(No Model.)

J. DUDLEY & R. E. GIBSON.

TICKET PUNCH.

No. 522,977. Patented July 17, 1894.

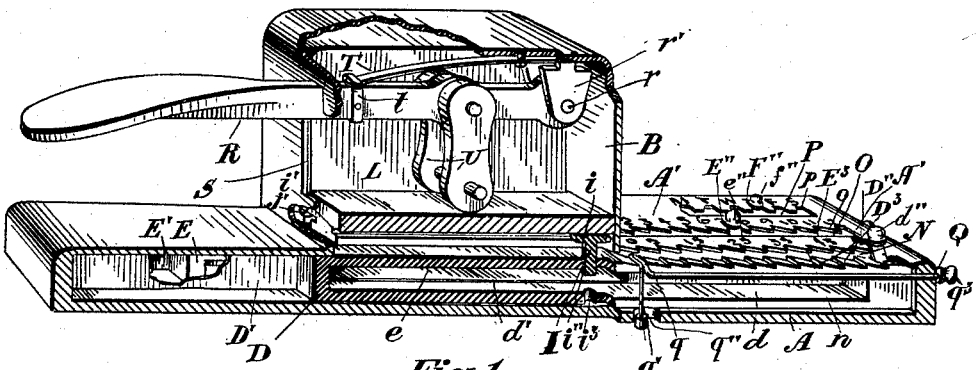

Fig. 1.

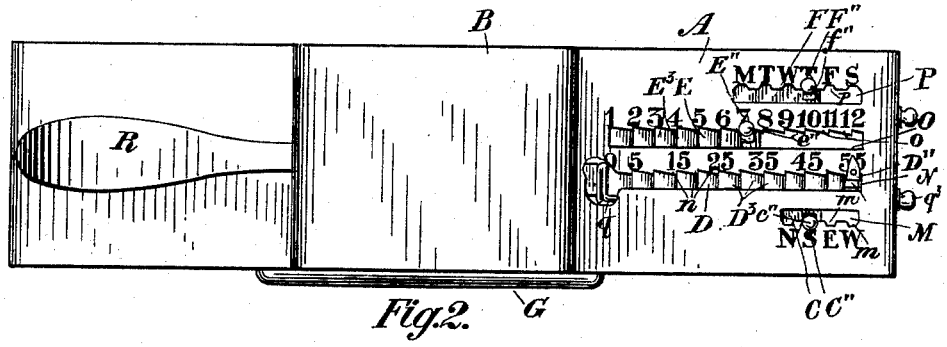

Fig. 2.

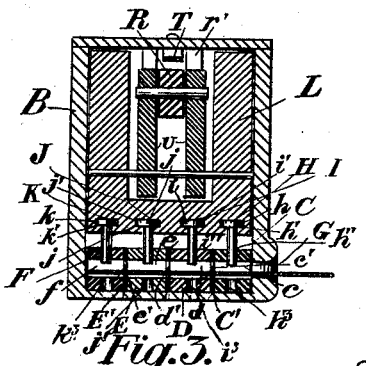

Fig. 3.

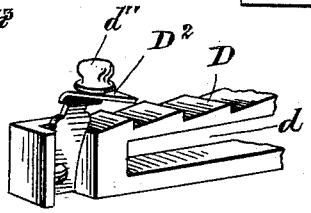

Fig. 4.

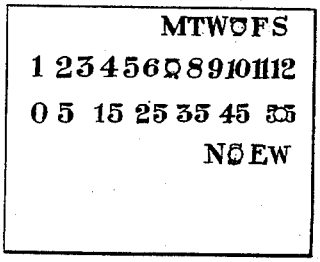

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOB DUDLEY AND RALPH EDWARD GIBSON, OF TORONTO, CANADA.

TICKET-PUNCH.

SPECIFICATION forming part of Letters Patent No. 522,977, dated July 17, 1894.

Application filed September 29, 1893. Serial No. 486,811. (No model.)

To all whom it may concern:

Be it known that we, JOB DUDLEY, ironworker, and RALPH EDWARD GIBSON, coal merchant, both of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Ticket-Punches, of which the following is a specification.

Our invention relates to improvements in punches and the object of the invention is to devise a punch by which several holes may be pierced in a ticket or bunch of tickets simultaneously at different portions of the ticket and it consists essentially of a case provided with a series of slotted slides one end of each slotted slide being designed to contain a punch and die and the other end of each slotted slide having attached to it a pointer, which pointers are each movable longitudinally in a slot, so as to adjust the position of the punch in reference to the ticket, means being provided for accuracy of adjustment and for bringing all the punches simultaneously down through the ticket as hereinafter more particularly explained.

