

Hugh S. L. Bryan.

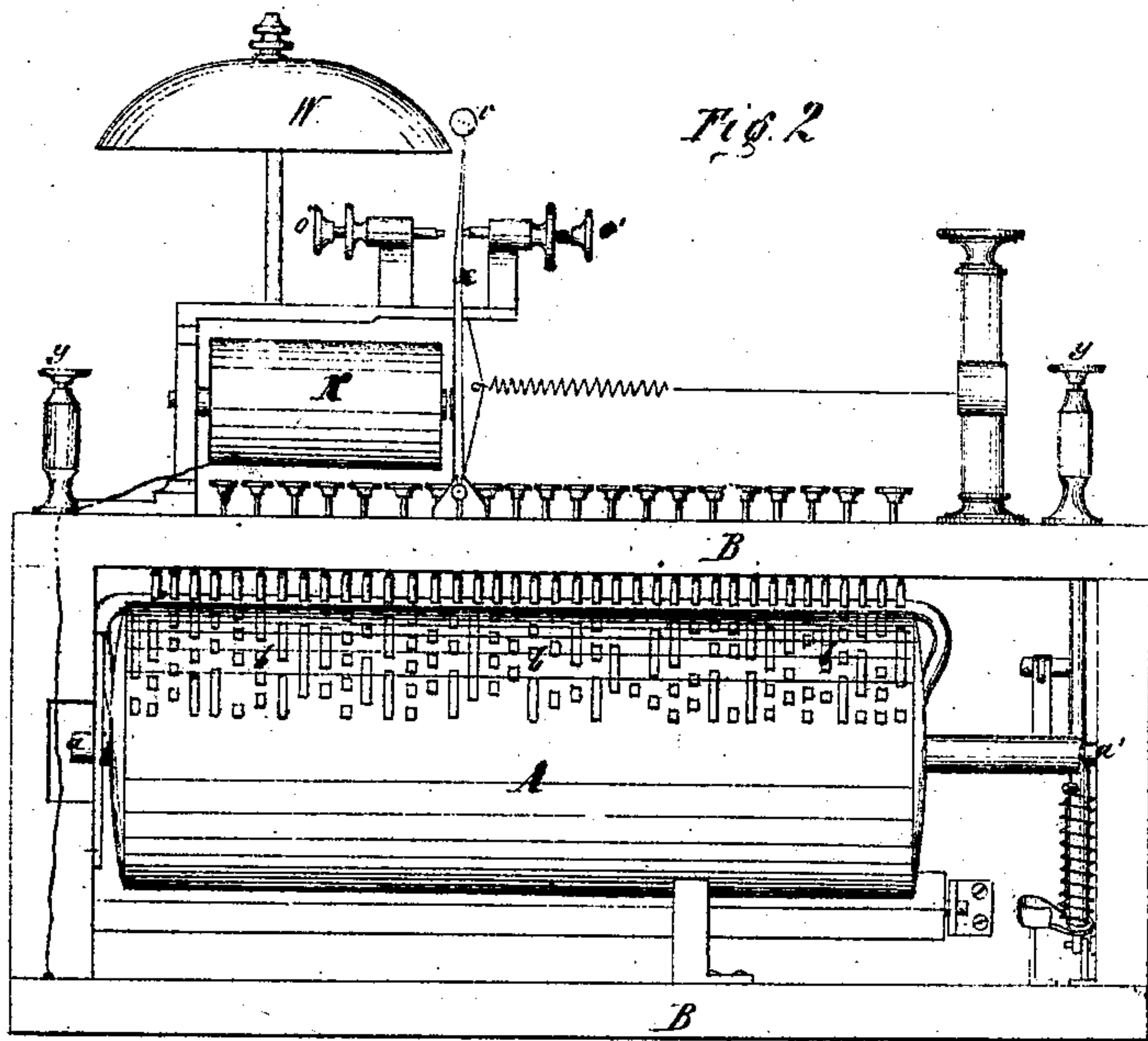
