(Model.)

2 Sheets—Sheet 1.

C. BOYCE.

CIGARETTE MACHINE.

No. 249,452. Patented Nov. 15, 1881.

Fig: 1.

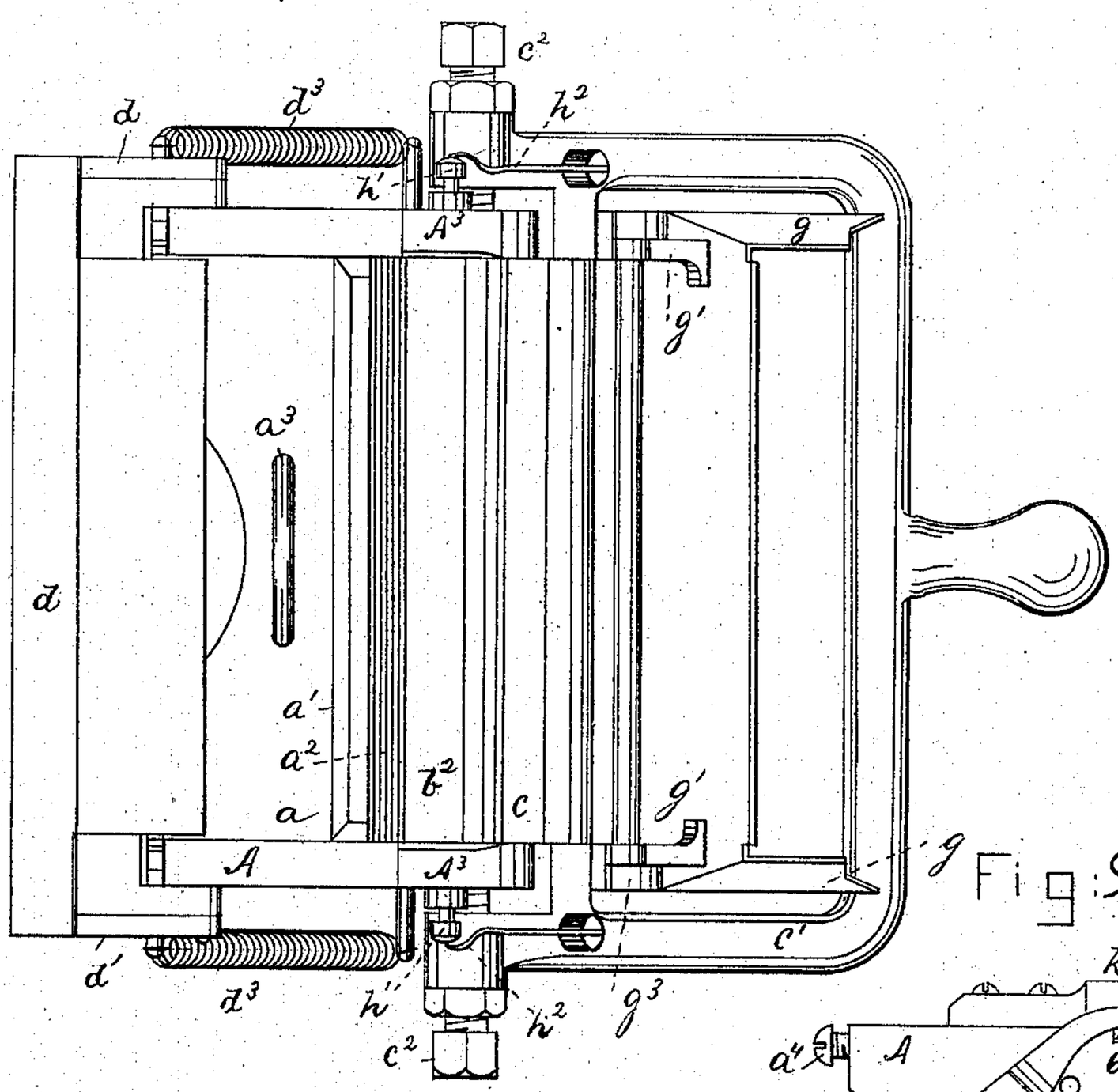


Fig: 9

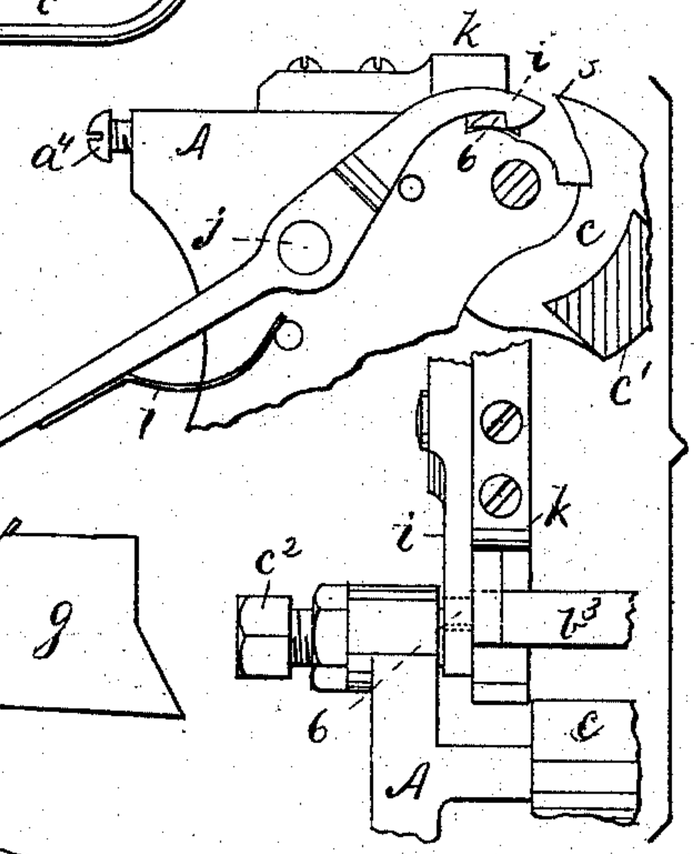


Fig: 2

Witnesses.

L. F. Connor.

