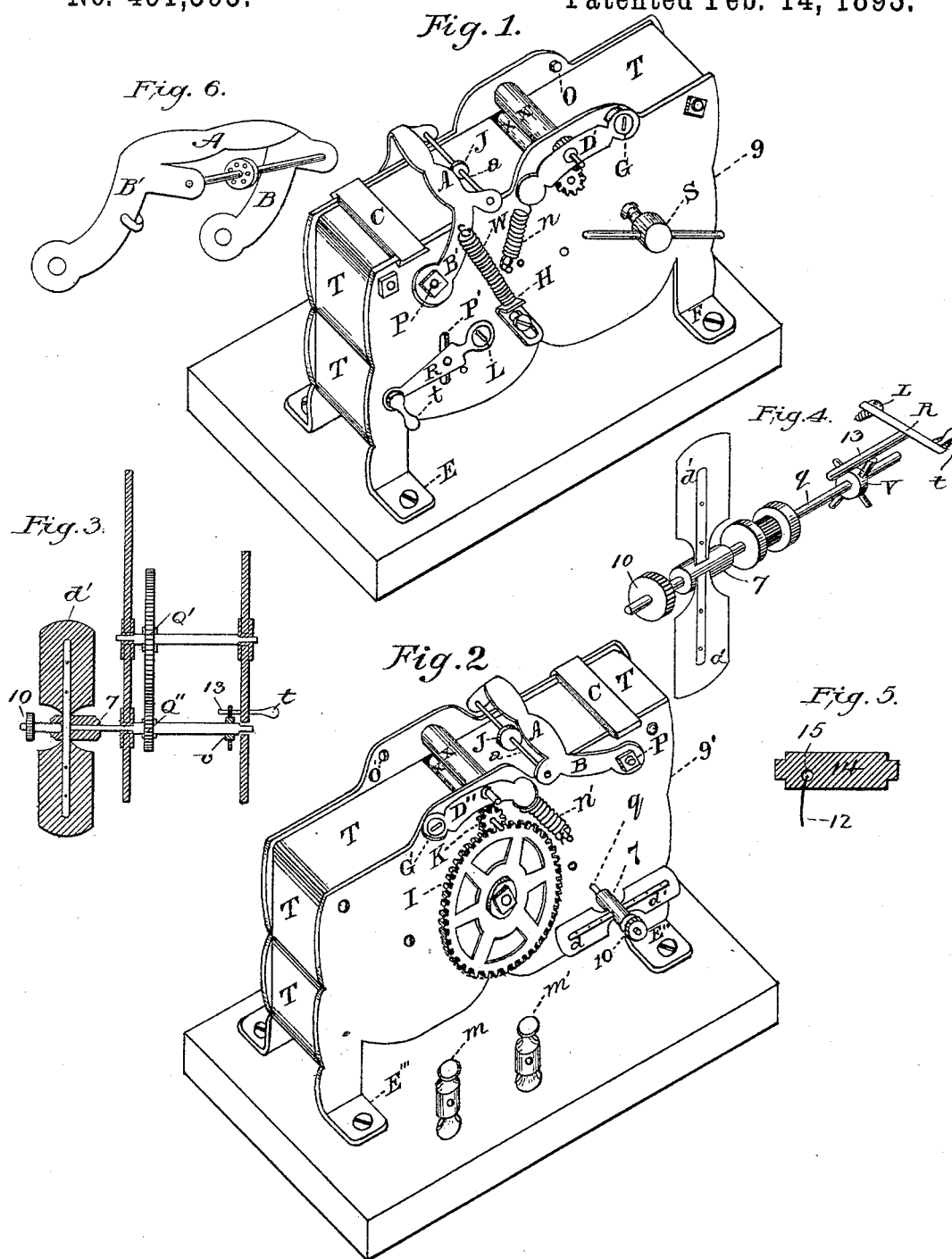


(No Model.)

R. S. ROBERTS.  
TELEGRAPH TRANSMITTER.

No. 491,595.

Patented Feb. 14, 1893.



WITNESSES:

Orlando S. Stallman  
Harry Miller

INVENTOR.

Robert S. Roberts

# UNITED STATES PATENT OFFICE.

ROBERT S. ROBERTS, OF PHILADELPHIA, PENNSYLVANIA.

## TELEGRAPH-TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 491,595, dated February 14, 1893.

Application filed April 29, 1892. Serial No. 431,173. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT S. ROBERTS, a citizen of the United States, residing at Chestnut Hill, in the county of Philadelphia and State of Pennsylvania, have invented an Improvement in Telegraph-Transmitters; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, (two sheets,) which form a part of this specification.

The object of this invention is to transmit over a local circuit electric pulsations, corresponding to certain perforations in a strip of paper and which set in motion certain machinery, which is described later in this specification. The instrument is to be connected in a local circuit with a battery and any ordinary telegraphic sounder, of low resistance, and the purpose of the instrument is to assist students in quickly acquiring the sounds of the Morse telegraphic characters, or to receive by sound without the aid of a teacher, and to assist experienced telegraphers in the art of copying a telegraphic message directly by sound in a type-writer-machine.

