No. 707,768. Patented Aug. 26, 1902.

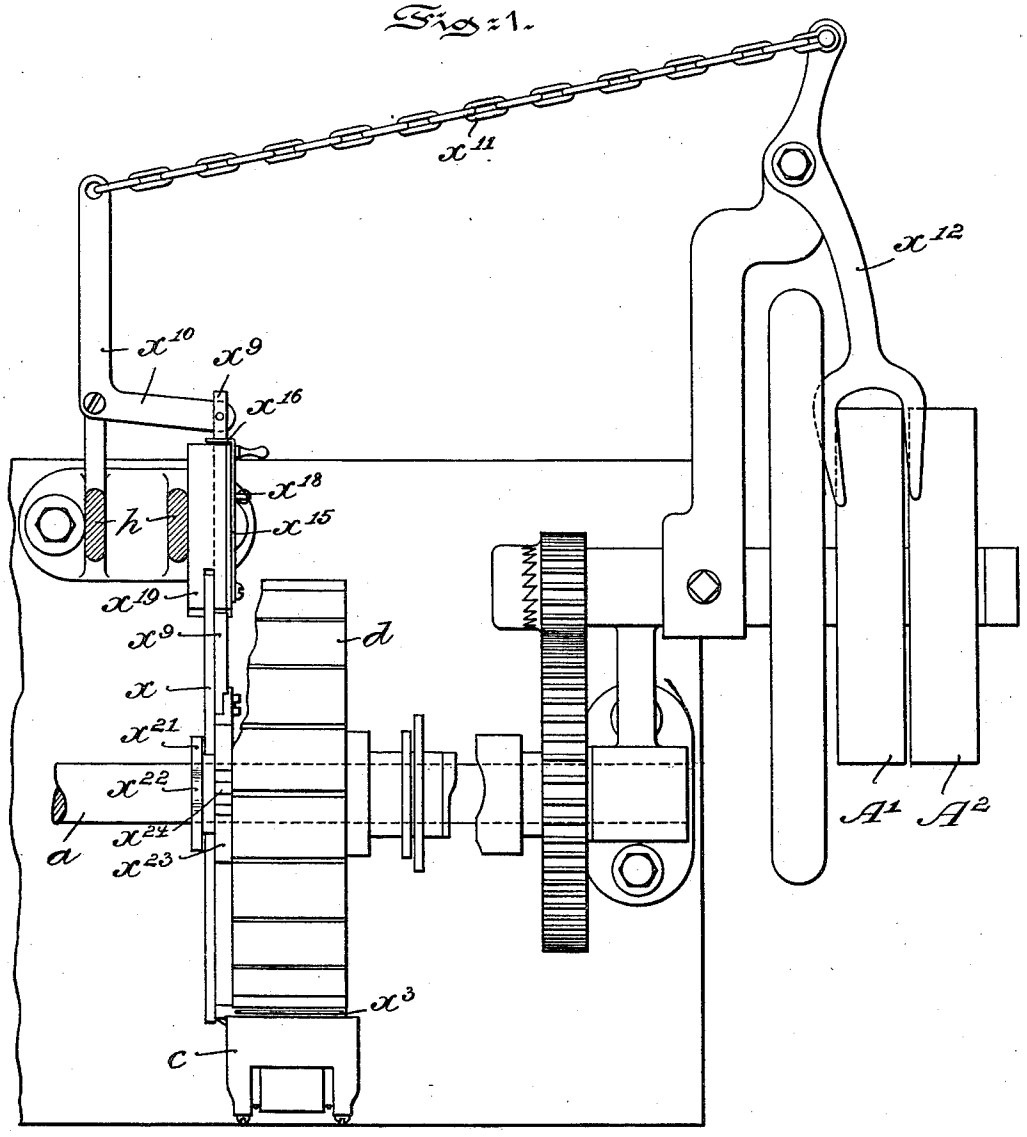
G. FERRARI.

AUTOMATIC STOP MECHANISM FOR CIGARETTE MACHINES.

