

No. 775,437.

PATENTED NOV. 22, 1904.

J. S. WRIGHT.

FOLDING POCKET AND FOCAL PLANE SHUTTER CAMERA.

APPLICATION FILED JUNE 24, 1904.

NO MODEL.

4 SHEETS—SHEET 1.

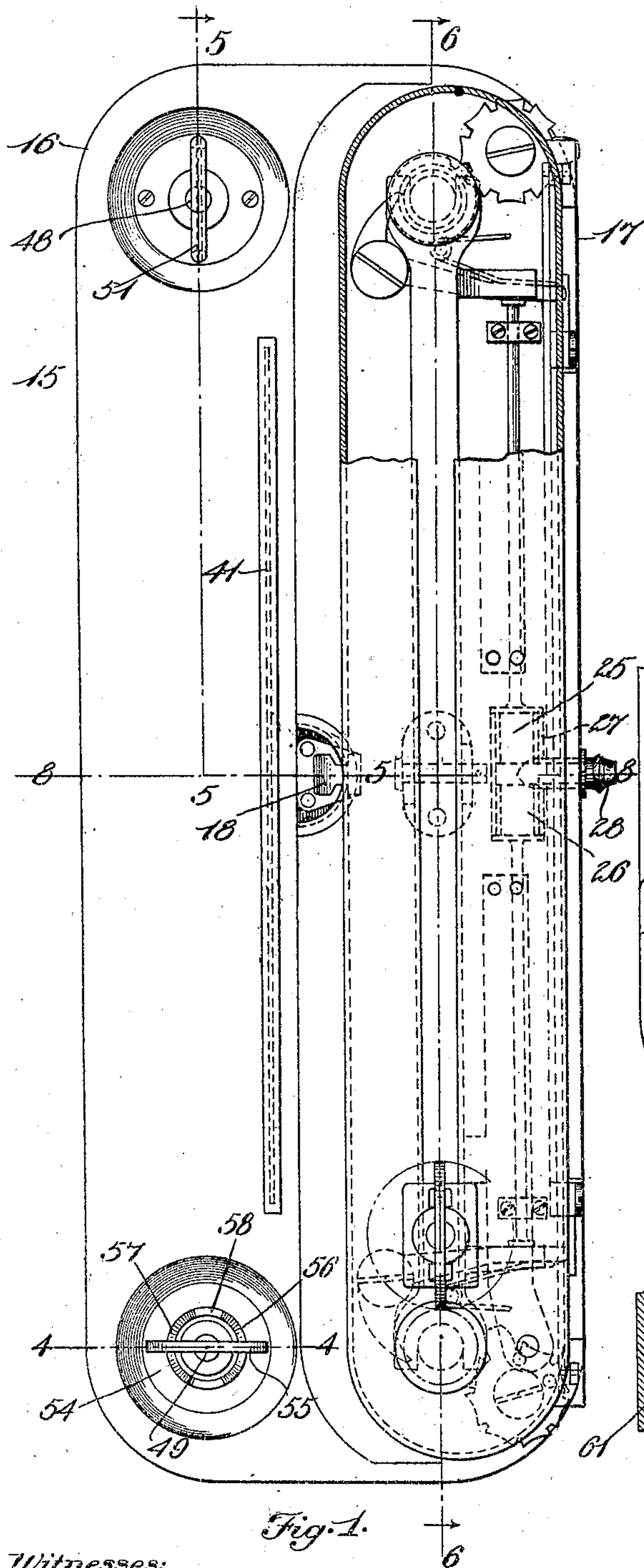


Fig. 1.

