

No. 713,217.

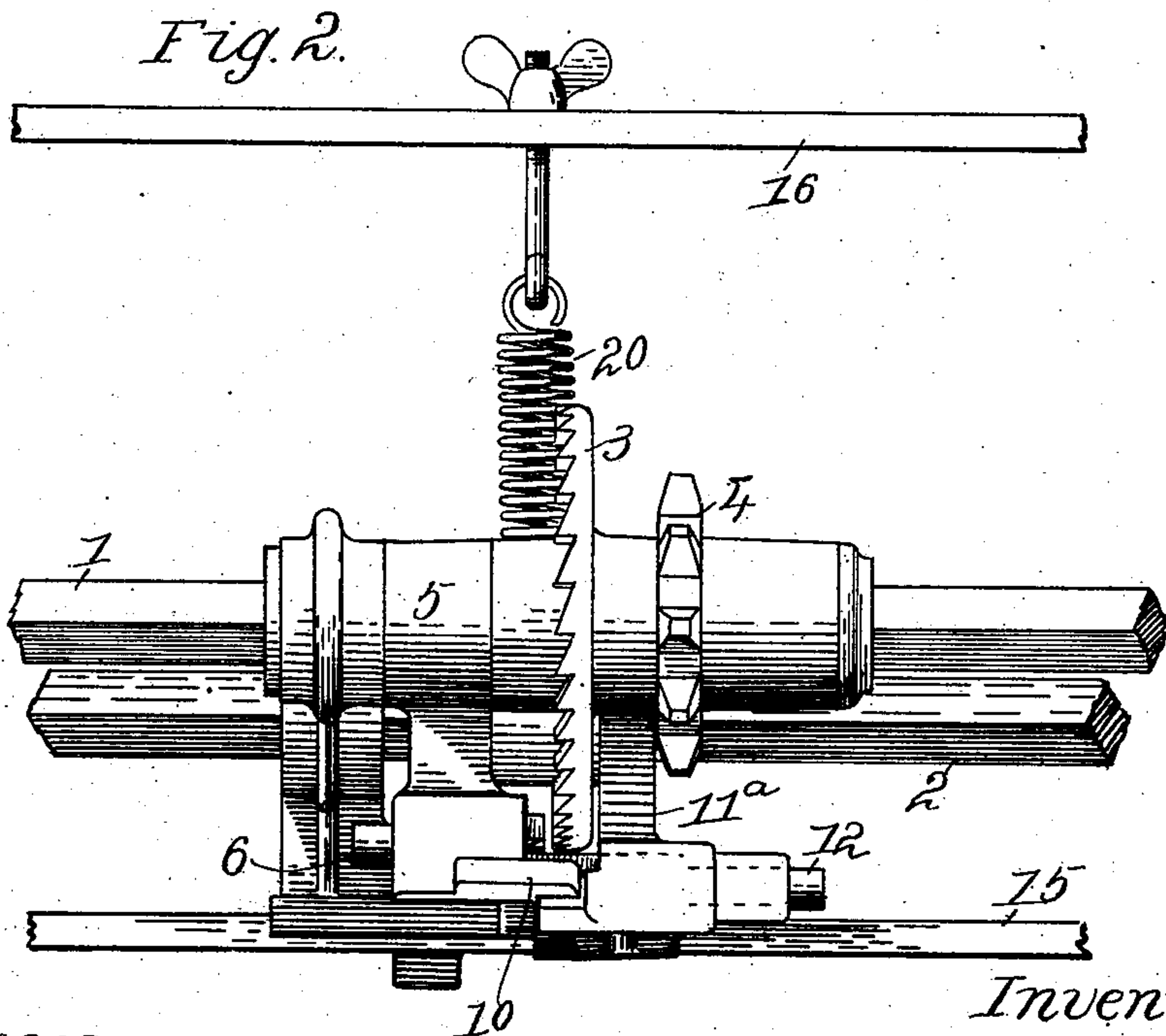
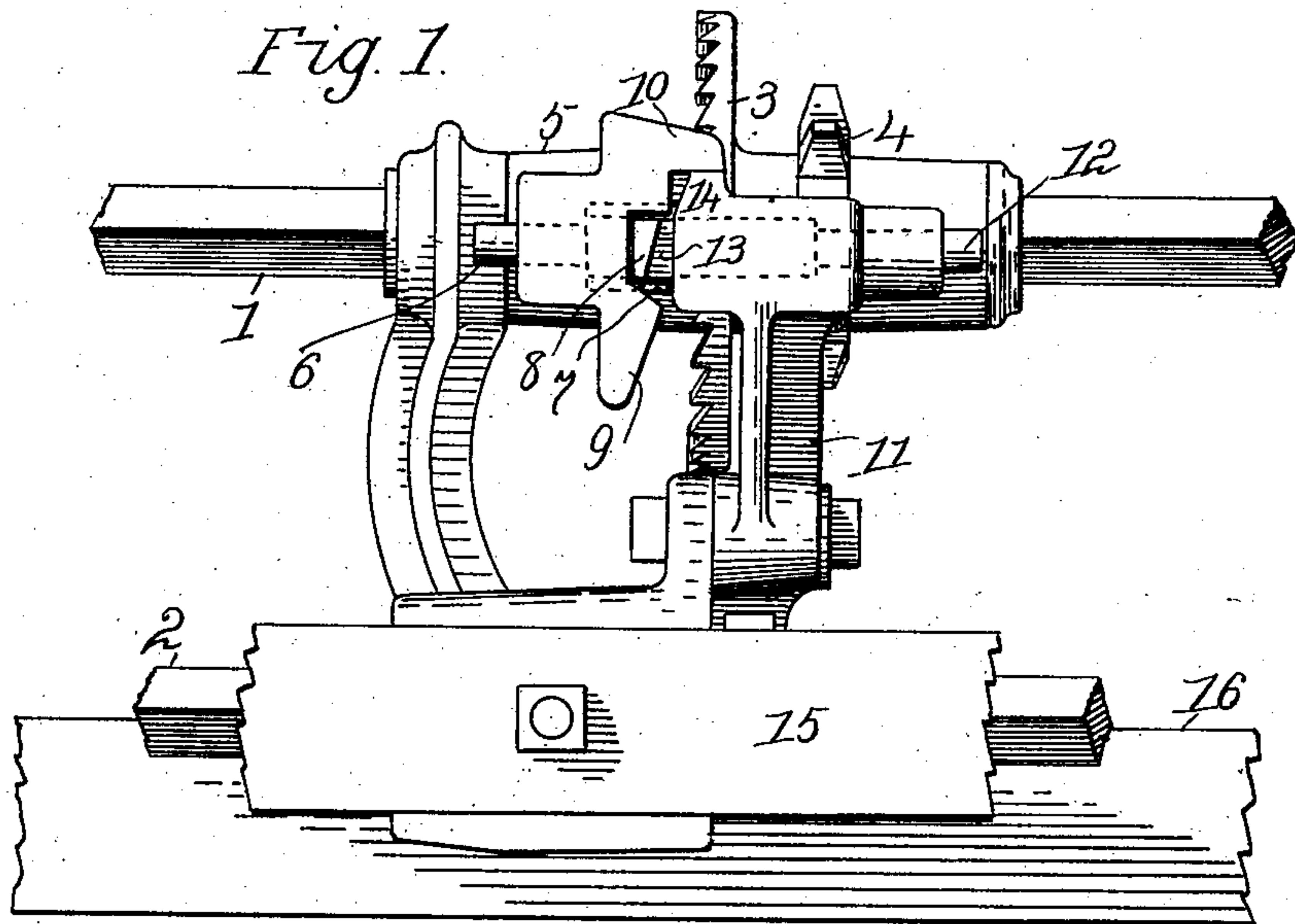
Patented Nov. 11, 1902.

