E. WOODWARD.

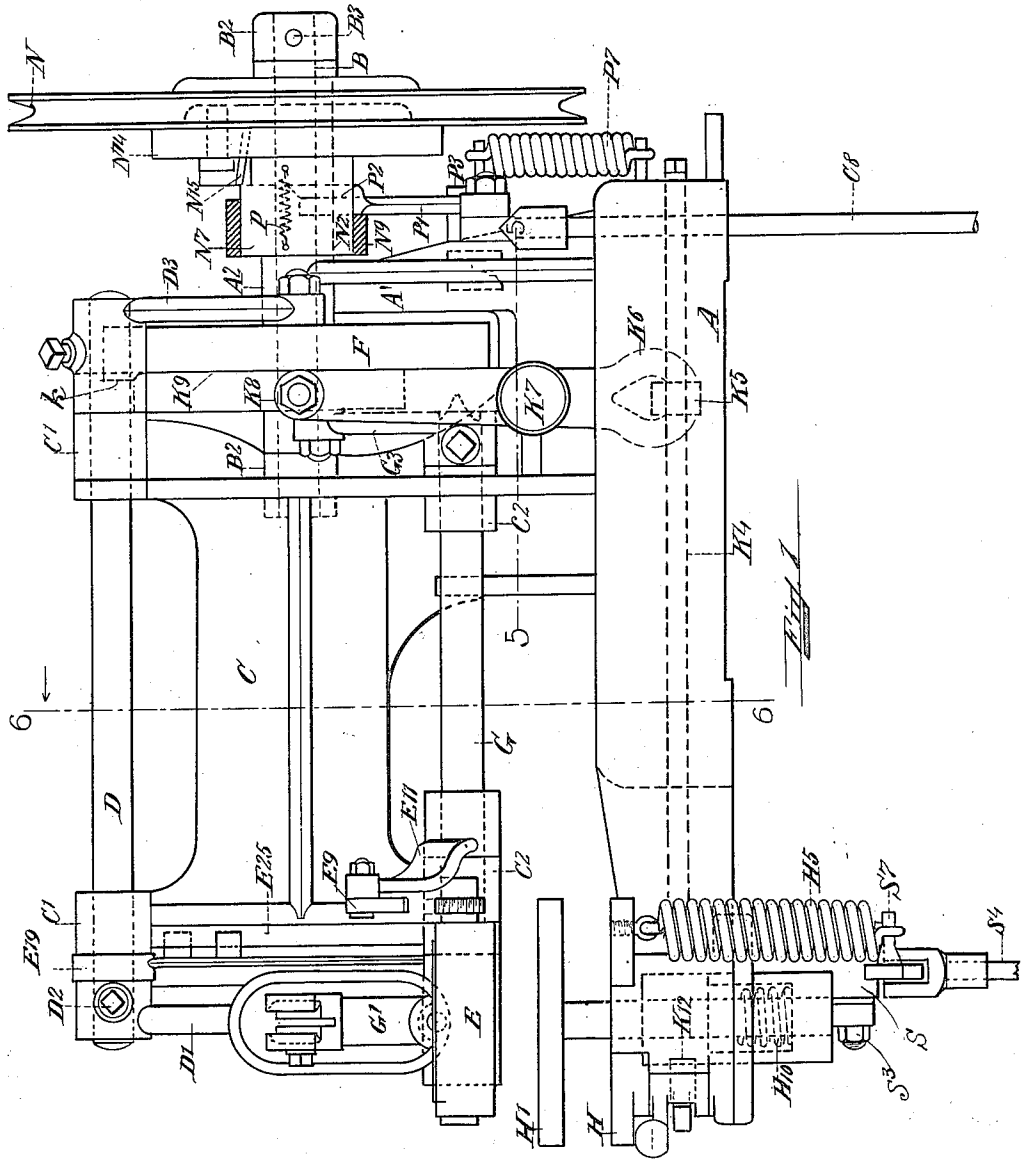
PRINTING AND MARKING MACHINE.

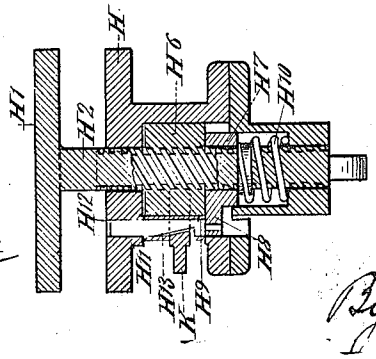
APPLICATION FILED NOV. 12, 1909. RENEWED JUNE 21, 1916.

1,214,632.

Patented Feb. 6, 1917.

5 SHEETS—SHEET 1.





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PRINTING AND MARKING MACHINE.

APPLICATION FILED NOV. 12, 1909. RENEWED JUNE 21, 1916.

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5 SHEETS—SHEET 2.

