

No. 702,751.

Patented June 17, 1902.

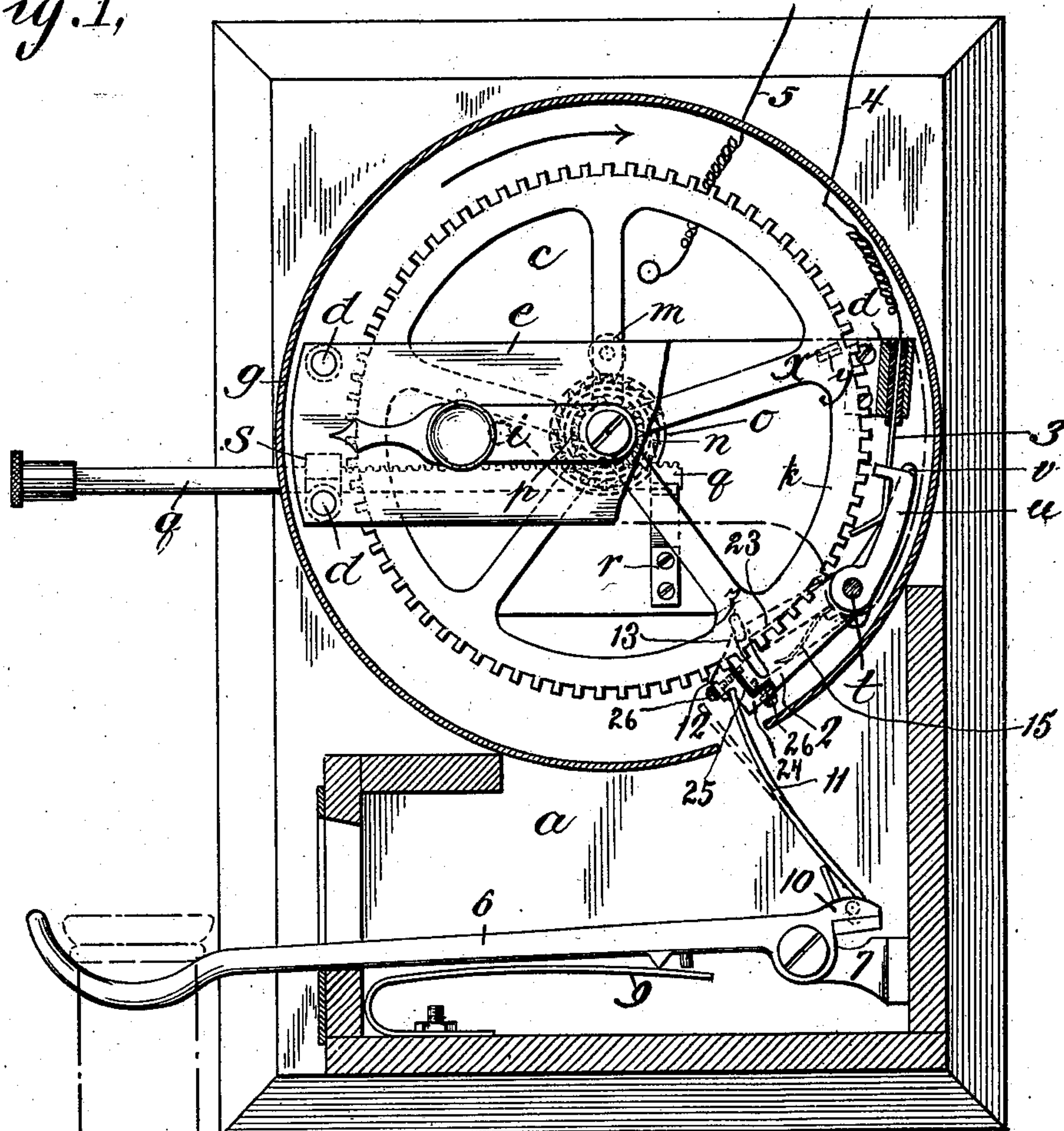
A. VAN WAGENEN.  
TRANSMITTER.

(Application filed Mar. 27, 1901.)

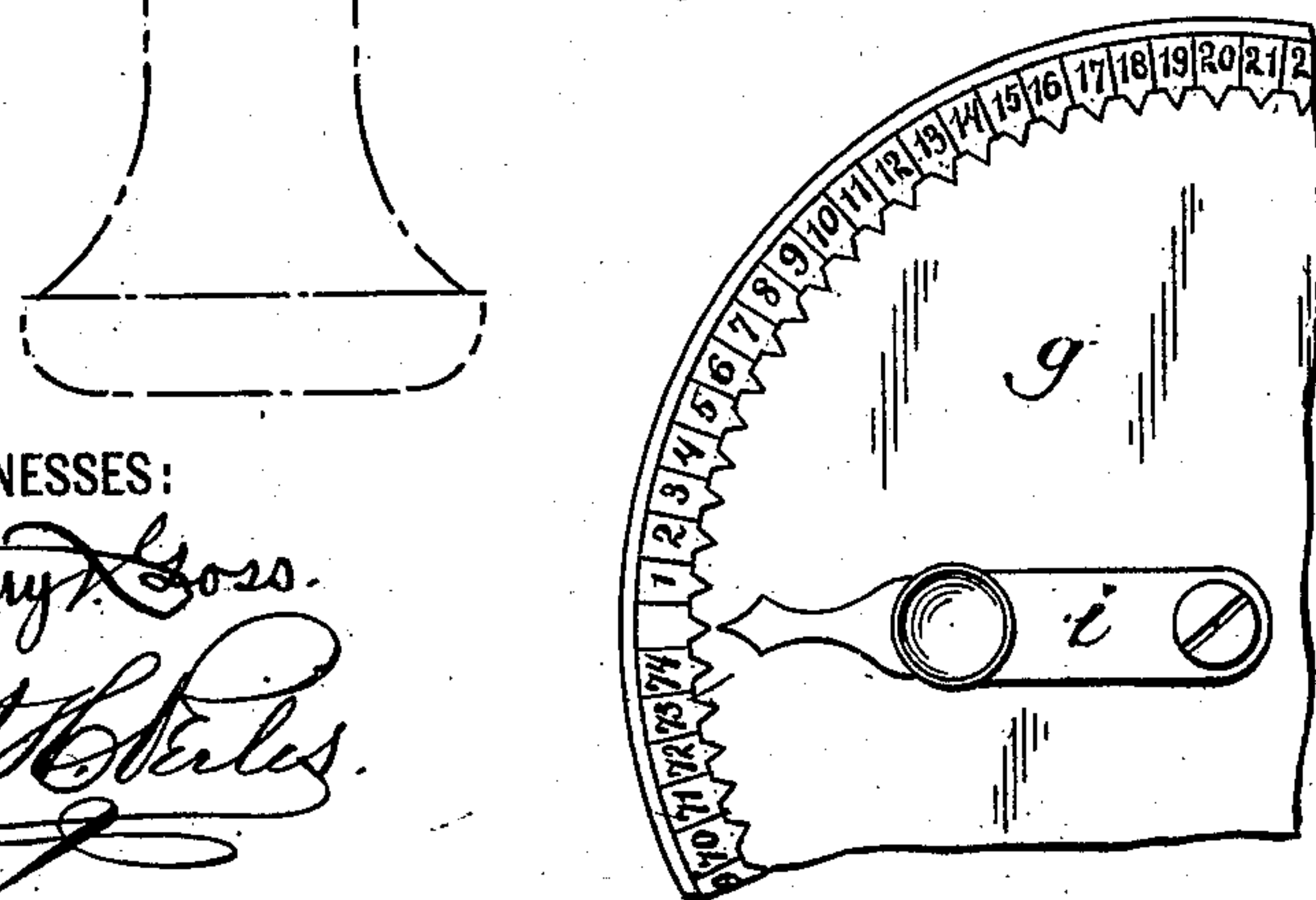
(No Model.)

