H. E. TOWLE.

Bell-Punch.

No. 168,195. Patented Sept. 28, 1875.

Fig. 6

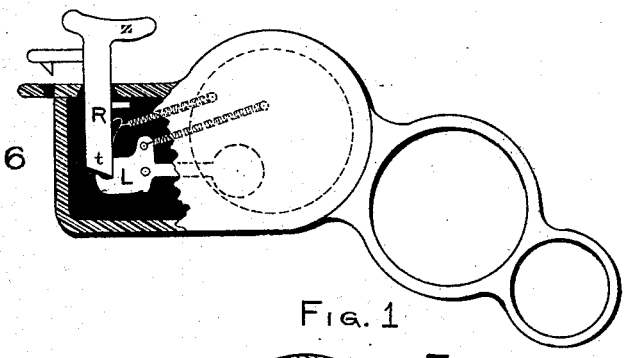


Fig. 1

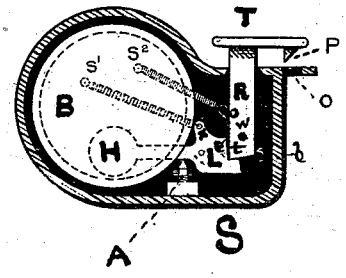


Fig. 4

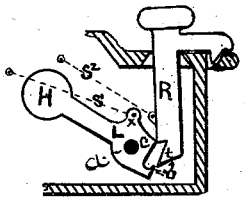


Fig. 5

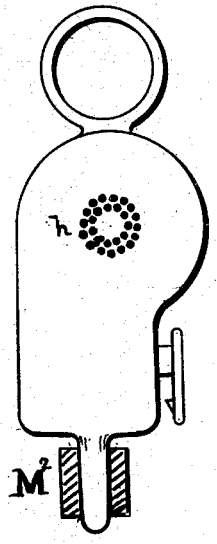


Fig. 2.

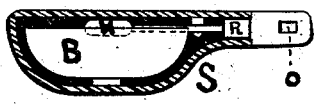
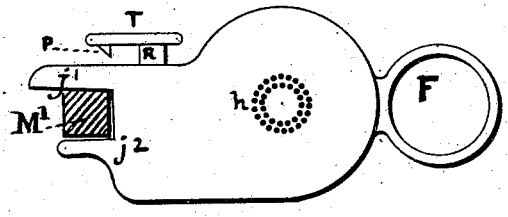


Fig. 3



Witnesses.

John B. Benton

Wm. F. Baker

Inventor.

Hamilton E. Towle

UNITED STATES PATENT OFFICE.

HAMILTON E. TOWLE, OF NEW YORK, N. Y.

IMPROVEMENT IN BELL-PUNCHES.

Specification forming part of Letters Patent No. **168,195**, dated September 28, 1875; application filed June 10, 1875.

To all whom it may concern:

Be it known that I, HAMILTON E. TOWLE, civil engineer, of New York city, New York, have invented certain new and useful Improvements in Toys, which I call a Toy Bell-Punch, which improvements are fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to produce an amusing toy. The contrivance, if well constructed, may be used practically for punching tickets, and similar purposes, as well as for a toy.

The instrument is designed to be produced at small cost, and to operate to punch and to strike a bell inside at the same time to attract attention. It is adapted and constructed so as to perforate or cancel, by cutting or indenting, transfer or other tickets to prevent second use of the same; and when "monitor" registering-machines are used to record the number of tickets or passengers with an actuating-rod, it is best to construct the bell-punch with a pair of jaws projecting from it, or with a notched recess forming a wrench in some convenient part of its case, so that the conductor can use the implement as a wrench to work upon the rod of the monitor, instead of being obliged to carry a separate wrench specially for the purpose.

On some roads a part of the duty of the conductor is to operate a monitor registering-machine immediately after receiving a ticket, and perforating the same, or after receiving a fare from a passenger; and it will be seen that a bell-punch and wrench combined is a convenient and useful machine for such purposes.

Figure 1 is a section taken longitudinally through the implement, parallel to the plane of the edge of the bell. Fig. 2 is a longitudinal section, taken at right angles to the first-named plane above the hammer. Fig. 3 is an elevation of the implement, showing the external case, provided with a ring at one end for inserting the finger of the operator, the jaws forming the wrench and the opening to receive the ticket, and also the punch or perforator at the other end. The case is perforated with holes to allow the sound to escape freely. A monitor-rod, M^1, is shown within the jaws of the wrench. Fig. 4 shows the position of the hammer-lever, and its actuating mechanism at the moment when the lever escapes from the part from which it receives its motion. Fig. 5 shows the bell-punch, provided with a projecting horn or pin, with which to work a monitor-rod when the latter is provided with suitable holes. The horn *h* is shown inserted in a hole through the monitor-rod M^2. (Shown in cross-section.)

The internal mechanism is shown in Fig 1. B is the bell secured to one side of the case. L is a lever secured on a pin fixed in the other side of the case S. A is an adjusting-screw to regulate the throw of the hammer H, which is fixed on the long arm of lever L. A projection on the lever L, marked X, serves as the point of attachment of one end of the spring S′, which is fixed to a stud or pin in the case at the other end of the spring. This spring actuates the hammer, and throws it against the bell whenever the short arm of the lever L is thrown or pressed down and suddenly released. T is a thumb-piece, carrying a perforator or punch, P, working into a hole or opening, *o*, in the support or rest, sustaining the ticket during the operation of the punch or perforator. The thumb-piece is carried on a flat or square rod, R, working in a hole through the case. This hole through the case has thin edges, to allow the bar or rod R to move at its lower end toward and from the lever L. A spring, S^2, fastened to the case at one end, is attached to the rod R at the other in such a manner as to tend to slide it up, and also to draw it toward and against the lever L. A pin or its equivalent, *w*, serves to stop the motion of R at the proper point, after the lower end of the rod R, at its toe *t*, has engaged in the corresponding notch in the lever L.