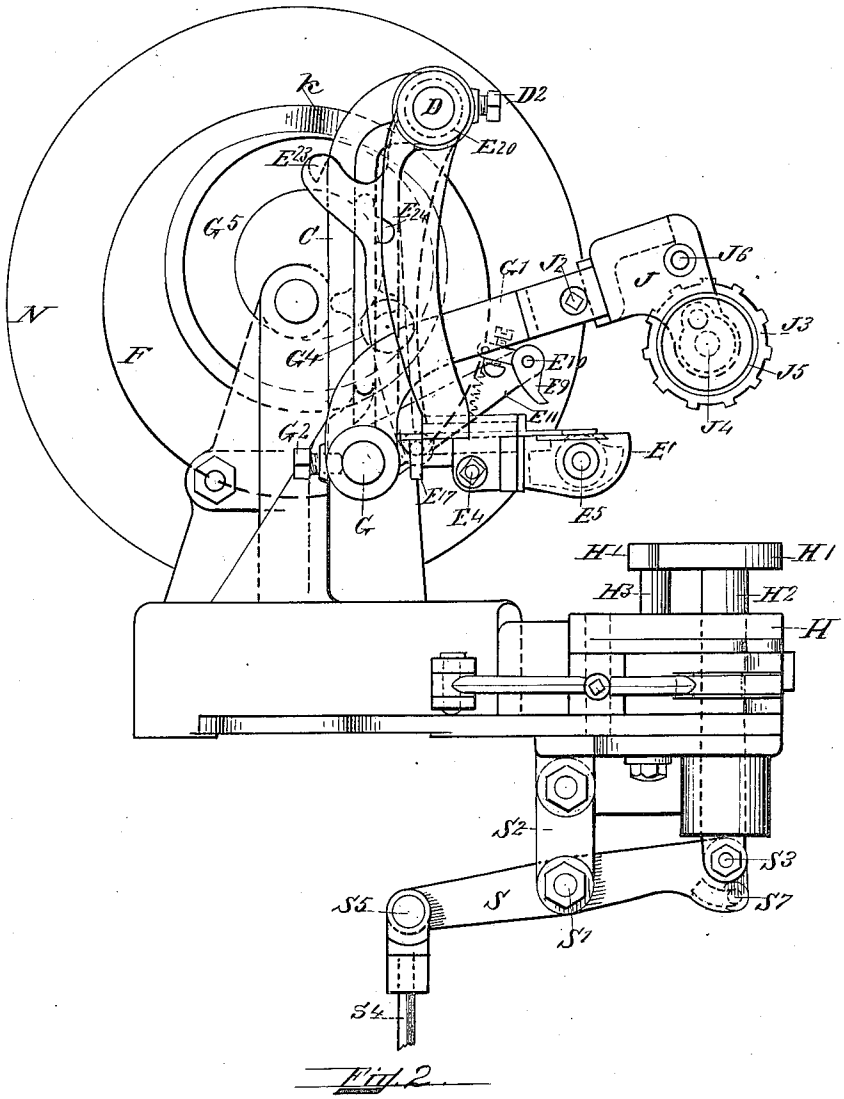


Fig 2.

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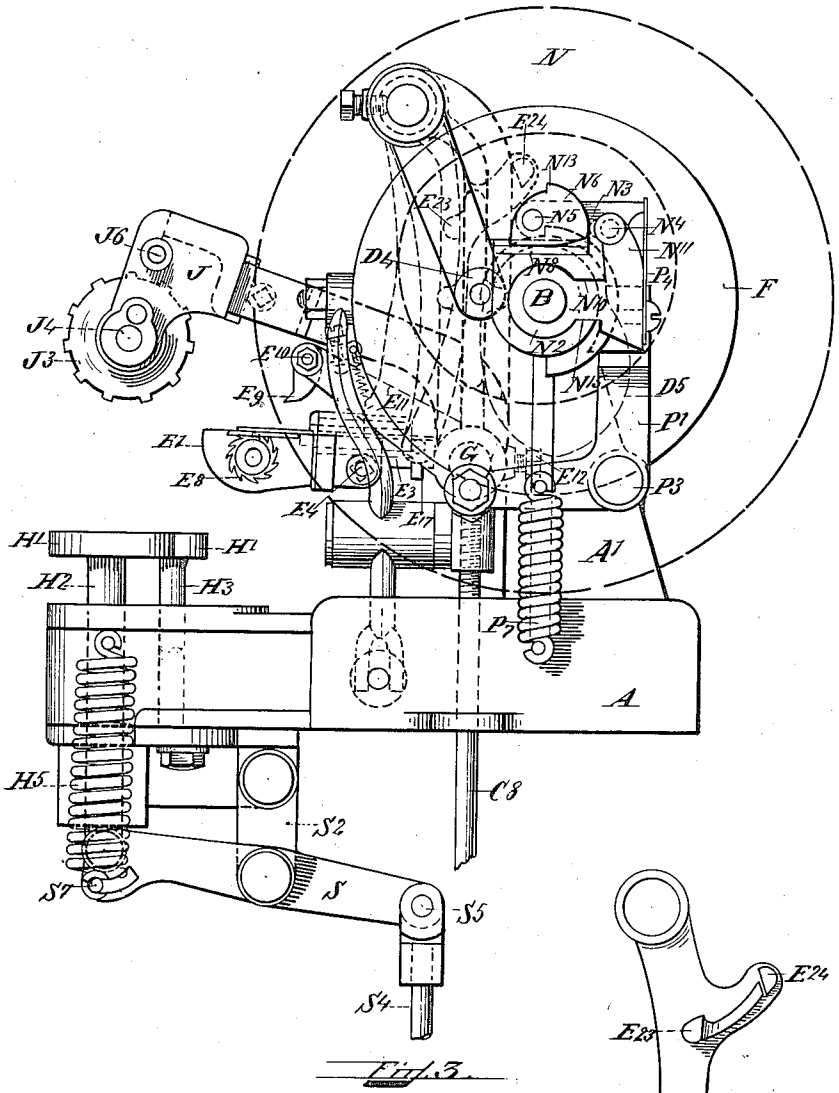


Fig. 3.

