

No. 671,405.

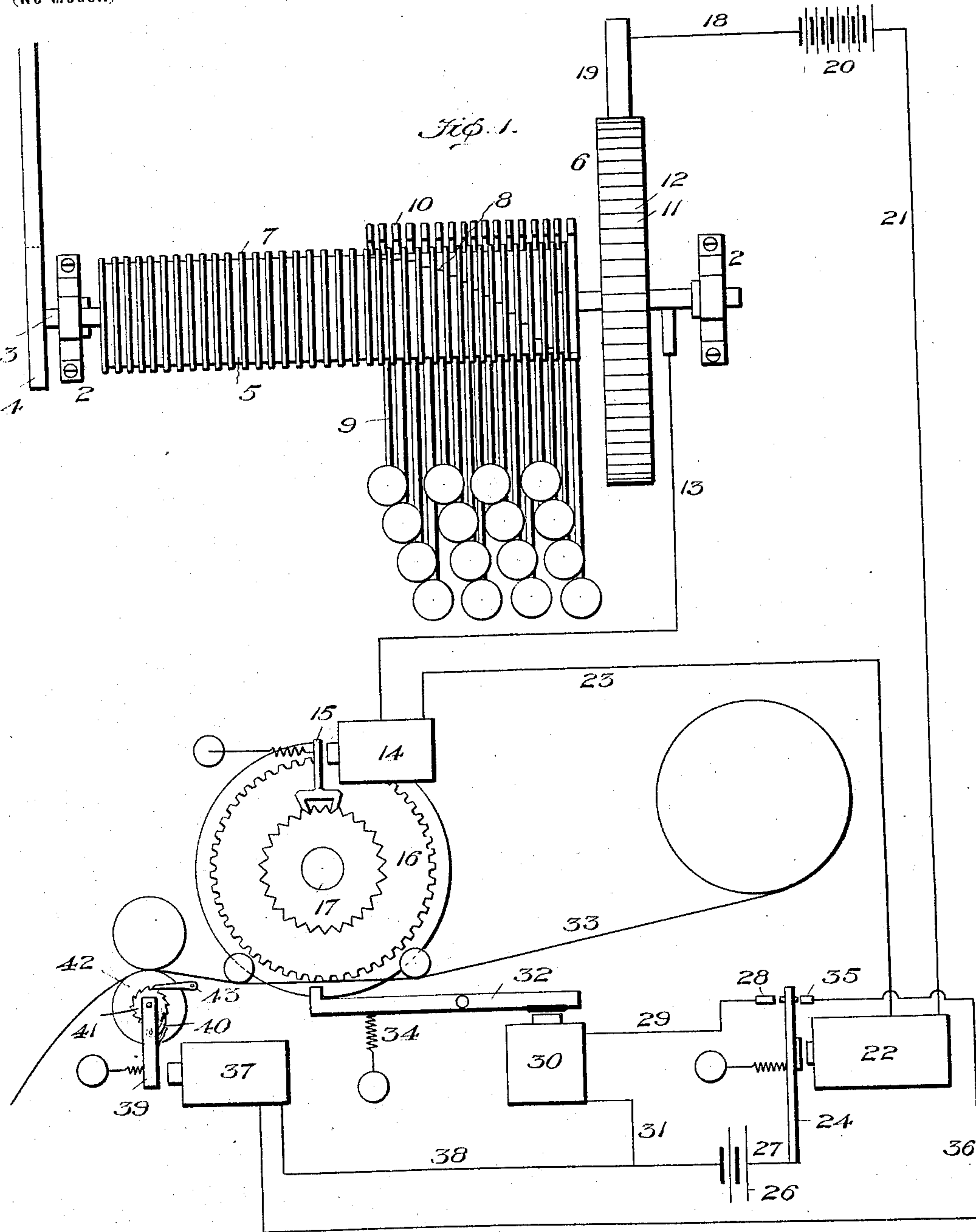
H. SHOEMAKER.
TELEGRAPH.