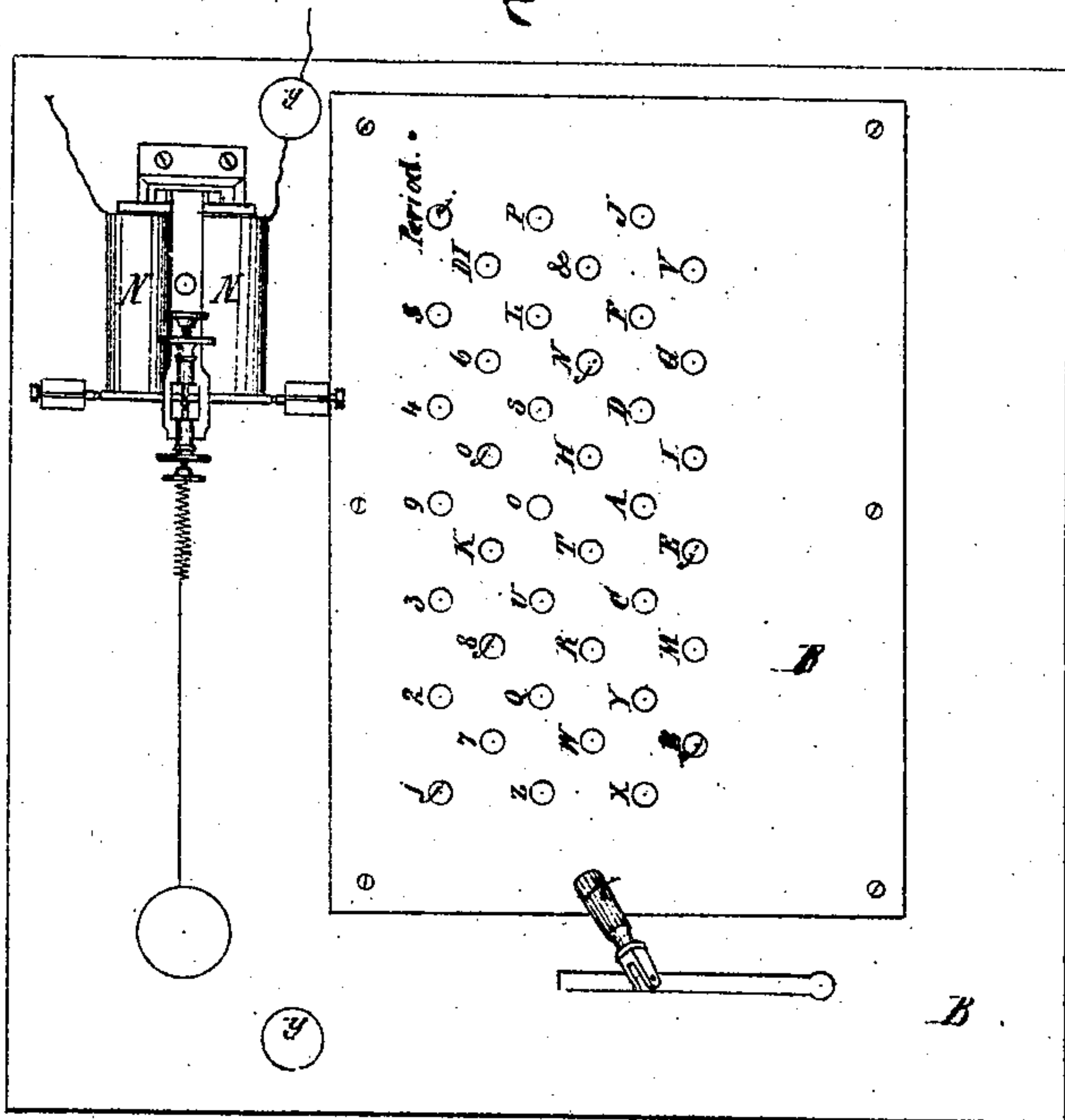
Sheet I

