No. 621,704. Patented Mar. 21, 1899.

J. RANZ.

COUPON CUTTING AND DATING MACHINE.

(Application filed Dec. 9, 1897.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

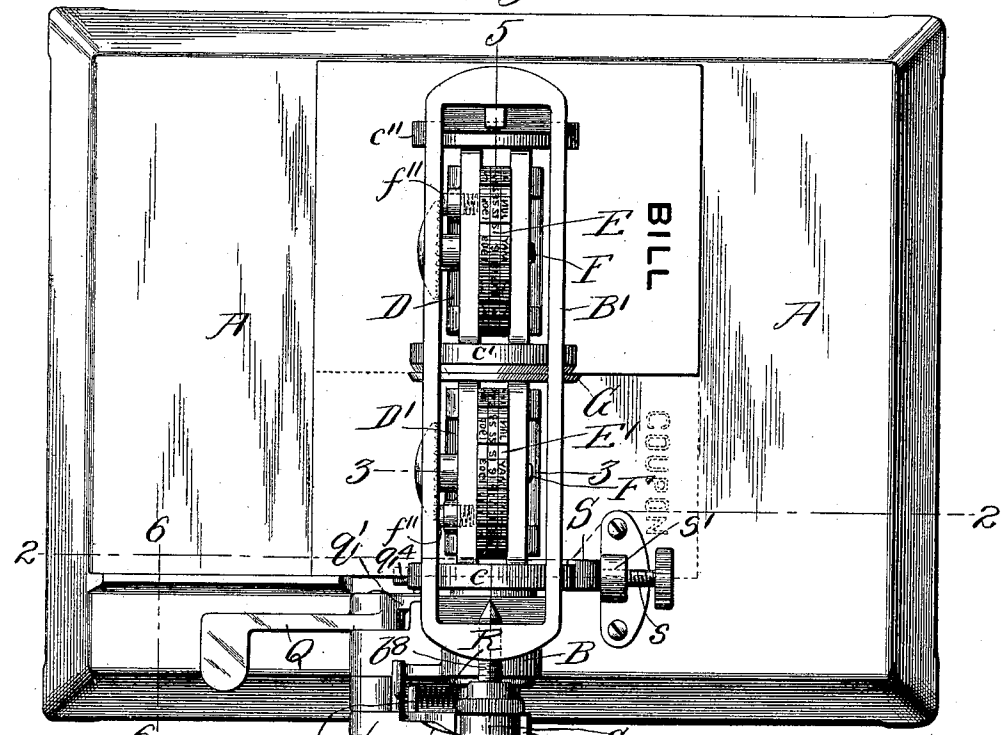


Fig. 3.

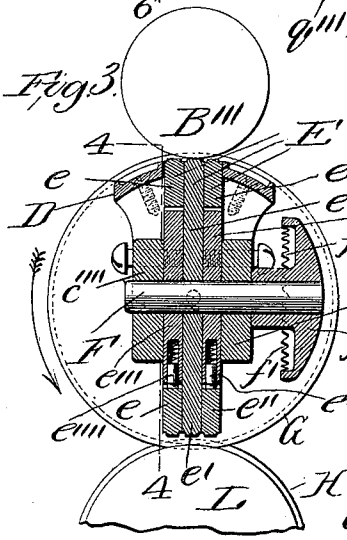


Fig. 2.

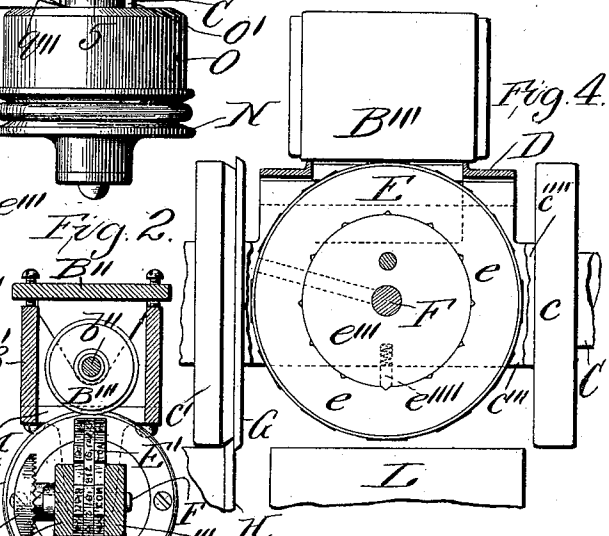


Fig. 4.

