J. H. STILLWAGGON.

STEREOPTICON APPARATUS.

APPLICATION FILED FEB. 1, 1918.

1,298,417.

Patented Mar. 25, 1919.

3 SHEETS—SHEET 1.

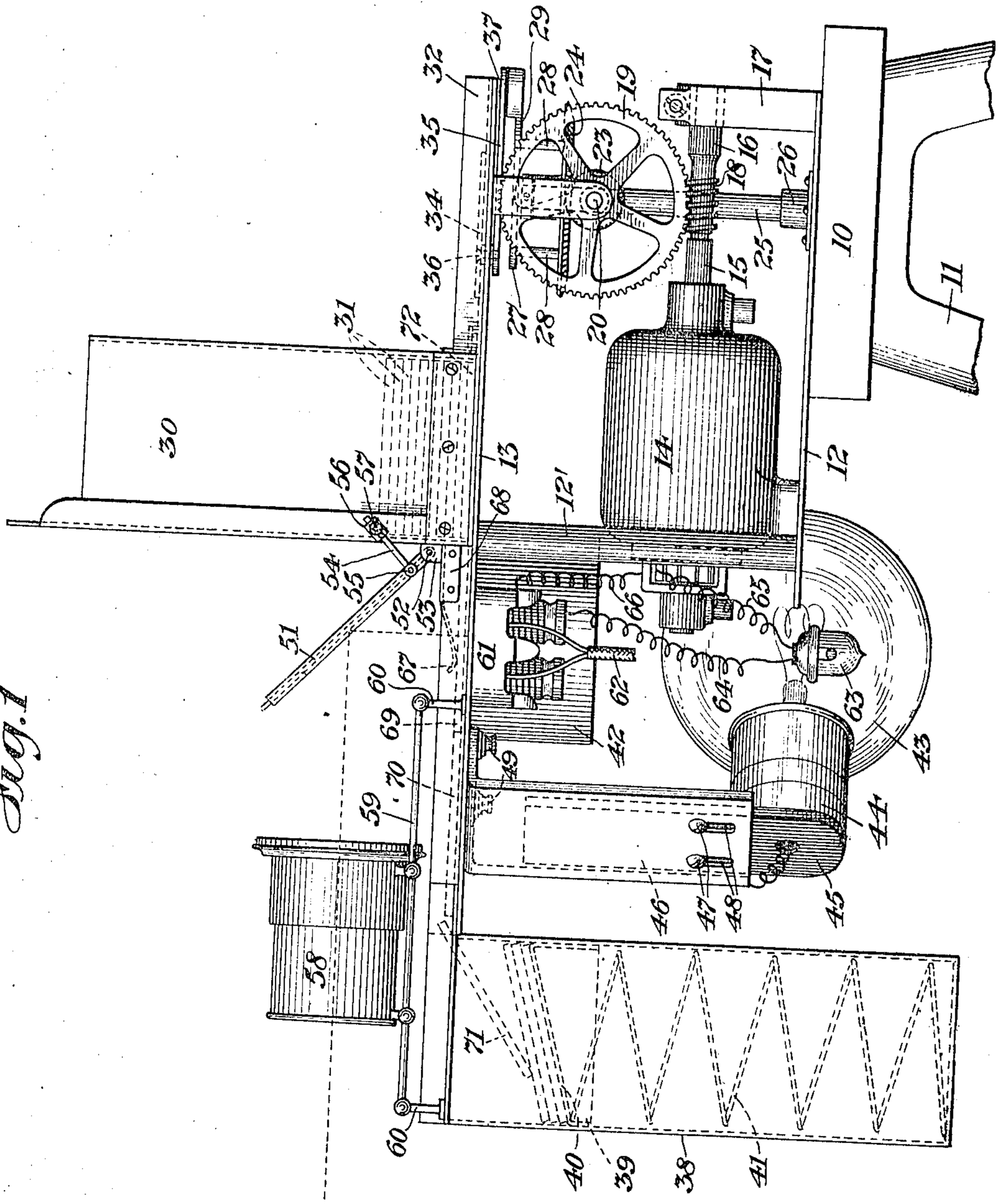

Fig. 1

WITNESS

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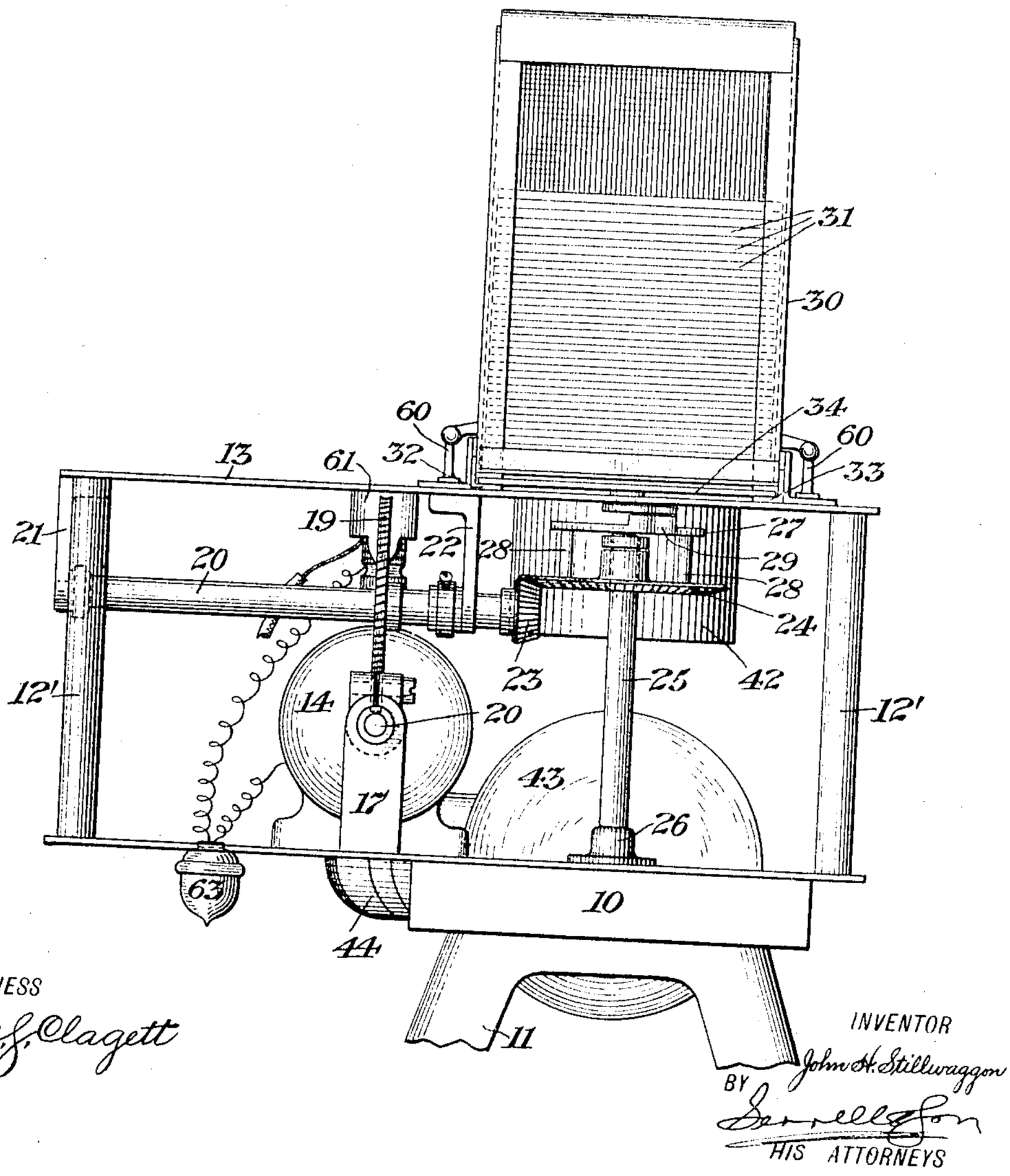
3 SHEETS—SHEET 2.

