

(No Model.)

T. A. HILLIER.
RAILWAY TICKET PUNCH.

No. 462,912.

Patented Nov. 10, 1891.

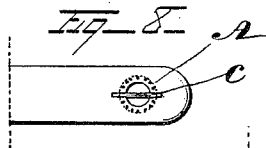
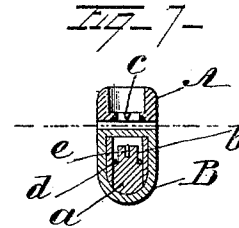
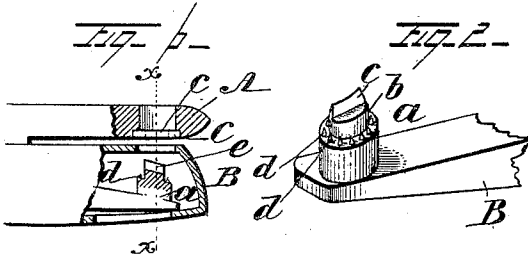
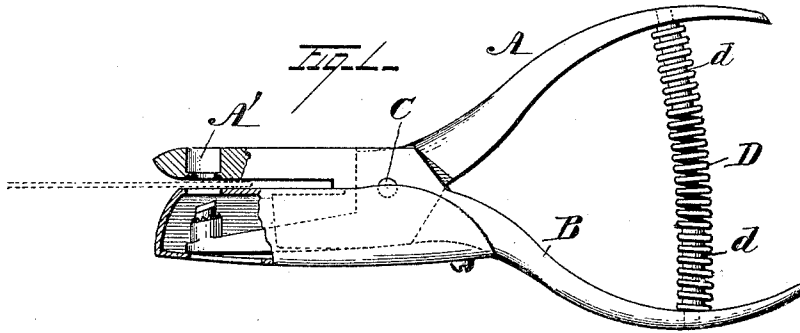


Fig. 3.

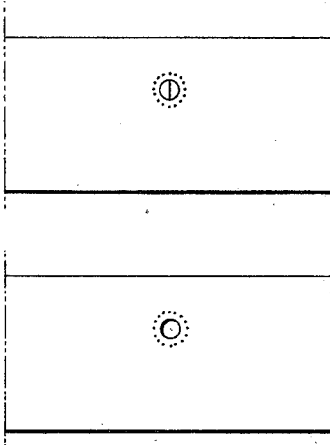


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS A. HILLIER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
ALONZO HILLIER AND FRANK P. MORGRIDGE, BOTH OF SAME PLACE.

RAILWAY TICKET-PUNCH.

SPECIFICATION forming part of Letters Patent No. 462,912, dated November 10, 1891.

Application filed June 25, 1891. Serial No. 397,426. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. HILLIER, a citizen of the United States, residing in the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Railway Ticket-Punches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to railway ticket-punches, and has for its object the construction of the cutting-dies of the punch in such manner that the piece of paper or card-board cut out by the punch will be cut into two or more pieces, so as to prevent it being successfully replaced in the original ticket, and also that the punch will simultaneously perforate the ticket around that portion which is punched out by the cutting-dies.

For these purposes my invention consists in the combination, with the well-known form of cutting-punch, of dies adapted thereto for the purposes mentioned, constructed as hereinafter fully described.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of the cutting-punch, partly in section, the dies of which are constructed in accordance with my invention. Fig. 2 is a perspective view of the male cutting-die detached. Figs. 3, 4, and 5 illustrate the form of the pieces punched from the ticket and the row of perforations around the punched-out portion. Fig. 6 is a sectional view showing a modification, in which that portion of the male die of Fig. 2 which cuts the punched-out portion of the ticket into two or more parts—viz., the transverse blade—is transferred to the female die of Fig. 2 and supported within the recess thereof. A vertical recess is made to receive it in the face of the male die of Fig. 2, from which in this modification the narrow transverse blade is removed. Fig. 7 is a section through the line *xx* of Fig. 6; and Fig. 8 is an under view of the face of the die of jaw A, showing the knife-edge.

The usual form of railway punches is that shown in the drawings—namely, two arms or jaws A and B, pivoted at C and held apart by a spring D, encircling two rods *d d* on the

arms A B, which rods abut against each other at the limit of inward movement of the arms.

