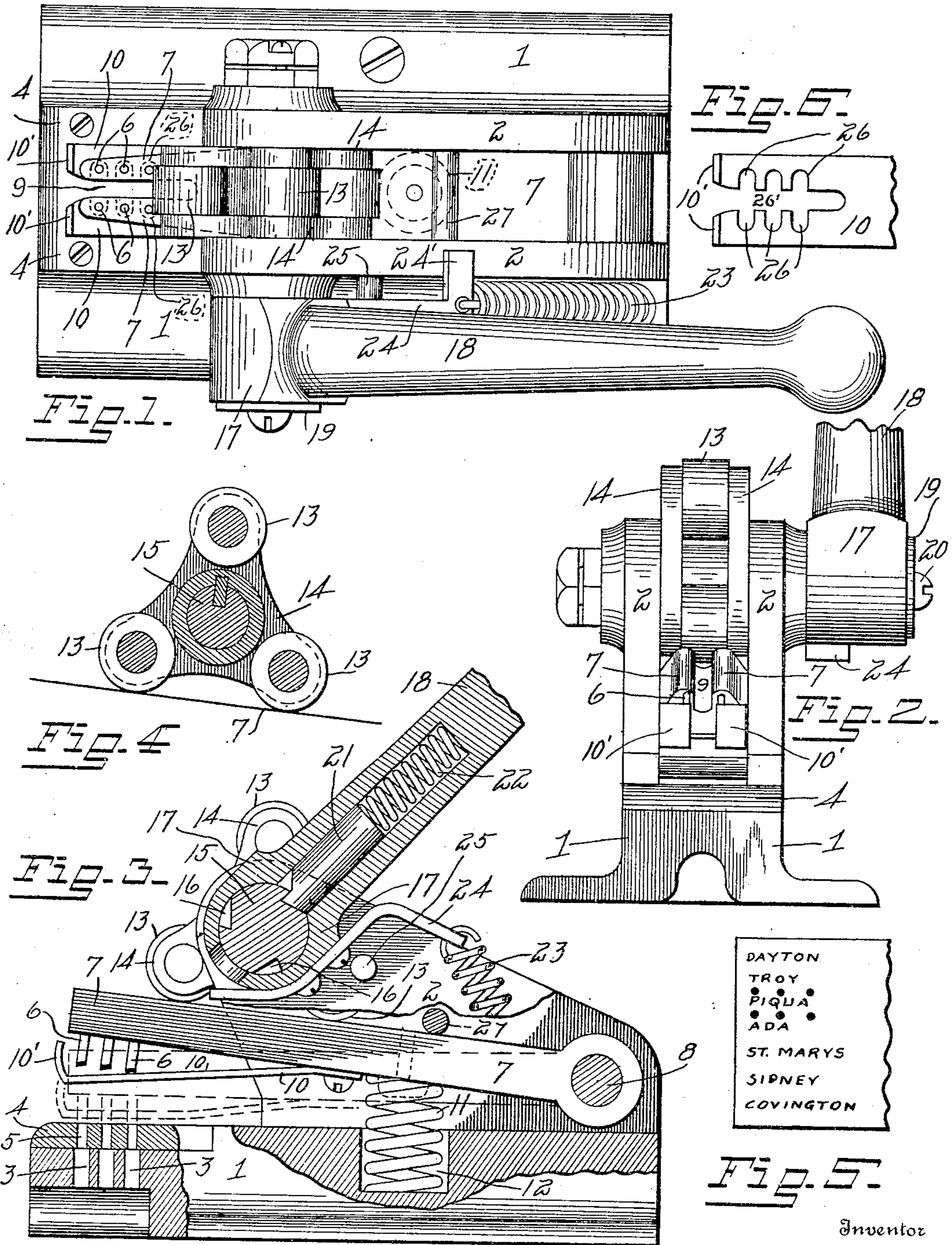


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RAILWAY TICKET PUNCH.
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962,913.

Patented June 28, 1910.



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UNITED STATES PATENT OFFICE.

HARRY E. PALMER, OF DAYTON, OHIO.

RAILWAY-TICKET PUNCH.

962,913.

Specification of Letters Patent. Patented June 28, 1910.

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To all whom it may concern:

Be it known that I, HARRY E. PALMER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Railway-Ticket Punches; and I do declare the following to be a full, clear, and exact description of the invention, 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, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in ticket punches, the object being to provide a punch having certain advantageous features to be hereinafter fully described. Among these features may be mentioned means which enable a readjustment of the position of the ticket after it is placed in the punch and up to the very moment of perforation.

