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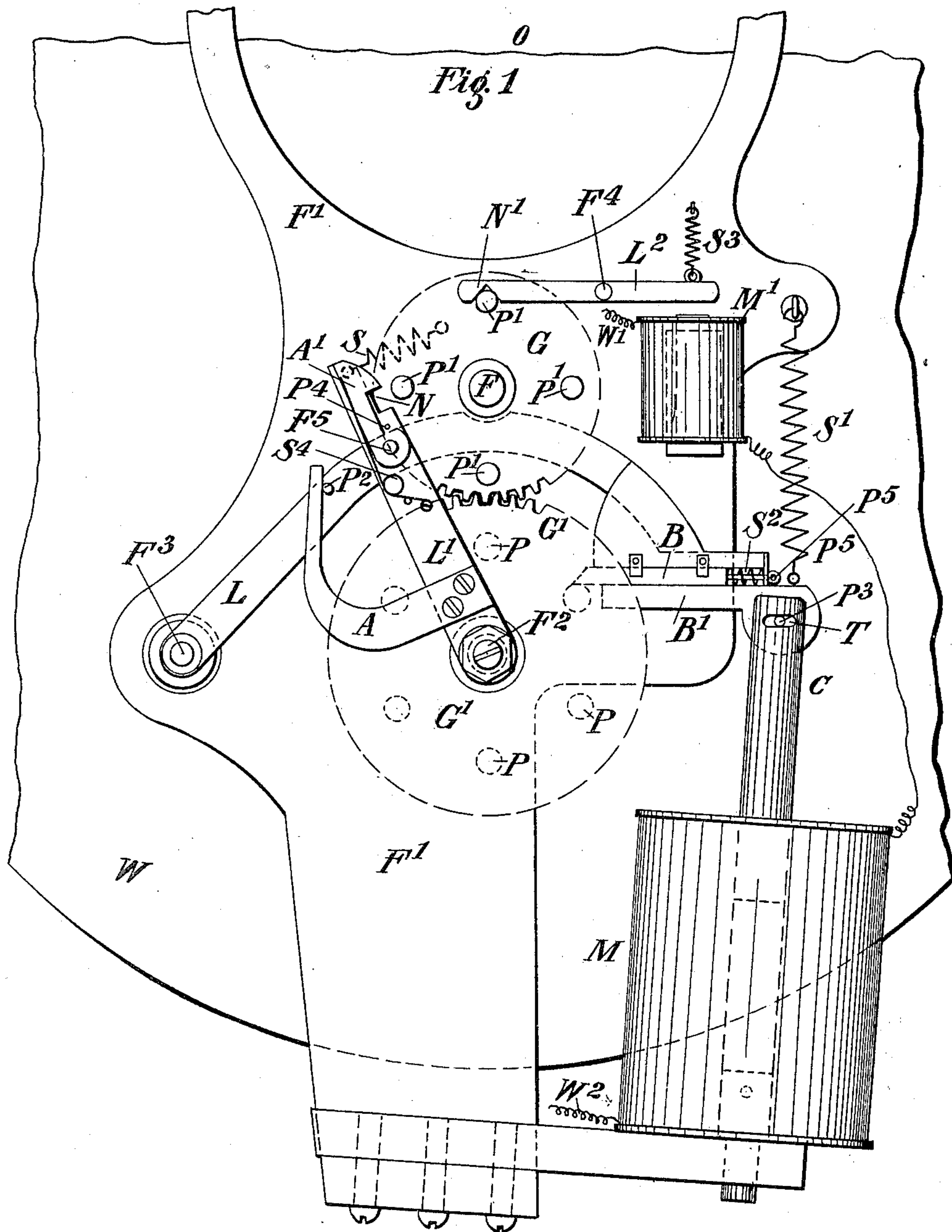
Patented May 14, 1901.

H. M. BAKER, JR. & A. W. FOX.
COLOR CHANGING AND SIGNALING DEVICE.

(No Model.)

(Application filed Aug. 8, 1900.)

