes the offsets *h* and the jaws instantly close or spring together or toward each other causing the offsets to press the ends of the wrapping material inwardly thus forming the two last folds of the wrapping material around the block and completing the body of the wrapper. One of the offsets closes slightly in advance of the other, owing to the fact that the forming blocks are moved in a circle, which causes the inner end of the block to pass the inner offset slightly in advance of the outer end, thus bending or folding one end of the wrapping material before the other end, so that the latter may overlap the former. At the lower edges of the jaws *I*, adjacent the offsets *h*, I provide two thin horizontal plates *i*, one on each jaw and arranged opposite each other and at a short distance from the offsets so as to leave a space to admit the rear or third side of the bottom, which is subsequently folded by plate *j*, between it and the offset, which plates, when the jaws spring inwardly, bend or fold the ends of the wrapping material in under the lower end of the forming block, thus forming two quarter folds of the bottom of the wrapper. The third fold for the bottom of the wrapper is made by a thin folding plate *j* secured to the end of a short arm *J* which swings in and out. Said plate being formed tapering or wedge-shaped forces the jaws apart as it enters between the short extensions *i'* of said jaws, as shown in Figs. 11 and 12. In Fig. 4 the plate *j* is shown

as having forced the jaws apart and as just passing the offsets *h*.

The arm *J* is loosely secured at one end to a vertical shaft *J'*, having a bearing in a cross beam *J²* of the sub-frame *a⁵*, (Figs. 1, 3, 4, 5 and 12) provided with a crank arm *k* at its upper end, and to the latter is attached a connecting rod *l* (Figs. 1 and 12) said rod being operated by a cam wheel *m* on the driving shaft *H*, through a pin *l'* on the end of the rod which engages an eccentric groove in said cam. The short arm *J* turns axially in its supporting shaft *J'*, the latter also turning axially in its bearing, and said arm *J* is provided with two short pins *m³* *m⁴* (see Fig. 5) which project from said arm at about right angles to each other. Above the arm *J*, as shown in Figs. 1, 3, 5, and 12, are arranged two plates having oppositely inclining cam surfaces *n* and *n'* against which the pins *m³*, *m⁴*, strike alternately during the inward and outward movement of the arm *J*. On the inward movement of arm *J* its pin *m³* coming in contact with the cam surface *n* is turned down or from the vertical to a horizontal position as shown in Fig. 5, thus turning said arm in its bearing in shaft *J'* and bringing the folding plate *j* from a downwardly inclined position to a horizontal position in which position it is carried inwardly to make the third fold of the bottom of the wrapper, and upon the outward movement or return of the arm *J* its pin *m⁴* strikes against cam surface *n'* and is deflected and causes the arm to turn in the opposite direction thus reversing the position of the plate *j* or returning it to a downwardly inclining position in which position it strikes against and is moved over and on the roller *o* of the gummer and the paste is applied to it from contact therewith. The gumming device is arranged to one side and in position to permit of the contact therewith of the plate *j*, and it may be of any suitable kind, that shown, (see Figs. 3, 4, 7 and 12,) being a box *a²* in which are mounted any desired number of rollers *a³* which extend into the paste and at one end of said box the roller *o* is mounted above the other rollers and in contact with the end roller of the series of rollers *a³*. The box is supported by brackets *a⁴* projecting from a sub-frame *a⁵* secured to and projecting from the main frame.

The fourth and last fold of the bottom of the wrapper is made by a folding plate *p* (Figs. 3, 4, 6, and 12) secured to a cross shaft *p'* extending under the jaws *I* and which is adapted to be given a partial revolution as hereinafter described. The shaft *p'* has its bearings in projections *p²* from the plate *r* as shown in said Figs. 3, 4 and 12. After the swinging folder *j* has nearly completed its fold, the third, or has nearly reached the limit of its inward movement and while still moving in under the block the folding plate *p* is turned quickly up bending the paper or other wrapping material to form the fourth and last fold

