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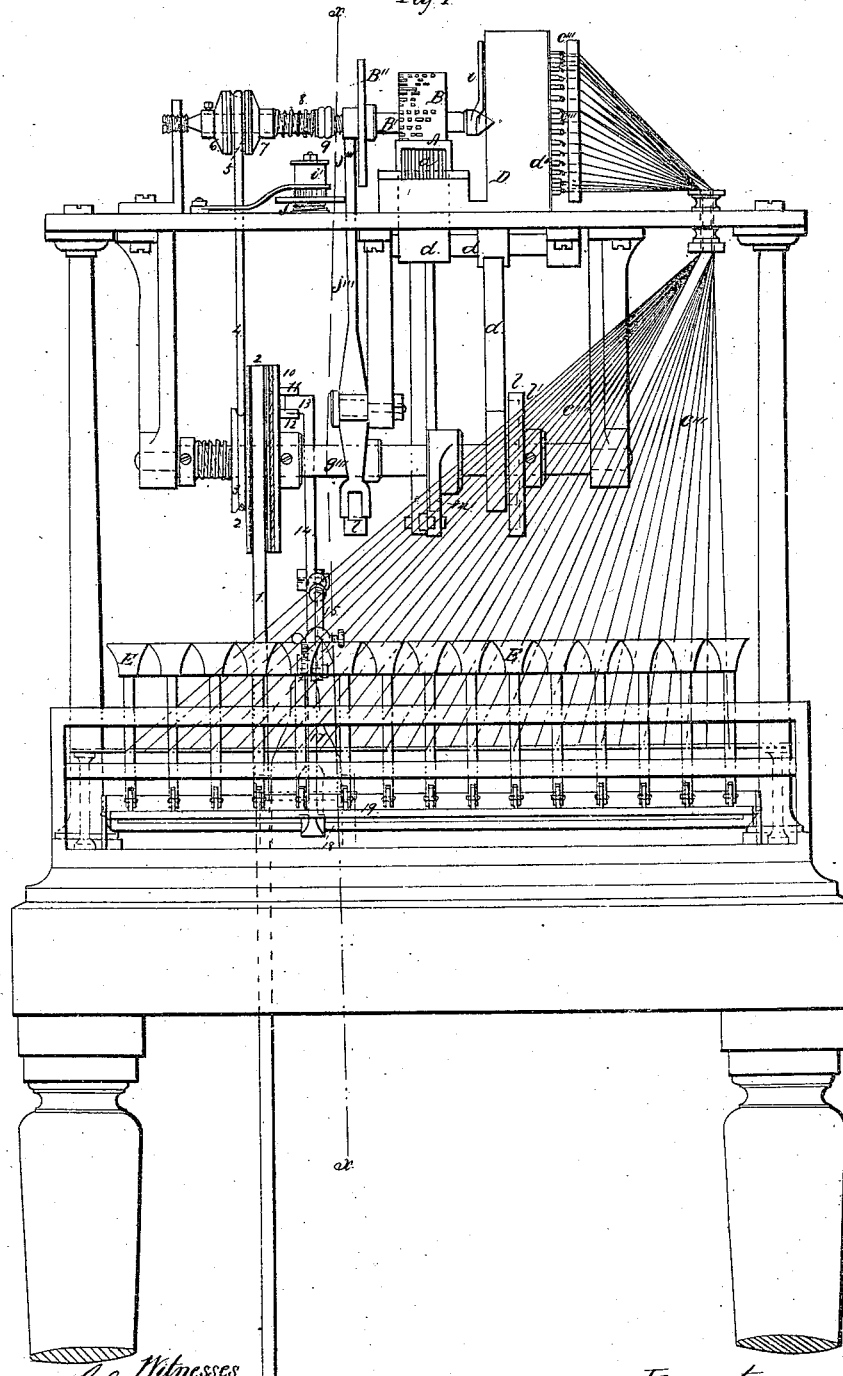
M. Lefferts.

Punching Paper for Telegrams.

N<sup>o</sup> 51,464.

Patented Dec. 12, 1865.

