

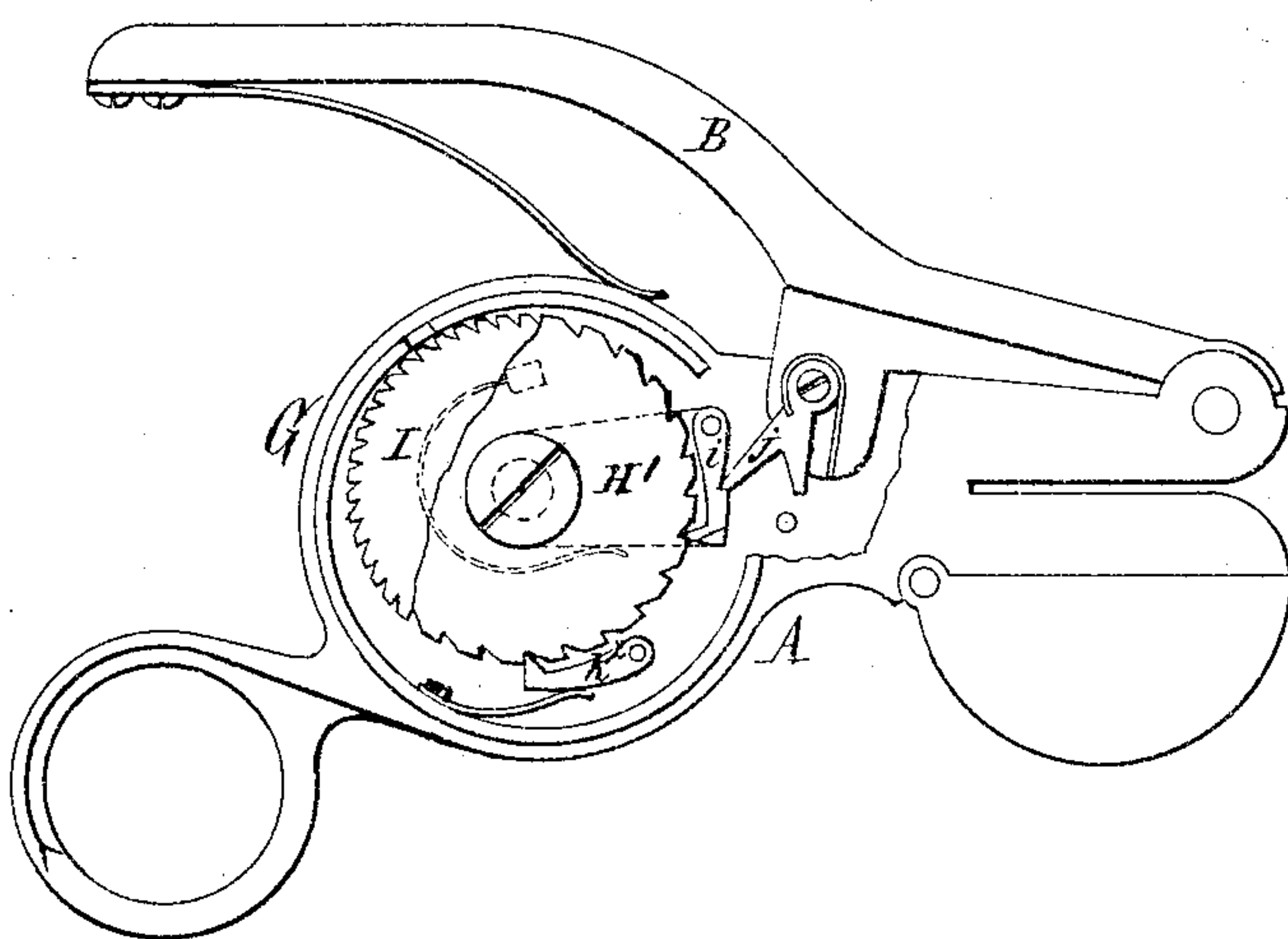
JAMES H. SMALL.

