July 8, 1924. 1,500,424

A. H. SMITH

PRINTING MACHINE

Original Filed Oct. 28, 1922

Fig. 2.

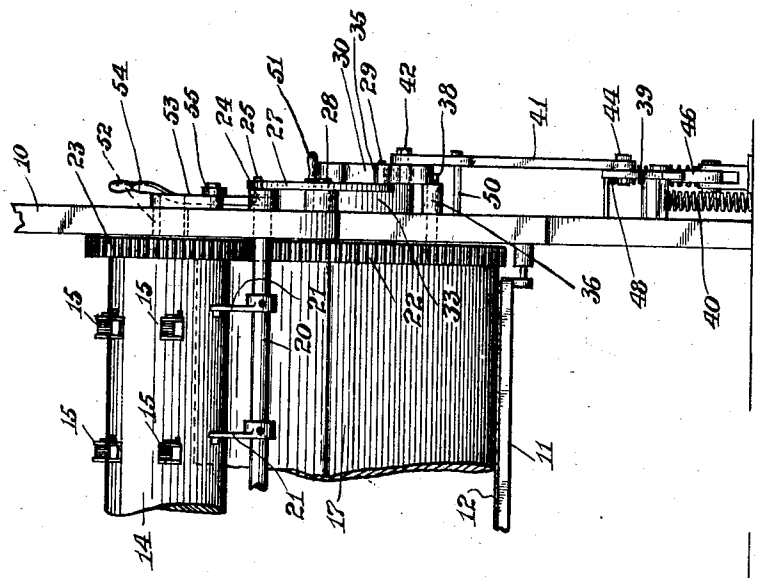
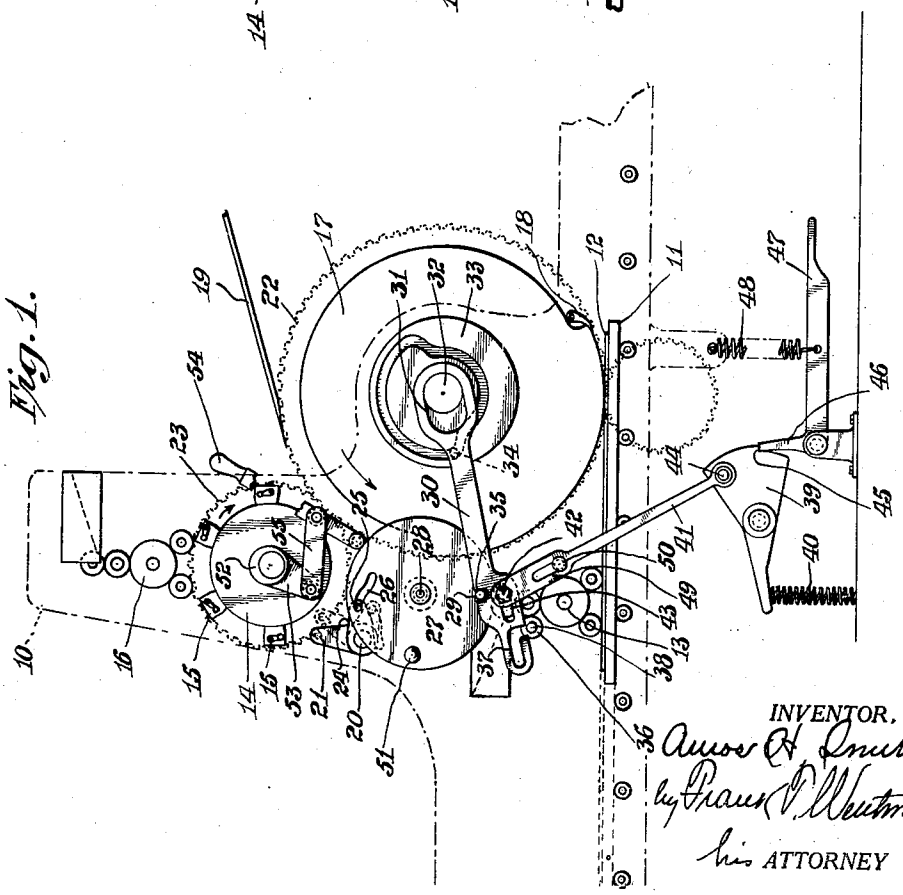


Fig. 1.



