No. 675,442. Patented June 4, 1901.

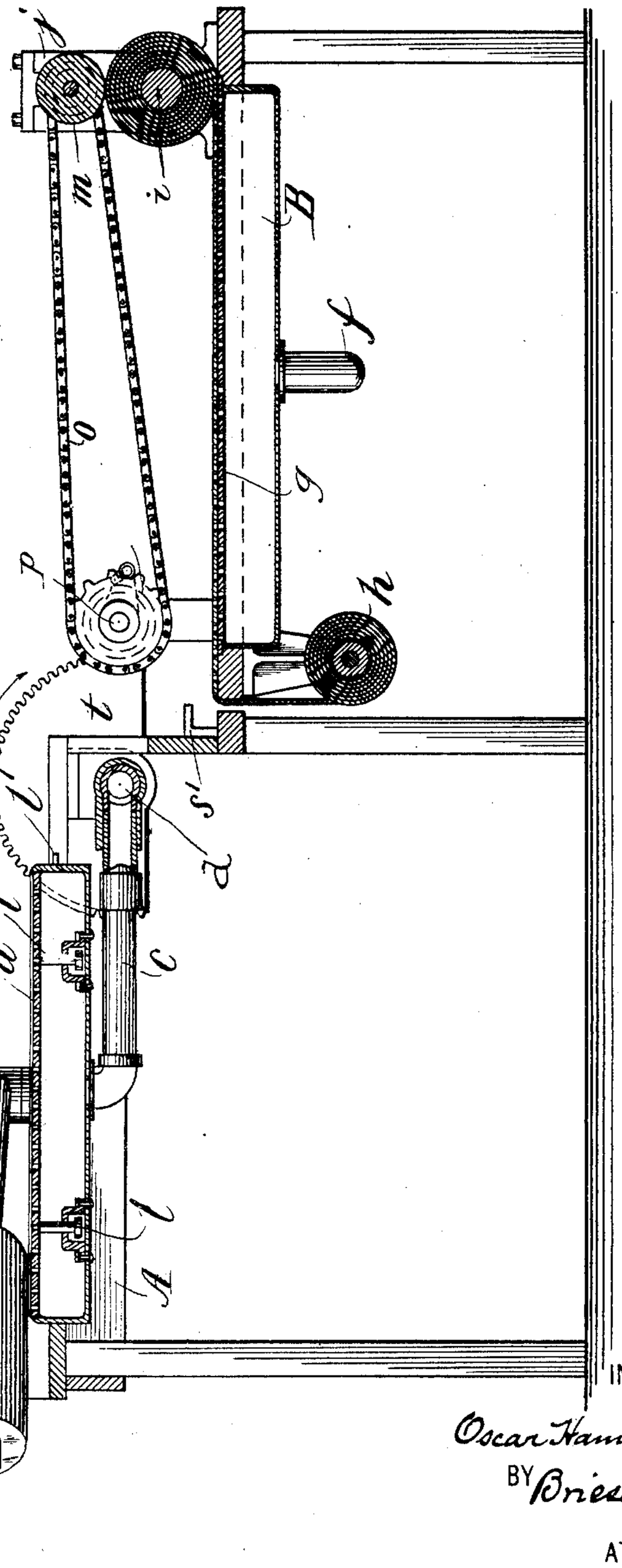
O. HAMMERSTEIN.

APPARATUS FOR MANIPULATING CIGAR WRAPPERS.

(Application filed Mar. 5, 1901.)

(No Model.) 6 Sheets—Sheet 1.

Fig. 1.



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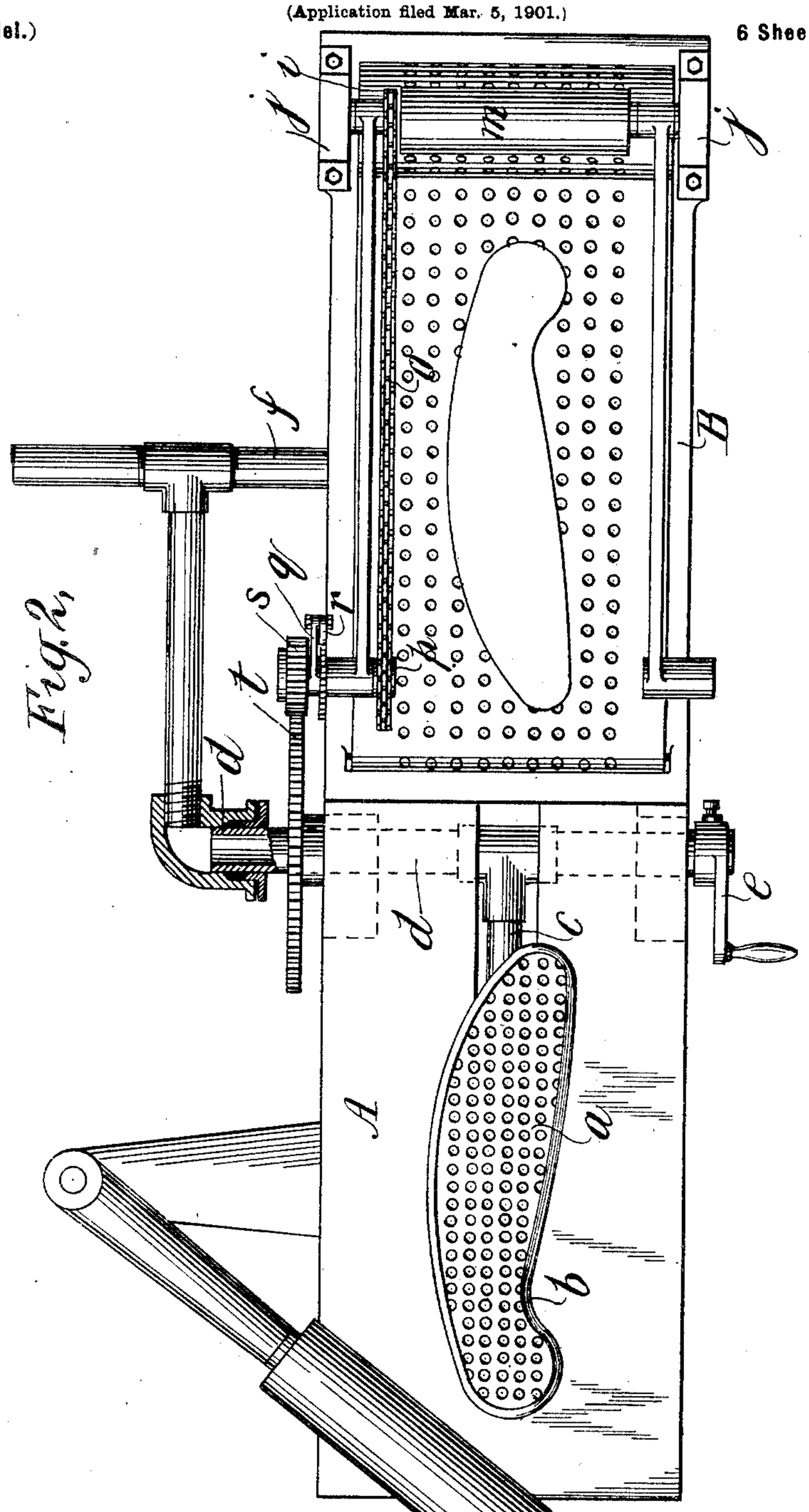