Railway Conductors Electric Telegraph Apparatus.

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Fig. 1.

PATENTED JUL 11 1871.



Witnesses:

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Thos. D. D. Curran

Inventor:

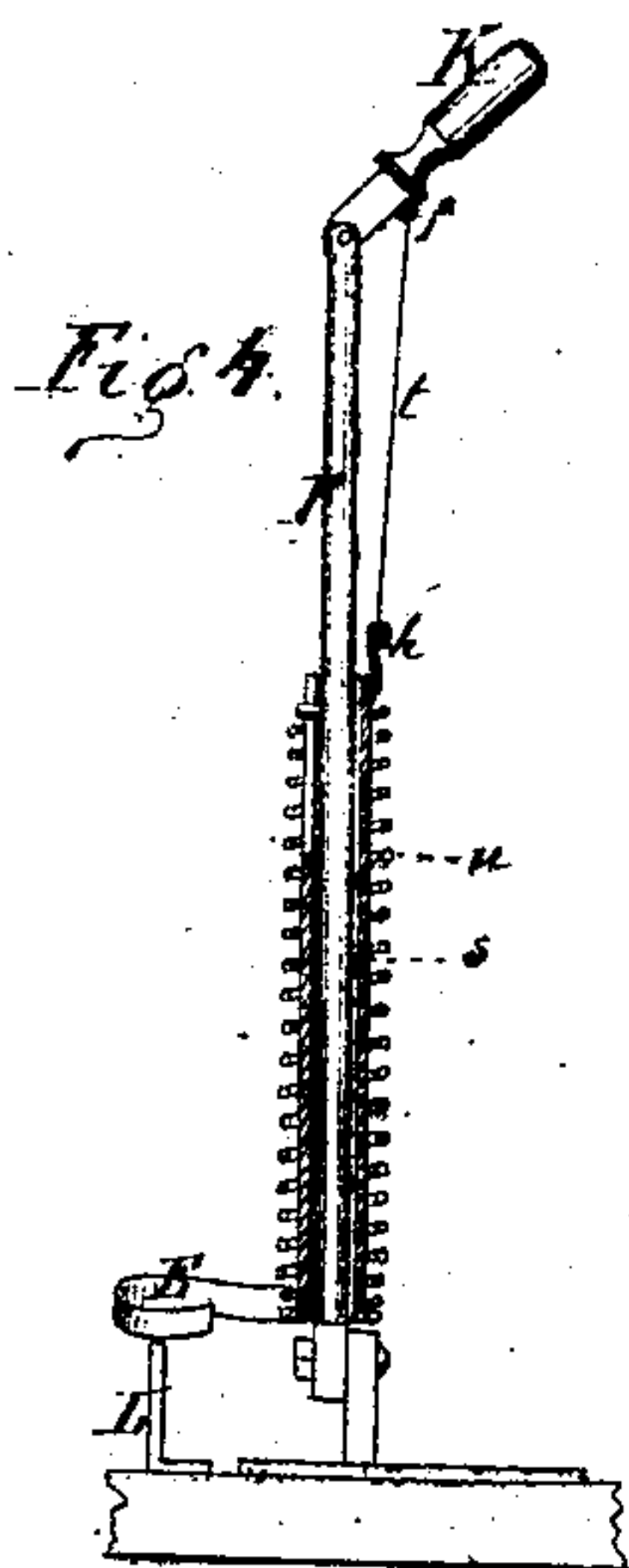
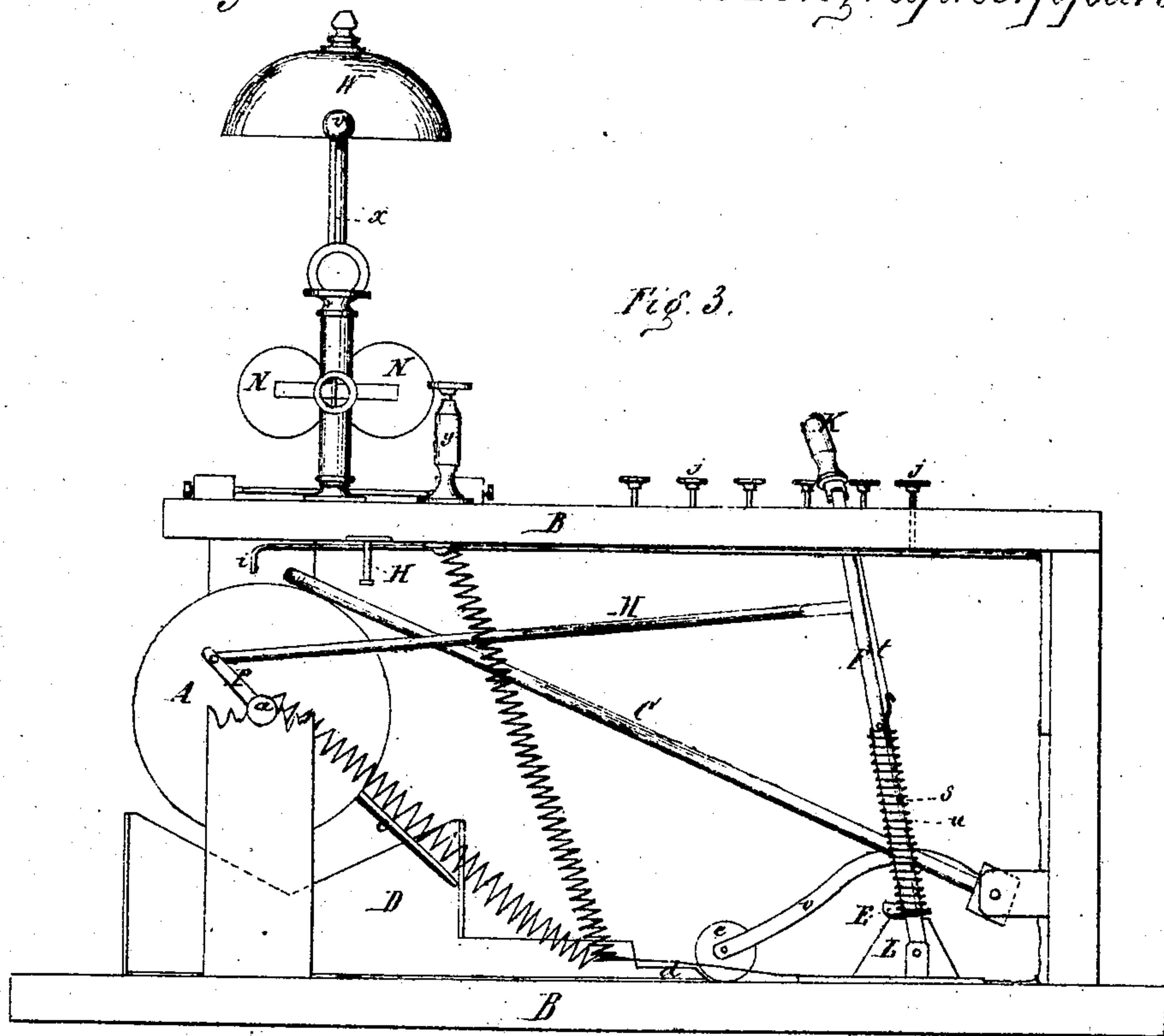
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Sheet II

