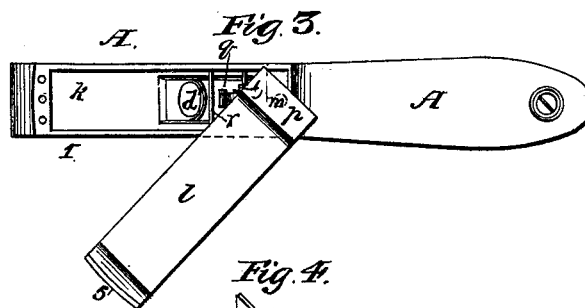
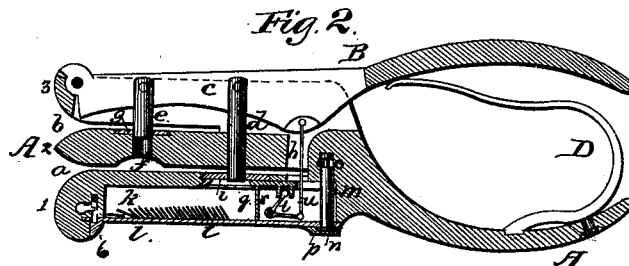
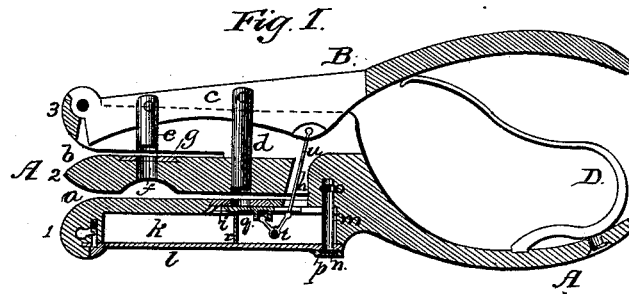


J. M. HALL & T. FURLONG.
Ticket-Punches.

No. 214,385.

Patented April 15, 1879.



Attest:
J. P. Brock
D. G. Stuart

Inventors:
Joseph Morton Hall,
Thomas Furlong,
by J. Hannay
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH M. HALL, OF SEWICKLEY, AND THOMAS FURLONG, OF OIL CITY, PA.

IMPROVEMENT IN TICKET-PUNCHES.

Specification forming part of Letters Patent No. **214,385**, dated April 15, 1879; application filed February 19, 1879.

To all whom it may concern:

Be it known that we, JOSEPH MORTON HALL, of Sewickley, Allegheny county, and THOMAS FURLONG, of Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Ticket-Punches; and we do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a vertical longitudinal section as taken centrally through a punch having our improvements applied thereto, showing the punch in its normal position, ready to punch a hole in a ticket; and Fig. 2, a similar view, but showing the punch closed, as when a hole has just been punched in a ticket. Fig. 3 represents a plan of the under side of our improved punch, the door of the chamber for receiving the clippings being open, disclosing the slide covering the opening that leads to said chamber. Fig. 4 represents a detail view of the slide that covers the opening in the clipping-chamber; and Fig. 5, a detail view of the pivotal pin on which the chamber-door turns, showing its construction and the means employed to confine the door to the chamber.

Our invention relates to a new and improved punch for use by conductors of railroad passenger-trains, pursers of steamers, &c.

The invention consists, first, in combining in one instrument a punch for simply canceling the ordinary tickets issued from the regular ticket-offices of the company with another punch to be used in connection with a locked chamber or receptacle for holding the clippings punched from way-tickets sold and issued by the conductor, whereby a check is placed upon the latter in making his returns for way-fares received from passengers who had not procured tickets at the regular ticket-offices of the company; secondly, in certain details of construction of the said punch, and which will hereinafter be more fully set forth.

To enable others skilled in the art to make, construct, and use our invention, we will now proceed to describe it in detail, omitting a particular description of such parts of the punch as are old and common to others.

In the drawings, A represents the slotted jaw of the punch, the two slots *a* and *b* in which form the three prongs 1, 2, and 3.

The upper prong, 3, is divided vertically throughout its entire length by a longitudinal slot, into which fits and plays the forward end, *c*, of the other or punch-carrying jaw, B, and which is pivoted at its forward end to two lugs formed on the outer end of prong 3 of slotted jaw A.

Prong 2 is separated from prongs 1 and 3 by narrow slits *a* and *b*, of a width little more than is necessary for them to receive the ends of ordinary railway-passenger tickets. Slit *b* extends inward as far, or nearly so, as the inner male die or punch, *d*.

