Nov. 12, 1929. J. F. KIELY 1,735,252

NUMBER PLATE PRINTING MACHINE

Filed April 7, 1927 3 Sheets-Sheet 1

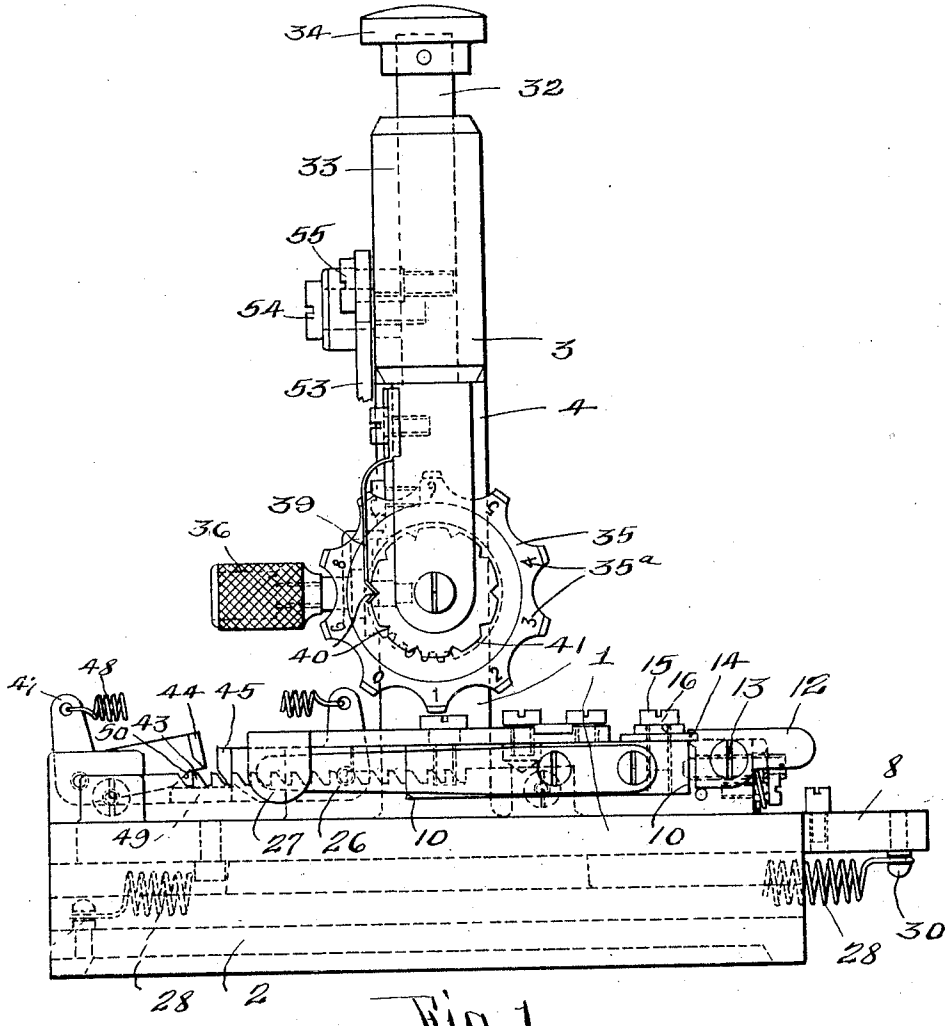


Fig. 1.

INVENTOR.
James F. Kiely
BY Parsons & Bodell.
ATTORNEYS.

