

No. 665,899.

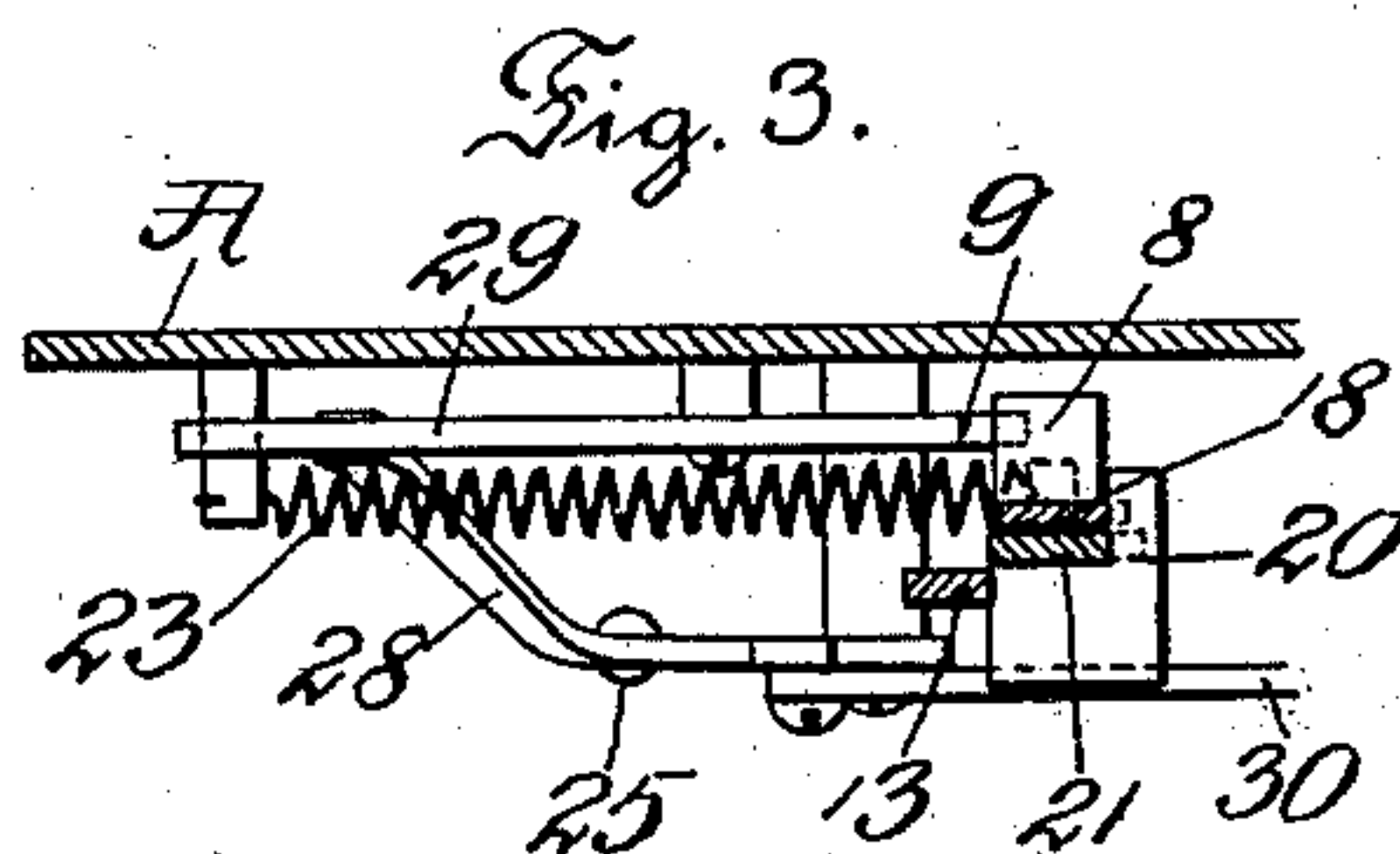
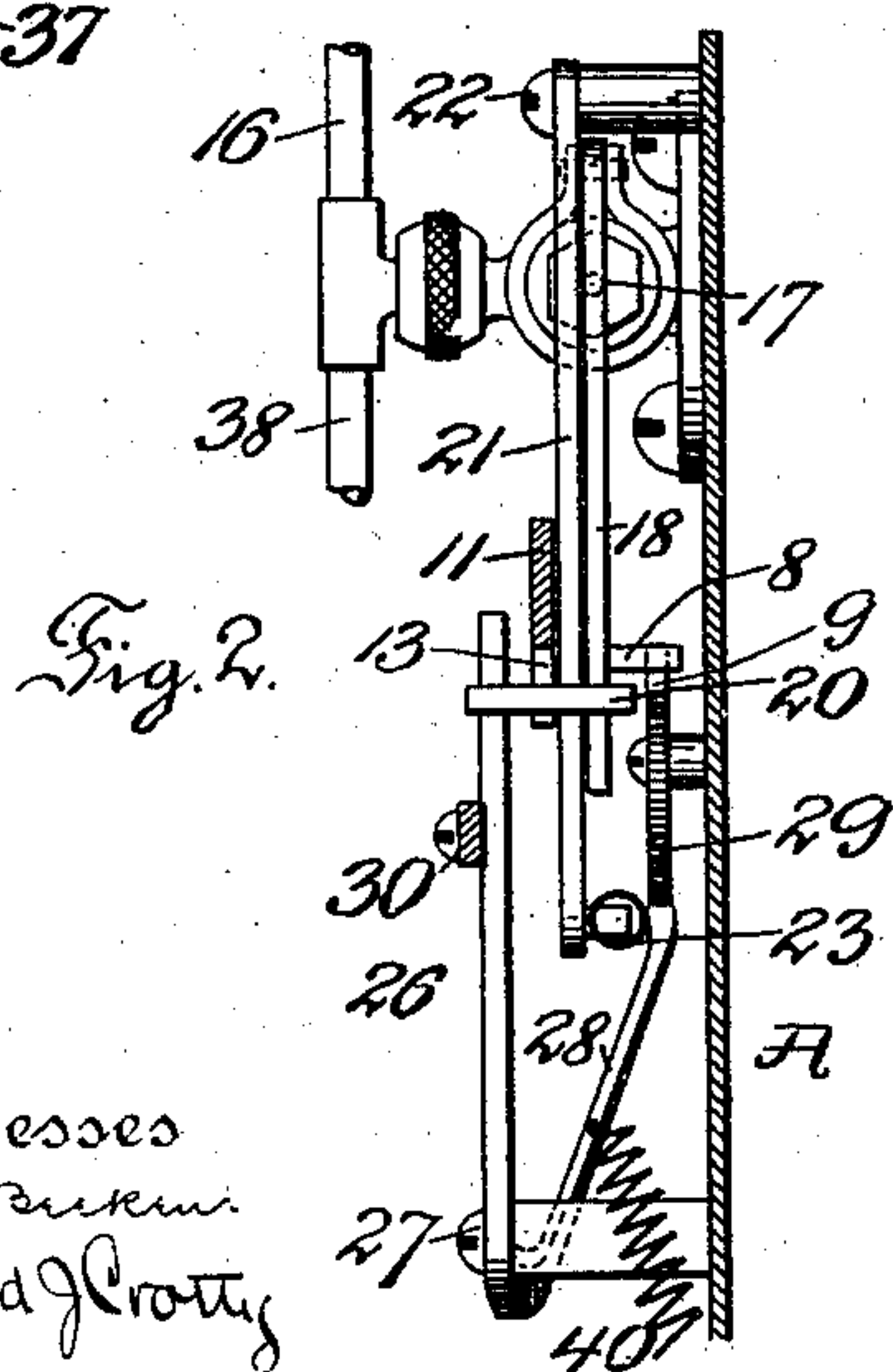
