

G. F. & J. W. McINDOE.

MACHINE FOR IMPRESSING LETTERS OR MARKS IN CIGARS.

No. 402,467.

Patented Apr. 30, 1889.

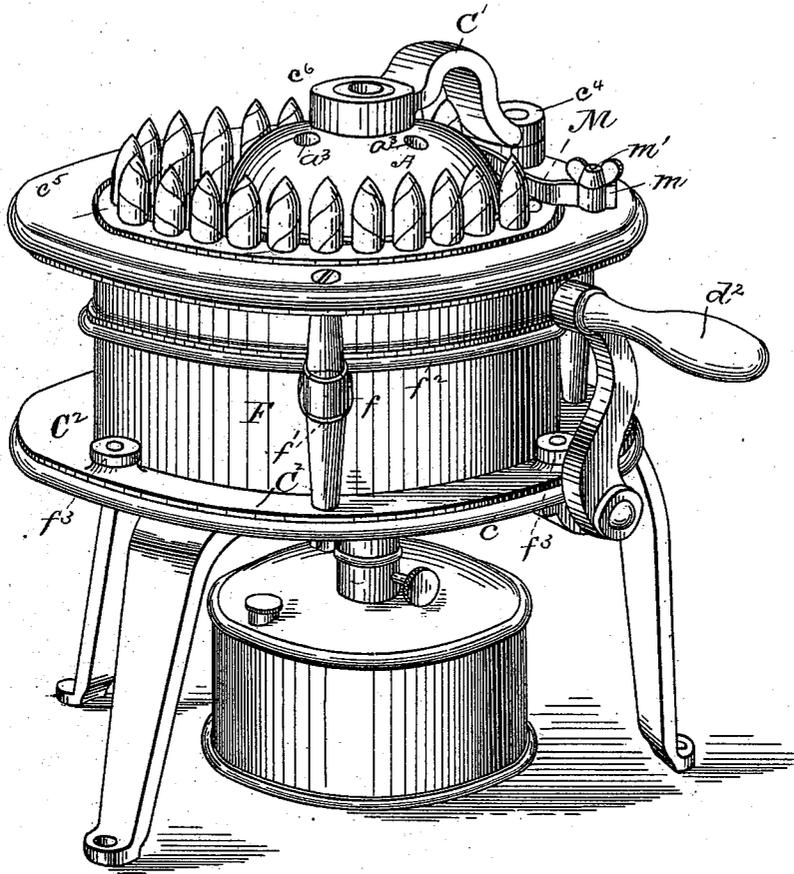


Fig. 1.

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INVENTORS.

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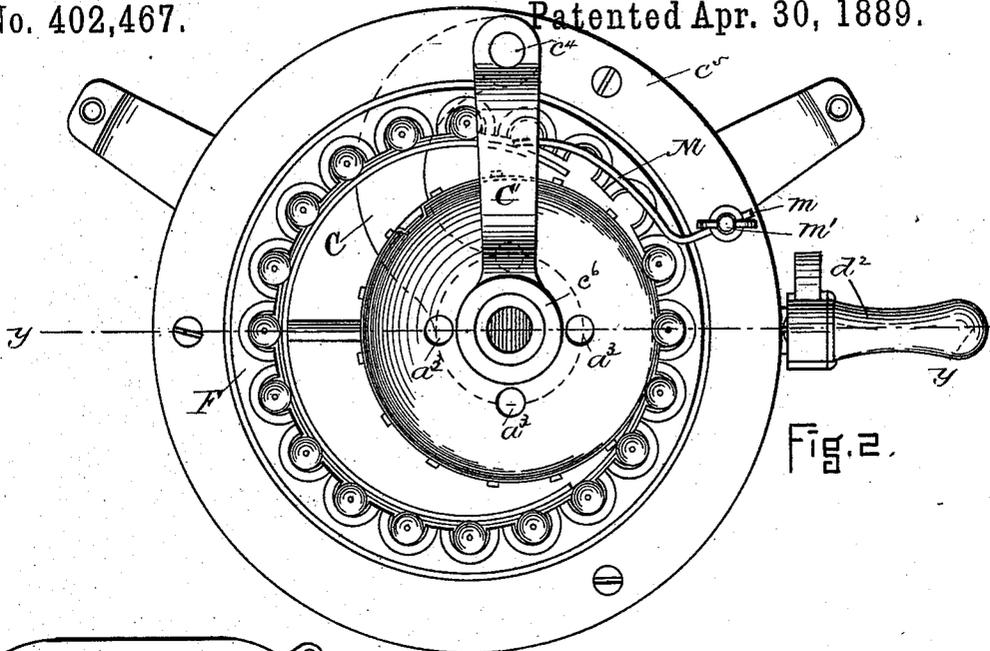


Fig. 2.