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Ralph Kelly.

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by Dickerson & Connally
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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(No Model.) 3 Sheets—Sheet 2.

Fig. 5.

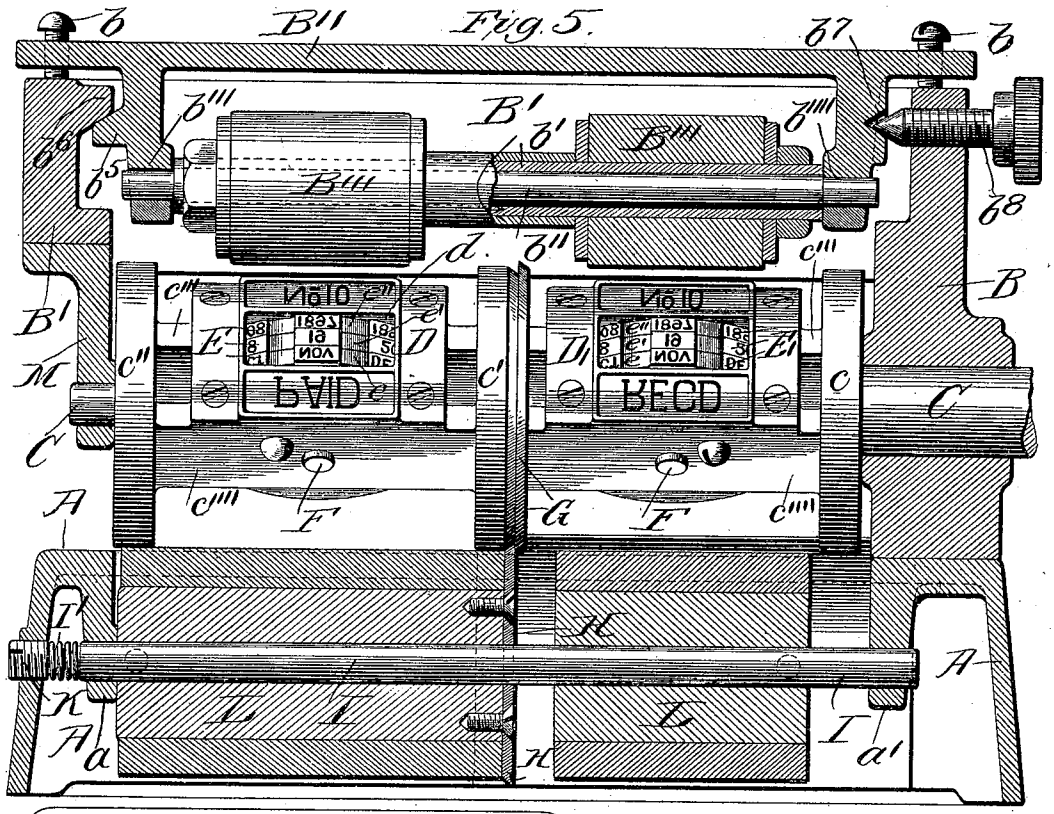


Fig. 10.

