

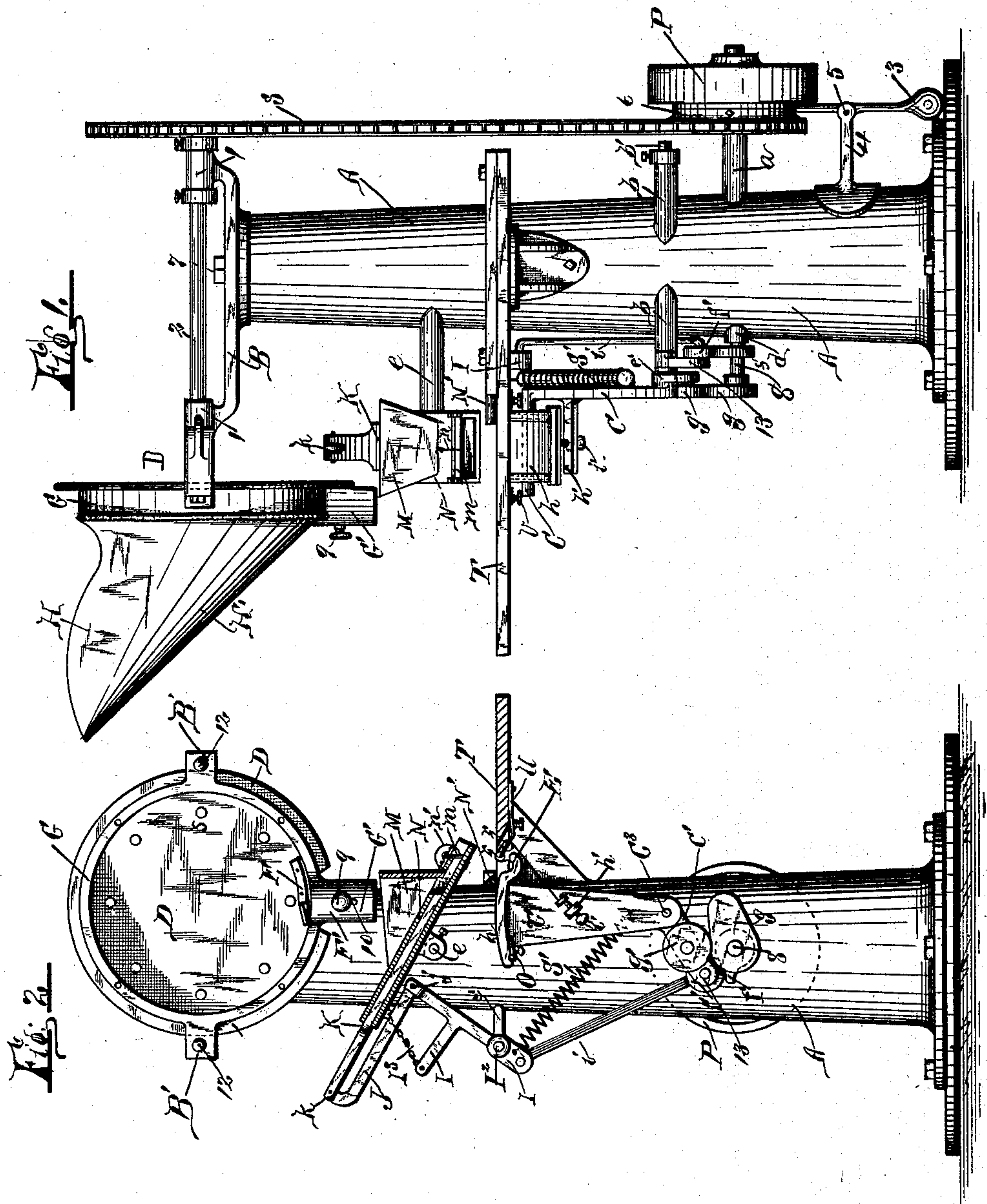
(No Model.)

3 Sheets—Sheet 1.

J. W. COUGHTRY.
CIGAR BUNCHING MACHINE.

No. 410,268.

Patented Sept. 3, 1889.