Another object of the invention is to so pivot the punch-carrying arm that the punches will move at right angles to the ticket when the holes are perforated in said ticket, and to provide a construction which enables the actuators of the punch-carrying arms to engage said arm well forward or remote from the fulcrum point of said arm.

Other objects combining in the production of a simple and efficient railway ticket punch will appear in the specification and claims to follow.

The accuracy of the work of the punch as well as the speed and comparatively easy operation, will be apparent from the following description of the same.

In the accompanying drawings, Figure 1, is a top plan view of my improved ticket punch. Fig. 2, is a front end elevation of the same. Fig. 3, is a side elevation of the punch partially in section with the operating handle broken away. Fig. 4, is a sectional view through the shaft and roller-supporting head. Fig. 5, is a view of a portion of a ticket which has been punched. Fig. 6, is a plan view of the free end of the resilient arm.

In a detailed description of the invention, similar reference characters indicate corresponding parts.

The stationary frame-work consists of a base 1 with two vertical sides 2 which pro-

vide an intervening space which is utilized for locating the various parts presently described. In the forward end of the base 1 is provided the female die 3 consisting of three or more openings above, above which is a platen or die 4 having openings 5 which register with the openings in the die 3 and upon which the tickets are placed preparatory to punching. The male die comprises the punches 6 which are carried on the extreme forward end of the arm 7 and correspond in number to the openings in the female die. The arm 7 is fulcrumed at its extreme rearward end on a shaft 8 which is journaled in the upright sides 2 of the frame. The forward end of the punch arm 7 is bifurcated to provide a sight opening 9 shown more clearly in Fig. 1, and through which the names of the stations on the ticket may be seen and properly located between the punches, said punches being arranged on each side of said opening 9. Secured to the lower side of the die arm 7 is a resilient arm 10 adapted to hold the tickets on the platen 4 while being punched, and to strip said tickets from the punches 6 when the die arm 7 is elevated by the spring 11 located within a socket 12 in the base. The front end of the resilient arm 10 is bifurcated or slotted as at 26' so as to not obstruct the sight opening 9 in the die arm; openings 26 in said arm 10 extend laterally from the slot 26' and surround the dies or pins 6 on the arm 7.

In Fig. 6, the slot 26' is shown to spread outwardly at the extreme end of said resilient arm in order to avoid restricting the view of the station name on the ticket when said arm 10 is against the ticket. The openings 26' surrounding the pins enable the arm 10 to evenly strip the ticket from said pins. The extreme end of said spring arm 10 is turned up in a suitable curvature as at 10' in order to properly guide the insertion of the tickets between said arm 10 and the platen 4 or the female die. When the punch-carrying arm 7 is depressed, the resilient arm 10 is lowered with it until the latter engages the platen 4, or rather the ticket placed in position on said platen, and thus holds the same on said platen during the descent of the punches through said ticket and into the female die.

As before stated, the punches during the perforation of the tickets and their entrance into the female die, move in substantially

vertical lines, owing to the remote position of the fulcrum 8 of the arm 7, and thus clear and perfect perforations are made in the ticket as shown in Fig. 5, on each side of the station name, to-wit: Piqua. When the downward pressure is released from the punch-carrying arm 7 it is moved upwardly on its fulcrum, and the resilient arm 10 is permitted to spring downwardly and to strip the ticket from the punches. The pressure exerted on the upper side of the arm 7 is also a substantial distance away from the fulcrum of said arm, and is obtained through means of a series of three anti-friction rollers 13 which are pivotally supported upon a rotating head 14 consisting of a single triangular casting. The rotatable head lies between the sides 2 of the frame and is keyed to a shaft 15 journaled in said sides, and one end of which is provided with ratchets 16 corresponding in number to the rollers 13. Surrounding the ratchet portion of said shaft, is the hub 17 of an operating handle 18 which is loose on that portion of said shaft and is maintained in position thereon by a plate 19 held upon the end of the shaft by any suitable means, such for example—as a screw. Engaging the ratchets 16 in said shaft 15, is a pawl 21 inclosed within a pocket in the operating handle 18 and normally pressed in engagement with the ratchets 16 by a spring 22, seated within a pocket in the shaft 18 and engaging the pawl 21. The resilient arm 10 does not engage the ticket to hold it in position on the platen 4 until the punches have been lowered to a position where they practically engage the ticket; at this time the operating handle 18 has been moved slightly forward of the center of its movement, and up to this time the ticket may be conveniently readjusted to change its position on the platen 4 by moving rearwardly, said operating handle a sufficient extent to enable said arm 10 to release the ticket. In the operation of the machine, the roller head 14 is carried around by the shaft 15 through the ratchet connection with the operating handle 18, and each of the rollers 13 is effective in imparting to the punch arm 7 a complete operation of punching a ticket.