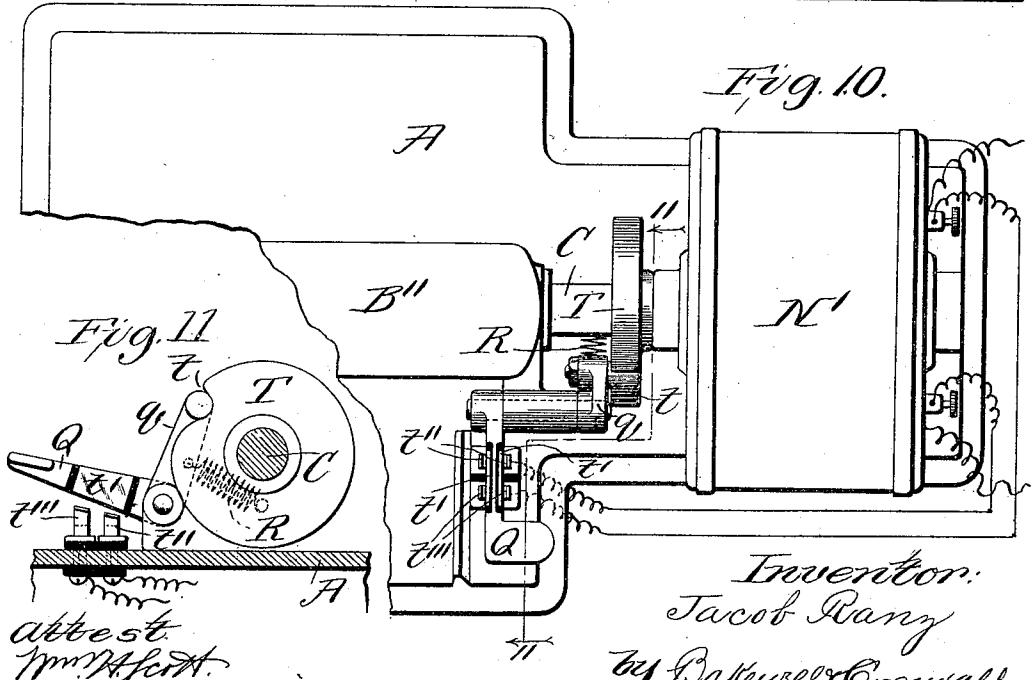


Fig. 11

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(No Model.) 3 Sheets—Sheet 3.

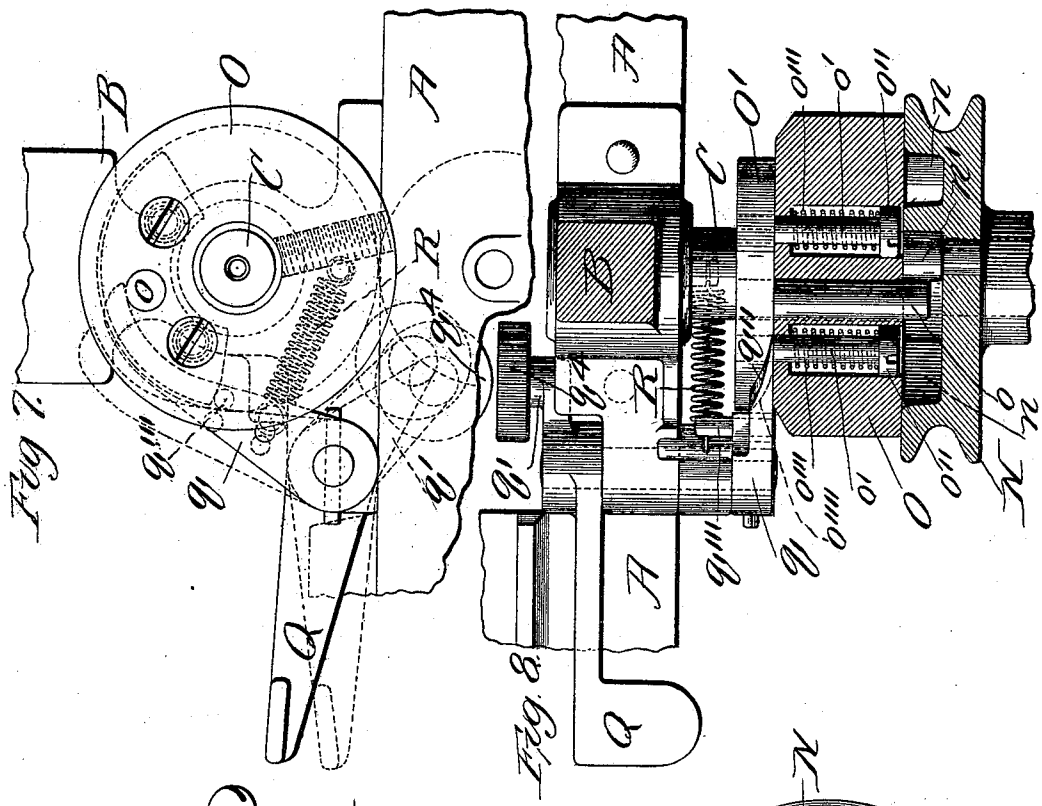


Fig. 7.