for the bottom of the wrapper onto the lower surface of the folding plate *j* and is pressed tightly thereagainst during the further inward movement, which is limited, of the said plate *j* and thus, for a limited period, holding the upper surface or inner side of the fourth fold of the wrapper bottom firmly against the paste covered surface of said plate *j*, said paste being thus wiped onto the fold by the inwardly moving plate *j*, and upon the withdrawal of the latter said paste covered side of the fold is left in contact with the outer surface of the third fold, and the folding plate *p* drops back to its normal position, either through force of gravity, or by the use of a torsion spring arranged around its shaft *p'*. The folding plate *p* is operated by means of a chain *s⁴*, (Figs. 1, 3, 4, 6 and 12,) or other suitable connection, between the crank arm *k'* attached to the vertical shaft *J'* and a corresponding crank arm *q* attached to the shaft *p'* of the folding plate *p*. In order to permit of the folding plate *j* moving inwardly nearly the full extent of its throw before the folding plate *p* is brought into operation the connecting chain *s⁴* is made sufficiently long to remain slack during the greater part of the movement of said plate *j* and the crank arm *k'* is of a greater length than crank arm *q*, so that instantly upon the tightening of the chain the folding plate *p* is brought quickly up to make the last fold, bending the wrapping material firmly against the paste covered under surface of plate *j*.

The mechanism above described accomplishes the bending of the wrapping material bodily around the forming block and the folding and gumming of the bottom end of the wrapper, and produces an open-topped wrapper ready to be filled, which is carried around by the wheel *C* to the point of its intersection with wheel *B* with its bottom end in contact with a fixed plate *r* secured to the frame immediately under said wheel *C*, said plate beginning or extending from a point in rear of the shaft *p'* of the folding plate *p* about two-thirds the whole distance around the wheel and terminating at the point of intersection of the wheels where the wrappers are deposited in the receptacles *D* of wheel *B*, as indicated at *r²*, but said plate may terminate nearer the free ends of the jaws and an opening be formed therein at the point where the wrapper is to be deposited in the receptacle wheel, if desired. Owing to this construction and arrangement the folded bottom end of the wrapper is held in close contact with the plate *r* and the bottom of the forming block sufficiently long to enable the paste to dry hard enough to hold the folds together so that when it arrives at the point where it is to be deposited in the receptacle wheel it will retain the shape given it by the folding plates and forming blocks.

After the wrapper is deposited in the receptacle *D*, by means which will be hereinafter described, one movement of the wheel *B*

brings the receptacle containing the wrapper under the filling apparatus. This consists of a tube M, Figs. 1, 2, and 9, arranged in a socket bearings, supported from a cross beam A^2 of the frame of the machine, by a depending bar or bracket A^3 , see Fig. 2, so as to move freely up and down therein, and in the tube M a plunger N having a concave lower end or head v is inserted so as to have free vertical movement therein. At the lower end of the tube M are hinged, as at j^2 , four plates t adapted to swing outwardly and to meet at their lower edges or free ends when closed by the springs u , which are secured to the sides of the tube M and bear against the outer sides of the plates t . These plates taper on their edges toward their lower ends so as to form, when closed, a tapering point for the tube. At one side of the socket s an opening is formed over which is fitted and secured the discharge end of a hopper w through which the material is fed to the interior of the tube M and under the plunger head v through an opening in the side of said tube, as clearly shown in Fig. 9.

The operation of the feeding and packing device is as follows: After the desired quantity of material is fed into the tube, said tube moves downward, cutting off the delivery of the material, and forces its pointed end into the open ended wrapper resting in its receptacle thereunder, said tube being so adjusted that its pointed end will reach nearly to the bottom of the wrapper before it comes to rest. The plunger N then descends forcing the material contained in the tube into the wrapper and at the same time expanding or forcing outwardly the lower ends of the plates t against the four sides of the wrapper, straightening the same and insuring the proper filling of the wrapper. The tube M is then withdrawn from the wrapper, the plates t being thereby drawn out vertically therefrom, while the plunger N remains therein resting on top of the material pressing it down, and preventing it from being drawn out with the tube or its end plates t . After the tube has been withdrawn the plunger rises to its normal position in readiness to be again operated. This fills the wrapper with the material and packs the same therein and the next movement of the wheel brings the filled wrapper into position for folding and gumming its top. The devices for accomplishing this are shown at the bottom and to the right in Figs. 1 and 2, and in the enlarged detail views, Figs. 13 and 14.