Nov. 12, 1929. J. F. KIELY 1,735,252

NUMBER PLATE PRINTING MACHINE

Filed April 7, 1927 3 Sheets-Sheet 2

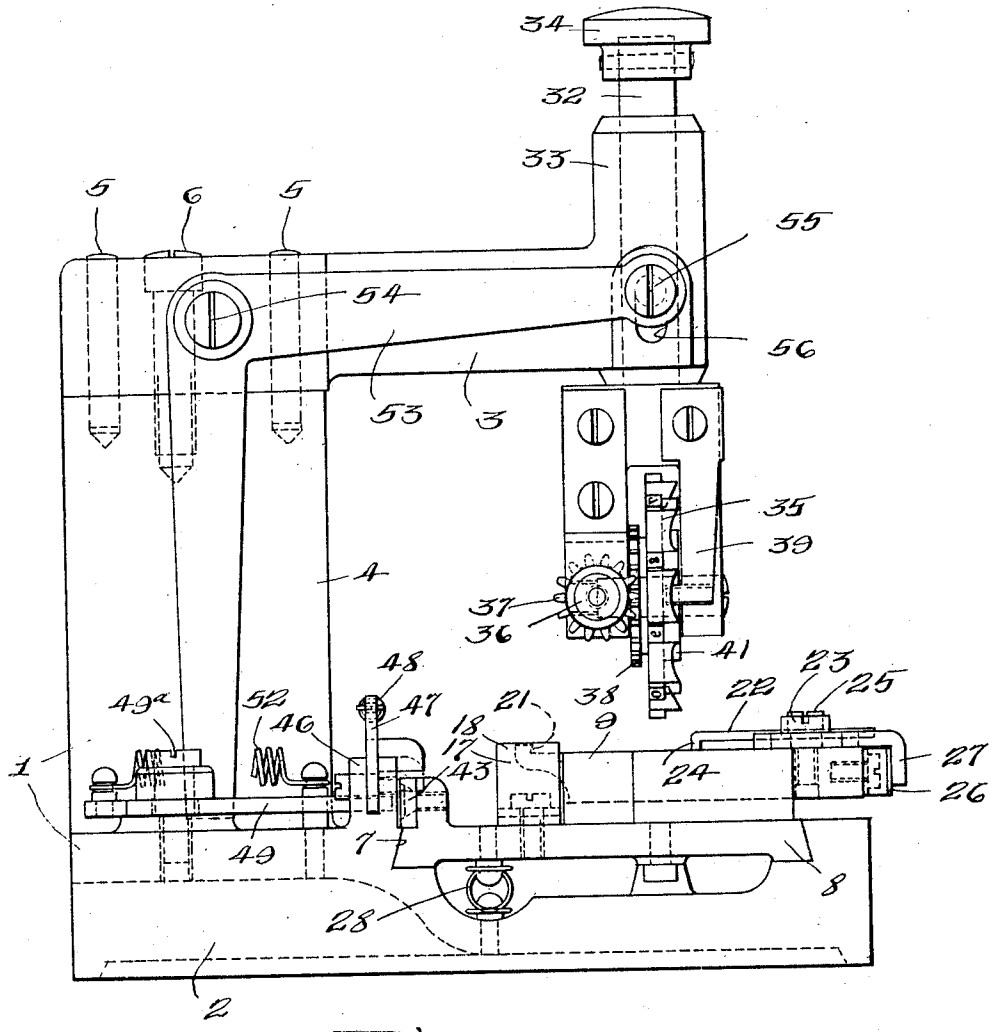


Fig. 2.

INVENTOR.
James F. Kiely
BY
Parsons & Rodell
ATTORNEYS.