(Application filed May 12, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

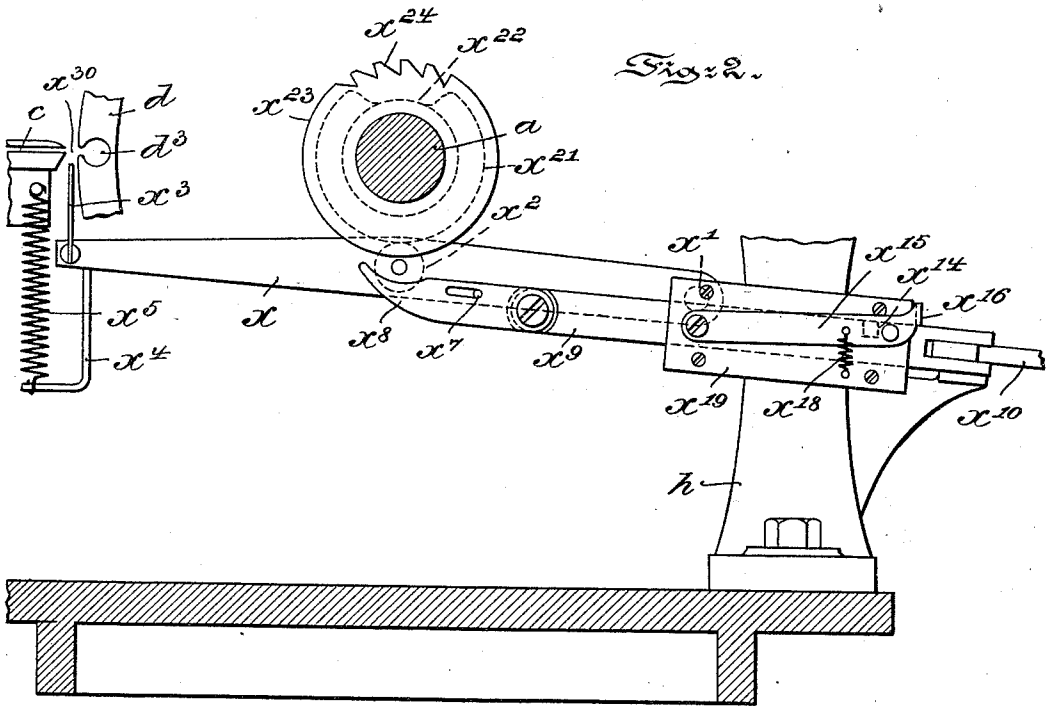


Fig. 3.

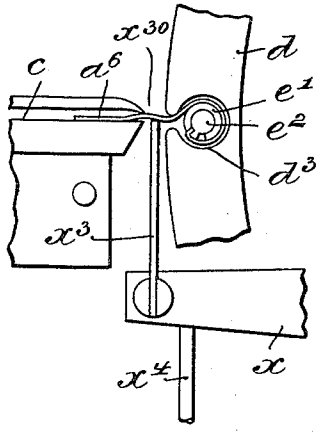
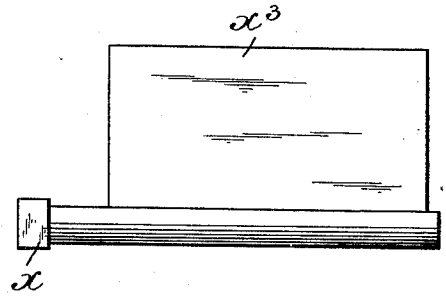


Fig. 4.



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UNITED STATES PATENT OFFICE.

GUIDO FERRARI, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC STOP MECHANISM FOR CIGARETTE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 707,768, dated August 26, 1902.

Original application filed March 21, 1902, Serial No. 99,341. Divided and this application filed May 12, 1902. Serial No. 106,868. (No model.)

To all whom it may concern:

Be it known that I, GUIDO FERRARI, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Stop Mechanism for Cigarette-Machines, of which the following is a specification.

My invention has relation to a stop mechanism for cigarette-machines adapted to automatically stop the cigarette-machine whenever the paper used in the formation of the tubes is not fed to a holder for the tubes or to the mechanism for forming the tubes.

The principal objects of my present invention are, first, to provide a simple and efficient automatic stop mechanism for cigarette-machines especially adapted for use in a cigarette-machine of the type described and shown in an application filed by me under date of March 21, 1902, under the Serial No. 99,341, and of which the present application is a division; second, to provide in such a mechanism a knife carried by a lever and adapted at intervals to ascend and contact with paper or the like employed in the formation of the tubes and when the paper or the like is absent or torn to still further ascend to bring a belt-shifting mechanism into engagement with positively-driven means adapted to actuate the belt-shifting mechanism, and thereby automatically stop the cigarette-machine; third, to provide mechanism to permit of the ascent of the knife and lever at predetermined intervals only to prevent the upward movement of the knife and lever when the paper is not fed into the tube-holder and tube-forming mechanism, and, fourth, to provide in such a stop mechanism a locking device adapted to lock the belt-shifting mechanism in operative position.

The nature and scope of my present invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a top or plan view of a portion of a cigarette-machine with the stop mechanism connected therewith embodying main features of my present invention. Fig. 2 is a side elevational view of the automatic stop mechanism and a portion of the tube-holder and table of the machine. Fig. 3 is an enlarged detail view of Fig. 2, illustrating a portion of the tube-holder and table and knife contacting with paper or the like adapted to be fed over the table into the tube-holder; and Fig. 4 is an enlarged detail view of a knife, illustrating the same in side elevation.

