

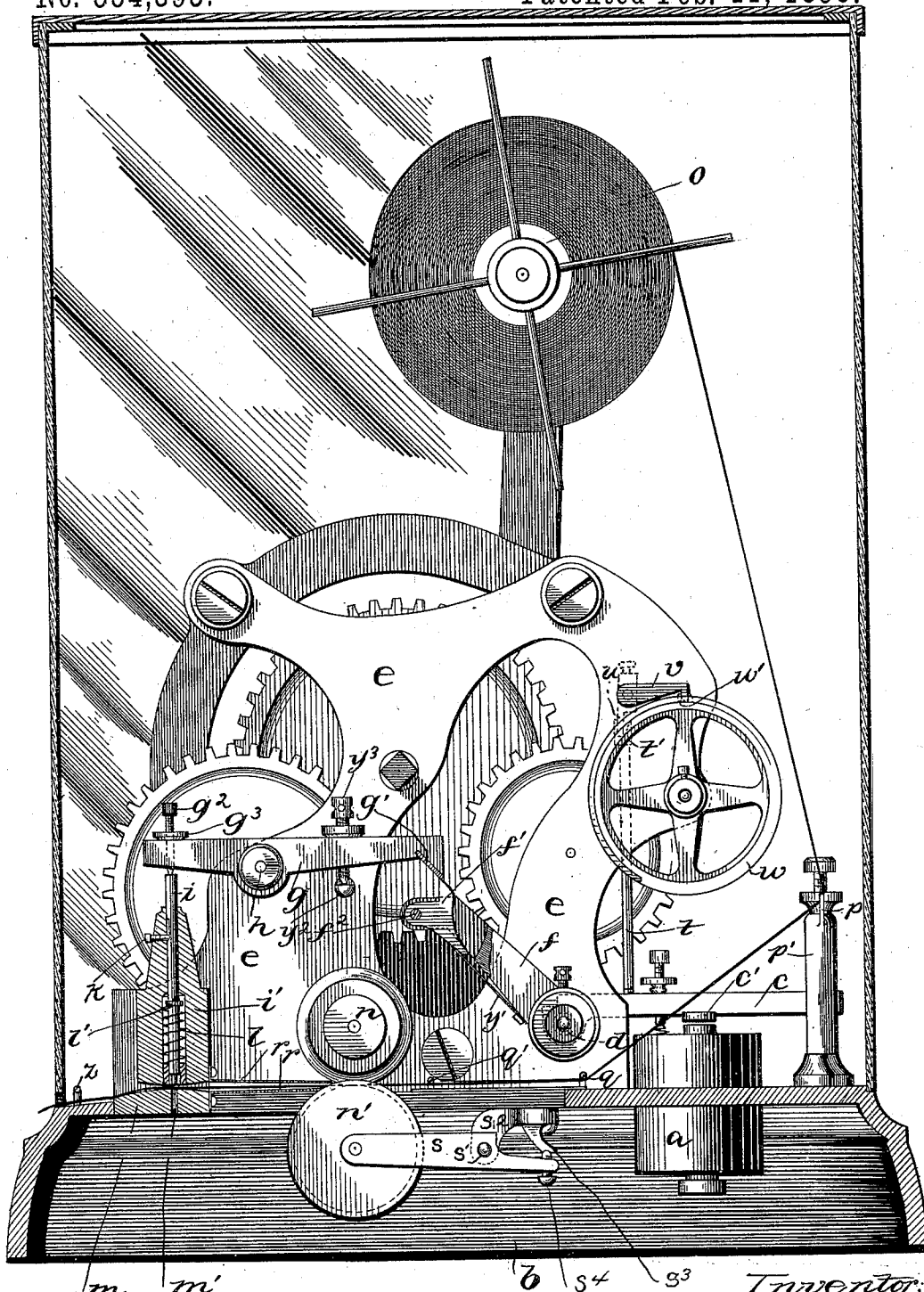
(No Model.)

2 Sheets—Sheet 1.

L. E. OEHRING.
TELEGRAPH RECEIVER.

No. 554,395.

Patented Feb. 11, 1896.



Witnesses:
George L. Cragg.
George S. Bull.

Fig. 1

Inventor:
Louis E. Oehring.
By Bartow Brown
Attorneys.