The devices for folding and gumming the top are substantially similar to those already described for folding and gumming the bottom, except that instead of the horizontal plates i which make the first folds for the bottom, I use swinging plates y to make the corresponding folds for the top of the wrapper. Referring to Figs. 1, 2, 13 and 14 of the drawings P represents spring jaws, arranged in a manner similar to the jaws I, and secured

to posts or studs projecting from a plate S, between which the receptacles D containing the filled wrappers are carried, said receptacles having wings x secured to their forward faces to force apart the jaws and permit of the easy entrance of said receptacles therebetween. The jaws P are formed or provided with offsets h' , similar to the offsets h of jaws I, in order to permit of the necessary inward movement of the jaws to operate the swinging folding plates y which make the first folds for the top of the wrapper. These plates, y , are hinged or pivoted at one side edge to projections y' which are secured to the upper edges of the rear portion of the jaws P and at the other side to projections y^2 formed on the upper edges of the offsets h' as best shown in Fig. 14, said plates y being pivoted at a point about the center of their lengths and having their lower ends formed or provided with extensions y^3 which are of greater thickness than the plates, proper, and which act as counterbalances therefor, the front or inner sides of the extensions being curved or rounded off as indicated in both solid and dotted lines, Fig. 14, at y^4 , so that the said front sides of the extensions project beyond the plane of the front faces of the plates, proper, and as the receptacles pass the offsets they will strike against said front sides of the extensions and force the latter outwardly. As the receptacles wholly or bodily pass the offsets the spring jaws P immediately spring inwardly or toward each other and close upon the receptacles within the offsets, thereby causing the extensions y^3 to be brought with considerable force against the end walls of the receptacles thus swinging the same outward and raising them to a horizontal position and swinging the plates y quickly inward and down onto the wrapping material at the ends and bending the same inwardly and down on the top of the material contained in the wrapper to make the first folds for the top of the wrapper. The jaws P are cut away, as at y^5 , to permit of the plates being turned on their pivots, and after the receptacles pass on the weight of the extensions y^3 serves to return the plates to a vertical position in readiness to be operated to fold the ends of the next wrapper. The last two folds of the top of the wrapper and the pasting or gumming of the same are made by a plate z secured to a horizontally swinging shaft z' carried by and turning axially in a vertical shaft z^2 operated by a cam wheel z^3 on the driving shaft H through a rock lever L and a connecting rod z^4 loosely attached to the lower end of said rock lever and to a crank arm b^2 of shaft z^2 , and a crank arm b^3 secured to said shaft z^2 is connected by a chain b^4 to a crank arm b^5 of a horizontal shaft b^6 pivotally mounted in the end of a plate b^8 to which shaft is secured a plate b^7 for making the last of the folds, the operation and construction of these parts being similar to the parts for making the corresponding folds of the bottom of the wrapper

excepting that plate b^7 turns down instead of up to make the folds, and a sub-frame b^9 is arranged on the main frame to support the parts similar to sub-frame a^5 .

5 The gumming device having a roller o' is arranged adjacent the top folding mechanism, in position to be struck by plate z , as shown in Figs. 1 and 13, and cam plates n^2 and n^3 similar to cam plates n similar to those shown in Fig. 6, are arranged under the horizontal shaft z' , against which pins, similar to pins m^3 m^4 , strike to turn the shaft and operate the plate in the proper manner to make the fold and apply the paste, the operation being in all respects, except as noted, similar to the operation of the corresponding parts of the devices which fold and gum the bottom end of the wrapper. The wrapper thus filled and sealed at both ends forms a rectangular package which is carried around to the point of discharge from the machine by the receptacle wheel B, during which movement the upper end of the package is held in contact with a fixed plate b^8 secured in the frame above the receptacle wheel B and its bottom end rests on a fixed plate S arranged under said wheel, so that the sealed ends of the package are held firmly until they reach the point of discharge and the paste is thus given ample time to harden or dry and fix the end folds together.