3 Sheets—Sheet 1.



Witnesses
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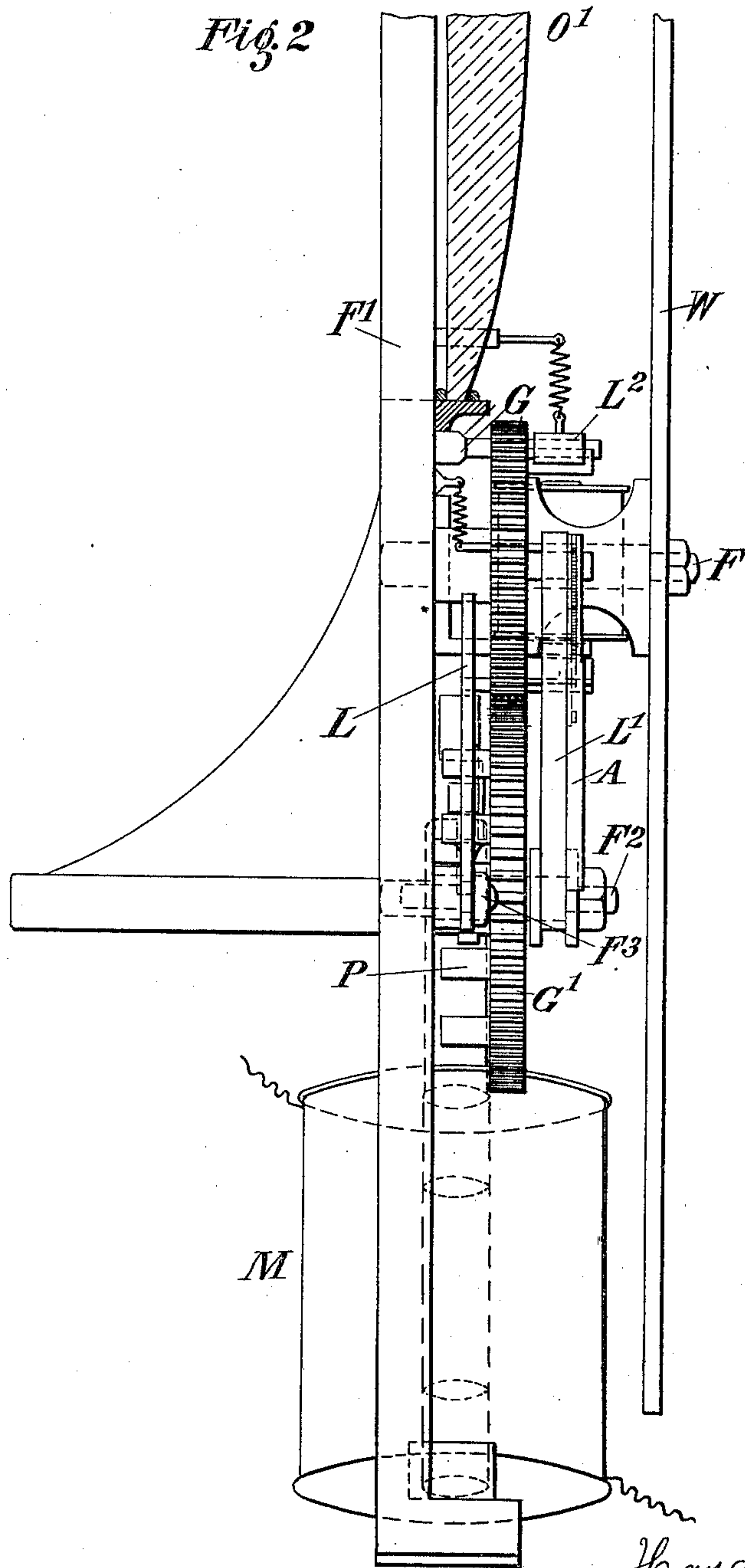
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Fig. 4