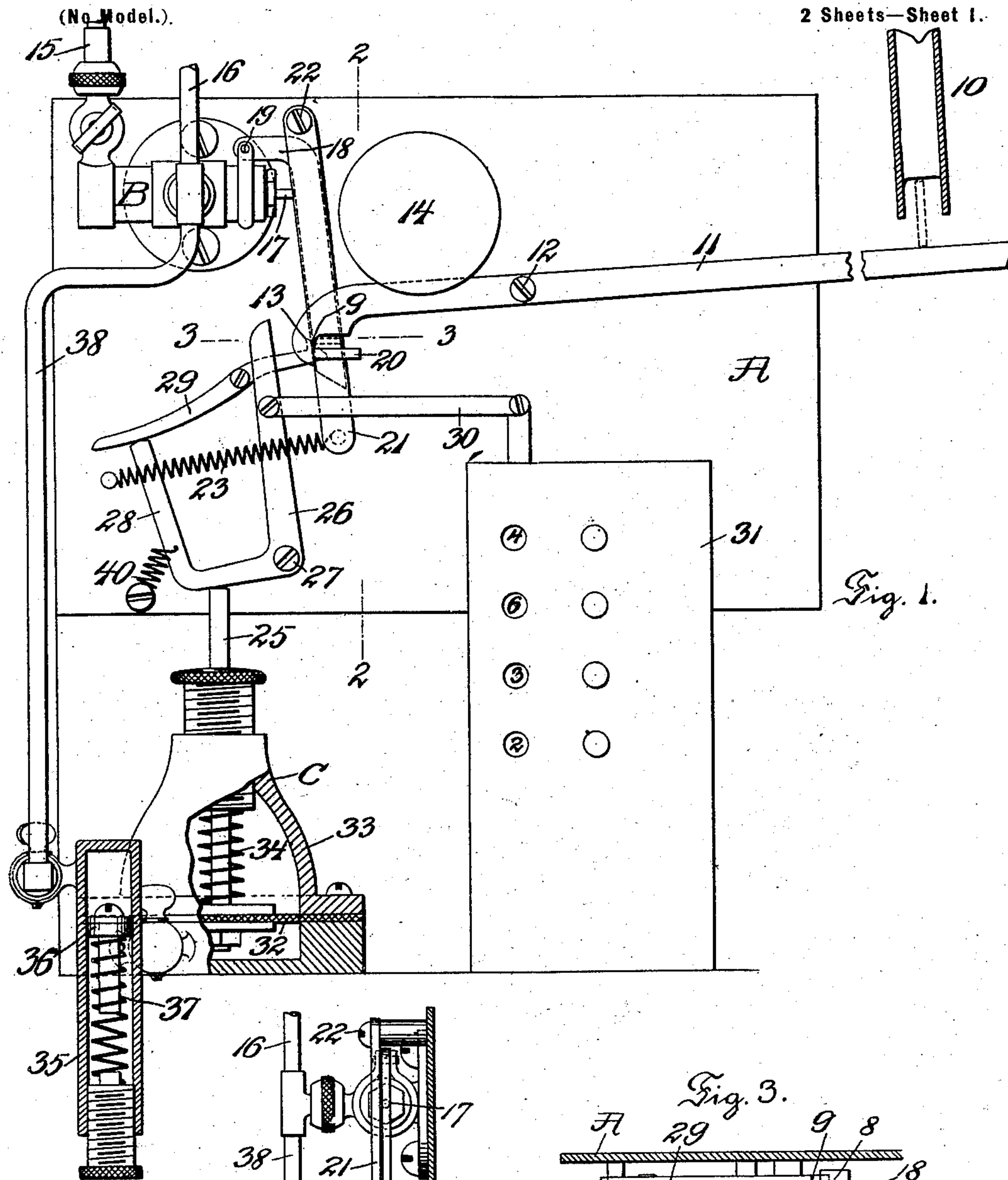
Patented Jan. 15, 1901.