Nov. 12, 1929. J. F. KIELY 1,735,252

NUMBER PLATE PRINTING MACHINE

Filed April 7, 1927 3 Sheets-Sheet 3

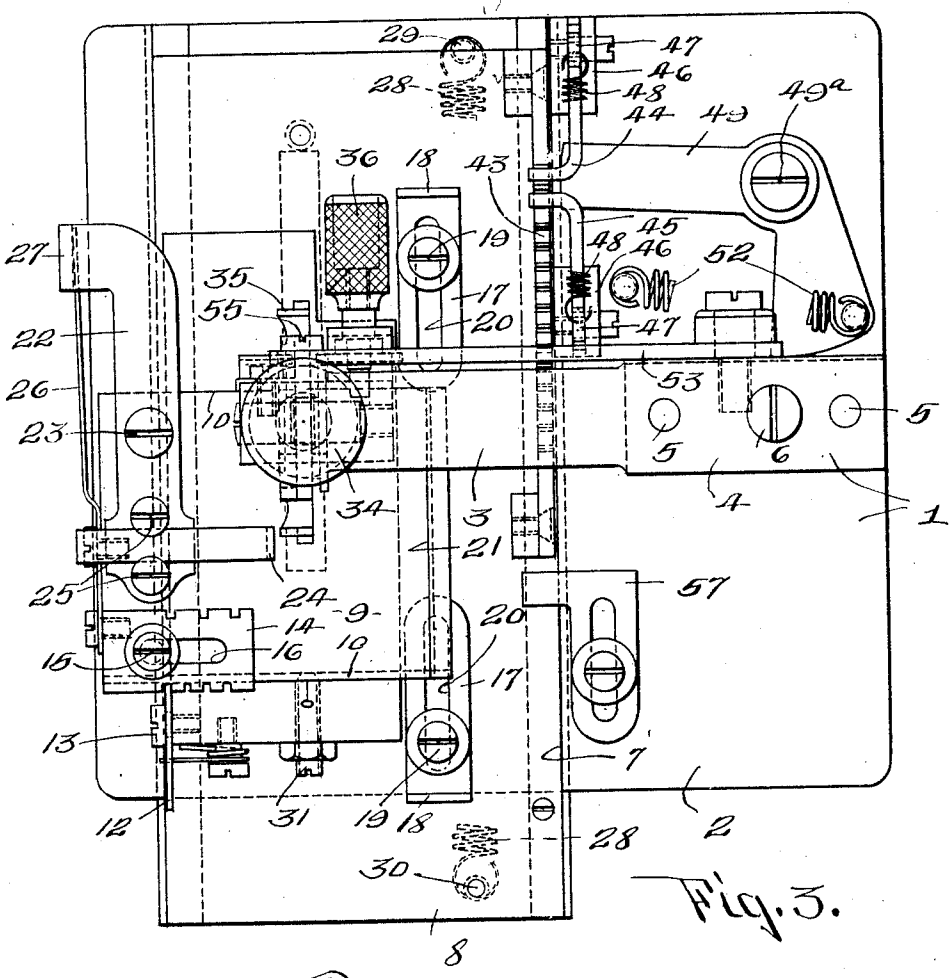


Fig. 3.

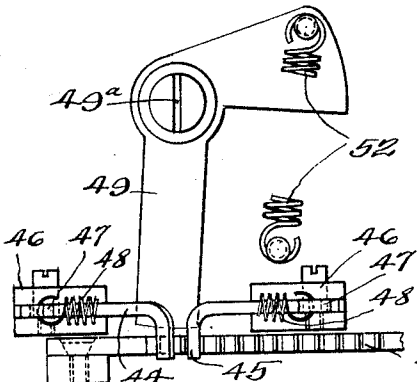


Fig. 4.

Fig. 5.

INVENTOR.
James F. Kiely
BY
Parsons & Bodell.
ATTORNEYS.

Patented Nov. 12, 1929 1,735,252

UNITED STATES PATENT OFFICE

JAMES F. KIELY, OF SYRACUSE, NEW YORK

NUMBER-PLATE-PRINTING MACHINE

Application filed April 7, 1927. Serial No. 181,724.

This invention relates to printing or stamping machines particularly adapted for printing numbers as serial numbers and other data on the metal plates as the name or number plates which are usually applied to machines and articles of manufacture and has for its object, a machine which is particularly simple in construction, highly efficient, durable and rapid in use, and particularly a machine in which the type can be quickly brought to the printing line and the plate automatically shifted after each operation in position to receive the next impression. It further has for its object, means by which the machine is readily adjusted to hold different sized plates.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

Figure 1 is a front elevation of a machine embodying my invention.

Figures 2 and 3 are respectively a side elevation and a plan view thereof.

Figures 4 and 5 are fragmentary detail views of the escapement mechanism and contiguous parts, Figure 4 being a plan view and Figure 5 an edge view looking upwardly in Figure 4.