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Railway Conductors Electric Telegraph Apparatus.



Witnesses:

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UNITED STATES PATENT OFFICE.

HUGH SWINTON LEGARÉ BRYAN, OF LIBERTY, MISSOURI.

IMPROVEMENT IN TELEGRAPH APPARATUS.

Specification forming part of Letters Patent No. 116,928, dated July 11, 1871.

To all whom it may concern:

Be it known that I, HUGH SWINTON LEGARÉ BRYAN, of Liberty, in the county of Clay and State of Missouri, have invented a new and Improved Railway-Conductors' Electric-Telegraph Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a plan view, Fig. 2 a front elevation, Fig. 3 a side elevation, and Fig. 4 a side and sectional elevation of the circuit-breaker.

This invention has for its object to enable a railway-conductor ignorant of the science of telegraphy to make use of the telegraph for the purpose of apprising the authorities at a designated station of any accident that may have happened to his train. To this end each train should be supplied with an electro-magnetic apparatus provided with facilities for connecting with the telegraph-wires that are stretched by the roadside, with which apparatus is connected the conductor's mechanism hereinafter described.

Referring to the drawing, B B is the framework of the portable electro-magnetic apparatus and conductor's telegraph apparatus. When the latter is to be used wires are run from posts *y y*, with which the electro-magnet is connected, to the main telegraph-wire. The conductor is then enabled, by depressing one of the keys *j*, to complete the circuit between the electro-magnet N and the transmitting-cylinder A, and to sound an alarm in the ordinary manner at the office with which he wishes to communicate. The keys *j* bear upon spring-arms *i* attached to the under side of the upper part of the frame B, and lower said arms into contact with the cylinder.

