

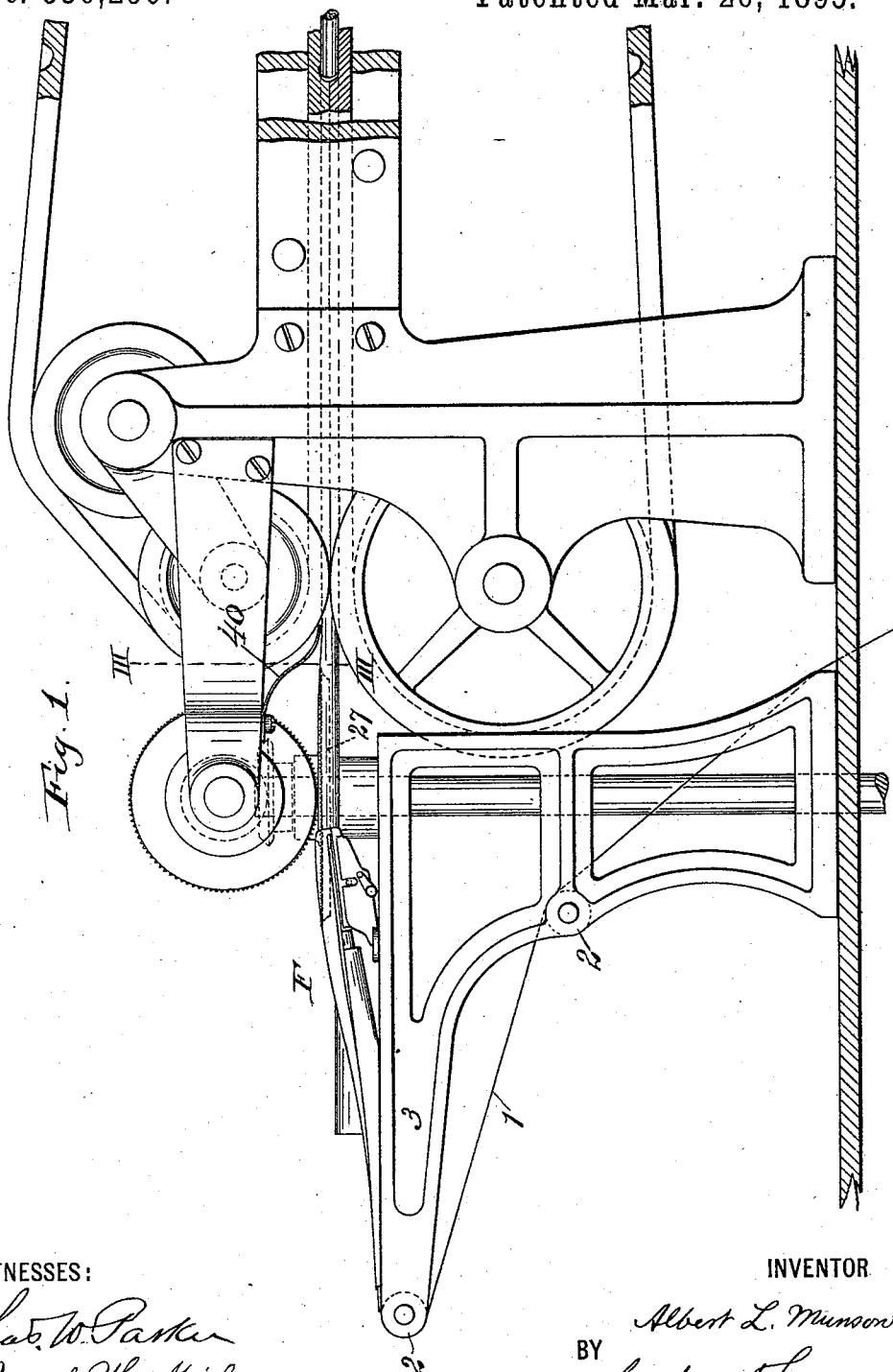
(No Model.)