E. M. HEYLMAN.  
CORN PLANTER.

(Application filed June 5, 1902.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses

Ina Graham.  
Hora Graham.

Inventor.

Edward M. Heylman,

by *L. P. Graham*  
his attorney.

No. 713,217.

Patented Nov. 11, 1902.

E. M. HEYLMAN.

CORN PLANTER.

(Application filed June 5, 1902.)

(No Model.)

3 Sheets—Sheet 2.

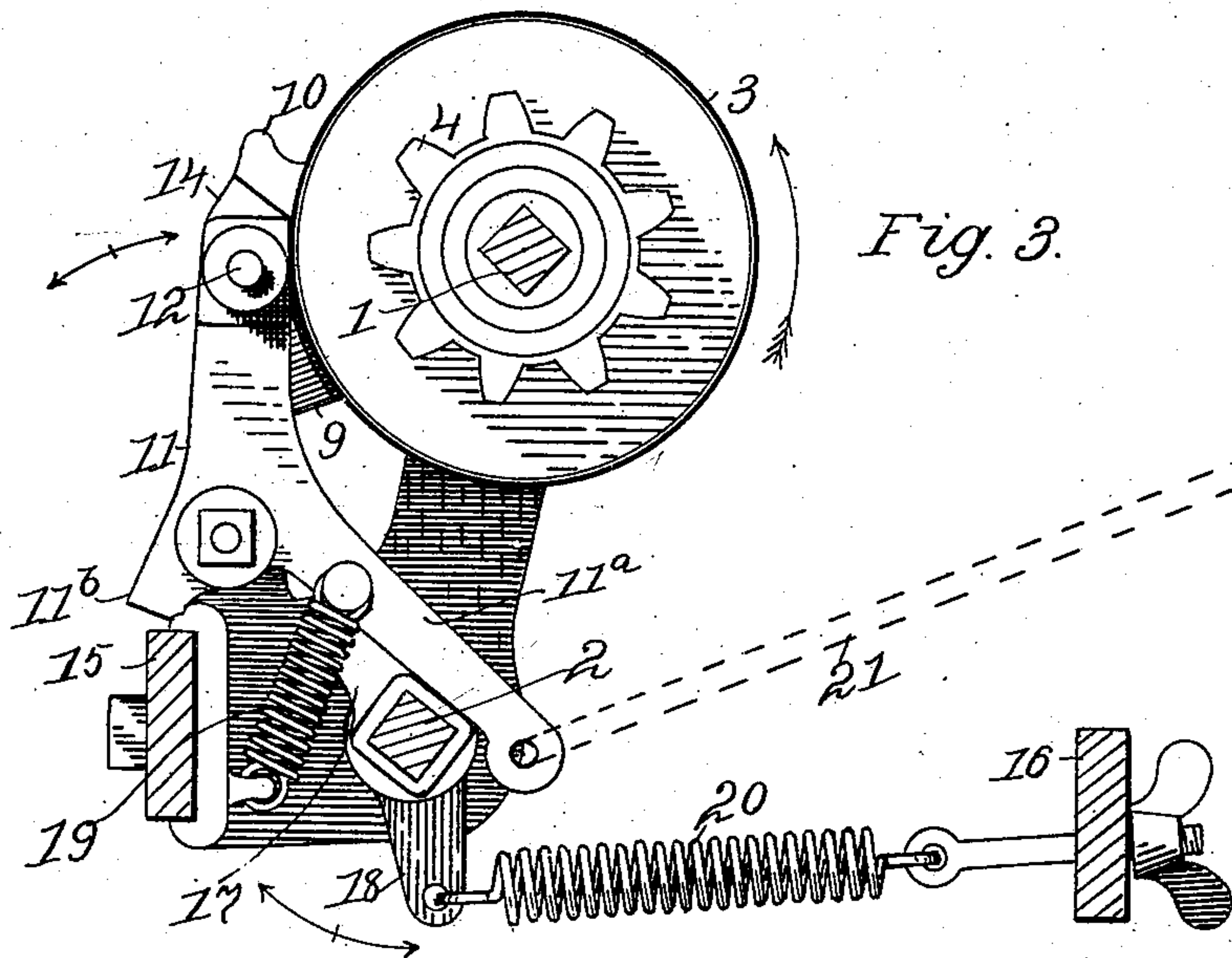


Fig. 3.

