

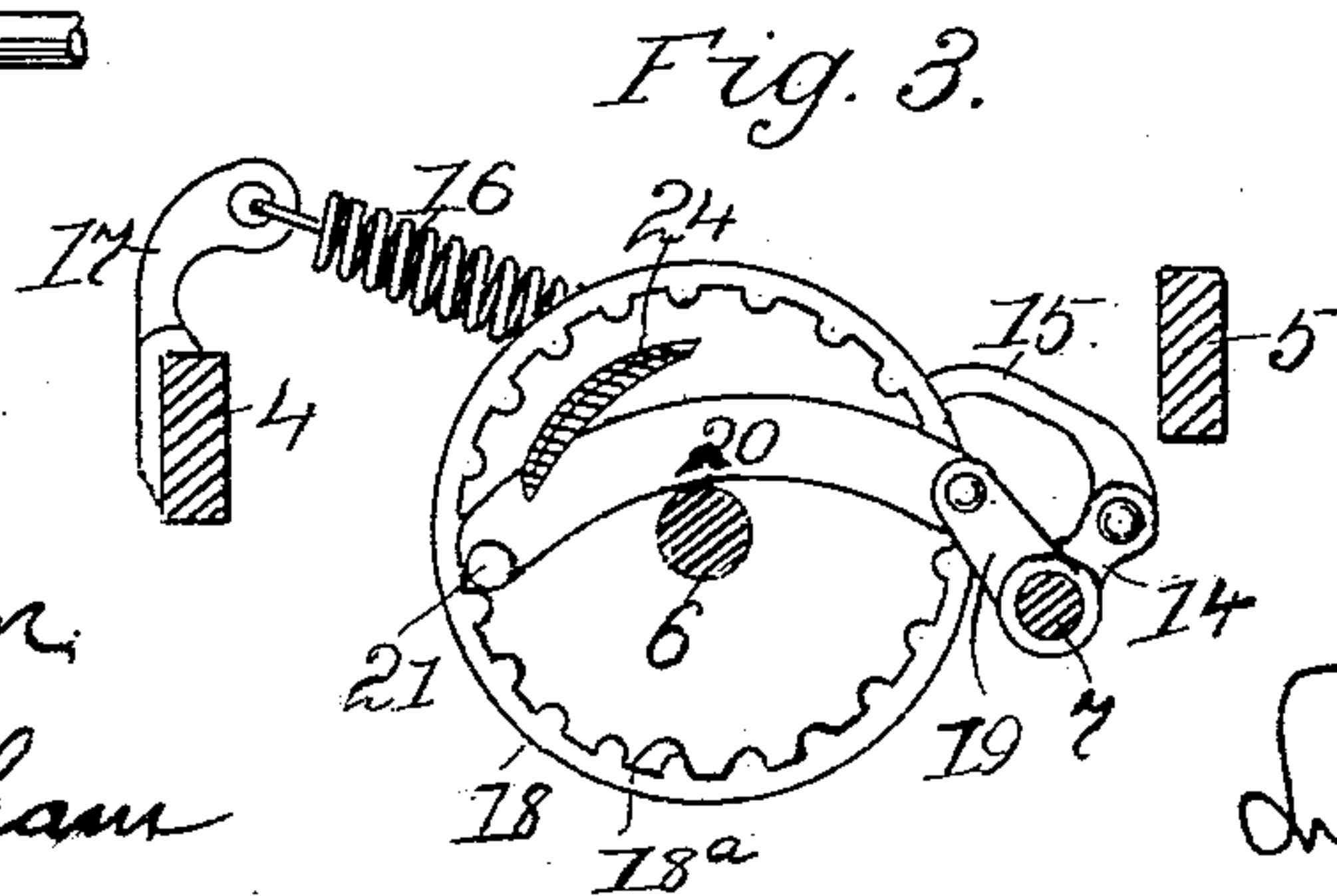