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Fig. 4.

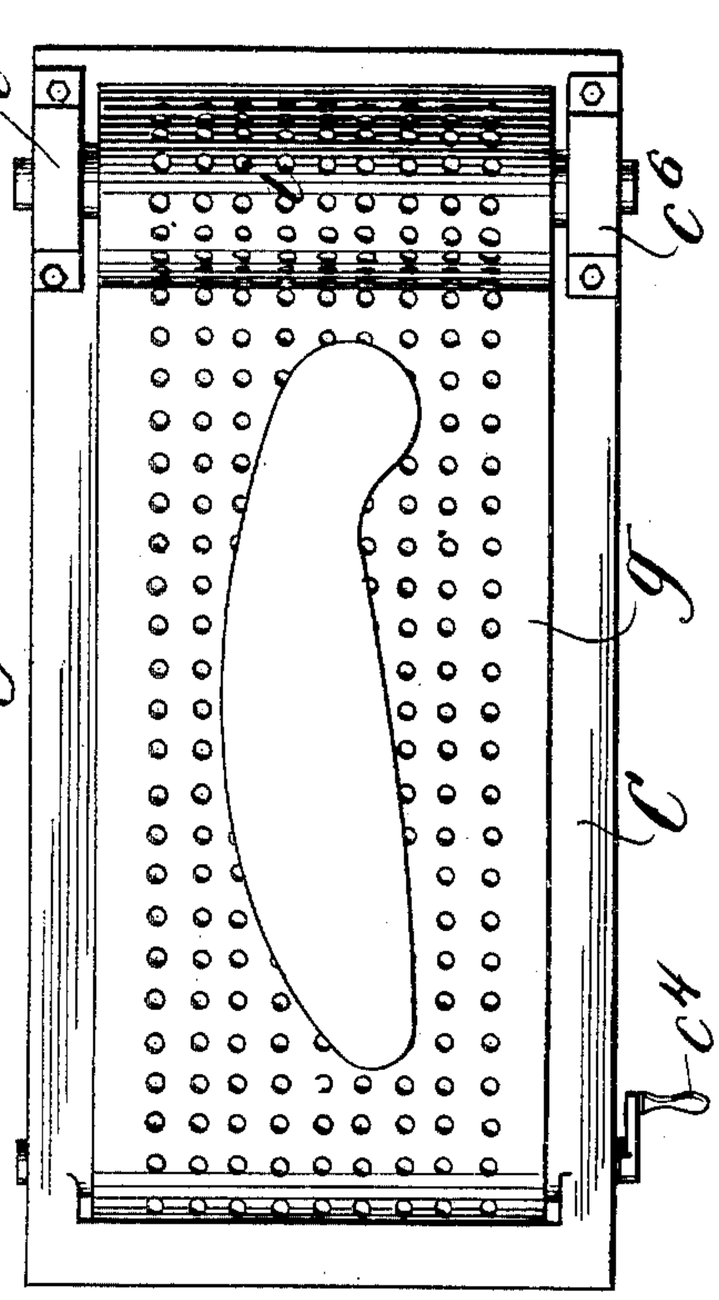

Fig. 3.