Arthur Reynolds

Inventor.

Charles Boyce

by Crosby & Gregory Attys.

(Model.)

2 Sheets—Sheet 2.

C. BOYCE.

CIGARETTE MACHINE.

No. 249,452. Patented Nov. 15, 1881.

Fig: 3.

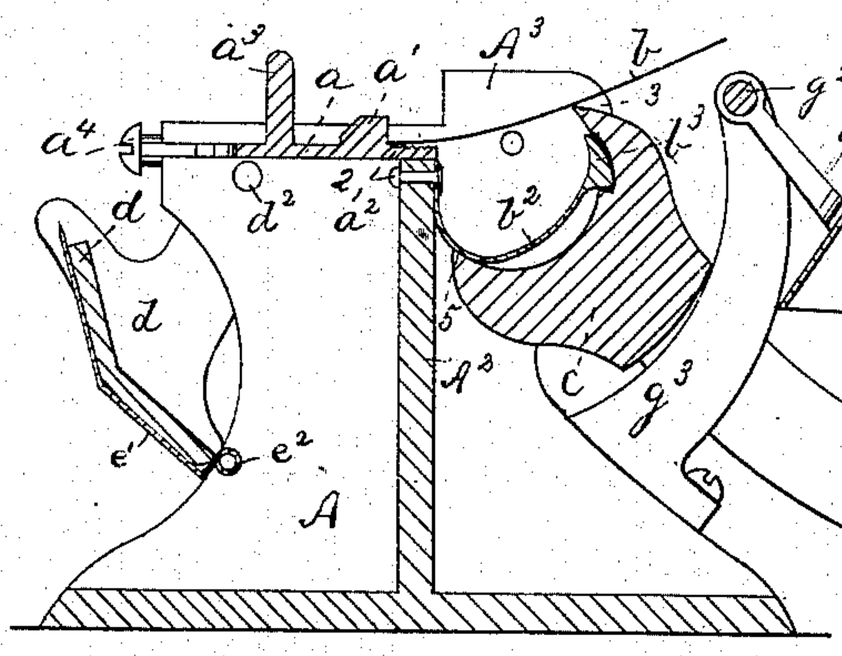


Fig: 4.