3 Sheets—Sheet 1.

A. L. MUNSON.
MANUFACTURE OF CIGARETTES.

No. 536,290.

Patented Mar. 26, 1895.



WITNESSES:

Chas. W. Parker
Joseph H. Milans

INVENTOR

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Graham & Low
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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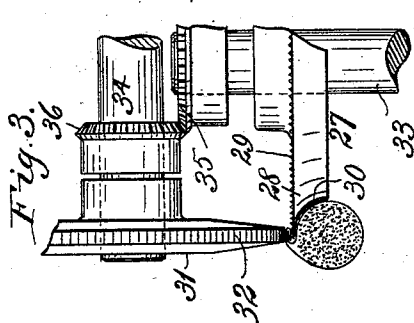


Fig. 5.

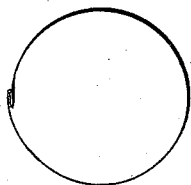


Fig. 4.

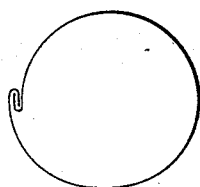
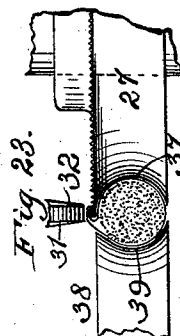
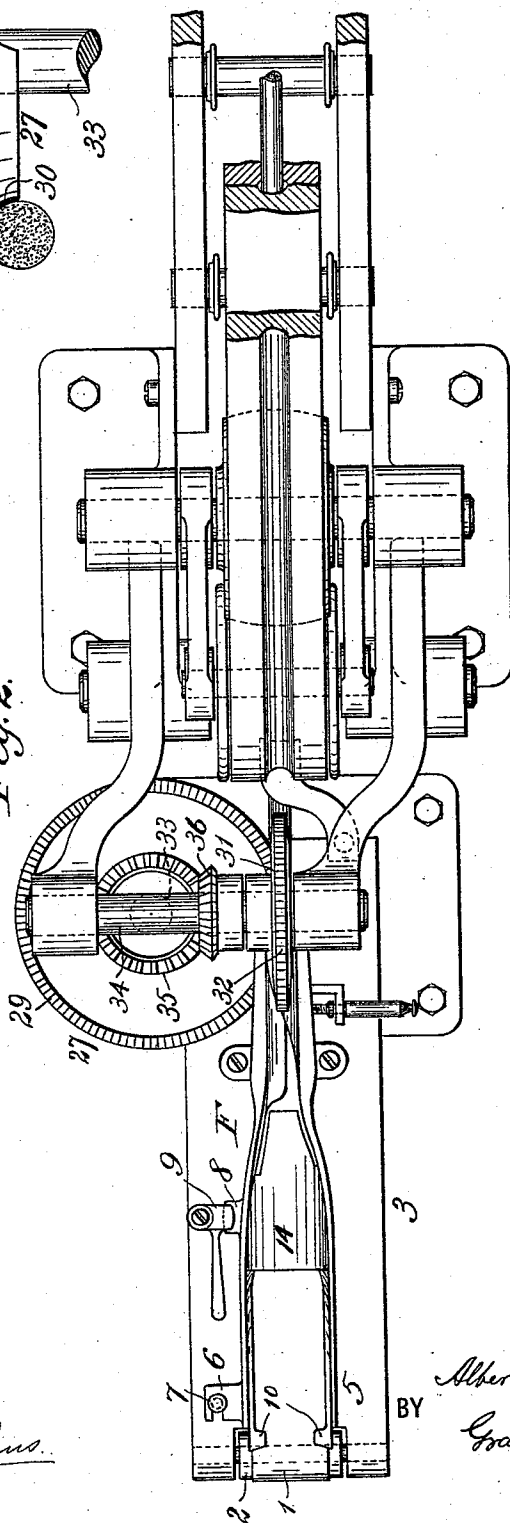


Fig. 2.