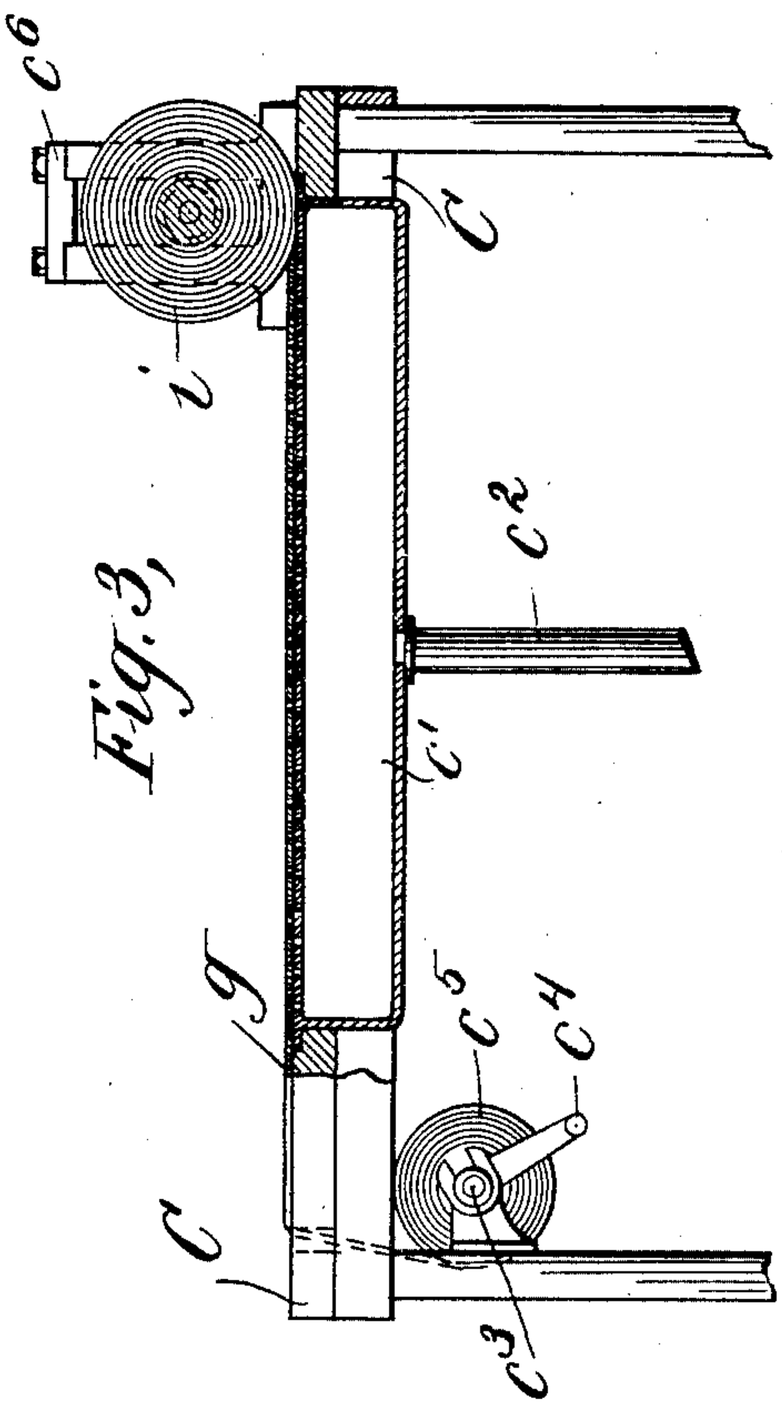

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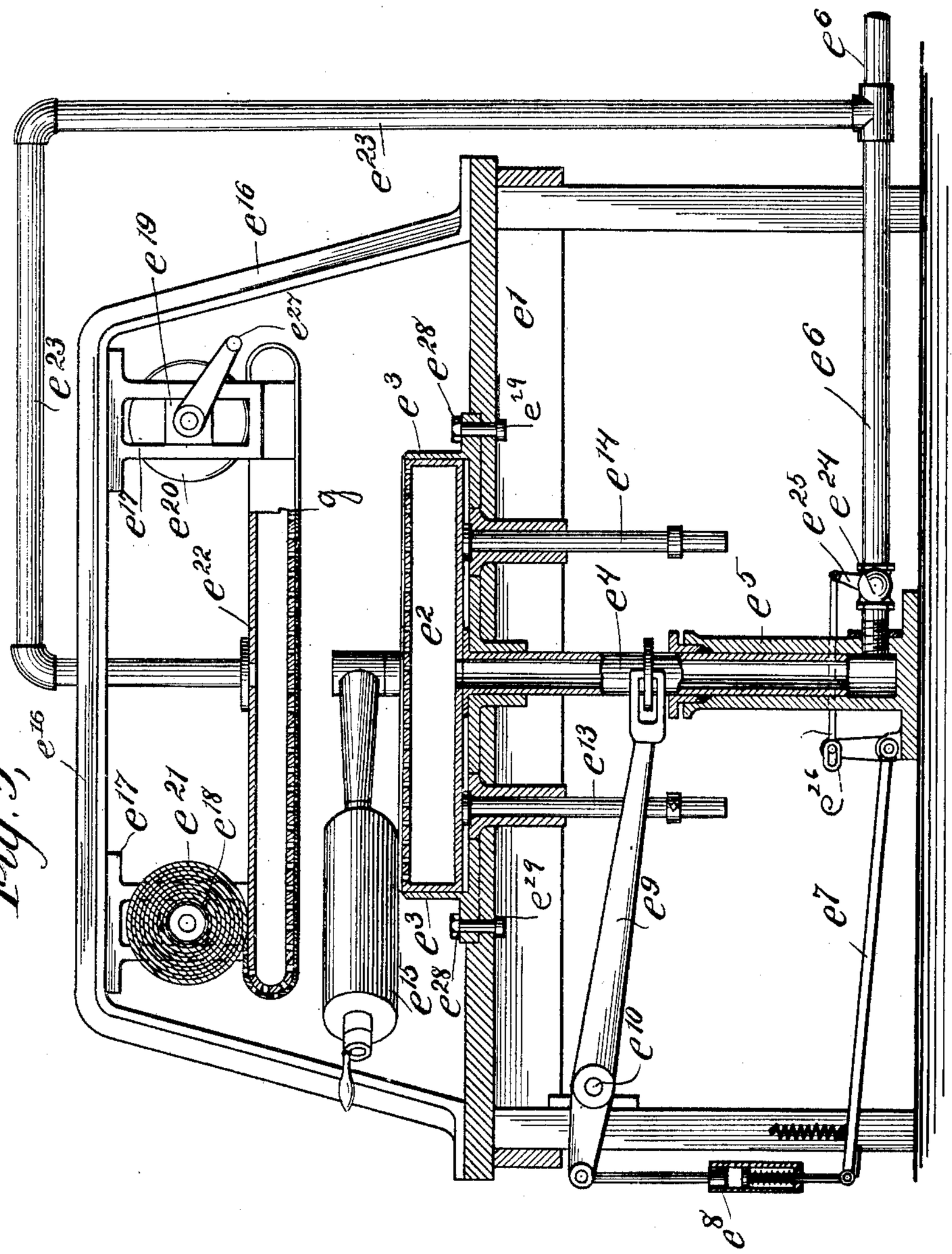
Fig. 5.