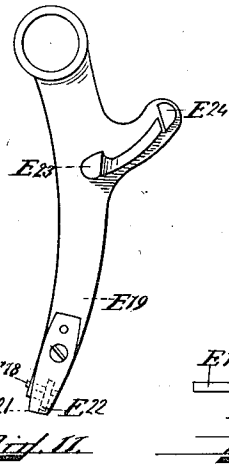


Fig. 11.

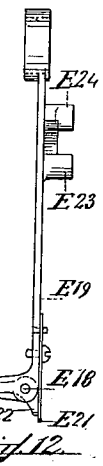


Fig. 12.

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PRINTING AND MARKING MACHINE.

APPLICATION FILED NOV. 12, 1909. RENEWED JUNE 21, 1916.

1,214,632.

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5 SHEETS—SHEET 4.

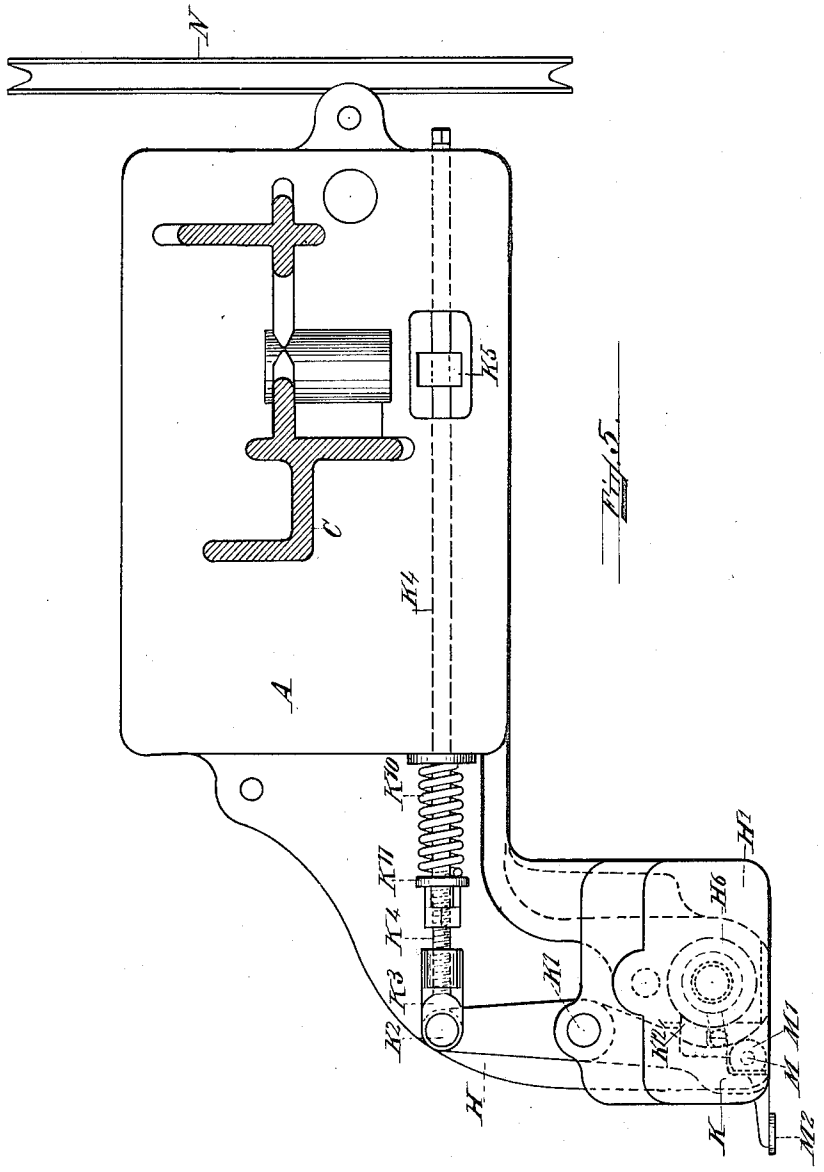


Fig. 5.