This printing machine comprises generally, a frame formed with a suitable way or guide, a plate carriage movable along the guide, a plunger movable toward and from the plate on the carriage and carrying a rotatable type wheel, manual means for setting the type wheel, escapement mechanism operated by the movement of the plunger and means for locating the plate at a particular space thereon at the printing line.

1 designates the frame which includes a base portion 2 and an overhanging arm 3, this overhanging arm including an upright portion 4 rising from the rear portion of the base and a horizontal portion secured to the end of the upright portion in any suitable manner as by dowel pins 5 and a screw 6. The base is also formed with a guide or way 7 extending transversely in the front portion thereof in front of the upright portion 4 of the overhanging arm and beneath the horizontal portion of said arm.

8 is the carriage movable along the guide, the carriage also having a second carriage 9 movable crosswise thereof that is, forwardly and rearwardly and having means for holding the plate, the carriage 9 being movable in ways 10 formed in the carriage 8 and extending crosswise thereof relatively to the direction of the ways 7, that is, the ways 7 and 10 extend at a right angle to each other. The carriage 9 is held in its adjusted position along its ways 10 by means of a spring pressed lock 12 pivoted at 13 to the edge of the carriage 8 and coacting with a notched plate 14 on the sub-carriage 9. This plate 14 is also adjustable relatively to the carriage 9 and is secured thereto, as by a screw 15 extending through a slot 16 in the plate 14 and threading into the carriage 9. The plate 14 has notches spaced different distances apart along its opposite edges and is reversible to bring either set of notches in position to coact with the spring pressed lock 12. By reason of the reversible feature of this plate and the notch edges with the notches spaced different distances apart, the carriage 9 has a wide range of adjustments to locate the impression receiving space on the plate relatively to the type head or printing wheel to be presently described.

The carriage 8 is provided with adjustable gages 17 thereon for plates of different length and for locating the plate on the carriage, these gages being plates or strips with upturned abutments 18, the plates or strips being held in position by screws 19 extending through lengthwise slots 20 in the gage plates and threading into the main carriage 8. The gages may be shifted toward or from each other to conform to the size of the plate, or both may be shifted to the right or left to coact with the carriage 9 to locate the impression receiving space at the printing line. The carriage 9 also has a straight edge abutment 21 along its rear edge and a movable or manually operable abutment opposed to

the abutment 21. The in and out adjustment or locating of the plate by shifting the carriage 9 is thus independent of the right and left effected by shifting the gages.

22 designates the movable or manually operable abutment, it being also operable to permit the plates to be rapidly inserted and removed from printing position and to cooperate with the abutment 21 and the gages 17 to hold the plates in position during the printing operation. The movable abutment 22 is here shown as a lever pivoted at 23 to the sub-carriage 9 and having a gage plate 24 at one end for engaging the edge of the plate opposite to that engaging the abutment 21. The gage 24 and the abutment 21 provide a releasable clamping gage for the printing plate. This plate 24 is adjustable transversely of the lever 22 to plates of different width and is held in its adjusted position by screws 25, the heads of which overlap the plate 24. The lever 22 is pressed into its operated position by the leaf spring 26 secured to the front edge of the carriage 9 and coacting with a downturned end 27 of the lever 22.

In operation, these gages 17 and 24 are arranged for the plate of particular size to be operated on and the plate 14 adjusted to set the carriage 9 to the proper cross position to locate the numbers to be printed at a particular line between the front and rear edges of the plate and the gages 17 are also located to place the printing space in the right position with respect to the end edges of the plate.

28 is the spring tending to move the carriage 8 in one direction as to the left, Figure 1, this spring being located beneath the carriage 8 and fixed at one end at 29 to an abutment on the base 1 and at its other end at 30 to the carriage. The carriage is normally set with the spring tensioned. The movement of the carriage is limited by an adjustable stop or set screw 31 carried by the base and the movement of the carriage is controlled by an escapement to be presently described.