The chief features of the instrument are low speed and accuracy of the signals produced by the sounder.

In the accompanying drawings Figure 1 represents a front-side, end and top view of the transmitter. Fig. 2 a back-side end and top view. Fig. 3 represents a vertical section of the side plates with regulating fans or governors the same as those shown in Fig. 4. Fig. 4. shows the regulating fans or governors, and the starting and stopping mechanism. Fig. 5 represents a gutta-percha insulating tube. Fig. 6 shows the transmitter and circuit breaker or commutator.

Fig. 1, inclosed by the side plates 9 9' (the plates each having a quadrangular groove for the reception of the dust casing T) is a regulation system of clock wheels four in number each with axles and pinions, and an additional axle and pinion (the axle projecting for the reception of a tube upon which the fans are connected,) and a spring for propelling the machinery. The wheels can be of any size, according to the speed desired.

X X' are rollers for drawing the paper forward, S. is a winding key. E. and F. feet secured to a wooden base by screws. W insu-

lated spring, H angular piece with slot and screw for regulating the tension of the spring W. C guide piece for paper.

R is a lever supported by a screw L and has a horizontal pin running into the machine through the slot P' t handle on lever R. for the purpose of starting and stopping the machinery.

D' is a lever secured to the side plate 9 by a screw G. at o' and is drawn down by a spring n. the end of the spring being hooked to a pin projecting from the side plate 9. In Fig. 2 is shown a similar lever D'' spring n' and a screw G' drawn down by a spring and hooked in the same manner. The levers D' D'' are fulcrumed on the journals of the upper roller X' and are for the purpose of keeping the rollers firmly together and to allow the upper roller to ascend in case of variations in the thickness of the paper, it being double thick in some cases.

In Fig. 2 is shown a cog wheel I. which is strung upon the second axle of the clock system which runs through and projects from the side plate 9' and securely fastened by a nut. The cog I is in series with a pinion K. which is strung upon the lower roller X. E'' E''' are feet secured to the wooden base by screws M M' binding posts. d d' regulating fans, 10 set screw, q projecting axle, 7 tube. The fans d d' are riveted to a spindle which runs crosswise through the tube 7—it being pressed over the axle q. and soldered. The fans can be turned so as to meet a greater or less air resistance, and fastened by the screw 10, thus regulating the speed of the machinery.

Fig. 3 is a vertical end section with regulating fans d d' cogs Q' Q'', stop lever R, projecting pin 13, V, toothed wheel, 10 set screw, 7 tube. Fig. 3 is the same as 4 the latter being shown in another position.

Fig. 5 is a gutta-percha insulating tube for the reception of the axle P, 14 tube, 15 shows where connection is made with wire 12. to axle P.

The circuit of the instrument is as follows: The binding post M is connected by wire to foot E'''. Binding post M' is connected to the horizontal axle P thus insulating P. A. B. B' and J from the other part of the instrument when the levers B. B.' are raised, when the platinum wheel J. rests upon a. and the

binding posts M M' are connected the circuit is complete.

In Fig. 6 is shown the transmitter A having two angles forming two levers B B' each having two holes or bearings for the reception of the axles P and J upon the latter is a small platinum wheel or circuit breaker, which rests upon a small piece of platinum *a*, which is soldered to the dust casing T. The levers B B', when in position on the instrument are fulcrumed upon the horizontal axle P which runs within the gutta-percha tube as shown in Fig. 5. The levers B B' are held in position by two nuts on the axle P thus keeping the wheel J and axle always in line with the contact piece *a*.

Upon strips of paper, the necessary length, are perforated the Morse characters (twenty-five or more strips being punched at one operation by suitable machinery) the strips being distributed to the different students having a transmitter. Take for instance a strip containing the alphabet, the transmitter being at the student's home connected in circuit with a battery, and sounder, the strip passed under the guide piece C. under the circuit breaker J. through the rollers X X' and connect the ends of the strip, start the machinery, allow the strip to revolve similar to an endless belt, again and again, producing at each complete revolution of the strip all the characters upon the sounder. In a short time by such practice the ear would become familiar with all the characters. Messages perforated on strips and distributed among the students

and allowed to revolve similarly, increasing the speed of the transmitter in proportion to the progress made.

I am aware that it is not new to transmit electric pulsations by putting in motion contact mechanism by means of perforated paper, but objection to such transmitters is the employment of a single spring of brass or other metal the spring having great resistance to the free passage of the paper, in order to make a good electric contact, and would tear or rip the paper intervening the perforations the same being very short in an instrument of slow speed, such instruments therefore can only be employed for rapid transmission and are useless as slow or moderately slow transmitters. In my instrument the resistance to the passage of the paper is reduced to a minimum, by the use of a wheel and transmitter, as shown, instead of a spring and without destroying the good electric contact.

I claim as my invention:

In an automatic transmitter the combination of an angular transmitter A having two angle levers B, B', the axle P journaled in and supporting the levers and transmitter, and the wheel J mounted on the transmitter, the axle and transmitter being electrically insulated from the other parts of the instrument substantially as shown and described.

ROBERT S. ROBERTS.

Witnesses:

ORLANDO S. STALLMAN,  
HARRY MILLER.