W. WELCH.

Punching-Machine Register.

No. 69,877. Patented Oct. 15, 1867.

Fig. 3.

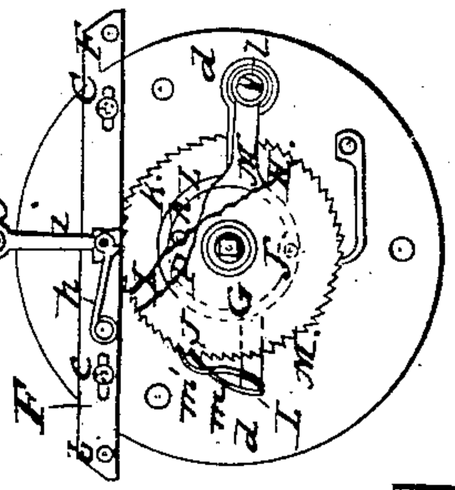
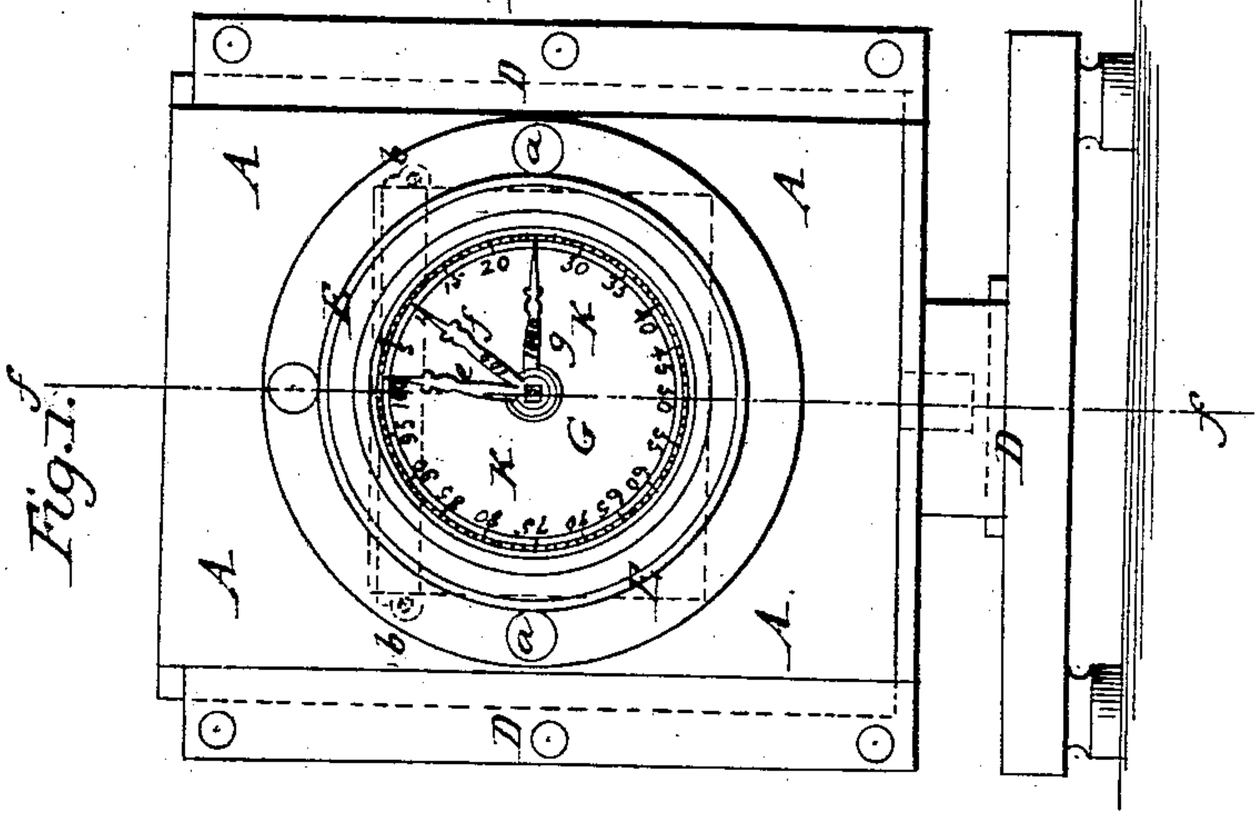


Fig. 2.

Fig. 1.



WITNESSES:

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WILLIAM WELCH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO HIMSELF AND MATHEW DIAMOND.

Letters Patent No. 69,877, *dated October* 15, 1867.

INDICATOR FOR PUNCHING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM WELCH, of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented a new and improved Indicator for Punching Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a front view of my improved indicator.