(Application filed Jan. 12, 1901.)

Patented Apr. 2, 1901.

3 Sheets—Sheet 1.

(No Model.)



Witnesses

Bernard M. Offutt
Bernard M. Offutt

Inventor
Harry Shoemaker

By *David Moore*
Attorney

No. 671,405.

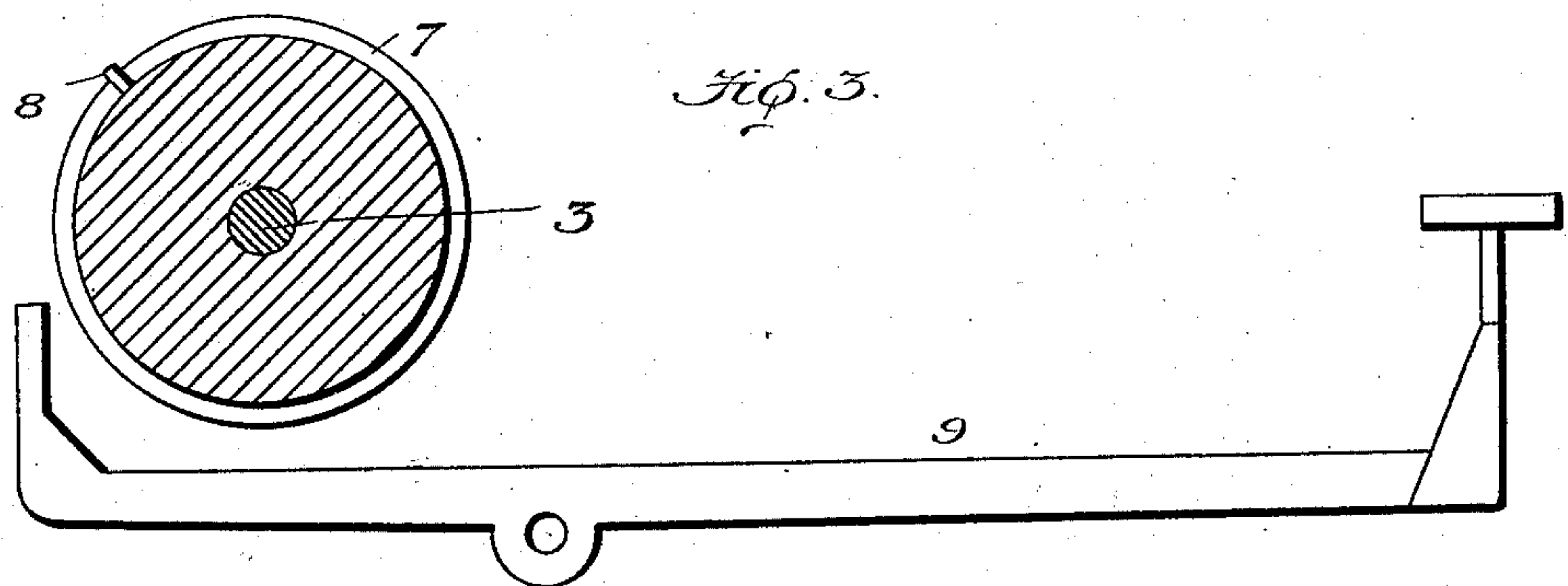
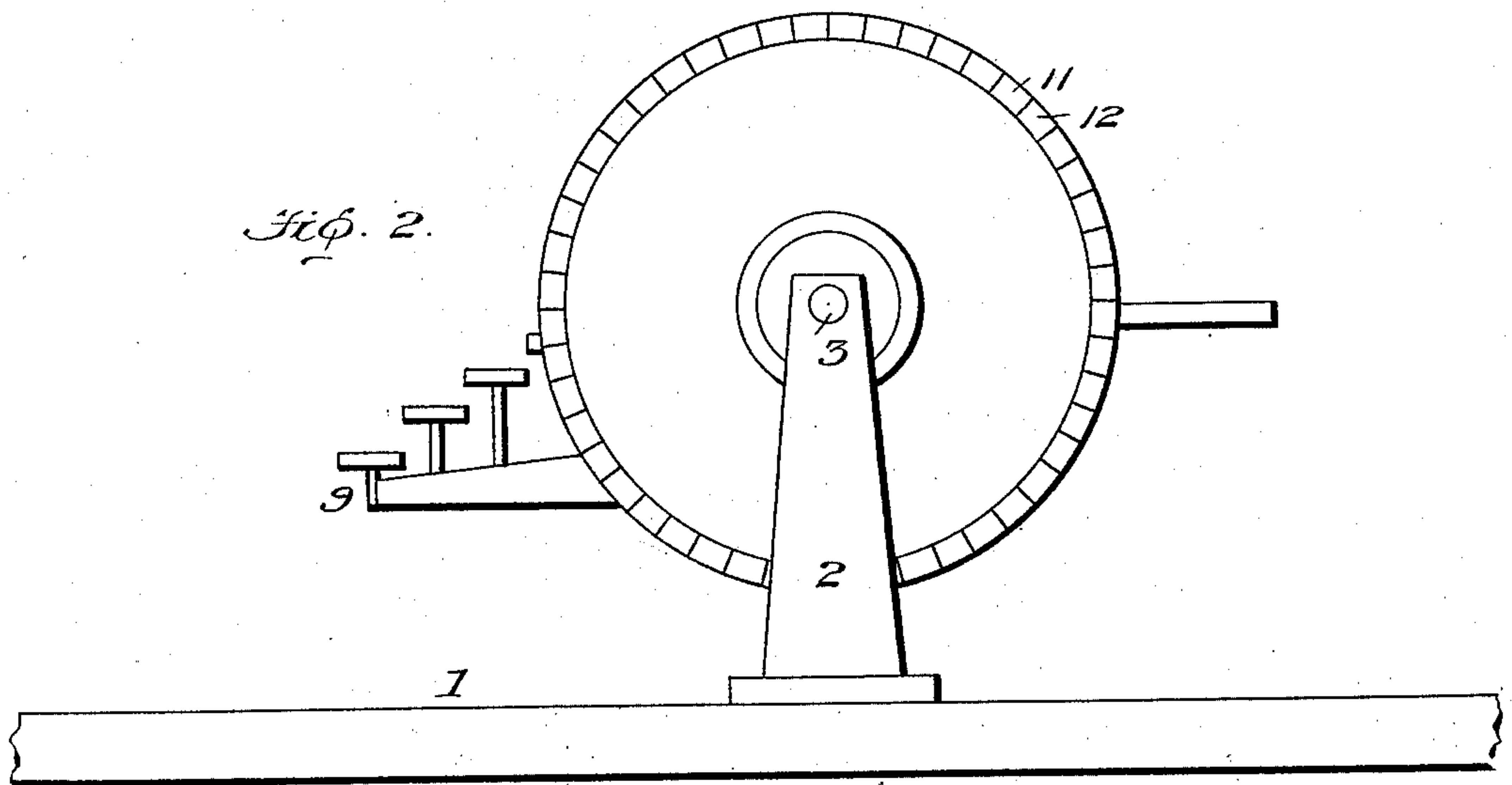
Patented Apr. 2, 1901.