2 Sheets—Sheet 1.

*Fig. 1,*



*Fig. 2,*



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**2 Sheets—Sheet 2.**

*Fig. 3,*

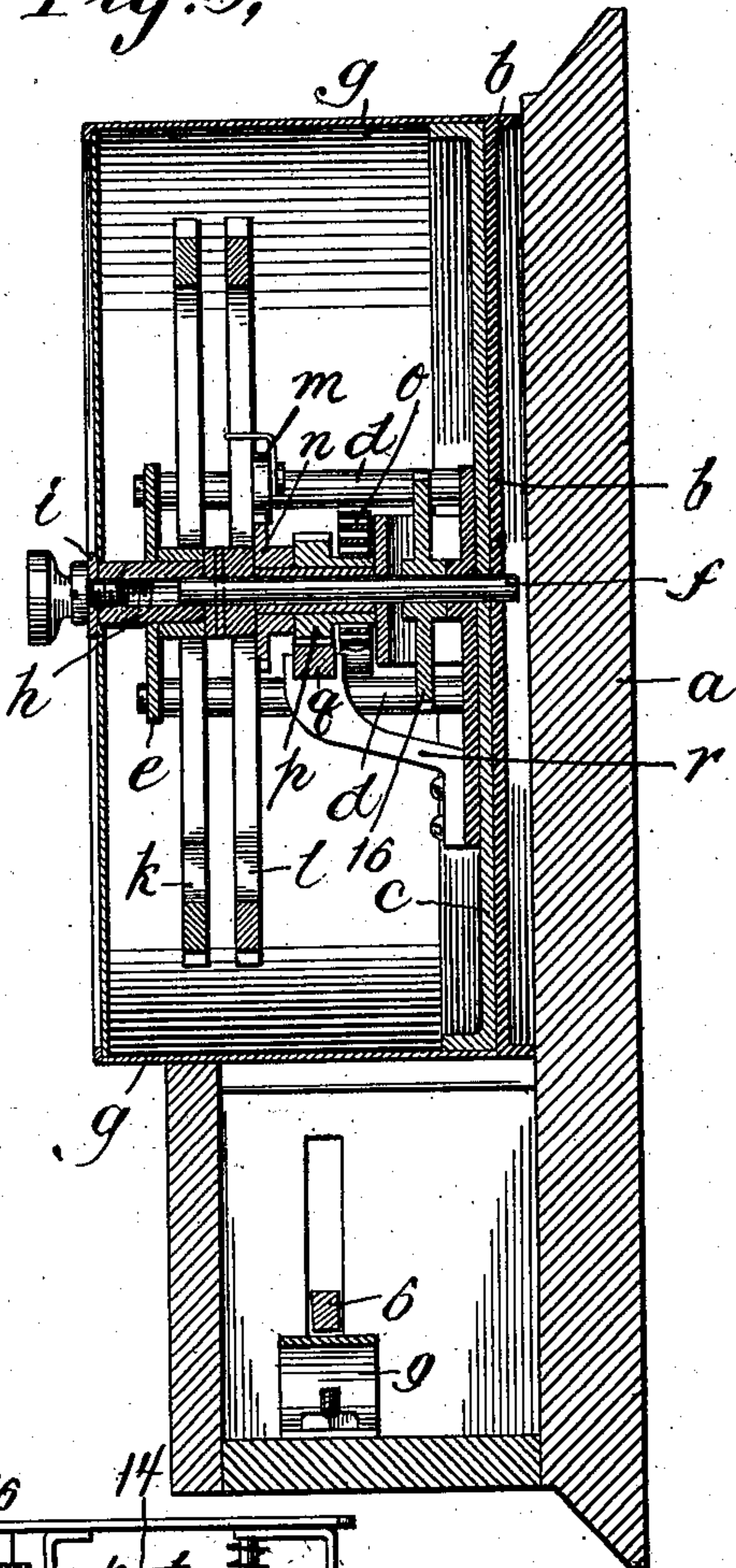
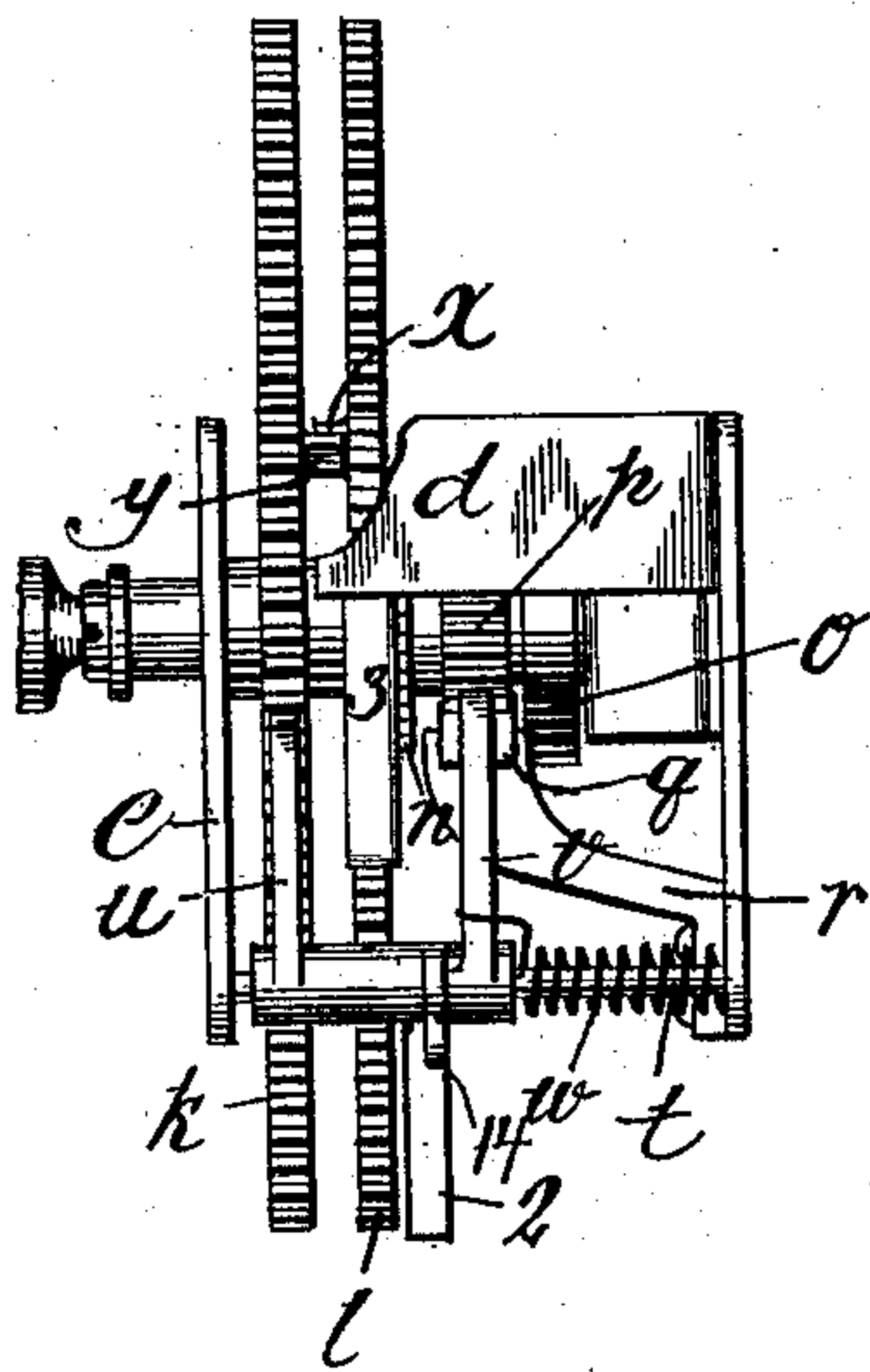