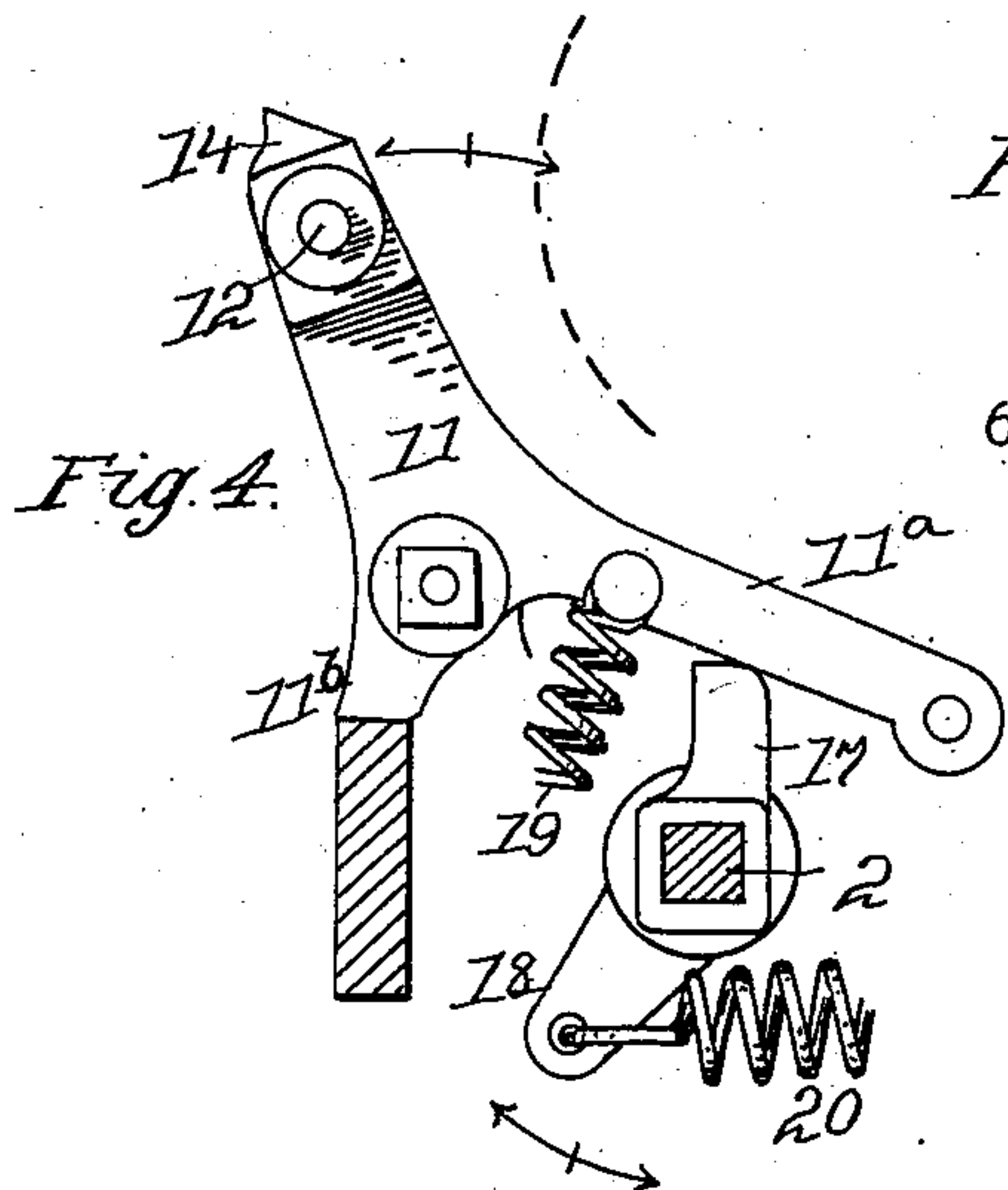


Fig. 4.