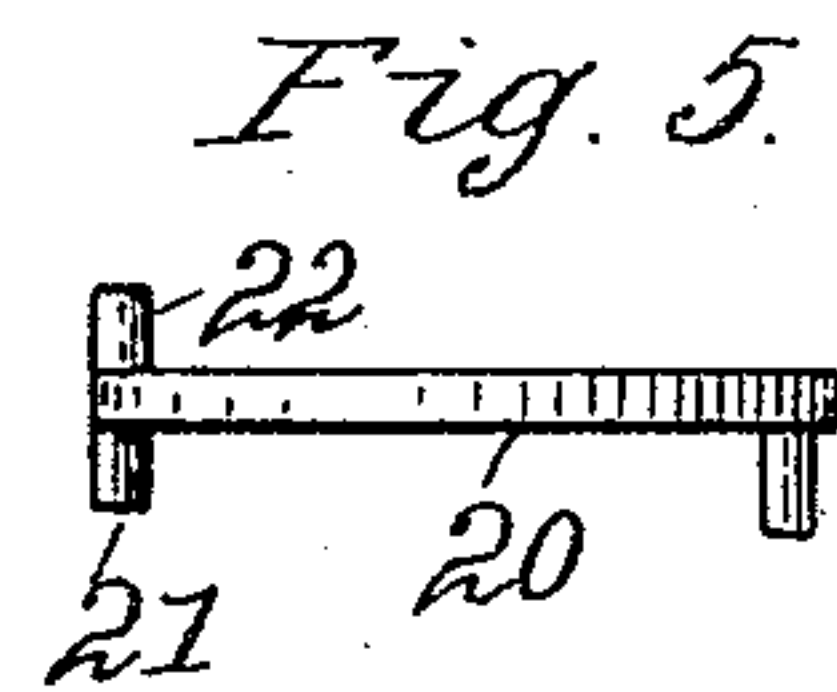
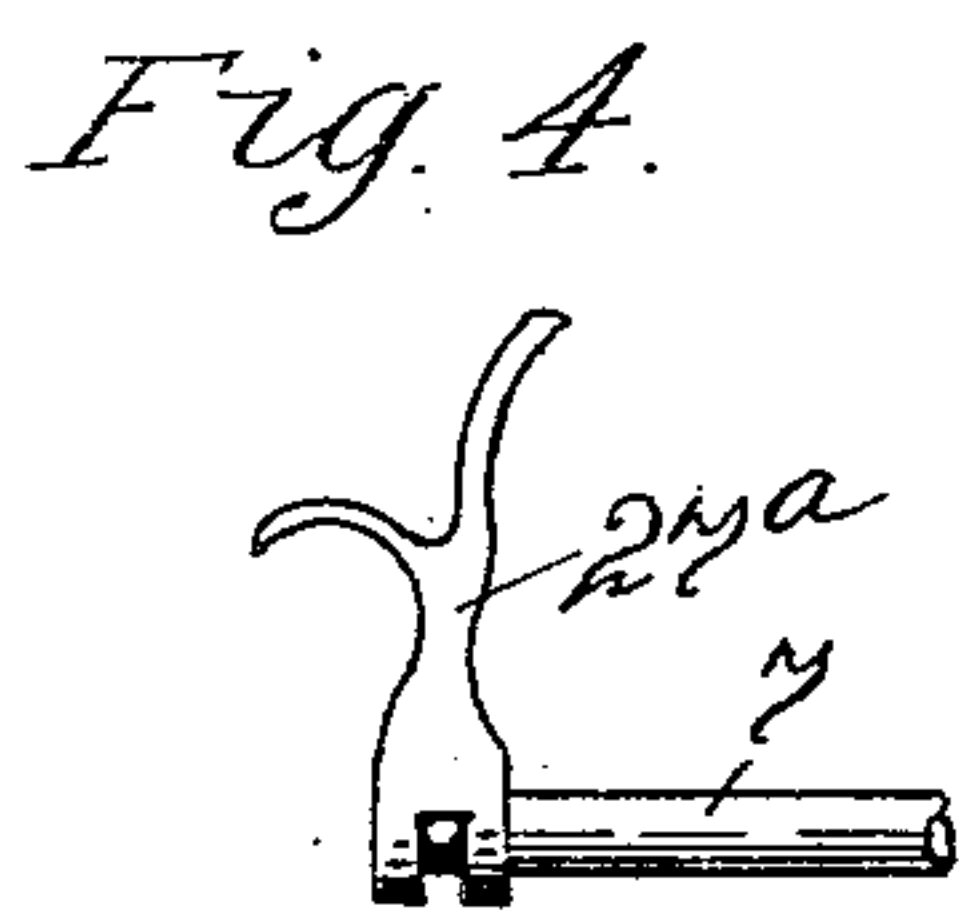
