No. 707,767. Patented Aug. 26, 1902.

G. FERRARI.

TOBACCO MEASURING MECHANISM FOR CIGARETTE MACHINES.

(Application filed May 12, 1902.)

(No Model.) 2 Sheets—Sheet 1.

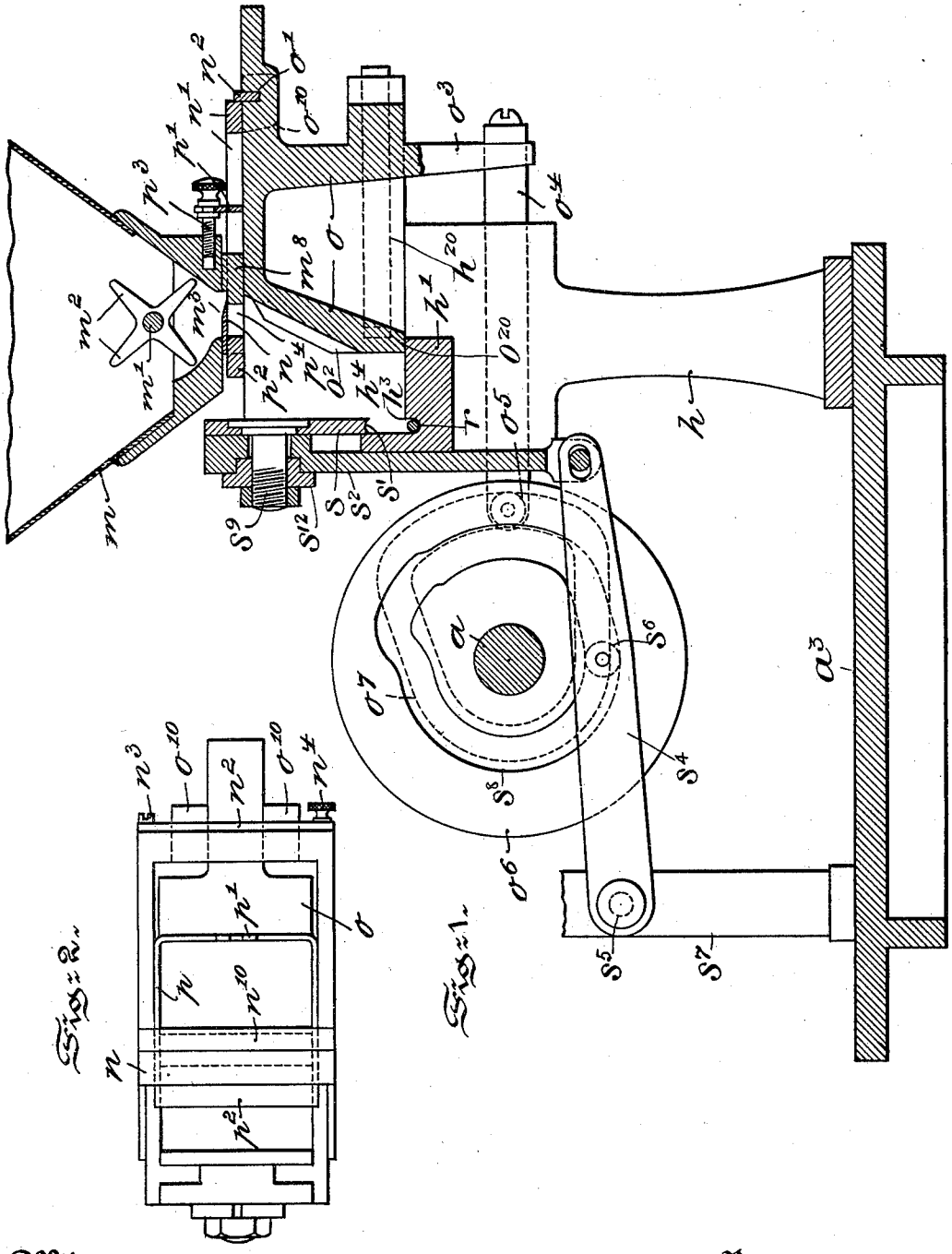


Fig. 2.