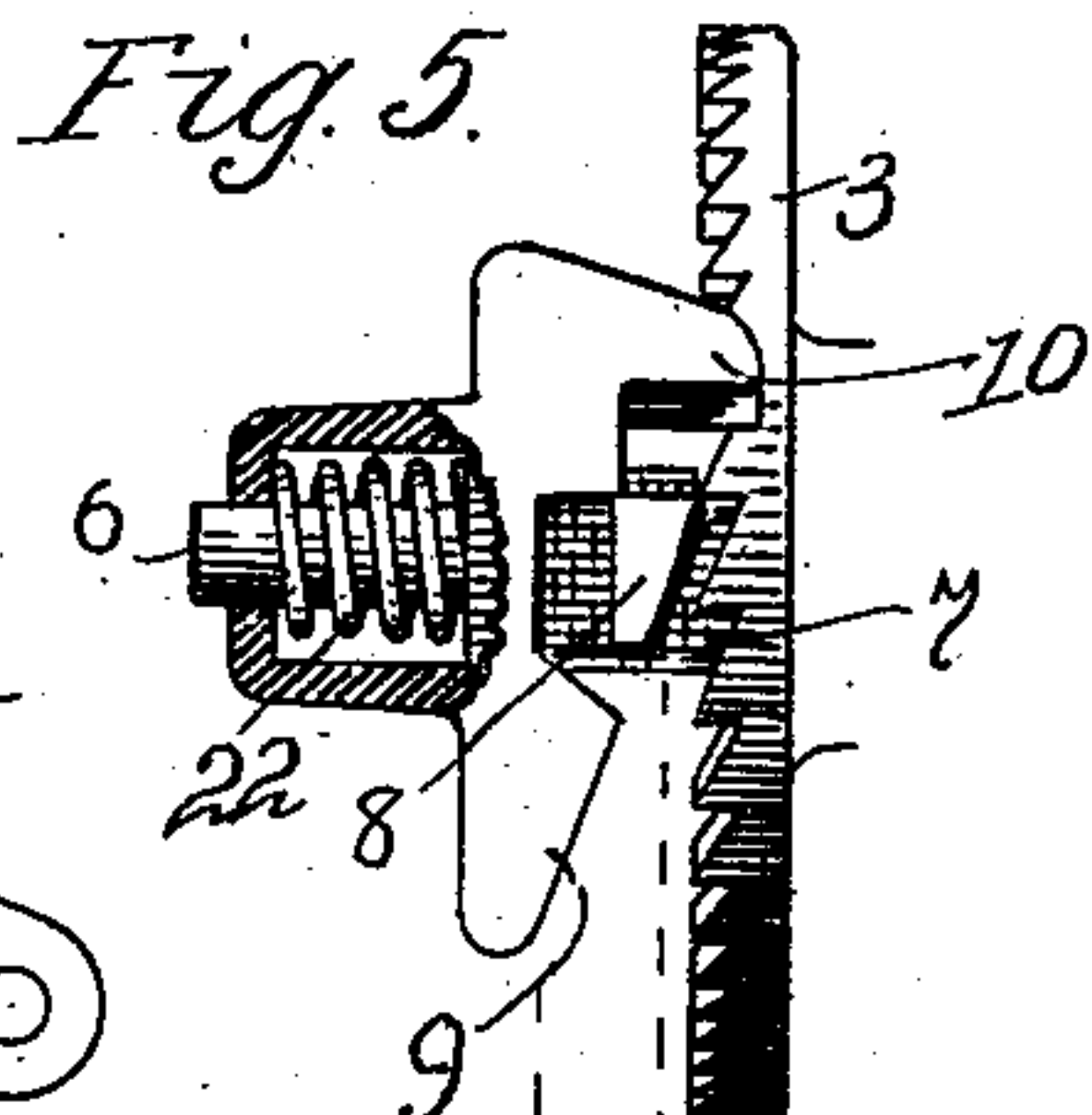


Fig. 5.

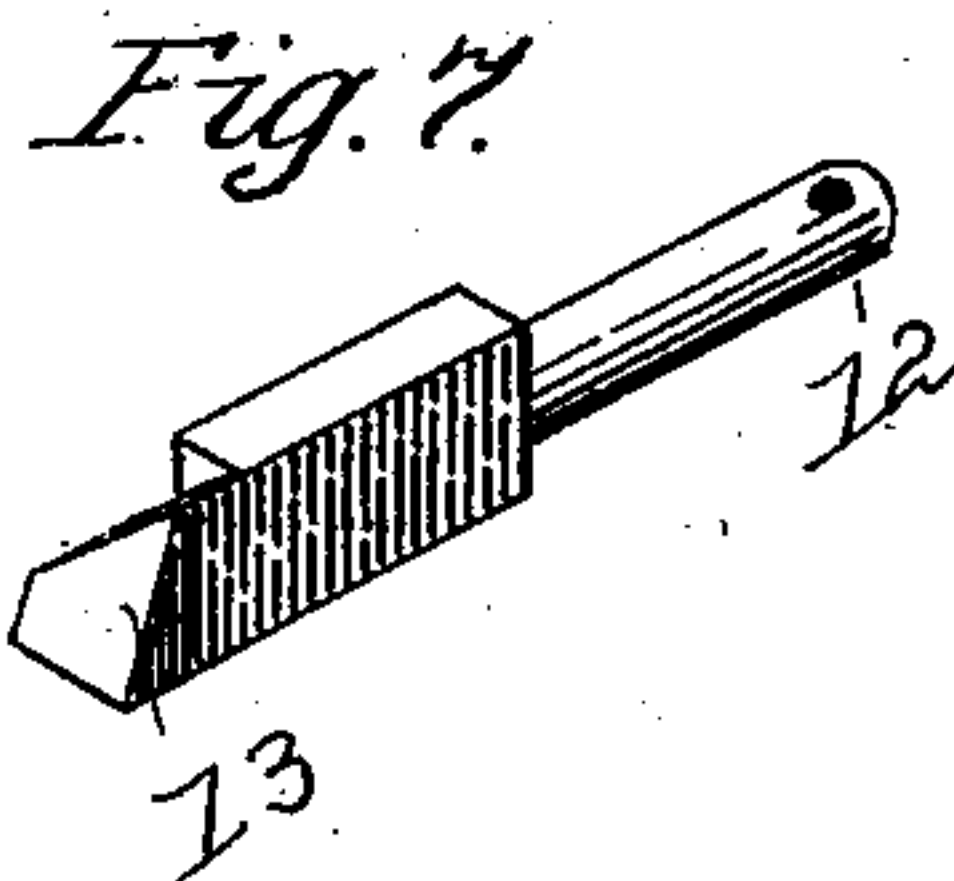


Fig. 7.