Fig. 4,



*Fig. 5,*

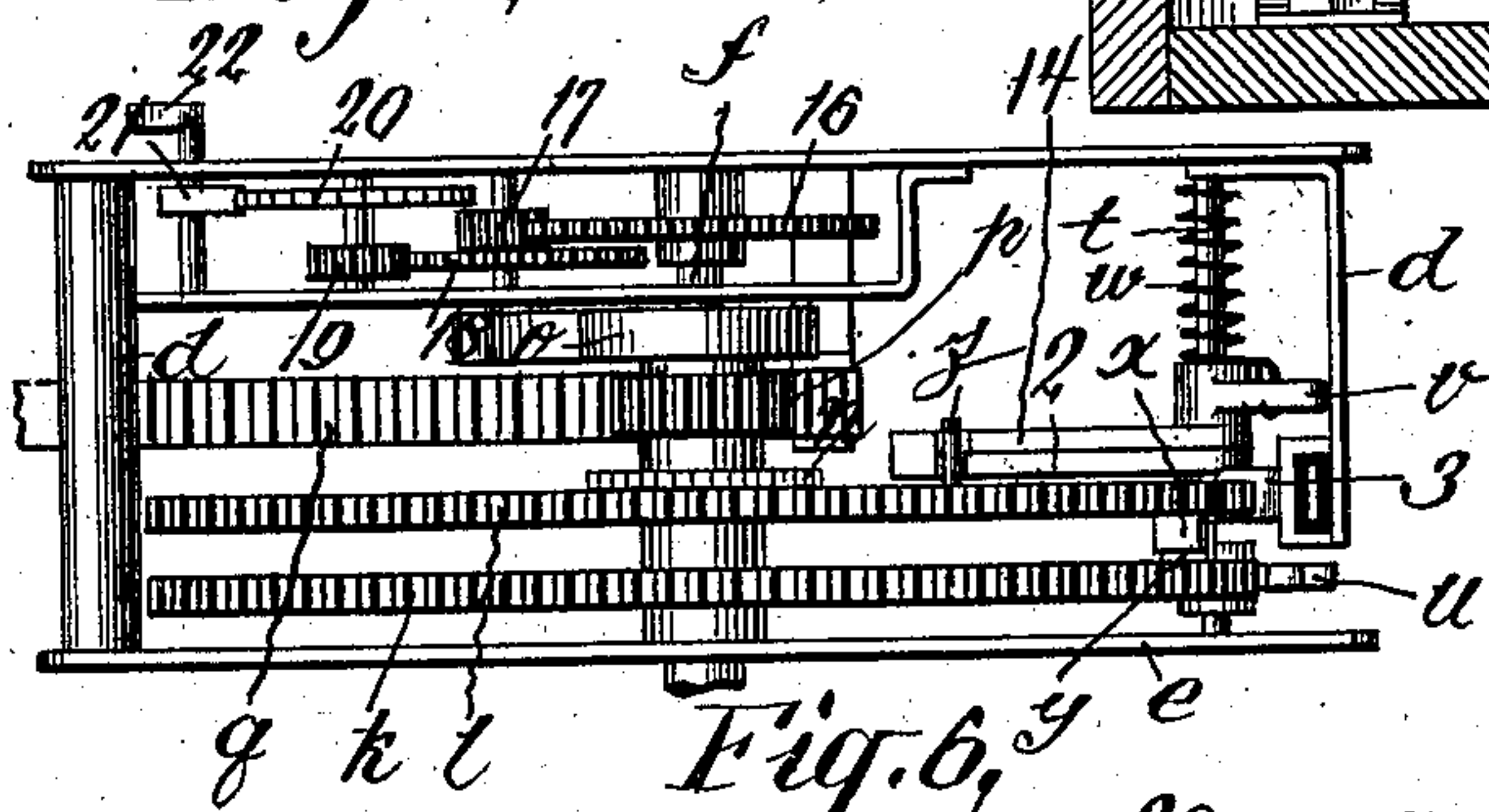