Referring to the drawings, c is a portion of a table over which paper a^6, which has been previously cut from a strip of paper, (not shown,) is shifted toward a paper-tube holder d by mechanism (not shown) until the paper is engaged by a rod e^2 and sleeve e' of a tube-forming mechanism of well-known construction. The rod e^2 and sleeve e' are arranged to enter one of the openings d^3 in the tube-holder d and in conjunction therewith form a tube of the paper a^6, fed thereto in a well-known manner. During the feeding of the paper a^6 from the table c into the tube-holder d the same is engaged by a knife x^3, carried by a lever x, pivotally secured, as at x', to a bracket x^{19} of the standard h. The lever x intermediate of its ends is provided with a roller x^2, normally engaging by the intervention of a spring x^5 a single-throw cam x^{21} on a shaft a. This spring x^5 is secured at one end to an arm x^4 of the lever x and at the other end to the table c. As soon as the roller x^2 comes into engagement with the cam portion x^{22} of the cam x^{21} during rotation of the same the spring x^5 tends to lift the end of the lever x, carrying the knife x^3, which, however, is limited in its upward movement by the paper crossing the space x^{30} between the table c and the tube-holder d, as shown in Fig. 3. If, however, the paper does not obstruct the path of the knife x^3, the lever x will further ascend and bring a pawl x^8, supported by a pin x^7, engaging a slot of the pawl, into engagement with the teeth x^{24}, arranged in the periphery of a disk x^{23}, located on the shaft a. These teeth in the rotation of the disk x^{23} will shift the pawl x^8 and a slide x^9, joined thereto, backward and operate a bell-crank lever x^{10}, connected by a chain x^{11} (see Fig. 1) to a belt-shifter x^{12}, engaging a belt. (Not shown.) The belt by the movement of the belt-shifter is shifted from the fixed pulley A' to the loose

pulley A^2, and the machine is brought to a standstill. In order to lock the slide x^9, which is carried by the bracket x^{19}, into an operative position, the slide is provided with a groove x^{14}, into which by means of a spring x^{18} the end x^{16} of a latch x^{15} is forced as soon as the slide is shifted.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cigarette-machine, in combination with a tube-holder, an automatic stop mechanism, comprising a lever having a knife, means normally tending to elevate said lever and knife, means controlled by the power-shaft for alternately depressing and freeing said lever to permit of a raising of the same, said knife being arranged to be arrested in its upward movement by paper fed to said tube-holder, means connected with said lever and a belt-shifter, and means operated by the power-shaft adapted to actuate said means and belt-shifter, when said lever and knife are not arrested by the paper, substantially as and for the purposes described.

2. In a cigarette-machine, in combination with a tube-holder, an automatic stop mechanism, comprising a lever carrying a knife, means normally tending to elevate said lever and knife, means actuated by the power-shaft, said means adapted to arrest the knife in its upward movement when paper is fed to said tube-holder, means connected with said lever and a belt-shifter adapted to be raised by said lever, means operated by the power-shaft adapted to engage said means raised by said lever and to shift the same and the belt-shifter, when said knife is not intercepted in its upward movement by said paper, substantially as and for the purposes described.

3. In a cigarette-machine, in combination with a tube-holder, an automatic stop mechanism, comprising a lever carrying a knife, means normally tending to elevate said lever and knife, means arranged on said power-shaft, which during a certain period of its rotation is adapted to arrest the upward movement of said lever and knife, means connected with a belt-shifter and said lever and operated by said lever, means controlled by the power-shaft adapted to engage said means controlled by said lever and to shift the same and the belt-shifter, when said lever is not arrested in its upward movement by paper normally fed to said tube-holder, and means adapted to lock the belt-shifting means in its operative position, substantially as and for the purposes described.

4. In a cigarette-machine, in combination with a tube-holder, an automatic stop mechanism, comprising a lever having a knife, a spring normally tending to elevate said lever, a cam arranged on the power-shaft adapted to alternately depress said lever and to permit of the raising of the same by said spring, said knife being arranged to be arrested by paper fed to said tube-holder, a pawl in engagement with said lever, a disk arranged on said shaft having teeth, a slide connected with said pawl, a bell-crank lever connected with said slide, a belt-shifter, a chain connecting said belt-shifter with said bell-crank lever, said lever being adapted to raise the pawl of said slide and to bring the same into engagement with the teeth of said disk when not arrested in its upward movement by said paper, substantially as and for the purposes described.

5. In a cigarette-machine, in combination with a tube-holder, an automatic stop mechanism, comprising a lever having a knife, a spring normally tending to elevate said lever, a cam controlled by the power-shaft and adapted to alternately depress said lever and to permit of the raising of the same by said spring, a pawl connected with said lever, a slide connected with said pawl, a bell-crank lever connected with said slide, a belt-shifter, a chain connecting said belt-shifter and bell-crank lever, a latch normally held out of engagement with said slide, and a disk controlled by said power-shaft, said lever and knife adapted to be arrested in their upward movement by paper fed to said tube-holder, and when said paper is not in position to allow of the upward movement thereof to bring said pawl into engagement with the teeth of said disk and to impart to said pawl and slide a forward movement to operate said belt-shifter and to bring said latch into engagement with said slide to lock the same and the belt-shifter in operative position, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

GUIDO FERRARI.

Witnesses:
J. WALTER DOUGLASS,
THOMAS M. SMITH.