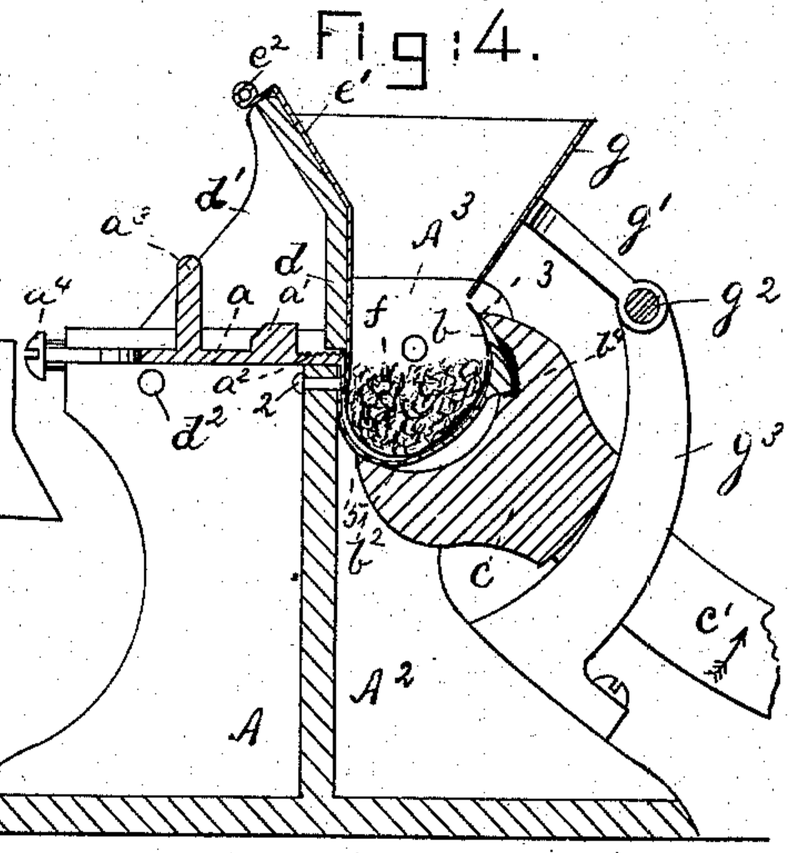


Fig: 5.