Fig. 2



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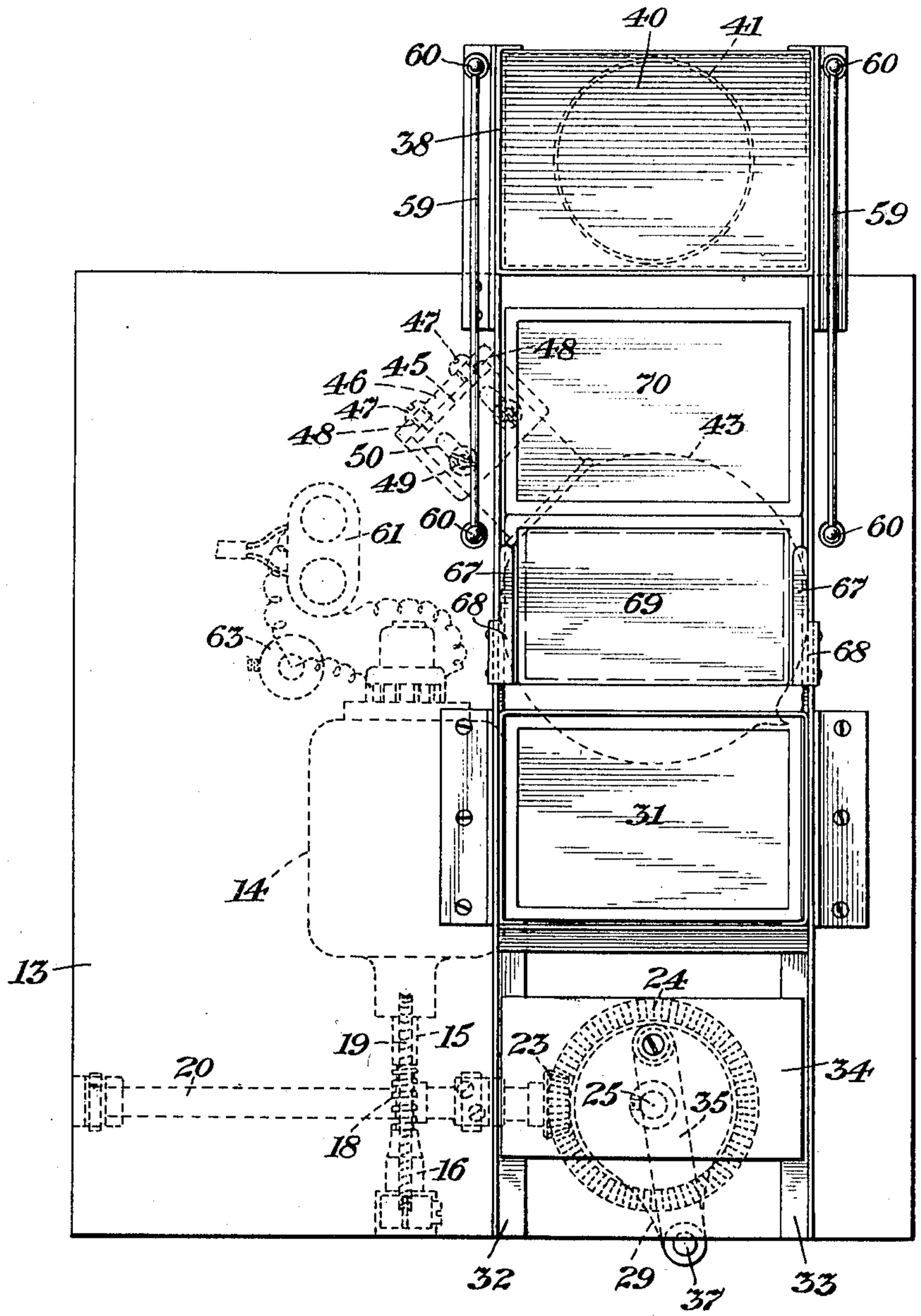
3 SHEETS—SHEET 3.