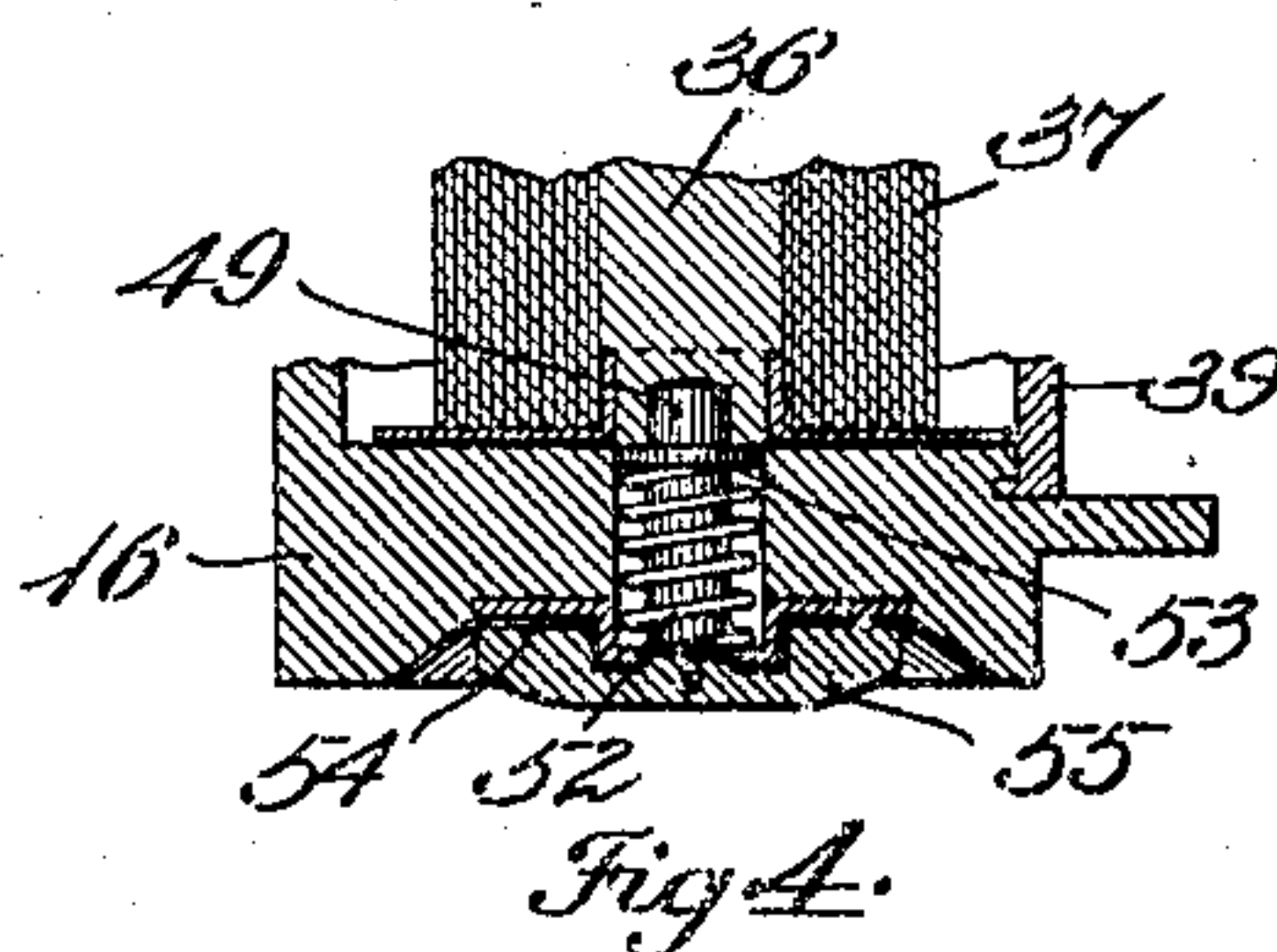


Fig. 4.