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(No Model.) (Application filed Mar. 5, 1901.)

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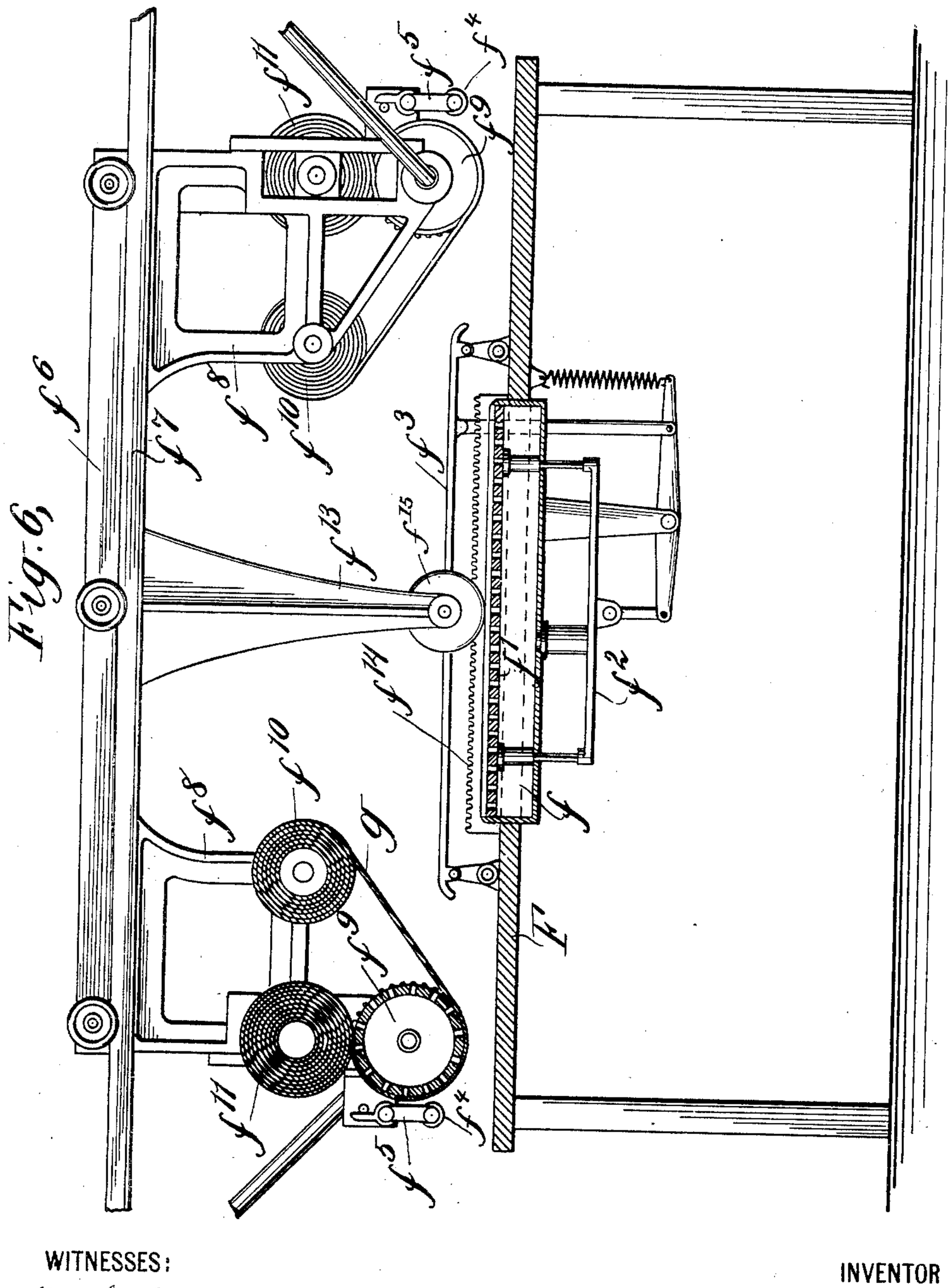
Fig. 6.



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(No Model.) (Application filed Mar. 5, 1901.)

