2 Sheets—Sheet 1.

A. G. RYDER.

Automatic Telegraphs.

No. 213,779. **Patented April 1, 1879.**

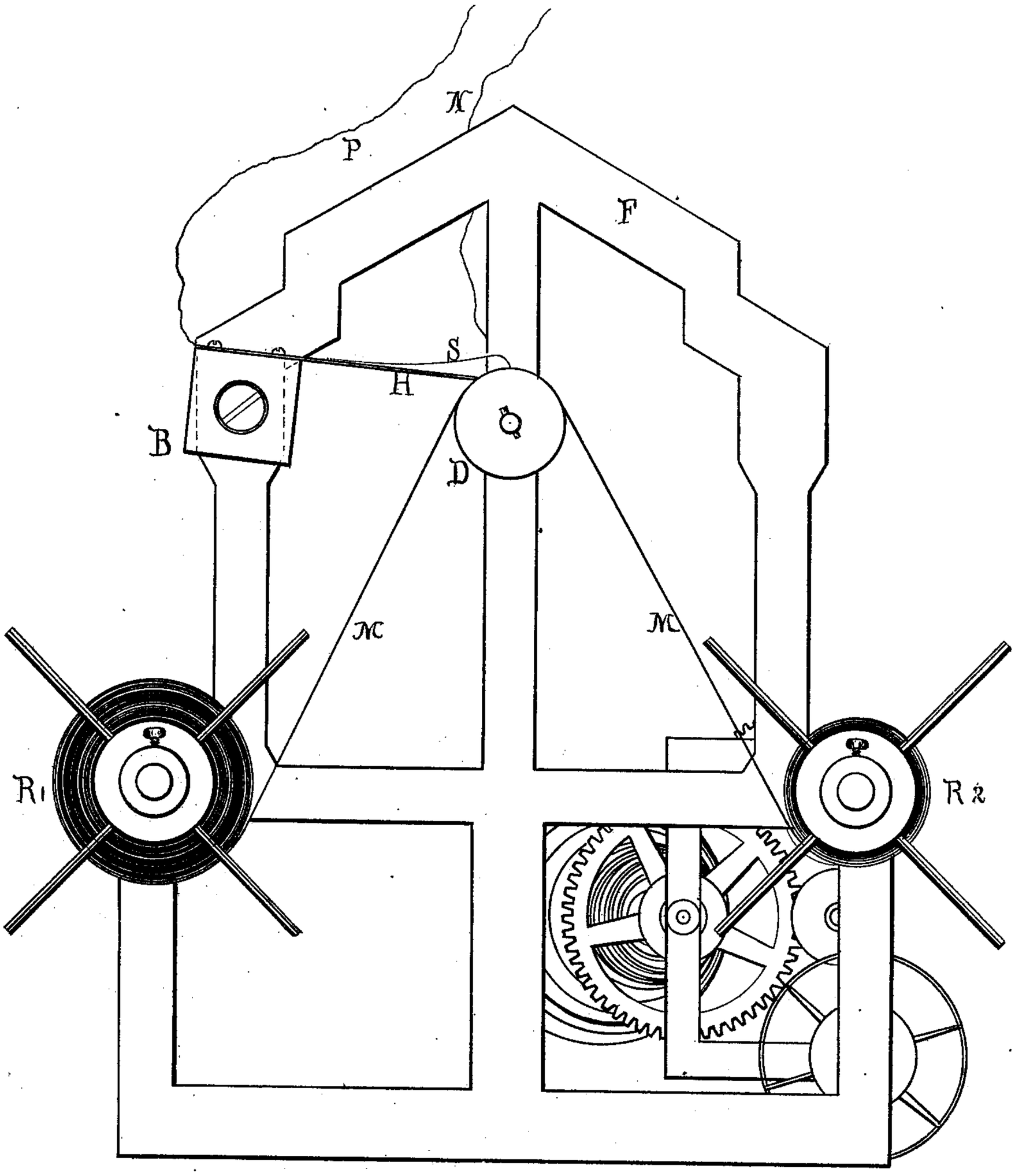

Fig. 1

WITNESSES

William R. Billinge
Lloyd E. White

INVENTOR

Austen G. Ryder

2 Sheets—Sheet 2.

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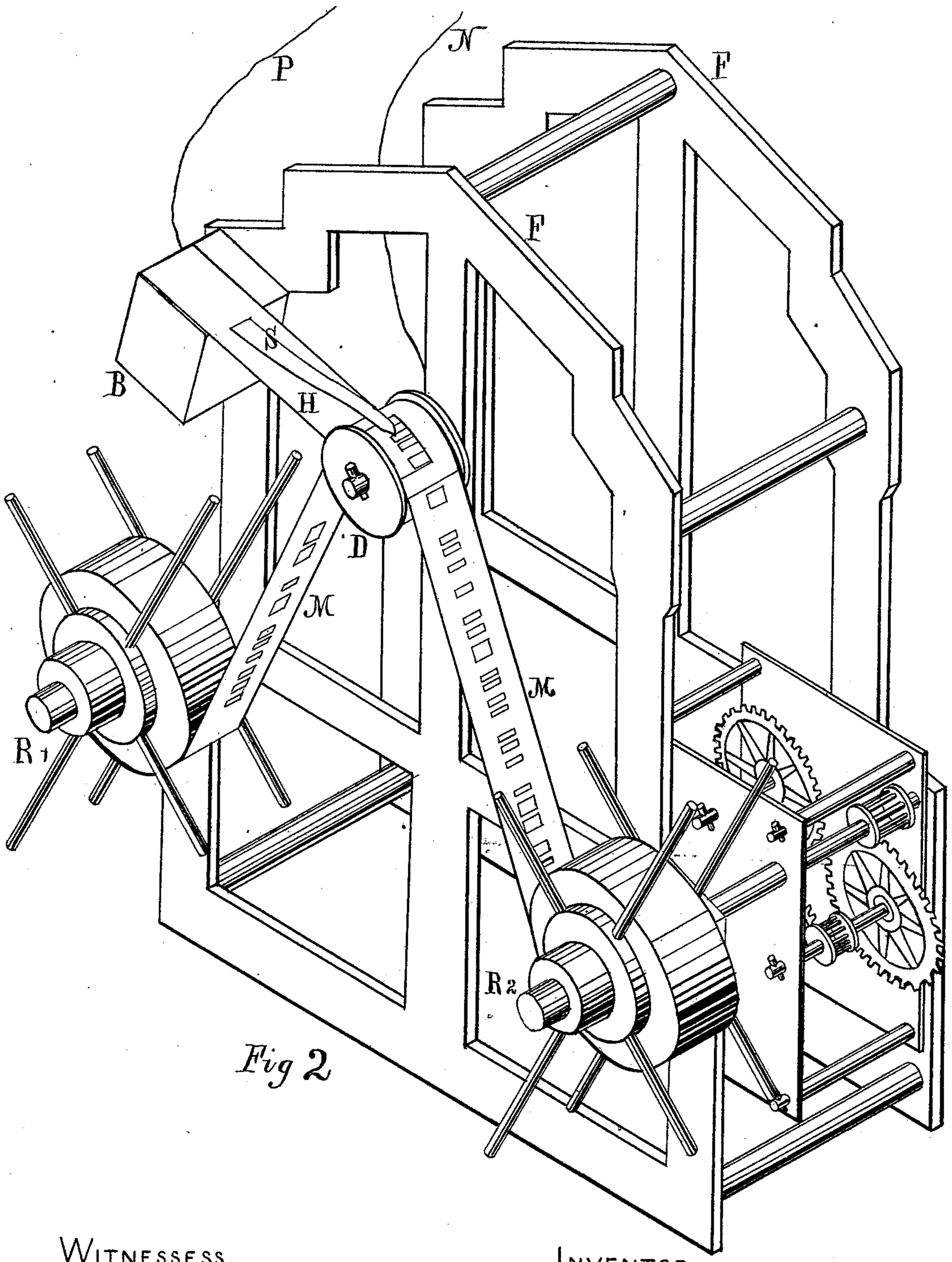

Fig 2

WITNESSES.

William R. Billings

Lloyd E. White

INVENTOR.

Austin G. Ryder

UNITED STATES PATENT OFFICE.

AUSTIN G. RYDER, OF TAUNTON, MASSACHUSETTS.

IMPROVEMENT IN AUTOMATIC TELEGRAPHS.

Specification forming part of Letters Patent No. **213,779,** dated April 1, 1879; application filed October 20, 1877.

To all whom it may concern:

Be it known that I, AUSTIN G. RYDER, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful improvement in a machine for the self-manipulation of the Morse or other telegraphic characters, or any other private characters or signals that may be transmitted over a wire charged with electricity, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front elevation, and Fig. 2 an isometric view.

The object of my invention and improvement is to cause the Morse or other telegraphic characters, or any private characters or signals, to be manipulated without the use of the telegraphic key by means of perforated paper being attached to reels and motive power, so that when properly connected by wires, battery, &c., with the Morse instruments, or other electro-magnetic instruments, and put in motion, the said characters or signals may be transmitted and read by sound, or recorded in the same manner as if they were transmitted by the operator with the ordinary telegraphic key. It is designed principally for the student of telegraphy, although it may be used for private purposes of various kinds where the object is to transmit private signals by means of breaking the electric current, its construction being so simple as to enable them to be manufactured at a small cost, thus placing the machine within the reach of all. The machine is to be known as "Ryder's Little Giant Manipulator."