H. SHOEMAKER.
TELEGRAPH.

(Application filed Jan. 12, 1901.)

(No Model.)

3 Sheets—Sheet 2.



Inventor
Harry Shoemaker

Witnesses

Bernard M. Offutt
Bernard M. Offutt

By

David A. Moore
Attorney

No. 671,405.

Patented Apr. 2, 1901.

H. SHOEMAKER.
TELEGRAPH.

(Application filed Jan. 12, 1901.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 4.

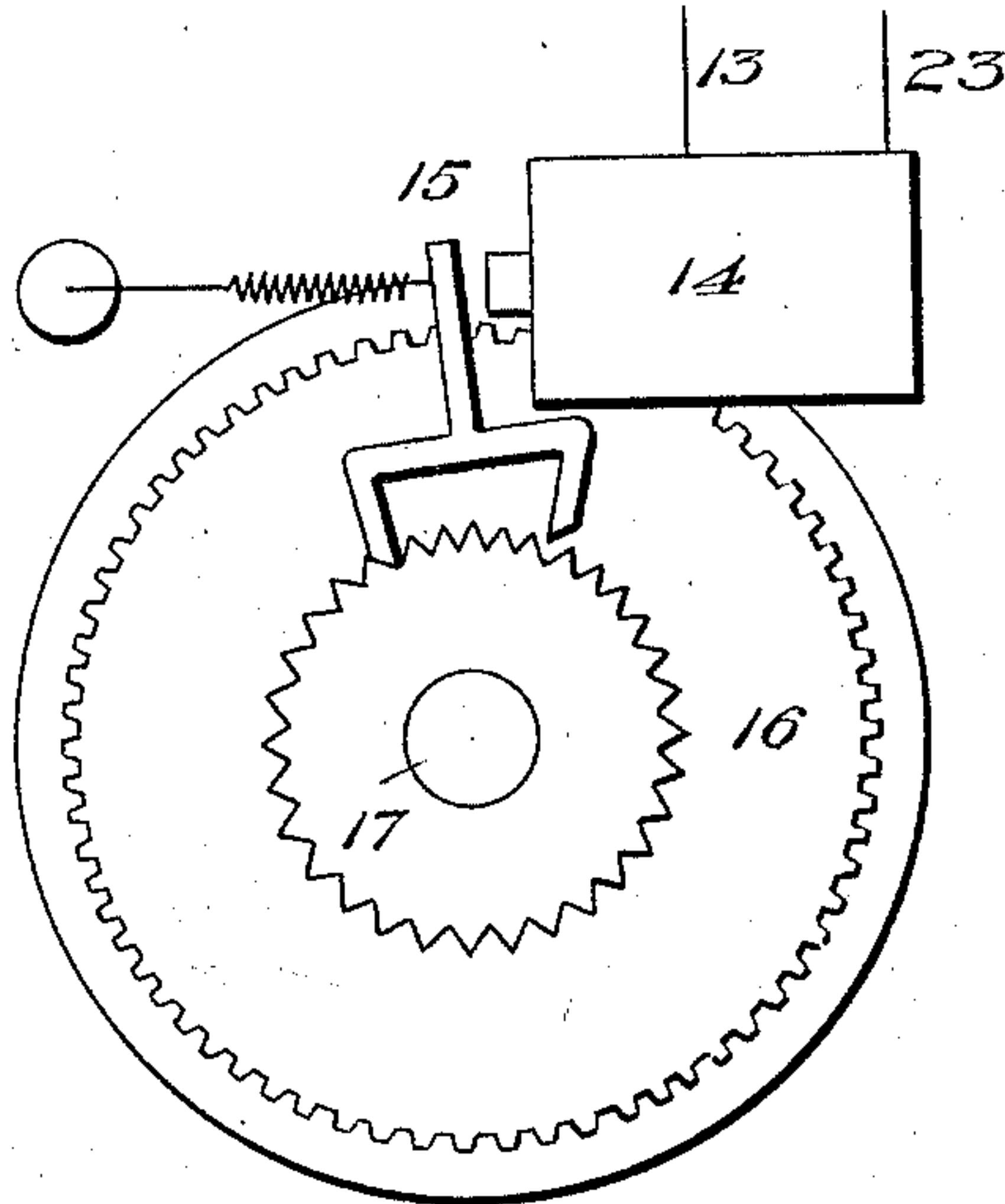
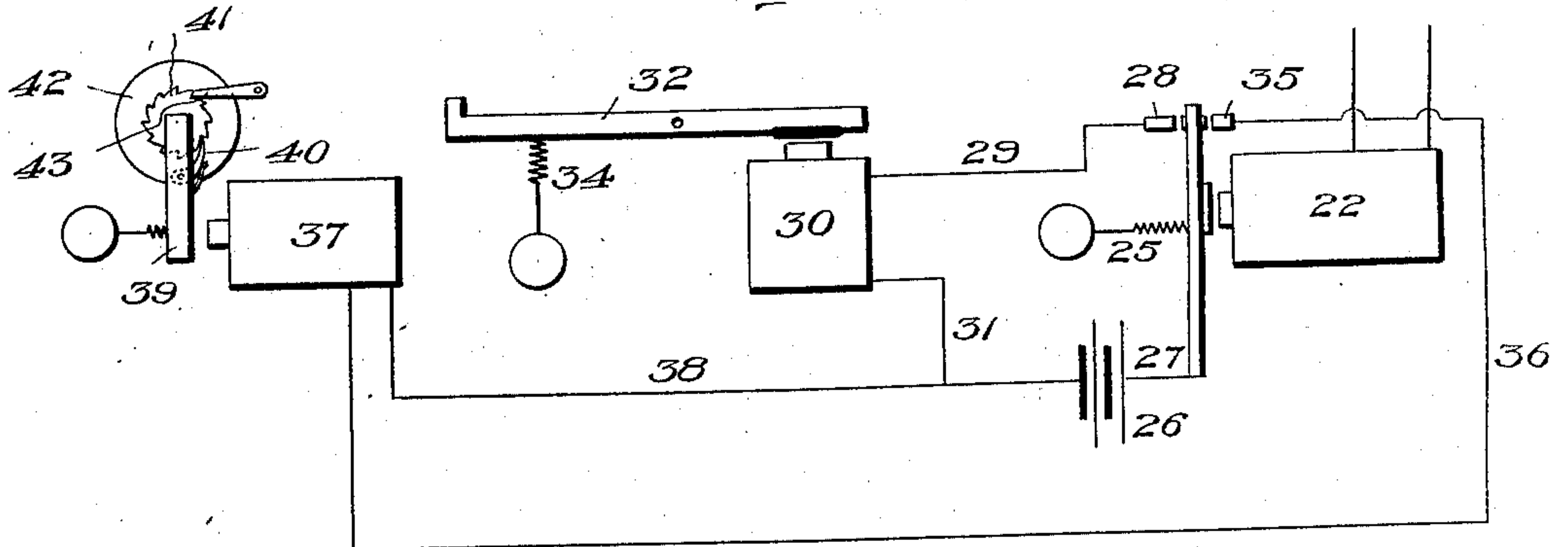