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Fig. 8,

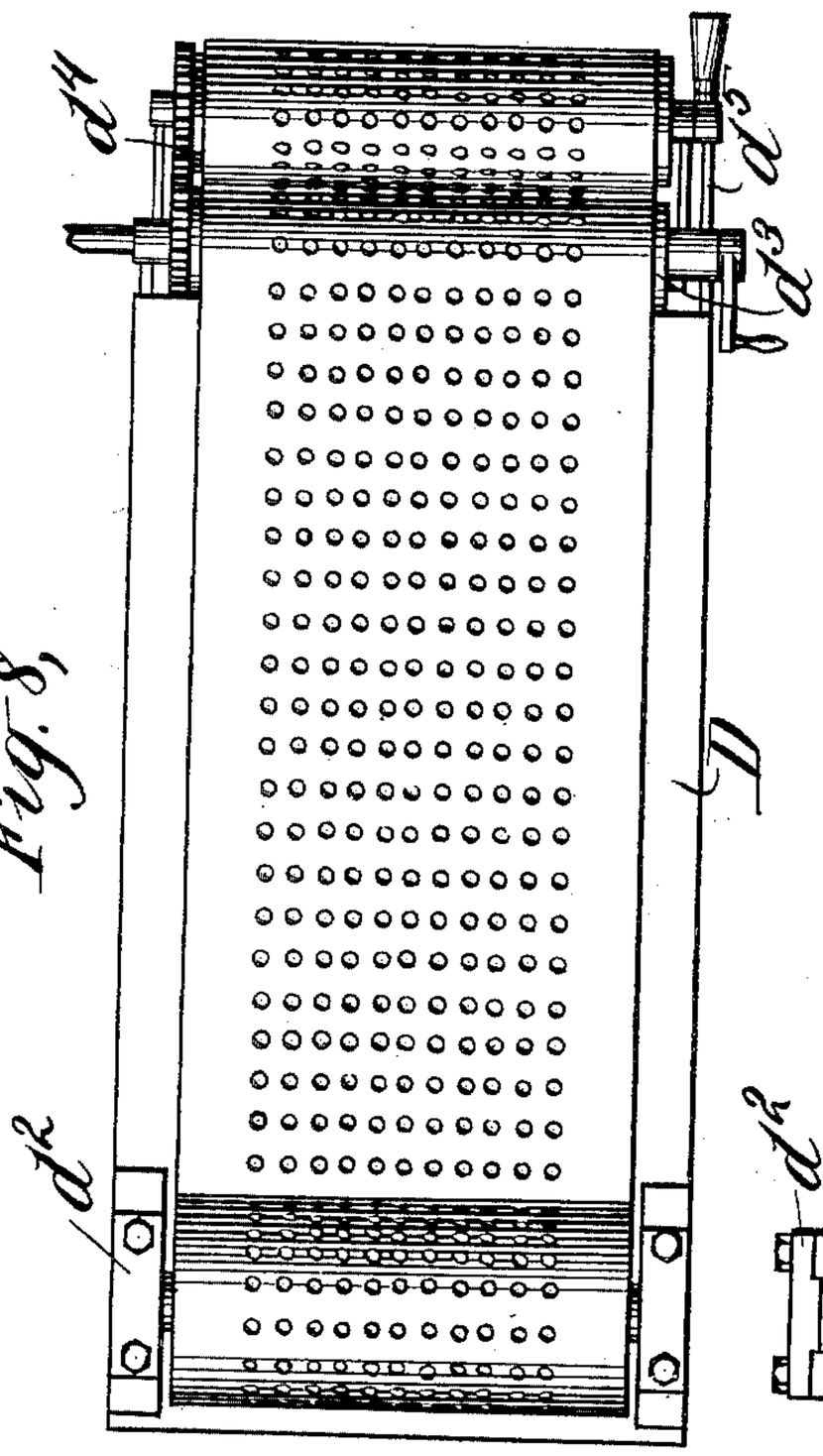


Fig. 7.

