No. 777,802. PATENTED DEC. 20, 1904.

J. PAUL & C. HARTLIEB.

CIGARETTE MACHINE.

APPLICATION FILED OCT. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

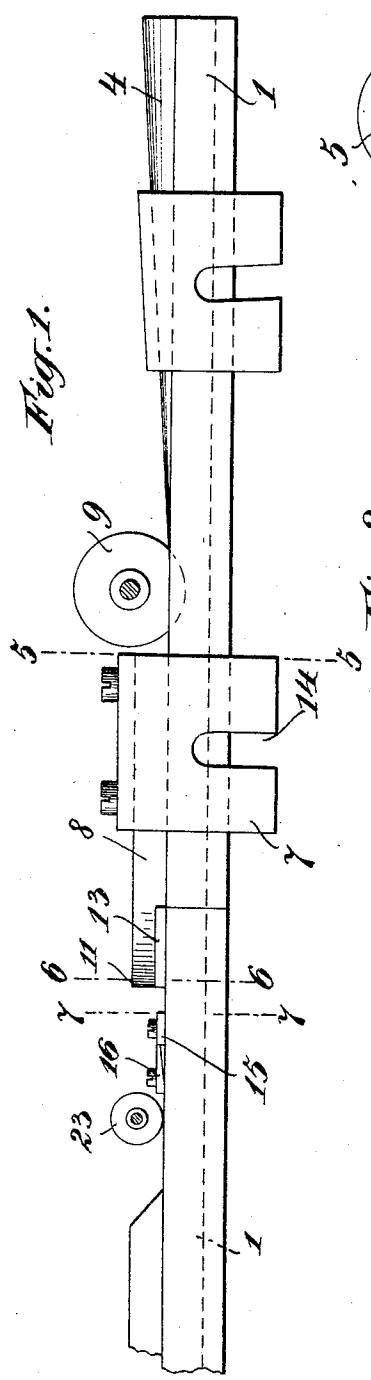


Fig. 2.

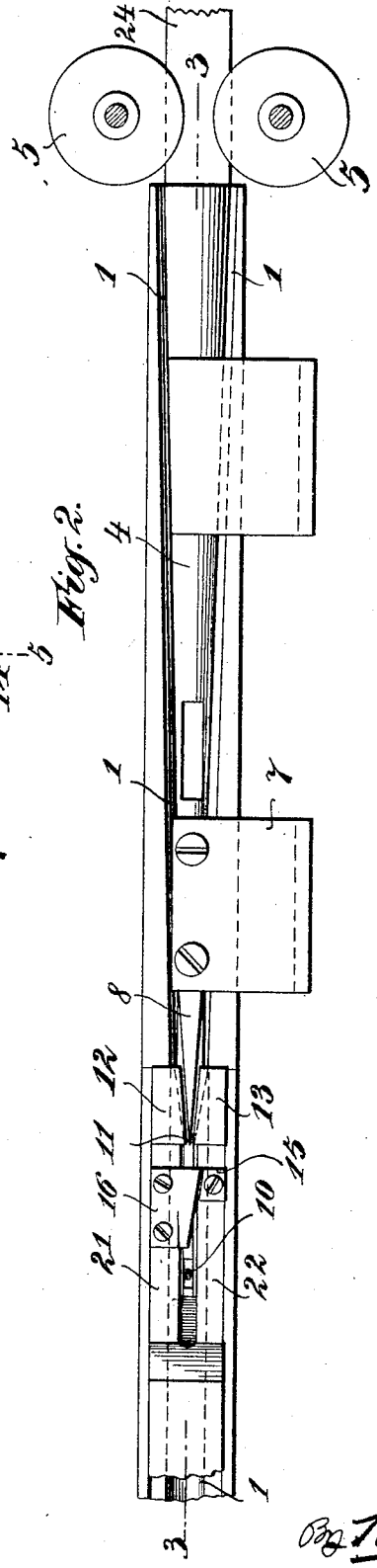
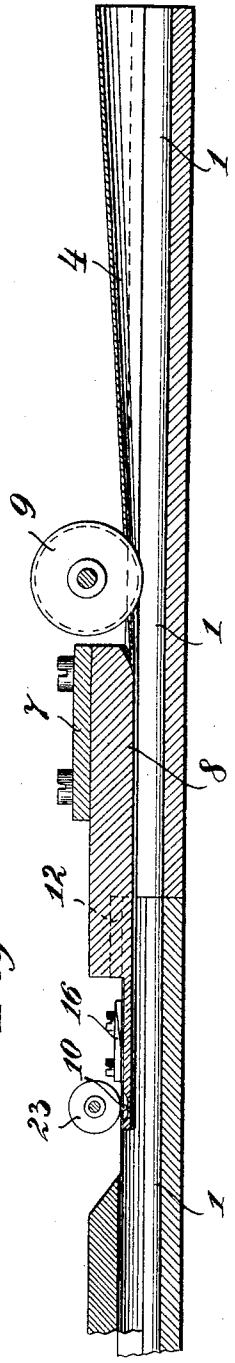