Fig 1



Witnesses  
Chas. F. Noole  
E. A. Calahan

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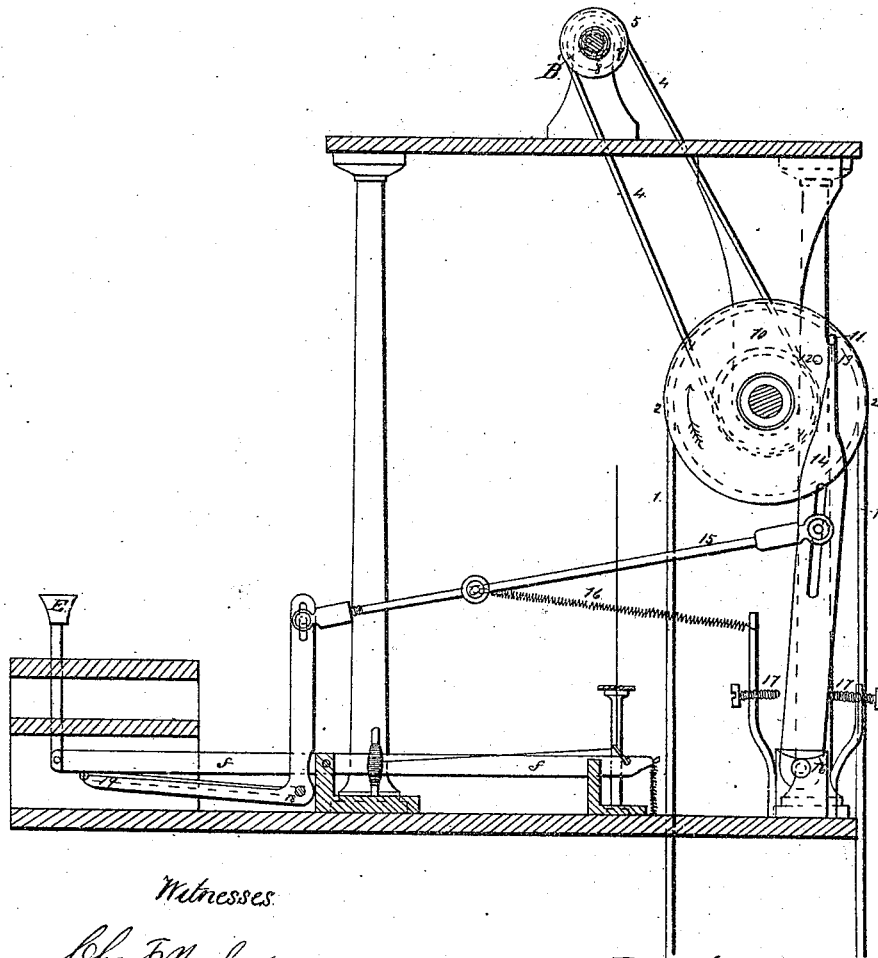
Street 2  
2 Streets.

M. Lefferts

## *Punching Paper for Telegrams*

*N<sup>o</sup> 51,464.*

*Patented Dec. 12, 1865.*



Witnesses:

Chas F. Moore

E. A. Calahan

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# UNITED STATES PATENT OFFICE.

MARSHALL LEFFERTS, OF NEW YORK, N. Y.

## IMPROVEMENT IN MACHINES FOR PUNCHING PAPER FOR TELEGRAPHS.

Specification forming part of Letters Patent No. 51,464, dated December 12, 1865.

*To all whom it may concern:*

Be it known that I, MARSHALL LEFFERTS, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Means for Punching Paper for Telegraphic Purposes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a front elevation of my punching-machine, and Fig. 2 is a section at the line *x x* of Fig. 1.

Similar marks of reference denote the same parts.

The present invention is an improvement upon that for which Letters Patent were granted to John P. Humaston on the 8th day of September, A. D. 1858, and a reference is hereby made to the said patent for a more complete description of any of the parts that may be shown on the drawings and not described in detail herein, the same letters of reference being employed as in the aforesaid Letters Patent. The machine of the said Humaston was actuated by a pair of treadles that were operated by the feet in unison with the keys, so as to rotate the type-wheel and punch the paper with the perforation or group of perforations representing the letter on the key struck. In this machine the type or letter wheel B was revolved to a definite position and arrested by a pin between the time of forming each letter; and then was released by the withdrawal of a pin simultaneously with the projection of a pin corresponding to the letter struck, which latter arrested the rotation of the type-wheel while the punching took place. It is difficult to strike the keys in unison with the treadles, and hence the machine was sometimes injured by the parts not being in their proper position when the keys were struck.