P. F. GILLETTE.
AUTOMATIC TIRE INFLATOR.

(Application filed Aug. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
Paul F. Gillette
Edward J. Crotty

Inventor
Paul F. Gillette
By his Attorney
Geo. H. Graham

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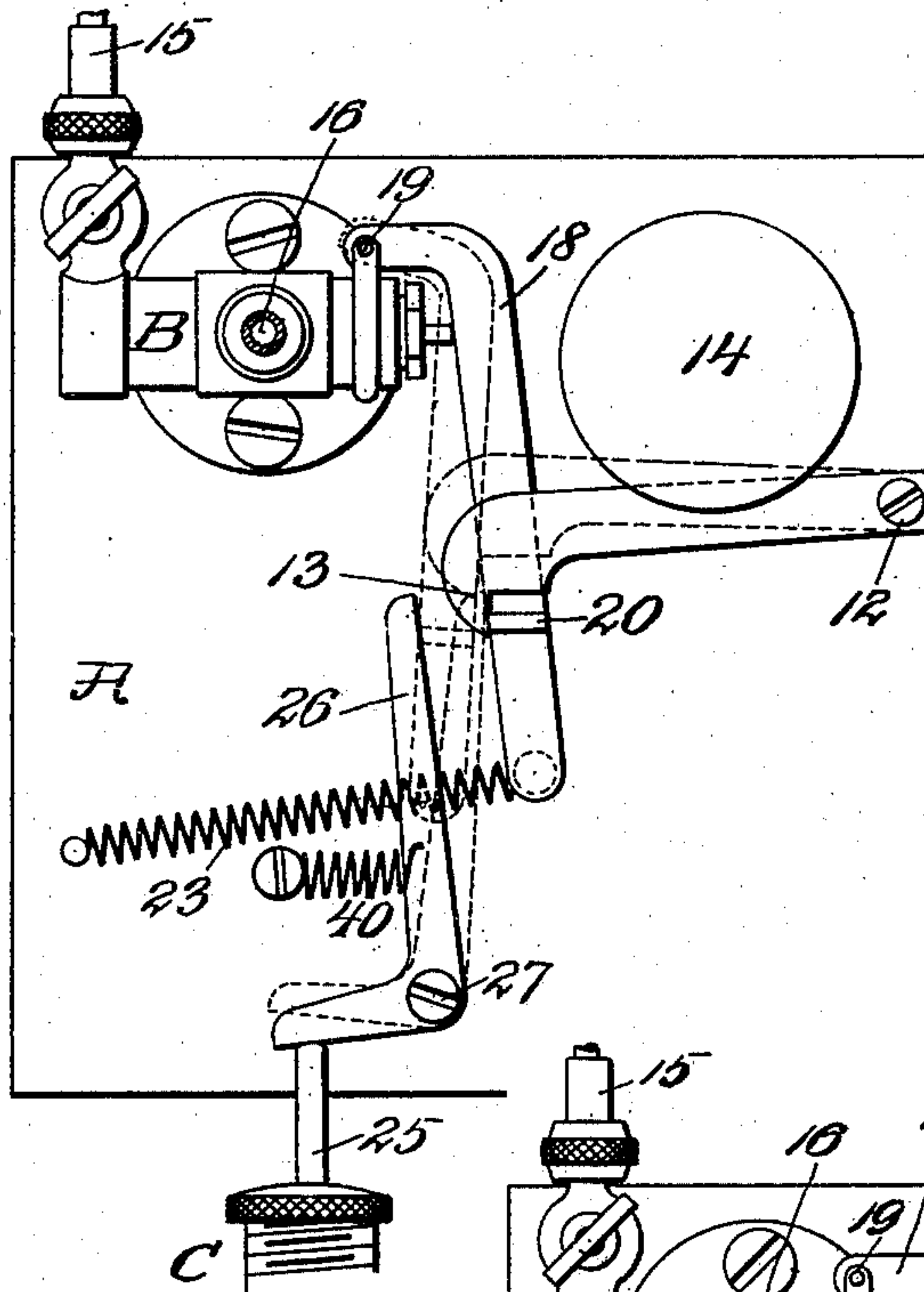


Fig. 4.