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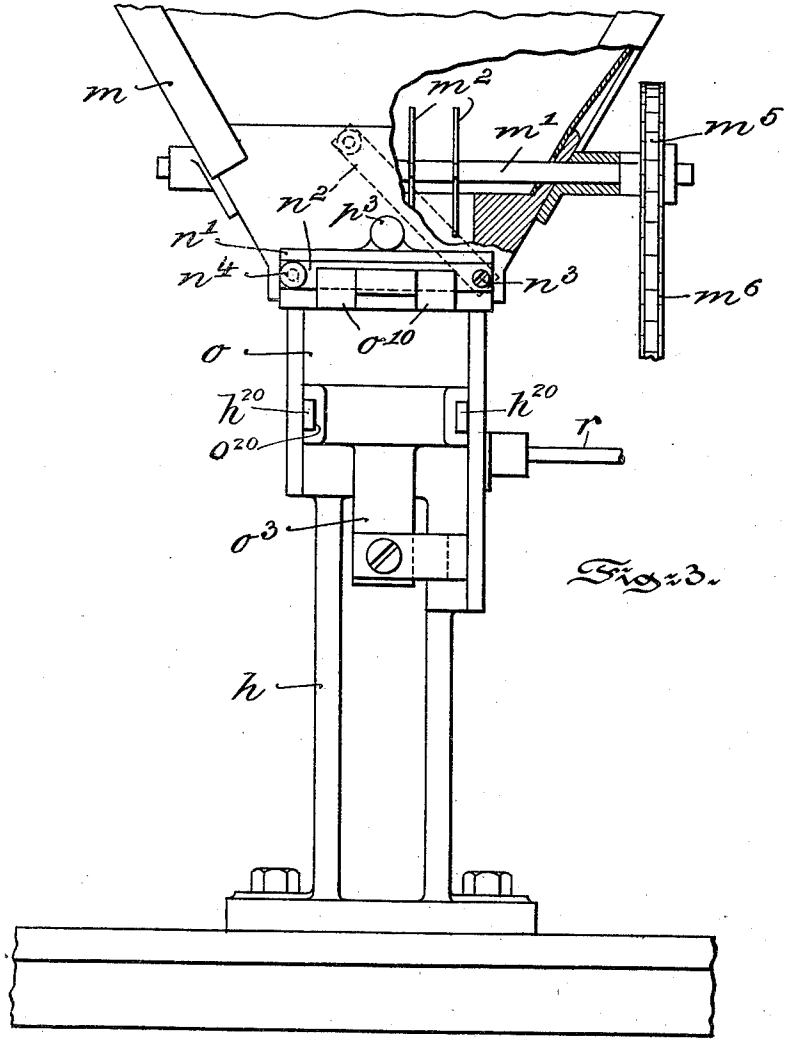


Fig. 3.

Fig. 4.

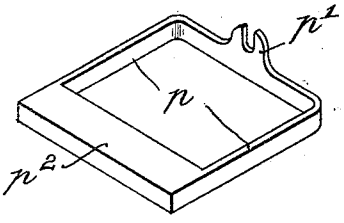
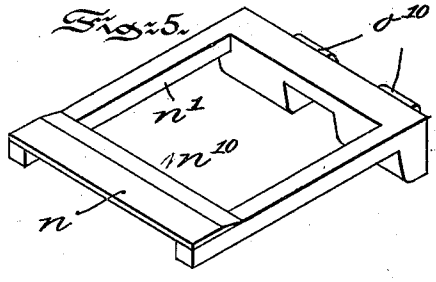


Fig. 5.



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UNITED STATES PATENT OFFICE.

GUIDO FERRARI, OF PHILADELPHIA, PENNSYLVANIA.

TOBACCO-MEASURING MECHANISM FOR CIGARETTE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 707,767, dated August 26, 1902.

Original application filed March 21, 1902, Serial No. 99,341. Divided and this application filed May 12, 1902. Serial No. 106,867. (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 Tobacco-Measuring Mechanism for Cigarette-Machines, of which the following is a specification.

My invention has relation to that class of tobacco-measuring mechanism for cigarette-machines in which the tobacco is measured prior to delivery to a tobacco-feeding mechanism; and in such connection it relates to the construction and arrangement of such a measuring mechanism.