The point of discharge for the packages is at the last station or point of rest of the wheel B before reaching the point where the wrapper is deposited therein at the intersection of the wheels and is indicated by an arrow marked with the numeral 3 in Fig. 1, at which point the plate b^8 terminates, and the under plate S is formed with an opening b^{10} see Fig. 8, through which the package passes when forced out of the receptacle. This is accomplished by a plunger rod T, Figs. 1 and 8 slidably mounted in a guide or support T' of the frame and operated by any suitable means, as may be also the plunger N, the feeding tube M, and the forming blocks E. I have shown a simple and effective arrangement of levers or rock arms with a shaft for operating these parts and will hereinafter describe the same.

The forming blocks E are secured to the lower ends of rods m^2 which extend through the rim of wheel C and have formed on or secured to their upper ends cone shaped heads h^2 said rods with the blocks thereon being held up by spiral springs o^2 which surround them as shown in Figs. 2 and 12.

The means which I show for operating the forming blocks, and the plungers, consists of a rock shaft V mounted in the upper part of the frame above the wheel C and operated from the driving shaft H by a rock lever d^3 suitably pivoted to a support d^4 from the frame and connected through a slot in its end with the pin of a crank arm c^2 secured to said shaft V and vibrated by a cam d^2 on the driving shaft H which is formed with an eccen-

tric groove into which a pin on the lever d^3 takes. A crank arm g^2 , secured to the rock shaft V, is connected through a slot in its free end to the upper end of a vertical rod g^3 , passing through tubular guides h^4 secured in a cross beam A^2 of the main frame, which carries a cone shaped socket p^2 at its lower end adapted to fit over the heads h^2 of the rods m^2 of the forming blocks when the crank arm g^2 is depressed and thus force the forming block with the wrapper thereon down into the receptacle which lies beneath the same in wheel B and upon the arm g^2 rising the spring o^2 will throw or raise the forming block upwardly leaving the wrapper in the receptacle. A crank arm f^2 similarly secured to the rock shaft V is connected through a slot at its free end to a pin on the upper end of a rod N' which is loosely connected to the plunger N and raises and lowers the same at the proper time, and another arm h^3 secured to the rock shaft and connected to the upper end of the plunger T through a short rod T² (see Fig. 8) operates the latter to effect the discharge of the filled and sealed packages. The feeding tube M is operated directly from the driving shaft H by cam wheel l^2 thereon which vibrates a rock arm k^2 , pivoted at one end to a bracket k^3 and at its other end to a lug k^4 on the feeding tube, said rock arm k^2 having a pin k^5 , as shown in dotted lines Fig. 1, which engages an eccentric groove in the cam wheel.

It is evident that many minor changes may be made in the construction of the machine without departing from the spirit and scope of my invention and I do not, therefore, desire to be limited to the exact construction of the parts and arrangement of the same as herein described. It is also obvious that the wheels B and C may be simultaneously intermittently rotated in opposite directions, or toward each other instead of away from each other, and the same result obtained, by a mere transposition of the parts to correspond and the employment of a sliding rod G and pawl b for each wheel instead of one rod carrying two pawls as hereinbefore described, said rods in this event being arranged at opposite sides of the ratchet wheels.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrapping and packing machine, the combination, of a wheel carrying a series of vertically movable forming blocks, a wheel carrying a corresponding series of receptacles, said wheels being supported at different horizontal planes, and the first named wheel overlapping the last named wheel, means for imparting intermittent motion simultaneously to said wheels, folding devices operating to wrap blanks on said forming blocks as said blocks are carried around, and mechanism for vertically operating each of said forming blocks once during each revolution of said wheels, substantially as described.

2. In a wrapping and packing machine, the combination, of a wheel carrying a series of vertically movable forming blocks, springs for holding said blocks in their normal positions, 5 folding devices for wrapping blanks on said forming blocks as they are carried around, a wheel provided or formed with a corresponding series of receptacles, said wheels being arranged at different planes and the first named 10 wheel overlapping the last named wheel, means for imparting a partial revolution to said wheels simultaneously, and a plunger adapted to descend and depress each of said forming blocks once during each revolution 15 of said wheels, substantially as described.