INVENTOR.
Amos H. Smith
by Francis P. Wentworth
his ATTORNEY

Patented July 8, 1924. 1,500,424

UNITED STATES PATENT OFFICE.

AMOS H. SMITH, OF BROOKLYN, NEW YORK, ASSIGNOR TO AMERICAN BANK NOTE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PRINTING MACHINE.

Application filed October 28, 1922, Serial No. 597,441. Renewed September 25, 1923.

To all whom it may concern:

Be it known that I, AMOS H. SMITH, a citizen of the United States, residing at the borough of Brooklyn, in the city of New York, county of Kings and State of New York, have invented certain new and useful Improvements in Printing Machines, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to printing machines, and more particularly to a machine adapted for use in finishing bank notes, stocks, bonds or similar negotiable or security instruments wherein previously printed sheets have impressed thereon, designating numbers and authenticating signatures or emblems.

Heretofore in this art it has been the common practice, in impressing the matter above referred to upon negotiable or other security instruments, to number the instruments by one machine and to impress the authenticating matter thereon by another machine, and thus not only requiring a double handling of each sheet of paper, but having a tendency to increase the number of rejects, owing to the difficulty of securing register in succeeding impressions.

A machine embodying my invention is so constructed and combined that the instruments upon each sheet will have impressed thereon suitable identifying numbers and authenticating signatures or emblems, with a single run of the sheet by means of distinct printing elements each having its own inking mechanism so as to permit the use of inks of different colors if desired, both of said mechanisms being associated with the same impression cylinder and being so synchronized in their functioning as to compensate for the different time intervals required for inking the printing member of each of said mechanisms preparatory to each impression thereof.

One of the printing mechanisms above referred to is an ordinary numbering head cylinder, while the other member thereof is a printing plate, it being essential to secure the desired strength in the two impressions, to effect a double inking of the digit wheels upon each numbering head, and on the printing plate. With each cycle of the printing plate, it will receive a double inking from its inking mechanism, and since such double inking of the numbering head wheels can be secured only with two revolutions of the cylinder carrying same, I make said numbering head cylinder of a diameter which will require a cycle of two revolutions thereof to each cycle of the printing plate, so that the angular speed of said numbering heads will coincide with the speed of said printing plate, and provide means whereby the various numbering heads carried by the printing cylinder will be actuated only upon alternate revolutions thereof, which means is controlled from the impression cylinder shaft and is entirely automatic in its functioning. By the mechanism above described, an impression will be made during each cycle of the printing plate, but during only alternate revolutions of the impression cylinder.

In combination with the mechanisms functioning as above described, I provide manually controlled throw-off means whereby the mechanism for alternately moving the numbering head actuating means into and out of the operative relation with the heads upon the numbering head cylinder, may be made inoperative when the said actuating means is out of the operative relation to the numbering heads, thus permitting the making of impressions from the printing plate, without progressively actuating the wheels of the various numbering heads.

I also provide means whereby the numbering head cylinder may be moved by a manually operative mechanism, into and out of the operative relation to the impression cylinder, so as to permit impressions to be made solely from the plate upon the plate carrying member, it being possible to utilize said throw-off mechanism to move the actuating means for the wheels of the various numbering heads out of the operative relation thereto, while the machine is so set, thus permitting a resumption of work and the printing of numbers in regular sequence, as desired.

The construction is also such that, if desired, the numbering head cylinder may be moved out of the operative relation to the impression cylinder, and the actuating means for the various numbering heads may be brought and maintained in the operative relation to said numbering heads so as to cause the actuation of the digit wheels of lower denomination with each revolution of the numbering head cylinder to facilitate the initial inking of these digit wheels prepara-

tory to a run of the machine, it being necessary to actuate the throw-off mechanism to disconnect the mechanism operative upon the actuating means for the digit wheels to permit a setting of the machine in the manner immediately above referred to.