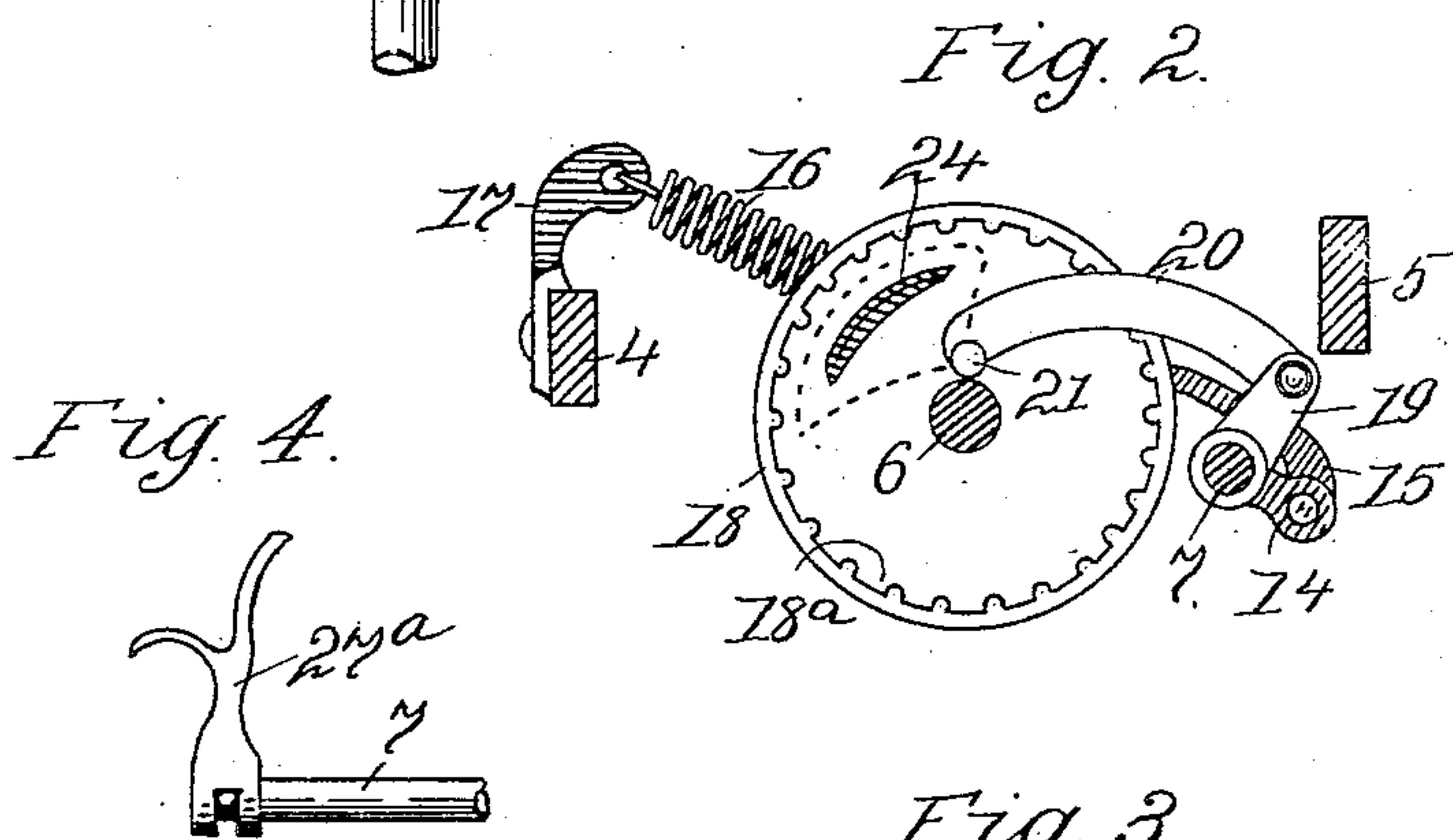