Figure 2 is a vertical longitudinal section of the same, the plane of section being indicated by the line *x x*, fig. 1.

Figure 3 is a front view of the plates by which the hundreds and thousands are registered, the dial-plate being removed.

Similar letters of reference indicate like parts.

This invention relates to a new device by which the number of strokes of punches, shears, milling machines, and all machines in which reciprocating motion is generated by rotary motion can be registered, said device being so arranged that the registering apparatus can be put at rest, when it is not desired that the strokes should be counted, as, for instance, for lubricating, repairing, and testing purposes.

A represents the gate of a power-press or punching machine. On its face is a recess, in which the sliding box B, which forms the bearing for the eccentric shaft C, is fitted. By the revolution of the said shaft C the box B is moved laterally in the gate, and up and down with the same, the said gate sliding in a stationary standard, D, as usual. E is the cap, which is fitted to the gate by means of L-shaped knobs *a a*, in the manner described in an application for a patent which was made by me on or about the first day of April, 1867. On the inner face of this cap E is arranged a sliding bar, F, which has, at each of its ends, a pin, *b*, and which is slotted, as shown in fig. 3, and is secured by means of screws or pins *c* that pass through the said slots to a back plate, *d*, of the cap. The pins *b b* fit around the sides of the box B, and as the latter moves sideways in the gate it pushes the bar F sideways. G is a spindle, which is firmly fixed to and which projects from the face of the plate *d*, and around which three or more or less ratchet-wheels, H, I, and J, are fitted, so that the same will turn on the said spindle. The innermost ratchet-wheel H may, if desired, be mounted on the spindle, and the latter hung in the plate *d*, so as to turn, as shown. Outside, and in front of the ratchet-wheels, is a stationary dial-plate, *k*, which is divided into one hundred (more or less) equal spaces, which are marked with appropriate figures, as shown in fig. 1. Each of the ratchet-wheels is connected with a hand or pointer, by which the number of revolutions or moves made by them is indicated on the dial-plate. The hand *e* is fitted on the spindle and turns with the wheel H, the hand *f* is fitted around the tubular projection of the wheel I, and the hand *g* is in a similar manner connected with the disk J. To the bar F is pivoted a spring, *h*, which presses the lower end of a pointed rod or plate, *i*, into the teeth of the wheel H, and, as the plate F moves to and fro, this point carries one tooth of the wheel H with it, and thereby moves the hand *e* "one" on the dial-plate. The upper end of the rod *i* is suspended from a pin, *j*, which is eccentric, and which can be turned so as to throw the lower end of the rod out of the wheel H, when the indicator will not be acted upon by the motion of the box B. Between the wheels H and I, and between I and J, are interposed metal plates L and M respectively, which are both pivoted to the plate *d* by means of a pin, *l*, and which are provided with an eccentric slot around the spindle G, and which have at their free ends spring-pawls *m* and *m'*, which fit respectively into the teeth of the disks behind which they are arranged. On the face of the disk H is a pin, *n*, which fits into the eccentric slot in the plate L. This eccentric slot has two projecting portions, *o* and *p*, against which the pin *n* strikes as it turns with the disk H. When it strikes against the lower projection *o* it depresses the plate L, and moves the pawl *m* into a next tooth below. When it strikes the upper projection *p* it raises the plate L, thereby pushing the pawl *m* up, and turning the disk I so far that its indicator *f* will move "one" on the dial. Thus each stroke of the gate is registered by the hand *e*, each revolution of the plate H by the hand *f*, and each revolution of the plate I by the hand *g*, as the disk J is moved by means of a pin, *n'*, on I, and by the plate M and pawl *m'*, in the same manner as I is moved by means of the pin *n* on H, and by the plate L and pawl *m*. Any number of such disks and hands can be arranged on any one machine, whereby, if desired, an indefinite number of strokes can be registered.

What I claim as new, and desire to secure by Letters Patent, is—

1. Providing an indicator which registers the strokes of devices making regular reciprocating movements, and of reciprocating gates that are operated by eccentrically moving boxes B, or their equivalents, substantially as set forth.

2. The slotted sliding-rod F, when provided with pins *b b* and with a spring, *h*, and when combined with the pawl *i*, ratchet-wheel H, and hand *e*, and with the box B, substantially as and for the purpose set forth.

3. The manner herein shown and described of throwing the indicating apparatus out of gear, by means of the eccentric pin *j* fitting through an eye on the rod *i*, substantially as herein shown and described.

4. The arrangement of the pivoted plate L, having an eccentric slot, and fitting around the pin *n*, and connected with the pawl *m*, for the purpose of indicating the revolution of the lower disk on the hand of the disk above, as set forth.

WILLIAM WELCH.

Witnesses:

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SAM. B. JOHNSTON.