The principal objects of my invention are, first, to provide a simple and efficient tobacco-measuring mechanism for cigarette-machines especially adapted for use in a cigarette-machine of the type described and shown in an application for a patent 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 arrange in such a mechanism, below the hopper containing the tobacco, a frame which, in conjunction with said hopper, forms the receptacle or chamber into which the tobacco is fed; third, to provide mechanism for adjusting said frame with respect to said hopper to increase or decrease the size of the tobacco-receiving chamber; fourth, to provide a reciprocating knife and block above and below said tobacco-receiving chamber, forming in conjunction with the chamber the tobacco-measuring mechanism; fifth, to arrange the reciprocating knife in such a manner that the same will cut the tobacco extending beyond the receiving-chamber, and thus insure the proper measuring of the same, and, sixth, to provide in connection with a reciprocating slide carrying the knife a coupling-bar adapted to connect or disconnect the slide and knife from a reciprocating block to either permit the entrance of tobacco into the measuring-chamber or to close said chamber by the knife.

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 view, partly in section and partly in elevation, of a tobacco-measuring mechanism and means for actuating the same, embodying main features of my invention. Fig. 2 is a detail view illustrating in top plan view a frame, a knife and block forming in conjunction with the hopper a tobacco-measuring chamber, and a slide carrying the knife and a coupling-bar to connect or disconnect the knife and slide from the block. Fig. 3 is a rear elevational view, partly sectioned, of the tobacco-measuring mechanism; and Figs. 4 and 5 are perspective views illustrating, respectively, the frame and the slide, said frame forming in conjunction with an extension of the hopper a chamber into which the tobacco is fed, and said slide carrying the knife.

Referring to the drawings, h is a standard upon which a hopper m, adapted to receive the tobacco, is placed. Directly above the outlet-opening m^3 of the hopper m is arranged a shaft m', provided with arms m^2, adapted when rotated to loosen or agitate the tobacco, so that the same at all times may be readily fed through said outlet-opening m^3. The shaft m' and arms m^2 receive their motion from a sprocket-wheel m^5 and chain m^6 from a source of power not shown. The outlet-opening m^3 of the hopper m is normally closed by a knife n, which is secured to a slide n', clamped to a block o by means of a bar n^2, which engages a groove o' in the block o and similar grooves in the lugs o^{10}, integral with said slide n, for a purpose to be presently fully explained. The block o has a range of movement within the standard h between two guides h^{20}, suitably secured to the same and engaging complemental grooves o^{20}, arranged in the block o upon a table h' thereof and directly below an extension m^8 of the hopper m. The block o receives its reciprocating movement from a cam-groove o^7, provided in a disk o^6, secured to a rotating shaft a, as illustrated in Fig. 1. In the cam-groove o^7 travels a roller o^5, carried by a link o^4, which is connected to a projecting arm o^3 of the block o. This block, as hereinbefore de-

scribed, transmits its reciprocating movement to the slide n' and knife n. Below the knife n and within the slide n' is located a frame p, which, however, is not connected with the reciprocating block o, but is fixed and adjustably secured to the extension m^8 of the hopper m by means of an adjusting-screw p^3, engaging a slotted projection p' of the frame p. The bar-like portion p^2 of the said frame rests directly below the knife n and forms, in conjunction with the extension m^8 of the hopper, a chamber p^4, adapted to receive the tobacco coming from the hopper m through its opening m^3. This chamber p^4 can be readily increased or decreased in size by simply turning the adjusting-screw p^3, which shifts the frame p and the bar p^2 away from or toward the extension m^8 of the hopper m, so forming a tobacco-measuring device by means of which the amount of tobacco to be fed to a lower chamber h^4 can be accurately determined. The tobacco, however, can only be fed to the chamber p^4 when the reciprocating block o and knife n are moved toward the left in Fig. 1, in which instance the chamber p^4 is opened at its upper end by the knife n and closed at its lower end by the block o. The tobacco will fall into the measuring-chamber p^4 and fill the same and be fed into the lower chamber h^4 as soon as the block o occupies the position shown in Fig. 1, in which position the opening m^3 from the hopper m into the measuring-chamber p^4 will be closed. A certain portion of the tobacco entering the chamber p^4 strikes in its fall a rib o^2 of the reciprocating block o, which rib conducts the greater amount of tobacco to the forward portion of the chamber h^4 onto the table h' and a groove h^3 thereof. Directly above the groove h^3 and within the chamber h^4 is arranged a tobacco-compressing slide s, provided at its lower face with a semicircular groove s'. The compressing-slide s by means of a bolt s^9 and a bushing s^{12} is connected with a slide s^2. The slide s^2 is pivotally connected to a link s^4, connected, as at s^5, to a standard s^7, secured to a bed-plate a^3. A roller s^6, carried by said link s^4, engages a cam-groove s^8, arranged in the disk o^6, which groove in the rotation of said disk imparts to both slides s^2 and s a reciprocatory movement. In the groove h^3 of the table h' is located a tobacco-ejecting rod r, which, however, is withdrawn by mechanism (not shown) when the tobacco is fed into the chamber h^4 and by the block o is shifted into the groove h^3. By the forward movement of the knife n, in order to close the outlet-opening m^3 of the hopper m, the same with its cutting edge m^{10} will sever or cut off all the tobacco, especially such of a stringy nature, projecting above the chamber p^4 and will shift the severed portion of such tobacco back into the hopper m. By cutting off the projecting portions of the tobacco an exact measuring of the tobacco in the chamber p^4 is made possible, and at the same time a jamming of tobacco between the knife n and hopper m is entirely avoided. In order to cut off the feed of the tobacco from the hopper m into the measuring-chamber p^4, the bar n^2 is pivotally connected with the slide n' at one end by a screw or bolt n^3, while the other end of the bar n^2 carries a button n^4, by means of which the bar can be lifted from the position shown in full lines in Fig. 3 into the position indicated by the dotted lines in said figure, by which the bar n^2 is disconnected from the block o. The slide n', with its knife n, closing the outlet-opening m^3 of the hopper m, comes to a standstill, while the block o continues to reciprocate. Such instantaneous cutting off of the tobacco-feed by simply disconnecting the slide n' from the block o is important in instances where the feeding of the tobacco into the chamber p^4 is irregular.