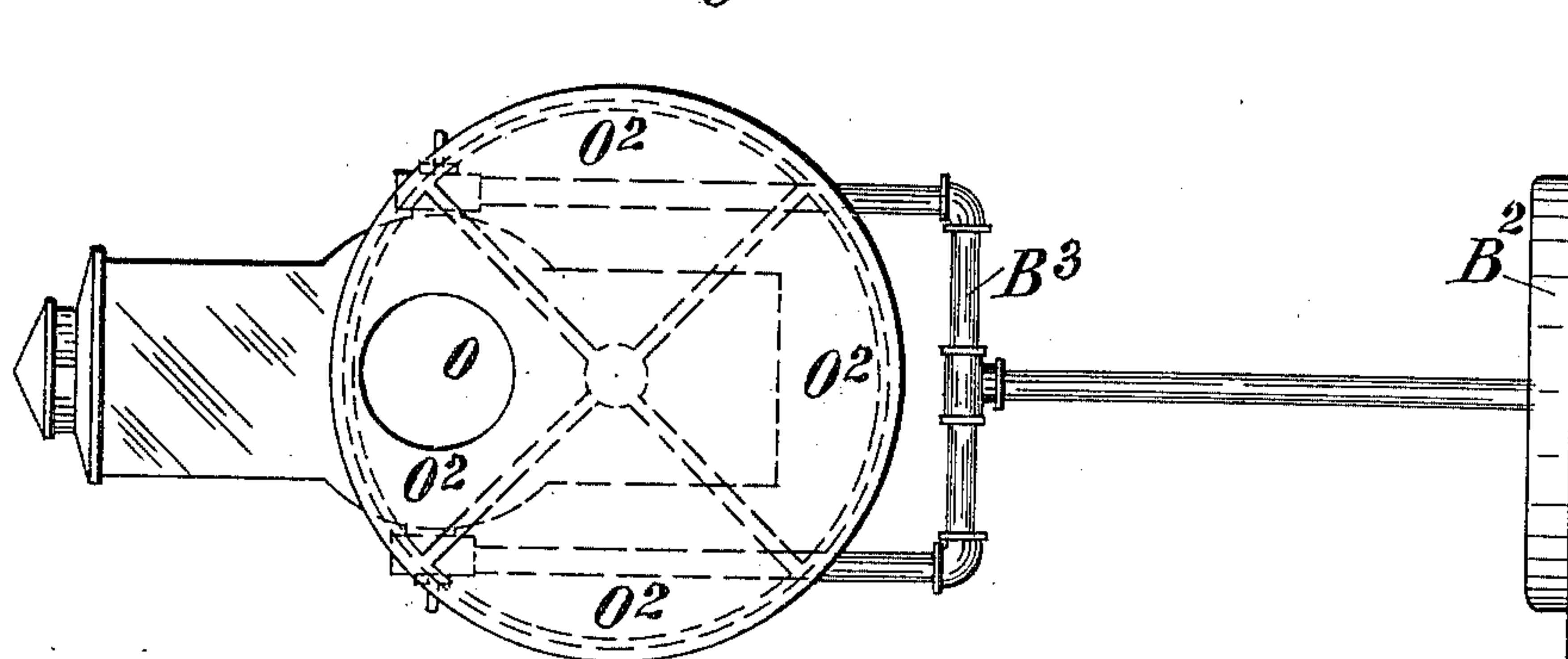