Fig. 3



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STEREOPTICON APPARATUS.

1,298,417. Specification of Letters Patent. Patented Mar. 25, 1919.

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To all whom it may concern:

Be it known that I, JOHN H. STILLWAGGON, a citizen of the United States, residing at Richmond Hill, in the borough and county of Queens, city and State of New York, have invented an Improvement in Stereopticon Apparatus, of which the following is a specification.

This invention relates to a stereopticon apparatus and more particularly to that class of stereopticon apparatus which is adapted for use in illustrated lecture work. Heretofore in stereopticons commonly employed for delivering illustrated lectures, it has been generally customary for the lecturer to utilize an assistant to operate the lantern, by inserting and removing the slides in turn as the same are referred to during the course of the lecture. As is obvious, this is often inconvenient to the lecturer, by a slide being misplaced in the lantern or used out of its turn, and also this practice involves the expense of employing the assistant.

The object of this invention is the provision of a stereopticon apparatus for illustrated lecture work in which the assistant or assistants may be entirely dispensed with and the apparatus operated by the lecturer himself, by merely opening and closing an electric circuit which may be done through the operation of a push button switch actuated by his hand or by his foot. The apparatus is so constructed that the slides employed are placed in their proper order in a receptacle made to hold them and are automatically fed from this receptacle to the position for being projected and then moved on successively to a receptacle adapted to receive them. The apparatus as hereinbefore stated, being actuated electrically by the operator himself so that at his convenience the pictures are changed without giving directions or signals to an assistant for the change of the pictures.

The apparatus made in accordance with this invention will be hereinafter more particularly described in conjunction with the accompanying drawings in which:

Figure 1 is a side elevation of the apparatus with the casing removed to illustrate the operating mechanism.

Fig. 2 is an end elevation of the same also with the casing removed, and

Fig. 3 is a plan view of the parts as shown in Figs. 1 and 2.

Referring particularly to the drawing, it will be seen that in carrying out this invention I employ a base 10, mounted upon a suitable support 11, and provided with a platform 12, which may be suitably secured thereto in any desired manner. I also employ a plate 13, separated from the platform 12 and parallel thereto, and which as illustrated, is connected to the platform by means of posts 12′ or by any other suitable means. On the platform 12 there is an electric motor 14. The shaft 15 of this motor is connected to a shaft 16 which at its outer end is journaled in suitable bearings provided therefor in a standard 17, rising from the platform 12. On the shaft 16 there is a worm 18 meshing with a worm gear 19 secured on a shaft 20 which, as illustrated, is journaled in suitable bearings provided therefor in brackets or hangers 21, 22, suitably secured to and depending from the plate 13. At one end of the shaft 20, a bevel gear 23 is fixed thereon. This bevel gear 23 meshes with a bevel gear 24, mounted on a vertical shaft 25, which is journaled at its lower end in a bearing 26 connected in position on the platform 12. Associated with the bevel gear 24 there is a disk 27 and which as illustrated is connected to the bevel gear by a plurality of spacing pins 28 and on the disk 27 there is an extension or crank 29.

In a suitable position on the plate 13 I provide a receptacle 30 adapted to receive a plurality of superimposed slides indicated at 31. The undermost slide rests upon a track which may be composed of the rails indicated at 32 and 33, and along which the slides in turn are moved from the receptacle, the undermost slide being removed so as to permit the superimposed slides to drop to gravity as each slide in turn is taken from the pile. For this purpose I employ an ejector plate 34 also adapted to slide on the rails 32 and 33, and of a thickness substantially the same or slightly less than that of the slide plates. This ejector plate is pivotally connected to the crank 29 by a link 35. The

pivotal connection between the link and the ejector plate is indicated at 36 and the pivotal connection between the link and the crank 29 is indicated at 37.