In the drawings, F is a metallic frame, consisting of two plates connected by brass pins, similar to an ordinary clock-frame, and mounted upon a base. R^1 is a small reel, made of wood, with brass pins, and revolves upon a small shaft that is attached to the front plate of the frame. R^2 is a reel similar to R^1, with the exception of its having a tube of metal pass through its center. This reel revolves with the shaft that connects with the clock-work or other motive power which may be applied.

The reel is connected to the shaft by a thumb-screw, which passes, by a thread, through the tubing, and may be removed at pleasure.

The clock-work lies between the two plates of the frame, and is wound at the back side of the frame.

M is a reel of ribbon paper about one-half inch in width, and it is upon this that the characters are perforated and the message or exercise formed. The perforations can be made with any punch of suitable device. This paper is attached to the reels R^1 and R^2 at the ends.

D is a small metallic drum, which revolves upon a small shaft connected to the front plate of the frame. This revolves, so as to assist the paper M in passing when drawn forward by reel R^2.

B is a block of any non-conducting substance, and is connected to the frame by a machine-screw, which passes directly through it. This block may be easily adjusted from one position to another by means of the screw.

H is a thin piece of metal, about one-half inch wide, called a "holder," which is fastened to the non-conducting block by two small screws at the left end. The other end is curved, so as to allow it to fit over the drum D and hold the paper M in proper position as it passes over the drum. It has a slot near the curved end, so as to allow the spring or pen lever S to fall upon the paper. This pen-lever S is attached to the holder H near the left end, and is therefore insulated from the frame F by the block B in the same manner as the holder.

P is a small copper wire, and is attached to the holder and spring, H and S, at the extreme left by means of the screws that fasten the holder H to the block B. It therefore has no connection with the frame F. The other end of this wire passes to a screw-cup at the base.

N is also a small copper wire, and is connected to the shaft upon which the drum D revolves. One end of this wire also passes to a screw-cup in the base.

It will be seen that the "Little Giant Manipulator" is to be operated in connection with the sounder or other electro-magnetic instrument; and that when the wires N and P are properly connected to battery and instruments, and are made a part of the circuit, the circuit is complete when the spring S is allowed to touch the drum D.

Paper being a non-conductor, it is obvious that when the paper lies between the spring S and the drum D no current can flow, and the circuit is thus broken; but that whenever the perforations appear in the paper the spring S will immediately fall and complete the circuit by coming in contact with the metallic drum D.

The operation of the machine is so simple that a detailed explanation seems uncalled for.

I have already stated that the message or other signals to be transmitted are to be first prepared or formed upon the paper by the use of a punch of suitable device. When thus prepared the paper is to be attached to the reels R^1 and R^2, that portion which contains the message to be wound upon R^1. It is only necessary that one end should be attached to reel R^2. After arranging the paper and adjusting the holder H and spring S, all that remains is to wind up the clock-work. It is obvious that by starting the clock-work R^2 is kept continually moving, and the paper is thus kept moving regularly forward, unwinding from R^1 to R^2, the spring S falling upon the drum D and completing the circuit whenever a character or perforation appears in the paper, and remaining as long as is intended by the space which is perforated, the sounder or other instrument upon the circuit being affected at all times by the opening and closing of the current. When the paper has unwound from R^1, if it is desired to repeat the same message, simply unscrew the thumb-screw at R^2 and raise the spring S a little by adjusting the block B, and proceed to rewind the paper back upon R^1, and repeat as before.

For students of telegraphy this machine is invaluable, it being a well-known fact that the most essential part of the student's practice is to listen to the sounds as they pass through the instruments, in order that they may become accustomed to the sounds of the several characters. Those who cannot practice at a telegraph-office where the sounds are constantly being "tapped out" are deprived of this great advantage, except by the employing of a teacher. Exercises covering the entire course could be arranged and sold with this machine, and thus, by simply attaching the same to the reels and winding up the clock-work, the student at home may enjoy that great privilege which otherwise is only to be had at the telegraph-office.

It is obvious that any number of machines could be operated upon by the "Little Giant Manipulator" at the same time when properly connected.

In the same manner, as the telegraphic characters are transmitted, any private characters may be also sent, and recorded or read by sound at other points.

Any rate of speed may be obtained by changing the space of the perforations, or by applying increased or diminished power to the shaft.

Having thus described the principle and operation of my invention and improvement, what I claim as new and of my own invention, and desire to secure by Letters Patent, is—

The slotted insulated guard H, curved to conform to the roller D, in combination with the spring-pen S, wires P N, adjustable block B, insulated guide-roll D, holding-reel R^1, and actuating-reel R^2, operated by clock-work, substantially as described.

AUSTIN G. RYDER.

Witnesses:
ANDREW S. BRIGGS,
LLOYD E. WHITE.