The invention consists primarily in a printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder co-operating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, and means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member; and in such other novel features of construction and combination of parts as are hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a side view of a printing machine embodying my invention; and

Fig. 2 is an end view of one side of the machine.

Like numerals refer to like parts in both of said views.

In the embodiment of my invention shown in the drawings, the side frames of the machine are indicated at 10 and supported in said side frames is a suitable plate carrier 11, which in the form of the invention shown consists of an ordinary reciprocatory flat bed having mounted thereon, a printing plate 12 which is ordinarily a cameo printing plate. The plate carrier may be actuated in any desired manner, the actuating mechanism not being shown as this forms no part of my present invention.

Associated with the plate carrier 11 in operative relation to the printing plate 12 thereon, is an inking mechanism 13 of any desired or approved construction. When a reciprocatory flat bed is used, which construction I prefer, the inking mechanism 13 will apply ink twice, or give a double inking, to the plate 12 with each cycle of operation of the plate carrier.

Mounted above the plate carrier 11 is a numbering head cylinder 14 carrying thereon numbering heads 15 of the usual construction. Associated with said numbering head cylinder is an inking mechanism 16 adapted to apply ink to the printing characters upon the digit wheels of the numbering heads with each revolution of the numbering head cylinder.

In order to effect a double inking of the printing characters upon the digit wheels of the various numbering heads 15, I make said numbering head cylinder of a diameter which will require two revolutions thereof to develop an angular speed which will be coincident with the printing speed of the plate 12 upon the carrier 11, so that during two succeeding revolutions of the cylinder, the printing characters upon the numbering heads 15 are inked preparatory to the making of each impression therefrom, while impressions are made by the numbering heads 15 and by the plate 12 consecutively, upon each sheet of paper fed to the machine.

Co-operating with the various numbering heads 15 and with the plate 12 is an impression cylinder or D-roll 17 having the usual grippers 18 and having associated therewith the usual feed shelf 19.

Ordinarily in machines using numbering heads for consecutive numbering, a plurality of circumferentially extending groups of numbering heads are employed, means being employed whereby the numbering heads of each group are actuated one or more times with each revolution of the numbering head cylinder to progressively actuate the digit wheels of each head in each group. In the form of the invention shown, this actuating mechanism comprises a shaft 20 having mounted thereon a plurality of crank arms or striker members 21 operative respectively upon the numbering heads of a group, said shaft being adapted to be so actuated as to bring the striker members into or out of the operative relation to the co-operating mechanism upon the respective numbering heads. In a machine embodying my invention, said striker members are so controlled that through the automatic functioning of the machine, they will be brought into and out of the operative relation with the numbering heads actuated thereby, during alternate revolutions of the numbering head cylinder, the mechanism for securing this result being actuated from the shaft of the impression cylinder, which cylinder is twice the diameter of said numbering head cylinder and actuates same through the intermeshing gears 22 and 23 between said cylinders.

The mechanism by which the shaft 20 and its striker members 21 are actuated for the purpose above specified, consists in the form of the invention shown, of a crank arm 24 carried by the shaft 20 and having a stud 25 mounted in a cam slot 26 in an oscillatory member 27, which in the form of the invention shown consists of a disk mounted upon a stud 28 upon the frame of the machine.

The oscillatory member or disk 27 carries a crank 29 co-operating with which is a connecting rod 30, one end of which is slotted as at 31 and is slidably mounted upon the shaft 32 of the impression cylinder or D-roll 17. Carried by said shaft 32 is a housed cam 33 adapted to receive a suitable bearing stud 34 carried by the connecting rod 30.