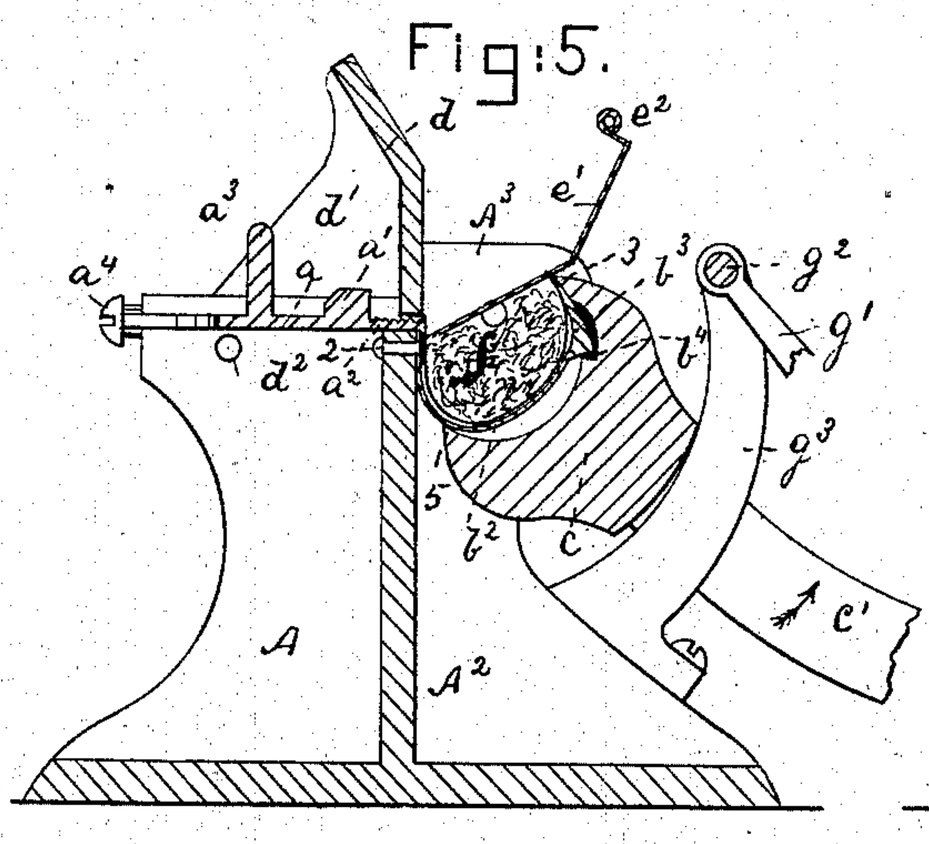


Fig: 6.

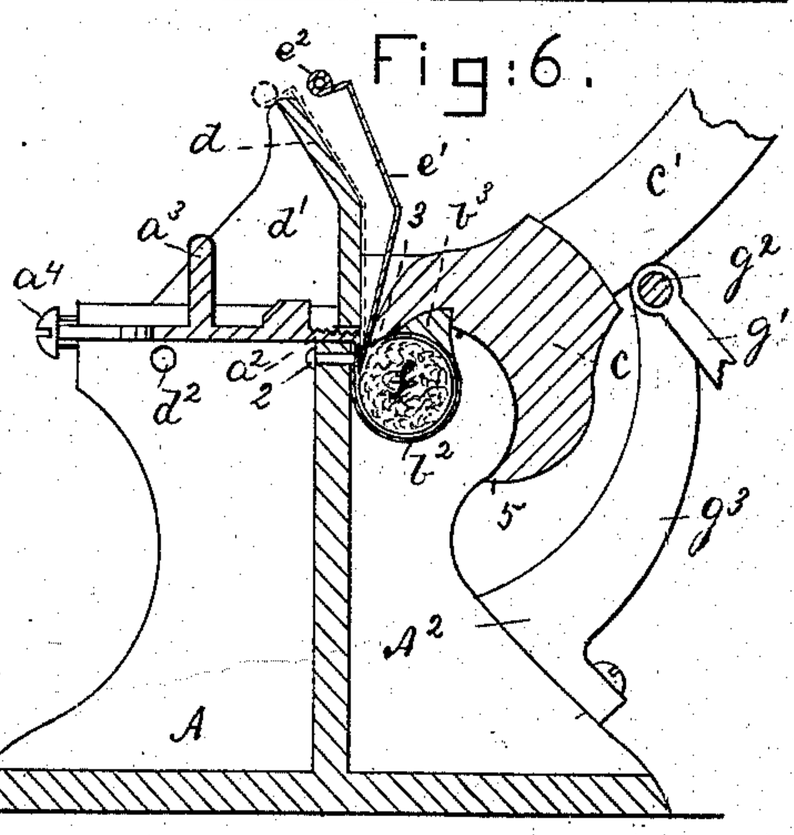


Fig: 10.