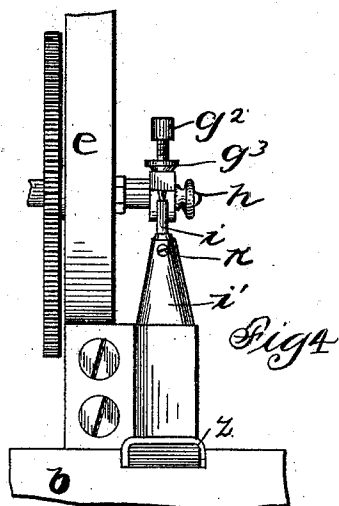
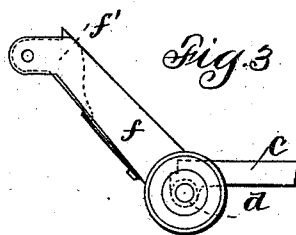
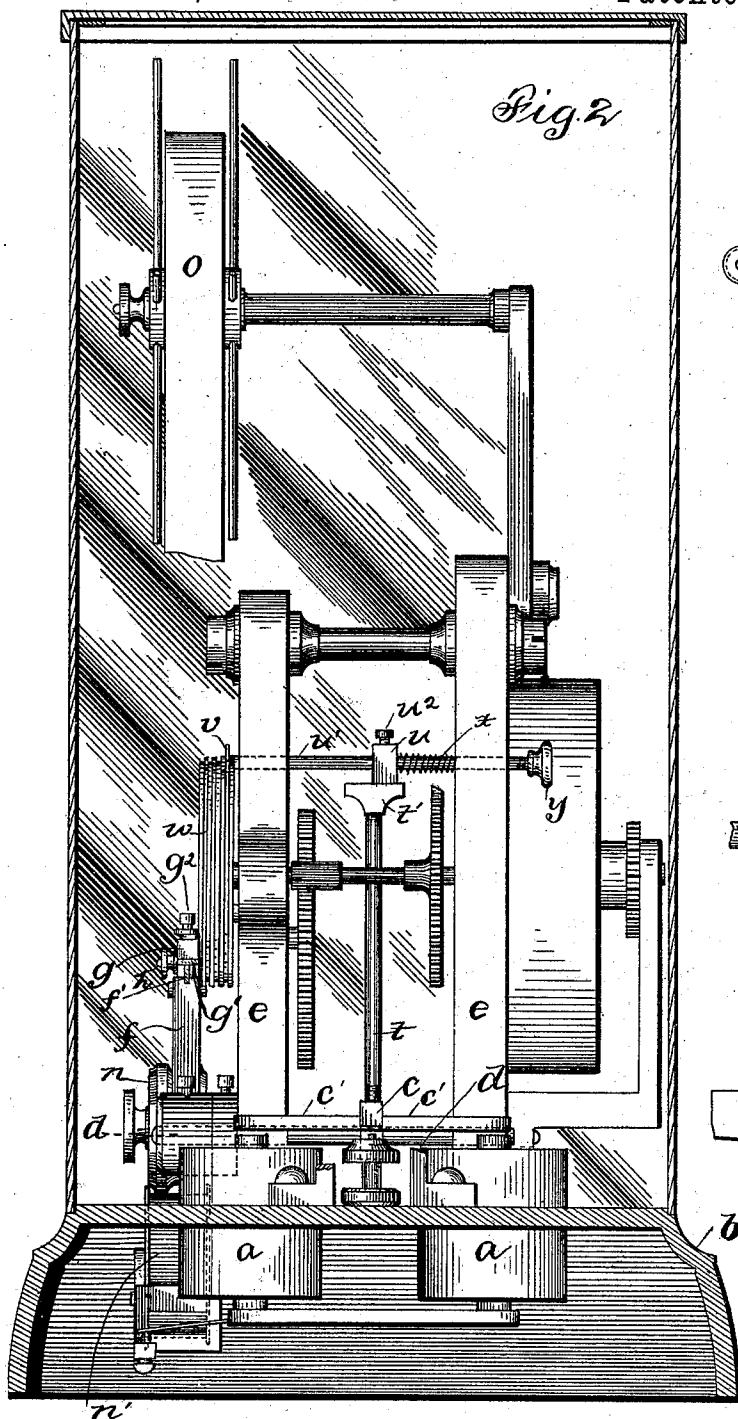
(No Model.)

2 Sheets—Sheet 2.

L. E. OEHRING.
TELEGRAPH RECEIVER.

No. 554,395.

Patented Feb. 11, 1896.



Witnesses:

George L. Cragg.
George S. Bull.

Inventor:

Louis E. Oehring

By Barton Brown
Attorneys.

UNITED STATES PATENT OFFICE.

LOUIS E. OEHRING, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
ELECTRIC COMPANY, OF SAME PLACE.