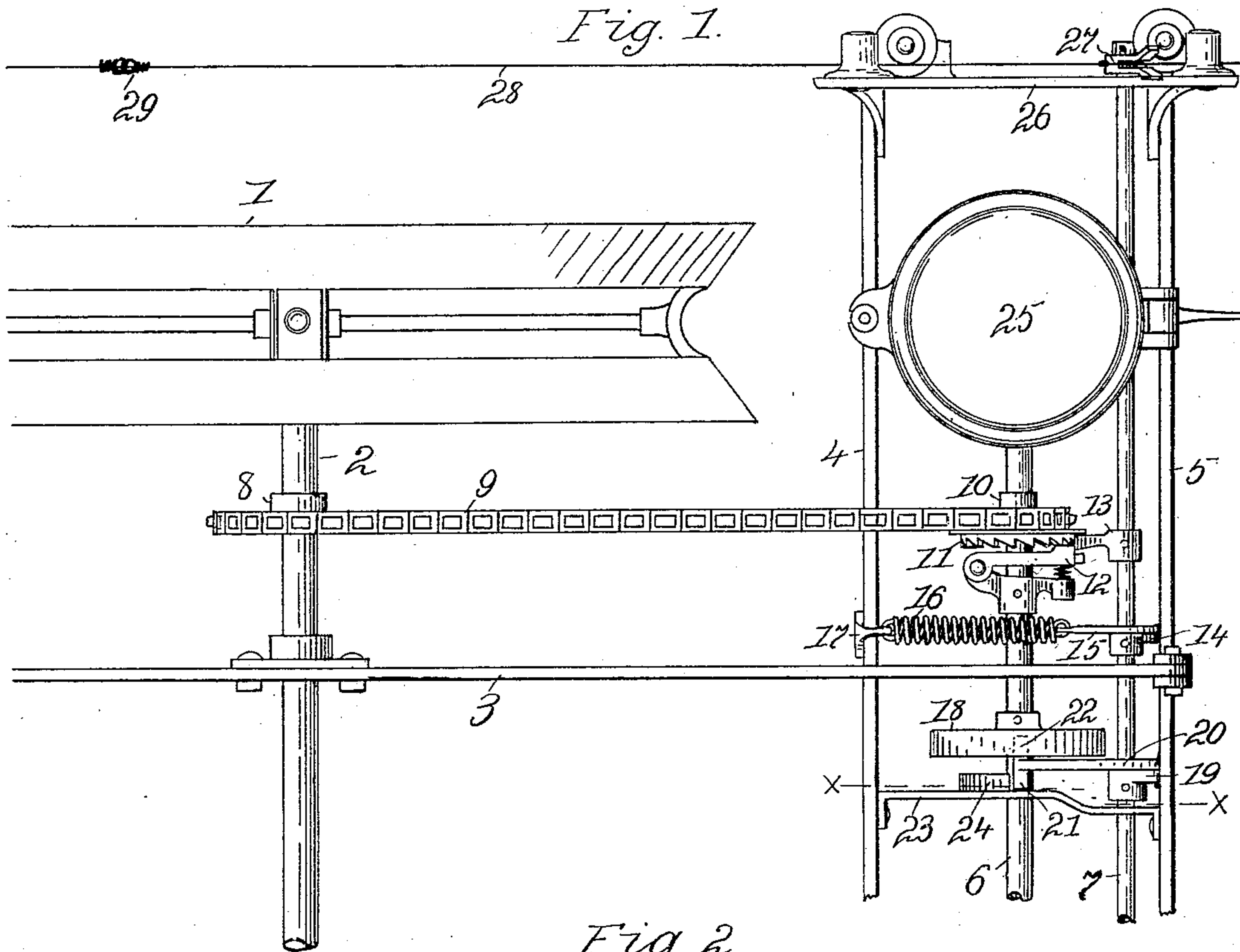
No. 713,563.