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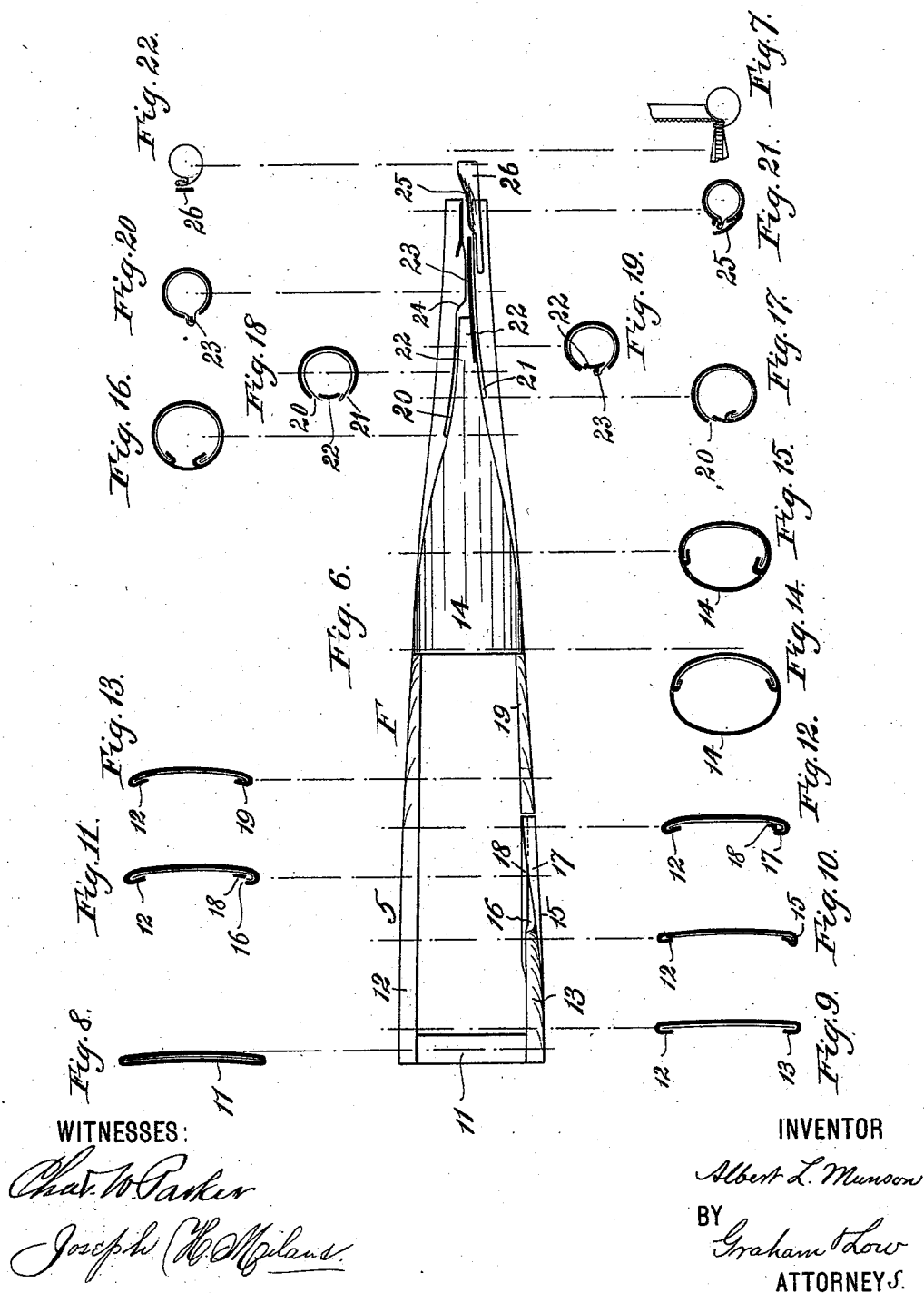
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UNITED STATES PATENT OFFICE.