Fig. 5.



Inventor
Harry Shoemaker

Witnesses

Demard M. Offutt
Demard M. Offutt.

By *David P. Moore*
Attorney

UNITED STATES PATENT OFFICE.

HARRY SHOEMAKER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO GUSTAVE P. GEHRING, OF SAME PLACE.

TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 671,405, dated April 2, 1901.

Application filed January 12, 1901. Serial No. 43,037. (No model.)

To all whom it may concern:

Be it known that I, HARRY SHOEMAKER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Telegraphs, of which the following is a specification.

This invention relates to improvements in telegraphs, and has a special reference to a type-writing telegraph which has for its main object the simplifying of the parts and methods and dispensing with as many mechanical devices as possible by employing magnets to operate the type-wheel, the printing-bar, and the spacer.

Another object of my invention is the provision of a type-writing telegraph in which one set of batteries operate a commutator and also the type-wheel and a separate set of batteries operate the printing-bar and afterward the spacer, as will presently appear.

To attain the desired objects, the invention consists of a type-writing telegraph embodying novel features of construction and arrangements of parts, substantially as disclosed herein.

In the drawings, Figure 1 is a diagrammatical view of the entire telegraph. Fig. 2 is a side elevation of the commutator and operating-board. Fig. 3 is a detail view of a portion of the cylinder and one key. Fig. 4 is a detail view of the type-wheel and operating device. Fig. 5 is a detail view of the printing-bar and spacer and their electrical connections.

Referring by numerals to the drawings, the numeral 1 designates the base, upon which is mounted the bearings 2, in which is journaled the axle or shaft 3. Mounted upon one end of this shaft is a driving-wheel 4, which may be driven by any well-known power, and located upon the shaft and revoluble therewith between the bearings is the cylinder 5 and commutator 6. This cylinder's surface is composed of a series of rings or grooves 7, in each of which is mounted a stop-pin or projection 8. Suitably mounted below the cylinder are a series of key bars or levers 9, whose hooked ends 10 are adapted to engage its stop-pin on the cylinder to stop the same at its proper place. The commutator has the

outer surface of its periphery divided into equal parts to represent the different letters and numerals by means of brass teeth or conductors 11, which are boundaries for the insulated fiber blocks 12, fitted in the spaces between the teeth. Connected to the shaft is the wire 13, which is connected to the electromagnet 14, which is adapted to operate the pivoted spring-actuated pinion or detent 15 to revolve the type-carrying wheel 16, journaled in bearings 17. To complete this circuit, however, a wire 18 is connected with the commutator-brush 19 and the batteries 20, another wire 21 being connected to the batteries and an electromagnet 22, which has a wire 23 connecting it in circuit with the electromagnet 14.

In type-writing telegraphs in general use a mechanical device is employed to operate the printing-bar; but I will proceed to describe the parts constituting my printing device. Pivoted so as to be operated by the electromagnet 22 is a pivoted lever 24, which is normally held against the magnet, as the impulses are so rapid and the spring 25 so weak, said coil-spring being connected to the lever. This lever is connected to the batteries 26 by a wire 27, and when released its outer end engages a post 28, having a wire 29 connected to it and the electromagnet 30, which in turn has a wire 31, connecting it with the batteries 26 and forming a circuit. When this circuit is formed, the electromagnet operates the pivoted printing bar or lever 32, which presses the paper 33 upward against the proper type, a spring 34 returning the bar to its normal position when released by the magnet. When this printing-bar is released, the spacer is operated, as the lever 24 is attracted by the magnet 22, causing its outer end to engage the post 35, having a wire 36, connecting it with an electromagnet 37, which has a wire 38, connecting it with the batteries 26, employing the wire 27 to complete the circuit. This magnet 37 operates a spring-actuated lever 39, provided with a dog or detent 40, which engages the ratchet-wheel 41, operating the spacing-roller 42, a loose detent or dog 43 preventing any back movement of the roll.

From this description, taken in connection

with the drawings, the operation of my telegraph is readily understood and its very numerous advantages fully appreciated, but briefly stated it as follows: The cylinder and commutator are revolved by any suitable power, and simultaneously by means of the currents caused by the contact of the brass teeth of the commutator with the brush the electromagnet 14 causes the pivoted pinion or detent to be oscillated to revolve the type-wheel 16, said detent moving the wheel two teeth to the commutator's one by reason of the spring aiding in the oscillation. By pressing upon a type-key its bar or lever brings its hooked end into contact with its stop-pin, causing the cylinder and commutator to stop, and consequently the type-wheel, the type upon the wheel synchronizing or registering with the type upon the key and an insulator of the commutator. At this point the electromagnet 22 releases the lever 24, whose spring 25 makes another circuit with the batteries 26 and magnet 30, which operates the printing-bar 32 and causes it to press the paper directly against the proper type. When the type-key is released, the cylinder and commutator revolve as before, and the magnet 22 then operates the lever 24, which forms another circuit with the batteries 26 and electromagnet 37, which operates the spacing device by moving the roll one space.

It is evident that I provide a type-writing telegraph which is of very simple and inexpensive construction and also a very efficient and thoroughly-practical one.