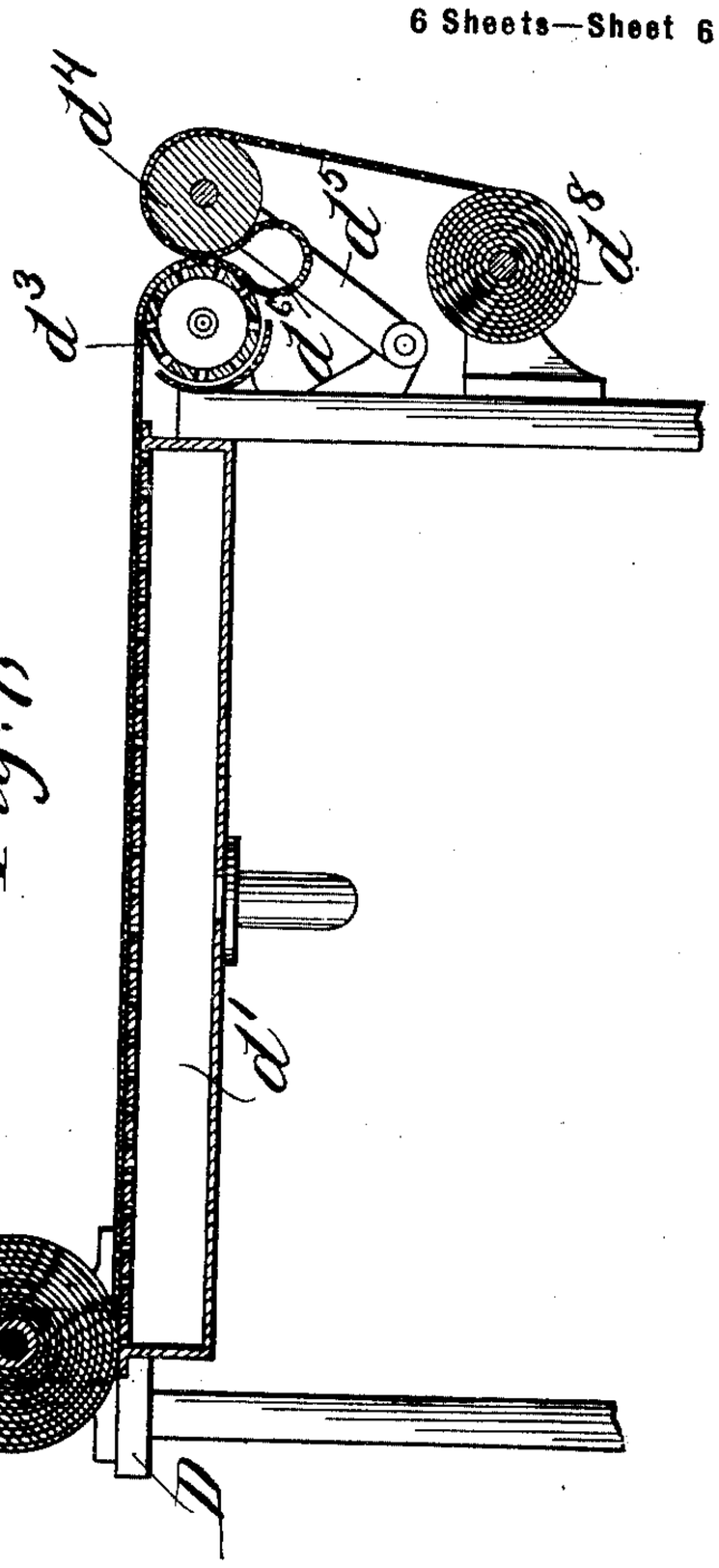
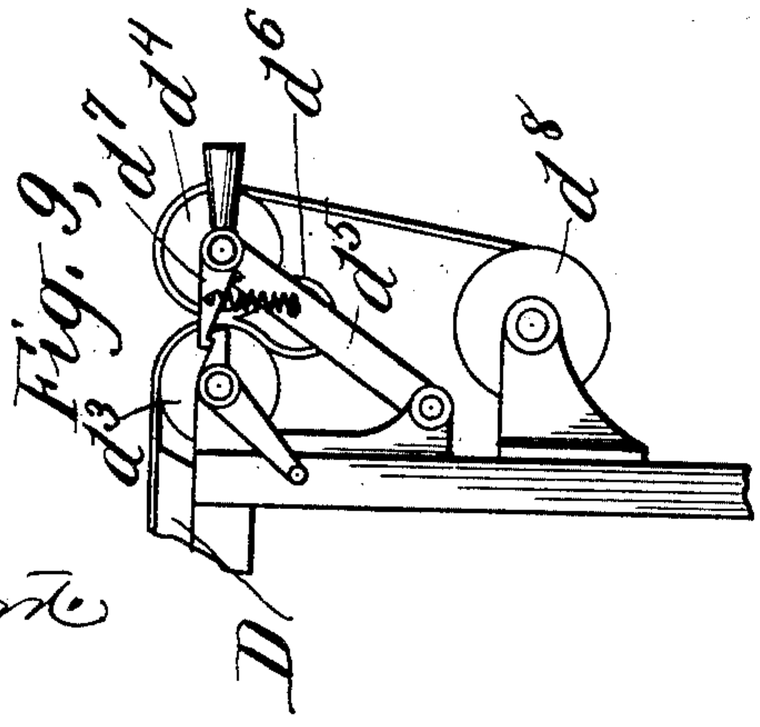


Fig. 9,



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UNITED STATES PATENT OFFICE.

OSCAR HAMMERSTEIN, OF NEW YORK, N. Y.

APPARATUS FOR MANIPULATING CIGAR-WRAPPERS.

SPECIFICATION forming part of Letters Patent No. 675,442, dated June 4, 1901.

Application filed March 5, 1901. Serial No. 49,715. (No model.)

To all whom it may concern:

Be it known that I, OSCAR HAMMERSTEIN, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and Improved Apparatus for Manipulating Cigar-Wrappers, of which the following is a specification.

My invention relates to apparatus for manipulating cigar-wrappers wherein the main feature of the apparatus is a storage device for the leaves or wrappers which may be combined with a wrapper-cutter or a rolling-table or suction device.

In the accompanying drawings I have shown by way of illustration apparatus in which my invention is embodied. It will be understood, however, that the illustration while showing an apparatus capable of successful operation is neverthless illustrative merely, and I do not mean to confine myself thereto.

The invention will be explained with the aid of the said drawings and the salient features of the invention pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is an elevation of a suction and transfer table and a suction storage device. Fig. 2 is a plan view thereof. Fig. 3 is a side elevation of a suction rolling-table. Fig. 4 is a plan view thereof. Fig. 5 is a sectional elevation of an improved form of wrapper cutting, transferring, and storing apparatus. Fig. 6 is a similar side elevation of an automatic wrapper cutting, transferring, and storing apparatus. Fig. 7 is a side elevation of a combined suction rolling-table and cigar-rolling machine. Fig. 8 is a plan view thereof, and Fig. 9 is a detail side view of an automatic cigar-rolling device.