In the face of prong 2 next prong 3 is inserted and secured a small steel plate, *g*, in which and in prong 2 is formed an opening corresponding in size and shape to the configuration and shape of the outer or forward male die or punch, *e*—that is to say, of just such size and shape as will barely allow punch *e* to descend and pass through the opening *f* in said plate *g* and prong 2, and which said opening *f* leads down to and communicates with the slit *a* through an enlarged mouth, so as to give free passage to the clippings punched from the tickets. Plate *g* and its opening *f* form the corresponding female die for male die *e*.

Immediately at or near the inner end of the slit *b* another opening is formed in the middle prong, 2, for the reception and guidance of the inner male die or punch, *d*, while still another opening or slot, *h*, is formed in the same prong 2 at its rear end or junction with the other two prongs 1 and 2, for a purpose to be hereinafter referred to.

Prong 1 on its upper face, next prong 2, is provided with a steel plate, *i*, and which, as also the upper side of said prong 1, is provided with an opening, *d'*, Fig. 3, corresponding in shape and size with the configuration of the lower end of the punch *d*, and so as to receive

it, and which shape, for a purpose to be hereinafter referred to, we prefer should be oblong or oval, similar to that shown at *d'*, Fig. 3.

Plate *i*, with its opening *d'*, forms the female die for male die *d*.

On the under side of prong 1 is formed a chamber, *K*, for the purpose of receiving the ticket-clippings from the punch *d*. Chamber *K* is closed by a pivoted door, *l*, which is securely pivoted to the slotted jaw *A*, at the rear end of chamber *K*, by means of pivotal pin *m*. The lower end of this pivotal pin *m* is firmly secured to the door in any known way, care being taken in so securing it to the door that it cannot be tampered with from the outside when the door is closed. A suitable way for this purpose is illustrated in Figs. 1 and 5.

By this mode one end of the pin *m* is provided with a head, *n*, next the door, and with a circular groove, *o*, at or near its inner end. Thus made, it is then passed through a suitable opening formed in the door at or near its rear end down into the main body of the jaw *A* at the junction of the three prongs, where it is held firmly in place by a locking-pin, which is passed through the side of the jaw, and takes into the cylindrical groove *o* of the pin *m*. This mode of securing the pivotal pin of the door while it holds it firmly in place allows it to freely turn with the door. The pin thus secured, a small cap-piece, *p*, is then soldered over and to the head *n* and the door, which thus firmly locks the pin to the door, and protects it from being tampered with from the outside.

At the rear end of chamber *K* is arranged a slide, *q*, constructed substantially as shown in the detached view, Fig. 4. This slide is flat on its inner face, and fits snugly against the under side of the upper wall of the chamber *K*, immediately opposite the opening *d'* in that chamber. This slide is provided on its under side with a pendent plate, *r*, of a width sufficient to reach from side to side of chamber *K*, and of a depth sufficient to reach the inner face of the door *l*, for a purpose to be hereinafter described. Slide *q* is also provided on its under side with two short studs or ribs, *S S'*, which form a groove, (as it were,) into which plays one end of a small bell-crank lever, *t*, and which is pivoted to the sides of the chamber *K* in any known and suitable way. The other end of lever *t* is pivoted or hinged to the lower end of a connecting-rod, *u*, the upper end of which is pivotally connected to the lower edge of the lever *B*, as represented in Figs. 1 and 2. It is for the passage of this connecting-rod *u*, and to give it free play, that the slot *h* is formed in the middle prong, 2, at its rear end.

The door *l*, when closed, is locked by a spring-lock of any suitable kind which cannot readily be picked, a Yale lock being preferred. A suitable lock for this purpose is illustrated in Figs. 1, 2, and 3.

The upper ends of the two punches *d* and *e* are pivotally secured to the spring-jaw *B* in

the usual way—that is to say, they are slotted at their upper ends, so as to receive the blade-like portion *c* of lever *B* between their forks, and are then pivoted to said lever *B* in the usual way—*i e.*, by causing the pivots to pass through a short slot instead of a simple hole in said lever, so as to give the pivot play as the punches are forced in in a straight line to cut out a chip, or are afterward retracted by the action of the spring *D* on the jaw *B*.

Spring *D* is secured at one end to the pronged jaw *A* in the usual manner, while its free end is curved so as to bear against the under side of the pivoted jaw *B*, and tends constantly to keep the punches in the raised position shown in Fig. 1.

In securing and locking the door *l* to chamber *K*, the door is provided with a lip, 5, which takes into a groove formed in the end of the prong 1 next the outer end of chamber *K*.

A flange, 6, is raised on the lower side of the door adjoining lip 5, which fits against the same inner end of prong 1, and protects the door and its lock from violence when locked.

The punch thus constructed is mainly intended for use by conductors of cars, although it is equally applicable to the use of pursers of steamboats, ferries, conductors of omnibuses, &c., where the system to which we are about to refer is also used.

The object of this combined punch is as follows, and we now illustrate its use in connection with railroad-passenger tickets.