Witnesses

E. J. Tomlinson.
M. Parsons.

Inventor

John W. Coughtry
By his Attorneys *Key & Gibbs.*

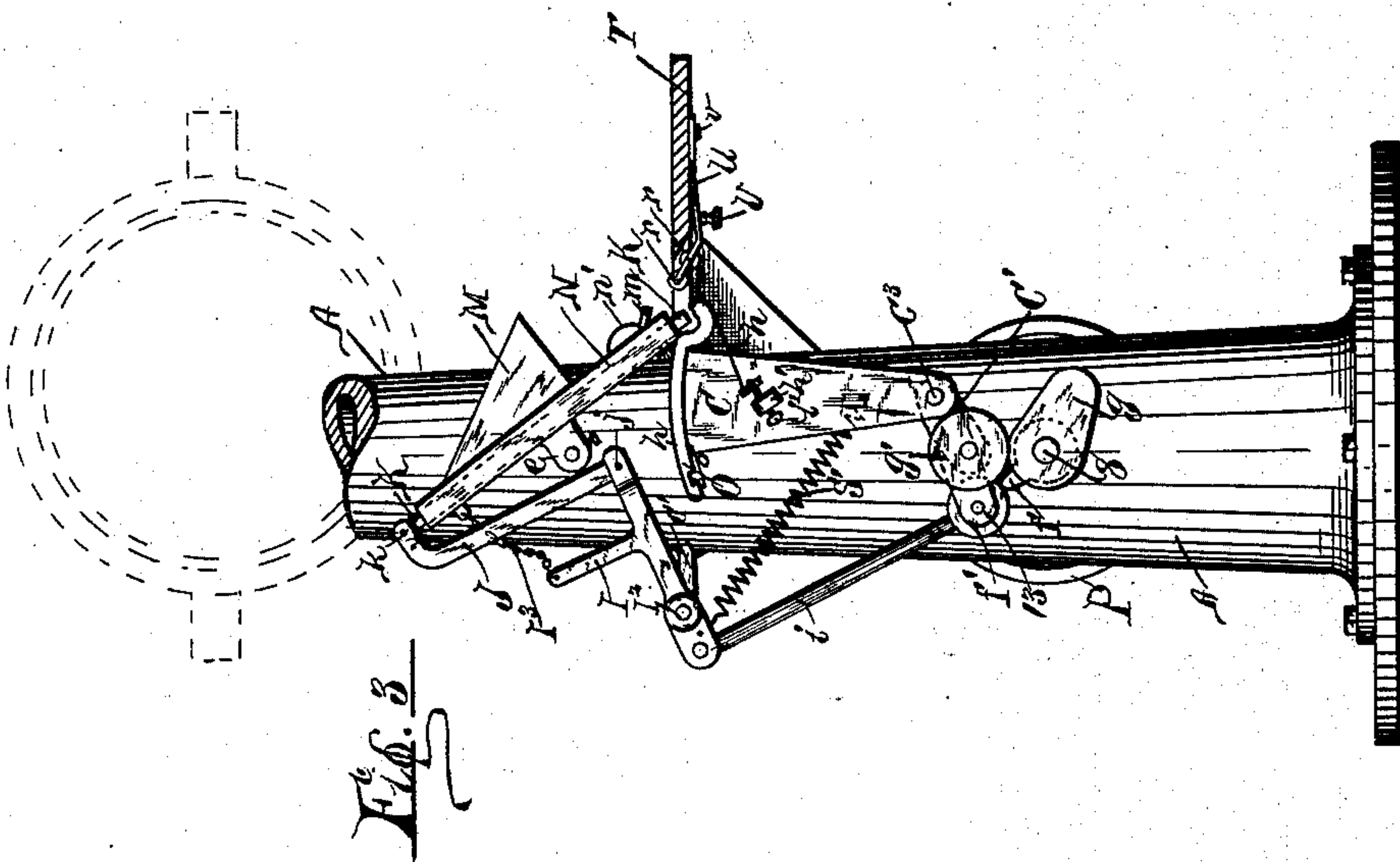
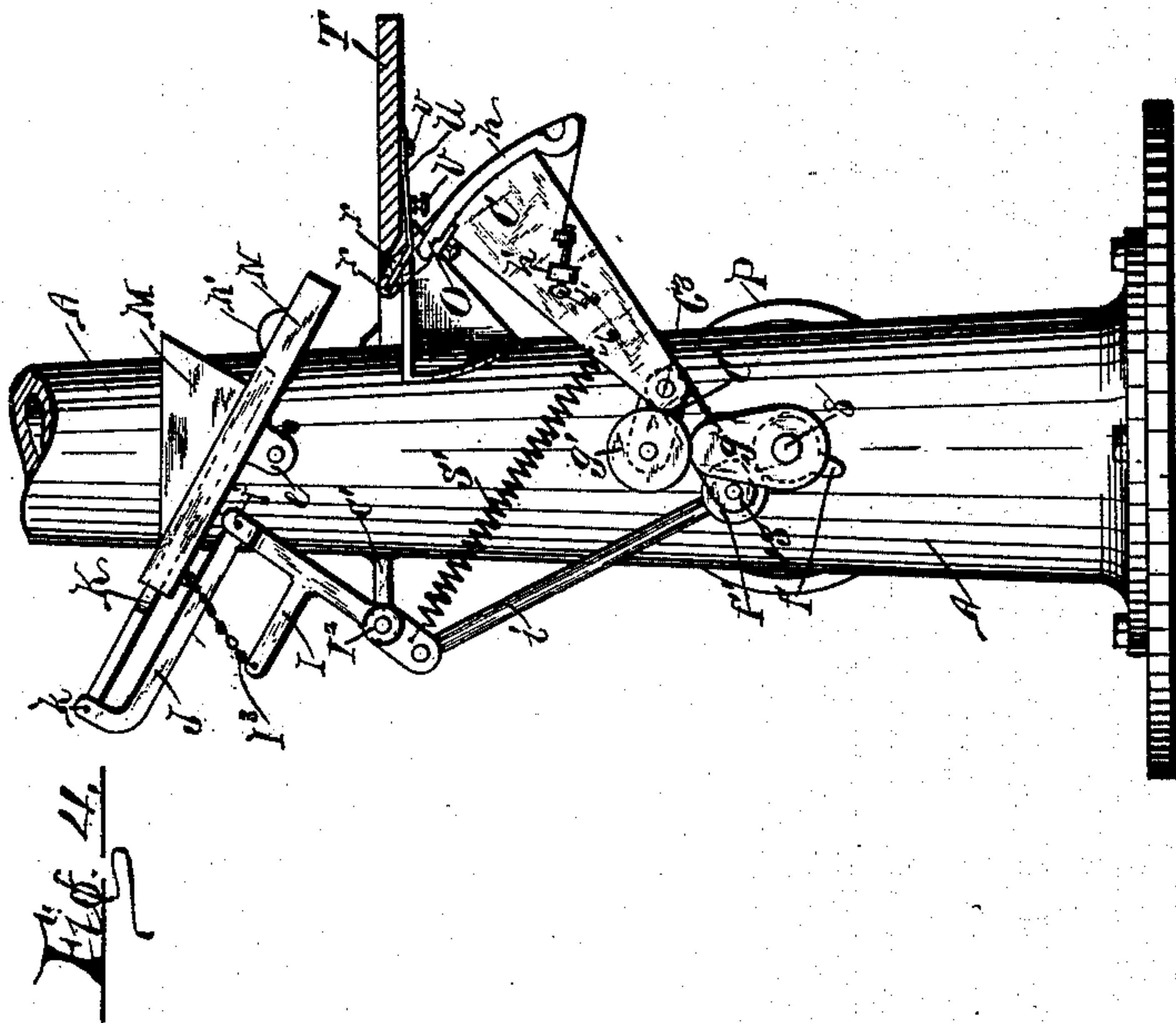
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3 Sheets—Sheet 2.