32 is a plunger movable vertically in a guide or bearing 33 at the front end of the overhanging arm 3, this plunger having a head 34 at its upper end and a type head at its lower end, the type head being a wheel 35 mounted in the plunger to move about a horizontal axis to bring different type on its periphery to the printing line. It also has corresponding numbers or characters at 35ª readable from the front side of the wheel to guide the operator in setting the wheel. Manual means are provided for turning the type wheel, consisting of a rotary spindle 36 journalled in the plunger and extending radially relatively to the axis of the wheel 35, this spindle having a toothed wheel 37 thereon meshing with teeth 38 on the hub of the type wheel 35. The type wheel is held centered or in the position to which it is turned by the spindle 36, by a spring pressed pawl 39 carried by the plunger and coacting with notches 40 in a notched wheel or a notch face 41 on the type wheel 35. The downward movement of the plunger 32 is against the action of a spring 52 to be presently described.

The escapement mechanism comprises a rack 43 provided on the carriage 8 and a pair of escapement pawls 44, 45 pivoted to lugs 46 on the base, each of these pawls having angularly extending arms 47 which are connected by a spring 48. One pawl is engaged with the rack 43 while the other is out of engagement with the rack. The escapement is operated by mechanism carried partly by the rear portion of the base at one side of the overhanging arm 4 and by mechanism carried by the overhanging arm 3 and connected to the plunger 32. The mechanism carried by the base includes an angle lever 49 pivoted at 49ª to the base and having one arm extending under the escapement pawls 44, 45 to coact with cam surfaces 50 and 51 thereon and having its other arm acted upon by a returning spring 52 and for coacting with the mechanism operated by the plunger 32. This mechanism consists of an angle lever 53 pivoted at 54 to the overhanging arm having one arm thereof coacting with the lever 49 and its other arm connected to the plunger 32 or to a laterally extending pivot pin 55 extending from the plunger through a slot 56 in the bearing 33.

Upon the depression of the plunger 32, the motion thereof will be transferred through the lever 53 to the lever 49, which will be moved from the position shown in Figures 3 and 4 to the right, moving the escapement pawl 45 upwardly out of engagement with the rack 43 and at the same time, moving the pawl 44 into engagement with the rack, the carriage 8 during such movement making but a slight advance which brings the tooth 45 on top of the next rack tooth to the right. During the upward movement of the plunger 33 under the influence of the spring 52, the lever 53 moves in the reverse direction, thus permitting the lever 49 to be returned by its spring 52 and in so doing lift the escapement pawl 44 out of engagement with the rack and pulling the escapement pawl 45 into engagement with the rack. However, as the pawl 45 is now on the upper end of a tooth, the spring 28 is free to move the carriage 8 to the left until the next space between the rack teeth comes in alinement with the tooth of the pawl 45. The starting position of the carriage 8 when the spring 28 is tensioned is determined by an adjustable stop 57.

In operation, the gages 17 and 24 are set to conform to the length and width of the plate and the gages 17 are also set to posi-

tion and the plate laterally on the carriage 8 and the carriage 9 is adjusted to locate the printing spaces and the operator pulls forwardly on the lever 22 inserts the plate against the gages and then releases the lever 22 so that the spring 26 causes the gage plate 24 to press against the outer edge of the plate. He then adjusts the type wheel 35 to bring the proper number to the printing line by turning the spindle 36. He then strikes the head 34 of the plunger, thus bringing the type wheel down onto the plate and printing thereon the type on the printing line. He then again operates the spindle 36 to bring another number to the printing line and repeats the operation. These operations are repeated until the desired number is stamped. Obviously, instead of numbers, the machine may be used to print other matter on the plates as for instance, the word "patent" and the patent number and date.

This machine is particularly advantageous in that it can be economically manufactured for all sizes of plates and readily adjusted to all sizes of plates and printing locations thereon and further in that it can be quickly set to bring different numbers to the printing line.