TELEGRAPH-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 554,395, dated February 11, 1896.

Application filed July 20, 1893. Serial No. 480,980. (No model.)

To all whom it may concern:

Be it known that I, LOUIS E. OEHRING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Telegraph-Receivers, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to telegraphic receivers, and more particularly to that class of receivers which make a record of telegraphic signals. Its object is the construction of a receiver which will give a clear, perfect, and permanent record of telegraphic messages as received.

In general my invention may be described as consisting of electromagnets which are adapted to actuate an armature upon the transmission of each telegraphic signal, to the lever of which armature is secured another lever which supports a dog adapted to actuate a punch-controlling lever, so that when a telegraphic signal is received the punch will be actuated to perforate a paper tape fed thereunder by feed-rolls, a spring being employed to elevate the punch upon the completion of each signal.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved recording-receiver with parts thereof shown in section to reveal the hidden mechanism. Fig. 2 is a side view of my recording apparatus with parts removed to show distinctly my invention. Fig. 3 is a view of the lever which supports the dog that actuates the punch-controlling lever. Fig. 4 is a detail view of the punch and the lever controlling the same. Fig. 5 is a detail view of a piece of paper tape, showing a part of a record that may be produced by my recording apparatus shown.

Like parts are indicated by similar letters of reference throughout the different views.

The magnets *a a* are mounted upon a suitable base *b*. The armature-lever *c* supporting an armature *c'* is mounted rigidly upon rod *d*, which is journaled upon the framework *e*. Upon that portion of the rod *d*, which ex-

tends beyond framework *e*, is rigidly secured a lever *f*, which, through the medium of the dog *f'* pivoted thereon at *f''*, actuates the punch-actuating lever *g*. For the purpose of preventing frictional wear between dog *f'* and lever *g*, I provide contact-plate *g'* of very hard steel, which is secured to lever *g*. I also make the dog *f'* of very hard steel.

The lever *g* is pivotally mounted upon framework *e* at *h*. The punch *i* is actuated, through the medium of lever *f* upon the transmission of each telegraphic signal, as hereinafter described, by the lever *g*, through the medium of a set-screw *g''*, which may be properly adjusted, and such adjustment thereof made secure by jam-nut *g'''*.

The punch *i* is vertically placed within guide-block *i'*, in which it is allowed a slight vertical excursion, sufficient to properly perforate the paper tape fed thereunder. This excursion is limited by a pin *k*, which engages with a recess cut in the punch-rod. When the armature is at rest the punch should be in an elevated position, for which purpose I provide a coiled spring *l*, which, through the medium of a collar *l'*, secured about the punch-rod, retains the punch in an elevated position when the armature is at rest. The punch proper is preferably of smaller diameter than the punch-rod.

Die *m* is provided with a bore *m'*, which approximately fits the punch with which it is coaxial.

The paper tape is fed between the punch and die by the rolls *n n'*, as presently described.

The paper tape is wound upon a reel *o* secured to the framework *e*. The tape is drawn from the reel *o* by the feed-rolls through the guides *p*, upon standard *p'*, *q* and *q'*. To properly guide the paper between the punch and die from the feed-rolls *n n'*, I provide two guides *r r*.

The feed-roll *n* is actuated by the motor mechanism of the receiver, while feed-roll *n'* is passive, being merely rotated by its frictional engagement with roll *n*, which frictional engagement serves to advance the paper tape between the punch and die. To preserve this frictional engagement of feed-roll *n'* with feed-roll *n*, I mount feed-roll *n'* upon a lever

s fulcrumed at s' upon bracket s^2 . A repellent spring s^3 is also mounted upon the bracket s^2 , which, through the medium of adjustable set-screw s^4 and lever s , exerts an upward pressure upon feed-roll n' sufficient to preserve its proper frictional engagement with feed-roll n .

Upon the armature-lever c is mounted a rod t , to the upper end of which is secured a bifurcated guide-block t' , between the members of which is engaged a tongue u adjustably secured upon rod u' by set-screw u^2 . The rod u' is supported upon framework e , so as to be capable of lateral excursion. Upon one end of rod u' is rigidly supported a dog v , which is adapted to make engagement with the thread upon threaded wheel w , which is journaled upon the frame e , and which has rotary motion imparted to it by the motor mechanism of the receiver. When the receiver is at rest the dog v is in engagement with a pin w' , which engagement prevents the movement of the motor mechanism. When, however, a telegraphic signal is received the armature c' is attracted, which causes the armature-lever c and rod t supported thereon to be rocked, whereby, by means of the bifurcated guide-block t' mounted upon said rod t , the tongue u and rod u' are rocked sufficiently to release dog v from pin w' , upon which disengagement the dog v is thrust outward by repellent spring x , this outward position of the dog v being such that when it is allowed to fall it will become in engagement with the extremity of the thread upon the wheel w . The distance of the outward thrust of the dog v by spring x when said dog is released from engagement is adjusted by the bur-nut y .