J. W. COUGHTRY.
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No. 410,268.

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Witnesses

E. J. Tomlinson.
M. Parsons.

Inventor
John W. Coughtry
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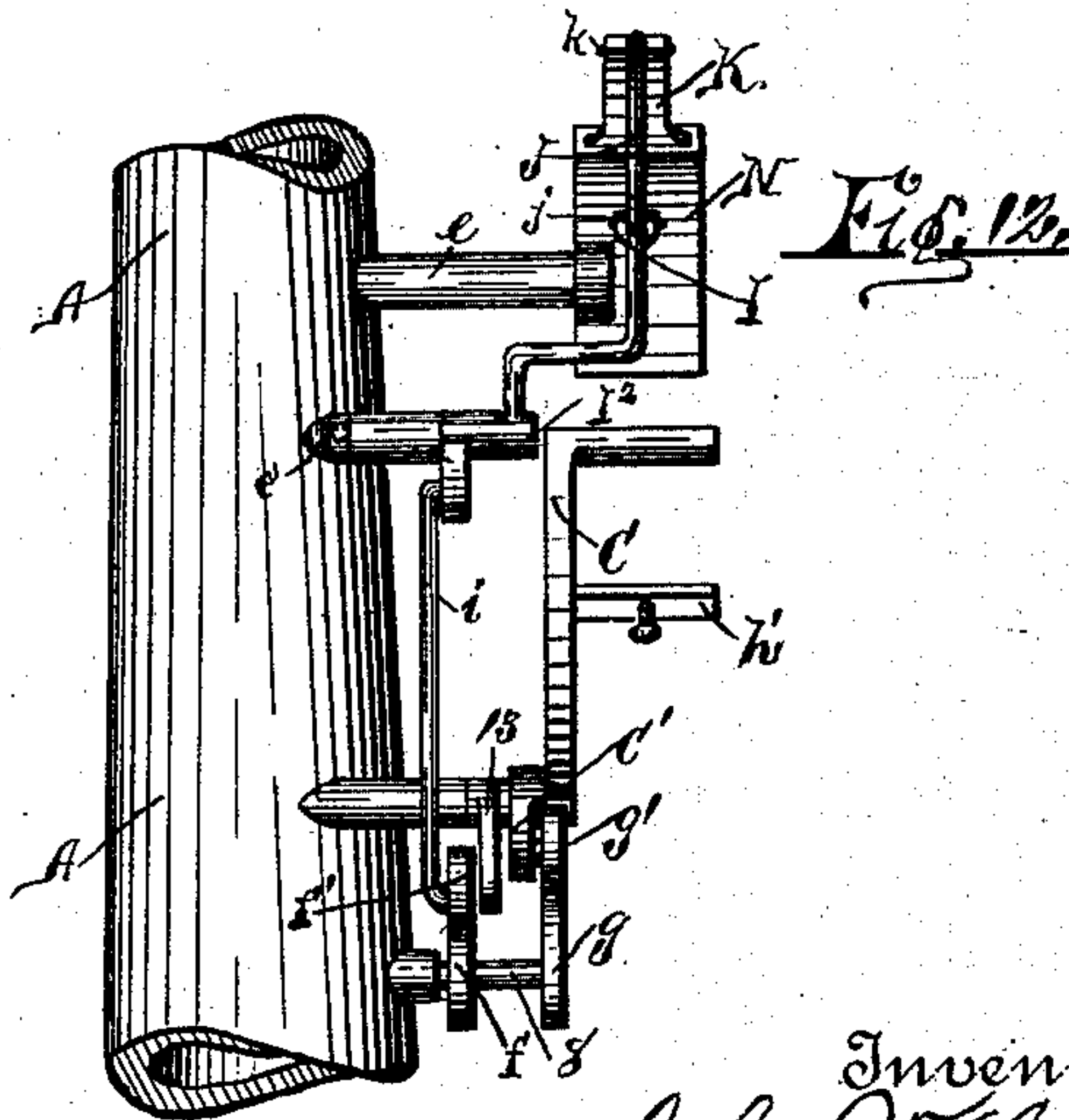
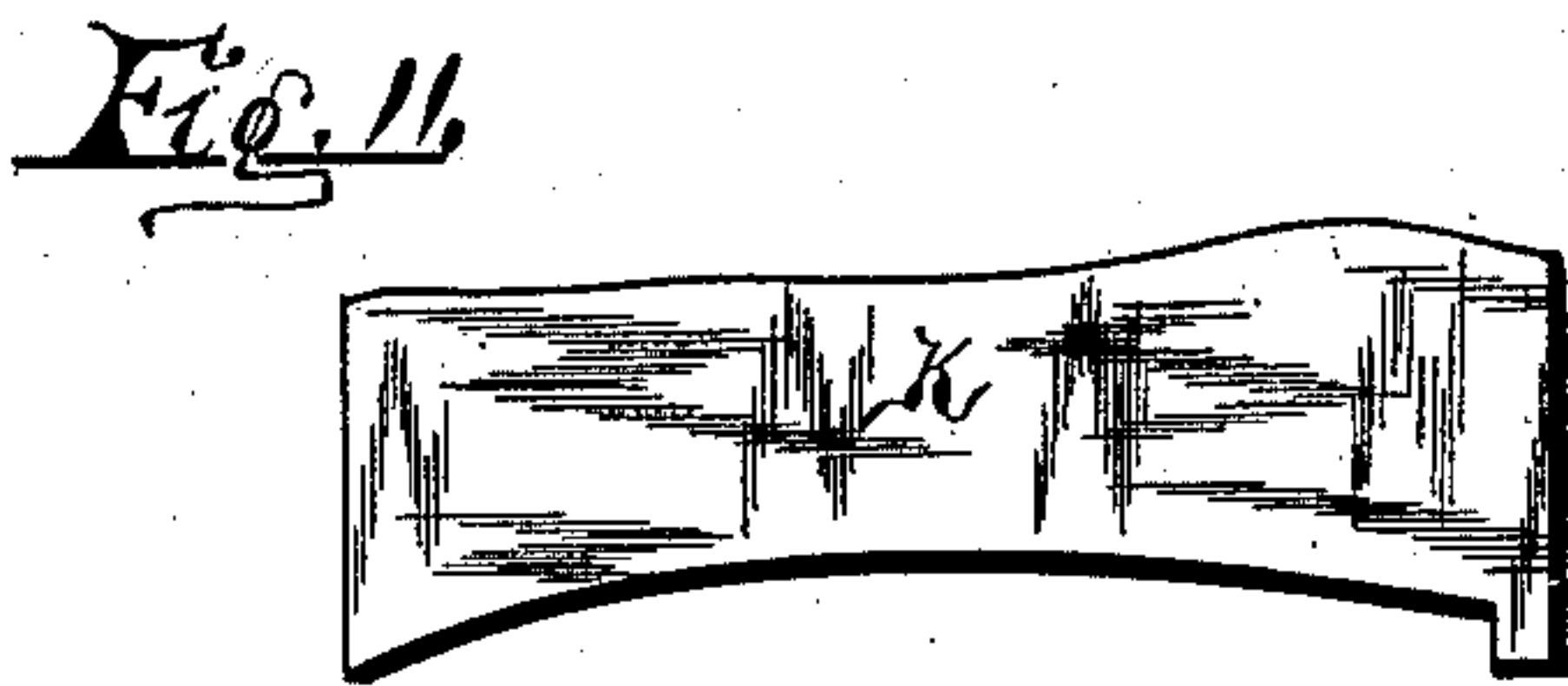
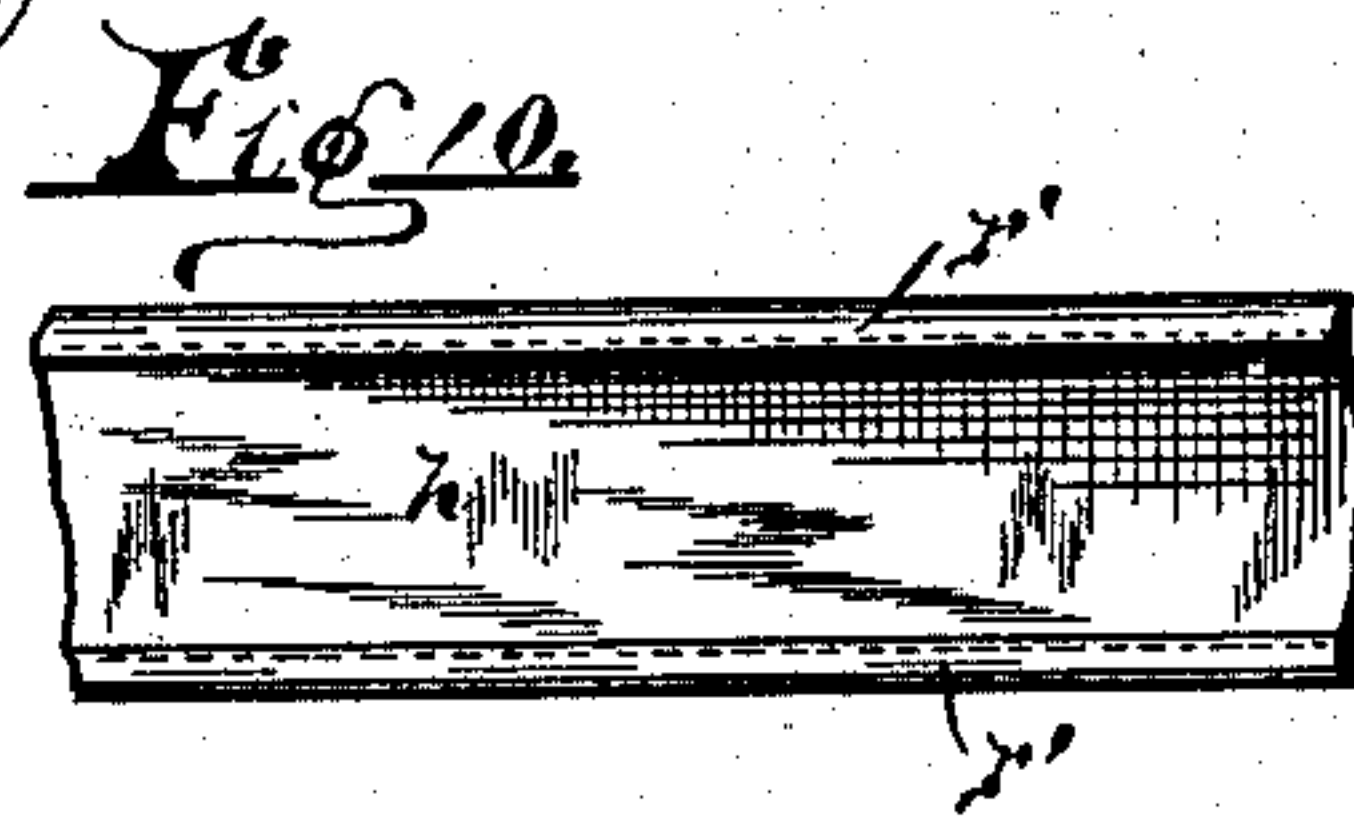
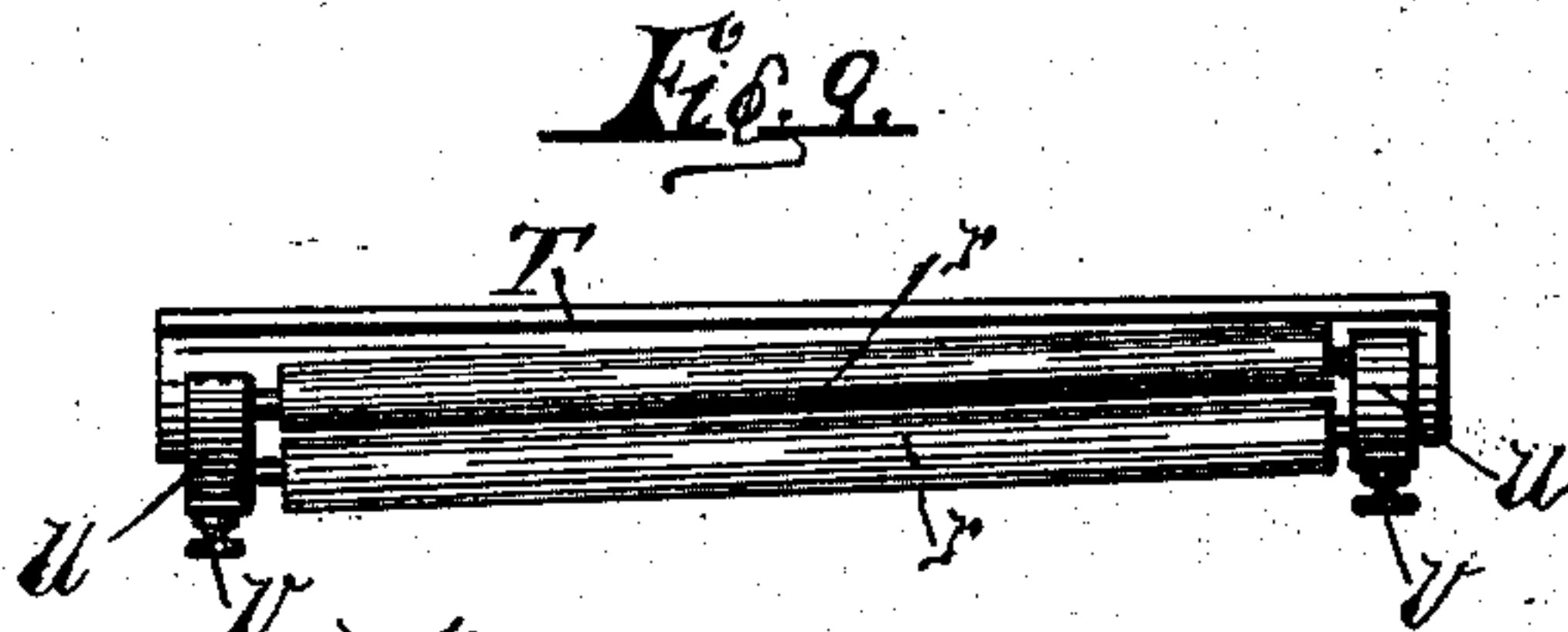