3. In a wrapping and packing machine, the combination, with a forming block, and a clamp for holding the wrapping material against said block, of spring jaws adapted to 20 receive the block between them and serve to hold the wrapping material against the sides of the block, said jaws being provided or formed with offsets adapted to bend and lap the end flaps of the wrapping material to form 25 the last body fold around the block as the latter passes said offsets, substantially as described.

4. In a wrapping and packing machine, the combination, with a forming block, and a 30 clamp for holding the extended wrapping material thereon, of spring jaws between which the forming block passes, said jaws being provided with offsets for making the side folds on the block, two folding plates attached to 35 said jaws and moving inward to make two end folds of the wrapping material at the bottom at one action, a swinging plate for forming the third fold for the bottom, and a turning plate for forming the fourth fold of the bottom, all 40 acting in succession, as herein set forth.

5. In a wrapping and packing machine, the combination with a forming block around which the wrapping material is bent or folded, 45 of a device for folding the third flap of the bottom, consisting of an arm with a folding plate swinging in the arc of a circle to make the fold, said arm turning axially in its supporting shaft on its return movement, and a pasting roller arranged to be struck by said 50 plate on its return movement, as specified.

6. In a wrapping and packing machine, the combination, with a forming block around which the wrapping material is bent or folded, 55 of two spring operated folding plates for making the two first folds for the bottom of the wrapper, a swinging plate for making the third fold, and a turning plate for making the last fold, as herein shown and described.

7. In a wrapping and packing machine, the 60 combination, with a movable open ended receptacle in which the wrapper is deposited, of spring jaws, which close upon the receptacle, and folding plates pivoted to the jaws and provided or formed with extensions adapted 65 to be struck by the receptacle when the jaws move toward each other to turn the plates on

their pivots to make the two first folds for the top of the wrapper, as set forth.

8. In a wrapping and packing machine, the combination, of a series of movable recepta- 70 cles, a corresponding series of movable forming blocks standing at a higher level, a set of folding devices for bending or folding the wrapping material on the blocks and folding devices for folding the bottom of the wrapper, 75 means for depositing the formed wrapper in the receptacles, a filling device for filling the wrapper after it has been deposited in the receptacles, a set of folding devices for folding 80 the top of the filled wrapper, and means for discharging the package from the receptacles, as hereinbefore described.

9. In a wrapping and packing machine, the combination, with a receptacle containing the open-topped wrapper, of a filling device, con- 85 sisting of a stationary hopper, a socket bearing secured thereto, a vertically movable tube having an opening in its side and a normally closed pivoted lower end which enters the wrapper, and a movable plunger inside the 90 tube for forcing the material down through the tube and opening the end thereof, as herein set forth.

10. In a wrapping and packing machine, the combination, with a receptacle containing an 95 open topped package, of a vertically movable tube provided with a normally closed pointed lower end, consisting of plates capable of swinging outward, a movable plunger inside the tube, means for vertically reciprocating 100 said tube, and means for vertically reciprocating the plunger, whereby the tube first descends and its end enters the wrapper, the plunger then descends forcing the material into the wrapper and opening the end of the 105 tube, the tube then rises withdrawing the plates, and the plunger then rises freeing the filled wrapper, as set forth.

11. In a wrapping and packing machine, the combination, with a series of movable forming 110 blocks on which the sides and bottoms of the wrappers are formed, and a corresponding series of movable receptacles in which the wrappers are deposited, of a plate, fitted closely under and extending around the greater part 115 of the travel of the forming blocks, for holding the folded lower ends of the wrappers closely thereto, and a corresponding plate fitted closely under the receptacles on which the wrappers are moved and a corresponding 120 plate over the top of the receptacles and extending around the greater part of their travel for holding the folded upper ends of the finished packages, as herein shown and de- 125 scribed.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

E. B. OLMSTED.

Witnesses:

R. F. OSGOOD,
P. A. COSTICH.