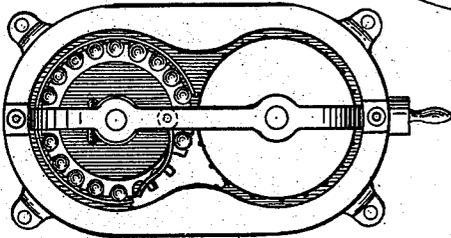


Fig. 10.

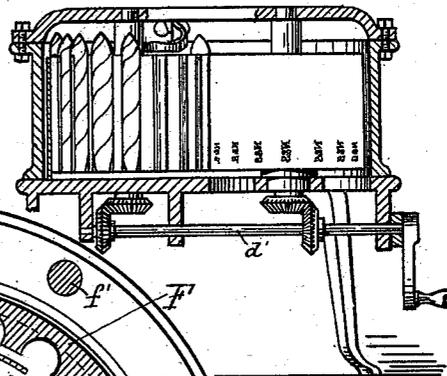


Fig. 11.

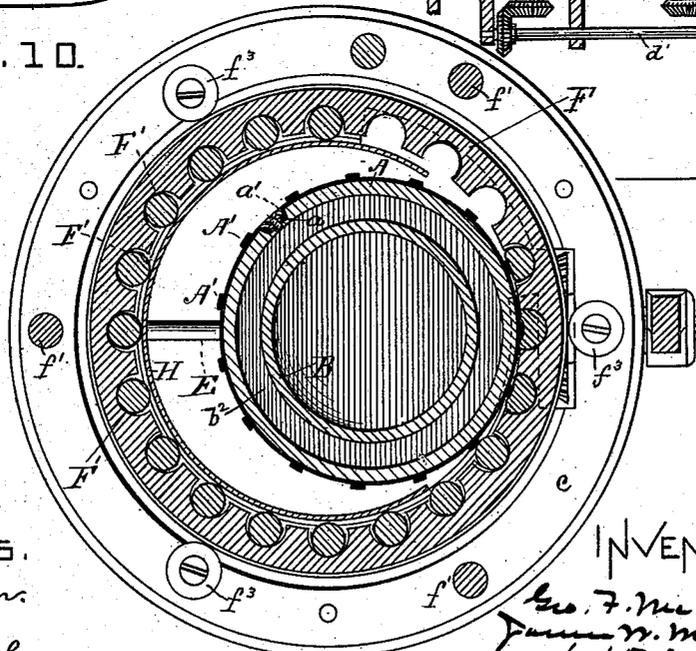


Fig. 3.