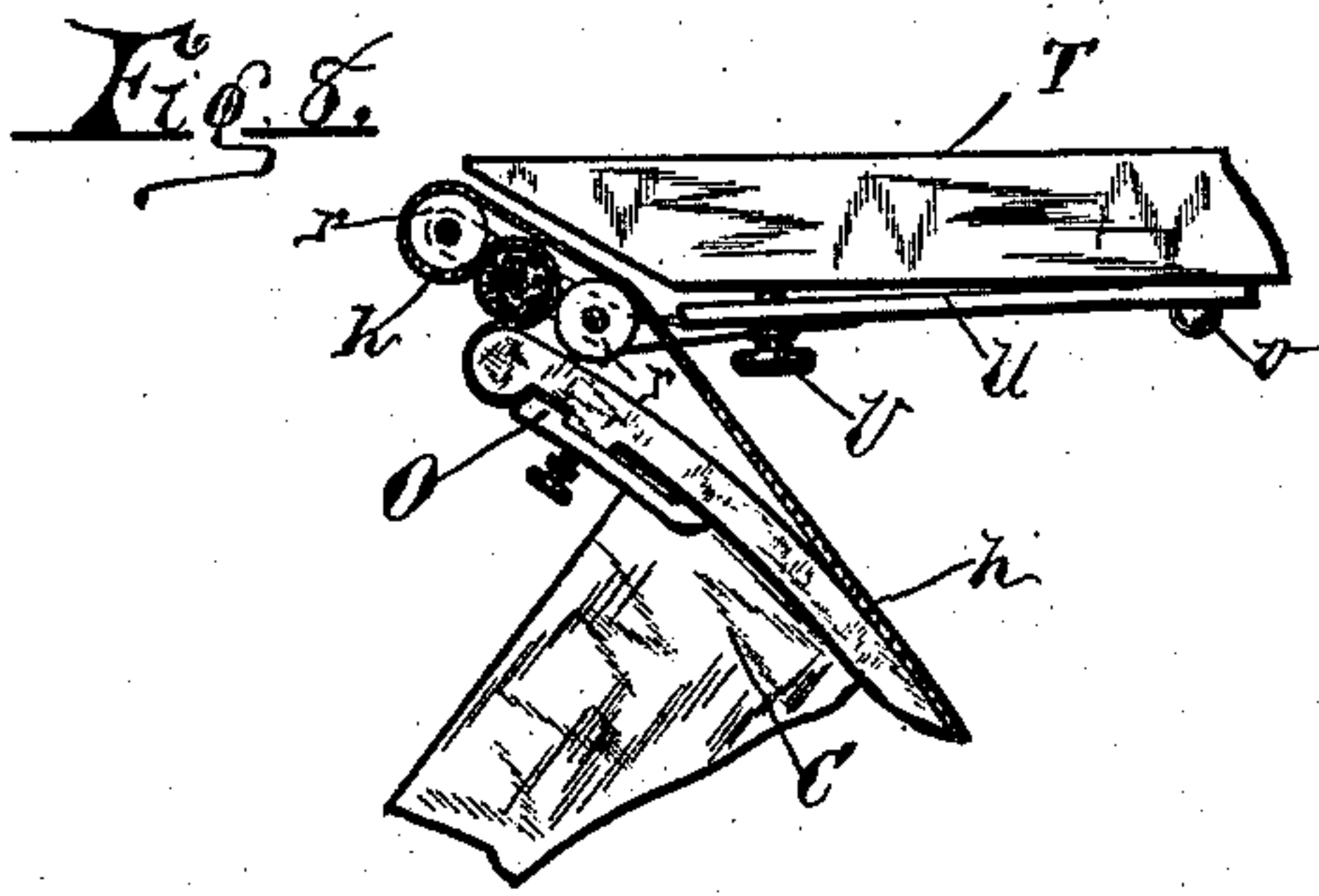
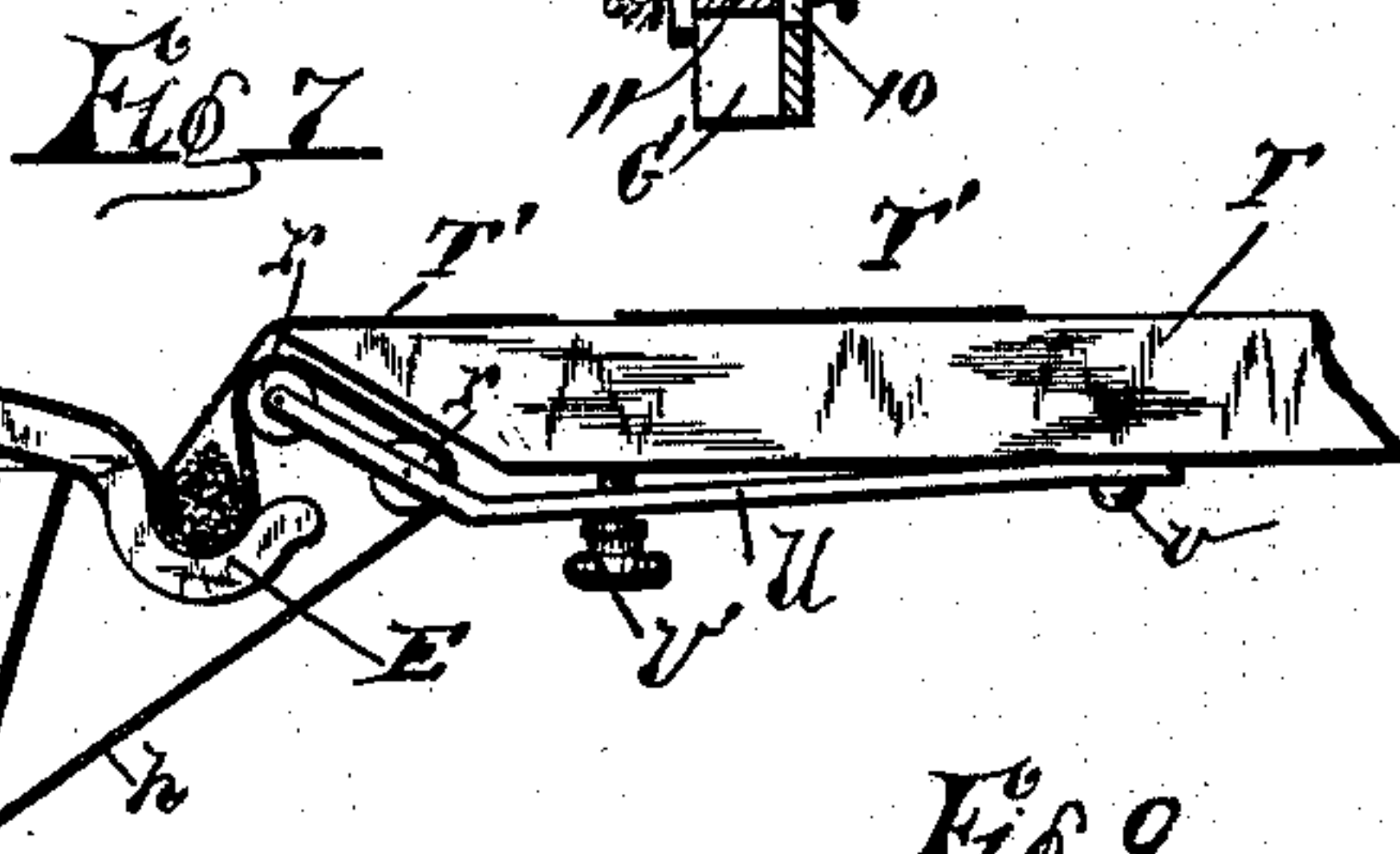
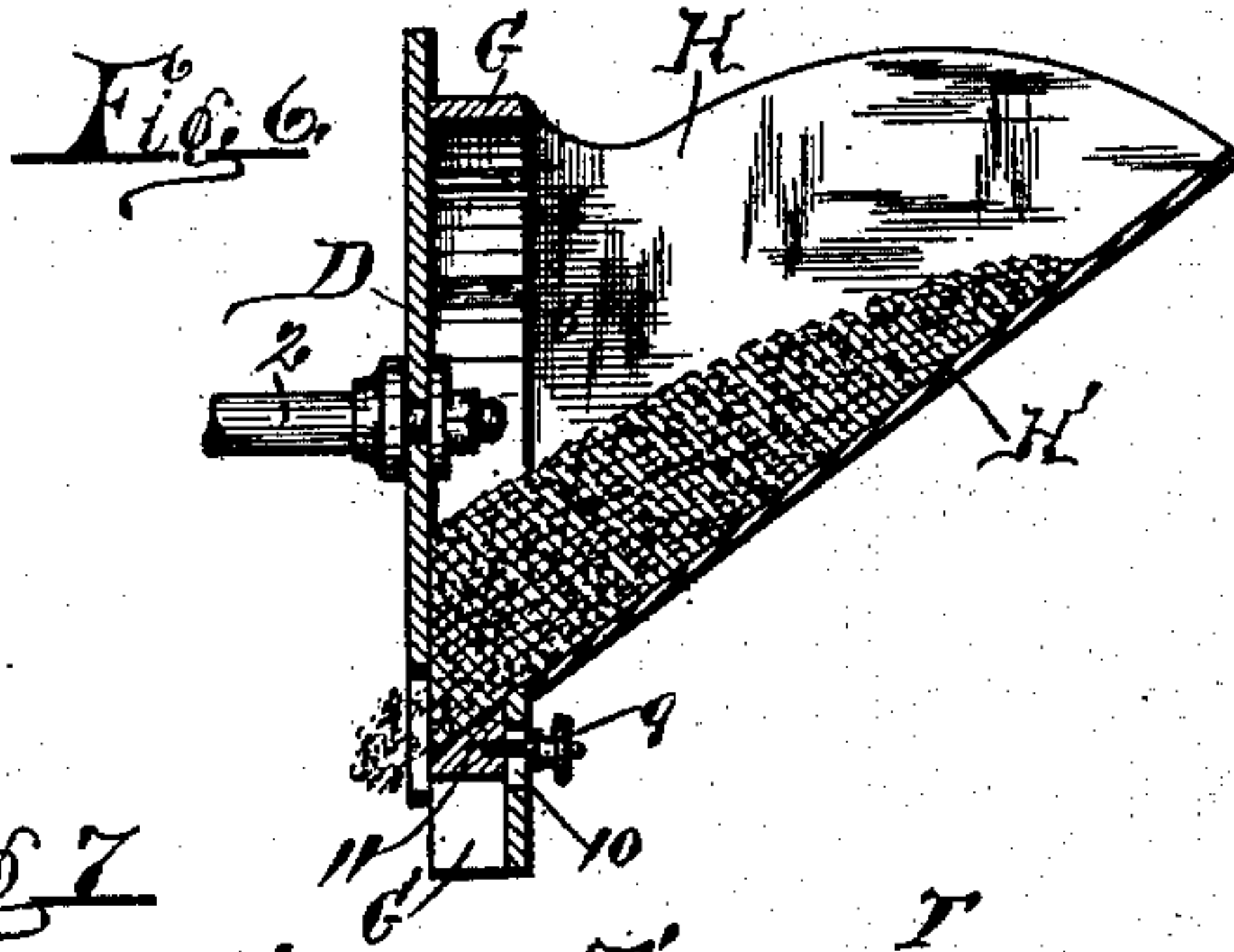
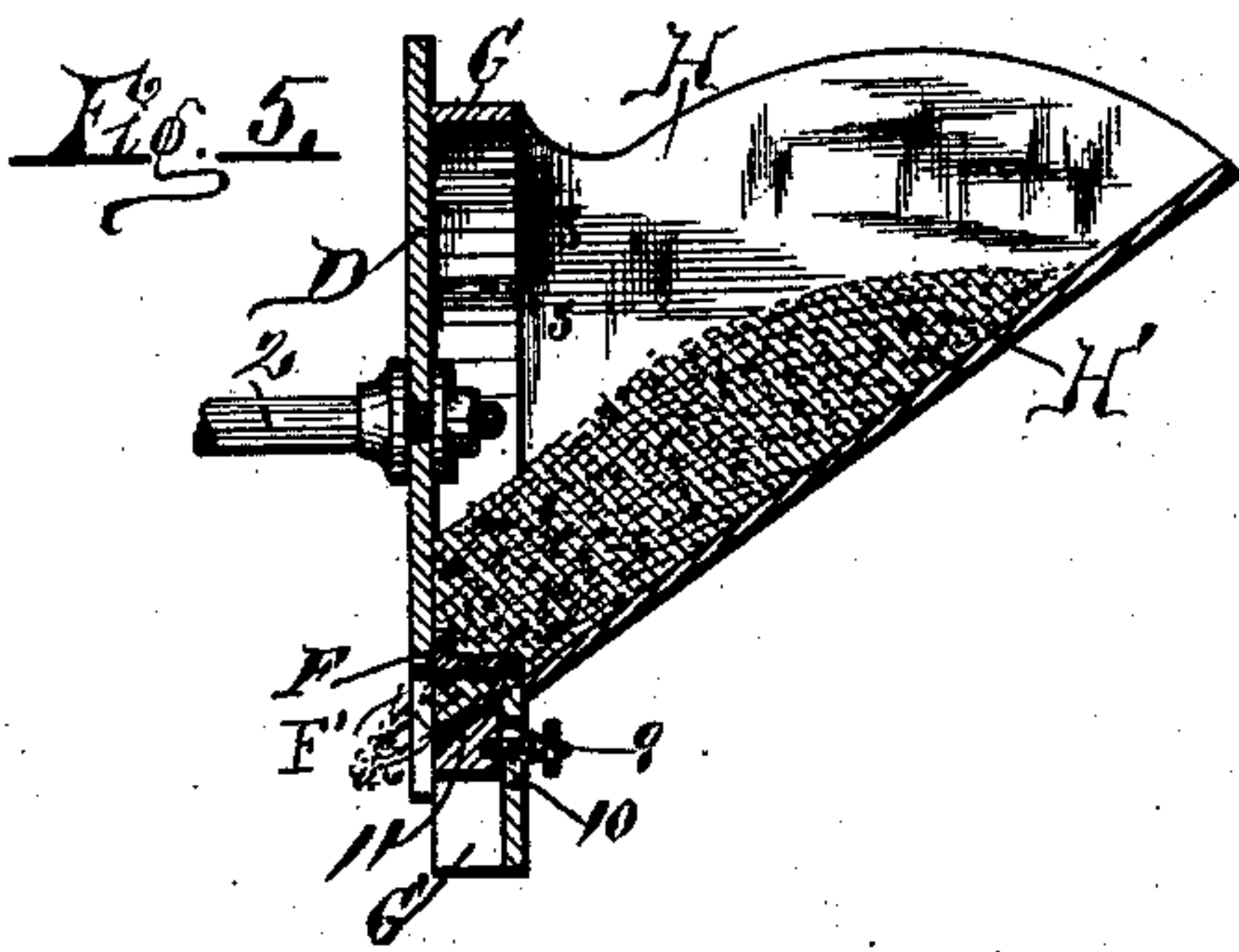
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3 Sheets—Sheet 3.