Figure 1, is a longitudinal sectional perspective view of our punch case. Fig. 2, is a plan. Fig. 3, is a cross section of the punches shown in alignment. Fig. 4, is an enlarged detail showing the manner of attaching the pointers to the sliding bars. Fig. 5, is a detail of the ticket.

In the drawings like letters and numerals of reference indicate corresponding parts in each figure.

A, is the portion of the case containing the slides and, B, the portion containing the plunger frame.

C, is the slide which adjusts the punch by which the direction is indicated.

D, is the slide for adjusting the punch by which the minutes are indicated.

E, is the hour punch adjusting slide and, F, the day punch adjusting slide.

The slides, C, D, E, and, F, have horizontal slots, *c*, *d*, *e*, and, *f*, extending from end to end, which slots are the same depth as the slot through which the ticket is inserted, the top and bottom of the slots being on alignment with the slot, G, in which the ticket is inserted. These slots, *c*, *d*, *e*, and, *f*, are designed to receive the ticket when it is inserted through the slot, G.

H, I, J, and, K, are punches, the heads, *h*, *i*, *j*, and, *k*, of which are adjustable in longitudinal dove-tailed grooves, *h'*, *i'*, *j'*, and, *k'*, extending from end to end of the bottom plate of the plunger frame, L.

The slides, C, D, E, and, F, are separated by the three partitions, C', D', and, E', which have slots, *c'*, *d'*, and, *e'* of the same length and depth as the slot, G, through which the ticket or tickets are inserted. These slots, *c'*, *d'*, and, *e'*, are directly opposite the slot, G.

The punches, H, I, J, and, K, extend through holes, *h''*, *i''*, *j''*, and, *k''*, made in the slides, C, D, E, and, F, respectively.

h^3, i^3, j^3, and, k^3, are dies or holes made in the lower portion of the slides, C, D, E, and, F, directly beneath the punches, H, I, J, and, K, and designed to receive the bottoms of the punches when they are brought down.

C'', D'', E'', and, F'', are spring pointers secured in a notch at the end of the slides, C, D, E, and, F, and each being provided with knobs, *c''*, *d''*, *e''*, and, *f''*.

M, N, O, and, P, are slots arranged above one end of the slides C, D, E, and, F. To one side of the slot, M, we arrange the letters N, S, E, and, W, respectively representing the directions of north, south, east and west.

m, are notches made in the slot, M, opposite the letters, N, S, E, and, W. At one side of the slot, N, are arranged the numerals —05—15—25—35—45—55—, indicating the minutes and a series of ratchet teeth, *n*, cut along one side of the slot, N, the base of every second tooth being opposite the center of the numbers indicating the minutes.

At one side of the slot, O, is arranged the numerals from 1 to 12 indicating the hours.

o, is a series of ratchet teeth along the side next the numbers and arranged so that the base of each tooth is opposite one of the numbers.

At one side of the slot, P, is arranged the letters, M, T, W, T, F, S, representing six days of the week, notches, *p*, being provided opposite each letter.

D^3, and, E^3, are racks formed on top of the slides, D, and, E, respectively, the ratchet teeth of which correspond in number to the

ratchet teeth formed in the slots, N, and, O. When the slides, D, and, E, are brought so that the pointers, D″, and, E″, are at the outside of the slots, N, and, O, respectively the apex of each tooth of the rack is directly opposite the base of the corresponding tooth of the ratchet teeth, *n*, and, *o*, respectively.

Q, are adjusting bars provided at one end with an engaging finger, *q*, and a depending hanger, *q′*, which extends through a slot *q″*, made in the bottom of the case. The outer end of the bar, Q, is provided with a knob, q^3. The length of the slot, *q″*, is sufficient so that upon every outward pull of the knob, q^3, the slide will be pulled in the same direction the space of one tooth by the finger, *q*, and upon every inward push the finger, *q*, will be pushed into the base of the next succeeding tooth. The adjusting rod, Q, we preferably only use in connection with the slots, N, and, O, on the side of which are the numerals representing the months and hours.