I claim—

1. A type-writing telegraph, comprising a shaft, means to revolve said shaft, a cylinder provided with grooves and pins in and upon its surface mounted upon said shaft, a commutator mounted upon said shaft, a series of key-bars adapted to engage the pins of the cylinder one at a time to stop the shaft, an electrical circuit connected with said commutator, an electromagnet in said circuit, a type-wheel operated by said magnet simultaneously with the commutator, a printing means operated by an electrical circuit, and a spacing means operated by a different circuit but with the same batteries.

2. A type-writing telegraph, comprising a shaft, means to revolve said shaft, a cylinder mounted upon said shaft, a commutator mounted upon said shaft provided with teeth as conductors and insulators between the teeth upon the periphery surface of the commutator, a series of key-bars adapted to engage the cylinder one at a time to stop the shaft, an electrical circuit connected with said commutator, an electromagnet in said circuit, a type-wheel operated by said magnet simultaneously with the commutator, a printing means operated by an electrical circuit, and spacing means operated by a different circuit but with the same batteries.

3. A type-writing telegraph, comprising a shaft, means to revolve said shaft, a cylinder

provided with grooves and pins mounted upon said shaft, a commutator mounted upon said shaft beside the cylinder and provided with teeth as conductors and insulators between the teeth upon the periphery surface of the commutator, a series of key-bars adapted to engage the pins of the cylinder, each key having its proper pin, an electrical circuit connected with said commutator, an electromagnet in said circuit, a type-wheel operated by said magnet simultaneously with the commutator coming to a full stop when the cylinder is stopped as the proper insulator of the commutator breaks the circuit when the commutator stops, a printing means operated by an electrical circuit, and a spacing means operated by a different circuit but with the same batteries.

4. A type-writing telegraph, comprising a shaft, means to revolve the shaft, a cylinder provided with grooves and pins mounted upon said shaft, a commutator mounted upon said shaft beside the cylinder provided with teeth as conductors and insulators between the teeth upon the periphery surface of the commutator, a series of key-bars to engage the pins of the cylinder one at a time to stop the shaft, batteries in the electrical circuit with said commutator and the shaft, an electromagnet in said circuit, an oscillating spring-actuated dog or detent caused to be oscillated by said electromagnet and its own spring, a type-wheel operated by said magnet simultaneously with the commutator, a printing means operated by an electric circuit, and a spacing means operated by a different circuit but with the same batteries.

5. A type-writing telegraph, comprising a shaft, means to revolve the shaft, a cylinder provided with grooves and pins mounted upon said shaft, a commutator mounted upon said shaft beside the cylinder provided with teeth as conductors and insulators between the teeth upon the periphery surface of the commutator, a series of key-bars adapted to engage the pins of the cylinder one at a time to stop the shaft, an electrical circuit connected with said commutator, an electromagnet in said circuit, a type-wheel operated by said magnet simultaneously with the commutator, a printing means operated by another circuit, and a spacing means operated by a different circuit but with the same batteries.

6. A type-writing telegraph, comprising a shaft, means to revolve the shaft, a cylinder provided with grooves and pins mounted upon said shaft, a commutator mounted upon said shaft beside the cylinder provided with teeth as conductors and insulators between the teeth upon the periphery surface of the commutator, a series of key-bars adapted to engage the pins of the cylinder one at a time to stop the shaft, an electrical circuit connected with said commutator, an electromagnet in said circuit, an oscillating spring-actuated dog or detent caused to be oscillated by said electromagnet and its own spring, a type-

5 wheel operated by said magnet simultaneously with the commutator, a printing means operated by an electrical circuit, and a spacing means consisting of a roll journaled in bearings and having a ratchet-wheel, a lever and detent to push the roll forward, and an electromagnet adapted to operate said lever and detent through the same batteries as the

printing-lever, but after the same has completed its operation.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY SHOEMAKER.

Witnesses:

GUSTAVE P. GEHRING,
J. N. FORT, Jr.