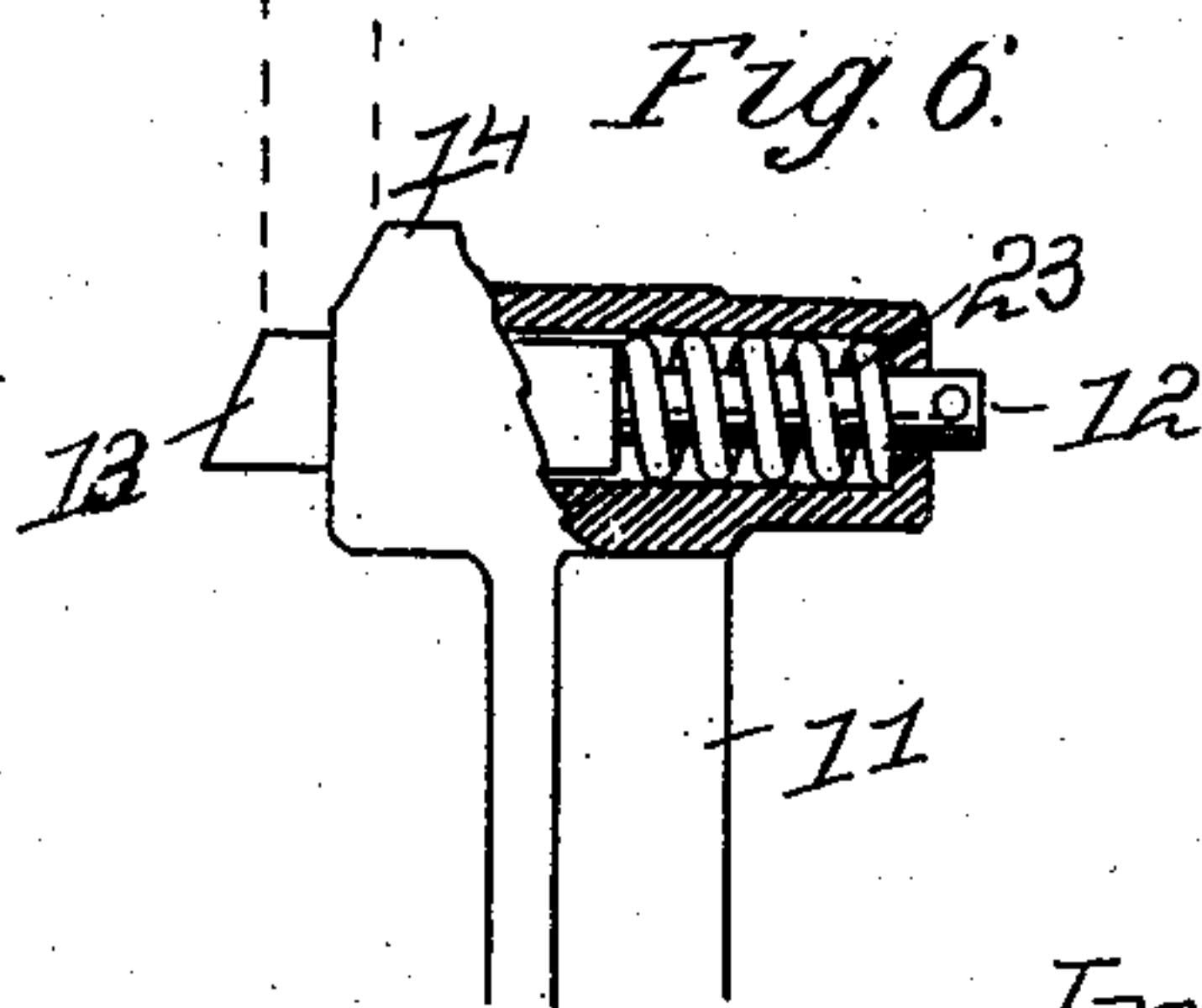


Fig. 6.

Witnesses.

Jms Graham.

Mrs Graham.

Inventor.

Edward M. Heylman.

by L. P. Graham

his attorney.