Having described the construction of my telegraphic receiver I will proceed to describe its operation.

When a signal is transmitted by the operator at the sending station by closing the circuit with his key, the cores of the magnets $a a$ are energized and attract the armature c' , which disengages the dog v from pin w' through the medium of rod t , bifurcated guide-block t' , tongue u and rod u' , as previously described. Lever f is at the same time actuated by the armature c' through the medium of armature-lever c and rod d . When the lever f is thus actuated, the dog f' mounted thereon engages with plate g' and elevates the portion of the lever g to the right of its fulcrum h and lowers the portion thereof to the left of said fulcrum, whereby the punch i is depressed. As the punch i is thus actuated the engagement between dog f' and plate g' is gradually broken, when the punch is caused to ascend through the medium of spring l , whereby the paper tape may be fed thereunder, notwithstanding that the armature c' is attracted. A spring y' is provided to bring the dog f' back into engagement with plate g' , when the lever f assumes its normal position, which is when the armature c' has ceased to be attracted by the cores of

magnets $a a$. A stop y^2 is provided to support lever g , preferably through the medium of an adjustable set-screw y^3 , when said lever is disengaged from lever f .

I have thus described how a single signal is recorded. Any number of signals may be transmitted and recorded as above described.

After the completion of each signal the armature is restored to its normal position and the dog v becomes in engagement with the thread upon wheel w , but this thread is so long, however, that the dog v does not come in engagement with pin w' to stop the motor mechanism during the progress of the transmission of a message. The thread is also long enough to preserve a distinctive space between separate messages.

A guide z is provided to guide the paper tape in its exit from the receiver.

The dog f' is mounted upon lever f , preferably between two members of the bifurcated ends thereof, as shown most clearly in Fig. 1.

I have not deemed it essential to describe the motor mechanism of the recording-receiver, since any suitable motor mechanism may be employed with my invention.

I do not wish to be limited to the precise construction and arrangement of levers f and g shown; but,

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a telegraph-receiver, electromagnets $a a$, armature c' , armature-lever c , rod t , guide-block t' , tongue u , rod u' , dog v , threaded-wheel w normally in engagement with said dog, a pin w' adapted to engage with said dog and prevent its rotation, a repellent spring x adapted to shift said dog when disengaged from said pin, in combination with a lever f adapted to be actuated by armature c' , a dog f' adapted to engage with lever g , punch i adapted to be actuated by said lever g , a pin k adapted to limit the excursion of said punch, a spring l adapted to restore the punch to an elevated position, a die m provided with a bore m' , and feed-rolls $n n'$, substantially as and for the purposes set forth.

2. In a telegraph-receiver, electromagnets $a a$, an armature c' adapted to be actuated thereby, an armature-lever c supporting said armature, a rod d fixed to said armature-lever, a lever f fixed to said rod, a dog f' pivoted upon said lever adapted to engage with and actuate lever g , a spring y' to aid dog f' in its function, a punch i adapted to be actuated by lever g , a pin k to limit the excursion of said punch, a spring l to restore the punch to its elevated position, and a die m provided with a bore m' arranged coaxially with punch i , in combination with a motor mechanism adapted to feed the paper tape between the punch and die, substantially as specified.

3. In a telegraph-receiver, the combination with an electromagnet and an armature-lever, of a punch positively moved by said arma-

ture-lever to perforate the tape, and a releasing-dog for permitting the return of the punch independently of the movement of the armature-lever.

- 5 4. In a telegraphic receiver, the combination with an electromagnet, of an armature-lever and a punch for perforating the tape and a pivoted lever adapted when rotated to advance the punch; a dog carried upon the
10 end of the armature-lever for engaging the end of the pivoted lever to positively rotate the same and advance the punch when the

armature-lever is rotated, said dog being constructed to permit the return of the pivoted lever independently of the movement or pres- 15
ence of the armature-lever, whereby the return of the punch is uninfluenced by the armature-lever; substantially as described.

In witness whereof I hereunto subscribe my name this 28th day of June, A. D. 1893.

LOUIS E. OEHRING.

Witnesses:

GEORGE L. CRAGG,
C. M. C. CROSS.