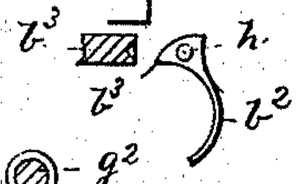


Fig: 7.

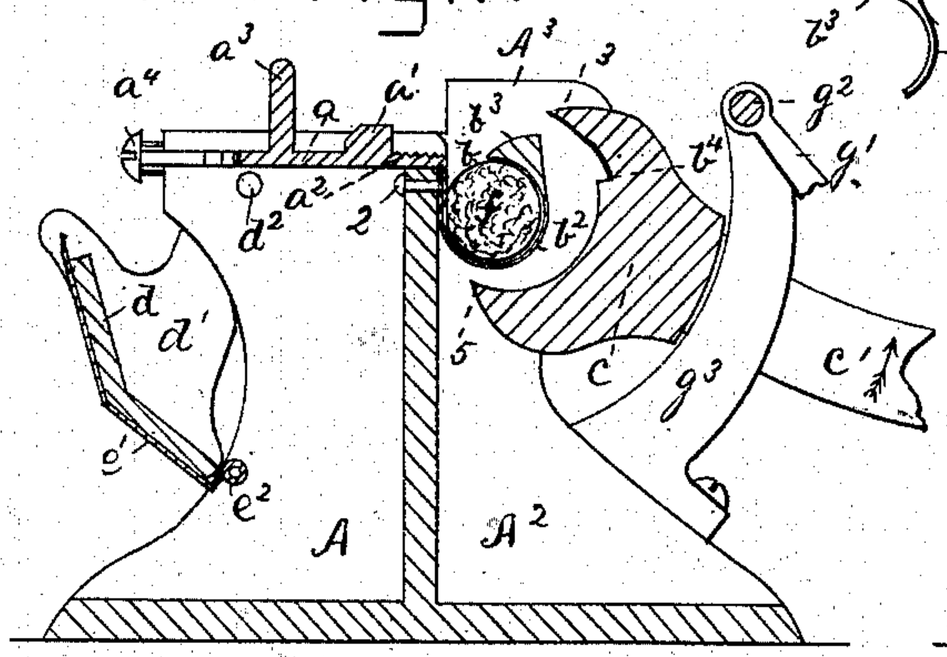
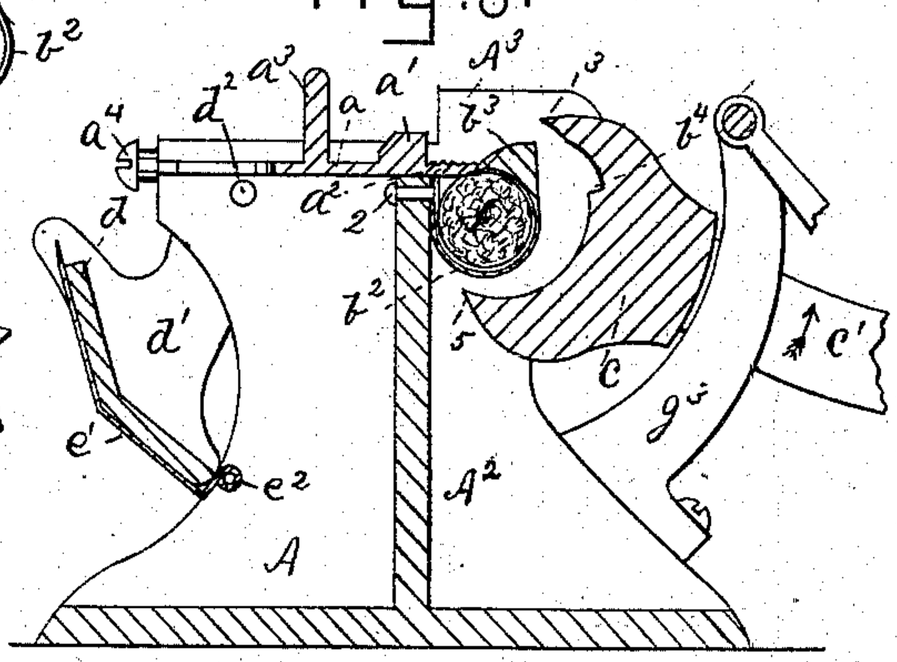


Fig: 8.