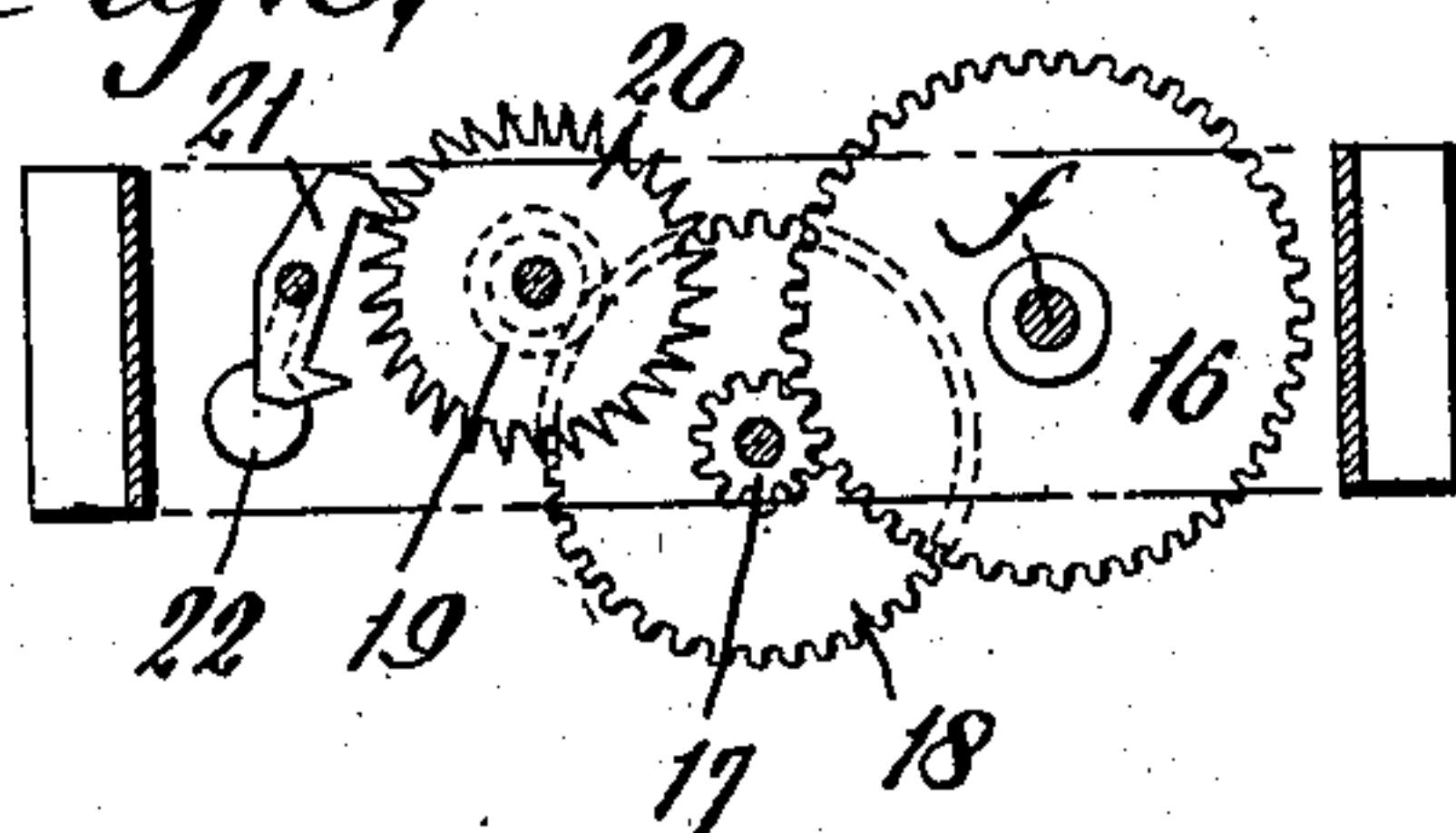
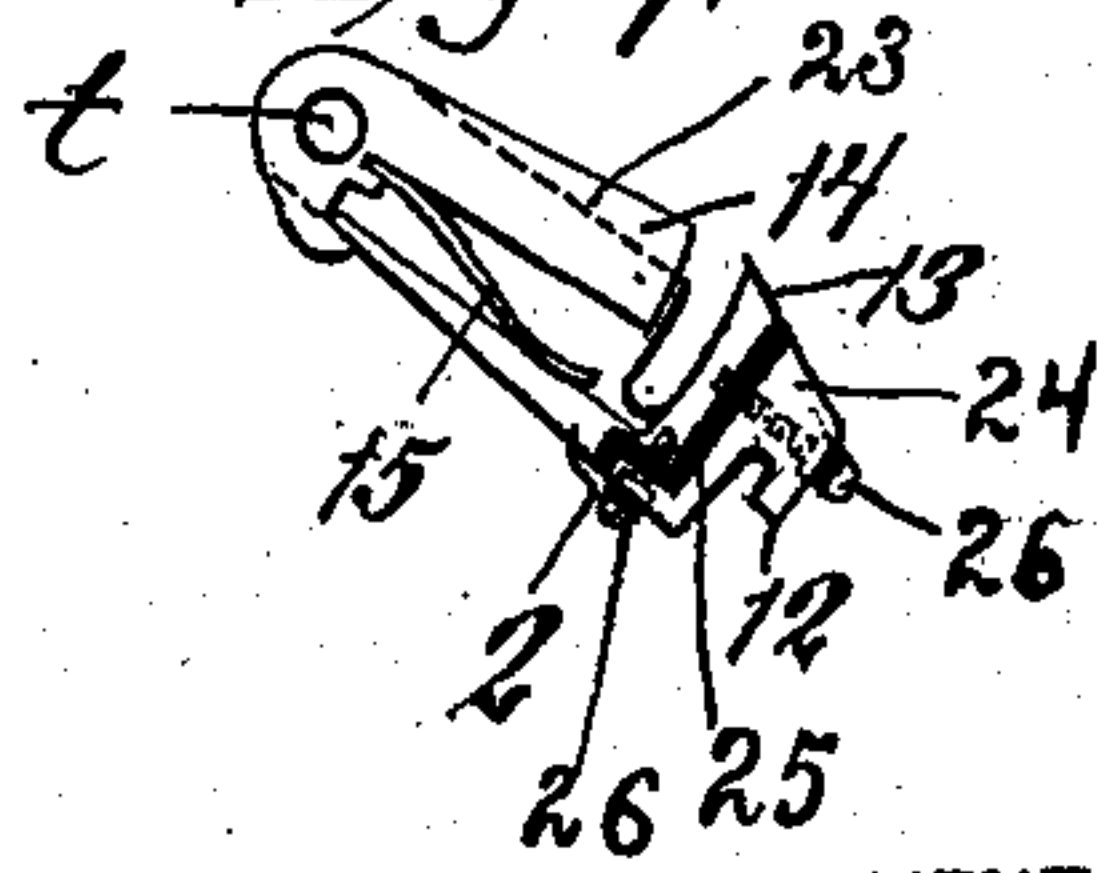