The nature of my said invention consists in a let-off or escapement, operated by the keys, in combination with a continuously-revolving friction mechanism, whereby the machine is made to perform all its movements in harmony by progressive rotation of the principal parts in one direction, and without liability to injure any of the parts, and the operator has only to strike the keys for composing a message, the continuous rotary motion being derived from any desired source; but the operator may, by a

treadle and crank, give a continuous revolution to a fly-wheel connected to the machine.

In the drawings, the keys E, operating upon the levers *f* and, through the cords *e'''*, upon the pins *d''* in the block D, are substantially the same as in the aforesaid Letters Patent. The pins *d''*, however, in their normal condition are all retracted, so that the arm *i* on the shaft B' of the type-wheel B can always revolve with the said wheel and shaft, as hereinafter shown, until one of the keys E is struck, allowing its corresponding pin, *d''*, to project and take the arm *i*, stopping the motion of B and B', while the fillet of paper is punched by the punches or cutters *a* in the box A, as in the aforesaid patent. A band, 1, is provided, passing from any continuously-revolving motor over the wheel 2, that revolves loosely on the shaft *g'''*, and 3 is a pulley formed with or attached to the pulley 2, from which a band, 4, passes over the pulley 5, that is loose on the shaft B'. 6 is a fixed disk on said shaft B', and 7 is a disk pressed toward the pulley 5 by a spring, 8, adjusted by the nut 9.

It will now be understood that the pulley 5 can revolve between the disks 6 and 7 when the arm *i* is arrested by one of the pins *d''* being projected when the key E is held down; hence the type-wheel B will remain quiescent while the punching takes place, but so soon as the key E is released the type-wheel B and arm *i* will fly around until arrested by another projecting pin, and the movement will be complete in each instance as soon as the key is released; hence a second key can be struck instantly, and so on.

Instead of the shaft *g'''* receiving an intermittent oscillation, I give to the same a progressive rotation from the revolving friction-wheel 2, so that each time a key is struck an escapement is actuated, that allows the friction between said wheel 2 and a disk, 10, attached to said shaft *g'''*, to give to said shaft one complete rotation to perform the operation of feeding the paper by the lever *j'''* actuating the cutters *a* by the lever *d*, or moving the clamp for said cutters *a* by the cam *l'*, for the same purpose and in the same relative order as in the aforesaid patent; but the cams *m'*, *l*, and *l'* are to be shaped so as to give the proper movement at the right time by the entire rotation of the shaft *g'''* instead of its oscillation, as before.

The escapement I employ for the disk 10 on the shaft  $g'''$  is constructed as follows: 14 is an escapement-pawl on a fulcrum, 16, having a limited motion between the screws 17. 15 is a link from the pawl 14 to the bent lever 17 on a fulcrum or rock-shaft, 18, with a rod, 19, extending along beneath the range of levers  $f$ , so that the depression of any one of the keys E actuates the pawl 14, drawing a stud, 13, that projects at its end from beneath a pin, 11, on the side of the disk 10, allowing said disk 10 and shaft  $g'''$  to make a complete revolution in the direction of the arrow, Fig. 2; but said disk cannot make more than one rotation at a time, because it is arrested by the stud 12 taking the end 13 of the pawl 14, but so soon as the key E is released the contractile spring 16 moves the end 13 from beneath the stud 12 and the stud 11 comes in contact with the end 13 of the pawl 14 and prevents the further revolution of the disk 10 until another key E is struck, when the aforesaid operations are repeated.

The escapement 14 might be actuated by magnetism produced by an electric current when the key E is depressed, said current being broken as the key is released, this device being used in place of the bent lever 17 and connection 15.

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

1. The escapement-pawl 14, operating, substantially as specified, in combination with the revolving friction-pulley 2 and shaft  $g'''$ , for the purposes and substantially as specified.

2. The bent lever 17 and connection 15 to the escapement 14, in combination with the keys E, for the purposes, and substantially as specified.

3. Revolving the type-wheel and shaft by a friction-pulley, substantially as specified.

Dated this 9th day of June, 1865.

MARSHALL LEFFERTS.

Witnesses:

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CHAS. F. WOOD.