ALBERT L. MUNSON, OF NEW YORK, N. Y.

MANUFACTURE OF CIGARETTES.

SPECIFICATION forming part of Letters Patent No. 536,290, dated March 26, 1895.

Application filed July 13, 1894. Serial No. 517,434. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. MUNSON, a citizen of the United States of America, residing in the city, county, and State of New York, have invented certain new and useful Improvements in the Manufacture of Cigarettes, of which the following is a specification.

This invention relates to that manufacture of cigarettes in which the tobacco in the form of a continuous filler is enveloped by a continuous wrapper strip, the edges of which are united, thereby forming a continuous cigarette ready to be severed into short lengths or individual cigarettes.

The union of the edges of the wrapper strip is commonly effected by paste, but that method is objectionable in that the burning of the paste produces a distinct and objectionable odor, impairing the flavor of the tobacco.

My present improvements are directed to obviating the necessity of employing paste for the above purpose, at the same time enabling the manufacture to be conducted with rapidity and economy, and effecting a secure union between the edges of the wrapper.

Having such objects in view my invention consists in an improved method of uniting the wrapper-strip edges; in an improved article of manufacture—namely, a cigarette—having the edges of its wrapper united by folding and crimping as hereinafter more particularly set forth; and in a machine or apparatus serving as one means among others for carrying said method into effect and for making the said improved articles of manufacture. The said method consists in first enveloping the filler in the wrapper strip, then folding the edges of the latter so that they interlock and form a seam upon the exterior of the cigarette, and then crimping the seam in a plane tangential to the body of the cigarette and exterior to the wrapper.

The improved article of manufacture consists in a cigarette having the edges of its wrapper interlocked to form an exterior seam and having such seam crimped or corrugated transversely exterior to, and separated from the cylindrical portion of the wrapper.

The mechanical part of my invention consists in the parts and combinations thereof hereinafter more particularly set forth and

especially in a seam-crimping means comprising a presser, and an anvil or second presser situated between the first presser and the path of the body of the cigarette, and exterior to the wrapper of the latter.

In order to make my invention more clearly understood, I have shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements in their useful applications to the particular construction which, for the sake of illustration, I have delineated.

In said drawings:—Figure 1 is a side elevation of a portion of a cigarette machine embodying my invention, that part of the machine being shown at which the forming and crimping devices are situated and the wrapper strip is applied to the filler. Fig. 2 is a plan view of the same. Fig. 3 is an elevation on a larger scale of a portion of the wrapper crimping devices, the cigarette being shown in section, on line III—III, Fig. 1. Figs. 4 and 5 are cross-sectional views of the wrapper strip, illustrating the mode of joining its edges. Fig. 6 is a plan view of the former. Fig. 7 is an end view of the same showing also a portion of the crimping devices. Figs. 8 to 22 are sectional views of said former respectively on the successive transverse planes indicated by the dot-and-dash lines. Fig. 23 is an elevation showing crimping devices slightly different from those shown in Fig. 3, and also embodying my invention.

Before entering upon a detailed description of the construction and operation of those parts of the machine which embody and illustrate the mechanical part of my present improvements, it may be stated that the complete machine, in which these improvements will be applied for use, will ordinarily though not necessarily comprise, first, a means by which the tobacco is prepared and fed in condition to be operated upon by the cigarette forming devices, and known as the tobacco feeding devices, which may include a vertical tobacco conduit, channel or passageway; second, means by which the loose tobacco fed to the machine is prepared in the form of an endless filler and fed forward, and known as the filler-former or filler-forming devices; third, means by which a wrapper strip is fed in position to be fed forward from a roll or

other source of supply in position to meet the filler to envelop the latter, and known as the wrapper strip paying off or feeding devices; fourth, means by which the wrapper strip is curved and turned over the continuous filler to envelop the same, and known as the wrapper former or guide, which is formed with or succeeded by the cigarette former; fifth, means by which the continuous cigarette or wrapper strip with inclosed filler is fed or carried positively forward, known as the cigarette carrier; and, sixth, means by which the continuous cigarette is severed into cigarette lengths, known as the severing device.