In Fig. 1, the slide, D, is shown with the finger, *q*, of the adjusting rod, Q, having reached the end tooth in which case the spring pointer, D″, has sprung into the last tooth. It will be seen that by pushing upon the bottom of the hanger, *q′*, and releasing the spring pointer, D″, that the slide, D, may be moved inwardly until the spring pointer is in the notch opposite the center of the number 05 on the plate, A′. At this period the punch, H, will have moved along the slot, *h′*, until it is opposite the number 05 on the ticket to be printed. By pulling and pushing the adjusting rod, Q, it will be seen that the spring pointer, D″, may be moved from the inner to the outer end of the slot, N, at the same time moving the punch, I, from one end of the groove, *i′*, to the other that is to say from one end of the numbers representing the minutes on the ticket to the other end. The adjusting rod, Q, for manipulating the rack, E^3, and consequently the slide, E, is operated in precisely the same manner as the rod, Q, for moving the slide, D, and for this reason I do not show it in detail.

To adjust the slides, C, and, F, and consequently the punches H, snd, K, it is merely necessary to adjust the spring pointers C″, and, F″, in the notches, *m*, and, *p*, respectively.

We should here mention that we make the plate, A′, in which the slots are formed preferably of a luminous material which absorbs the light in the day time and emits such light at night thereby serving to exhibit to the conductor the numbers and characters on the face of the plate so as to form a guide for him for placing the spring pointers opposite their proper characters or numbers.

R, is a lever pivoted at, *r*, within the jaws, *r′*, and held normally to the top of the slot, S, by a spring secured in the top of the case, A, B, and having the end projecting through the open end of a strap secured to the lever, R.

U, are links pivotally connected to the lever, R, and to the frame, L.

It will be seen that by bringing the spring pointers, C″, D″, E″, and, F″, opposite any desired character or number on the plate next the slots, M, N, O, and, P, that the punches will be adjusted to corresponding positions opposite the corresponding numbers or characters on the ticket and that by the downward pressure of the lever, R, these numbers or characters will be pierced through as indicated in Fig. 5, thus serving to indicate in a transfer ticket, for which my punch is especially adapted, the day, the time of the day and the direction for which the transfer has been given by the conductor.

It will of course be understood that other particulars might also be arranged on the ticket corresponding to those described and that they might with equal facility be pierced by one operation. The slot, G, and the corresponding slots in the slides, C, D, E, and, F, and the partitions, C′, D′, and, E′, are of a sufficient depth to allow of a number of tickets being inserted within the slots and slides and punched at one time by one pressure upon the lever, R.

What we claim as our invention is—

1. In a ticket punch a series of longitudinally movable slides slotted transversely to receive the ticket, a reciprocating plunger having a longitudinally grooved under face and punches movably seated in said grooves and passing through openings in the slide, substantially as described.

2. In combination, the series of reciprocating slides slotted transversely to receive the ticket and having each a vertical opening, a reciprocating plunger having a series of grooves in its under face, punches movably supported in said grooves with their lower ends projecting into the vertical openings in the slides, and means for reciprocating the slides to adjust the punches longitudinally of the plunger, substantially as described.

3. The combination with the case, A, B, provided with a slot, G, and plunger frame L the slides, C, D, E, and, F, provided with slots, *c*, *d*, *e*, and, *f*, from end to end corresponding in depth to the slot, G, the punches H, I, J, and, K, having their heads supported in the grooves, *h′*, *i′*, *j′*, and, *k′*, in the plunger frame, L, extending through holes in the slides, C, D, E, and, F, and designed to be brought down into the holes, h^3, i^3, j^3, and, k^3, made in the slides, the spring pointers C″, D″, E″, and, F″, connected to the outer ends of the slides and designed to be adjusted in the teeth or notches in the slots, M, N, O, and, P, and means whereby the punches are brought down simultaneously as and for the purpose specified.

4. In combination the casing consisting of an elongated portion A and the upwardly extending portion B, the slotted slides reciprocating in said portion A, and having vertical openings, the vertically reciprocating plunger guided by the walls of the portion B and having a series of T shaped grooves in its under face, T shaped punches having their

heads located in said grooves and their lower ends projecting into the openings in the slides, and means for reciprocating the plunger, substantially as described.

5. The combination with the longitudinal horizontally slotted slides, D, and, E, provided with punches, I, and, J, extending through the slides into the slot, corresponding dies or holes situated in the slides beneath the plungers and means for normally holding up the punches, of the racks, D′, E′, formed on the outer ends of the slides and adjusting rod, Q, provided with a laterally extending dog, q, and hanger, q', movable within the slot, q'', at the bottom of the case, and the spring pointers, D″, and, E″, designed to engage with the ratchet teeth made in the side of the slots, N, and, O, in the top plate, A, and means for bringing down the punches simultaneously as and for the purpose specified.

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