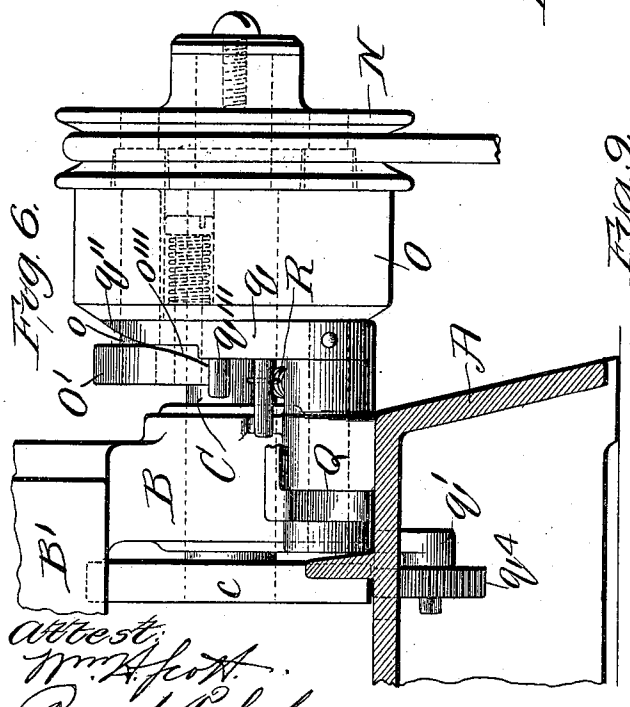


Fig. 6.

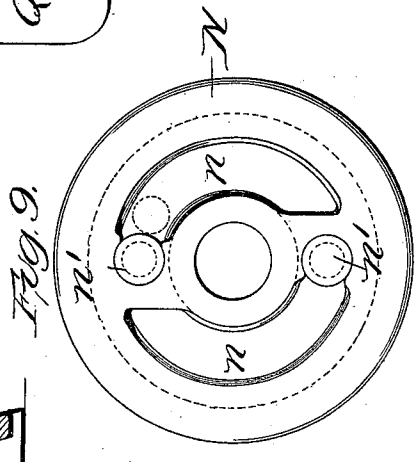


Fig. 9.

Witnesses:
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Inventor:
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by Bakewell & Cornwall
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JACOB RANZ, OF ST. LOUIS, MISSOURI.

COUPON CUTTING AND DATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 621,704, dated March 21, 1899.

Application filed December 9, 1897. Serial No. 661,254. (No model.)

To all whom it may concern:

Be it known that I, JACOB RANZ, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Coupon Cutting and Dating Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of my improved coupon cutting and dating machine, the cover of the ink-roller housing being removed. Fig. 2 is a vertical sectional view on line 2 2, Fig. 1. Fig. 3 is an enlarged detail sectional view on line 3 3, Fig. 1. Fig. 4 is an enlarged detail sectional view on line 4 4, Fig. 3. Fig. 5 is a vertical longitudinal sectional view on line 5 5, Fig. 1, looking in the direction of the arrows. Fig. 6 is an enlarged vertical sectional view on line 6 6, Fig. 1, showing the clutch mechanism in front elevation. Fig. 7 is an enlarged side elevational view of the clutch mechanism, the driving-pulley, which forms a part of the clutch, being removed. Fig. 8 is an enlarged top plan view of the clutch mechanism, partly in section, the parts being in a clutched position or in the position as shown by dotted lines in Fig. 7. Fig. 9 is an enlarged detail face view of the driving-pulley which forms one part of the clutch. Fig. 10 is a plan view of my coupon cutting and dating machine, showing a modified form of the starting or operating mechanism, in which I dispense with the clutch and use an electric motor as a power medium; and Fig. 11 is a detail sectional view on line 11 11, Fig. 10.