What I claim is:

1. A printing machine comprising a base formed with a guide, an upstanding bracket on the base in the rear of the guide and formed with an arm overhanging the guide, a carriage movable along the guide transversely of the base and the bracket, means for feeding the carriage in one direction including an escapement mechanism carried by the base in the rear of the carriage, and at one side of the bracket, a type wheel movable toward and from the carriage, a plunger carrying the type wheel, the plunger being movable vertically in the overhanging arm and operating mechanism for the escapement mechanism including an angle lever pivoted to the bracket and having one arm thereof extending along the overhanging arm and connected to the plunger and its other arm extending lengthwise of the bracket and connected to the escapement mechanism.

2. A printing machine comprising a base formed with a guide, an upstanding bracket on the base in the rear of the guide and formed with an arm overhanging the guide, a carriage movable along the guide transversely of the base and the bracket, means for feeding the carriage in one direction including an escapement mechanism carried by the base in the rear of the carriage, and at one side of the bracket, a type wheel movable toward and from the carriage, a plunger carrying the type wheel, the plunger being movable vertically in the overhanging arm and operating mechanism for the escapement mechanism including an angle lever pivoted to the bracket and having one arm thereof extending along the overhanging arm and connected to the plunger and its other arm extending lengthwise of the bracket and connected to the escapement mechanism, and a spring connected to the operating mechanism and the frame and acting to return the plunger to its starting position.

3. A printing machine comprising a base formed with a guide, an upstanding bracket on the base in the rear of the guide and formed with an arm overhanging the guide, a carriage movable along the guide transversely of the base and the bracket, means for feeding the carriage in one direction including an escapement mechanism carried by the base in the rear of the carriage, and at one side of the bracket, a type wheel movable toward and from the carriage and having its axis extending transversely of the movement of the carriage and forwardly and rearwardly relatively to the base, a plunger carrying the type wheel, the plunger being movable vertically in the overhanging arm, operating mechanism for the escapement mechanism between the plunger and the escapement mechanism, and means for indexing the type wheel including a rotatable spindle extending radially relatively to the type wheel and carried by the plunger, said spindle extending beyond the periphery of the type wheel to provide a portion for manual operation.

4. A printing machine comprising a base formed with a guide, an upstanding bracket on the base in the rear of the guide and formed with an arm overhanging the guide, a carriage movable along the guide transversely of the base and the bracket, means for feeding the carriage including an escapement mechanism carried by the base in the rear of the carriage, and at one side of the bracket, the escapement mechanism including a motion transmitting member, a type wheel movable toward and from the carriage, a plunger carrying the type wheel, the plunger being movable vertically in the overhanging arm, operating mechanism for the escapement mechanism including an angle lever pivoted to the bracket and having one arm thereof extending along the overhanging arm and connected to the plunger and its other arm extending lengthwise of the bracket and coacting with said member, and a spring for returning the plunger to its starting position, said spring being carried by the base in the rear of the carriage and connected to said motion transmitting member.

5. A printing machine of the character described comprising a base formed with a transverse guide, a carriage movable along the guide, a second carriage mounted on the first carriage and adjustable transversely thereof, means for holding the second carriage on the first carriage in its adjusted position, adjustable gages carried by the first carriage for positioning the printing plate on

the second carriage in a direction lengthwise of the first carriage, a gage on the second carriage between the former gages and a releasable clamping gage for the printing plate carried by the second carriage and opposed to the second mentioned gage, a printing member and operating means therefor, and carriage feed mechanism for the printing plate controlled by the operation of the printing member.

6. A printing machine comprising a suitable base and holding means for a plate to be printed mounted on the base, an upstanding bracket on the base in the rear of said plate holding means, the bracket being formed with an arm overhanging the plate holding means, a type wheel movable toward and from the plate holding means on the base and having its axis extending horizontally, a plunger carrying the type wheel and movable vertically in the overhanging arm and means for indexing the type wheel including a rotatable spindle extending laterally, radially relatively to the type wheel, the spindle being carried by the plunger and extending beyond the periphery of the type wheel to provide a portion for manual operation.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga and State of New York, this 22nd day of March, 1927.

JAMES F. KIELY.