Fig. 6,



*Fig. 7.*



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# UNITED STATES PATENT OFFICE.

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## TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 702,751, dated June 17, 1902.

Application filed March 27, 1901. Serial No. 53,085. (No model.)

*To all whom it may concern:*

Be it known that I, ANTHONY VAN WAGENEN, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented certain new and useful Improvements in Transmitters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in transmitters, and particularly to improvements in instruments designed for use in connection with systems of electrical intercommunication, such as automatic telephone-exchange systems.

My invention consists in the novel and improved construction of the transmitter, as hereinafter more fully pointed out.

The objects of my invention are to improve and simplify transmitters, and particularly those of the type mentioned, and to render the same durable, free from liability to derangement, comparatively inexpensive, and easily operated by inexperienced persons. These objects are attained in the invention herein described, and illustrated in the drawings which accompany and form a part of this specification, in which the same reference letters and numerals indicate the same or corresponding parts, and in which—

Figure 1 is a front view of my improved transmitter with the case inclosing the mechanism of the instrument sectioned, so that the dial, which forms a portion of said case, is absent. Fig. 2 is a detail view of a portion of this dial. Fig. 3 is a central vertical section, on a plane at right angles to that of Fig. 1, of the instrument. Fig. 4 is a detail side elevation, taken from the right of Fig. 1, of the two main spur-wheels and their pawls. Fig. 5 is a side elevation of the mechanism inverted, showing particularly the chain of gearing which governs the speed of the main shaft. Fig. 6 is a detail view of this chain of gearing, and Fig. 7 is a detail view of the locking-piece 2 and its pawl 14.

The transmitter herein described belongs to that class wherein a dial is provided upon which are marked a series of numbers or other designations, the instrument having also a suitable pointer or other indicator, which

may be set to any one of said numbers or designations, and the mechanism of the instrument being such that when the said pointer or other indicator is so set and the instrument is operated an electric current controlled by the instrument is operated (as by making and breaking it) a number of times corresponding to the position to which the pointer or other indicator has been moved, such operation of the circuit sufficing to operate in like manner a switchboard instrument or receiving instrument, and when the said pointer or other indicator has been moved to zero again or is permitted to move to zero again the said switchboard instrument or receiving instrument is operated in such manner that it is restored to zero. In the transmitter hereinafter described when the instrument is to be operated a pointer or indicator is moved to the desired position on a dial, a button is then pressed, and thereby a power-storing device, such as a spring, is wound up, so as to provide power for the operation of the instrument, and when the button is released the transmitter is started in operation. Said transmitter operates until the desired signal, as indicated by the pointer, has been sent, after which the operation of a releasing device—as, for instance, by replacing the receiver on its hook—causes the pointer to go to zero again.

In the drawings, *a* is a base of suitable material. To it is secured a plate *b*, forming the bottom of the case inclosing the main portion of the mechanism of the apparatus. Pillars *d* project outward and a frame-plate *e* connects them. The central shaft *f* has a bearing on plate *b*.

*g* is a case inclosing the main portion of the apparatus. Its front face may be divided into a series of numbered or otherwise designated spaces, as shown in Fig. 2.

Upon the shaft *f*, loosely mounted, is a bushing *h*, and upon and secured to the bushing *h*, but outside of the case *g*, is a pointer *i*. To bushing *h* a dial-wheel *k* is likewise secured. Said wheel *k* has on its periphery a series of notches the number of which corresponds to the number of spaces into which the dial is divided. Functionally the dial-wheel is a part of the indicator or pointer, its principal uses being to serve as a means



whereby the pointer may be locked in different positions in which it may be set and whereby the contact-wheel may be arrested when it reaches normal position with respect to said indicator or pointer. Beneath the said dial-wheel there is a contact-wheel *l*, having teeth and spaces corresponding to those of the wheel *k*. The wheel *l* is secured to the shaft *f*, and to it is attached a pawl *m*, engaging a ratchet-wheel *n*, loosely mounted upon said shaft. A spring *o* is connected at one end to a fixed portion of the apparatus and at the other end to a pinion *p*, itself connected to the ratchet-wheel *n*. A rack-bar *q*, adapted to slide in guides *r* and *s*, supported by the frame of the instrument, engages pinion *p*. When the rack-bar *q* is pressed inward, the spring *o* is wound up, the pawl *m* permitting the ratchet-wheel *n* to turn freely; but when the rack-bar is released the spring can unwind only by the rotation of the contact-wheel *l*, the pawl *m* causing the wheel *l* to turn with pinion *p*.