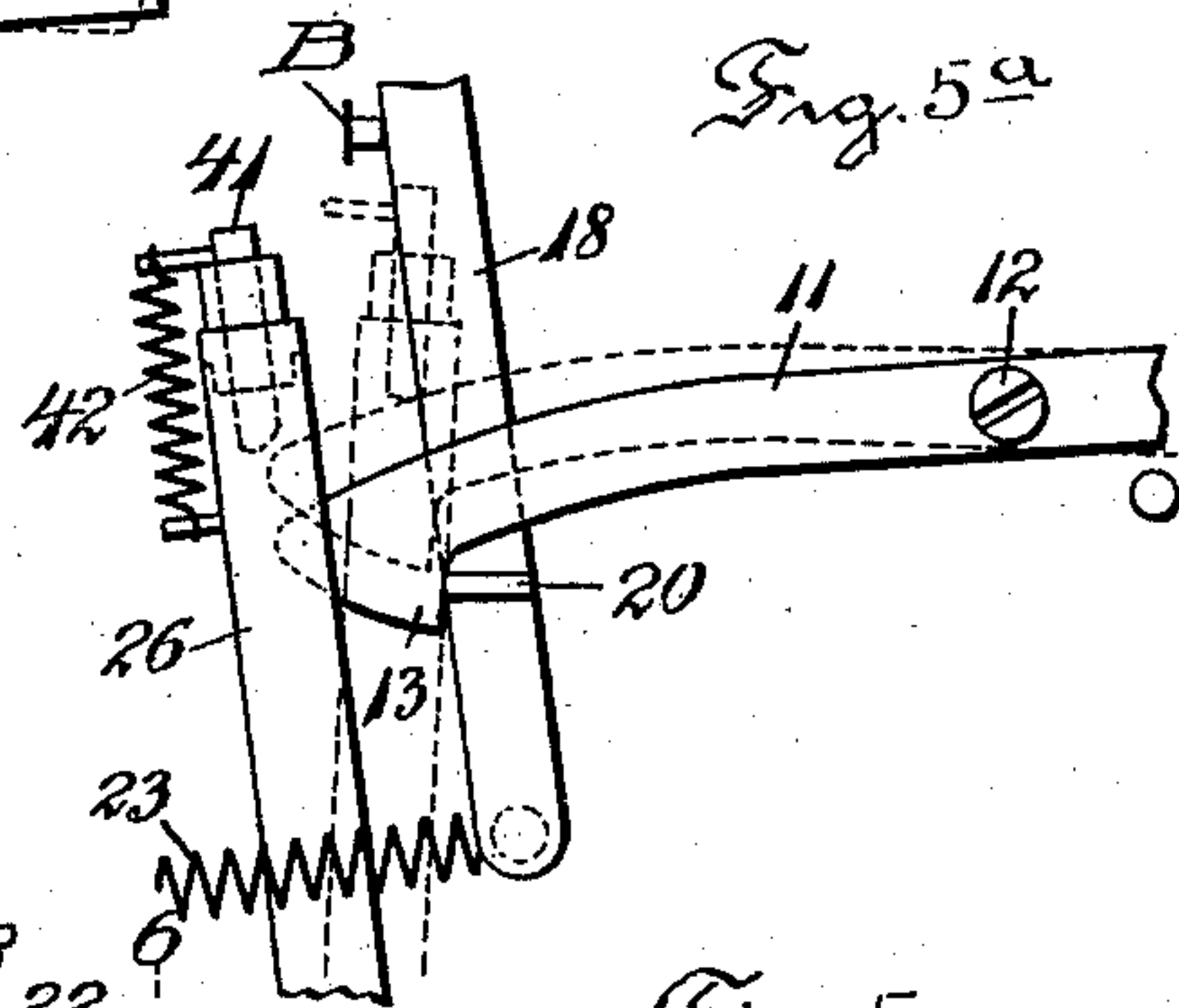


Fig. 5a.