**No. 713,217.**

**Patented Nov. 11, 1902.**

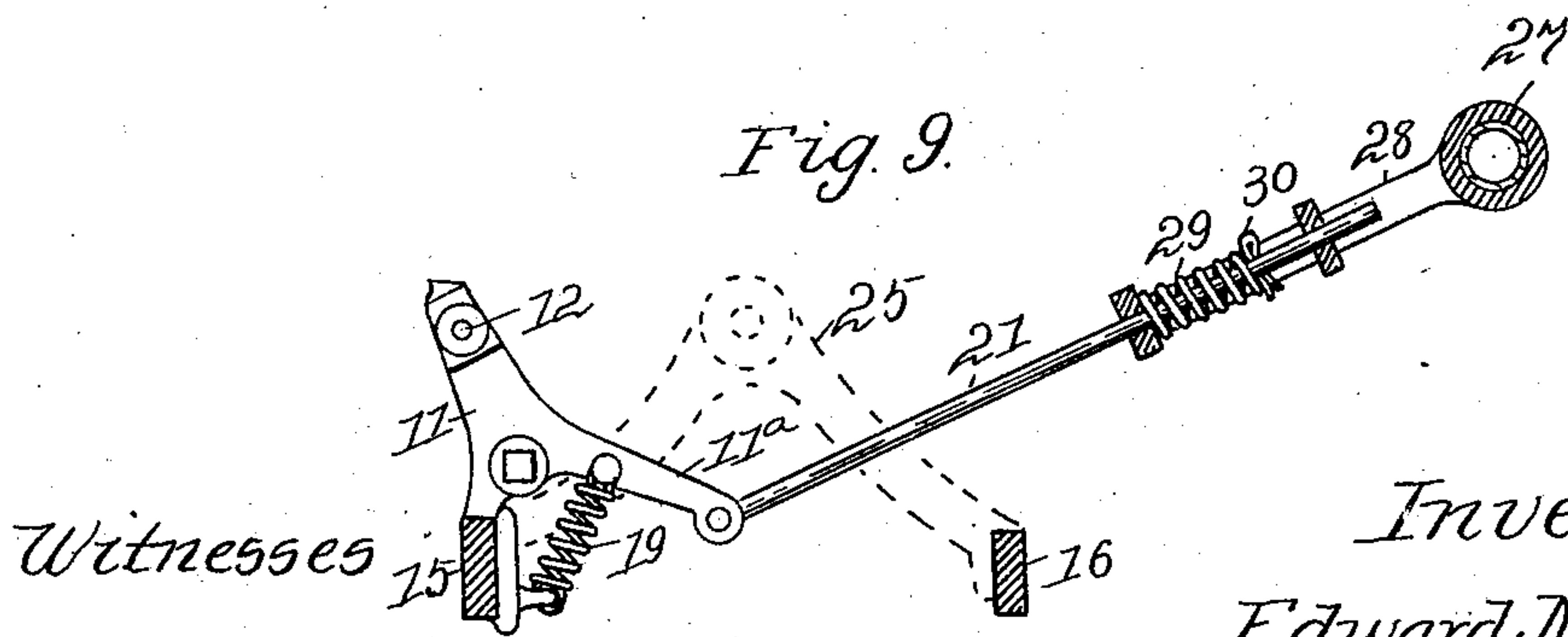
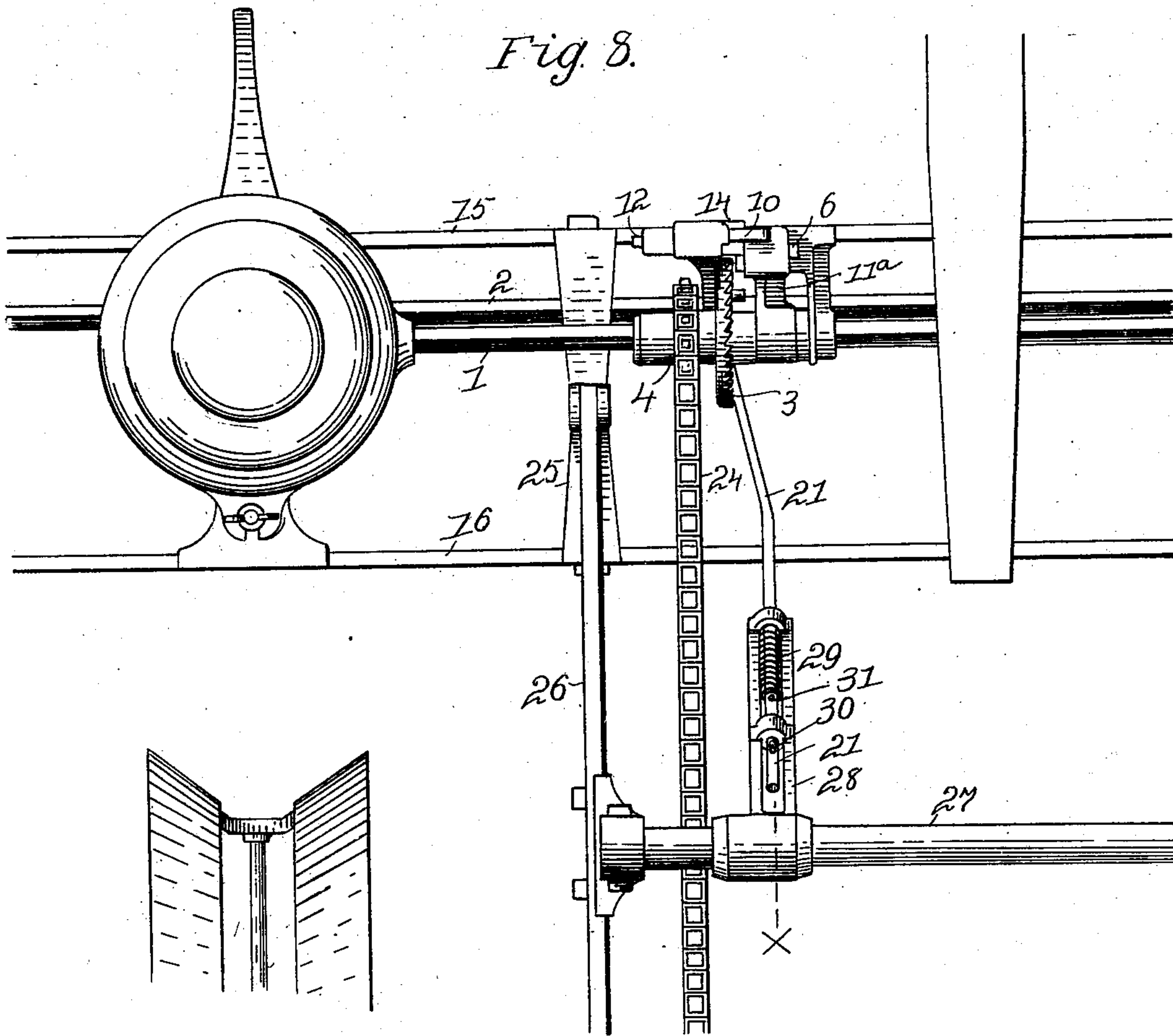
**E. M. HEYLMAN.**

**CORN PLANTER.**

(Application filed June 5, 1902.)