At one side of wheels *k* and *l* is a spindle *t*, rotatively mounted. This spindle carries a pawl *u*, forming a stop-pawl for the dial-wheel *k* and adapted to enter any of the various notches in the periphery of said wheel. To said spindle there is secured a finger *v*, which the rack-bar *q* encounters when pressed inward to the fullest extent. Since the pawl *u* and finger *v* are both attached to the spindle *t*, they are substantially one, and when the rack-bar *q* encounters the finger *v* it moves pawl *u* out of engagement with the dial-wheel *k* against the tension of the spring *w*. The wheel *l* is provided on its upper side with an upwardly-projecting piece *x*. The upper wheel *k* is provided with a corresponding downwardly-projecting piece *y*. The wheel *l* is further provided on its underside with a further projecting piece or pin *z*, which is engaged normally by locking-piece 2, likewise secured to the spindle *t* and forming substantially, with pawl *u*, an escapement lever or detent, the position in which wheel *l* is thus held stationary normally corresponding to the zero position of the pointer.

The frame of the instrument supports a contact-brush 3, adapted to make contact with the teeth of the wheel *l* successively as the latter rotates and insulated from the frame, and to this brush is connected a wire 4 of the circuit to which the instrument is connected, the other wire 5 being connected to the base-plate *b* and so to the mechanism of the apparatus.

When the transmitter is used in connection with a telephone system, it will be used for operating a central switchboard instrument to make connections with subscribers' telephones. In such case each transmitter will contain a receiver-hook 6, pivoted to a suitable support 7, and from which a receiver 8 (shown in dotted lines in Fig. 1) may be hung in the ordinary manner. Such hook may be held elevated, when the receiver 8 is

not hanging from it, by a spring 9. The rear extension 10 of this hook may have secured to it a tripping-piece 11, adapted to engage a projecting lip 12 of the locking-plate 2.

In the operation of the instrument the pointer *i* is set at the desired position on the dial and the rack-bar *q* is pressed inward to the fullest extent, so that it encounters the finger *v* and so pushes the pawl *u* away from the wheel *k* and pushes the locking-plate 2, then in engagement with the pin *z*, upwardly slightly, so as to release the tripping-piece 11, which has been in a curved position, having been held in such position by the hook-shaped lip 12 of the locking-plate 2. Said spring tripping-piece then springs out from under said lip into the position shown in dotted lines in Fig. 1. When the pressure on the button at the end of the rack-bar is relieved, the pawl *u*, being pressed in by the spring *w*, engages the wheel *k*, so as to lock it and the pointer in the position to which the pointer has been set. The locking-plate 2 at the same time releases the pin *z* and wheel *l*, and the latter begins to turn under the influence of spring *o* and continues to turn until its pin *x* encounters the pin *y* of the wheel *k*. As each tooth of the wheel *l* encounters brush 3 it completes an electric circuit through wires 4 and 5, which circuit is broken when that tooth breaks contact with the brush. Rotation of the wheel *l* therefore transmits through the line a number of current impulses corresponding to the number of teeth of said wheel which pass the brush 3. Therefore when the wheel *l* is arrested by its pin *x* encountering the pin *y* the call indicated by the position of the pointer has been sent in. After the rack-bar *q* has been released, as above described, after the setting of the pointer the receiver 8 may be removed from its hook, and after the buzzing noise caused by the operation of the regulating-train of gears, hereinafter mentioned, and by the passage of the brush 3 over the teeth of wheel *l* has ceased, indicating that the desired connection has been made, conversation may begin. By the upward movement of the hook 6, caused by the removal of the receiver, the tripping-piece 11 is moved under the lip 12 of the locking-plate 2. When the receiver is returned to its hook upon the conclusion of the conversation, the lever 6 will be depressed and the tripping-piece 11 will be raised, and the latter in rising will engage the lip 12 of the locking-plate 2 and lift said plate, and in rising said plate will move the pawl *u* out of engagement with the dial-wheel *k*, thereby releasing both said dial-wheel and the contact-wheel *l* and permitting them to turn until the pin *z* on the contact-wheel *l* encounters the lip 13 of the locking-plate 2. As the tripping-piece 11 is thus raised it will also be sprung into the curved position shown in Fig. 1, because one end of the tripping-piece 11 is held by the lip 12, while the other end, being firmly secured to the portion 10 of the receiver-hook 6, is car-



ried by the latter in a curved path. The tripping-piece is thereby given the tension required to enable it to spring out and away from the locking-piece 2 when the rack-bar *q* is pressed in and engages finger *v*. Shortly before the pin *z* encounters lip 13 of the locking-plate 2 it encounters a hinged pawl 14, forming substantially a portion of the locking-plate and movable with respect thereto, and having a spring 15 which presses it upward. When the pin *z* encounters this hinged pawl 14, it presses it outward, and when the said pin has passed the pawl 14 the spring 15 causes the latter to rise behind the pin *z* and so prevent rebound thereof and of the wheel *l*. In the movement of the contact-wheel *l* which occurs while the pointer *i* is returning to zero the circuit of the instrument is completed and broken again a sufficient number of times to restore the automatic switchboard instrument to zero again. When the transmitter is not to be used in an automatic telephone system, the lever 6 may be operated by hand, or any other suitable releasing device for operating the locking-plate 2 may be employed. It will thus be observed that in the operation of the instrument the signal-transmitting mechanism cannot be released and the desired signal transmitted until the rack-bar *q* has been pressed in to the farthest limit of its movement. This insures full tension of the spring for each operation.

The regulating-train of gears by which the speed of shaft *f* is controlled is of simple character. It consists of a gear 16, intermeshing with a pinion 17, to which is connected a gear 18, intermeshing with a pinion 19, to which latter pinion is connected an escapement-wheel 20, engaged by an escapement-lever 21. Upon the shaft of this escapement-lever there is a small pendulum 22. The operation of such a regulating-train is well known and need not be particularly described.

The receiver-hook may operate contact-points of the telephone-circuit in the ordinary manner, and for that reason should be insulated from the circuit-varying mechanism of the instrument. I do not show contact-points operated by the receiver-hook, as such contact-points form no part of my present invention, but I show the receiver-hook insulated from the circuit-varying mechanism. This may be accomplished in various ways. As shown in the drawings, that portion 24 of the locking-plate 2 with which the tripping-piece 11 contacts is separate from the main portion of said plate and is insulated therefrom by insulation 25. It is held in place by screws 26 26, insulated from said section 24. But I do not limit myself to this particular method of insulating the receiver-hook from the circuit-varying mechanism. Neither do I limit myself to the other details of construction and arrangement herein illustrated and described.