As combined for use, the above mentioned several devices co-operate to feed the loose tobacco to the machine, prepare such tobacco in the form of a continuous cigarette filler, feed said filler forward to the wrapper strip, feed the wrapper strip forward to meet the filler, partially envelop the filler with the wrapper strip, complete the wrapping of the wrapper strip around the filler, and carry the continuous cigarette thus made forward and sever it into cigarette lengths forming complete cigarettes ready for the market.

The above description serves to give a general idea of a machine in which my present invention may be employed, and illustration and further description of such machine, not being necessary to an understanding of my improvements, need not be set forth herein, except as to those parts of the machine with which these improvements are more immediately connected.

While my improved article of manufacture and method of making the same may be produced and carried out by other appliances, I prefer to employ a cigarette machine of the type above indicated having the peculiar additional features about to be described.

Referring to the drawings, and letters and numerals of reference thereon, F indicates the former, comprising preferably both the means by which the wrapper strip is manipulated and by which the cigarette is formed. A wrapper-strip 1 is supplied to the former from a reel or other source, not shown, and is directed by rollers, pulleys or other guides 2. The rollers and former are supported upon a frame 3. To said former and upon the surface of the wrapper 1, the filler forming devices, not shown, supply a continuous body of tobacco constituting the filler of the cigarettes.

The former F may be secured to the frame 3 as indicated, by means of a slotted lug 6 on the former and engaging a pin 7 on the frame, and a second lug 8 engaged by a latch 9. At its end where the strip 1 is received the part F is formed with a wrapper guide and former 5, the extreme end of which is preferably flat or nearly so and adapted to engage the edges of the flat wrapper by means of bent-over edges or fingers 10, Fig. 2, or a transverse bar 11, Fig. 6, beneath which the wrapper-strip passes. Proceeding from this point along the

former F its edges are preferably bent over as indicated at 12 and 13, to maintain said engagement with the wrapper, and its bottom plate becomes more and more curved or concave, as best seen in Figs. 10 to 21, thereby causing the strip to gradually infold the superposed filler and to compact and give to the latter a true cylindrical shape. These objects are aided by a top plate 14 which may be situated at or near the middle of the former arching over from one bent edge of the former to the other and supported thereby. At the point 15 the flange 13 begins to approach the flange 12 slightly, or is approached thereby, thus contracting the wrapper guide laterally, and the outer portion of the flange is bent upward, as best seen in Fig. 10, with the effect of turning upward the edge of the wrapper as the guide becomes too narrow for it. At this point also the flange 13 is removed, or provided with an opening or slit 16, through which one edge of the wrapper may emerge being directed or curled upward and inward toward the middle of the wrapper by the said bend 15 and by the flange 17 of the former F, which flange inclines slightly toward the opposite flange 12 and is somewhat nearer to it than are the flanges 12 and 13 to each other.

Between the slit 16 and the middle of the former is left a tongue 18 which is a part of or is attached to the edge flange of the former, and which is either parallel with the farther edge of the wrapper or inclines toward it less than does the flange 17, lying with its forward end beneath the latter flange. The upwardly and inwardly curled edge of the wrapper is, therefore, caused to be folded over and half way around the tongue 18, as indicated in Fig. 12. Beyond the end of the tongue 18 the wrapper guide continues to contract laterally, the folding flange 17 being succeeded by a guiding flange 19, which lies closer to the bottom plate of the former and completes and flattens the fold of the edge of the wrapper. Thence proceeding along the former, the wrapper with one inwardly folded edge is, by the increasing concavity of the former, bent into a semi-circle or curve, partly enveloping the superposed filler, and passes under the arched top plate 14. Beneath the latter the flanges 12 and 19 continue for a distance still holding the edges of the wrapper-strip, as seen in Figs. 14, 15 and 16. At a point where the edges of the wrapper have been brought around the filler and near to each other, Fig. 16, the former is provided with an opening or slit 20 through which the unfolded edge of the wrapper will emerge as seen in Fig. 17; and at the other side of the former and preferably a little farther forward another slit 21 is made through which the folded edge of the wrapper may pass, Fig. 18. Between these slits the top of the former becomes a tongue 22 over and outside of which the wrapper strip edges lie.