Fig. 3.



Witnesses:

H. C. Manning.

Harold Fowler

Inventors:

Curt Hartlieb

Josef Paul

By Knight Bros. Attys.

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NO MODEL. 2 SHEETS—SHEET 2.

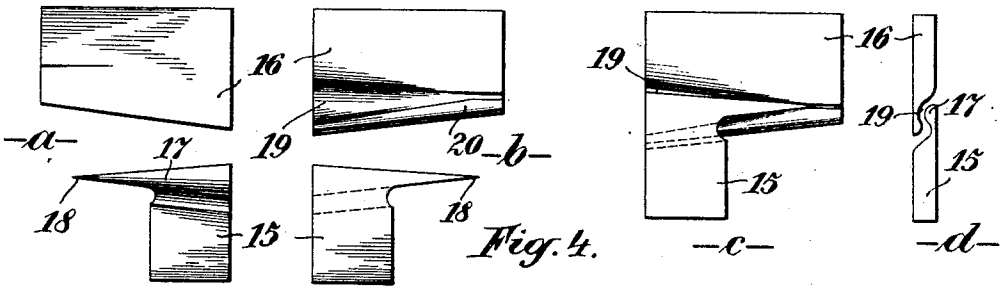


Fig. 4.

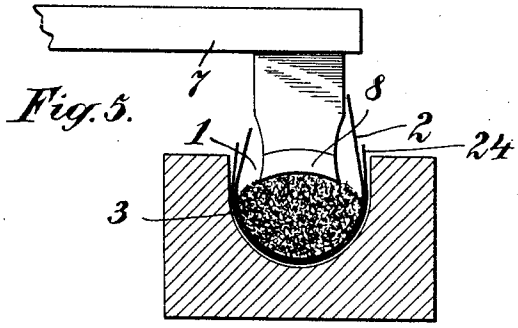


Fig. 5.

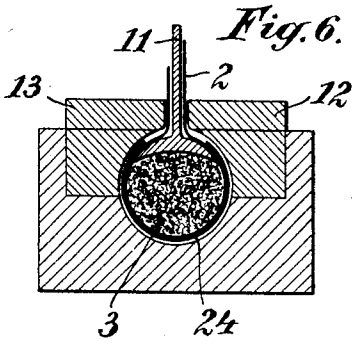


Fig. 6.

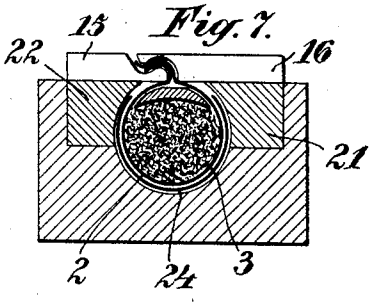


Fig. 7.

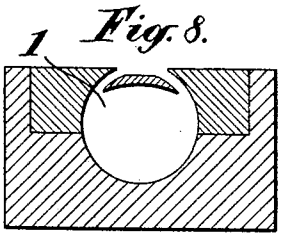


Fig. 8.

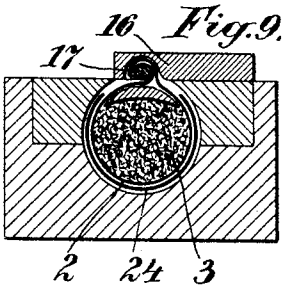


Fig. 9.