J. W. COUGTRY.
CIGAR BUNCHING MACHINE.

No. 410,268.

Patented Sept. 3, 1889.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN W. COUGHTRY, OF CIGARVILLE, NEW YORK.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,268, dated September 3, 1889.

Application filed June 9, 1888. Serial No. 276,625. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. COUGHTRY, of Cigarville, in the county of Onondaga, in the State of New York, have invented new and
5 useful Improvements in Cigar-Bunching Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to a machine for forming cigar-bunches, and has for its object the
10 production of a simple and effective device into which the tobacco, previously prepared, is inserted, and by which it is fed in desired quantities automatically and continuously to
15 a forming device, to which a binder is fed, whereupon the forming device rolls the tobacco within the binder.

To this end it consists, essentially, in a suitable hopper or other feeding-receptacle
20 provided with a charge-gage connected to the hopper, a revolving cut-off for stopping the feed of the tobacco to the charge-gage, an oscillating receptacle for receiving the tobacco from the charge-gage, and a plunger
25 for discharging the same upon a rocking table, to which table binders or wrappers are continuously fed, and an apron upon said rocking table revolved over bunching-rollers by the movement of the rocking table, thus
30 rolling the tobacco within the wrapper into a bunch of desired size.

It furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly pointed out in
35 the claims.

In specifying my invention reference is had to the accompanying drawings, in which, like letters indicating corresponding parts in all the views—

40 Figure 1 shows a front elevation of my improved cigar-machine, illustrating the general arrangement and construction of the parts. Fig. 2 is an end view, partly in section, with the hopper removed for the purpose of illustrating the construction of the
45 feeding mechanism. Figs. 3 and 4 are detached views, partly in section, with the feed mechanism broken away for the purpose of illustrating the different positions of the forming and rolling mechanism whereby the charge,
50 is bunched and the binder applied thereto. Figs. 5 and 6 are respectively detached sec-

tional views of the hopper and feed mechanism, illustrating the construction and operation of the revolving side of the hopper provided with stirrers or agitators and the cut-off for cutting off the feed from the charge-gage, and also the exit from the charge-gage, which allows the charge to escape or fall into the forming and distributing mechanism. 55
60 Fig. 7 is an enlarged view of the die or mold in which the bunch is rolled, together with the means for rolling the charge and applying the binder, and also illustrates the peculiar construction of the main table of the
65 machine. Fig. 8 is a like view illustrating the position of the die or mold at the moment the bunch, with the binder applied thereto, is discharged from the rolling mechanism. Fig. 9 illustrates an enlarged detached
70 view of the adjustable friction-rollers, by means of which the shape of the bunch may be changed as desired. Fig. 10 is a detached top plan view of the rolling-belt. Fig. 11 shows an end view of the plunger which
75 forces the charge through the spreading and distributing tube into the die or mold; and Fig. 12 is a detached rear view of a portion of the standard of the machine, illustrating more fully the construction and arrangement
80 of the links and cams for transmitting motion to the different parts of the mechanism.

A denotes the standard or column which supports the mechanism of my improved cigar-machine, and the same may be of any
85 suitable form or material.

B is a bracket, preferably secured to the top of the standard A, and provided with forked bearings *l l*, in which the shaft 2 is journaled. To an extension of one of the
90 bearings *l*, as best shown in Fig. 1, I secure the feed hopper or receptacle H. The feed hopper or receptacle H is constructed of a cast frame G, provided with the depending extension G', and a sheet-metal receptacle
95 having an inclined back or side H', the sheet-metal portion being secured to the casting G, so as to leave a smooth interior, and the inclined side H' terminating at the top of the downwardly-extending portion G'. The depending portion G' of the casting G constitutes a charge-gage for the reception of the
100 required charge used in forming a bunch, and is of suitable dimensions to contain sufficient

tobacco for the desired purpose. In order to make the same adjustable for bunches of different sizes, I provide a sliding bottom 11, which is preferably formed as shown in Figs. 5 and 6. This bottom fits closely within the charge-gage, and is retained at the desired point by means of the set-screw 9, which has a vertical movement in the slot 10, thus allowing the bottom to be moved in order to adjust the charge-gage for the desired charge.