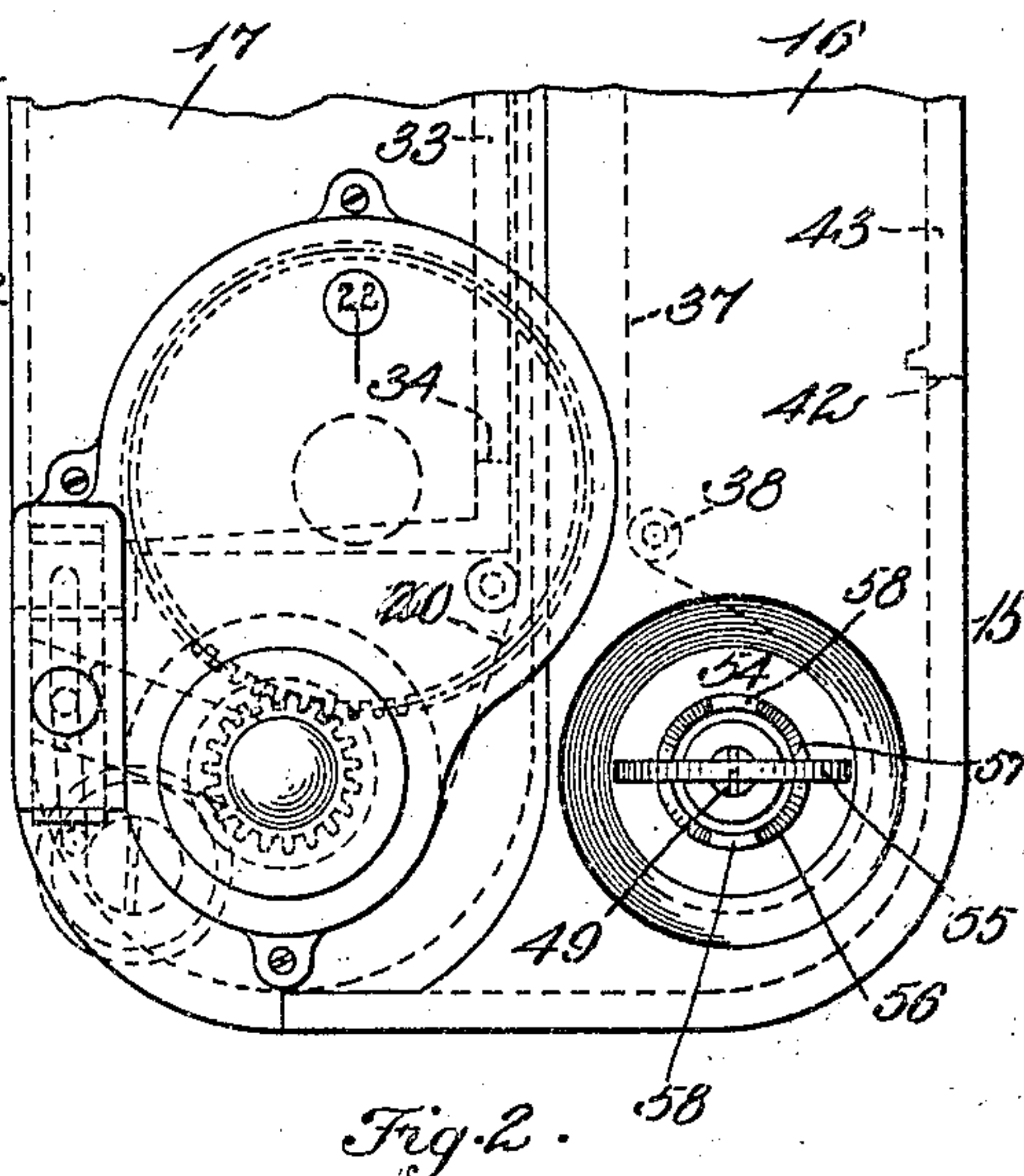


Fig. 2.

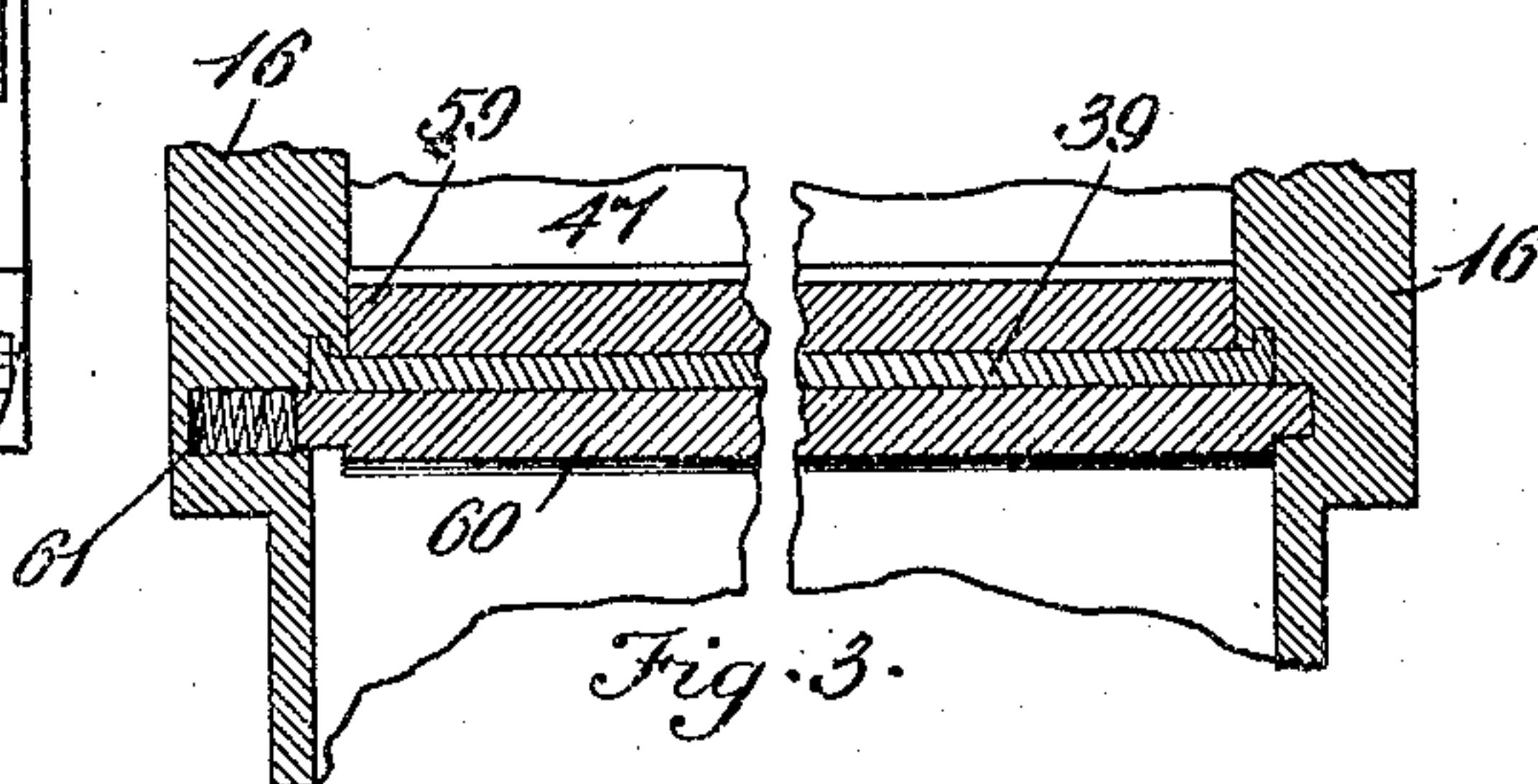


Fig. 3.

Witnesses:

Sydney C. Taft.
Charles W. Ford.