Improvement in Registering Ticket-Punches.

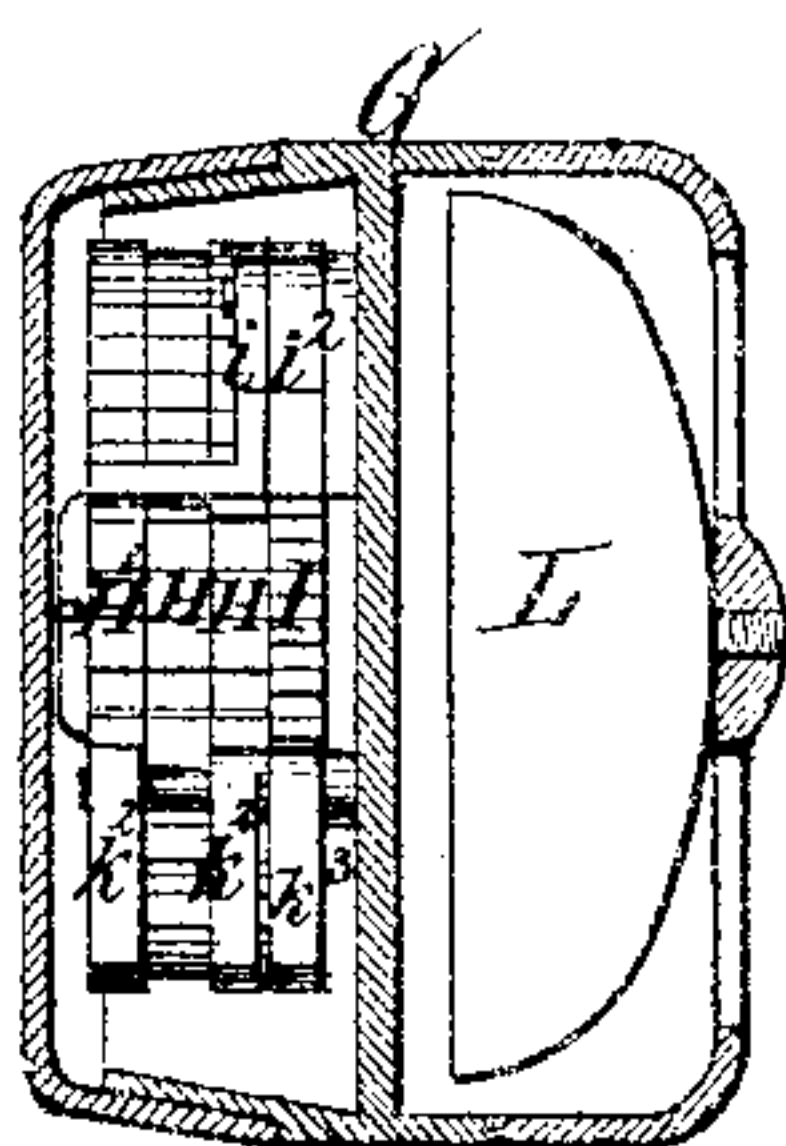
No. 115,119.

Patented May 23, 1871.

*Fig. I.*



*Fig. II.*



*Pro. J. Donner*  
*Edward Milburn* *Witnesses*

*James H. Small* *Inventor*  
*by Jay Hyatt*  
*Atty*

# UNITED STATES PATENT OFFICE.

JAMES H. SMALL, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN REGISTERING TICKET-PUNCHES.

Specification forming part of Letters Patent No. 115,119, dated May 23, 1871.

I, JAMES H. SMALL, of the city of Buffalo, in the county of Erie and State of New York, have invented a certain Improvement in Combined Registers and Alarms, of which the following is a specification:

My invention relates more especially to a certain kind of a ticket-punch for conductors, with which is combined an alarm-bell and a registering device, designed to be constructed so that the alarm cannot be operated without also operating the registering device, for which several Letters Patent have been issued to me, dated and numbered, respectively, February 22, 1870, No. 100,036; reissued January 31, 1871, No. 4,246; January 31, 1871, No. 111,345; January 31, 1871, No. 111,392; to which reference is here made.