Having thus completely described my in-

vention, what I claim, and desire to secure by Letters Patent, is—

1. In a transmitter, the combination, with circuit-varying mechanism having an operating member movable in a prescribed path, and an indicator adapted to arrest the movement of such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

2. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, and an indicator adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

3. In a transmitter, the combination, with circuit-varying mechanism having an operating member movable in a prescribed path, an indicator, and means operated thereby, adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

4. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, an indicator, and means operated thereby adapted to arrest such operating member at different stages of its movement, according to the position of the indicator, of a releasing device adapted to release such operating member when so held, and means operated independently of the operation of the indicator for driving such operating member.

5. In a transmitter, the combination, with circuit-varying mechanism, having an operating member movable in a prescribed path, hand-operated power-storing mechanism for driving said operating member, an indicator movable independently of said power-storing mechanism provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating member, and a releasing device adapted to release the indicator, when so locked, thereby permitting the operating member and indicator to return to their initial positions.



6. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, hand-operated power-storing mechanism for driving said operating member, an indicator movable independently of said power-storing mechanism provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement, according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating member, and a releasing device adapted to release the indicator, when so locked, thereby permitting the indicator and operating member to return to their initial positions.

7. In a transmitter, the combination, with circuit-varying mechanism, having a revoluble operating member, a stationary dial, an indicator, a dial-wheel beneath the dial, but connected with the indicator, provided with means whereby it may be held in different positions, corresponding to the divisions of the dial, and having also means for arresting the operating member of such circuit-varying mechanism at different stages of its movement according to the position of the indicator, of locking means for holding said operating member in an initial position normally and for holding the dial-wheel in positions corresponding to the dial-divisions, means for releasing the operating member from such initial position, and a releasing device adapted to release the dial-wheel when so held and permit the same and the operating member to return to their initial positions.

8. In a transmitter, the combination, with a toothed contact-wheel, a stationary brush therefor, and means for driving said wheel, whereby, when the wheel rotates, a circuit is alternately made and broken, of a dial-wheel correspondingly toothed, a stationary dial, a pointer connected to the dial-wheel, a locking device adapted to hold the contact-wheel normally in an initial position, and to release the same and hold the dial-wheel when the pointer has been set, said dial-wheel and contact-wheel having corresponding and engaging projections whereby the contact-wheel, when released, is arrested in a position corresponding to that to which the pointer has been set, and a releasing device adapted, when operated, to release the dial-wheel and contact-wheel and permit them to return to their initial positions.

9. In a transmitter, the combination, with circuit-varying mechanism having an operating member movable continuously forward in a prescribed path, and having no backward movement, means for driving such operating member, an indicator, and means op-

erated thereby adapted to arrest the movement of the operating member at different stages of the operation of the circuit-varying mechanism according to the position of the indicator, of a releasing device, adapted to support a telephone instrument, and operated to release said operating member by the replacing of such instrument.

10. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member movable continuously forward and having no backward movement, means for driving such operating member, an indicator, and means operated thereby adapted to arrest the movement of the operating member at different stages of the operation of the circuit-varying mechanism according to the position of the indicator, of a releasing device, adapted to support a telephone instrument, and operated to release said operating member by the replacing of such instrument.

11. In a transmitter, the combination, with circuit-varying mechanism, having an operating member movable in a prescribed path, hand-operated power-storing mechanism for driving said operating member, an indicator provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating member, and a releasing device adapted to support a telephone instrument, and to release the indicator if so locked, when such telephone instrument is placed upon it, thereby permitting the operating member and the indicator to return to their initial positions.

12. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, hand-operated power-storing mechanism for driving said operating member, an indicator provided with means whereby it may be held in different positions, and means operated by the indicator for arresting said operating member at different stages of its movement according to the position of the indicator, of a locking device for holding the indicator in predetermined positions in which it may be placed, means operated by said power-storing mechanism when power has been stored therein to the full extent, for causing said locking device to lock the indicator and for releasing the said operating device, and a releasing device adapted to support a telephone instrument, and to release the indicator if so locked, when such telephone instrument is placed upon it, thereby permitting the operating member and the indicator to return to their initial positions.

13. In a transmitter, the combination, with



circuit-varying mechanism having a revoluble operating member, means for driving said member, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement member adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release the operating member and hold the dial-wheel stationary, means for so moving said escapement member, and a releasing device, adapted to support a telephone instrument, and to operate said escapement member, and arranged when such telephone instrument is placed upon it, to operate the escapement member and release the dial-wheel.

14. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, power-storing means for driving said member, and a dial-wheel, engaging and adapted to arrest, or be driven by, said operating member, but independently movable, of an escapement-lever adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release the operating member and hold the dial-wheel stationary, said power-storing mechanism being arranged to operate said escapement-lever and release said operating member when power has been stored in such mechanism to the full extent, and a releasing device, adapted to support a telephone instrument, and to operate said escapement-lever, and arranged to operate the escapement-lever and release the dial-wheel when said telephone instrument is placed upon it.

15. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, a spring for driving said member, a hand-operated member for winding up said spring, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement-lever adapted, when the parts are in normal position, to hold said operating member stationary, and when in the opposite position to release the operating member and hold the dial-wheel stationary, said spring-winding member being arranged to operate said escapement-lever and release the operating member, when the spring has acquired full tension, and a releasing device, adapted to support a telephone instrument, and to operate said escapement-lever, and arranged to operate the escapement-lever and release the dial-wheel when said telephone instrument is placed upon it.

16. In a transmitter, the combination, with circuit-varying mechanism having a rotary contact-wheel, a brush adapted to contact therewith, and a spring for rotating said wheel, a dial-wheel mounted concentrically with respect to said contact-wheel, engaging the same, and adapted to arrest, or be driven by, said contact-wheel, and means for winding up said spring, of an escapement member adapted,

when the parts are in normal position, to hold said contact-wheel stationary, and when in the opposite position to release said contact-wheel and hold the dial-wheel stationary, means for so operating said escapement-lever, and a receiver-support, movably mounted and spring-supported, and adapted to operate the escapement-lever and release the dial-wheel when the receiver is placed upon it.