Witnesses—

L. F. Connor.

Arthur Reynolds.

Inventor—

Charles Boyce

by Crosby & Gregory Attys.

UNITED STATES PATENT OFFICE.

CHARLES BOYCE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO AUGUSTUS BROWN, OF SAME PLACE.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 249,452, dated November 15, 1881.

Application filed November 19, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHARLES BOYCE, of Boston, county of Suffolk, State of Massachusetts, have invented a new and useful Improvement in Machines for the Manufacture of Cigarettes, of which the following description, in connection with the accompanying drawings, is a specification.

This invention has for its object the production of a simple and efficient machine for the manufacture of cigarettes.

In this my improved machine I take a piece of paper of the size required, place it in the machine up to a gage, clamp one edge of the paper, bend the paper down into a flexible gatherer, and when the paper has been supplied with the necessary tobacco the gatherer is closed to bring into compact cylindrical shape the tobacco and paper outside of it, after which the edges of the paper are overlapped and secured by gum or otherwise, the gatherer is permitted to open, and the finished cigarette is removed from the machine.

One especial feature of my invention in cigarette-machines includes a flexible metallic gatherer which, when opened or extended, receives the paper or tobacco within it, and which when subsequently closed brings the gatherer into circular form, it wrapping the paper about the tobacco compressed and compacted by bringing the longitudinal edges of the gatherer nearly in contact, the space left between the said edges being only sufficient to enable the paper to be lapped.

Other especial features of my invention are hereinafter set forth and specified at the close of this description.

Figure 1 represents, in top or plan view, a cigarette-machine containing my improvements, the machine being entirely open. Fig. 2 is an end elevation thereof. Fig. 3 is a vertical cross-sectional detail, showing the machine entirely open with the paper laid thereon ready to be clamped; Fig. 4, a like detail, showing the paper clamped, the filling-hopper thrown up, and tobacco placed in the gatherer; Fig. 5, a like detail, the filling-hopper having been thrown back and the compressor thrown forward upon the tobacco; Fig. 6, a like detail, showing the gatherer nearly closed about the tobacco and paper; Fig. 7, a like detail with the lever for moving the gatherer partially turned back; Fig. 8, a like detail with the edge-lapping slide pushed forward; Fig. 9, detail of a modified form of gatherer-locking device, and Fig. 10 a detail to be referred to.

The frame-work of the machine is lettered A. The edge-lapping slide *a* held at its ends in guideways of the frame-work has at its front end a gage, *a'*, for one edge of the paper *b* to form the wrapping for the cigarette, and in front of the gage it has a rest or supporting ledge, a^2, for that end of the paper which is to be held while its other end is being wrapped about the tobacco. The edge-lapping slide has a projection, a^3, by which to operate it by hand. Adjusting-screws a^4 regulate the extent of the backward movement of this slide.

At the front side of the upright plate A^2, forming part of the frame-work, I have attached, as herein shown, by suitable rivets, 2, one longitudinal edge of the gatherer b^2, it being composed of a thin metallic plate, preferably of spring-steel of about three one-thousandths of an inch thick. The small ends of the rivets, after being extended through holes in the edge of the gatherer, will preferably extend through a small strip of thin metal, which serves as a washer for the series of rivets. The gatherer has attached to it, parallel with and at or near its other end, a bar, b^3, of steel, preferably soldered to the gatherer. This bar, when the gatherer is in its normal position, as in Figs. 3 to 5, rests on a shoulder, b^4, (see Fig. 7,) made in the cross-bar *c*, having connected with it a lever, *c'*, by which to operate it, the said cross-bar being supported at its opposite end upon the conical points of set-screws c^2, supported by the frame-work. The upright or vertical faces A^3 of the frame-work come substantially against and so as to form end walls for the space otherwise bounded by the gatherer, the tobacco, when pressed or placed in the gatherer, resting against the said vertical faces A^3, they serving as the faces against which the ends of the cigarettes are formed and squared. As the lever *c'* is raised, the movement of the cross-bar *c* causes the shoulder b^4 to act on the bar b^3 and close the gatherer.