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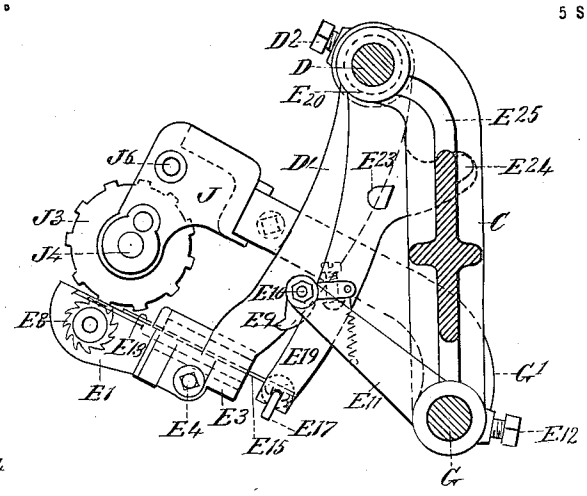
PRINTING AND MARKING MACHINE.

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1,214,632.

Patented Feb. 6, 1917.

5 SHEETS—SHEET 5.



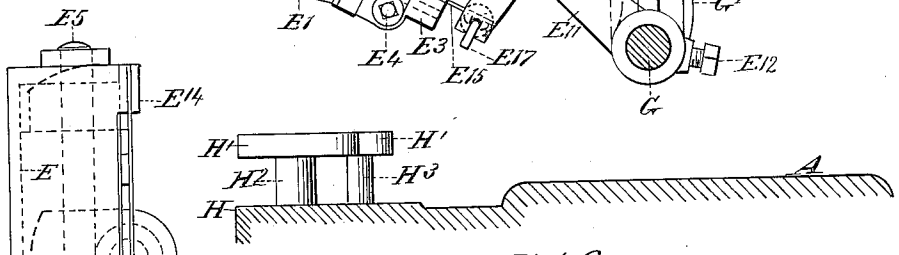


Fig. 6.

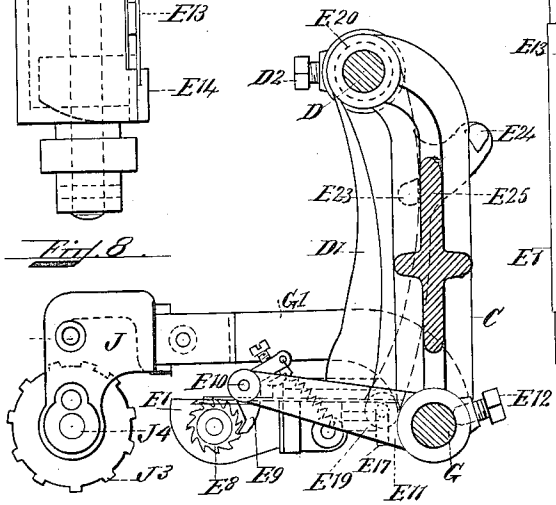


Fig. 8.

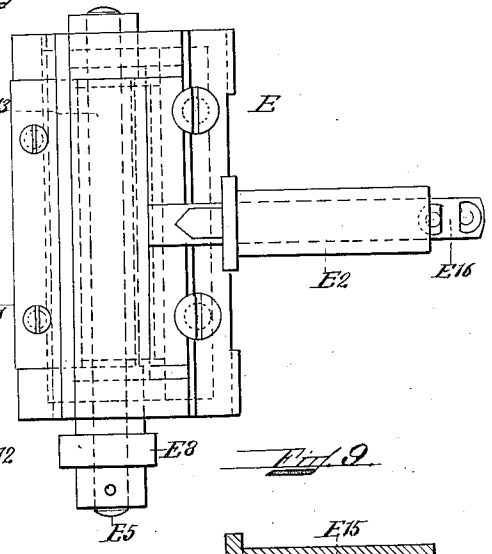


Fig. 9.

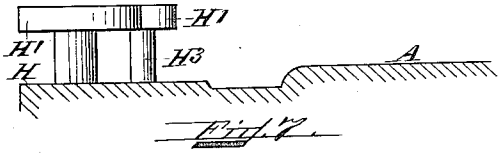


Fig. 7.

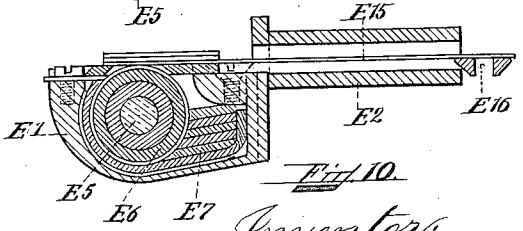


Fig. 10.

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UNITED STATES PATENT OFFICE.

ERASTUS WOODWARD, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, OF ONE-HALF TO JOHN J. SHEEHAN AND ONE-HALF TO WILLIAM P. EGAN, BOTH OF LYNN, MASSACHUSETTS.

PRINTING AND MARKING MACHINE.

1,214,632. Specification of Letters Patent. Patented Feb. 6, 1917.

Application filed November 12, 1909, Serial No. 527,633. Renewed June 21, 1916. Serial No. 105,081.

To all whom it may concern:

Be it known that I, ERASTUS WOODWARD, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Printing and Marking Machines, of which the following is a specification.

This invention relates to improvements in printing and marking machines and its principal object is to simplify the construction of the same by providing independent mechanisms for operating the type-head and the inking pad.

Another essential feature of this device is the provision of an automatic work-supporting table which will automatically adapt itself to any thickness of material.