Inventor:

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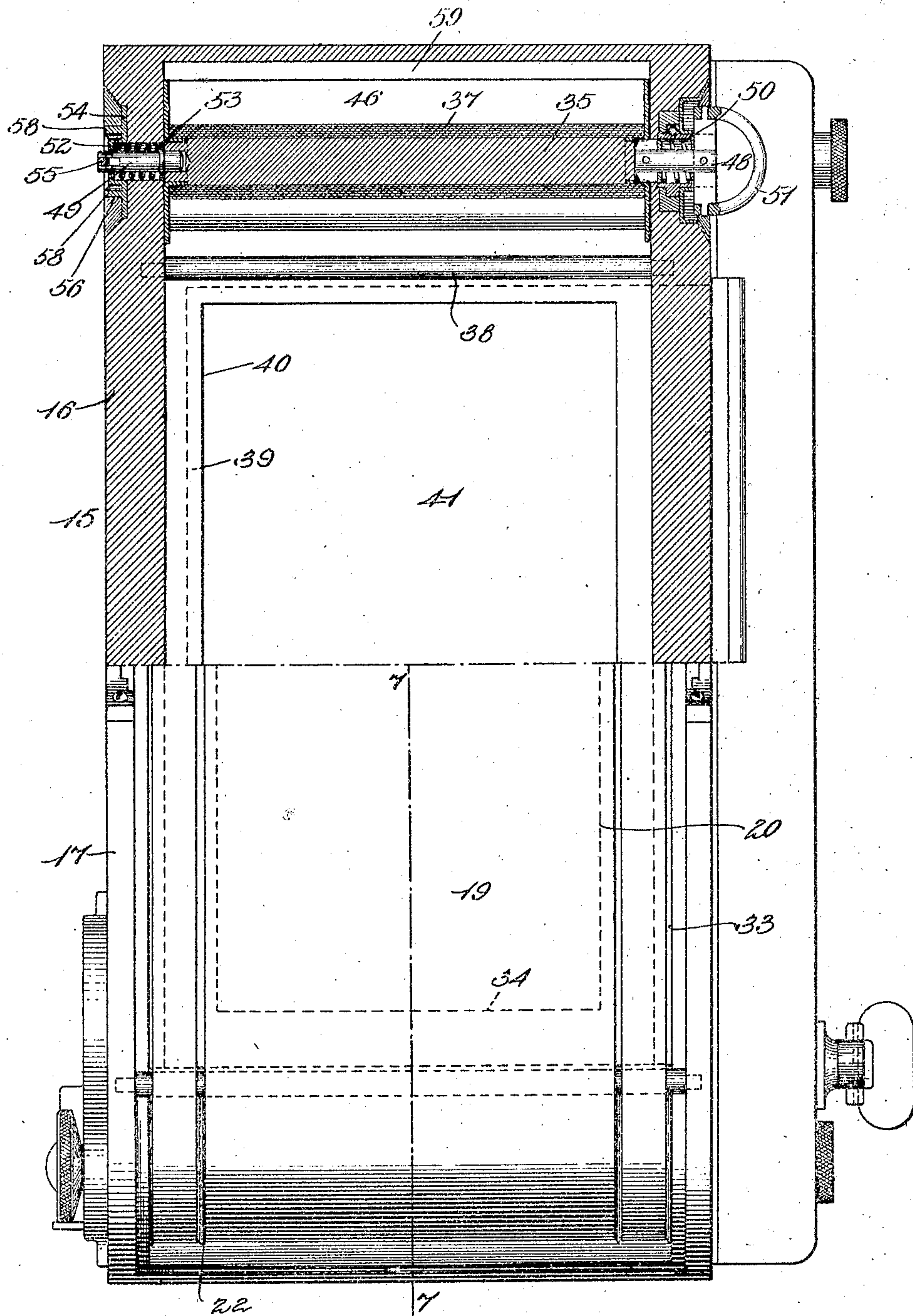
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4 SHEETS—SHEET 2.



Witnesses:

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Fig. 5.