At present it is customary, and, in fact, is required wherever it is practicable, that all passengers shall procure their tickets at the railway-stations before entering the cars; but in spite of all precautions there are many way-stations where tickets cannot be procured, as well as many passengers who are either too thoughtless or too hurried for time to procure their tickets before entering the cars. Under these circumstances it is made the conductor's duty to collect the fares from passengers thus unprovided with tickets; and it is to provide a check upon the conductors that this punch is specially contrived, as also to enable him by the same instrument to cancel the tickets regularly procured at the ticket-stations.

Heretofore the conductor has been usually provided with an instrument specially adapted to that purpose, and which consists in simply punching a hole in the ticket. Now, to effect both of these purposes, and at the same time show the amounts actually received by the conductors, requires something more than a punch to simply punch holes in the tickets, as that would provide no check against conductors making false returns of the amounts received by them for way-fares.

Now, to meet this exigency, our invention consists in providing in the same instrument two punches—one for the purpose of punching a simple hole in the tickets procured at the railway-stations, and the other for punching a hole in the tickets sold by the conductors, and the latter combined with a closed and

locked chamber for the reception of the clippings so punched from the conductor's tickets. By the use of this simple device, and a conductor's ticket on which all of the various fares are printed between the various stations, and out of which, before passing the ticket to the passenger, the conductor is compelled by the rules of the company to punch the figures printed thereon representing the exact amount he receives, each clipping thus punched out, and each of which shows the amount printed thereon, is, by the same act of the punch or die, forced into the locked chamber, where it remains, along with others obtained in the same manner, until removed for examination by the duly-authorized agent of the road appointed for that purpose, and thus becomes a check upon the amount returned by the conductor.

The mode of using the combined punch is simple. If the passenger presents a ticket regularly obtained from a ticket-office, the conductor simply cancels it by inserting it into the slot *b*, depressing jaw B, and thereby causing the male die or punch *e* to punch a hole through it, as by an ordinary punch, taking no care of the clipping thus cut; but in punching the tickets sold by himself from his stub or ticket book, he then first passes the stub part of the ticket into the slot *a* until the number representing the exact amount of fare received is immediately under the male die or punch *d*, when he depresses the lever-jaw B, as before, causing the punch *d* to descend, which thereby cuts said number out, and by the same act forces the clipping into chamber K. He then brings the same number on the corresponding ticket under the same die, and then cuts it out and forces it into chamber K in the same manner. He then withdraws the punch from the book, detaches the ticket from the stub, and gives it to the passenger.

Now, as the male die is caused to descend to cut out the clippings either from the stub or the ticket, the upper jaw, B, also forces down the connecting-rod *u*, which, acting on the crank-lever *t*, causes the latter, through the short stud *S'* on the slide *q*, to gradually withdraw the latter from the mouth of the opening in the upper wall of the chamber K, and thus allows the punch *d*, as it completes its descent, to force the clipping just made into chamber K, the die being made long enough to descend sufficiently far for that purpose.

As soon as the pressure on the jaw B is re-

leased the spring D reacts on it, forcing it outward, and in so doing carrying with it the punches *d* and *e*, also the connecting-rod *u*, thereby causing the crank-lever *t* to force the slide *q* back over the opening which leads to chamber K and thus close it, and in so doing pressing the clippings into the forward end of the chamber.

Having described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A ticket-punch having the jaws A and B, the former provided with three arms or prongs, two of which arms are each provided with a female die, and the jaw B provided with male dies of different lengths, the two jaws being pivoted together and adapted to operate substantially as described.

2. A ticket-punch in which one jaw, B, carries two male dies, the one longer than the other, while the other jaw, A, is formed with three prongs, one of which forms the guides for the male dies and fulcrum for the movable jaw B, the second or middle one the support which carries the female die for the ordinary canceling-punch, while the third carries another female die, and a locked receptacle or chamber for the reception of the clippings from the tickets, substantially as and for the purpose set forth.

3. A combined ticket-punch consisting of two jaws, A and B, pivoted together at their forward end, one of which carries two male dies of different lengths, while the other is provided with three arms, 1, 2, and 3, the two lower of which carry a female die each, and with two slits, *a* and *b*, for the reception of the tickets to be punched, substantially as set forth.

4. A combined ticket-punch consisting of two jaws, A and B, pivoted together at their front end, the upper one of which is provided with two male dies of unequal length, and the lower one with three arms, 1, 2, and 3, and with two slits, *a* and *b*, for the reception of the tickets to be punched, said arms 1 and 2 being each provided with a female die, and arm 1 with a locked receptacle for the reception of clippings, substantially as set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JOSEPH MORTON HALL.

THOMAS FURLONG.

Witnesses:

F. B. BROCK,

D. G. STUART.