Another feature is the provision of automatic mechanism for covering the inking device to exclude dirt and dust and prevent evaporation and adapted to automatically uncover said inking mechanism only when it is necessary to ink the type.

Another feature of the inking device is the utilization of an absorbent pad which carries the ink and which contacts with the inking roll in order to prevent an excess of ink from being fed to said roll.

In the accompanying drawings which illustrate a construction embodying my invention, Figure 1 is a front elevation of the machine with the type head removed showing the parts in normal or non-operating position. Fig. 2 is an end elevation of Fig. 1 showing the type head, inking mechanism and automatic table in normal position. Fig. 3 is an opposite end elevation of Fig. 1 showing the clutch or driving mechanism with the driving pulley removed. Fig. 4 is a vertical sectional view through the automatic work-supporting table. Fig. 5 is a sectional view on line 5—5 Fig. 1 showing the mechanism for automatically controlling the adjustment of the work-supporting table. Fig. 6 is a sectional view on the line 6—6 Fig. 1 looking in the direction of the arrow and showing the operation of inking the type. Fig. 7 is a similar view to Fig. 6 showing the position of the parts with the type-head about to make an impression. Fig. 8 is a front elevation of the inking device. Fig. 9 is a top plan view of same. Fig. 10 is a cross sectional view through the center of Fig. 9. Figs. 11 and 12 are detail views to be hereinafter described.

Like letters of reference refer to like parts throughout the several views.

A is the bed of the machine and carries the post A′ and main frame C. Mounted in the bearings C′ in the upper part of frame C is a rock shaft D carrying on its outer end the yoke arm D′ secured thereto by the screw D^2. This arm D′ carries mounted on its outer end the inking mechanism E. This rock shaft D is operated by the cam lever D^3 which carries the roll D^4 operating in the cam track D^5 on one face of cam F. The cam F is mounted on the driving shaft B which is mounted in bearings A^2 and B^2. The rock shaft G is mounted in the bearings C^2 in the lower part of the frame C and carries the lever or type carrier G′ secured thereto by the screw G^2. The type head J is secured by the clamp screw J^2 to the outer end of the lever G′ and the rock shaft G is operated by the cam lever G^3 which carries the roll G^4 which operates in the cam track G^5 in the opposite face of the cam F. Mounted on the extension H of the bed A is a platen or work-supporting table H′ (Figs. 4 and 5) and this table H′ is mounted on the spiral screw H^2 which is vertically movable in said extension H.

H^3 is a pin mounted in a hole in the extension H which prevents the table from rotating.

The lower end of the screw H^2 is pivoted at S^3 to one end of lever S which carries a pin S^7 to which is secured the lower end of the spring H^5, the opposite end of said spring being secured to the extension H. This spring H^5 forms a cushion and support for the table when the impression is being made. Mounted within the extension H and over the screw H^2 is a nut H^6 which is rotatable within said extension.

H^7 is a collar loosely mounted over the screw H^2 and carries the arm H^8 normally held against the stop H^9 by spring H^{10}. This arm H^8 carries the pin H^{11} which is reciprocally movable in the hole H^{12} in the extension H and has a beveled notch or recess H^{13} in which is mounted one end of a lock lever K which is pivoted at K′ in the extension H; the opposite end of said lever

is pivotally connected at K^2 within the yoke K^3 into which yoke K^3 is adjustably threaded the outer end of the rod K^4. This rod K^4 is reciprocally mounted in the bed A of the machine and carries a sleeve K^5 secured thereto and which is mounted within the yoke lever K^6 pivoted at K^7 to the lower part of frame C, the upper end of said yoke lever K^6 carrying the roll K^8 which is operated by the cam *k* on cam face K^9 on the outer periphery of cam F. Mounted over the rod K^4 is a spring K^{10} which operates between the bed A and the adjustable nut or stop K^{11} to hold said rod K^4 outward and the lock lever K in the position shown in Fig. 5 whereby the projection K^{12} frictionally engages the nut H^6 to lock the same against rotation. The squared end of rod K^4 is for the purpose of adjusting the sleeve K^5 and thereby regulating the time during which the roll K^8 engages the cam *k*.

The cam *k* on the cam face K^9 operates during a certain point in the revolution of the cam F to actuate the lever K^6 and rod K^4 against the pressure of the spring K^{10} to move the lock lever K withdrawing the projection K^{12} from frictional contact with the nut H^6 to permit the same to rotate. The object of thus freeing the nut H^6 is to release the table H′ through spiral screw H^2 to permit the table to be raised by the spring H^5 a predetermined amount to give sufficient tension to obtain a clear impression. The cam *k* immediately releases said lever K through means heretofore described allowing the projection K^{12} to bear on the nut H^6 which locks the table H′ in adjusted position.

Pivoted at M in the outer corner of the extension H is a cam M′ carrying a handle M^2 which in the position shown in Fig. 5 does not engage with the outer end of the lock lever allowing the operation of same as heretofore described, but when it is desired to allow the table H′ to move up and down without locking the same in an adjusted position, the operator moves the handle M^2 until the cam M′ engages and moves the outer end of lever K through the projection K^{12} out of frictional contact with nut H^6.