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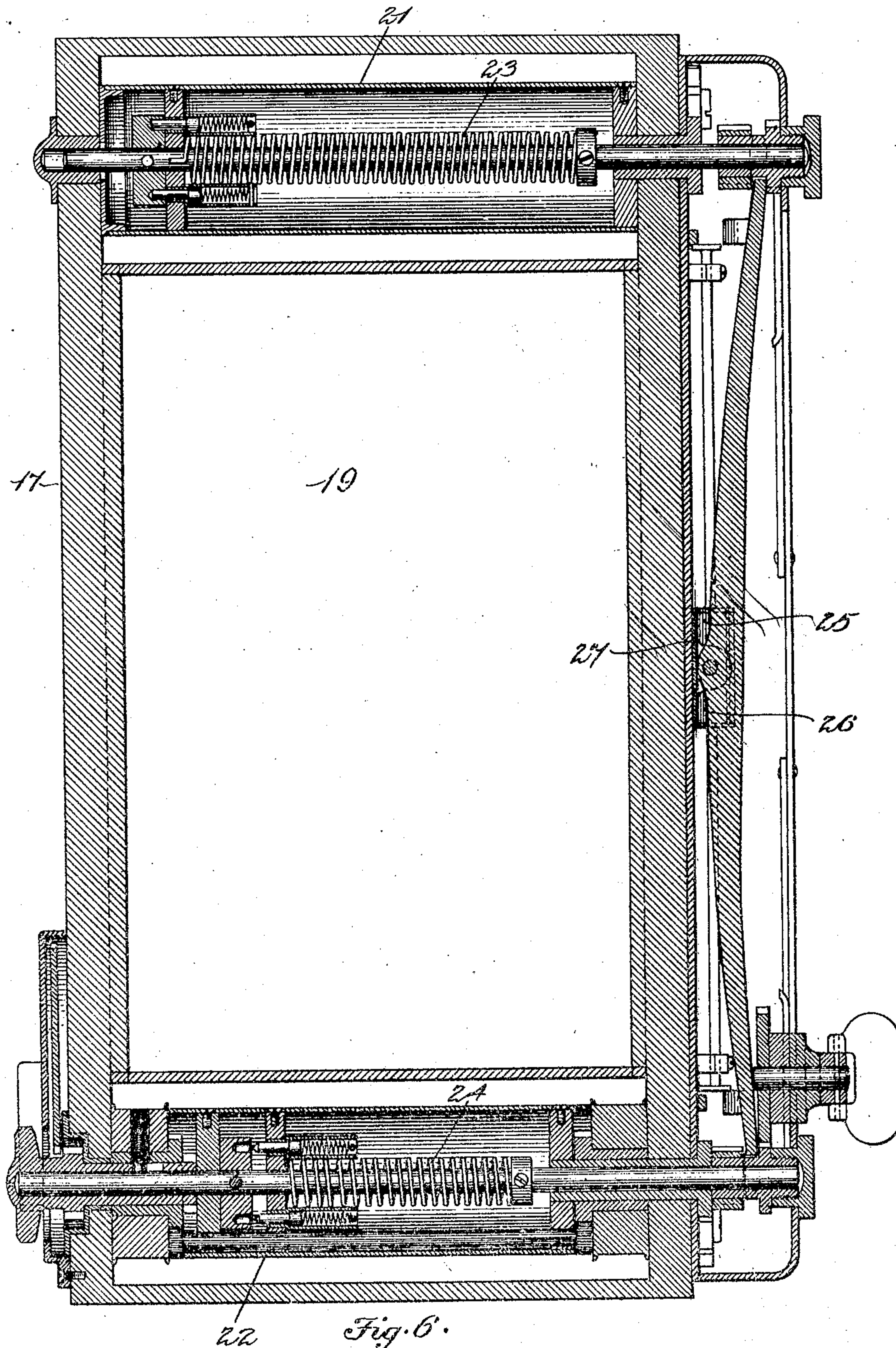
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APPLICATION FILED JUNE 24, 1904.

NO MODEL.

4 SHEETS—SHEET 3.



Witnesses:

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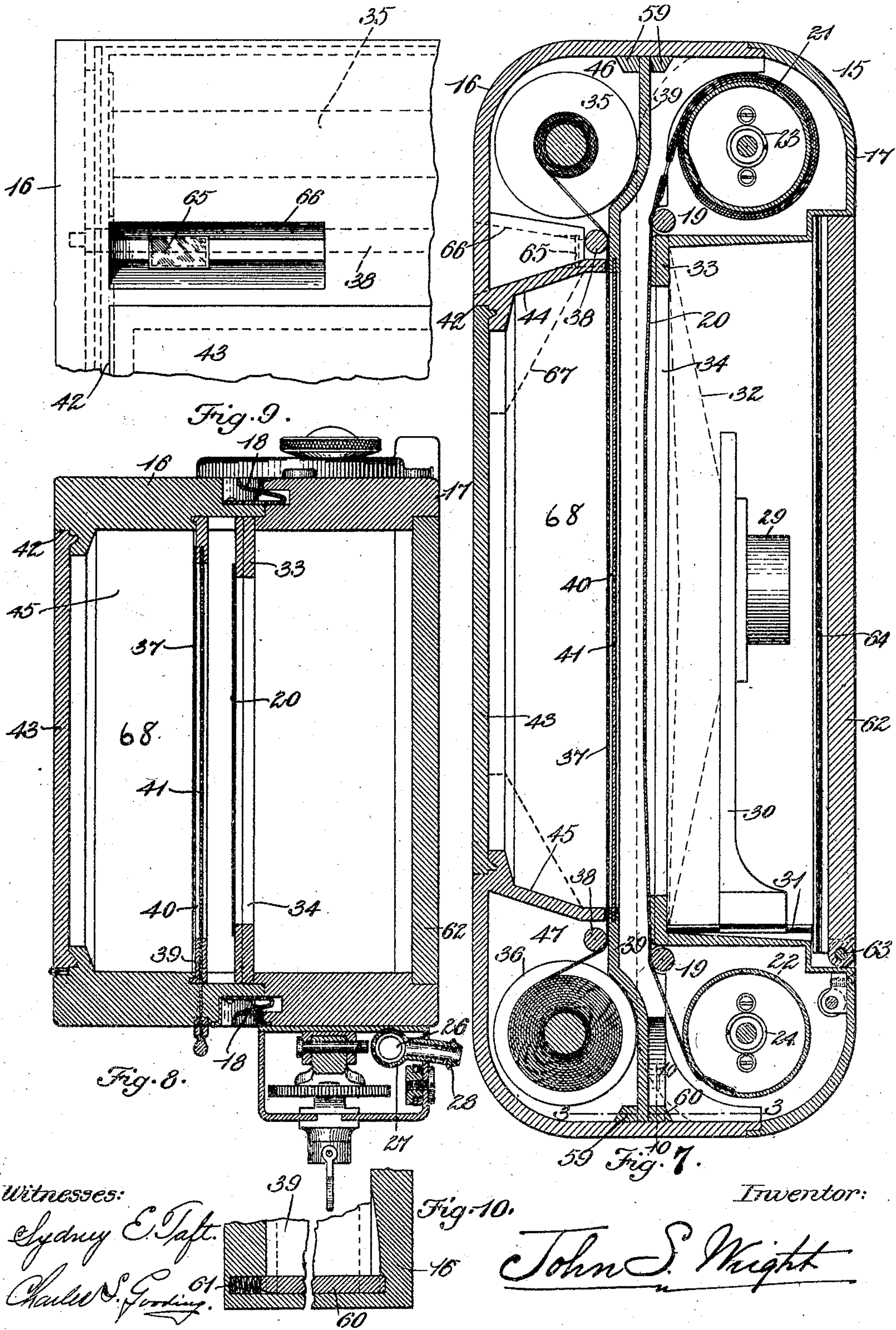
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APPLICATION FILED JUNE 24, 1904.