Patented Nov. 11, 1902.

L. P. GRAHAM.  
CORN PLANTER.

(Application filed June 30, 1902.)

(No Model.)



Witnesses.

Ina Graham  
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# UNITED STATES PATENT OFFICE.

LEVI P. GRAHAM, OF DECATUR, ILLINOIS.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 713,563, dated November 11, 1902.

Application filed June 30, 1902. Serial No. 113,847. (No model.)

*To all whom it may concern:*

Be it known that I, LEVI P. GRAHAM, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and  
5 useful Improvements in Corn-Planters, of which the following is a specification.

The object of this invention is to provide means for reducing the work imposed on the check-row wire; and the invention relates to  
10 planters in which a drill-shaft is driven by the covering-wheels of the planter and a check-row shaft is actuated operatively by a check-row wire or an equivalent thereof. The invention is exemplified in the structure here-  
15 inafter described, and it is defined in the appended claims.

It has been a common practice for a great many years to provide a check-row shaft with a retracting-spring, which is put under tension as the shaft is rocked backward in actuating the second drop and which retracts the shaft when the knots of the check-row wire ride clear of the forks of the check-row shaft. Originally the wire was used to operate the first drop as well as the second drop;  
25 but in later years the dropping mechanism in the seedboxes has been driven from the covering-wheels of the planter, and the work of the check-row wire has thereby been materially lessened. It is still common, however, to actuate the second drop mechanism by the knots on the wire and to put retracting-springs under tension at the same time. The resistance of the retracting-springs is  
35 not excessive; but the tension of the springs increases as the forks rock backward, and as the knots ride clear of the crotches of the forks the extreme tension of the springs is exerted toward wedging the knots in the crotches  
40 of the forks. The wedging action wears on the forks until sufficient space is made to enable the knots to catch in the forks, and the jerks that follow stretch the wire and impair its usefulness by varying the distance be-  
45 tween knots.

In my Patents No. 680,326, granted August 13, 1901, and No. 701,712, granted June 3, 1902, I have described means applicable to  
50 planters having a single shaft in the front frame, whereby the work of the check-row wire is reduced to a minimum, and the present invention is intended to effect the same

result in planters in which the front frames are supplied each with a rotating drill-shaft and a rocking check-row shaft.

The novel results are, first, the retraction of the check-row shaft by force derived from the drill-shaft; second, the retention of the check-row shaft in a forward position until a check-row knot is encountered or other outside in-  
55 fluence is made to rock the shaft backward, and, third, the actuating of the second drop mechanism wholly or in part by force derived from the drill-shaft and held in restraint until released by the check-row wire or an equivalent thereof.

In the drawings forming part of this specification, Figure 1 is a plan of so much of a planter as is needed to explain my invention. Fig. 2 is a section on line X in Fig. 1, showing the check-row shaft rocked forward. Fig.  
60 3 is a section on line X in Fig. 1, showing the check-row shaft rocked backward. Fig. 4 is a detail of a modified form of check-row fork made possible by my improvement. Fig. 5 is  
75 a plan of the pawl preferably employed to receive motion from a ratchet-wheel on the drill-shaft and impart backward motion to the check-row shaft.

A planter-wheel is shown at 1, the axle-  
80 shaft of the planter is shown at 2, and 3 represents one of the side bars of the rear frame of the planter. The cross-bars of the front frame of the planter are shown one at 4 and the other at 5. The drill-shaft, through which  
85 the dropping mechanism in the seedboxes is actuated, is shown at 6, and the rock-shaft used to impart motion to the second drop mechanism, and which is commonly designated the "check-row" shaft, is shown at 7. A  
90 sprocket-wheel 8 is fastened to the axle-shaft, and a chain 9 transmits motion from wheel 8 to a sprocket-wheel 10 on the drill-shaft 6.

It is customary to control the rotation of the drill-shaft from the check-row shaft, and  
95 in this instance the sprocket-wheel 10 has a ratchet-face 11. A clutch member 12 is pivoted to the drill-shaft, so as to rotate therewith, and a throw-out pawl 13 provides means for detaching the clutch member 12 from the  
100 sprocket-wheel at the completion of the rotation of the drill-shaft, and thereby permitting the sprocket-wheel to run loose on the drill-shaft until the check-row shaft is rocked



backward. The shown form of the clutch mechanism is not essential to my invention. It is necessary that the drill-shaft shall receive motion from the covering-wheels of the planter, and it is merely desirable that in some manner or other the drill-shaft shall be controlled by the check-row shaft, so that a proper number of grains will be discharged from the seedbox while traveling between cross-rows.