S is a lever centrally pivoted at S′ to the link S^2 pivoted on the lower side of extension H, the outer end of said lever being pivoted as heretofore stated, at S^3 to the lower end of the spiral screw H^2. The opposite end of said lever S is pivoted at S^5 to the rod S^4 which may be connected with or operated by a treadle or other suitable device for depressing the table against the tension of spring H^5 to permit the insertion of the work, if it is not desired to have the table adjust itself automatically as described.

The type-head J is provided with a series of ring type disks J^3 rotatably mounted on a central shaft J^4 which is journaled in the type head J. One end of the shaft J^4 projects outside the type head J and carries the knob J^5 for turning the shaft J^4 and for frictionally turning those of the type disks which are released by suitable pawls pivoted on the shaft J^6 so that the required figures or characters which are carried on the periphery of the disks may be moved into alinement for making an impression therewith.

The inking mechanism E comprises the casing E′ which carries a hollow supporting stem E^2 mounted within the clamp E^3 in the lower end of the yoke arm D′. A screw E^4 is adapted to clamp the casing E′ in position on said yoke arm D′ (see Figs. 6 and 7). Journaled in the casing E′ is a shaft E^5 which carries the inking roll E^6. Mounted inside the casing and around this roll and in contact therewith is an absorbent composition E^7, preferably felt, which retains or holds the ink and feeds the same to the pad roll E^6.

One end of the shaft E^5 projects outside of the casing E′ and carries screwed thereto the ratchet wheel E^8. This ratchet wheel E^8 is adapted to be actuated by the pawl E^9 which is pivoted at E^{10} to the arm E^{11} secured to the rock shaft G by the screw E^{12}. The action of this pawl E^9 on ratchet E^8 is so timed that at each impression of the type head the arm E^{11} will operate through said pawl E^9 to intermittently move the ratchet E^8 and pad roll E^6 and thereby present a fresh inking surface on said roll to the type at each contact of said type therewith. This intermittent movement of the roll E^6 causes the ink to be evenly fed or distributed upon said roll by the felt E^7 which holds the ink inside of the casing E′. The intermittent movement of this roll within the felt also serves to remove from said felt any excess accumulation of ink or sediment on the roll.

To prevent evaporation of the ink when the type is not in contact with the inking roll E^6, an automatic shutter E^{13} is provided which is reciprocally mounted in the ways E^{14}, said shutter carrying the stem E^{15} extending through the hollow stem E^2. The projecting end of the stem E^{15} carries the notch E^{16} which engages with the spring latch E^{17} (see Figs. 11 and 12). This latch E^{17} is pivoted at E^{18} in a slot in the lower end of the hanger E^{19}, the upper end of which hanger is loosely mounted on the hub E^{20} in the upper end of the yoke arm D′. The spring E^{21} secured to the lower end of the hanger E^{19} acts against the extension E^{22} of the spring latch E^{17} to hold said latch in position within the notch E^{16}.

E^{23} and E^{24} are stops carried by hanger E^{19} on respectively opposite sides of the rib E^{25} on main frame C.

The operation of the shutter E^{13} is shown in Figs. 6 and 7, Fig. 6 showing the type

being inked by the inking roll E^6 while the shutter E^{13} is withdrawn exposing the roll to the type. When the inking mechanism E is withdrawn from the type head by the movement of the yoke arm D', the stop E^{23} engages the rib E^{25} (Fig. 7) causing the shutter E^{13} to be closed upon the further receding movement of the inking mechanism. Mounted on the outer end of the driving shaft B is a driving pulley N adapted to be continuously driven by any suitable power and normally free to rotate on said shaft, said pulley N being held in position by the bushing B^2 secured to the end of said shaft B by the pin B^3, (see Figs. 1 and 3).

N^2 is a sleeve securely pinned to the shaft B adjacent the inner face of the driving pulley N, said sleeve carrying an extension N^{10} upon which is mounted a vertically disposed arm N^{11} having pivoted thereto at N^4 one end of a lever N^3, the opposite end of said lever N^3 carrying the friction roll N^6 pivoted thereto at N^5. This roll N^6 carries a dog N^{13} on its upper face which is adapted to be normally retained adjacent to but out of frictional contact with the inside periphery of the hub N^{14} of pulley N. The lower face of the roll N^6 is beveled at N^{15} and normally rests upon the wedge plate N^8 which is carried by a sliding sleeve N^7 which is slidably mounted over the sleeve N^2, a recess N^{15} in said sleeve straddling over the extension N^{10} on the fixed sleeve N^2 thereby permitting a sliding movement of the sleeve N^7 but causing the sleeve N^2 and shaft B to rotate when the sleeve N^7 is caused to rotate. A spring P is pinned at one end to the extension N^{10} and at the other end to the sliding sleeve N^7, said spring normally acting to pull the sliding sleeve N^7 toward the pulley N. A cam strip N^9 is secured to the sliding sleeve N^7, the inner face of said cam strip normally engaging with a switch plate P^2 secured to the upper arm of the bell crank lever P'. Lever P' is pivoted at P^3 to the lower part of post A', the lower arm of said lever P' being pivotally connected with a rod C^8 which may be operated by a treadle or any other suitable means for operating the switch plate P^2 to release the cam strip N^9 and sliding sleeve N^7.