NO MODEL.

4 SHEETS—SHEET 4.



Witnesses:

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Fig. 10.

Inventor:

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UNITED STATES PATENT OFFICE.

JOHN S. WRIGHT, OF DUXBURY, MASSACHUSETTS.

FOLDING POCKET AND FOCAL-PLANE-SHUTTER CAMERA.

SPECIFICATION forming part of Letters Patent No. 775,437, dated November 22, 1904.

Application filed June 24, 1904. Serial No. 213,984. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. WRIGHT, a citizen of the United States, residing at Duxbury, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Folding Pocket and Focal-Plane-Shutter Cameras, of which the following is a specification.

This invention relates to photographic cameras of the class known as "folding pocket-cameras," the object of the invention being to provide such a camera which comprises in its construction a focal-plane shutter and a roll-film.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings, Figure 1 is a side elevation of my improved folding pocket-camera, the same being partly broken away to disclose a portion of the focal-plane-shutter-actuating mechanism. Fig. 2 is a side elevation similar to Fig. 1, taken from the opposite side of the camera and broken away to save space in the drawings. Fig. 3 is a detail section taken on line 3 3 of Fig. 7, also broken away. Fig. 4 is a detail section, partly in elevation, taken on line 4 4 of Fig. 1. Fig. 5 is a sectional elevation taken on line 5 5 of Fig. 1, illustrating the upper half of the film-roll holder in section and the lower half of the focal-plane shutter in elevation looking toward the right in said Fig. 1. Fig. 6 is a section, partly in elevation, taken on line 6 6, Fig. 1. Fig. 7 is a section, partly in elevation, taken on line 7 7 of Fig. 5. Fig. 8 is a section taken on line 8 8 of Fig. 1. Fig. 9 is a detail rear elevation of a portion of the upper part of the film-holder. Fig. 10 is a detail section taken on line 10 10 of Fig. 7 broken away to save space in the drawings.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 15 is the casing of my improved folding pocket-camera, said casing being formed in two parts 16 and 17, joined together by spring-catches 18 18 upon opposite sides thereof. The casing 16 constitutes a roll-film holder, and the casing 17 constitutes

a focal-plane-shutter holder. The shutter 19 is substantially like that shown and described in Letters Patent of the United States No. 726,608, granted to me April 28, 1903, and consists of a curtain 20, which is alternately wound upon rotary rolls 21 and 22, said rolls being journaled in the holder 17 and rotated by torsional spiral springs 23 and 24, respectively, said springs being alternately released to rotate said rolls by pistons 25 26, arranged to slide longitudinally of a cylinder 27, and appropriate actuating mechanism operated by an air-bulb (not shown in the drawings) attached to a tube 28, Fig. 7. Said actuating mechanism is fully described and forms the subject-matter of another application for Letters Patent made by me, Serial No. 185,066, filed December 14, 1903, allowed April 30, 1904, and as said specific mechanism forms no part of this invention it is not considered necessary to describe the same in detail.

A lens 29 is located between the curtain-rolls 21 and 22 and is supported upon a sliding front 30, adapted to slide upon a track 31 in the interior of the focal-plane-shutter holder 17. A bellows 32 (indicated by dotted line, Fig. 7) is connected at one end thereof to the sliding front and at the opposite end thereof to the casing of the lens-holder 17, said casing being provided with a vertical partition 33, having an opening 34 provided therein adjacent to the front side of the curtain 20.