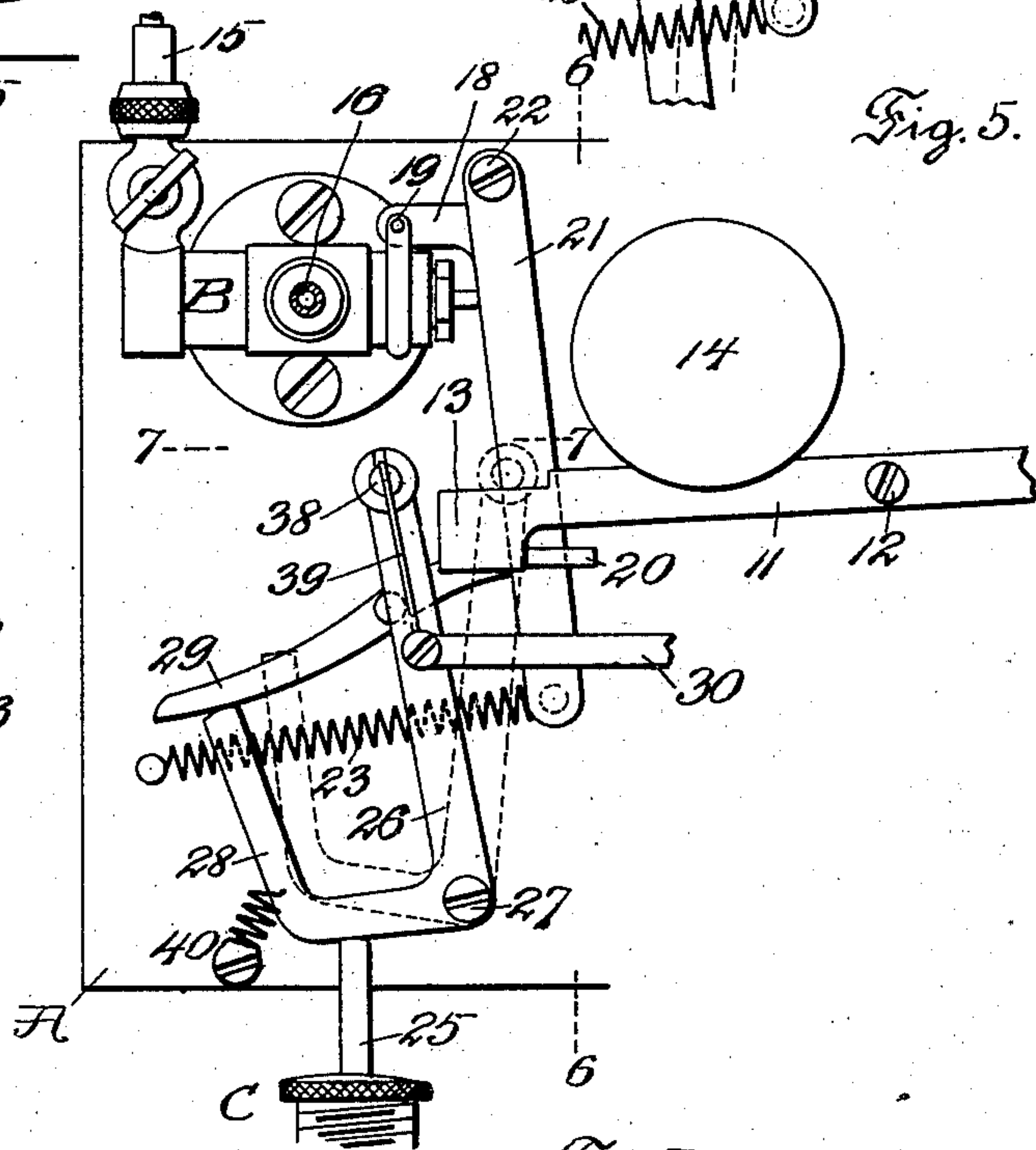


Fig. 5.

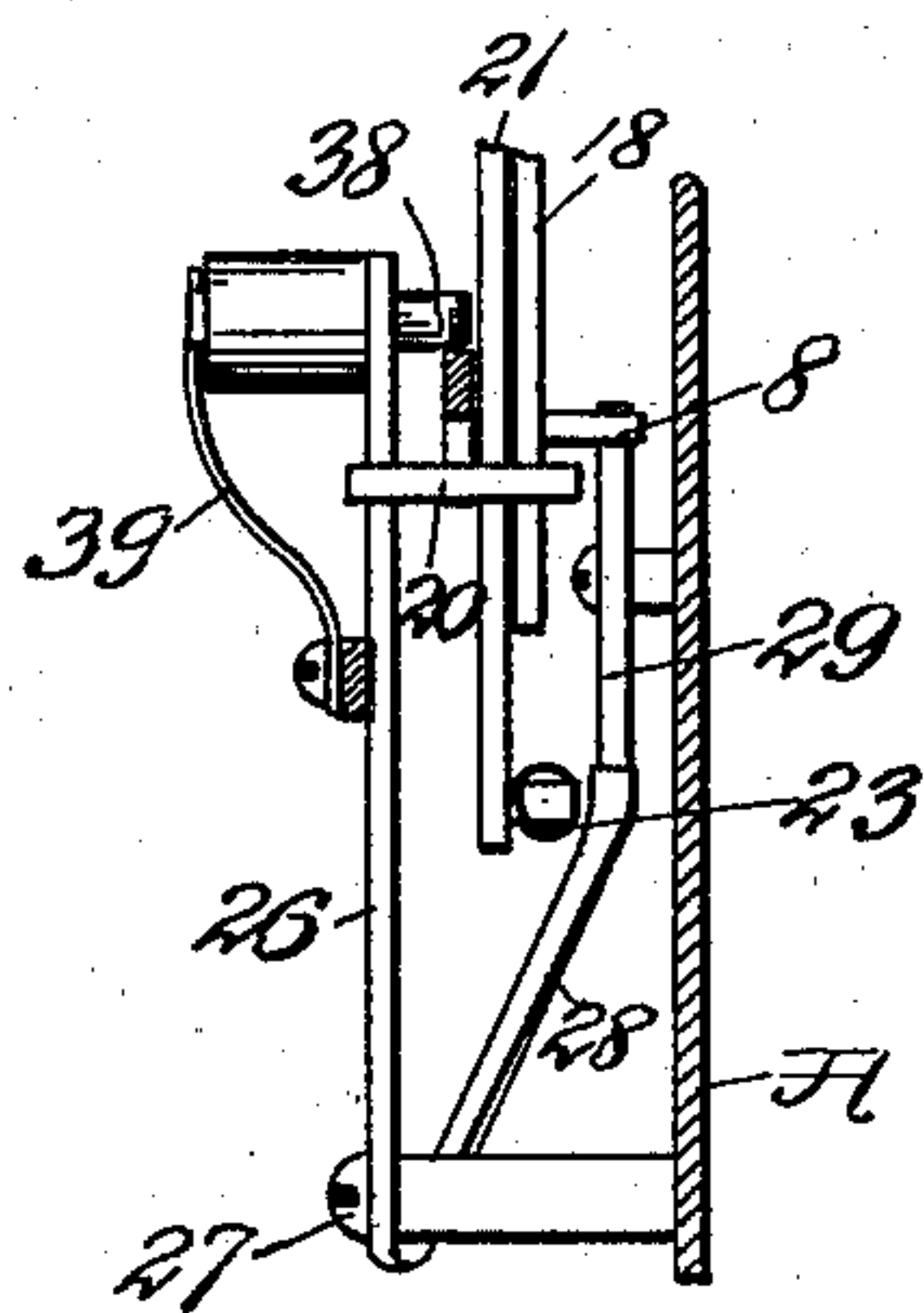


Fig. 6.