23 is a rib, guide or opener carried by the tongue 22 near to the slit 21 and adapted to

enter beneath the folded edge of the wrapper strip and open or lift it from the body of the strip. See Fig. 19.

24 is a shoulder or guide on the former and adapted to throw the unfolded or straight edge of the wrapper toward and against the rib 23 so that it will be engaged beneath the folded edge as seen in Fig. 20. The edge of the strip which forms the inner part of this seam, stands at this time radially outward from the body of the cigarette, and the edge which forms the outer portion of the seam passes around the first mentioned edge and terminates in a flange or bend which extends inward toward the body of the cigarette.

25 is a deflecting or folding plate at the forward end of the former beyond the end of the tongue 23, by which the united edges of the wrapper are bent and folded over, Fig. 21, so as to produce a fold on that edge which has heretofore been straight and unfolded. This latter fold is an outward one, so that the two folds interlock to produce on the cigarette an exterior seam, as seen in Fig. 22. Beyond the plate 25 is situated a flat folding plate 26, which may conveniently be the extremity of the plate 25, by which the said seam is finally flattened and compressed upon the surface of the cigarette, Fig. 22.

As the continuous cigarette emerges from the former with its edges interlocked as described, I provide for crimping or corrugating transversely the seam formed by said edges, so as to secure their engagement with each other. To this end I arrange two crimping surfaces or devices, one which I term the anvil adapted to enter beneath the said seam and operate upon the under side thereof, and the other which I term the presser acting upon the exterior of the seam. Said surfaces or devices have teeth or projections alternating with and entering between each other which serve to produce the corrugations, crimps or flutings across the seam. While various forms of crimping devices may be employed for this purpose, I prefer those shown in Figs. 1, 2, 3 and 7, in which 27 is the inner or under crimping device in the form of a wheel having a thin edge 28 adapted to enter beneath the wrapper seam, and on its upper or outer surface crimping projections 29. The wheel 27 may be made concave on its periphery to correspond with and receive the cigarette, as shown at 30 in Fig. 3.

31 is the upper or outer crimping device, in the form of a wheel having upon its periphery crimping projections 32 fitting and engaging between the projections 29. These crimping wheels are preferably mounted on the vertical shaft 33 and horizontal shaft 34, and caused to run in unison by bevel gears 35, 36, thereon. The vertical shaft 33 may conveniently be the driving shaft, receiving power from any desired source.

By the above or equivalent crimping means the seam is crimped exteriorly to the filler-

inclosing portion of the wrapper, and in a position which may be termed parallel with the surface of the cigarette, or tangential to its cylindrical body.

The inner crimping wheel may be formed as shown in Fig. 23, in which said wheel has a semi-circularly concave periphery 37 adapted to engage and support one-half of the continuous cigarette at the point where the crimping is performed.

38 is an opposing wheel having a corresponding concave periphery 39, which, together with the crimping wheel, forms a substantially complete circle of the same diameter as the cigarette and supports the latter on all sides at the place where the crimping is done.

After the wrapper has been crimped as described, the crimped seam may be folded down flat on the body of the cigarette by any suitable means, as for instance, by belts of known construction which grasp and carry the cigarette forward, or by a folding spring 40, seen in Fig. 1, attached to the frame of the machine and bearing at its free end on the crimped seam with the necessary pressure.

I claim—

1. As an improved article of manufacture a cigarette having the edges of its wrapper interlocked to form an exterior seam lying flat upon and parallel with the surface of the cigarette, and the said seam crimped or corrugated exterior to and separately from the cylindrical portion of the wrapper and in a plane tangential thereto.