In the interior of the roll-film holder are two rotary rolls 35 and 36, Fig. 7. The film 37 is connected at the opposite ends thereof to the rolls 35 and 36, respectively, and passes from said rolls over idler-rolls 38 38, journaled in said film-holder casing, the front side of said film extending along the rear of a partition 39, which extends entirely across the interior of said film-holder and is provided with an opening 40 therein, which may be closed or opened, respectively, by inserting or withdrawing the slide 41. Another opening, 42, is provided in the rear side of the film-holder 16 opposite to the opening 40 in the front side thereof, said opening 42 being opened or closed by means of a door 43, hinged to the casing of said film-holder.

Partitions 44 and 45 are provided in the film-holder 16, which extend transversely thereacross, the partition 44 being located between the film-roll 35 and the openings 40 and 42, while the partition 45 is located between the openings 40 and 42 and film-roll 36. It will be seen that the film-rolls 35 and 36 are thus inclosed in chambers 46 and 47, respectively, the walls of the chamber 46 being formed by a portion of the partition 39, film-holder 16, and the partition 44, while the walls of the chamber 47 are formed by a portion of the partition 39, film-holder 16, and partition 45. It will be seen that the unobstructed chamber 68 is inclosed in said roll-film holder between the partitions 44 and 45 and the front opening 40 and the rear opening 42 of said film-roll holder, so that by opening the door 43 the operator may obtain an unobstructed view through the chamber 68 and opening 42 of any picture projected upon the film 37, as hereinafter described.

The film-rolls are supported at opposite ends thereof by pins 48 and 49, upon which said opposite ends are respectively journaled. The pin 48, Figs. 1 and 5, is held normally against the film-roll 35 by a spring 50 and is drawn outwardly to disconnect the same therefrom by a handle 51 in a manner well known to those skilled in this art. A pin 49 is held inwardly in contact with the roll 35, and a like pin is held in contact with one end of the roll 36 by a spring 52, one end of said spring bearing against a collar 53, fast to the pin 49, and the opposite end of said spring bearing against a plate 54, fast to the casing 16. A handle 55 is fastened to the outer end of the pin 49, by means of which said pin is rotated. The inner edge of the handle 55 bears against an annular cam-ring 56, formed upon the plate 54 and having depressions 57 and elevations 58 alternately disposed thereon, so that by rotating said handle 55 from the position shown in Figs. 1 and 4 to a position at right angles thereto said handle will move from the depressed portion of the cam to the elevated portion thereof and thus withdrawn the pin 49 from contact with its respective roll. It will thus be seen that by withdrawing the pins 48 and 49 from their respective rolls said rolls may be easily detached from the casing 16.

The partition 39 is held in the casing of the film-holder 16 at the top and bottom thereof by strips 59, 59, 59, and 60. The strip 60 is removable, as shown in Figs. 3 and 10, and is held in position in the casing 16 by a spring 61.

The focal-plane-shutter holder 17 is provided with a drop-front 62, hinged at 63 to the casing of said holder and having fastened to the inner face thereof a track 64, along which the sliding front 30 may be moved when the drop-front 62 is lowered to a horizontal position. A colored glass 65 is provided in the film-holder 16 at the bottom of

a recess 66, by means of which the different numbers upon the surface of the film-sheet may be noted.

The operation of my improved camera hereinbefore specifically described is as follows: The drop-front 62 is lowered from the vertical position (illustrated in Fig. 7) to a horizontal position, and the lens 29, together with the sliding front 30, is moved along the tracks 31 and 64 to the desired position. Assuming the film to be in readiness for taking a picture, the slide 41 is withdrawn from the film-holder 16 and the air-bulb pressed to allow the curtain 20 to be drawn across the opening 34. The film 37 is then wound upon the upper roll by rotating the handle 51 and a second picture taken by again pressing the bulb and allowing the slotted curtain 20 to pass across the opening 34. After the film has in this manner been used up and it is desired to insert a new film the holder 16 is disconnected from the holder 17 and the partition 39 removed to allow the operator to obtain access to the rolls 35 and 36. Said partition is removed by pressing laterally toward the left upon the spring 61, Fig. 10, and lifting the right-hand end of the strip 60 upwardly until it can be withdrawn from the opposite side of the casing, whereupon said partition 39 is removed by swinging the bottom thereof outwardly or toward the right, Fig. 7, until the bottom of said partition clears the right-hand end of the casing 16. The partition 39 is then lowered until the upper edge thereof clears the upper strips 59, and the partition is then removed from the holder 16. The upper roll 35 is then removed by withdrawing the pins 48 and 49 as hereinbefore described, a new roll of film is substituted in its place, and the end of the film connected to the lower roll 36 in the usual manner. The partition is then reinserted in the holder 16, and the holder 16 is then attached to the holder 17 by means of the spring-catches 18 18 on the opposite sides thereof.

My improved camera and focal-plane shutter are so constructed that the lens may be adjusted along the tracks 31 and 64 to focus the picture upon the film-sheet 37 by winding the curtain 20 upon one of the curtain-rolls until the space provided in said curtain aligns with the top and bottom of the opening 34, it being understood that a film is used in this case in which a focusing-surface occurs alternately between two sensitized surfaces upon the film, which renders it possible to focus upon the film-sheet between said sensitized surfaces.