(No Model.)

**3 Sheets—Sheet 3.**



Mrs Graham.  
 Nora Graham

Inventor.  
Edward M. Heylman  
by L. P. Graham  
his attorney.



# UNITED STATES PATENT OFFICE.

EDWARD M. HEYLMAN, OF JANESVILLE, WISCONSIN, ASSIGNOR TO JANESVILLE MACHINE COMPANY, OF JANESVILLE, WISCONSIN; A CORPORATION OF WISCONSIN.

## CORN-PLANTER.

SPECIFICATION forming part of Letters Patent No. 713,217, dated November 11, 1902.

Application filed June 5, 1902. Serial No. 110,383. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD M. HEYLMAN, of the city of Janesville, in the county of Rock and State of Wisconsin, have invented a certain Improved Clutch Particularly Designed for Use in Corn-Planters, of which the following is a specification.

The main object of this invention is to provide improved means for intermittently transmitting motion from the covering-wheels of a planter to the dropping mechanism thereof; but the utility of the clutch mechanism is not confined to corn-planters.

The invention is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a front elevation of the clutch mechanism. Fig. 2 is a plan of the clutch. Fig. 3 is a side elevation. Fig. 4 is a detail of the throw-out arm, illustrating the action thereof. Fig. 5 is a detail showing the releasable clutch member in broken section. Fig. 6 is a detail of the operative end of the throw-out arm. Fig. 7 is a perspective representation of the spring-actuated bolt of the throw-out arm. Fig. 8 is a plan of a fragment of a planter, showing my clutch mechanism attached thereto. Fig. 9 is a detail in side elevation of the means employed to control the clutch while drilling corn.

The drill-shaft of a planter is shown at 1 and a check-row shaft at 2. A sprocket-wheel 4 is mounted loosely on a cylindrical bearing fixed to the square drill-shaft, and a ratchet-wheel 3 is attached to or made integral with the sprocket-wheel 4. An arm 5 is fastened to the drill-shaft 1 adjacent to the ratchet-wheel 3, and it has in its outer end a slidable bolt 6, adapted to engage the sidewise-projecting teeth of the ratchet-wheel 3. An incline 9 is formed on the head of arm 5 on the front side thereof, and a stop extension 10 projects laterally from the rear side of the head. The bolt 6 is provided with a spring 22, as shown in Fig. 5. It tends to hold the bolt in engagement with the teeth of the ratchet-wheel, and an inclined extension 8 projects from the face of the bolt and provides a bearing by means of which the bolt is dis-

engaged from the wheel. A throw-out arm 11 is pivoted to swing into the path of the releasable clutch member, and it has a spring-bolt 12, the operative end 13 of which is adapted to engage the extension 8 of bolt 6 and hold bolt 6 from engagement with the ratchet-wheel. The throw-out arm is pivoted on a bolt extending through a bracket secured to cross-bar 15 of the front frame of the planter in this particular instance; but this particular mode of providing a pivot is not essential. The upper end of the throw-out arm is beveled on the side adjacent to the releasable clutch member, and the incline surface formed by the bevel lies in the path of extension 8 of bolt 6 when the bolt is in engagement with the ratchet-wheel and the throw-out arm is in position to release the clutch.

In Figs. 1 and 3 a throw-out arm is shown in position to release the clutch. Bolt 6 is held out of contact with the ratchet-wheel by bolt 12, and the extension 10 of arm 5 rests against the upper end of the throw-out arm, restraining the releasable clutch member from rotating with the wheel. The spring 22 (shown in Fig. 5) tends to force bolt 6 into engagement with the wheel; but the spring 23 of bolt 12 (shown in Fig. 6) is much stronger than spring 22, and it acts in a direction opposite thereto. When it is desired to permit the releasable clutch member to engage the wheel, the throw-out arm is rocked outward on its pivot, carrying the end 13 of bolt 12 clear of extension 8 of bolt 6 and swinging the upper end 14 of the throw-out arm from under the lateral extension 10 of clutch-arm 5. As soon as this is done the bolt 6 at once engages the ratchet-wheel, which is continuously rotating, and the arm 5 and shaft 1 partake of the motion of the wheel. Ordinarily the shaft 1 is given but one rotation between stops, and the throw-out arm is swung back into the position shown in Figs. 1 and 2 as soon as the shiftable clutch member moves out of the way. Then as the shaft nears the completion of its rotation the incline 14 strikes the extension 8 on bolt 6, forcing it sidewise and away from the wheel, the incline 9 strikes end 13 of bolt 12, forcing the operative end of the



bolt into its housing, and as the rotation is completed the bolt 12 rides past incline 9 and snaps bolt 6 from contact with the wheel immediately preceding the impingement of stop extension 10 against the upper end of the throw-out arm.

The throw-out arm 11 has a rearward and downward extension 11<sup>a</sup>, through which the arm is actuated, and it also has an extension 11<sup>b</sup>, adapted to engage a cross-bar of the planter-frame or other relatively fixed bearing and form a stop. A finger 17 is fastened onto a check-row shaft 2 beneath extension 11<sup>a</sup> of the throw-out arm, and when the check-row shaft is rocked backward, as shown in Fig. 4, the finger 17 lifts upward on extension 11<sup>a</sup> and carries the throw-out arm out of interference with the clutch. A spring 19 tends to hold the throw-out arm in position to separate the clutch members, and a spring 20 connects with a lug 18 on the rock-shaft and returns the rock-shaft to its normal position after each rearward throw.