Before describing the apparatus in detail I will state that it has heretofore been proposed to cut a cigar-wrapper by what is known as a "die" on a suction-table and to thereupon place the bunch upon the said suction-table and to roll the cigar at once. This procedure is expensive for the reason, first, that the time of an expensive skilled laborer is employed in performing a common operation—to wit., the rolling operation ordinarily performed by a cheaper class of labor—and, second, the table remains idle during the time employed in rolling the cigar. By my invention these objections are obviated, and the wrapper-cutter is employed solely to cut the wrappers, and none of his time or that of the table is lost, and the rolling is done by a cheaper class of skilled labor either by hand or by machinery. I am enabled to achieve these very valuable results by storing the cut wrappers under tension to maintain the same in the proper condition for use.

Referring particularly to Figs. 1 and 2 of the drawings, A represents a suction-table provided with a freely-movable sucker-plate *a*, surrounded by a knife or cutting rim *b* and a suction-pipe *c*. The entire suction device is pivoted on the pipe *d*, which communicates with the pipe *c*, so that the entire suction device may be swung by the handle *e* on the axis of the pipe *d*. A roll *k* is provided to aid in the cutting of the wrapper. The sucker-plate *a* is adapted to fall freely clear of the surrounding cutter, being carried on stop-bolts *l l*, which limit its movement. B is another suction-table, which, however, is not provided with a cutter, but is perforated at the top with numerous apertures and provided with a suction-pipe *f*. This table is provided with a pervious or perforated web or apron *g*, which is adapted to be rolled upon rollers *h* and *i*. A lug *l'* is provided on the swinging suction device and is adapted to come against a stop *s'* to prevent the knife *b* from coming in contact with the apron *g*. The roller *i* is mounted in slotted standards *j* and is driven by a roller *m*, driven by a belt *o* from a shaft *p*. This shaft *p*, as shown in Figs. 1 and 2, is provided with a pawl-and-ratchet device *q r* and a pinion *s*, which pinion *s* meshes in a suitable arc *t*, carried by the pipe *d*. When the arc is swung in the direction of the arrow, Fig. 1, the pawl *q* will rattle over the teeth of the ratchet *r*, and upon the return movement of the arc the pawl will take hold of the teeth and effect a forward feed of the apron equal to the desired movement.

The operation of the device so far described is as follows: The operator selects and spreads the delicate moistened tobacco-leaf upon the suction device *a* and passes the roll *k* over the leaf. The roll *k* is returned to its normal position clear of the suction device, which

is swung on its axis with the exhaust still on until it comes into close proximity to the web or apron g, whereupon the sucker-plate a will fall forward clear of the surrounding knife by its own weight, being prevented from falling entirely away by the stop-bolts l, the knife being prevented by the stop s' from contacting with the apron, and the suction-table B will immediately suck the leaf against the apron g and hold it there under the tension of the suction, whereupon the swinging suction device will be swung back to its original position, (shown in Fig. 1,) and as it swings the toothed arc, pawl-and-ratchet device, and connected mechanism will rotate the roll i, thereby storing the wrapper lying on the apron between the layers of the apron and maintaining the wrapper under the proper tension. When all the effective length of the apron has been unwound from the roller h and wound upon the roller i, the rolled-up apron will contain a large number of wrappers between its layers, which wrappers will be stored or maintained under proper tension. It will be observed that when the cut wrapper is transferred from the cutting-die or suction device upon which the wrapper is cut it will be inverted or reversed in transit, so that the surface of the leaf or wrapper which was uppermost in the cutting operation will lie against the apron g in proper position for rolling. The rolled-up apron may now be transferred to the rolling-table shown in Figs. 3 and 4. As it is inexpedient to perform the rolling upon the table B, although such rolling may be done on this table, I provide a special table for rolling. This table is shown in Figs. 3 and 4, in which figures C represents the rolling-table, having a suction box or table c', a suction-pipe c^2, a shaft c^3, provided with a handle c^4, or other suitable device for winding the apron g upon the roll c^5. The table is also provided with a slotted standard c^6 like the slotted standard j in Figs. 1 and 2. It will be understood that by turning the crank c^4 the apron will be unwound from the roll i, will pass over the suction-table, and will be wound upon the roll c^5. The cigar is rolled on this suction-table by a cheap class of skilled labor, and it will be found that throughout the operation the wrapper is held under proper tension by the various devices. It will thus be seen that the operator who cuts the wrappers is relieved from the necessity of rolling the cigars, which rolling is done by a cheaper class of labor. The cigars may be rolled upon the table B, but as the cutting operation is much more expeditious than the rolling operation it will be found advantageous to employ a separate rolling-table. Instead of rolling the cigars by hand the cigars or cheroots may be rolled automatically by the devices shown in Figs. 7 and 8. In these figures, D represents the suction-table, provided with a suction-box d' and slotted standards d^2. The table also has a suction-roll d^3 and a coöperating roll d^4, which coöperating roll is carried upon a pair of arms d^5, by which it may be swung back and forth to enable the operator to obtain access to the bight or loop d^6 of the apron, where the cigar is rolled automatically in the usual manner. The rolls d^3 d^4 are provided with gear-wheels, which mesh with each other, and a locking device d^7 is provided to hold the swinging roll d^4 up to its work. It will of course be understood that rolling may be done by hand upon this table. After the apron passes from the cigar-rolling device it is wound upon the roll d^8 in any suitable or desired manner. A construction operating upon the same general principle is shown in Fig. 5. In this figure the table e' is provided with a suction-box e^2, which is surrounded by a knife e^3. A suction-pipe e^4 telescopes within another pipe e^5, which is connected to the air-suction apparatus by the pipe e^6. The suction-box e^2 is adapted to rise and fall, (or otherwise move to transport the leaf,) the knife remaining stationary on the table. This rising-and-falling movement may be imparted to the suction-table by treadle or foot lever e^7, which treadle or foot lever is connected by a spring-link e^8 to a lever e^9, journaled or pivoted at e^{10}. The lever e^9 is connected to the pipe e^4, and steady-pins e^{13} e^{14} are provided to guide the suction device in its up-and-down movement. By pressing upon the treadle e^7 the lever e^9 is caused to raise and lower the suction apparatus e^2, which is guided by the steady-pins e^{13} e^{14}. A suitable roller e^{15} may be employed to effect the cutting of the leaf. The knife and suction devices are made adjustable by a pin-and-slot connection e^{28} and e^{29}, so that the entire suction device may be swung on the suction-pipe as a pivot. The object of thus adjusting the suction device is to enable the wrapper to be laid upon the storage-apron in a position inclined with respect to the line of travel of the apron, so that it will be in the best position for rolling. Mounted on the table or otherwise suitably supported is a framework e^{16}, provided with slotted depending brackets e^{17}, within which the journals e^{18} e^{19} operate. The journal e^{19} carries the shaft for the roll e^{20} and the journal e^{18} carries the shaft for the roll e^{21}. Depending from the brackets e^{17} is a suction-box e^{22}, which is connected by the pipe e^{23} with the pipe of the air-suction apparatus e^6. A separate cut-off is provided for the air-suction in this apparatus and is shown in the present instance as consisting of a valve e^{24}, operated by an arm e^{25}, operatively connected by a slotted link e^{26} with the treadle e^7. A suitable handle or other driving means e^{27} may be connected to the shaft of the roll e^{19}. The operation of the structure is as follows: The operator puts the leaf upon the suction-table and cuts the same by rolling the roller e^{15} over it. He then presses upon the treadle, which has the effect of raising the suction-box e^2 and bringing the same against the perforate apron g on the suction-box e^{22}. It will be understood that this apron