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, a combined tobacco agitating feeding and measuring mechanism having a hopper, in combination with a knife normally closing an opening arranged in the hopper of said mechanism, a frame provided with a chamber arranged below said knife and adapted to receive the tobacco fed from the hopper and measure the same, a block arranged below said frame and forming in conjunction with said frame the measuring-chamber, and means adapted to reciprocate said block and knife, substantially as and for the purposes described.

2. In a cigarette-machine, a combined tobacco agitating feeding and measuring mechanism, comprising a hopper adapted to contain the tobacco, a continuously-rotating shaft arranged in the hopper, arms or wings secured to the shaft adapted to loosen and to break up the tobacco in said hopper, an outlet-opening arranged in said hopper, a knife adapted to normally close said opening, a reciprocating slide to which said knife is fixed, a frame secured to an extension of said hopper and having a bar arranged below said knife, said extension, frame and bar forming a tobacco-measuring chamber, and means adapted to shift said frame and bar with respect to the extension of said hopper to increase or decrease the size of said chamber and to thereby regulate the quantity of tobacco received therein, substantially as and for the purposes described.

3. In a cigarette-machine, a combined tobacco agitating, feeding and measuring mechanism, comprising a hopper adapted to contain the tobacco, an outlet-opening arranged in said hopper, means located in said hopper adapted to loosen the tobacco and to feed the same to said outlet-opening, means located below said outlet-opening adapted to open and close the same, means located below and opposite said outlet-opening having a chamber adapted to receive the tobacco fed thereto from said hopper, means adapted to reciprocate the means for closing the outlet-opening

of said hopper and means adapted to disengage said closing means from the operating means to maintain said outlet-opening closed and to cut off the tobacco fed from said hopper into the tobacco-receiving chamber, substantially as and for the purposes described.

4. In a cigarette-machine, a combined tobacco agitating, feeding and measuring mechanism, comprising a hopper adapted to contain the tobacco, a continuously-rotating shaft located in said hopper, arms or wings secured to said shaft and rotating therewith to loosen the tobacco in said hopper, an outlet-opening arranged in said hopper, a reciprocating slide having a knife adapted to open and close said opening, a frame secured to an extension of said hopper having a bar arranged below said knife, said extension, frame and bar forming a tobacco-measuring chamber, a screw engaging said frame and adapted to shift the same with respect to the extension of said hopper to thereby increase or decrease the size of said chamber and the quantity of tobacco to be received therein, a block arranged below said frame adapted to close the same at its lower end, a bar securing said block to the slide having said knife, and means adapted to reciprocate said block actuating said slide and knife to alternately open the outlet-opening of said hopper or to close the same, 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.