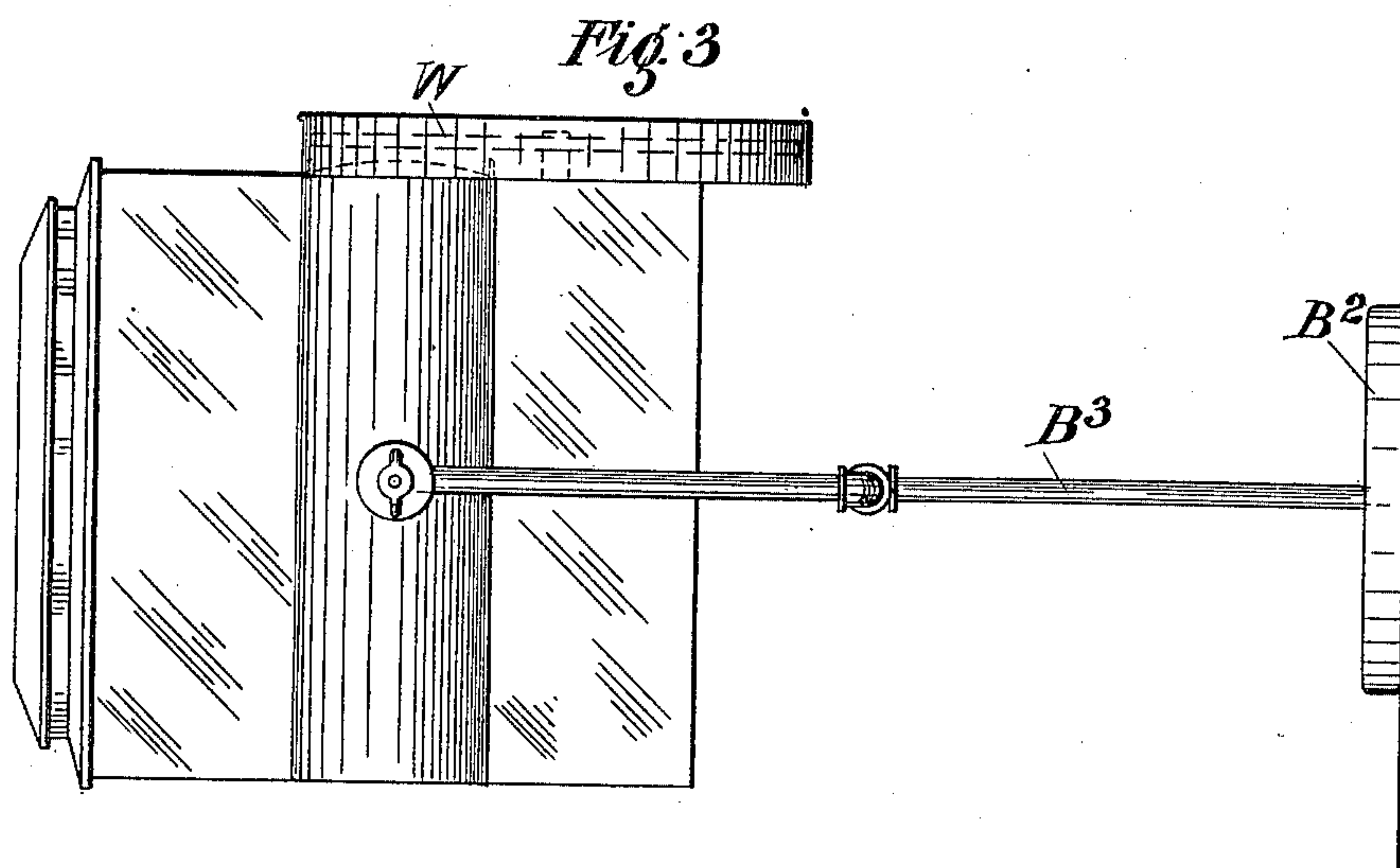