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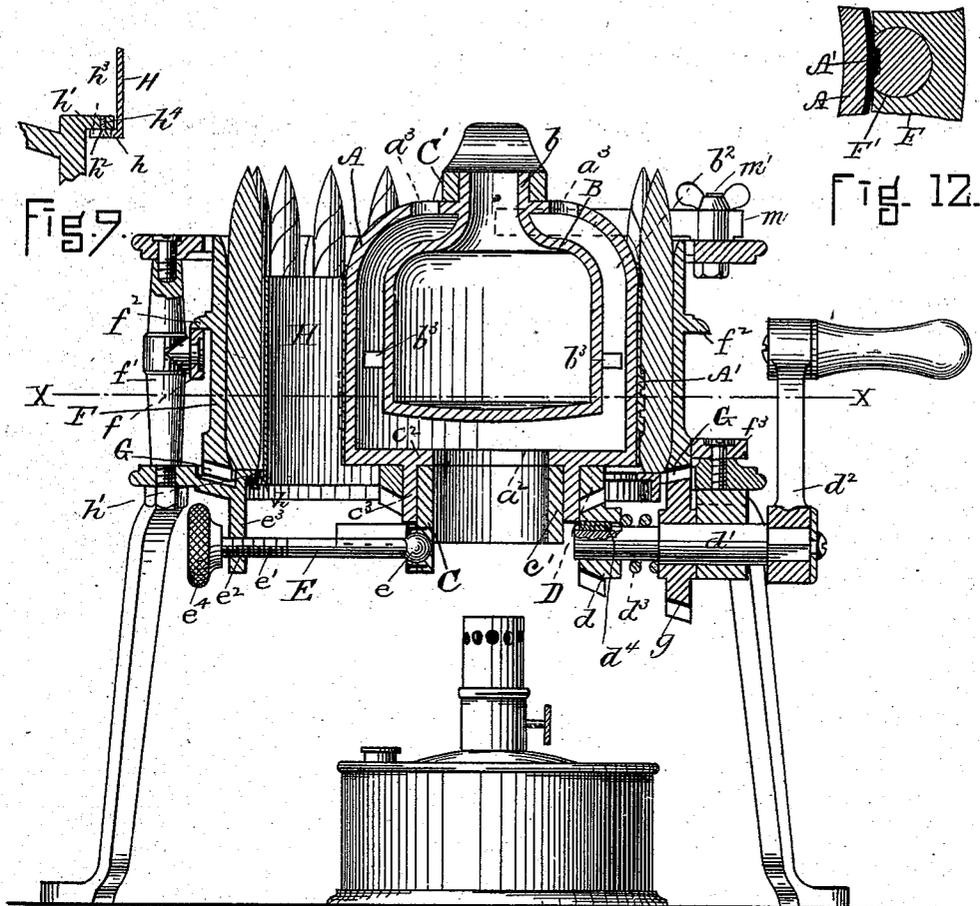


Fig. 4.

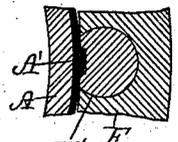


Fig. 12.

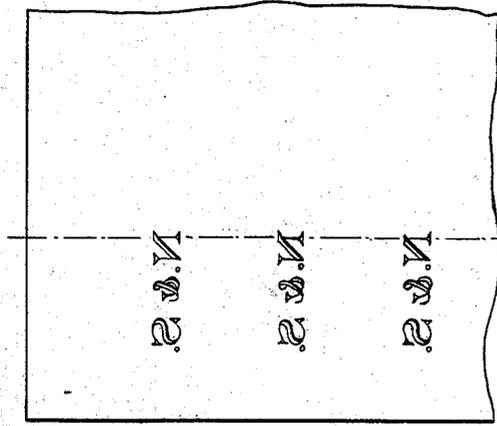


Fig. 8.



Fig. 5.

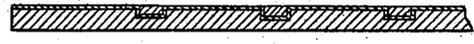


Fig. 6.

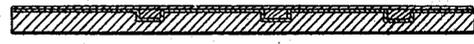


Fig. 7.

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UNITED STATES PATENT OFFICE.

GEORGE F. MCINDOE AND JAMES W. MCINDOE, OF BOSTON, MASSACHUSETTS.

MACHINE FOR IMPRESSING LETTERS OR MARKS IN CIGARS.

SPECIFICATION forming part of Letters Patent No. 402,467, dated April 30, 1889.

Application filed January 31, 1887. Serial No. 226,000. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. MCINDOE and JAMES W. MCINDOE, both of Boston, in the county of Suffolk and State of Massachusetts, both citizens of the United States, have invented a new and useful Improvement in Machines for Impressing Letters or Marks in Cigars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The object of the invention is to provide means for automatically presenting cigars to a device or mechanism for impressing in the substance thereof letters, names, trade-marks, or other marks or devices.

It further relates to a machine having a device for imprinting in the substance of a cigar letters, names, trade-marks, or other figures or marks, and a cigar-feeding device for presenting cigars thereto in successive order.

It further relates to various features of construction and organization, all of which will hereinafter be described.

In the drawings, Figure 1 is a view in perspective of a machine having the features of our invention. Fig. 2 is a plan view thereof. Fig. 3 is a horizontal section thereof on the dotted line xx of Fig. 4. Fig. 4 is a vertical section on the line yy of Fig. 2. Figs. 5, 6, 7, and 8 relate to the construction of the relief-die which we prefer to use. Figs. 9 and 12 are detail views. Figs. 10 and 11 illustrate modifications.