The rod 30 is recessed as at 35 to receive the crank 29 in a manner to permit the engagement and disengagement of the rod 30 with the member 27. Carried upon the frame of the machine is a support 36 adapted to co-operate with a portion of the connecting rod 30 adjacent the free end thereof, which rod is provided with a bayonet slot for the purpose of timing the disengagement of the rod 30 with the crank 29 in relation to the printing interval when the throw-off mechanism is actuated. This bayonet slot is indicated at 37 and the open end of the slot is presented towards the member 38 and is of a length to receive said member when the connecting rod is so positioned as to bring said opening above said stud thus permitting relative movement of the rod 30 and the member 38 when the throw-off mechanism is set for causing a downward movement of said connecting rod.

The relation of parts is such that the connecting rod 30 cannot be disconnected from the crank 29 of the disk 27 except at a time when said disk is so actuated as to move the striker members 21 out of the operative relation to their respective groups of numbering heads.

Mounted below the rod 30, is an oscillatory lever 39 one arm of which is acted upon by a spring 40, and the other arm of which is connected by the link 41 to the rod 30 by means 42 carried by said link and the slot 43 in said arm, which slot is of sufficient length to permit the desired longitudinal movement of the rod 30. The link 41 is pivoted at 44 to the arm of the lever, and said spring exerts a normal tendency to actuate said lever in a manner to move the connecting rod 30 downwardly. This action of the spring 40 is restrained by a latch tooth 45 upon said lever and a trip dog 46 co-operateing therewith and adapted to be actuated by a pedal 47. A spring 48 acts upon said pedal in a manner to normally engage said dog with said latch tooth.

The link 41 is guided in its movement by means of a slot 49 therein which slidably engages a stud 50 upon the side frame of the machine.

The oscillatory member or disk 27 is provided with a crank handle 51 by means of which the shaft 20 and the striker members 21 may be actuated independently of the connecting rod 30 and crank pin 29, thus permitting said striker members to be brought into engaging relation with the various numbering heads 15 after disengagement of the rod 30 with said crank pin 29.

The numbering head cylinder 14 is mounted upon the usual eccentric bushing 52 which may be manually actuated for moving said cylinder in its entirety toward or from the impression cylinder or D-roll 17, and permitting the actuation of the numbering head, for inking purposes preparatory to a run, without causing offsetting on the blanket on the impression cylinder or D-roll. The manually operative means consists of a crank 53 carried by said bushing, and a hand lever 54 mounted upon the frame of the machine and connected with the crank 53 by the link 55.

The operation of the herein described mechanism is substantially as follows:—

As each sheet of paper having matter impressed thereon preparatory to the delivery of the sheet for the finishing operations, is fed from the shelf 19 to the grippers 18 upon the impression cylinder 17, the same surface of the sheet is successively brought into printing relation to the numbering heads 15 upon the numbering head cylinder 14, and the plate 12 upon the plate carrier 11, said numbering heads impressing numbers or any other desired identifying marks in one position upon each design on the sheet, and the plate 12 impressing signatures, seals or other authenticating matter thereon.

In work of the character which is ordinarily done upon a machine of this type, each sheet ordinarily has a plurality of similar or duplicate impressions which have been impressed upon the sheet before it is delivered to the machine.

Since the cylinder 17 is twice the diameter of the cylinder 14, said cylinder 14 will have two revolutions to one of the cylinder 17, no impressions being made during the second revolution of said cylinder 14 by reason of the fact that the blanket upon the cylinder 17 extends for less than 180° in arc of said cylinder 17.

After each numbering head has completed its printing operation with relation to a sheet, it is brought into engagement with the actuating means or striker members 21 so that the mechanism carried by each numbering head co-operating with said striker members will advance the digit wheels of the numbering heads preparatory to the next printing operation. Hence, if the striker members 21 were permitted to act upon the numbering heads with each revolution thereof, the numbering heads would "skip" and the printing characters upon the movement of the digit wheels would receive but a single inking for each printing operation. The cam 33, however, will after the completion of one revolution of the cylinder 14,

impart oscillatory movement to the member 27 through the connecting rod 30 and crank 29 and thus cause the cam slot 26 to rock the shaft 20 through the medium of the crank arm 24, and its stud 25 mounted in said slot, to move the striker members 21 out of the operative relation to the various numbering heads, so that during the following revolution of the cylinder 14, the numbering head will not be actuated. This dwell of the numbering heads during one complete revolution of the cylinder 14 permits a double inking thereof. At the conclusion of a movement of 180° in arc of the cam 33, the connecting rod 30 will receive a reverse movement and the member 27 will be actuated to restore the striker members 21 to their normal operative position, so that immediately following the next printing interval of the numbering heads, they will be actuated to progressively actuate the digit wheels of the various numbering heads preparatory to the next inking operation during the following two revolutions of the cylinder, the second of which will also be a printing revolution.