Fig. 3



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UNITED STATES PATENT OFFICE.

HAYDN M. BAKER, JR., AND ARTHUR W. FOX, OF NEW YORK,
(BROOKLYN,) NEW YORK.

COLOR-CHANGING AND SIGNALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 673,893, dated May 14, 1901.

Application filed August 8, 1900. Serial No. 26,222. (No model.)

To all whom it may concern:

Be it known that we, HAYDN M. BAKER, Jr., and ARTHUR W. FOX, citizens of the United States, residing in the borough of Brooklyn, city of New York, county of Kings, State of New York, have invented a new and useful Improvement in Color-Changing and Signaling Devices, of which the following is a specification.

Our invention relates to improvements in color-wheels and signaling devices in which a color-wheel is caused to revolve by mechanism operated by electricity; and the objects of our improvements are to throw different colors on a theatrical stage or on performers or to send signals and also to control the movements and positions of the color-wheel from a distance, as from the stage of a theater, when the wheel is located elsewhere. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the mechanism for operating the color-wheel, with the wheel removed. Fig. 2 is a vertical and part-sectional view of the same with the wheel included. Fig. 3 is a side view of the entire apparatus, and Fig. 4 is a front view of the same.

Similar letters relate to similar parts throughout the several views.

As shown, the apparatus is portable and provided with a base B^2 and supporting-frame B^3 . It has a color-wheel W , provided with sectional or circular spaces for color-sheets of different colors to produce different color effects. These sheets are located at regular intervals and, as shown or provided for, are four in number, but may be six or more in number, as may be desired, the moving and stopping mechanism being adapted to effect the corresponding number of changes. The operating mechanism has for the most part the effecting of these changes and is operated by electricity, and consequently the apparatus may be located at a distance from the stage and the operator and yet be in perfect control.

W is the color-wheel.

M is a helix with a core C . M' is the unlocking-magnet.

G and G' are gear-wheels operated by or through a bolt B , lever L , and pins P and held or stopped by the locking-lever L^2 and stops P' . The lever L' is provided with the arms A and A' . Its functions are to engage, hold, and release the pins P' , and consequently the gear-wheel G , whereupon the locking-lever takes charge of the gear-wheel G . The lever L' is lifted and held out of action or allowed to act by the arm A and pin P^2 , which are given the requisite motions to that end.

The color-wheel W and the gear-wheel G are located on the journal or axle F . A lens O' is located so as to transmit light through the color-sheets O^2 , placed in openings in the color-wheel.

The gear-wheel G' is located on or carried by the stud F^2 and is provided on one side with the pins P , placed at regular distances apart for the purpose of controlling the positions of the color-sheets and apertures in the wheel W . The sliding bolt or arm B , which is carried on or by the lever L , is operated by the core C in the helix M and has a bearing on the pins P for the purpose of moving the gear-wheel G' , the lever L being pivoted to the frame F' at F^3 and holding the bolt in the proper position to effect the object. The contact of the bolt B with any one of the pins P causes the gear-wheel G' to revolve, and, the gear-wheel G' meshing with the gear-wheel G , the latter revolves with the gear-wheel G' and carries the color-wheel W or signal device, which is attached directly to, operated by, or carried on the same axle as the gear-wheel G .

The gear-wheel G is provided with four stop-pins P' , and as the gear-wheel G revolves the stop-pins P' are each in turn engaged in the notch N , the nose of the pawl A' being beveled, so as to lift it over the pins P' , and the notch receiving the pins P' , over which the spring-pawl A' rides, the spring S being attached at one end to a part of the frame F' and at the other to the end of the lever L' . When not engaged by the pins P' , the lever L' is held out of engagement by the arm A , attached to the lever L' , making contact with the pin P^2 , located on the lever L . The shoulder on the lever L' , forming one side of

the notch N, prevents the gear-wheel G moving in one direction and the hook part of the pawl A' prevents it from moving in the opposite direction.

5 The pawl A' is pivoted on the lever L' at F⁵ and is normally held against the stop pin P⁴ by the spring S⁴, and the purpose is to prevent the pawl from going too far forward or across the path of the pins P'. The spring
10 S⁴ causes the pawl A' to assume its normal position as soon as the pin P' has come in contact with the bottom of the notch in the lever L'.

The downward movement of the core C and
15 lever L moves the gear-wheel G', and after its downward stroke the lever L, upon the shutting off of the electric current, is lifted and returned to its original position by the action of the spring S', carrying with it the
20 bolt B, which, being beveled from above downward and outwardly, on making contact with either of the pins P on the under side retreats in its carrier B', and after the bolt passes said pin P the bolt is forced forward
25 again by the spring S², so that its under side rests against the top of the next pin P and in position for a repetition of the movement for revolving the gear-wheel G'.

The locking armature-lever L² is pivoted on
30 the frame F' at F⁴ and is provided with a notch N' for engagement with the pins P' on the gear-wheel G for the purpose of holding the gear-wheel G and the color-wheel in their fixed positions. The locking armature-lever
35 L² is held in its locking position by the spring S³ and is caused to unlock by the magnet M'. The magnet M' operates simultaneously with the helix M when the circuit is closed and the core C is started on its downward stroke, and
40 the armature-lever L² is at the same time raised from contact with the pins P'. When the current is again broken and the core C is on its return or upward stroke, the lever L²
45 also returns to its normal or locking position under the control of the spring S³, as described. The magnet M' and the helix M are connected in series and receive their energy through the wires W and W².