2. As an improved article of manufacture a cigarette having one longitudinal edge of its wrapper bent outward and backward, and the other edge of the wrapper bent inward and backward, said edges being interlocked, transversely crimped exterior to and separately from the cylindrical portion of the wrapper, and folded down upon the cigarette, substantially as set forth.

3. In the manufacture of cigarettes the herein described method of crimping the interlocked edges of the wrapper which consists in folding said wrapper about the filler, interlocking its edges to form a seam which lies flat upon the surface of the cigarette, and crimping said seam exterior to and independently of the body or circular portion of the wrapper and in a plane tangential to the latter.

4. The herein described method of making cigarettes which consists in enveloping the filler in a suitable wrapper, turning outward one edge of the wrapper, turning the other edge of the wrapper inward and completely around the first mentioned edge, folding said edges down to form a seam flat upon the surface of the cigarette in which the edges are interlocked with each other, and crimping or corrugating said seam exterior to the cylindrical portion of the wrapper and in a plane tangential thereto, substantially as set forth.

5. In a cigarette machine the combination

with means for wrapping the filler holding the cigarette and interlocking its wrapper edges to form a seam, of a presser for operating on said seam, and an anvil or cooperating presser
5 situated between said first mentioned presser and the path of the body of the cigarette and exterior to the wrapper of the latter.

6. In a cigarette machine a wrapper-strip folder having at one edge means for curling
10 or folding over the edge of said strip, and provided with a curved or tubular portion, a central tongue having a projection or rib adapted to enter beneath the folded edge of the strip and separated from said curved portion to
15 leave slits or apertures at each side of said rib, and a folder, near the path of the interlocked edges of the wrapper and adapted to engage the top or exterior thereof, substantially as set forth.

20 7. A wrapper strip folder having at one side means for curling or folding over an edge of the strip, guiding devices for causing the unfolded edge to enter beneath said fold, a folder for folding said edges down upon the cigarette to form an interlocked seam, and crimpers
25 exterior to the cigarette and operating on the said seam in a plane tangential to the body of the cigarette, substantially as set forth.

30 8. A wrapper-strip folder having at one side means for curling or folding over an edge of the strip, a tongue for opening or lifting the folded edge, guiding devices for causing the unfolded edge to enter beneath said fold, a
35 folder for operating on said edges, and crimpers exterior to the cigarette, substantially as set forth.

9. In a cigarette machine cooperating crimping devices, one situated at a tangent to the
40 cigarette, and the other exterior to the cigarette and to the said tangent device, substantially as set forth.

ette and to the said tangent device, substantially as set forth.

10. In a cigarette machine having means for forming a seam in the wrapper of the cigarette, a crimping wheel adapted to enter be-
45 tween the cigarette and the seam of its wrapper, and a cooperating crimping wheel exterior to said seam, substantially as set forth.

11. In a cigarette machine having means for forming a seam in the wrapper, cooperating
50 crimping wheels, one of which is concave to fit the cigarette, substantially as set forth.

12. In a cigarette machine, a crimping wheel exterior to and parallel with the axis of the cigarette, a cooperating crimping wheel
55 having its crimping portion at a tangent to the cigarette and having a concave cigarette supporting periphery, and an opposing supporting wheel having a concave periphery, substantially as set forth.

13. A wrapper-strip guide and former having edge flanges, a folding flange 17, slits 20,
21, in the former, a rib 23, between said slits, a deflecting plate 25, and a folding plate 26,
65 substantially as set forth.

14. In a cigarette wrapper seaming device a former having a rib situated within the wrapper and exterior to the filler, means for
70 folding and interlocking the edges of the wrapper around said rib, and crimping devices exterior to the cigarette and operating on both sides of the interlocked edges, substantially as set forth.

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

ALBERT L. MUNSON.

Witnesses:

GEO. H. GRAHAM,
H. N. LOW.