This invention relates to a new and useful improvement in coupon cutting and dating machines, the object being to construct a machine of the character described in a simple and cheap manner with a view of compactness of the several parts and resultant accuracy of the mechanism.

One of the prime objects of this machine is to so arrange the parts to receive a bill or other paper bearing a coupon, date or receipt the same, and at the same time sever or cut the coupon from said bill and retain it, allowing the bill to pass from the machine for its proper delivery.

The essential features of my invention reside, first, in the novel construction and arrangement of the type-bearing disks and printing-segments mounted upon the master-shaft; second, in the novel construction and arrangement of the platen-rollers which cooperate with the type-bearing disks and printing-segments; third, in the novel construction and arrangement of the ink-rollers, said ink-rollers being so positioned as to deliver or supply ink to the type-bearing disks and printing-segments at the proper time; fourth, in the novel construction and arrangement of the operating-lever, clutch, and paper-feeding mechanism, and, finally, the invention consists in the novel construction, arrangement, and combination of the several parts of the machine, all as will hereinafter be described, and pointed out in the claims.

Referring to the drawings, A indicates a suitable base, from which rises a standard or support B, to which the ink-roller housing B′ is attached. This standard B also acts as a support or bearing for one end of the master-shaft C. Upon this shaft C are mounted disks c, c', and c'', which are preferably connected by pieces c''' c'''', in which are secured printing-segments D and D′. These printing-segments are provided with suitable openings d and d', respectively, through which the peripheries of printing-disks E and E′ protrude a sufficient distance to virtually become a portion of the printing-segments D and D′.

The printing-disks E and E′ are preferably formed of three sections or disks e, e', and e'', located between the connecting-pieces c''' and c'''', the disk e' being preferably secured to a shaft or rod F, supported in the connecting-pieces c''' and c'''' and preferably at right angles to shaft C, said shaft F being provided with a knob or button f, having serrations or teeth f', adapted to be engaged by a spring-actuated bolt or latch f'', suitably positioned and supported in the connecting-piece c''', whereby the disk e' may be held firmly in an adjusted position. On the periphery of this center disk e' are arranged numbers corresponding to the days of the month, and the

notches in the knob f should correspond in number thereto. Thus it will be seen that it is only necessary to turn the knob f one notch in order to change the date on disk e' from one day to the next.

The disks e and e'', which in reality are simply rings, are preferably arranged on either side of the disk e' and are mounted on a hub e''', which is secured and held in a fixed position to the connecting-pieces c''' and c'''' by suitable screws or pins. The disks e and e'' are provided with notches in their inner edges, preferably of a corresponding number to the figures on the peripheries of said disks, which notches coöperate with spring-actuated bolts e'''', arranged in their respective hubs. These bolts tend to hold the disks or rings e and e'' in the desired position, permitting them to be moved in order to change the date, as is obvious.

To the disk c' on the shaft C is attached a cutting-ring or rotary knife G, which coöperates with a similar knife H, secured to a shaft I, supported in suitable lugs a and a' on the under side of base A. In alinement with and some distance from one end of the shaft I is an adjustable screw-plug K, between which and the shaft I is an expansion coiled spring I', whose function is to force the knife H tightly against knife G, tending to keep both edges of the knives G and H sharp by their grinding action on each other and also the knife H to yield laterally should any substance too hard to be readily cut get between the knives.

On the shaft I are mounted rollers L, whose outer surfaces are preferably yielding. Disks c' and c'' coöperate with one of these rollers, thus forming a paper-feed.