The connection of the core C with the lever
50 L is accomplished by means of the pin P³, working in the slot T, provided in the core C, the pin P³ being attached to the bolt-carrier B'.

The bolt B is provided with a stop or stop-pin P⁵ for the purpose of preventing the bolt
55 from advancing too far over the path of the pins P.

The frame F' is provided with an opening O, Fig. 1, in which is fitted a lens O', Fig. 2, back of which is located the source of illumination, and the color-wheel being located in front of the lens the light passes through the color-sheets and assumes the different colors desired. A reflector may be substituted back of the light in place of the lens.

65 Where the apparatus is to be used for signaling, different letters, numbers, or other

characters may be used instead of the colors without the use of the lens or reflector, the said letters, numbers, or characters being painted or otherwise placed upon or in the
70 wheel W.

We have shown and described a color or signal wheel having four colors or signals and mechanism provided with two gear-wheels, one with four and the other with six pins,
75 spaced to give and receive the requisite impulses and motions from the core C. When six or more colors or signals are used, the gear-wheel G may be omitted and the color-wheel W may then be secured directly to the
80 gear-wheel G' on the same journal, and in that case the required or a corresponding number of pins should be placed on the wheel G', which may then be a mere disk without
85 teeth. The locking-lever L² should then be located and related to the disk G' and the pins P thereon so as to hold the disk and color-wheel W in position for proper service, and the position of the magnet M' should be
90 changed accordingly.

Instead of the lever L' and its associated parts an arm or block may be secured to the lever L at or near the location of the pin P², as shown in Fig. 1, and extended so that its
95 outer end reaches to and over the pathway of the pins P, with which it may make proper contact and engagements to enable it to hold the wheel or disk G' until the locking-lever L² can take hold of the pin P, so as to detain
100 the disk. When the circuit is broken, the core C rises and the block is lifted with the lever L and from engagement with a pin P of that wheel or disk. In addition a stop lever or pawl, pivoted on the frame F' and provided
105 with a flat spring that forces it against the pins P until they pass beyond the end of the pawl-stop, whereupon the end of the pawl drops in below the pin and prevents the disk G' from rebound or reverse movement, is to be
110 added. This arrangement and substitution may be used where the two gear-wheels G and G' are present or where only a disk is used, as stated, in the place of the gear-wheel G'.

We claim as our invention—

1. In an apparatus for producing light ef-
115 fects, the combination with a source of light, a color-wheel and electromagnetic means for rotating and stopping the said wheel at any desired point, consisting of a solenoid connected to and rotating a train of gearing carrying said wheel and a magnet to hold the
120 said wheel in fixed position, said magnet and solenoid being in series and simultaneously operated for the purpose set forth and substantially as described.

2. In an apparatus for producing light ef-
125 fects, the combination with a source of light, a color-wheel and electromagnetic means for rotating and stopping the said wheel at any desired point, consisting of a solenoid connected to and rotating a disk carrying said
130 wheel and a magnet to hold the said wheel in

fixed position, said magnet and solenoid being in series and simultaneously operated for the purpose set forth and substantially as described.

5 3. In color-wheels and signaling devices, a wheel W, helix M, core C, lever L, gear-wheel G', pins P, bolt B, gear-wheel G, stop-pins P', pawl A', levers L' and L² and magnet M', in combination.

10 4. In color-wheels and signaling devices, a color-wheel W, secured to a disk, a solenoid connected to and rotating the disk by means of a lever L, bolt B and pins P, a stop-lever L', a locking-lever L² engaging the pins, and

a magnet M' controlling the locking-lever, 15 substantially as shown and described.

5. In color-wheels and signaling devices, a color-wheel, secured to a disk, a solenoid connected to and rotating the disk by means of a lever, bolt and pins, a stop-lever, a locking- 20 lever engaging the pins, and a magnet controlling the locking-lever, substantially as shown and described.

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