The female die A' is constructed integral with the arm or jaw B, and consists simply of a recess in it of the shape of the head of the male die and into which the latter passes, the punctured piece of the ticket falling out of said recess at the outer side thereof. The head of the male die and the recess of the female die are of such form as may be desired to produce a particular shape or configuration of puncture, which may be round, as shown in the drawings, or hexagonal, square, triangular, or of any other form, such as commonly used on railways.

The construction of the punch need not be further described, as it is well known, my invention relating only to the die or cutting mechanism.

Frauds upon railways are frequently practiced by the passenger replacing the punctured portion of the ticket in order that the latter may appear not to have been used. This result is prevented in two ways by my invention: first, by adapting to the ordinary dies used a series of perforating-pins arranged between the dies supported upon the face of either, (shown in the drawings as around the cutting-edge of the male die,) so that when the single piece of ticket is punched out the same die in its said cutting movement will produce by impingement of the puncturing-pins against the ticket a series of perforations around the cut-out portion, and thereby give notice that the ticket has been punched at that spot, even though the passenger should fraudulently reinsert the punched-out part; secondly, my invention provides for the cutting into at least two parts of the punched-out portion of the ticket, so that it is reasonably impossible to replace said two or more parts successfully in the punched ticket. These two objects are accomplished as follows:

Referring to Fig. 2, which illustrates the broken-off portion of the jaw B, holding the male die, *a* is the base or support of the die, and *b* the cutting-die which defines the outer limit of the puncture, and *c* is a narrow transverse blade or knife-edge mounted upon the face of the main cutter or punch *b*. This

knife-edge *c* is preferably made with its edge on an angle, so that it may more readily enter the paper or ticket, and it operates, first, to cut a straight slit through the ticket, following which operation the main cutter *b* impinges against the ticket in a circular or other form around the slit or first puncture and cuts the ticket, as shown in Figs. 3 and 4, the punched-out parts falling out in two parts, as shown in Fig. 5. When the jaws are brought together, the operations described will be successive in the order named, the first or supplemental cutter *c* passing first into the recess of the female die in the jaw B to slit the subsequent cut-out portion of the ticket, while the main cutter or punch *b* follows it into said recess, cutting out or puncturing the ticket around said slit, and the limit of this movement will bring against the under face of the ticket the puncturing-pins *d d*, arranged in an annular or other series around the main cutter *b* and on the face of the base of the male die or on the opposite face of the female die.

25 In the modification shown in Fig. 6 the first or supplemental cutter or knife-blade *c* is transferred to the female die in the jaw B, so that when the main cutter *b* passes up into the female die the supplemental cutter or knife-edge *c* will pass into a shallow recess *e*, provided in the face of the main cutter *b*.

It is obvious that my invention is not confined to cutting-punches of the form shown in the drawings, Fig. 1, but may be applied to punches well known in the market and to those in which the edge of the ticket is put in between the jaws and a piece thereof cut out.

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

1. In a ticket-punch consisting of two op-

posite jaws capable of being brought together and carrying male and female dies adapted to cut or punch out a piece of the ticket, a male die in which the main cutter *b* is provided with a supplemental narrow transverse cutting-edge *c*, mounted on the face thereof and adapted to evenly slit or cut the punctured part immediately prior to the action of the main cutter *b* thereon, so that the punctured part of the ticket shall be cut and discharged in two or more parts, substantially as described.

2. In a ticket-punch consisting of two opposite jaws capable of being brought together and carrying male and female dies adapted to cut or punch out a piece of the ticket, a male die in which the main cutter or punch *b* is provided with a recessed face and the female die with a narrow transverse cutting-edge *c*, adapted to pass into the recess *e* of the male die when the parts are brought together and evenly slit or cut transversely the punctured portion of the ticket, substantially as described.

3. In a ticket-punch consisting of two opposite jaws capable of being brought together and carrying male and female dies adapted to cut or punch out a piece of the ticket, a series of perforating-pins arranged between the male die and female dies and adapted to puncture the ticket around that part which will be cut or punched out when the male and female dies are brought together, substantially as described.

In testimony whereof I have hereunto affixed my signature this 22d day of June, A. D. 1891.

THOMAS A. HILLIER.

Witnesses:

GEO. W. REED,
H. T. FENTON.