In the use of these instruments it has been found that, by a partial movement of the actuating lever or handle and suddenly letting it go the bell is sometimes rung without producing any change in the registering device, which, consequently, in the hands of a dishonest conductor or collector of fares, may be made to indicate a less number of fares than was actually collected. The object of my present invention is to prevent the possibility of this kind of fraud by constructing the instrument so that even a slight and partial movement of the actuating-lever, whether sufficient to ring the alarm or not, will produce a change in the register, and thus expose the fraudulent attempt, this certainty of detection operating to prevent the attempt being made.

The unit numbering-wheel of these instruments, as heretofore constructed, is designed to be moved one degree by each movement of the lever or other part which rings the alarm.

My invention consists in the combination and arrangement, with the numbering-wheels of such an alarm and registering device, of an additional numbering-wheel, designed to move simultaneously with the unit-wheel, and provided with twice the number of ratchets of the latter, so that a slight movement of the actuating-lever, and one which might in some instances be sufficient to ring the alarm without changing the position of the unit-wheel, will move this auxiliary wheel, and thus furnish a record of this attempt at fraud.

In the accompanying drawing, Figure I is a

sectional elevation of a ticket-punch provided with my improvement. Fig. II is an edge view of the registering-wheels, with the actuating-pawls.

Like letters refer to like parts in each of the figures.

The instrument represented in this drawing is the one shown and described in Letters Patent No. 111, 392, hereinbefore cited, to which reference is had for a full description thereof.

A B represent the two handles; G, the partitioned case, attached to the handle A, and containing the bell L in one compartment and the registering-wheels in the other, together with my auxiliary numbering-wheel. H H is the unit register-wheel, and H' the multiple register-wheel, which are operated by means of the pawls  $j i k^2$ , as shown and described in my said patent. I is my auxiliary numbering-wheel, mounted on the same pivot with the wheels H H', and actuated by pawls  $i^2$  and  $k^3$ , secured by the same pivot which secures the pawls  $i^1$  and  $k^2$ , the trip-pawl  $j$  operating both the pawls  $i^1$  and  $i^2$ . The face of the wheel I is constructed with ratchets, and numbers for each ratchet, as the wheels H H'. The ratchets in I being finer and twice the number of those in the unit-wheel H, a slight movement of the actuating-pawl will change the position of this wheel one degree, while the other wheels remain unchanged. The wheel I, instead of being constructed with twice the number of ratchets of the unit-wheel, may be made with three or even four times the number, although twice the number is believed to be sufficient.

This wheel may not only be applied to registering ticket-punches, but also to a fare or passenger register and alarm when the same are disconnected from the punch, as is described in another application for Letters Patent which I have made.

When the instrument is properly used, the auxiliary wheel will move simultaneously with and the same angular distance of the unit-wheel, the former being moved the space of two teeth, the distance corresponding with one degree or space of the unit-wheel; but if an attempt is made to ring the alarm (and not move the register) by a partial movement of the actuating part, then the auxiliary wheel will be moved a single number.



When the instrument is examined by the clerk in charge the auxiliary wheel should expose a number twice that of the unit-wheel.

If a number more than twice that exposed on the unit-wheel is exhibited, then the excess above twice the number on the latter will indicate the number of times the attempt has been made to fraudulently use the instrument, which excess is charged to the conductor as so many fares collected by him.

What I claim as my invention is—

The arrangement, with the unit numbering-wheel of a combined register and alarm, of the auxiliary numbering-wheel I, provided with twice, or more times, the number of ratchets of the unit-wheel, and designed to move simultaneously therewith, substantially as and for the purpose hereinbefore set forth.

JAMES H. SMALL.

Witnesses:

JNO. J. BONNER,

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