The device or machine comprises, first, a cylinder, A, having mounted upon its surface a continuous row or line of impressing dies or molds, A', in relief, which may be of any desired character—such, for instance, as letters, figures, marks, and designs of any kind. These dies or molds are placed upon the cylinder at a uniform distance apart, and are formed in any desired way, but preferably by means described in our application, Serial No. 226,002, for Letters Patent of even date herewith, and comprise an electrotype-plate having electrotype impression dies or molds formed integral therewith, and this plate is fitted or applied to the surface of the cylinder and its ends secured in the recess a therein by means of a clamping or binding plate, a' , which is screwed to the cylinder. The cylin-

der has the hole a^2 in its bottom and has small holes a^3 in its upper end, and it is adapted to be heated by a lamp placed below it, as represented in the drawings, or by a gas-jet, or in any other desired way.

In order that the heat may be brought into contact with the inner surface of the die-cylinder A, we have arranged within the cylinder a deflecting shell or casing, B, which is suspended by its upper end, b , in the chamber formed by the cylinder A, and which is shaped to provide an annular chamber, b^2 , between its outer surface and the inner surface of the cylinder A. The lugs b^3 (see Fig. 4) hold it concentrically in relation to the inner wall of the cylinder. It will be seen that the heat from the lamp or gas-jet placed as represented in Fig. 1 will enter the annular chamber through the hole a^2 and circulate upward through the same to the openings a^3 , and will thus heat the shell or wall of the cylinder A, which acts as a heat-conductor to conduct heat to the relief-dies.

The cylinder A is mounted upon the horizontal arms C C'. (See Figs. 1, 2, and 4.) The arm C is represented in partly-dotted lines in Fig. 2 and in section in Fig. 4. It extends from the lower flange, c , of the frame C², to which it is pivoted so as to swing horizontally. Its inner end, or end which furnishes the support for the cylinder, has an annular upward-extending bearing-section, c' , (see Fig. 4,) and the bottom c^2 of the cylinder A rests upon its upper edge, and a downwardly-extending annular section, c^3 , surrounds this bearing-ring c' , as shown in Fig. 4. This bearing-piece c' has a hole of the size of the opening a^2 to the chamber of the cylinder A. The cylinder A is mounted upon this bearing-piece, so as to be rotated or turned thereon. The upper arm or support, C', is pivoted at c^4 to the upper flange, c^5 , of the frame C² directly over the point where the lower arm, C, is pivoted to the lower flange, c , and it is adapted to be moved or swung upon its center with the lower arm for the purpose of adjusting the position of the cylinder A, as will hereinafter appear. Its outer or supporting end, c^6 , is circular in shape and receives the circular boss or projection extending upward from the cylinder A. However the connection between the

end of this arm C' and the cylinder A is made it must be so organized as to permit the cylinder to be rotated. This rotation is accomplished by means of the bevel-gear D, which is made in the form of an annular ring to slip upon the circular extension c^3 to be fastened thereto or to the bottom of the cylinder A. There is arranged to mesh with this bevel-gear D the bevel-gear d upon the shaft d' , (see Fig. 4,) which is adapted to be turned by the handle d^2 or by power. In the drawings a handle only is represented. The bevel-gear d is represented as movable upon the shaft d' , to enable it to maintain its connection with the bevel-gear D as the die-cylinder A is moved or adjusted, as hereinafter specified. This contact is maintained by means of a coiled spring, d^3 , which surrounds the shaft and bears against one surface of the wheel d to throw or move it inward toward the inner end of the shaft d' . The wheel d is caused to rotate with the shaft d' by means of the spline d^4 .

The cylinder A is adjusted horizontally for the purpose of varying the position of its dies in relation to the cigar-holders, so that cigars varying in diameter or size may be treated or impressed by the same machine. This movement is a horizontal one, and is represented as obtained by means of the rod E, which is connected with the arm C by a ball-joint, e , and which has at its outer end a screw-thread, e^1 , which enters a nut, e^2 , formed in the arm e^3 , and extending downward from the frame of the machine. The outer end of this rod E has a thumb-piece, e^4 , by which it is adapted to be turned. This screw, it will be seen, not only serves to adjust the position of the cylinder A, but also to lock it in any desired place.