17. In a transmitter, the combination, with circuit-varying mechanism having a revoluble operating member, a spring for driving said member, a hand-operated member for winding up said spring, and a dial-wheel, engaging and adapted to arrest, or to be driven by, said operating member, but independently movable, of an escapement member which, when the parts are in normal position, holds said operating member stationary, and which when in its opposite position releases the operating member and holds the dial-wheel stationary, means tending to move the escapement member to such opposite position, a releasing-lever, a spring tripping-piece carried thereby and adapted to engage a hooked portion of the escapement member, said tripping-piece being bent when the parts are in normal position, but being adapted, upon the movement of the releasing-lever, when the dial-wheel is locked, to engage said escapement member and move the same into position to release the dial-wheel and engage and arrest the operating member of the circuit-varying mechanism upon the return of the latter to its initial position; and the spring-winding member being adapted, when operated with the parts in normal position, to engage the escapement member and operate the same to release said spring tripping-piece from engagement with the escapement member and so to permit such tripping-piece to spring outward, thereby permitting the escapement member to release the operating member of the circuit-varying mechanism and to engage the dial-wheel.

18. In a transmitter, the combination, with signal-transmitting mechanism, and a detent device adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a releasing device, and a tripping-piece interposed between said detent and releasing devices, carried by one of said devices, and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and releasing devices are in normal positions, and being adapted to operate the detent device and release the signal-transmitting mechanism upon the operation of the releasing device after the transmission of a signal.

19. In a transmitter, the combination, with signal-transmitting mechanism comprising circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism



at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation and adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a releasing device, a tripping-piece interposed between said detent and releasing devices, and adapted, upon operation of the releasing device, after the transmission of a signal, to operate the detent device and thereby to release the signal-transmitting mechanism and permit the same to return to normal condition, and means for operating the detent and causing the same to release the signal-transmitting mechanism when the power-storing mechanism has stored full power.

20. In a transmitter, the combination, with signal-transmitting mechanism, and a detent device adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon the removal of a receiver therefrom, a tripping-piece interposed between said detent and receiver-support, carried by one of said devices and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and receiver-support are in normal positions, and being adapted to operate the detent device and release the signal-transmitting mechanism upon the depression of the receiver-support after the transmission of a signal.

21. In a transmitter, the combination, with signal-transmitting mechanism comprising circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation, and adapted to hold such mechanism from returning to normal condition after the transmission of a signal, of a receiver-support, a tripping-piece interposed between said detent and said receiver-support, and adapted, upon depression of the receiver-support, after the transmission of a signal, to operate the detent and thereby to release the signal-transmitting mechanism and to permit the same to return to normal condition, and means for operating the detent and causing the same to release the signal-transmitting mechanism when the power-storing mechanism has stored full power.

22. In a transmitter, the combination, with signal-transmitting mechanism comprising

circuit-varying mechanism, an indicator and means operated thereby adapted to arrest the operation of the circuit-varying mechanism at intermediate stages of its operation, according to the position of said indicator, power-storing mechanism for operating said signal-transmitting mechanism, and a detent device normally holding the signal-transmitting mechanism against operation and provided with means tending to cause it to release said mechanism, said detent device being adapted likewise to hold such signal-transmitting mechanism against return to normal condition after transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon the removal of the receiver therefrom, a tripping-piece interposed between the receiver-support and detent, and normally preventing release of the signal-transmitting mechanism by the detent, and means for operating the detent and releasing the signal-transmitting mechanism when full power has been stored in said power-storing mechanism; said tripping-piece being adapted, upon depression of the receiver-support after the transmission of a signal to operate the detent and permit such signal-transmitting mechanism to return to normal condition.

23. In a transmitter, the combination, with signal-transmitting mechanism, power-storing mechanism for operating the same, and a detent device normally holding the signal-transmitting mechanism against operation and provided with means tending to cause it to release said mechanism, said detent device being likewise adapted to hold such signal-transmitting mechanism against return to normal condition after transmission of a signal, of a receiver-support, movably mounted and provided with means for elevating it upon removal of a receiver therefrom, a tripping-piece interposed between said receiver-support and said detent, operatively connected to one of said devices and adapted to engage the other, said tripping-piece being under stress tending to move it out of such engagement when so in engagement and when the signal-transmitting mechanism and the detent and receiver-support are in normal positions, and being adapted, when the parts are in such positions, to prevent release of the signal-transmitting mechanism; and means for releasing such tripping device and causing the detent to release the signal-transmitting mechanism when full power has been stored in said power-storing mechanism; said tripping-piece being arranged to operate the detent upon depression of the receiver-support after transmission of a signal, and thereby to release the signal-transmitting mechanism and to permit the same to return to normal condition.

24. In a transmitter, the combination, with circuit-varying mechanism adapted to transmit a plurality of signals, an adjustable arresting device, adapted to arrest the opera-



tion of the circuit-varying mechanism in accordance with the signals to be sent, and a detent device adapted in normal position to hold the circuit-varying mechanism in normal position, or to arrest such circuit-varying mechanism upon its return to normal position, said detent device being likewise adapted when in opposite position to release the circuit-varying mechanism and to hold the arresting device against further adjustment, of a releasing device, a tripping-piece interposed between said releasing device and said detent device, secured to one of said devices, and adapted to engage the other, and which is under stress tending to cause it to move out of such engagement when in such engagement and when the releasing and detent devices are in normal position, and means for operating the detent device to permit the transmission of a signal; said tripping-piece being adapted, upon operation of the releasing device after transmission of a signal, to operate the detent and release the circuit-varying mechanism.

25 25. In a transmitter, the combination, with circuit-varying mechanism adapted to transmit a plurality of signals, power-storing mechanism for operating the same, an adjustable arresting device, adapted to arrest the operation of the circuit-varying mechanism in accordance with the signals to be sent, and a

detent device adapted in normal position to hold the circuit-varying mechanism in normal position, or to arrest such circuit-varying mechanism upon its return to normal position, said detent device being likewise adapted when in the opposite position to release the circuit-varying mechanism and to hold the arresting device against further adjustment, of a releasing device, a tripping-piece interposed between said releasing device and said tripping device, secured to one of said devices, and adapted to engage the other, and which is under stress tending to cause it to move out of such engagement when in such engagement and when the releasing and detent devices are in normal position, and means for operating the detent device and causing it to release the circuit-varying mechanism and lock the arresting device, when the power-storing mechanism has stored full power; said tripping-piece being adapted, upon operation of the releasing device after the transmission of a signal, to operate the detent and release the circuit-varying mechanism.

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

ANTHONY VAN WAGENEN.

Witnesses:

CAL BRADSTREET,  
AGNES TENNY.