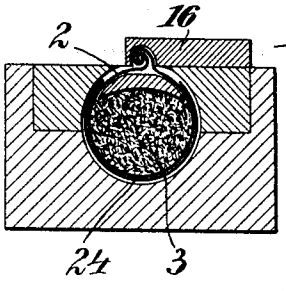


Fig. 10.

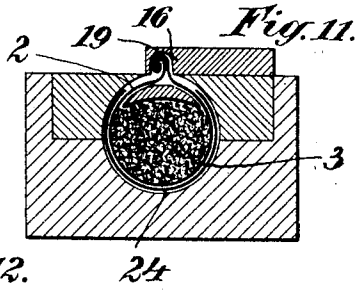


Fig. 11.

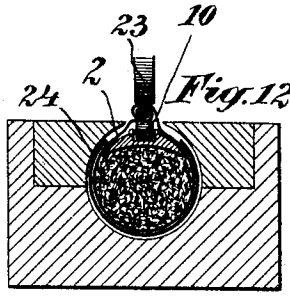


Fig. 12.

Witnesses:

Louis Reinhardt

H. T. Simms

Inventors

Curt Hartlieb and

Josef Paul

By Knight Bros

No. 777,802. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

JOSEF PAUL AND CURT HARTLIEB, OF DRESDEN, GERMANY, ASSIGNORS TO FEINMASCHINENBAU G. CALBERLA, G. M. B. H., OF DRESDEN, GERMANY.

CIGARETTE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 777,802, dated December 20, 1904.

Application filed October 20, 1902. Serial No. 128,068.

To all whom it may concern:

Be it known that we, JOSEF PAUL and CURT HARTLIEB, citizens of the Kingdom of Saxony, and residents of Dresden, Saxony, Germany, (whose post-office addresses are Frankenstrasse 7 and Lortzingstrasse 4, respectively,) have invented certain new and useful Improvements in Cigarette-Machines, of which the following is a specification.

Our present invention relates to improvements in cigarette-machines of the class which are adapted to make continuous cigarettes by progressively wrapping a long continuous wrapper-strip around a tobacco rope which is mechanically brought into a right thickness by a funnel-shaped end of the conducting-channel.

It has for its object to provide a means by which the edges of the wrapper are made into a sixfold seam—*i. e.*, into a seam of six thicknesses.

In the drawings accompanying the description, Figure 1 shows a side view, and Fig. 2 a top view, of a machine embodying my invention. Fig. 3 is a longitudinal section on line 3 3 of Fig. 2. Fig. 4 shows the folding device—*i. e.*, two plate-like parts of same—in *a* seen from above, in *b* in bottom view and in *c* same view, both parts being in operating position, and in *d* same position seen from the forward end of the device. Fig. 5 is a section on line 5 5 of Fig. 1; Fig. 6, a section on line 6 6 of Fig. 1; Fig. 7, a section on line 7 7 of Fig. 1, and Fig. 8 same section with the folding device removed. Figs. 9 to 11 are sections through the folding device, showing the different stages of operation; and Fig. 12 is a section just in front of the resisting-roller.

1 is a channel extending longitudinally over a frame of suitable construction which may be attached in any desirable way to the main frame of a cigarette-machine. Through this channel 1 a wrapper-strip 2, taken from any convenient source, is advanced, as well as a previously-formed tobacco rope 3 on top of this wrapper. The forward part of said channel 1 is trough-like in shape, growing closer into the form of a funnel. This channel 1 thereby permits the edges of the wrapper 2 to remain in substantially the same horizontal plane and to bring the strip progressively from a nearly-flat into a U shape without straining or tearing the delicate paper, Fig. 5.