To provide against the remote possibility of bolt 12 failing to disengage bolt 6 from the ratchet-wheel, the contact-surfaces of extension 10 and the upper end 14 of the throw-out arm are inclined with relation to a radius of the wheel to an extent sufficient to enable the clutch-arm to force the throw-out arm out of the path of the clutch-arm, and thereby avoid breakage of the engaging parts. (See Fig. 3.) In furtherance of this special provision the engaging end 13 of bolt 12 is beveled to conform to the bevel of the upper end 14 of the throw-out arm, as shown in Fig. 7. The incline 9 is cut away some distance below the bolt extension 8, and this enables the nose 13 of bolt 12 to shoot into the recess in advance of the extension 8 and effectually preclude possibility of the shaft completing its rotation before the bolt 6 is released from the wheel so long as the bolt does not become clogged.

The cross-bars of the front frame of a planter are shown at 15 and 16. A side bar of the rear frame of a planter is shown at 26, and such bar connects pivotally at its forward end with a bridge-bracket 25. A cross-shaft of the rear planter-frame is shown at 27 in Figs. 8 and 9. An arm 28 is swung loosely on the cross-shaft, and a rod 21 connects with the extension 11<sup>a</sup> and extends through bearings in arm 28. A spring 29 encircles rod 21 inside arm 28, and a pin 30 is adapted to engage either of a pair of holes in the rod. (See Fig. 8, where the pin is shown occupying one hole and the other hole is designated by reference-numeral 31.)

The rod 21 is used to control the clutch while drilling corn, the purpose being to leave the clutch members in gear while crossing the field and to separate them preparatory to turning around at the ends of the field. When the pin 30 is placed in hole 31, the arm 28, the rod 21, and the spring 29 constitute a hitch, which pulls yieldingly against extension 11<sup>a</sup>

of the throw-out arm and holds the throw-out arm out of interference with the clutch when the front planter-frame is lowered. In raising the front planter-frame the distance between shaft 27 and the hitch end of the throw-out arm is shortened, and by the time the front frame is entirely raised the throw-out arm is permitted to swing into an operative position and separate the clutch members. When the pin is removed from hole 31, the rod is free to slide in arm 28, and the planter may then be used as a check-row machine.

In Fig. 8 the chain that drives the clutch-wheel is shown at 24, and this chain is intended to receive motion from the axle-shaft of the planter in the customary manner.

I claim—

1. In a clutch, the combination of a continuously-rotatable clutch-wheel, a releasable clutch member adapted to engage the clutch-wheel, a throw-out for the releasable clutch member, and a spring in the operative end of the throw-out to hold the clutch disengaged.

2. In a clutch, the combination of a clutch-wheel, a releasable clutch member held normally in engagement with the clutch-wheel by means of a spring, a throw-out for the releasable clutch member and a spring in the throw-out stronger than the spring in the releasable member and acting in opposition thereto.

3. In a clutch, the combination of a shaft, a clutch-wheel journaled loosely on the shaft, an arm fastened onto the shaft, a spring-actuated bolt in the arm adapted to engage the clutch-wheel, a throw-out to force the bolt from the wheel and a spring in the throw-out to overpower the spring of the bolt and hold the clutch disengaged.

4. In a clutch, the combination of a shaft, a clutch-wheel journaled loosely on the shaft, an arm fastened onto the shaft, a spring-actuated bolt in the shaft-arm adapted to engage the wheel, an oscillatory throw-out arm, a bolt in the throw-out arm acting in opposition to the bolt of the shaft-arm, and a spring for the throw-out bolt stronger than the spring of the shaft-arm bolt and acting in a contrary direction.

5. In a clutch, the combination of a shaft, a clutch-wheel journaled loosely on the shaft, an arm fastened onto the shaft and adapted to engage the clutch-wheel, an oscillatory throw-out arm having an incline to give initial separating motion to the connection between the shaft-arm and the wheel, and a spring in the throw-out arm to complete the separation.

6. In a clutch, the combination of a shaft, a clutch-wheel journaled loosely on the shaft, an arm fastened to the shaft, a bolt in the shaft-arm tending to engage the wheel, a throw-out arm, a bolt in the throw-out arm to overcome the tendency of the bolt of the shaft-arm to engage the wheel, an incline on the shaft-arm to engage the bolt of the throw-out arm, an incline on the throw-out arm to engage the bolt of the shaft-arm, and a stop



extension on the shaft-arm to strike the throw-out arm when the clutch members are separated.

5 7. In a clutch for planters, the combination of a drill-shaft, a clutch-wheel journaled on the drill-shaft, a releasable clutch member fastened onto the drill-shaft, a throw-out arm for the clutch, and a yielding hitch between the throw-out arm and the rear frame of the  
10 planter, whereby the throw-out arm is held out of interference with the clutch when the front frame is lowered, in drilling.

15 8. In a clutch for planters, the combination of a shaft, a clutch-wheel journaled on the shaft and provided with laterally-extending ratchet-teeth, an arm fastened to the shaft, a bolt in the arm adapted to engage the ratchet-teeth of the clutch-wheel, a spring pressing

the bolt toward the wheel, and a shiftable throw-out having an incline to engage the 20 bolt and force it from contact with the clutch-wheel.

9. In a clutch for planters, the combination of a drill-shaft, a clutch-wheel journaled on the drill-shaft, a releasable clutch member 25 fastened onto the drill-shaft, a throw-out arm for the clutch, and a hitch between the throw-out arm and the rear frame of the planter, substantially as described.

In testimony whereof I sign my name in the 30 presence of two subscribing witnesses.

EDWARD M. HEYLMAN.

Witnesses:

F. H. FARNSWORTH,  
T. F. KELTY.