The cam 33 is so set as to properly time the movements of the striker members with relation to the printing interval and the position of the heads 15 upon the cylinder 14, and with the position of the blanket upon the impression cylinder or D-roll 17 with relation to the numbering heads, thus synchronizing the functioning of the numbering heads with that of the plate 12.

The plate 12 will reach the printing position following the completion of the printing operation by the numbering heads, and will impress upon the sheets the matter carried by said plate, the time interval required for the inking of the plates 12 being coincident with the time required for the idle revolution of the cylinder 14, and the printing portion of the second revolution thereof.

If it be desired to actuate the numbering heads without progressively advancing the digit wheels, the throw-off mechanism is used to disconnect the connecting rod 30 from the crank 29, although this disconnection cannot occur until all of the numbering heads upon the cylinder 14 have been acted upon by the striker members 21 by reason of the fact that the portion of the rod 30 between the opening of the bayonet slot and the end of said lever, will ride upon the member 36 until the rod 30 has completed its full reciprocatory movement or completed the oscillatory movement of the member or disk 27. Immediately upon the completion of this movement, however, the normal tendency of the spring 40 to oscillate the lever 39 will draw the link 41 downwardly and with it the rod 30 to an extent to disengage the recess 35 therein from the crank 29. The bayonet slot, however, will permit the continued oscillatory movement of the rod 30. Under normal circumstances the rod 30 will be guided in its movements by the member 36 and the stud 42.

So long as this setting of the machine exists, the various numbering heads will print in a manner heretofore described, but there will be no progressive actuation of the digit wheels thereof.

If it be desired to prevent printing by the numbering heads, the eccentric bushing 52 is actuated to move the cylinder 14 in its entirety away from the impression cylinder 17. Under some circumstances it is desirable to actuate the numbering heads without making impressions therefrom, as when preparing for a run, under which circumstances the parts will be set as described, and the member 27 restored to its normal position to cause the striker members to be brought into the desired operative relation to the numbering heads, by means of the hand crank 51.

The throw-off mechanism is merely an emergency attachment, and after once having been used, must be reset by hand, the upward movement of the rod 30 positioning the lever 39 into a position where the dog 46 will engage the tooth 45 by reason of the action of the spring 48 upon the pedal 47.

If it be desired to use the machine for merely impressing matter upon the sheets by the plate 12, the eccentric bushing 52 may be actuated to make the numbering heads inoperative for printing purposes. If no plate 12 is used in the machine, the numbering heads alone may be used for printing purposes, the actuation of the rod 30 causing the double inking of the wheels of the numbering heads preparatory to each operation in the manner heretofore described.

The inking mechanisms 13 and 16 permit the different impressions made by the numbering heads and the plate 12 respectively, to be in different colored inks, which is highly desirable, particularly where the plate 12 carries facsimile signatures, which are ordinarily printed in black ink, while the numbers or other matter impressed by the numbering heads is ordinarily in a colored ink.

It is not my intention to limit the invention to the precise details of construction shown in the accompanying drawings, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:—

1. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads

thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, and means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member.

2. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, and a manually operative throw-off mechanism controlling the operative effect of said last named means.

3. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism controlling the operative effect of said last named means, and means whereby said numbering head actuating means may be brought into the operative relation to the numbering heads after said throw-off mechanism has been actuated.

4. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of the operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, and means whereby said numbering head cylinder may be brought into or out of the operative relation to said impression cylinder.

5. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, numbering head actuating means, means operative in synchronism with said impression cylinder, whereby said numbering head actuating means will be brought into the operative relation to said numbering heads, and out of operative relation thereto, upon alternate revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism controlling the operative effect of said last named means, means whereby said numbering head actuating means may be brought into the operative relation to the numbering heads after said throw-off mechanism has been actuated, and means whereby said numbering head cylinder may be brought into or out of the operative relation to said impression cylinder.

6. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a

striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, and means actuated upon by said cam and co-operating with said oscillatory member, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member.

7. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, a crank carried by said oscillatory member, and a slidably mounted connecting rod adapted to operatively engage said crank and acted upon by said cam, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member.

8. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, a crank carried by said oscillatory member, a slidably mounted connecting rod adapted to operatively engage said crank and acted upon by said cam, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism whereby said connecting rod may be disengaged from the crank carried by said oscillatory member, and means whereby disengagement of said connecting rod and said crank is prevented until said striker member is out of the operative relation to said numbering heads.

9. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, a crank carried by said oscillatory member, a slidably mounted connecting rod adapted to operatively engage said crank and acted upon by said cam, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism whereby said connecting rod may be disengaged from the crank carried by said oscillatory member, means whereby disengagement of said connecting rod and said crank is prevented until

said striker member is out of the operative relation to said numbering heads, and means whereby said numbering head cylinder may be brought into or out of the operative relation to said impression cylinder.

10. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, a crank carried by said oscillatory member, a slidably mounted connecting rod adapted to operatively engage said crank and acted upon by said cam, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to require two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism whereby said connecting rod may be disengaged from the crank carried by said oscillatory member, means whereby disengagement of said connecting rod and said crank is prevented until said striker member is out of the operative relation to said numbering heads, and means whereby said oscillatory member may be actuated independently of said connecting rod to bring said striker member into the operative relation to the numbering heads after said throw-off mechanism has been actuated.

11. A printing machine embodying therein a printing plate carrying member, an inking mechanism associated therewith, a numbering head cylinder, numbering heads thereon, an inking mechanism associated therewith, an impression cylinder cooperating with the plate upon said plate carrying member and with the numbering heads upon said numbering head cylinder respectively, a shaft, a striker member carried thereby adapted to co-operate with the numbering heads upon said numbering head cylinder to progressively actuate the digit wheels thereof, a crank arm carried by said shaft, an oscillatory member, operative connections between said member and said crank arm, a cam moving in synchronism with said impression cylinder having a rise and a fall thereon at substantially 180° apart, a crank carried by said oscillatory member, a slidably mounted connecting rod adapted to operatively engage said crank and acted upon by said cam, whereby said shaft will be actuated to successively bring the striker member carried thereby into and out of the operative relation to said numbering heads upon succeeding revolutions of said numbering head cylinder, said numbering head cylinder being of a diameter to requre two revolutions thereof to develop an angular speed coinciding with the speed of said printing plate carrying member, a manually operative throw-off mechanism whereby said connecting rod may be disengaged from the crank carried by said oscillatory member, and a stud normally adapted to hold said connecting rod in operative relation to the crank upon said oscillatory member, said connecting rod having a bayonet slot therein, whereby disengagement of said connecting rod and said crank is prevented until said striker member is out of the operative relation to said numbering heads.

12. A printing machine embodying therein a reciprocatory flat bed adapted to carry a printing plate, an inking mechanism associated therewith, a numbering head cylinder of a diameter to require two revolutions thereof to each full reciprocatory movement of said bed, numbering heads carried thereby, an inking mechanism associated with said numbering head cylinder, an impression cylinder or D-roll adapted to successively co-operate with said numbering head cylinder and said reciprocatory bed, numbering head actuating means, and means whereby said numbering head actuating means will be made inoperative with relation to the numbering heads upon said numbering head cylinder during alternate revolutions thereof.

In witness whereof I have hereunto affixed my signature, in the presence of two subscribing witnesses this 9th day of October, 1922.

AMOS H. SMITH.

Witnesses:
F. T. WENTWORTH,
FRIEDA KOEHLER.