The ink-roller housing B' is provided with a suitable cover B'', through which pass a number of adjustable set-screws b, which rest on the housing B', enabling the cover B'' to be raised or lowered in order to properly adjust the ink-rollers B''', which are mounted on a sleeve b', said sleeve b' being free to turn upon a shaft b'', loosely journaled in suitable bearings in lugs b''' and b'''' on the cover B''. By this construction I render the rollers antifrictional or very sensitive, inasmuch as the rollers are independent of the shaft, and the shaft loose in its bearings, thereby allowing either one or both to rotate when the printing-segments D and D' are brought in contact therewith to receive a supply of ink.

b^5 indicates a lug or projection arranged on the under side of cover B'', which is adapted to engage an oppositely-inclined lug b^6 on the housing B'. Lug b'''' of the cover B'' is provided with a conical recess b^7, adapted to be engaged by an adjusting-screw b^8, secured in the housing B' and preferably provided with a conical point b^9. This point b^9 does not register directly with the center of the conical recess b^7, but somewhat below the center. Thus by tightening the screw b^8 the cover B'' is locked or held in a fixed position, being suspended by the adjusting-screws b, which determine the proper distance of the rollers relative to the printing-segments D and D'. When it is desired to adjust the ink-rollers B''', the set-screws b are turned and the adjusting-screw b^8 tightened until the proper distance is acquired.

As before stated, one end of the shaft C is supported by the standard B, while its other end finds a bearing in a bracket M, secured to the ink-roller housing B'. On one end of this shaft C is loosely mounted a driving-pulley N, which when the machine is in operation is continually revolving or driven by any suitable source of power. This driving-pulley N forms one portion of a positive clutch O, secured to the shaft C. (See Figs. 6, 7, 8, and 9.) In the side or face of the pulley N next adjacent to the clutch O are suitable grooves or pockets n, preferably terminating in hardened pins or studs n'.

The clutch O carries with it a cam O', to which is secured a sliding bolt o, which passes through an opening in said clutch. This bolt o is designed to coöperate with and be engaged by the pins n' in the ends of the grooves n in the pulley when it is desired to throw the clutch into operative position. Guide-pins o' are secured to the cam O' and slide in suitable openings in the cam O'. These openings are preferably reduced at one end to form a shoulder, and the pins o' preferably have heads o'', likewise forming a shoulder. An expansible coiled spring o''' surrounds the pins o', one of its ends resting against the shoulder of the opening and the other end bearing against the shoulder of the pins o', which tends to force the pins o', the cam O', and the bolts o toward the driving-pulley N.

Q indicates a lever comprising two arms q and q'. The arm q is provided with an inclined or beveled face q'' on its outer or free end, so arranged as to coöperate with and engage an incline or bevel o'''' on the cam O' to force the said cam O' away from the clutch O, thereby disengaging the clutch when the machine has made one revolution and accomplished its work. A suitable stop-pin q''' is located on the arm q of the lever Q to arrest the cam O' as soon as the inclines q'' and o''' have engaged each other and forced the bolt o out of the grooves in the pulley N to release the clutch. A spring R is preferably attached to the arm q and is designed to hold said arm in a position to engage the cam O' to stop the machine after the shaft C has made one revolution, as above described.

q^4 indicates a roller arranged on arm q', which roller is designed to hold the paper or bill to be dated or receipted tightly against the disk c when the operating-lever is depressed, which when the disk c revolves causes or assists the paper to be properly fed through the machine.

In practice I find that the shaft C, together with the printing-segments D and D', frequently move too easily when the machine

has been in constant use for some time, thus allowing the printing-segments to start to move or revolve before the clutch has positively engaged. To obviate this difficulty, I provide a shoe S to engage the periphery of the disk *c*. This shoe S is attached to one end of an adjusting-screw *s*, mounted in a lug *s'* on the base A. By adjusting this screw I place more or less tension on the shaft C, as desired.

In Figs. 10 and 11, I have illustrated a modified form of power medium, as it is frequently undesirable to have belted power to operate the machine. I therefore directly connect an electric motor N' with the shaft C. When a motor is thus used, I substitute for the clutch O and cam O' a disk T, mounted upon the shaft C and provided with a notch *t* to be engaged by the free end of the arm *q* of the lever Q. When lever Q is depressed, the free end of the arm *q* is withdrawn from the notch *t*, and at the same time the motor-circuit is completed by a contact-plate *t'*, mounted on and properly insulated from lever Q, which is brought in contact with terminals or brushes *t''* and *t'''*, secured to and insulated from base A. When lever Q is depressed, the motor-circuit is completed, as before stated, and at the same time the disk T is released, which permits the motor to operate the machine. When one revolution has been made, the spring draws the free end of the lever into the notch, which breaks the motor-circuit and stops the machine. It will be noticed that the free end of the lever rides over the periphery of disk T and automatically accomplishes the above when the shaft C has made one revolution.