The operating handle 18 is returned to its rearward or normal position after each operation by a suitable spring 23 which is secured to the frame and to an attachment 24 on the lower end of said operating handle. The attachment 24 acts as a stop to limit the rearward movement of the operating handle through the extended portion 24 thereof engaging the frame at the limit of said rearward movement. The forward movement of said operating handle is limited by a pin 25 which engages the forward end of the attachment 24 and thus stops said handle at the limit of its forward move-

ment. The maximum pressure is exerted upon the die-carrying arm 7 when the operating handle is in a substantially perpendicular position, and a roller 13 is below the center of said handle. It is apparent that a ticket cannot be mutilated or repunched during an operation of the punch. This is due to the fact that the operating handle must be given a complete movement after the punches have been caused to partially or wholly perforate the ticket. At such time, the roller which is in engagement with the punch-carrying arm, is prevented by said arm from any return movement. The upright sides 2 of the frame insure a correct movement of the die arm 7 which is limited in its upward movement by a pin 27 extending between the said sides.

I claim:

1. In a ticket punch, in combination, a frame, a female die, an arm fulcrumed on the frame, a male die, one die being mounted on the frame and the other carried by the arm, a slot being longitudinally extended through the forward end of said arm and the die carried thereby, a resilient ticket retaining and stripping arm between said dies and designed to be compressed when said arm is actuated, a spring tending to hold said arm in its raised position, a revoluble cam-member mounted in the frame for engaging and depressing said arm, and an operating handle for moving said cam-member in one direction.

2. In a ticket punch, in combination, a frame, a female die, an arm fulcrumed on the frame, a male die, one die being mounted on the frame and the other carried by the arm, a slot being longitudinally extended through the forward end of said arm and the die carried thereby, a resilient ticket retaining and stripping arm between said dies and designed to be compressed when said arm is actuated, a spring tending to hold said arm in its raised position, a revoluble cam-member, a shaft for the latter mounted in said frame, a ratchet on said shaft, and an operating handle engaging said ratchet for moving said cam-member to depress said arm.

3. In a ticket punch, in combination, a frame, a female die, an arm fulcrumed on the frame, a male die, one die being mounted on the frame and the other carried by the arm, a resilient ticket-retaining and stripping arm between said dies and designed to be compressed when said arm is actuated, a spring tending to hold said arm in its raised position, a revoluble cam-member having rollers for engaging and depressing said arm, a ratchet carried by said cam-member, and an operating handle for engaging said ratchet to turn said cam-member to cause each roller thereof to successively engage and depress said arm.

4. In a ticket punch, a frame containing a female die, an arm containing a male die and having a fulcrum at its extreme rearward end, a resilient ticket-retaining and stripping arm secured to said male die arm between the male and female dies, rotatable head-supporting rollers which engage the arm of the male die to depress said arm, an operating handle, and ratchets interposed between said operating handle and the roller head and by means of which the roller head is actuated to cause each roller to completely depress said arm, substantially as specified.

5. A ticket punch comprising an oblong frame with a female die in its forward end, an arm substantially the length of said frame and having its forward end bifurcated to provide a sight opening, and its rearward end fulcrumed to the rearward end of said frame, a male die supported

upon the bifurcated end of said arm, a resilient arm secured to the lower side of said die arm and lying between the male and female dies, said resilient arm having its forward end bifurcated and said bifurcated end lying below the bifurcated end of the die-carrying arm, a series of pressure rollers mounted upon a rotating head and adapted to apply pressure to the die-carrying arm, an operating handle, and ratchets interposed between said handle and the rotating head upon which the rollers are supported, and whereby the rollers are actuated to engage, one at a time, the die-carrying arm, substantially as specified.

In testimony whereof I affix my signature, in presence of two witnesses.

HARRY E. PALMER.

Witnesses:

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