At the left hand end of the apparatus as indicated in Fig. 1 I employ a receiving receptacle 38. In this receptacle there is a slide receiver 39 preferably having an inclined upper face 40 and supported in the receptacle by means of a compensating spring 41 or other equivalent device whereby the slide plates as they are delivered to this receiving receptacle fall substantially the same distance, that is to say, irrespective of the number of slide plates which may be delivered to the receiving receptacle, the position of the uppermost plate is substantially constant, the spring 41 or other equivalent device being so constructed as to make this possible.

The projecting apparatus employed comprises a condenser indicated at 42, an electric or other light 43, mounted beneath the condenser, in a socket 44 carried by an adjustable base 45. This base 45 is adjustable to position to determine the height of the light by means of a bracket 46 and the screws or bolts 47 which are secured in the base 45 and passed through elongated slots 48 in the lower end of the bracket 46 as clearly illustrated in Fig. 1. The bracket 46 is preferably angular as is also shown in Fig. 1 and is adjustable to position on the underside of the plate 13 by means of the bolts or screws 49 which are preferably fixed in the plate 13, and extend through elongated slots 50 in the upper member of the bracket. It will therefore be understood that the light is not only adjustable as to its height but also as to its position longitudinally of the apparatus.

The projecting devices also include a reflector which may be a mirror 51 mounted in a suitable frame or otherwise and pivotally connected as indicated at 52 to brackets suitably secured to the holding receptacle 30. This reflector or mirror is adjustable to position by means of arms 54 each of which at one end is pivotally connected to the reflector frame as indicated at 55, while at its opposite end each arm 54 passes through a lug 56 and by means of a suitable set screw 57 may be fixed in position so as to determine the angle at which the mirror is set. Furthermore these projecting devices include a lens 58. As illustrated this lens is also adjustable to position by being connected to a suitable frame which is slidably mounted on rods 59 connected to and supported by posts 60 fixed to the plate 13. The electrical connections include a plug 61 to which the lead wires 62 from a suitable source of electricity are connected, and a push button switch 63 together with a lead wire 64 extending from one terminal of the plug 61 to one terminal of the push button switch, a lead wire 65 extending from the other terminal of the push button switch to one terminal of the motor and a lead wire 66 from the other terminal of the motor to the opposite terminal of the plug 61.

It will be understood that while the same is not illustrated herein, parts of the hereinbefore described apparatus may be inclosed in a suitable casing, and furthermore that either one or both of the receptacles may be constructed so as to be removable from the apparatus itself. In the operation of this apparatus, after the same has been set up for use, the lantern slides to be exhibited are placed in the holding receptacle 30, in the order desired for use, with the bottom plate as hereinbefore stated, resting upon the track comprising the rails 32 and 33. The circuit to the motor may be closed by operating the push button switch to start the motor and turn the shaft 16 and thereby operate the disk 27 and crank 29 through the shaft 20, and the bevel gears 23 and 24. The crank 29 through the link 35 imparts a reciprocating movement to the ejector plate 34, causing the same to travel back and forth on the rails 32 and 33. The parts are so designed that this travel of the ejector plate is sufficient when at the right hand limit of its movement as indicated in Fig. 1 to entirely clear the lowermost slide in the holding receptacle whereas at the other or left hand end of its travel as indicated in Fig. 1, the forward edge of the ejector plate projects sufficiently far beyond the pile of superimposed slides, to not only move the lowermost slide from the pile but also to move this lowermost slide to its proper position in the apparatus for being projected. The ejector plate at this end of its travel however, does not pass from beneath the pile of superimposed plates so that upon its return movement after it has been passed from beneath the pile of plates the plates are permitted to drop, bringing the next successive plate in position upon the rails. After a plate has thus been moved to a position for being projected, the operator may again actuate the push button switch and stop the motor either manually or by a movement of his foot, so that the picture by means of the light, condenser, reflector, and projecting lens is thrown onto a suitable screen and may remain there at the pleasure of the lecturer. In its position for projection, each plate in turn, is passed successively beneath the springs 67 which engage the edge portions of the slide and are secured in position by means of the brackets 68 or otherwise. As shown in Fig. 1 the slide 69 is in position for being projected. The next preceding slide 70 has been moved from this position along the rails 32 and 33 while the slide 71, preceding