The operation of the machine is as follows: The bill or paper to be dated or receipted is placed upon the base of the machine, with the coupon to the right or nearest the operating-lever Q. The bill is then pushed far enough forward to rest between the platen-rollers L and the disks *c*, *c'*, and *c''*. The operating-lever Q is then depressed, causing the roller q^4 to raise and force the bill or paper tightly against the disk *c* and at the same time direct power to operate the machine. The starting position of the machine is illustrated in Figs. 5 and 8—*i. e.*, the printing-segments D and D' are set approximately on an angle of forty-five degrees from the ink-rollers and are designed to revolve in the direction indicated by the arrow in Fig. 2. When the shaft C revolves, it carries the printing-segments D and D', the disks *c*, *c'*, and *c''*, and the knife G with it. The paper is fed through the machine by the disks *c*, *c'*, and *c''*, platen-rollers L, and the roller q^4. The bill and coupon are stamped or dated by this action, the coupon being severed or cut from the bill and forced under the base A by a guide X, as shown in Fig. 2, where it is retained, the bill passing on to be handed to the customer.

I am aware that many minor changes in the construction, arrangement, and combination of the several parts of my machine can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination with a suitable base, of a main shaft supported thereon, printing-wheels mounted on said main shaft, a rotary knife mounted on said main shaft, inking devices for said printing-wheels, platens for said printing-wheels, and a companion rotary knife mounted on the platen-shaft, substantially as described.

2. The combination with a suitable base, of a main shaft, printing-wheels and paper-feeding devices mounted on said main shaft, inking devices for said printing-wheels, platen-rollers for the printing-wheels, rotary knives mounted on said main shaft and said platen-shaft, and a clutch mechanism arranged on said main shaft, substantially as described.

3. The combination with a suitable base, of a main shaft mounted thereon, paper-feeding rollers arranged on said main shaft, and printing-wheels arranged between said paper-feeding rollers, the direction of rotation of said printing-wheels being at an angle to the direction of rotation of the main shaft, substantially as described.

4. The combination with a suitable base, of a main shaft carrying disks *c*, *c'* and *c''*, connecting-pieces *c'''* and *c''''* between said disks, and printing-segments pivotally mounted in said connecting-pieces at an angle to the direction of rotation of said main shaft, substantially as described.

5. The combination with a base, of a main shaft suitably mounted thereon, paper-feeding disks *c*, *c'* and *c''* which are rotated with said main shaft, connecting-pieces *c'''* and *c''''* between said disks, and printing-wheels mounted on a suitable spindle between said connecting-pieces so that they will rotate at an angle to the direction of rotation of said disks, substantially as described.

6. The combination with paper-feeding disks, of connecting-pieces between the same, a spindle mounted in said connecting-pieces, a printing-wheel fixed to said spindle, a serrated, or notched, hand-wheel on the end of said spindle for turning said printing-wheel, a spring-pressed bolt for holding said hand-wheel in an adjusted position, hubs on each side of said printing-wheel and within the connecting-pieces, printing-wheels mounted on said hubs, and means coöperating with the hubs and printing-wheels for locking said printing-wheels in an adjusted position, substantially as described.

7. The combination with a main shaft carrying printing-wheels, of inking-rollers there-

for, a sleeve on which said inking-rollers are mounted, and an independently-rotatable shaft passing through said sleeve, substantially as described.

8. The combination with a suitable base, of a standard, a main shaft mounted in said standard, printing-wheels carried by said shaft, a housing on the upper end of said standard, a cover for said housing, inking-rollers suitably journaled in lugs extending from said cover, and means for adjusting said cover and locking the same in an adjusted position, substantially as described.

9. The combination with printing-wheels, of a housing arranged thereabove, a cover for said housing, lugs projecting downwardly from said cover, inking-rollers mounted in said lugs, a projection on one of said lugs provided with an inclined face, a projection extending from the housing and provided with an inclined face to coöperate with said lug projection, a conical bearing in the other of said cover-lugs, a screw having a tapered point for coöperating with said conical bearing, and set-screws in the cover coöperating with the housing to adjust the vertical position of the cover and its carried inking-rollers; substantially as described.