WITNESSES:

Arsl v. Beeken.
Edward J. Crotty

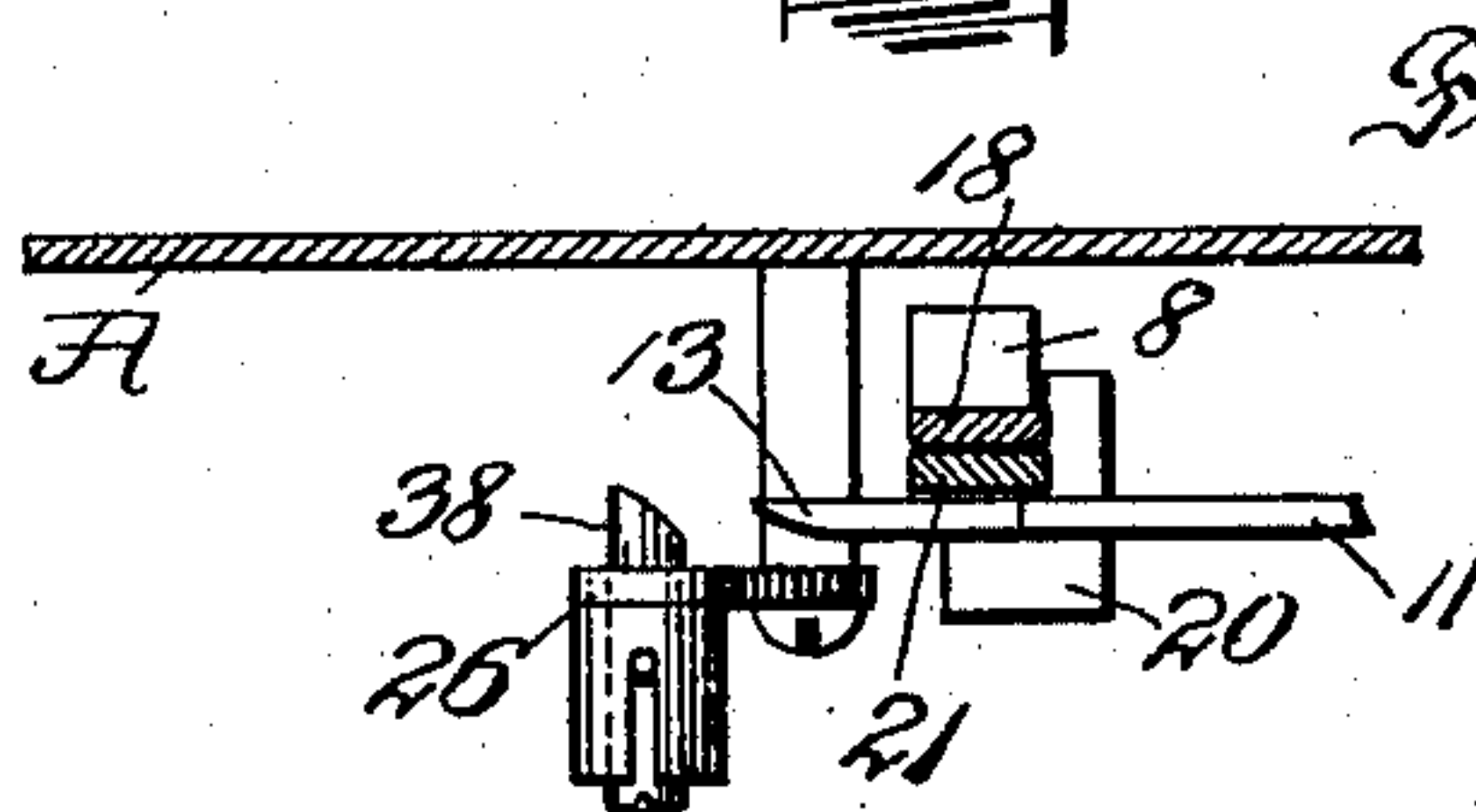


Fig. 7.

INVENTOR

Paul F. Gillette

BY

Geo. H. Graham
ATTORNEY

UNITED STATES PATENT OFFICE.

PAUL F. GILLETTE, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAM B. GLADDING, OF PROVIDENCE, RHODE ISLAND.

AUTOMATIC TIRE-INFLATER.

SPECIFICATION forming part of Letters Patent No. 665,899, dated January 15, 1901.

Application filed April 10, 1899. Serial No. 712,534. (No model.)

To all whom it may concern:

Be it known that I, PAUL F. GILLETTE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Automatic Tire-Inflaters, of which the following is a specification.

The present invention relates generally to coin-operated tire-inflaters wherein the deposit of a coin of the proper value will permit the operator to fill a bicycle-tire or the like with a predetermined pressure of air or gas, which pressure when reached will be automatically cut off, preventing waste, whereupon the apparatus will be restored to its normal position, ready to supply a further quantity of air or gas upon the deposit of another proper coin.

Briefly considered, the improved apparatus consists of an air or gas valve controlling the admission of air or gas to the tire or other receptacle, a coin-operated lever for effecting the movement of said valve upon the introduction of the proper coin into the apparatus, and a restoring device for restoring the parts to their normal condition, ready for the introduction of another coin to fill the next tire.