At the entrance of the channel 1 there are arranged two horizontal rollers 5, which deliver the tobacco rope 3, pressing the same into more or less elliptical form and giving said rope a density which makes it more convenient for its wrapping into cigarettes. This compression of the tobacco subjects the rope 3 to a considerable friction, for the overcoming of which an endless belt 24, as shown in the drawings, may be provided which runs guided in any convenient way through the channel 1 with the tobacco rope 3 and encircles the wrapper 2 sufficiently to carry them both along at its own speed through the channel 1 and past the devices hereinafter described. The top or upper portion of the channel 1 is nearly closed from its entrance end for a considerable portion of its length by a cover-plate 4 and by a guide 8, whose lower face is grooved according to the periphery of a section of the rope 3 and dips into the upper portion of the channel 1 so far that it exerts a slight pressure upon said rope 3, while the plate 4 assists the tapering action of the funnel-shaped part of the channel 1. Into close proximity with the forward or entrance end of the guide 8 is mounted a revolving wheel 9, whose periphery is concave to correspond substantially with the groove of the guide 8. The under surface of the latter is elevated slightly above the groove of the wheel 9 at its lowest point, so that the revolution of said wheel will compress the tobacco rope 3 slightly below the entrance of the guide 8, and thereby enable the rope to pass readily under it. This guide 8 is held in position by a support 7 and extends from the wheel 9 beyond the crimping mechanism, hereinafter described, and carries upon or near its end a small crimping-roller 10. The sides of the guide throughout a considerable portion of its length are cut away or grooved out to permit the edges of the wrapper 2 to approach each other, as seen in Fig. 5, and the guide is thinned down to a rib 11, Fig. 6, and then abruptly

decreases in height and continues with the rounded surface, (seen in Figs. 7 and 8,) so that the edges of the wrapper 2 are gradually brought in contact with each other in their passage between the points of the plates 12 and 13, fastened to the top of the channel 1. The support 7, with its guide 8, is held in position in any suitable manner upon the cigarette-machine.

The device for folding the edges of the wrapper 2 when they have been brought into contact with each other by the points of the plates 12 and 13 consists of two plate-like parts 15 and 16, of which plate 15 is shorter than plate 16 and bears on its edge a bulb 17, progressively tapering and extending therefrom to form a point 18, while plate 16 has near its edge a groove 19 and overhanging lip 20, both of which conform to the shape of the bulb 17 and turn the two edges of the wrapper 2 over the bulb 17 and its point 18. The wrapper 2 is fed into the channel in such a manner that the wrapper extends over one side of the channel more than the other, and therefore the overhanging lip of plate 16 grips over the point 18 of plate 15 in such a manner that the edges of the wrapper 2 are folded to a seam or joint of five thicknesses, whereby the outer edge completely encircles the inner one in a fashion of a smaller and a larger hook, both entangling in each other in opposite directions and with the larger hook inclosing the smaller one. After passing the folding device said five thicknesses are laid over with the help of the crimping-roller 10 to form a seam in substantially a horizontal position of six thicknesses, as shown in Fig. 12. The plates 15 and 16 are conveniently mounted upon plates 21 and 22, the four plates being secured in place by any suitable fastening elements. The roller 10 is arranged to revolve upon an axle secured in ears at the end of the guide 8. This roller is provided upon its surface or periphery with fine serrations running in the direction of its axis, as seen in Fig. 2. Above said roller 10 a wheel 23 with serrations corresponding to those of the roller may be mounted and brought to exert any desired pressure upon the wrapper-seam, which will be resisted by the roller 10 to incorporate the several thicknesses of which the seam is composed together to form a completed seam. The crimping-wheel 23, as well as the wheel 9 and wheels 5, may be mounted and driven by any desirble means or mechanism to produce the required results of their operation.

The function and operation of the various parts above referred to are sufficiently set forth in connection with their description.

It is specifically stated that the present invention is not limited to the particular construction of the parts or devices which coöperate to produce and form the seam of six thicknesses, as recited in the specification and claim.

The finished continuous cigarette as it emerges from the devices by which the engaged wrapper edges are incorporated together to a seam of six thicknesses by crimping or indenting may be afterward cut into marketable lengths by any well-known device adapted for this purpose.

Having now particularly described and ascertained the nature of our invention and in what manner the same is to be performed, we declare that what we claim, and desire to secure by Letters Patent, is—

In a cigarette-machine, the combination of a funnel-shaped channel, means for conveying the tobacco strip and the wrapper through the channel, the wrapper being conveyed more on one side of the channel than the other, a support, a guide carried by said support, grooved on its under face and reduced in height for a portion of its length at the rear, and a folding device comprising a pair of plates, one mounted on each side of the channel over the guide near its rear end and one of which is shorter than the other and bears on its edge, a bulb progressively tapering into a point, while the other has near its edge a groove and an overhanging lip conforming to the shape of the bulb.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEF PAUL.
CURT HARTLIEB.

Witnesses:
HERMANN TEICH,
PAUL ARRAS.