P^7 is a spring which is secured at one end to the bed A and at its other end to the lower arm of the bell crank lever P', said spring being adapted to hold the switch plate P^2 against the face of the cam strip N^9.

The operation of this clutch is hereinafter more fully described. This clutch mechanism is not claimed in this application, but is shown, described and claimed in another application filed by me November 1st, 1909, Serial No. 525672.

The operation of the machine is as follows: The operator places the work or other article to be marked on the table H'; this work may consist of either a single piece or a bunch of pieces of fabric, such as shoe linings, which are to be consecutively stamped. When the operator is ready for the impression to be made, the treadle connected with the rod C^8 is pressed moving the bell crank lever P' against the pressure of the spring P^7 which movement operates to throw the switch plate P^2 out of contact with the cam strip N^9. The spring P automatically throws the sliding sleeve N^7 toward the pulley N causing wedge plate N^8 to lift the friction roll N^6 until the dog N^{13} frictionally engages the inner periphery of the hub N^{14} causing the sleeve N^7 and driving shaft B to rotate. The cam F now rotates with shaft B, the cam track D^5 operating the roll D^4, said movement acting through lever D^3, rock shaft D and yoke arm D' to move the inking mechanism E outwardly from the position shown in Fig. 2 to that shown in Fig. 6. Simultaneously, the cam track G^5 operates roll G^4 which acts through cam lever G^3, rock shaft G and lever G' to move the type head J backward from the position shown in Fig. 2 to that shown in Fig. 6. The relative movements of the type-head J and the inking mechanism E bring the type into contact with the inking roll E^6, said roll having been automatically uncovered during this movement of the inking mechanism E by means of the shutter E^{13} being withdrawn through action of the hanger E^{19} which hanger has been carried forward by said movement of the inking mechanism E until the stop E^{24} (Fig. 6) engages the rib E^{25} checking any further movement of said hanger while the inking mechanism E continuing its movement to the position shown in said Fig. 6 causes the shutter E^{13} to be withdrawn through the action of the latch E^{17} mounted in notch E^{16} holding said shutter when the stop E^{24} engages the rib E^{25}. The inking roll E^6 being exposed, the type carried by disks J^3 pressing thereon causes the type to be suitably inked. A continued movement of cam F causes the rock shafts D and G to oscillate in the opposite direction, said shaft D acting through lever G' to move the type head J forward and downward until the type engages with the work making an impression upon and marking the same (see Fig. 7) said type head being immediately lifted from contact with the work to its normal position as shown in Fig. 2. In the meantime, the rock shaft D operates the yoke arm D' to withdraw the inking mechanism E from the position shown in Fig. 6 to that shown in Fig. 2, the shutter E^{13} being automatically moved to cover the inking roll E^6 during said movement through the action of hanger E^{19} when the stop E^{23} engages the rib E^{25} at the time the type is in engagement with the work. The inking mechanism now remains

in this position during the return of the type head J to its normal position as shown in Fig. 3.

When the parts have moved to the position shown in Fig. 2 after making the impression, the driving shaft B and cam F have made practically one revolution and the switch plate P^2 engages the projecting face of cam strip N^9 forcing the sliding sleeve N^7 outward against the pressure of spring P withdrawing the wedge plate N^8 from beneath the friction roll N^6 causing the roll to drop and dog N^{13} to be thrown out of engagement with the periphery of the hub N^{14}. The driving shaft B is now at rest being disconnected from the pulley N which now operates idle upon the outer end of said shaft B. Assuming a bunch of pieces has been placed on the table H′ by the operator to be marked: the type, upon engaging with the topmost piece, forces the table H′, spiral screw H^2 and nut H^6 downward forcing the collar H^7 against the spring H^{10} at the same time moving downward the beveled pin H^{11}, the beveled surface H^{13} acting to force the outer end of the lock lever K outward, withdrawing the projection K^{12} and allowing the nut H^6 to rotate until the table H′ has reached a position to allow for the thickness of the bunch of pieces. During this operation the impression has been made by the type upon the upper piece on the table. Immediately before the upward or return movement of the type head the spring H^{10} acts to force the collar H^7 and beveled pin H^{11} and nut H^6 upward causing the beveled surface H^{13} to withdraw from the outer end of the lock lever K allowing the projection K^{12} to frictionally engage the nut H^6 preventing the rotation of said nut and securely locking the table H′ against upward movement. The operator now removes the top piece which has been marked and the treadle connected with the rod C^8 is again operated, which as heretofore described, throws the driving pulley into connection with the driving shaft B which operates to ink the type by means of the inking mechanism E, as described, the type moving to the position shown in Fig. 7. The removal of the marked piece leaves the piece now to be marked below the lowest position of the type, so that before the type has reached its lowest point the cam *k* on the cam face K^9 on the outer periphery operates the roll K^8 to move the rod K^4 and lock lever K sufficiently to withdraw the end of said lever K from the contact with the beveled face H^{13}. This leaves the nut H^6 free to rotate while the spring H^5 forces the spiral screw H^2 and table H′ upward a predetermined distance or a sufficient amount to carry the upper piece to be marked a sufficient distance above the lowest position the type assumes to insure sufficient tension for securing a proper impression. This distance is gaged by the interval during which the cam *k* contacts with the roll K^8 and holds projection K^{12} out of contact with the nut H^6, so that when the roll K^8 is released or dropped by the cam *k* the projection K^{12} engages the nut H^6 locking the table H′ in the predetermined position.