In its simplest form the improvement embraces an air or gas valve, the stem of the valve of which is controlled by a spring-impelled lever held out of action by the coin-operated lever, which is suitably weighted to hold it in its normal position. Upon the dropping of the proper coin from a suitable height upon the free end of the lever the latter is rocked, thereby freeing the spring-impelled lever to cause the valve to open to allow air to pass to the tire or other receiver to be filled. As soon as the tire or other receiver has received its desired accompaniment of air or gas a diaphragm is operated by the back pressure from said tire, whereby a restoring device rocks the valve-lever over against the pressure of its spring, so as to permit it to be caught by the coin-operated lever and allow the valve to close and prevent further supply of air to the tire.

The invention also includes other features providing for the efficient operation of the apparatus, which will be hereinafter described.

The accompanying drawings illustrate a practical embodiment of the invention, in which—

Figure 1 is a sectional elevation of the improved coin-controlled apparatus removed from its inclosing casing. Fig. 2 is a vertical section of the same on the line 2 2 of Fig. 1. Fig. 3 is a sectional plan on the line 3 3 of Fig. 1. Fig. 4 is a partial elevation of a simplified form of the invention. Fig. 5 is a similar view showing an additional device for preventing the premature movement of the coin-operated lever. Fig. 5^a is a similar view showing a device for returning the coin-operated lever to its normal position. Fig. 6 is a vertical section of the same on the line 6 6 of Fig. 5. Fig. 7 is a horizontal section on the line 7 7 of Fig. 5.

Referring to said drawings, it will be understood that the several parts of the apparatus are supported by a frame or plate A, preferably mounted in a vertical position, on edge, near the lower end of a suitably-sealed inclosing case, which is not shown, which inclosing case will contain, among other things, the air or gas tank, an expansion-chamber, and also a receptacle under lock and key for the coins taken by the machine, and an opening for the entrance of the proper coin to a suitable coin-directing chute 10, provided near the upper end of the machine or its inclosing casing, so that the coin introduced to the chute will have a considerable drop before it meets the operating-lever.

Directly in line with the chute is arranged the free end of a lever 11, pivoted at 12 to the plate A, the near or short end of the lever being formed with a hook or shoulder 13 and suitably weighted with a weight 14 to restore the lever to its former position, as shown in Fig. 1, after each time it is rocked by the impact or weight of the coin against its free end.

The air or gas valve B is represented by a suitable valve-casing supported by the plate A and supporting and containing a suitable valve controlling the admission of fluid from a supply-pipe 15 to a feed-pipe 16, leading to the tire or other receptacle to be filled. Normally the valve closes communication between the supply and feed pipes, so that air cannot pass to the feed-pipe 16, the valve being held

seated by a suitable spring. (Not shown.) The valve-stem 17 extends in the path of a suitable lever 18, pivoted at 19 and extending downwardly to be engaged on the opposite side to the valve B by a projection 20, carried and forming part of a downwardly-extending lever 21, which is pivoted at 22 to the plate A. This same projection 20 or some other suitable portion of the lever 21 is in turn engaged by the hook or shoulder 13 of the lever 11, the said projection and the hook or shoulder being engaged under the pull of a spring 23, connected to the lower end of the lever 21, it being noticed that the levers 18 and 21 are independent ones and that when the coin-operated lever 11 is rocked to free its hooked end from the projection 20 the pull of the spring 23 will rock the levers 18 and 21 substantially simultaneously, the lever 18 being rocked by the contact of the projection 20 with its lower end, whereby the valve is moved inwardly and the passages between the supply and feed pipes 15 and 16 opened, and it will also be noticed that so far as the function of the two levers 18 and 21 is concerned in opening the valve they may be a single lever. (See Fig. 4.)

The restoring device C, which acts to retain or restore the parts in position so that the succeeding coin may again operate the apparatus when the desired or predetermined pressure has been obtained, consists of a suitably-constructed diaphragm 32, held by a hollow frame 33, the lower side of the diaphragm being in connection with the exhaust side of the valve B or with the feed of air to the tire or other receptacle to be filled by means of the branch feed-pipe 38. This diaphragm is set to be moved at some predetermined pressure by means, say, of an adjustable spring 34, and is provided with a vertically-extending stem 25, operating against one end of a suitably-shaped lever 26, pivoted at 27 to the plate A and held in normal position by a spring 40, the upper end or one arm of the lever being arranged to meet the projection 20, so that when the desired or predetermined pressure is obtained in the tire the diaphragm will be moved upwardly with its stem 25, and the lever 26 will be rocked against the projection 20, moving it and its lever to the right, so that said projection will be caught by the hook end of the coin-operated lever 11 and thus restored to its normal position. At the same time this occurs an upwardly-turned end or projection 28 of the lever 26 rocks an intermediately-pivoted lever 29, so that its hooked end 9, which had previously caught a projection 8 on the inner side of the lever 18, will be released to allow said lever 18 to return to its normal position against the shoulder 20 under the pressure of the spring acting against the valve before referred to. When the coin-operated lever is operated by the impact of the coin therewith, both levers 18 and 21 are released and under the pressure of the spring 23 are caused to rock to the left.

In so doing the lever 18 or its projection 8 will be caught by the hooked end 9 of the lever 29, holding said lever and the valve in its open position. In such case the lever 11 may be operated again and again without allowing more air or gas to be supplied to the tire or other receptacle until the back pressure of the latter is sufficient to have caused the rocking of the lever 26 not only to restore the lever 21 to its former position, but also to release the hook of the lever 29, so as to allow the independent restoration of the lever 18.

A register 31 is provided for indicating the number of times the apparatus is used or receptacles are filled and is preferably connected to some reciprocating part of the apparatus by a link 30—to, say, the lever 26.