A seedbox is shown at 25, a check-row head at 26, and a forked lever for the check-row shaft is shown at 27. A check-row wire is shown at 28, and it is knotted at intervals, as is shown at 29.

A wheel 18 is secured to the drill-shaft, and it is recessed in one face and provided with internally-presented ratchet-teeth 18<sup>a</sup>. An arm 19 is attached to the check-row shaft, a pawl 20 is pivotally connected with the swinging end of the arm, and pins 21 and 22 project in opposite directions from the free end of the pawl. A bracket 23 is attached to the cross-bars of the front frame, and it carries a guide-cam 24 for the pin 21 of pawl 20.

An arm 14 is attached to the check-row shaft, a bent link 15 is connected pivotally with the swinging end of the arm, and a spring 16 connects at one end with the bent link and at the other end with a bracket 17 on the cross-bar 4.

When the check-row shaft is rocked forward, as shown in Figs. 1 and 2, the tension of the spring is exerted lengthwise of arm 14, thus forming a dead-center lock, which tends to hold the check-row shaft stationary, and the free end of pawl 20 rests on the drill-shaft. When the check-row shaft is given initial backward rock by a check-row-wire knot or other outside influence, the dead-center lock is broken. The spring may then remain passive and permit the shaft to be rocked backward by the knot of the wire, for instance, or it may rock the shaft backward by its own strength independent of the knot, or it may aid the knot in rocking the shaft backward, the operation depending on the strength and stretch of the spring. The best result is attained by having the spring strong enough and giving it stretch enough to carry the fork away from the knot and perform the work of the check-row shaft; but it is beneficial to have the spring assist the knot, and even if the spring does nothing more than hold the check-row shaft stationary in its forward position the detrimental effect of a retracting-spring is avoided. When the check-row shaft is thrown backward to the termination of its operative motion, the pin 22 engages a tooth of the ratchet-wheel 18, and as

the pawl rises the pin 21 passes behind the guide-cam 24 and holds pin 22 from falling away from the ratchet-tooth before the end of the forward rock of the check-row shaft is reached. As the check-row shaft reaches the termination of its forward rock the pin 21 rides clear of the guide-cam and permits the pawl to fall to the position shown in Fig. 2.

When the spring is made strong enough to actuate the second drop, as it should be, the only work required of the knots on the check-row wire is to give the rock-shaft initial backward motion, and to effect that result only a slight tap is required. On that account it is preferable to make the forks somewhat as shown in Fig. 4, so that kinks in the wire will not throw off the check-row shaft between cross-rows. It is obvious that the work of check-rowing across the ends of the field by hand or foot power will be as light as the labor imposed on the check-row wire in regular planting and that the driver will thus be relieved of a rather hard task.

I claim—

1. In a planter, the combination of a covering-wheel, a rotating drill-shaft, a rocking check-row shaft, means for transmitting motion from the covering-wheel to the drill-shaft, means for rocking the check-row shaft backward and means actuated by the drill-shaft for rocking the check-row shaft forward.

2. In a planter, the combination of a covering-wheel, a rotating drill-shaft, a rocking check-row shaft, means for transmitting motion from the covering-wheel to the drill-shaft, means for controlling the movements of the drill-shaft from the check-row shaft, means for rocking the check-row shaft backward and means actuated by the drill-shaft for rocking the check-row shaft forward.

3. In a planter, the combination of a covering-wheel, a rotating drill-shaft, a rocking check-row shaft, means for transmitting motion from the covering-wheel to the drill-shaft, means for controlling the movements of the drill-shaft from the check-row shaft, an arm on the check-row shaft, a spring exerting stress lengthwise of the arm when the check-row shaft is rocked forward, means for giving the check-row shaft initial backward motion to break the dead-center lock made by the arm and the spring, and means actuated from the drill-shaft for rocking the check-row shaft forward.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

LEVI P. GRAHAM.

Witnesses:

INA C. GRAHAM,  
NORA GRAHAM.