The distance the table H′ moves upward can be adjusted, as heretofore described, by means of the squared end of the rod K^4 which can be operated to turn rod K^4, and through the sleeve K^5 and yoke lever K^6 change the position of the roll K^8, and consequently the interval during which said roll contacts with the cam *k*. The adjustment of the squared end of the rod K^4 moves the roll K^8 either away from or closer to the face of the cam F, so that when the roll K^8 strikes the bevel of the cam *k* and rises over the apex of the cam and then returns to its normal position, the interval of contact would be less when the roll K^8 is adjusted farther away from the face of the cam F and nearer the apex K. Therefore the shorter the interval during which the roll K^8 is held by the cam *k*, the less the distance in which the table H′ moves upward, as the end of the lever K^{12} is held a corresponding length of time out of frictional engagement with the nut H^6. In the meantime, immediately after the table H′ has risen to the position described the type head J descends still farther, the type engaging the upper piece of stock making the impression thereon and forcing the table H′ down against the tension of the spring H^{10} and through the beveled surface H^{13} against the tension of the spring K^{10}. Immediately upon the withdrawal of the type head the nut H^6 is frictionally engaged in the manner heretofore described locking the table H′ in the position in which the type has moved the same. The piece upon which the impression has been made is now removed by the operator and the remaining pieces are consecutively printed in the manner heretofore described.

If the operator desires to print the articles by placing the same consecutively on the table until a bunch is accumulated on the table instead of initially placing the bunch upon the table and removing the same consecutively the operation of the parts is identical with that heretofore described with the exception that instead the table H′ rises the predetermined distance, but is forced downward by the type the amount which the table has moved upward plus the thickness of the stock which has been placed under the type.

Having thus described the nature of my invention and set forth a construction em-

bodying the same, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a printing and marking machine, the combination with a type-carrier, of an inking device for inking the type, independent mechanisms for separately carrying and operating said type-carrier and said inking device, continuously-operating driving mechanism normally disconnected from said independent mechanisms, means for connecting said driving mechanism with said independent mechanisms whereby said inking device and said type carrier coöperate to ink the type and to separate to permit an impression from said type, and means for disconnecting said driving means from said independent mechanisms after said impression has been made.

2. In a printing and marking machine, the combination with a type-carrier, of an inking roll for inking the type, independent mechanisms for operating said type-carrier and said inking roll, continuously-operating driving mechanism normally disconnected from said independent mechanisms, means for connecting said driving mechanism with said independent mechanisms whereby said inking roll and said type carrier coöperate to ink the type and to separate to permit an impression from said type, means for disconnecting said driving means from said independent mechanisms after said impression has been made, and means normally disconnected from and adapted to automatically shift said inking roll at each impression to engage a different portion of the same with said type to ink the same.

3. In a printing and marking machine, the combination with a type carrier, of mechanism for operating said type carrier, an adjustable platen for supporting the work to receive the impression of the type and adapted to be operated thereby, and mechanism independent of the type carrier for automatically locking said platen in any position to which it has been moved by the impression of said type and for graduating the movement of said platen when released.

4. In a printing and marking machine, the combination with a type carrier, of mechanism for operating said type-carrier, an adjustable platen for supporting the work to receive the impression of the type and adapted to be operated thereby, mechanism normally locking said platen in any position to which it has been moved by the type, and means independent of the type carrier for automatically releasing said locking mechanism when the type carrier has reached a predetermined position to readjust said platen to receive the impression.

5. In a printing and marking machine, a type carrier, mechanism for operating said type carrier, an adjustable platen for supporting the work to receive the impression of the type and adapted to be operated thereby, yielding means normally holding said platen to cushion the impression of said type, and means independent of the type carrier for locking said platen in adjusted position against movement toward said type carrier and for graduating the movement of said platen when released.

6. In a printing and marking machine, the combination with a type-carrier, of an inking device for inking the type, independent mechanisms for separately carrying and operating said type-carrier and said inking device, continuously operating driving mechanism normally disconnected from said independent mechanisms, means for connecting said driving mechanism with said independent mechanisms whereby said inking device and said type carrier coöperate to ink the type and to separate to permit an impression from said type, and means for automatically disconnecting said driving means from said independent mechanisms after said impression has been made.

7. In a printing and marking machine the combination with a type carrier, mechanism for operating said type carrier, an adjustable platen for supporting the work to receive the impression of the type and adapted to be operated thereby, independent mechanism for locking said platen in printing position and for releasing said platen to permit the upward movement of the same, and means independent of the type carrier for automatically adjusting said mechanism to limit the upward movement of said platen.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, this fifth day of November, A. D. 1909.

ERASTUS WOODWARD.

Witnesses:
LOUIS G. BARTLETT,
ANNIE L. MESSER.