It will thus be seen upon reference to the drawings that in this example of my invention I have so constructed the hopper and gage as to form a combined hopper and discharge-gage, which greatly simplifies the construction of these devices, and at the same time increasing the facility of operation, as will presently appear.

The casting G, which forms the frame of my hopper, is circular in form, as best shown in Fig. 2, and is provided with ears or lugs B', which serve as means for securing the hopper-frame to the bracket B, and through which pass the bolts 12.

The side of the hopper next to the casting is closed by means of a circular-shaped cover D, mounted on the shaft 2, so as to turn therewith when the machine is operated. The object in thus forming or providing the hopper H with the revolving side is for the purpose of feeding the tobacco from the hopper into the charge-gage, and at the same time to regulate the feed so as to discharge sufficient at each revolution of the revolving side D to form the bunch, and this result is accomplished by providing the revolving side D of the hopper with a flange or cut-off F, which extends or projects from the side D, at substantially right angles therewith, inward and covering the openings at the top of the charge-gage and bottom of the hopper when the said flange or cut-off F is coincident therewith. I also provide a cut-out or slot F' in the moving side D, extending inward from the periphery thereof at sufficient distance to coincide with the opening in the charge-gage when the cut-out or slot comes opposite thereto in the rotation of the revolving side D.

It will be observed that the cut-off or flange F is so arranged in relation to the cut-out or slot F' so that when the opening or throat between the hopper and charge-gage is closed by the flange F the exit of the charge-gage is opened simultaneously by the slot or cut-out F' coinciding with the open side of the charge-gage, while at the same time it will also be noticed that when the moving side is rotating it overlaps the hopper and the opening in the charge-gage, thereby closing the same.

To utilize the described construction of the parts, it is necessary to time the rotation of the side D of the hopper with the movements of the other parts of the machine whereby the exit of the charge from the charge-gage occurs when the distributing and forming receptacles are in suitable position to receive the same, and this desirable result is secured by the em-

ployment of cams and levers, as will be presently explained.

The receptacle M is pivoted to a stud *e*, projecting from the standard A, as best shown in Figs. 1, 2, 3, and 4, which said views illustrate the different positions of the mechanism in the operation of my improved cigar-machine. The receptacle M is trough-shaped, and is in its normal position, as shown in Figs. 1 and 2, when it is underneath the discharge opening in the charge-gage of the feed. Beneath the receptacle M is the tube N, which guides the spreading and distributing plunger K, which in turn is operated by the levers I J, the former being pivoted to the stud *e'*, projecting from the standard A of the machine, while the latter is pivoted at *j* to the lever I, and the plunger K is pivoted to the lever J at *k*. The lever I is rocked on its pivot I² by the connecting-rod *i*, and the connecting-rod *i* is connected to a link 13, journaled on the shaft *b'*, and provided at its point of union with the link 13 with a friction-roller *f'*, contacting with the cam *f*, pivoted upon the shaft 8, as shown in Figs. 1, 2, 3, and 4.

The movement of the spreading and distributing mechanism is controlled by the cam *f* on the shaft 8, which turns in contact with the friction-roller *f'*, Figs. 1 and 2, and the lever I is restored to its normal position by means of the spiral spring S'. The forming die or mold E consists of a recess formed in the rocking table carried by the radial arm C, pivoted on the shaft *b'*, journaled in bearings *b b*, Fig. 1. The recess E is covered by the apron *h*, which forms a pocket therein of a suitable form to receive and shape the bunch as the tobacco is forced from the tube N by the spreading and distributing plunger K. The apron *h* is clamped to the head of the arm C and passes upward over the bunching-rollers *r r*, secured in adjustable bearings or levers U, which are fastened to the table T by screws *v*, Fig. 7. The other end of the apron *h* is secured to the bracket *h'* on the arm C by means of a set-screw *i'*, and it may be lengthened or shortened for the purpose of adjustment and to take up slack. The rollers *r r* are properly spaced apart in order that they may receive the bight of the apron between them and roll the bunch.

It will be observed that the radial arm C oscillates on its pivot C³ on the extremity of the shaft *b'*, and this movement of the arm serves to roll the bunch in the bight in the apron *h* between the bunching-rollers *r r*, secured to the table T, thereby forming the bunch and applying the binder at the same time to the bunch, the binder being fed in when the arm C commences its forward movement, which is best shown in Fig. 7 of the drawings.

It will be observed that as the radial arm C oscillates to the position shown in Fig. 8 the binder is rolled onto the bunch, and the bunch R is thrown out of the bight in the apron between the bunching-rollers when

the arm arrives at the end of its movement. Motion is communicated to the arm C by means of cam *g*, mounted on one end of the shaft 8, said shaft being journaled in the bearings *a d* of the standard A, Fig. 1, and provided with the driving-pulley P, the clutch 6, and shifting-lever 3, pivoted to the stud 4 at 5.

The radial arm C is provided with an angularly-extending arm C', carrying a friction-roller *g'*, which turns in contact with the cam *g*, and thereby reduces the friction incident to the impingement of the parts. The radial arm C is returned to its normal position by means of the spiral spring S', as best shown in Figs. 1, 3, and 4. It will be observed that the spiral spring S' is connected to the radial arm C, and also to the lever-arm I, and it serves the twofold office of returning both the lever I and its connected parts to their normal positions, as well as the radial arm C, the movements being consecutive and alternative, by reason of the arrangement of the cams *g f*, which will be readily understood upon reference to Fig. 2 of the drawings.

The shaft 2 is actuated by means of the link chain S and sprocket-wheels connected, respectively, to the clutch on the shaft of the prime-wheel P and on the shaft 2. The clutch illustrated in this example of my invention is what is termed a "pin-clutch," wherein the shifting-lever 3 is held normally in contact with the pins by reason of the weight at its lower end, and motion from the pulley P is not transmitted to the link chain until the shifter 3 is pushed off on its pivot 5, which permits the pin to slip into engagement, thereby connecting the sprocket-wheel to the moving pulley P and transmitting motion to the shaft 2, as well as to the cams *f g*, putting the machine into operation, and the weight of shifter 3 returns it to its normal position, so as to throw out the clutch at the right point to stop the mechanism without stopping the pulley P.

The tube N and the plunger K are of a width suitable to spread the tobacco for the bunch lengthwise, and the end of the plunger K is formed, preferably, as best shown in Fig. 11, whereby the tobacco is spread to conform to the desired shape of the bunch, and the tobacco is spread by the movement of the plunger, which forces it toward the exit of the tube, where the gate *m* allows it to drop out into the pocket of the apron *h* in the recess E, and the spring *n'* serves to return the gate *m* to its closed position.

It will be observed that it is necessary to have some means for closing the discharge end of the tube while the tobacco contained in the receptacle M is being spread, distributed, and forced downward to the exit by the plunger K, and the hinged gate *m*, with the spring *n'*, for restoring it to its closed position, effectually accomplishes the desired result.