The cigar-feeding mechanism comprises a cylinder, F, which is mounted in the frame C², preferably by means of the anti-friction rolls f , fastened to posts f' , and upon which a lip or flange, f^2 , extending from the outer surface of the cylinder, is adapted to bear, and the horizontal anti-friction rolls f^3 , which are mounted upon the lower frame-flange, c , and are adapted to bear against the outer surface of the cylinder. (See Fig. 1.) This cylinder has upon or in its inner surface the cigar-holders F', (see Figs. 2, 3, and 4,) which are arranged therein at a uniform distance apart, and which preferably are of a size adapted to receive and hold more than half the cigar, taken from end to end, in order that they may properly support the same while they are in contact with the impressing-dies. The cylinder F is also rotated, and we have represented this as accomplished by means of the bevel-gear G, formed in the lower edge of the cylinder, (see Fig. 4,) and the bevel-gear g upon the shaft d' , and its rate of rotation is the same as that of the die-cylinder A.

To hold the cigars in their holders after they have been placed therein and while the

cylinder F is being turned, we have arranged about the inner surface of the cylinder the stationary holder or guard-plate H, which is concentric throughout its extent with the inner surface of the cylinder F, and which is fastened at its lower edge, h , (see Fig. 4,) to the section h' of the frame C², and preferably it is secured thereto in a manner to permit of its horizontal movement toward and from the cigar-holders F', in order to permit cigars of varying sizes to be inserted in the holders and be properly held therein while the cylinder is being rotated. This is accomplished by forming a horizontal extension, h^2 , from the lower edge, h , of the guard-plate and forming therein slots h^3 for the reception of the fastening screws or bolts h^4 . (See Fig. 9.)

The cigars are prevented from falling from their holders excepting at one point by the section or plate h' of the frame C², and the said plate may therefore very properly be termed a "cigar-support," as it is beneath the cigar-holder, so that the ends of the cigars rest thereon.

The die-cylinder A and the cigar-feeding cylinder F are so arranged or located in relation to each other that when the machine is in full operation a number of cigars are being simultaneously impressed or acted upon by the impression-dies, (see Fig. 3;) that is, each cigar-holder has its separate die or impressing device, and they are brought together gradually, so that in the operation of the machine the full pressure of one die is upon one cigar while the next cigar in order is receiving an impression from its die, which, however, is not being forced into it with so great pressure, while the third cigar is coming in line with its die. (See Fig. 3.) From the instant that the impression-die and cigar come in contact the die is gradually forced into the substance of the cigar until it is under full pressure, and the cigar-die and cigar-holder continue to rotate until the die is removed from contact with the cigar, when the cigar is released and drops from its holder.

As there may be in some instances a tendency of the cigars to stick in their holders after the action of the impressing-dies, we have formed a device for freeing or stripping the holders from the cigars. This device is represented in Fig. 2 as a spring-arm, M, which is fastened at m by a screw and thumb nut, to the upper flange, c^5 , of the frame. The spring has an edge which is inclined relatively to the cigar-holder, so that as the cigar-holder is rotated the cigar is brought into contact with the surface of the arm and caused to be moved out of its holder. The position of this spring arm or stripper M is varied or adjusted by loosening the thumb-nut and turning the arm upon its holding-screw.

In order that the cigars may automatically leave their holders after they have been impressed, we have cut away or removed a section of the supporting-plate h' , (see Fig. 3,) so that the cigars may drop freely from the

machine after the action of the dies and stripper upon them.

In operation the cigars are placed in the holders F' one by one, and the holders are moved to present them in successive order to the dies or impressing devices.

It will be observed that the movable cylinder F, with its recesses or holders F' for the reception of the cigars, constitutes a movable cigar-carrier to present the cigars to the action of the impressing-dies. The cylinder A, on which are mounted the impressing dies or molds, also serves as a movable support for said dies or molds.

In the operation of a machine of this character it is necessary that the impression dies or molds should be heated, because they then act upon the cigar to better advantage, and in some cases, to produce certain effects, it is even desirable that they should be hot enough to form or produce the design in the cigars by burning or branding as well as by pressure. We have also formed the dies of copper and lead or type-metal, as described in our said application, Serial No. 226,002, in order that the heat may be readily conducted to them from the heated cylindrical shell or cylinder which supports them. These dies are shown in detail in Figs. 5 to 8; but as they are not claimed in this application they need not be herein particularly described. It is also desirable that the cigars should be impressed with the intaglio letters, &c., while in temper, and in an application, Serial No. 226,001, of even date herewith, we have described and claimed a process or method which involves this treatment of the cigars.