In using my camera and focusing upon said film as hereinbefore described the door 43 is opened in order to allow the operator to look through the opening 42 and unobstructed chamber 68, and by moving the lens forward or backward upon the tracks 31 and 64 he can then bring the picture into correct focus upon

said film between the sensitized portions thereof. In the focusing operation hereinbefore described it would of course be necessary for the operator either to cover the rear portion
5 of the camera and his head with a cloth or to use a focusing-bellows 67, such as is illustrated by dotted lines in the interior of the film-holder 16, and in using this bellows the same
10 would be withdrawn from the interior of said film-holder after opening the door 43 by the operator for the purpose of performing the operation of focusing upon the film hereinbefore described.

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

1. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film holder detachably fastened one to the other and
20 forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connecting said rolls together and mechanism to rotate
25 said rolls, said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls.

2. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film
30 holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connect-
35 ing said rolls together, mechanism to rotate said rolls and a lens located between said rolls; said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls.

3. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film
40 holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connect-
45 ing said rolls together, mechanism to rotate said rolls; said roll-film holder constructed to rotatably support two film-rolls therein, means to rotate said film-rolls, and a partition fast to
50 said film-holder extending thereacross adjacent to said shutter-rolls.

4. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film
55 holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connect-
60 ing said rolls together, mechanism to rotate said rolls, said roll-film holder constructed to rotatably support two film-rolls therein, means to rotate said film-rolls, and a partition fast to
65 said film-holder extending thereacross adjacent to said shutter-rolls, said partition pro-

vided with an opening, and a slide extending across said opening.

5. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film
holder detachably fastened one to the other
70 and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connect-
75 ing said rolls together, mechanism to rotate said rolls; said roll-film holder constructed to rotatably support two film-rolls therein, means to rotate said film-rolls, a partition extending
80 across said film-rolls adjacent to said shutter-rolls, and means to detachably fasten said partition to said film-roll holder.

6. A roll-film holder for cameras, means to rotatably support two film-rolls in said holder, and means to rotate said film-rolls, said holder
85 provided with two openings one on the front and one on the rear side thereof, said front opening located adjacent to and outside the plane of a photographic film connecting said rolls, means to open and close said openings,
90 said holder provided with an unobstructed chamber connecting said openings, whereby an unobstructed view of a picture projected upon said film can be seen through said rear
95 opening, and a partition extending transversely across said holder at the top and bottom of said chamber.

7. A camera comprising in its construction a focal-plane-shutter holder and a roll-film
holder detachably fastened one to the other and forming together a casing for said camera;
100 a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connecting said rolls together, mechanism to rotate said rolls, and a lens located between said rolls; a
105 sliding front to which said lens is fastened, a drop-front hinged to said focal-plane-shutter holder, tracks fast to said drop-front upon which said slide-front is adapted to slide, a bellows extending from said slide-front to said
110 focal-plane-shutter casing, adjacent to said focal-plane shutter; said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls.

8. A camera comprising in its construction
115 a focal-plane-shutter holder, and a roll-film holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to
120 rotate in said holder, a slotted curtain connecting said rolls together and mechanism to rotate said rolls, said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls;
125 said roll-film holder provided with two openings, one on the front and one on the rear side thereof, said front opening located adjacent to and outside the plane of a photographic film connecting said rolls, and means to open
130

and close said openings, said roll-film holder provided with an unobstructed chamber connecting said openings, whereby an unobstructed view of a picture projected upon said film can be seen through said rear opening.

9. A camera comprising in its construction a focal-plane-shutter holder, and a roll-film holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connecting said rolls together and mechanism to rotate said rolls, said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls; said roll-film holder provided with two openings, one on the front and one on the rear side thereof, said front opening located adjacent to and outside the plane of a photographic film connecting said rolls, means to open and close said openings, said roll-film holder provided with an unobstructed chamber connecting said openings, whereby an unobstructed view of a picture projected upon said film can be seen through said rear opening, a slide adapted to close said front opening, and a door hinged to the casing of said roll-film holder and adapted to close said rear opening.

10. A camera comprising in its construction

a focal-plane-shutter holder, and a roll-film holder detachably fastened one to the other and forming together a casing for said camera; a focal-plane shutter in said focal-plane-shutter holder comprising two rolls journaled to rotate in said holder, a slotted curtain connecting said rolls together and mechanism to rotate said rolls, said roll-film holder constructed to rotatably support two film-rolls therein, and means to rotate said film-rolls; said roll-film holder provided with two openings, one on the front and one on the rear side thereof, said front opening located adjacent to and outside the plane of a photographic film connecting said rolls, means to open and close said openings, said roll-film holder provided with an unobstructed chamber connecting said openings, whereby an unobstructed view of a picture projected upon said film can be seen through said rear opening, and a partition extending transversely across said roll-film holder at the top and bottom of said chamber.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN S. WRIGHT.

Witnesses:

CHARLES S. GOODING,
ANNIE J. DAILEY.