The paper-holding clamp *d*, made as a cross-bar and having arms *d'*, has its pivot d^2 at the

rear side of the machine, a spring, d^3, (see Fig. 2,) being connected therewith to hold the said clamp in either of its two extreme positions. (See Figs. 3 and 4.) This clamp has pivoted upon it, at *e*, the compressor *e'*, which may be turned forward about its pivot, so as to press on the tobacco *f*, as in Fig. 5, or so as to rest upon the upper thin edge, 3, of the cross-bar *c*, the weight of the compressor being sufficient to keep the tobacco down while the said edge 3 of the cross-bar travels in the arc of a circle toward the fixed edge of the gatherer, it moving at such time in contact with the under side of the compressor. At its upper end the compressor has a fastening device, represented as a spring-piece, e^2, to lock over one edge of the clamp-bar *d*, as in Fig. 4.

The filling-hopper *g*, herein shown as having but one side and two ends, is carried by the arms *g'*, pivoted at g^2 on the brackets g^3. The compressor, pivoted, as described, upon the clamp, when in the position Fig. 4, constitutes one side of the hopper.

Each end of the steel bar b^3 (see Fig. 10) is provided with a conical recess, *h*, to receive the conical ends of the spring-held locking devices *h'*, they being herein shown as headed pins extended horizontally through holes in the vertical faces A^3 before described. As the lever *c'* is elevated to enable the cross-bar *c* to close the gatherer, the heads of these pins *h'* are so pressed upon by the springs h^2 carried by the said lever that when the conical recesses *h* of the bar b^3 come opposite the ends of the pins the latter enter the said recesses and lock the bar in place, it at that time having reached its most forward position, as in Fig. 6, and the said pins act to hold the said bar in place and the gatherer closed about the tobacco and paper until, as the lever completes its downward movement, the springs h^2 retire from contact with the pins, or the forward bent ends of the said springs cease to press the pins into the said recesses, when the said bar, owing to the spring properties of the gatherer, the tendency of which is to resume the position Fig. 3, moves backward into the position Fig. 3, the pins *h'* moving outward as soon as released by the springs h^2.

The longitudinal central position of the metallic gatherer is sustained by the lower portion or edge, 5, of the cross-bar *c*.

Instead of employing pins *h'* for the gatherer-locking devices, I may provide the ends of the bar b^3 with projections 6 to enter below a cap, *k*, the said projections being engaged at the proper times by catches *i* pivoted at *j* and pressed in one direction by springs *l*.

Operation: Assuming the parts to be as in Fig. 3, the paper wrapper *b* has one edge placed against the edge-gage, the clamp *d* is turned over upon the edge of the wrapper, then supported by the rest a^2, and the filling-hopper is turned over into position, as in Fig. 4, when the tobacco *f* is placed in the hopper, and with a small stick or plunger, operated by hand, is pushed down upon the wrapper, crowding it and the tobacco into the gatherer. In this condition of the parts (see Fig. 4) the filling-hopper is next turned back from above the gatherer, the compressor is turned forward, as in Fig. 5, the lever *c'* is lifted, and the cross-bar *c* turned so that its edge 3 moves in the arc of a circle. The edge 3 in its movement travels in contact with the compressor, and the cross-bar, at the same time acting against the bar b^3 of the gatherer, causes it to be bent longitudinally from its position Fig. 5 into the position Fig. 6, when the ends of the bar b^3 are locked, as described, the lever *c'* is partially lowered, and the clamp turned back, as in Fig. 7. In this condition the edge of the paper wrapper previously held on the rest—or it may be the other edge of the wrapper, extended just beyond the front edge of bar b^3—is suitably gummed or pasted, and the edge-lapping slide *a* is moved forward to lap one edge of the paper over the other edge, after which the gatherer may be opened by the further downward movement of the lever, and the completed cigarette removed.