It is usually necessary for the best results that the impression die or mold should rise or extend from a comparatively flat surface—that is, the surface upon either side of the die or mold should be so shaped as not to produce a wedging or splitting action upon the sides of the cigar as the mold or die enters it. The cigar must also be supported practically upon all sides which are submitted to any strain because of the pressure of the die, and this is more than half its circumference—in fact, very nearly two-thirds of its circumference should thus be supported, leaving only a sufficient section exposed to receive the die or mold and the section of the die-plate on each side of the die, so that upon the application of the die to the exposed surface of the cigar the cigar shall be properly supported against the strain or pressure, which is then necessary for embedding the die in the substance of the cigar, and is thereby held in perfect shape and prevented from being extended or expanded laterally by the pressure; and where this form of construction or an analogous form for producing the same effect is not employed the pressure is very likely to destroy the cigar by fracturing or splitting the wrapper.

It will be seen that by making the dies as herein indicated—that is, integral with their

holding-plate of copper or other similar metal formed by electro-deposition—the plate can be easily fitted and fastened to the surface of the cylinder A and easily removed therefrom, and that in fastening it in place it is made of proper length and its edges brought together in the recess formed in the side of the cylinder and locked therein by a clamping-plate, and this affords a very simple and easy way of removing one size of dies and substituting another. This, of course, is very essential, as the letters, figures, designs, &c., vary even in the same manufactory, and it is frequently necessary to quickly substitute dies of one character for dies of another.

It is very essential that the die shall have not only the letters or marks which it is desired to impress in the substance of the cigar in relief, but that there should be on each side of the die a surface extending therefrom, preferably flat, although it may be slightly curved in one direction or the other, and which shall bear such relation to the cigar-holder that it shall cause the substance of the cigar to be pressed or crowded inward toward the die as it enters the cigar. This action of the die-plate is caused because the cigar is supported by the cigar-holder and prevented from being extended laterally, and also because fully one-third of the cigar extends beyond the surface of the holder, so that when the surface of the die-plate upon each side of the die comes in contact with the cigar the tendency is to throw or move the substance of the cigar toward the relief-die rather than toward each surface of the holder, near the opening thereto, and this crowds the substance of the cigar up against the die, so that it is caused to make sharp and well-defined impressions therein. In Fig. 12 this operation of the die is well shown, and represents the coating surface upon each side of the relief-die.

In Figs. 10 and 11 we show a slight modification of the invention, the die-cylinder being represented as separate from the cylindrical cigar-feeder in that it is not confined within it, but is placed alongside it, and it is preferably of the same size as the cylindrical feeder. With this modified form the cigar-holders will be in the exterior of the feed-cylinder instead of upon the interior, and the guard-plate will of course be upon the outside instead of upon the inside of said cylinder. They are also geared somewhat differently, the shaft of the die-cylinder having a bevel-gear which connects it with the operating-shaft, and the shaft of the feed-cylinder is rotated by means of a bevel-gear, said operating-shaft, and a handle. When this form of construction is employed, the surface of the die-block upon each side of the relief-die may be curved to a limited extent.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In a machine for impressing or stamping