is connected to the roll e^{20} and is wound upon the said roll as it unwinds from the roll e^{21}. At the instant that the suction-box comes into contact with the apron the air-suction is cut off by the valve e^{24}, and the wrapper instantly adheres to the apron g, is carried along with the said apron and stored with the apron upon the roll e^{19}, and maintained at the proper tension. The suction-box and knife e^2 e^3 are preferably made adjustable, turning upon the pipe e^4, which is telescoped in the pipe e^5. As before stated, the object of thus making the suction and wrapper-cutting apparatus adjustable is to be enabled to put the wrapper upon the apron in a position inclined with respect to the median line of the said apron, so that the cut wrapper will be presented to the operator when the apron is unwound in proper position for rolling the cigar. This is especially advantageous in cases where machine-rolling is resorted to.

In Fig. 6 I have shown a modified construction wherein the suction-table F is provided with a suction-box f, whose edge constitutes a knife, and with a suction-plate f', carried by a frame f^2, which is caused to rise and fall by an arm f^3, operated by a cam f^4, which is actuated by pivoted arms f^5. An overhead frame f^6 runs upon rollers upon a track f^7 and has depending therefrom at each end brackets f^8. These brackets carry journaled therein a suction-roll f^9, a roll f^{10}, upon which a perforated apron g is wound, and a storage-roll f^{11}. Depending brackets f^{13} carry a cutting-roll, which is provided with a pinion engaging in a rack f^{14} on the table. The operation is as follows: The leaf is placed upon the suction apparatus by the operator, and the entire carriage f^6 is moved on its track. This has the effect of cutting the wrapper, and when the cutting-roll f^{15} has passed off the suction apparatus one or the other of the suction-rolls f^9 brings the apron g into contact with the suction-plate f', carrying the cut wrapper, which suction-plate has been raised slightly by the arm f^3. As the suction-plate f' is raised clear of the suction-box f the air-suction will be broken and the wrapper will adhere firmly to the apron g under the influence of the suction-roll f^9 and will then be wound upon the storage-roll f^{11} in the usual manner.

In this specification I do not mean to confine myself specifically to the manipulation of a tobacco-leaf nor to cigar manufacture, but intend, so far as the state of the art will permit, to include all the uses to which the invention may be put.

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

1. In a device for producing and storing cigar-wrappers, the combination of a wrapper-cutting suction device adjustable in the plane of its face, means for maintaining the same fixed in its adjusted position, a traveling porous or perforate apron, means for exerting air-suction through the apron, means for successively transferring the cut wrappers from the suction device to the apron, maintaining the said wrapper all the while under the stress of air-suction, and means for rolling up the apron into a roll, with the wrappers between the layers thereof to maintain the wrappers under tension.

2. In combination, a traveling apron, a wrapper-cutter, means for transporting the wrapper under the stress of air-suction and for depositing the wrappers successively upon the apron, means for maintaining the wrapper under tension thereon and means for rolling the said apron into a roll inclosing the wrappers and maintaining them under tension.

3. In a machine for cutting and storing cigar-wrappers, the combination of means for cutting a wrapper under the stress of air-suction, a wrapper-receiving apron, means for rolling the said wrapper-receiving apron into a roll and an air-suction apparatus for maintaining the wrapper under the tension of air-suction from the time that it is cut until it is rolled between the layers of the rolled-up apron.

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