The receiving-code for the conductor's electric-telegraph apparatus is a succession of taps upon a bell placed in close proximity to the armature-lever *x* of the electro-magnet N, so constructed that when the circuit is open the armature-lever *x*, with a small ball, *v*, fixed upon the upper end, recedes from the magnets N to the adjusting-screw *o*, and when the circuit is again closed the armature-lever *x* is restored to its normal position, or is attracted up toward the magnets N, and is arrested by the adjusting-screw *o*, at the same time striking the alarm-bell W, causing it to sound once for each pulsation of the circuit.

The alarm-bell is to attract the conductor's attention when the station-master is about to reply to his dispatch. The strikes or taps on the bell signify numbers. For instance, five taps or sounds of the bell, caused by five corresponding pulsations or openings or closings of the circuit, signify the number 5. The number 28 would be represented by first two and then eight sounds of the bell, a short space being allowed between the two numbers, forty-two (42) or any other number being represented in the same manner. By this means numbers may be communicated to the conductor. Each number used represents a certain word, sentence, message, or train-order of any form of instruction or inquiry, and when the number is received reference is made to the book of numbers and questions and a proper understanding obtained. I am aware that this is an approach to the system employed in the fire-alarm telegraphs of the country. There is, however, considerable dissimilarity, since a certain number of taps or sounds of the fire-bell denotes a particular district of the city. In my system the taps denote certain words, sentences, or messages. In all other methods of numeral telegraphy the numbers are expressed by telegraphic characters, such as Morse's, which stand for words and sentences; but these telegraphic characters would be perfectly unintelligible to those for whose use this apparatus is intended.

The transmitting apparatus consists of the cylinder A, having equidistant circumferential ribs *b* formed around its exterior, which ribs are cut transversely, so as to form all the characters of the Morse alphabet, the spaces between which characters are filled, so as to insulate the latter with a non-conductor of electricity, even with the tops of the characters forming a smooth surface when completed, the cylinder being hung on centers *a a'*. The key-board B is so arranged that, when a key, *j*, is depressed, the arm *i* beneath will rest on a corresponding letter on the cylinder A, answering to that stamped or marked upon the key-board near the key, each key being held in place by the comb-guide H and moving perfectly independent of the others. The depression of the key completes the circuit and effects the translation of the letter into the corresponding Morse character and the transmission of the latter to the station. The key-raising lever C is attached to a rock-shaft, *u*, hung on pivots at *k*, from which

rock-shaft projects a short lever, *v*, bearing a wheel or roller, *e*, so arranged that the pin *c* on the cylinder A will, in its reciprocating movement, imparted by the lever F through the connecting-rod M to the arm P projecting from the shaft of the cylinder A, operate the slide D, so as to push the wedge *d* under the roller *e*, thus raising the lever C sufficiently high to lift the key off the cylinder A at the proper time. When the movement of the cylinder A is reversed the pin *c* carries the slide D and wedge *d* from under the roller *e*, thus allowing the lever C to return, giving the key access to the cylinder A. The object of this arrangement is to prevent the keys from coming in contact with the cylinder while the latter is rolling backward so as to get into position for fresh signaling after the alphabet has been turned beyond the keys. The circuit-breaker E is attached to a sliding tube, *s*, through which passes the upright lever F, a spiral spring, *u*, passing around the whole. A connecting-wire or cord, *t*, is attached to the tube at *h*, and passes up to the hook *f* on the handle or knob K. The knob or handle is pivoted to the top of the lever F, so that the spring turns the handle on its pivot after it passes the perpendicular and presses the circuit-breaker down upon the abutment L.

When it is necessary to make use of the transmitting apparatus the knob K is turned up vertically. This opens the circuit, and the moment the hold on the knob is released the spring carries the circuit-breaker down to the abutment L, closing the circuit and keeping it closed until the transmitting apparatus is again used.

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

1. The key-board B, properly arranged, with the keys *i* passing through the comb-guide H and leading to the cylinder A, connected and operated as described.

2. The key-raising lever C, slide D, wedge *d*, arm *e'*, and roller *e*, arranged and operated as set forth.

3. The circuit-breaker E, upright lever F, its spring *u* and tube *s*, and handle K, properly arranged, as and for the purpose set forth.

HUGH SWINTON LEGARÉ BRYAN.

Witnesses:

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CHAS. WHITING.