- cigars, the combination, with a rotary cigar-carrier adapted to hold a number of cigars, of a rotary cylinder having a series of dies in relief thereon, and a flame-producing device, substantially as described, for heating said dies from the interior of the said cylinder, as set forth.
2. In a machine for impressing or stamping cigars, the combination, with the rotary cylinder or cigar-carrier F, having a series of interior cigar-holders, F', of the rotary die-cylinder A, arranged within and eccentric to the said cylinder F and provided on its exterior with a series of dies or molds, and means, substantially as described, for heating said dies, as set forth.
3. In a machine for stamping cigars, the combination, with the rotary cylinder F, having a series of interior cigar-holders, of the guard-plate H, extending partly around the interior of the said cylinder, the rotary die-cylinder A, arranged within and eccentric to the said cylinder F, and means, substantially as described, for heating the said die-cylinder, as set forth.
4. In a machine for impressing cigars, the combination, with a rotary cigar-carrier, as cylinder F, provided with a series of open cigar-holders, of an adjustable guard-plate for retaining the cigars in the said holders, whereby the same holders may be used for cigars of different sizes, substantially as set forth.
5. In a machine for impressing or stamping cigars, the combination, with a rotary cigar-holding cylinder, of an adjustable die-cylinder within and eccentric to the said cigar-holding cylinder, substantially as set forth.
6. In a machine for impressing or stamping cigars, the combination, with a rotary cigar-cylinder having a series of cigar-holders, of a rotary die-cylinder, a guard-plate for retaining the cigars in the holders until they have been impressed, and a stripper for removing the cigars after the impressing operation has been completed, substantially as set forth.
7. In a machine for impressing letters, &c., in cigars, the combination of a movable cigar-carrier having a series of cigar-holders open upon their sides, a guard-plate for maintaining the cigars in their holders during the movement of the carrier, and a plate for closing the bottoms of the holders, substantially as described.
8. In a machine for impressing letters, &c., in cigars, the combination of a movable cigar-carrier having a series of cigar-holders open upon their sides, a guard-plate for maintaining the cigars in their holders during the movement of the carrier, and a plate for closing the bottoms of the holders, provided with an opening beyond the impressing-die, through which the cigars escape from their holders, substantially as described.
9. In a machine for impressing letters, &c., in cigars, the combination of a movable cigar-carrier having a series of cigar-holders open upon their sides, a guard-plate for maintaining the cigars in their holders during the movement of the carrier, and a plate for closing the bottoms of the holders, provided with an opening beyond the impressing-die, through which the cigars escape from their holders, and a stripping or freeing device arranged to project into the line of movement of the cigars to free or strip them from their holders and arranged above the opening in the said plate, substantially as described.
10. In a machine for impressing or stamping cigars, the combination, with a rotary cigar-holding cylinder, of a die-cylinder open at its bottom and provided with an interior deflecting shell or casing, B, and means, substantially as set forth, for heating the said die-cylinder.
11. In a machine for impressing or stamping cigars, the combination, with a rotary cigar-holding cylinder, of a rotary die-cylinder open at its bottom and provided on its outer surface with a series of relief-dies at uniform distances apart, and having at its top the holes a^3 , and the deflecting shell or casing B, concentrically placed within the said die-cylinder to form an annular heating-chamber, substantially as set forth.
12. The combination, with the rotary cigar-holding cylinder F, of the rotary die-cylinder A within and eccentric to the said holding-cylinder, and the supporting-arms C and C', by which the die-cylinder is supported, substantially as set forth.
13. The combination, with the rotary cigar-holding cylinder F and the rotary die-cylinder A within the said cylinder F, of the supporting-arms on which the die-cylinder is mounted, and means, substantially as described, for varying the position of the said arms to adjust the die-cylinder relative to the cigar-holding cylinder, as set forth.
14. In a machine for impressing or stamping cigars, the combination, with a rotary cigar-holding cylinder, of a die-cylinder within the said holding-cylinder and adjustable relative thereto, substantially as set forth.
15. The combination, with the die-cylinder A and its supporting-arm C, of the threaded adjusting-rod E, having a ball-joint connection with the said arm, and a stationary nut, as e^2 , through which the said rod passes, substantially as set forth.
16. The combination, with the die-cylinder A, having a bottom plate, c^2 , provided with the flange c^3 , of the arm C, having the annular supporting end c' , fitting within the said flange, substantially as set forth.
17. The combination of the adjustable die-cylinder A, provided with the gear-wheel D, the shaft d' , the gear-wheel d , splined to said shaft to revolve therewith, but movable lengthwise thereof, and the spring for maintaining the said gear d in operative contact with gear D in different positions of the said cylinder, substantially as set forth.
18. The combination, with the rotary cigar-carrier F, provided with the internal cigar-

holders, F' , and with the external flange or lip, f^2 , of the machine-frame provided with the anti-friction rolls f , on which the said flange or lip rests, substantially as set forth.

5 19. The combination, with the rotary cigar-carrier F , having the internal cigar-holders, F' , of the machine-frame having the anti-friction rolls f^3 , with which the base of the said rotary carrier is in contact, substantially
10 as set forth.

20. The combination, with the rotary cigar cylinder or carrier F , provided with the internal cigar-holders, F' , and the exterior flanges or lip, f^2 , of the frame of the machine
15 having the supporting anti-friction rolls f and the centering anti-friction rolls f^3 , substantially as set forth.

21. The combination, with a rotary cigar-

carrier, of the inclined stripper M , arranged at one end of the said carrier, and the thumb-
20 nut by which said stripper may be secured in different positions of adjustment, substantially as set forth.

22. In a machine for impressing cigars, the combination, with a heated die, of a concave
25 cigar-holder constructed to surround more than one-half of a cigar circumferentially, and thereby prevent the cigars from spreading when subjected to the impression of the die, substantially as set forth.

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In presence of—

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