Cigarettes made in this my machine are finished at their ends so that they do not need to be cut or trimmed, and the wrapper is stretched tightly about the tobacco pressed and compacted solidly, the degree of such solidity depending upon the amount of tobacco placed in the gatherer and held down by the compressor.

I claim—

1. In a cigarette-making machine, the thin metallic flexible gatherer fixed at one edge and provided at its other or movable edge with a bar, b^3, to stiffen the gatherer, combined with means to act upon the said bar when the gatherer is open, and close the gatherer to compress the tobacco into cylindrical form, and fold about the tobacco a wrapper previously laid in the gatherer, substantially as described.

2. The thin metallic flexible gatherer fixed at one of its longitudinal edges and provided at its other edge with a bar, b^3, combined with a shouldered cross-bar to act upon and move one edge of the gatherer toward its other edge in the arc of a circle, substantially as described.

3. In a cigarette-making machine, the thin metallic gatherer having a thin-edged bar, b^3, connected therewith, as described, and adapted to be closed into tubular form, combined with the compressor to bear upon and retain the tobacco in the gatherer while the bar b^3, connected therewith, is being curved longitudinally, the said bar b^3 in its movements working close to the compressor, all substantially as described.

4. In a cigarette-making machine, an edge-gage to position and a clamp to hold one edge of the paper wrapper, and a thin sheet-metal gatherer adapted to be bent into tubular form, substantially as described.

5. In a cigarette-making machine, a clamp for one edge of the paper wrapper, the thin metallic gatherer, and the cross-bar provided

with the thin edge 3, combined with a compressor to rest upon the tobacco while the said edge is being moved in the arc of a circle and the gatherer is being carried longitudinally into cylindrical form, substantially as described.

6. The thin metallic gatherer provided at one end with a bar, b^3, and a cross-bar or device to bend the gatherer longitudinally into cylindrical form, combined with vertical faces A^3, against which the ends of the gatherer move, the said faces constituting the ends against which the ends of the cigarette are formed, substantially as described.

7. The thin sheet-metal gatherer provided with bar b^3 at one edge, and the clamp to hold the paper to be wrapped about the tobacco, and the rest combined with locking devices, substantially such as described, to retain the gatherer in cylindrical form with its edges almost brought together, while the edges of the paper wrapper are gummed or pasted and lapped, substantially as described.

8. The thin sheet-metal gatherer and movable cross-bar to bend it into and locking devices to hold it in cylindrical form, to retain the wrapper and tobacco in such form, combined with an edge-lapping slide to lay one edge of the wrapper over upon its other edge, substantially as described.

9. In a cigarette-making machine, a filling-hopper and an open-sided thin sheet-metal gatherer adapted to receive and be bent into cylindrical form to compress the tobacco into such form and turn a paper wrapper about it, substantially as described.

10. An organized cigarette-making machine, it containing the following instrumentalities, viz: a clamp for one edge of the paper wrapper, a filling-hopper, a thin sheet-metal gatherer adapted to be bent longitudinally into cylindrical form to compress into such form the tobacco and fold the paper wrapper about it, means to operate the sheet-metal gatherer, and an edge-lapping slide to lap one edge of the paper wrapper over upon its other edge while the tobacco and wrapper are held in cylindrical form by the gatherer, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES BOYCE.

Witnesses:

G. W. GREGORY,

ARTHUR REYNOLDS.