Interposed between the branch feed-pipe 38 and the lower side of the diaphragm 32 is a cylinder 35, containing a retarding-piston 36, supported upon an adjustable spring 37 and situated between the feed-pipe 38 and the opening into the frame 33 and serving to prevent too ready access of gas to the diaphragm when great supply-pressures are used, and thus to prevent premature operation of the lever 26.

Fig. 4 shows the invention in its simplest form, consisting, essentially, of the valve B, operated by a single lever 18, which is held in position against the pull of the spring 23 by means of the projection 20, engaged by the trip or coin-operated lever 11, and of the diaphragm-operated lever 26, adapted to return the valve-operating lever 18 to its normal position to be caught and held by the hook 13 of the lever 11. The changed positions of the various levers are shown in dotted lines.

After the lever 26 has returned the lever 21 to be engaged by the hook 13 means are provided (see Figs. 5, 6, and 7) for preventing the tripping of the coin-operating lever until the filled receptacle has been removed, the back pressure on the diaphragm relieved, and the lever 26 returned to its normal position. These means consist of a projection or detent 38 in the form of a movable pin on the end of the lever 26 and positioned so as to project over the hook 13 after it has engaged the projection 20 and to lock it in position or prevent its disengagement therewith until the lever 26 has returned to its normal position. The pin 38 is movable outwardly against a spring 39 and is provided with a beveled side to connect with the beveled end of the hook 13, so that the lever 26 can readily move to the right to return the lever 21 when the hook is in its disengaged position.

Referring to Fig. 5^a, the counterweight for the coin-operated lever is dispensed with and the lever is brought to its normal position in engagement with the projection 20 by a pin or detent 41, mounted in the lever 26 above the hook 13, which is engaged by the pin on its inclined upper edge as the lever 26 is actuated by the stem 25. The pin 41 is yield-

ingly movable upward against a spring 42, which is of sufficient strength to prevent the rocking of the lever 10 by a coin, while the pin bears upon the hook 13. The device
5 therefore serves the double purpose of returning and locking the coin-operated lever in its normal position until the back pressure is relieved.

What is claimed is—

10 1. In a coin-operated apparatus, the combination of a fluid-pressure-controlling valve, a conduit leading therefrom adapted for connection with the receptacle to be charged, a lever operated by the impact or momentum
15 of the coin whereby the valve is operable, and means operated by a predetermined fluid-pressure in the receptacle for cutting off said fluid-pressure, as described.

20 2. In a coin-operated apparatus, the combination of a fluid-pressure-supply valve, a conduit leading therefrom adapted for connection with the receptacle to be charged, a lever operated by the impact or momentum of the coin whereby the valve is opened, and
25 a restorer connected with said conduit and operable on a predetermined pressure in the receptacle to close communication with the fluid-pressure supply, as described.

30 3. In a coin-operated apparatus, the combination of a fluid-pressure valve, a coin-operated lever to open said valve and a fluid-pressure-operated restorer acting to restore the parts to normal position, as described.

35 4. In a coin-operated apparatus, the combination of a fluid-pressure valve, a lever for opening the same, a second lever spring-propelled for moving the first-named lever, and a coin-operated lever for releasing the said second lever, as described.

40 5. In a coin-operated apparatus, the combination of a fluid-pressure valve, a lever for opening the same, a second lever spring-propelled for moving the first-named lever, a coin-operated lever for releasing the said second lever and a restorer for said second lever, as described.

50 6. In a coin-operated apparatus, the combination of a fluid-pressure valve, a lever for operating the same, a hooked lever for temporarily holding said lever with the valve open and a coin-operated lever for causing the opening movement of said first lever, as described.

7. In a coin-operated apparatus, the combination of a fluid-pressure valve, a lever for
55 opening the same, a hooked lever for temporarily holding said lever with the valve open, a coin-operated lever for causing the operating movement of said first lever, and a restorer for releasing said hooked lever, as
60 described.

8. In a coin-operated apparatus, the combination of a fluid-pressure valve, coin-operated mechanism for operating the said valve, a restoring mechanism, a fluid-pressure supply to said restoring mechanism and a yielding
65 retarding-piston interposed between the pressure-supply and restoring mechanism, as described.

9. In a coin-operated apparatus, the combination of a fluid-controlling valve, a coin-controlled lever for opening the valve, a fluid-pressure-operated restoring mechanism and a detent carried by the restoring mechanism adapted to lock the said lever in position, as described.
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10. In a coin-controlled apparatus, the combination of a fluid-pressure valve, coin-operated mechanism permitting the operation of said valve, a fluid-pressure-operated restoring mechanism, a conduit communicating with the valve and with the tire, and a passage forming communication between the restoring mechanism and the tire or receptacle to be filled, as described.
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11. In a coin-operated apparatus, the combination of a fluid-controlling valve, a coin-controlled lever for opening the valves, a fluid-pressure-operated restoring mechanism and a detent operated by said restoring mechanism adapted to restore the said lever to its normal position, as described.
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12. In a coin-operated apparatus the combination of a fluid-controlling valve, a coin-controlled lever for opening the valve, a fluid-pressure-operated restoring mechanism and a yielding detent carried by the restoring mechanism adapted to restore and lock the said lever in its normal position, as described.
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In witness whereof I have hereunto set my hand this 7th day of March, 1899.
100

PAUL F. GILLETTE.

Witnesses:

RUFUS W. FROST,
GEO. F. WILSON.