In order to conform the bunch to the de-

sired shape, I attach or secure the bunching-rollers *r r* adjustably to the table T, as best shown in Figs. 7, 8, and 9. The rollers *r r* are held adjacent to the bevel provided on the under side of the front of the table T by means of their boxes or journal-bearings U, in which the opposite extremities of the rollers are mounted, by suitable spindles formed or provided on the rollers. The bearings U, which are independent of each other, are bent to conform to the contour of the under side of the work-table T, and are extended rearwardly a desirable distance and provided at their rearward extremity with a screw *v* or other means for securing the said rearward extremity to the work-table. At a point between the rearward roller *r* and the retaining-screw *v* the bearings U are provided with an adjusting-screw V, abutting against the under side of the bearings and screwing into the under side of the work-table. It will be observed that by screwing the adjusting-screw V into or out of its seat in the under side of the work-table T, and by reason of the abutment of the head of the screws V against the under side of the bearings U, the size of the cigar-bunch may be varied accordingly as the rollers *r r* are approximated to the line of motion of the rocking table, or the bunch may be rolled tightly or loosely, as desired. As these bearings U are independent of each other and have separate retaining-screws *v* and adjusting-screws V, it will be seen that one bearing may be depressed below the other, tilting the bunching-rollers *r r* at the extremity secured in said bearing U, thus rolling or forming the bunch large at one end and narrowing toward the other, which construction is very desirable in the manufacture of cigars.

The apron *h* is constructed with flanged ribs *r' r'*, Fig. 10, near its marginal edges, the said apron being of sufficient width to carry the bunches lengthwise between the ribs *r'*. The object of providing the ridges or ribs *r'* is to cause the apron to readily conform to the movement of the radial arm C and keep the tobacco in proper position without spilling out while the binder is being applied thereto.

The operation of my improved cigar-machine will be readily understood from the foregoing and upon reference to the drawings.

It will be noticed that the feed from the hopper is controlled by rotating the shaft 2, which carries the moving side D, so as to bring the cut-off F over the opening into the charge-gage G', at the same time opening the exit of the charge-gage, so that the charge is dropped into the receptacle M. The same movement of the side D of the hopper serves to give motion to the stirrers, which cause the tobacco to feed freely into the charge-gage, and during the same movement of the side D the spreading and distributing device and the rolling and forming device are actuated

in turn, so that the charge is received in the receptacles M and the tobacco spread, distributed, and discharged into the pocket in an apron which lies in the recess E, whereupon the bunching-rollers apply the binder to the bunch, roll the bunch and its binder in the bight between the rollers, and eject the same from the machine at the proper time.

10 The operation of the machine is continuous, it being simply necessary to keep up the feed by filling the receptacle from time to time. For the purpose of conveniently applying the binder or feeding the same into the apron
15 *h*, I form the end of the table T with a bevel on the under side, as best shown in Fig. 7, and mount the bunching-rollers *r r* immediately underneath the bevel, so that the periphery of the upper roller comes in close
20 contact with the rocking table of the radial arm C when the movement of the loop or die recess E is started, and thereby the binder T' is accurately rotated on the bunch without difficulty. In order to slide the binder into
25 position readily without undue friction, I preferably line the top of the table T immediately over the beveled inner end thereof with sheet metal, as zinc or brass, which affords great ease in manipulating the binders.
30 Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a stationary hopper or receptacle for the tobacco, having an
35 inclined side and a revolving vertical side, of a charge-gage and a cut-off between the hopper and gage, whereby the feed from the hopper into the charge-gage is automatically determined by the revolving side, substantially as and for the purpose set forth.

2. The combination of a feed-hopper secured rigidly to the frame of the machine and having an inclined side, with a rigidly-mounted charge-gage connected therewith
45 and opening into the hopper, a revolving section carrying stirrers forming one side of the hopper and carrying a cut-off for closing the opening between the hopper and charge-gage, substantially as and for the purpose set forth.

3. The combination, in a cigar-machine, of a feed-hopper, a charge-gage, a revolving side extending over the charge-gage provided with a cut-off, and a slot located in relation to each other so that the cut-off stops the feed from
55 the hopper into the charge-gage and the slot opens the charge-gage to discharge its contents, substantially as and for the purpose set forth.

4. The combination, in a cigar-machine, of
60 a combined feed-hopper and charge-gage, the hopper having an inclined side flaring upward from the opening in the charge-gage, and a vertically-arranged revolving side forming a moving side wall for both the hopper and
65 charge-gage, the aforesaid moving side having a projecting cut-off extended in line with the top of the charge-gage, and a slot or cut-

out below the cut-off, whereby the feed from the hopper into the charge-gage may be cut off and the charge-gages simultaneously opened
70 to remove the charge, substantially as and for the purpose set forth.

5. In combination, the hopper H, having charge-gage G', inclined side H', vertical rotating side D, having pins *p*, cut-off F, slot F',
75 and the shaft 2, for rotating the side D, all substantially as and for the purpose set forth.

6. The combination, in a cigar-machine, of a hopper and charge-gage, the hopper having a revolving side provided with a cut-off for
80 the feed into the charge-gage and an exit for the tobacco from the gage, an oscillating spreader-tube N for receiving the charge, a plunger for forcing it into a pocket in the apron, and means, substantially as described,
85 for rolling the charge into a bunch in the apron and applying the binder, substantially as set forth.

7. The combination of the hopper provided with the charge-gage, means, substantially as
90 described, for cutting off the feed between the hopper and the gage, an oscillating receptacle M, a discharge-passage N, connected to the receptacle M, the plunger K, operating through the discharging-passage N, with a forming device for molding the charge into a bunch and
95 applying the binder, all constructed and operating substantially as and for the purpose set forth.

8. The combination of the receptacle M and
100 tube N, pivoted to the standard A, the tube N having the spring discharge-gate *m*, the plunger K, and operating-levers I J, having suitable connections to transmit motion to the plunger, substantially as and for the purpose
105 set forth.

9. The combination, with the table T, the independent journal bearings or levers U, secured at or near their rear extremities to the table T, with their forward extremities free, and
110 the bunching-rollers *rr*, spaced apart from each other and journaled at their opposite ends in the free extremities of said independent journal bearings or levers U, of the rocking table having the recess E, an apron *h*, carried by
115 the rocking table and passing over both of the bunching-rollers *r r*, and means for approximating either or both of the journal bearings or levers U to the rocking table or changing the plane of the rollers, whereby
120 the shape and size of the bunch may be varied, substantially as and for the purpose set forth.

10. The combination, with the apron *h*, the central portion of which is of uniform thickness in cross-section and the edges of which
125 are folded or re-enforced with ribs *r' r'* for preventing the tobacco from spilling, and the rocking table carrying the apron *h* and having the recess E, of the bunching-rollers *r r*,
130 spaced apart from each other and arranged beneath the apron *h*, the independent journal bearings or levers U, mounted in which are the opposite extremities of the rollers *r r*,

and means for approximating either or both of the journal-bearings to the rocking table or changing the plane of the rollers, whereby the shape and size of the bunch may be varied, substantially as and for the purpose set forth.

11. The combination, with the independent journal bearings or levers U, bunching-rollers $r r$, spaced apart from each other and having their opposite extremities journaled in said journal bearings or levers, the apron h , passing over the rollers $r r$, the rocking table carrying the apron h and having the recess E, and means for approximating either or both of the journal-bearings to the rocking table or changing the plane of the rollers, whereby the shape and size of the bunch may be varied, of the clamp O, the bracket h' , and the adjusting-screw i' , substantially as and for the purpose set forth.

12. The combination of the table T, provided with the beveled inner edge, independent journal bearings or levers U, and bunch-

ing-rollers $r r$, located opposite to the beveled edge of the table, said rollers being spaced apart from each other and journaled at their opposite extremities in said independent journal bearings or levers U, with the apron h , passing over the bunching-rollers, and the rocking table carrying the belt h and having the recess E, and means, substantially as described, for approximating either or both of the journal-bearings to the rocking table or changing the plane of the rollers, whereby the shape and size of the bunch may be varied, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 5th day of June, 1888.

JOHN W. COUGHTRY.

Witnesses:

FREDERICK H. GIBBS,
A. E. PARSONS.