10. The combination with a suitable frame, of a main shaft carrying paper-feeding rollers and printing-wheels, platen-rollers coöperating with said printing-wheels, a shaft for said platen-rollers, and a spring bearing against one end of said platen-roller shaft for absorbing the vibration thereof, substantially as described.

11. The combination with a suitable base, of a main shaft carried thereby, a rotary knife on said main shaft, a companion rotary knife, a suitable shaft for said companion knife, and a spring bearing against said shaft for said companion rotary knife and against the rotary knife on the main shaft, substantially as described.

12. The combination with a suitable base, of a main shaft mounted thereon, paper-feeding disks and printing-segments carried by said main shaft, a clutch on said main shaft, a lever for throwing said clutch into an operative position, and a roller on the end of said lever for coöperating with one of said paper-feeding disks to force the paper into contact with said paper-feeding disk when the clutch is thrown into operative position, substantially as described.

13. The combination with a suitable base, of a main shaft mounted thereon, printing-wheels and paper-feeding disks carried by said main shaft, a clutch for throwing said main shaft into operative position, a lever for controlling said clutch, and a roller mounted on the inner end of said lever for coöperating with one of said paper-feeding disks when the clutch is thrown into operative position, substantially as described.

14. The combination with a main shaft, of a clutch member fixed thereon, a loose pulley in juxtaposition to said clutch member, said pulley having pockets in its inner face, a spring-pressed bolt mounted in said clutch member to coöperate with said recesses or pockets in said pulley, a cam for controlling said spring-pressed bolt, and a lever coöperating with suitable stops and having a cam-face to coöperate with said cam, substantially as described.

15. In a machine for cutting and dating coupons, the combination with a suitable base, of a standard rising from one side thereof, a main shaft mounted in said standard, paper-feeding disks, printing-wheels, and a rotary knife mounted on said main shaft, a housing secured to the upper end of said standard, ink-rollers mounted in said housing, means for adjusting said rollers relative to the printing-wheels, platens mounted in the base and coöperating with said printing-wheels, a rotary knife mounted on the platen-shaft, a clutch for throwing said main shaft into operative position and relation to some suitable source of power, a lever for operating said clutch, and a roller mounted on the inner end of said lever and coöperating with one of said paper-feeding disks, substantially as described.

16. The combination with a suitable base, of a main shaft mounted thereon, paper-feeding disks and printing-wheels mounted on said main shaft, a brake for said main shaft to control the speed thereof, a clutch, and a lever for throwing said clutch into operating position, and, also, initially feeding the paper to the disks, substantially as described.

17. The combination with a suitable base, of revolving printing-segments and paper-feeding disks, mounted thereabove, suitable inking devices for said printing-segments, platen-rollers for the printing-wheels arranged beneath the base, rotary knives mounted on the shaft of the paper-feeding disks and the platen-roller shaft, and a suitable guide for directing the severed strip of paper under the base, substantially as described.

18. The combination with a suitable base, of a shaft carrying two sets of printing-wheels, a knife arranged between said printing-wheels for severing the paper being printed upon, and a guide for directing the severed piece of paper beneath the base, substantially as described.

19. The combination with a main shaft carrying printing-wheels, of a notched disk on said shaft, a lever for engaging the notch, or notches, in said disk, a motor for rotating said shaft, and terminals with which the lever contacts to complete the motor-circuit whenever the lever is actuated to release the disk, substantially as described.

20. The combination with a main shaft carrying printing-wheels, of a notched disk on said shaft, a lever for engaging the notch, or

notches, in said disk, a motor for rotating said shaft, terminals with which the lever contacts to complete the motor-circuit whenever the lever is actuated to release the disk, and means for forcing the free end of the lever into one of the disk-notches, and, at the same time, breaking the motor-circuit, substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 29th day of November, 1897.

JACOB RANZ.

Witnesses:
F. R. CORNWALL,
HUGH K. WAGNER.