In order to simplify the construction of this machine, and reduce its cost to such an extent as to make it a popular toy, I have devised motions, requiring but few parts, not likely to get out of order, and desire particularly to call attention to the device for working the bell-hammer from the thumb-piece, where the actuating force is applied.

When raising the hammer the rod R, at its toe *t*, rests in a re-entering angle or notch in

the lever L, as seen in Fig. 1, and a short distance above this notch is a projecting angle or cam, *c*, formed on the same lever L, for the special purpose of serving, at the proper time, after the hammer has been sufficiently raised, to cam off, or thrust away, and disengage the toe *t* from the surface or point of contact *b* on the lever L, upon which it works, (shown at the instant of escape in Fig. 4,) both springs, s^1 and s^2, being fully extended. The pivot or stud *a* is a projection formed on the case or shell, and serves as the axis or fulcrum of the lever L.

Fig. 4 shows that the construction admits the application, by the operator, of the actuating force directly upon the part or piece R of the machine, which acts directly upon the hammer-lever L without necessitating the intervention of any clicks, pawls, or other parts, which have been heretofore employed in bell-punches for connecting the handle, lever, or other part receiving the force of the operator to the bell-hammer, in such a manner as to permit the proper action of the various parts in their various directions and motions.

In Fig. 3 j^1 and j^2 are the jaws formed on the case or shell in a convenient place, to be used as a wrench for working the connecting-rods of a "monitor" registering-machine, or for other torsional purposes. Should the connecting-rod of the monitor be worked by a lever terminating in a pin, to fit a hole in the rod, as is shown and described in certain specifications filed at the Patent Office, one of the horns or jaws j^1 or j^2 only may be used, and it may be shaped to fit the hole in the rod, while the body of the case serves for the grasp of the operator.

Such combination of wrench and bell-punch, or bell punch and pin, for moving a register-rod, has only been required for the uses herein set forth within a short time, as the "monitor" and its "rod" are of very recent invention; and the importance of the combination will be seen, when it is noted that such combination in one instrument employed in the process or operation of collecting tickets and fares, and registering the same, as well as canceling tickets during the performance of such duties as belong to a conductor, avoids the necessity of carrying and using two instruments—namely, a punch and a lever or wrench—as without such combined instrument the conductor would be obliged to do, in order to perform his duties properly. F is a ring for the operator's finger, and *h* shows small holes for sound to pass through from the bell inside.

In Fig. 5 may be seen a small notch or recess in the rod R, just above the toe *t*. This is to permit the lever to fly back upon the hammer with more freedom than it might otherwise do. The machine, however, will work if well proportioned, if the rod R is straight on that side.

The parts shown in Fig. 1 are in their normal condition, the springs s^1 and s^2 being in a state of tension, and the machine is ready to be used to perforate, and at the same time make the desired alarm. The operator now inserts the ticket under the punch P, and presses with his thumb upon the thumb piece or knob at the upper end of the rod R, which raises the hammer till it escapes and strikes the bell, during which time the perforator or punch goes through the ticket. Upon removing or raising the thumb the parts resume their normal position again, and the operations may be repeated again and again. The lever L and hammer H are in one piece. The rod R, thumb-piece T, and perforator P are also in one piece. These two pieces, with the two springs s^1 and s^2, comprise all the moving parts.

The two pieces forming the case or shell, with a bell and an adjusting-screw, comprise all the other separate pieces of the machine, which, with the exception of the two springs and the bell, may be constructed of sheet-iron, "struck up" into proper shape, or may be of malleable iron, in either case provided with proper holes and studs, for holding the parts in proper position, similar to the means employed in uniting the parts of common locks without using screws or separate rivets or pins for such purpose.

When constructed for the purposes of a toy the parts may be light and cheaply put together, as hereinbefore described, so that the using of the same will assimilate and resemble the use of the instrument in common use on street-railways.

In order to cause the toe *t*, at the foot of the rod R, to escape promptly, or with greater or less ease, I have experimentally found that the position of the thumb-piece, meaning thereby the place of contact where the operator applies the pressure to the prime mover or rod R, can be altered to effect the desired result, and that it is preferable for easy working to construct the bearing-point for the operator's thumb upon that side of the general direction or line of the rod R, which will tend to make the toe *t* escape with proper freedom.

The form to accomplish this object is shown in Fig. 6, in which the thumb-piece is constructed with an overhang, *z*, on the rod R, on the side opposite to the direction of the motion of the toe *t*, when it is escaping from the lever L.

I claim as my invention—

1. In a bell-punch machine, an adjustable stop or screw, by which the throw of the bell-hammer may be regulated substantially as set forth.

2. A bell-punch, provided with a pair of jaws, or a projecting pin or horn, to serve as a wrench or lever, in the manner and for the purpose substantially as set forth.

3. In a ticket-punch, a thumb-piece placed eccentrically to the axis of the sliding rod, to cause the engaging part thereof to escape

from the lever, which it actuates with freedom, substantially as described and set forth.

4. As a new article of manufacture, a toy bell-punch, comprising a bell and hammer, operated by an actuating-piece to receive pressure direct from the operator without the intervention of a lever, and a perforator or punch, substantially as set forth.

Dated in the city of New York on the 5th day of June, 1875.

HAMILTON E. TOWLE.

Witnesses:
JOHN B. BENTON,
WM. F. BADER.