the slide 70 has been moved off the rails and is illustrated in a position as dropping into the receiving receptacle 38. It will now be apparent that when the lecturer wishes to change the pictures he completes the circuit again by actuating the push button switch causing the lowermost plate 72 in the holding receptacle 30 to be moved therefrom by the ejector plate while this plate 72 moves the plate 69 from the position in which it is projected, assuming this position itself, and at the same time advancing the next preceding plate 70 to that position in which it is pushed off the rails 32 and 33, and permitted to drop into the receiving receptacle 38. After the slides have thus successively been all shown and transferred from the holding receptacle to the receiving receptacle they may be taken from the receiving receptacle, and placed in a box or carrier in which they are ordinarily transmitted from one place to another or stored.

I claim as my invention:

1. In a stereopticon apparatus and in combination, a slide holding receptacle, a slide receiving receptacle for receiving and holding slides in a substantially horizontal position, means for transferring slides from the one receptacle to the other and projecting the same while being transmitted, and a device in the receiving receptacle for maintaining the top slide therein at a predetermined height so that every slide as it drops into the said receiving receptacle falls substantially the same distance to position on the slide supporting device.

2. In a stereopticon apparatus and in combination, a slide holding receptacle, a slide receiving receptacle, both adapted to contain slides in horizontal positions, a slide holder in the slide receiving receptacle, means for transferring the slides from the one receptacle to the other and projecting the same while being transmitted, and means for yieldingly supporting the slide holder in the receiving receptacle so that it is gradually depressed by the slides therein as they increase in number whereby the top slide is maintained at a predetermined height and every successive slide as it enters the receptacle falls substantially the same distance to position therein.

3. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a plurality of superimposed slides, a track upon which the bottom slide in the superimposed pile rests, and an ejector plate adapted to move the said bottom slide from the superimposed pile to position for use and to move a preceding slide sufficiently far to permit the same to drop into a receiving receptacle.

4. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a plurality of superimposed slides, a slide receiving receptacle, a track upon which the lowermost slide in the superimposed pile rests, an ejector plate, and means for operating the ejector plate to move the lowermost slide from its position in the pile into position for use, and through the same to move a preceding slide to cause the same to drop into the receiving receptacle.

5. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a plurality of superimposed slides, a track upon which the bottom slide in the superimposed pile rests, an ejector plate adapted to move the said bottom slide from the superimposed pile to position for use and to move a preceding slide sufficiently far to permit the same to drop into a receiving receptacle, and devices for projecting each slide in turn as it is brought into position for use.

6. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a plurality of superimposed slides, a slide receiving receptacle, a track upon which the lowermost slide in the superimposed pile rests, an ejector plate, means for operating the ejector plate to move the lowermost slide from its position in the pile into position for use, and through the same to move a preceding slide to cause the same to drop into the receiving receptacle, and devices for projecting each slide in turn as it is brought into position for use.

7. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a pile of superimposed slides, a slide receiving receptacle, a track extending between the said receptacles and upon which the lowermost slide in the holding receptacle rests, means for moving the lowermost slide in a superimposed pile from the holding receptacle to position for use, and a preceding slide sufficiently far to cause the same to drop into the receiving receptacle, a light, a reflector, and a lens for projecting each slide in turn as it reaches its position for being projected.

8. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a pile of superimposed slides a slide receiving receptacle, a track extending between the said receptacles and upon which the lowermost slide in the holding receptacle rests, means for moving the lowermost slide in the superimposed pile from the holding receptacle to position for use, and the preceding slide sufficiently far to cause the same to drop into the receiving receptacle, a light, a reflector, and a lens for projecting each slide in turn as it reaches its position for being projected, and means for adjusting the position of the light.

9. In a stereopticon apparatus and in combination, a slide holding receptacle adapted

to contain a pile of superimposed slides, a slide receiving receptacle, a track extending between the said receptacles and upon which the lowermost slide in the holding receptacle rests, means for moving the lowermost slide in the superimposed pile from the holding receptacle to position for use, and a preceding slide sufficiently far to cause the same to drop into the receiving receptacle, a light, a reflector and a lens for projecting each slide in turn as it reaches its position for being projected, and means for adjusting the position of the light both longitudinally of the apparatus and as to the distance of the same from the slides being projected.

10. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a pile of superimposed slides, a slide receiving receptacle, a track extending between the said receptacles and upon which the lowermost slide in the holding receptacle rests, means for moving the lowermost slide in the superimposed pile from the holding receptacle to position for use, and a preceding slide sufficiently far to cause the same to drop into the receiving receptacle, a light, a reflector, and a lens for projecting each slide in turn as it reaches its position for being projected, and means for adjusting the lens to position.

11. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a pile of superimposed slides, a slide receiving receptacle, a track extending between the said receptacles and upon which the lowermost slide in the holding receptacle rests, means for moving the lowermost slide in the superimposed pile from the holding receptacle to position for use, and a preceding slide sufficiently far to cause the same to drop into the receiving receptacle, a light, a reflector, and a lens for projecting each slide in turn as it reaches its position for being projected, and means for adjusting the position of the reflector.

12. In a stereopticon apparatus and in combination, a slide holding receptacle, a slide receiving receptacle, a track extending between the said receptacles and upon which the bottommost plate of a superimposed pile of slides rests when placed in the holding receptacle, a motor, an ejector plate, means for imparting a reciprocating motion to the ejector plate by operating the motor to cause the ejector plate to move the slides successively from the holding receptacle to position for use and a preceding slide to position to drop into the receiving receptacle, means for opening and closing the circuit to the motor, and devices for projecting each slide successively as the same is brought into position for use.

13. In a stereopticon apparatus and in combination, a slide holding receptacle adapted to contain a superimposed pile of slides, a receiving receptacle, a track extending between the receptacles and upon which the lowermost slide in the superimposed pile thereof rests, a motor, an ejector plate, a crank driven by the said motor, a link connecting the crank and ejector plate to impart a reciprocating motion to the latter along the said track to move the lowermost slide from the superimposed pile thereof to a position for use and to move a preceding slide to a position in which it drops into the receiving receptacle, a device actuated by the operator for opening and closing a circuit to the motor, and devices for projecting each slide as the same is brought into position for use.

14. In a stereopticon apparatus and in combination, a receptacle for containing a superimposed pile of slides, a receiving receptacle for receiving successive slides and holding the same in a superimposed pile, devices for shifting successively the slides from the one receptacle to the other, and yielding means in the said receiving receptacle continuously depressed as the successive slides are delivered thereto so as to maintain the uppermost slide in a predetermined substantially horizontal position.

15. In a stereopticon apparatus and in combination, devices for successively moving the lowermost slide from a superimposed pile thereof, a receptacle for receiving said slides and holding the same in a superimposed pile, a slide holder in the said receptacle, and a compensating spring for supporting the said slide holder and permitting the same to gradually descend as the slides are successively received in the said receptacle so as to maintain the uppermost slide in the receptacle at a predetermined height therein.

Signed by me this 22nd day of January, 1918.

JOHN H. STILLWAGGON.