

No. 804,277.

PATENTED NOV. 14, 1905.

I. TROLLEY, JR.

COUNTING MECHANISM FOR GRAIN HARVESTERS.

APPLICATION FILED MAR. 23, 1904.

3 SHEETS—SHEET 1.

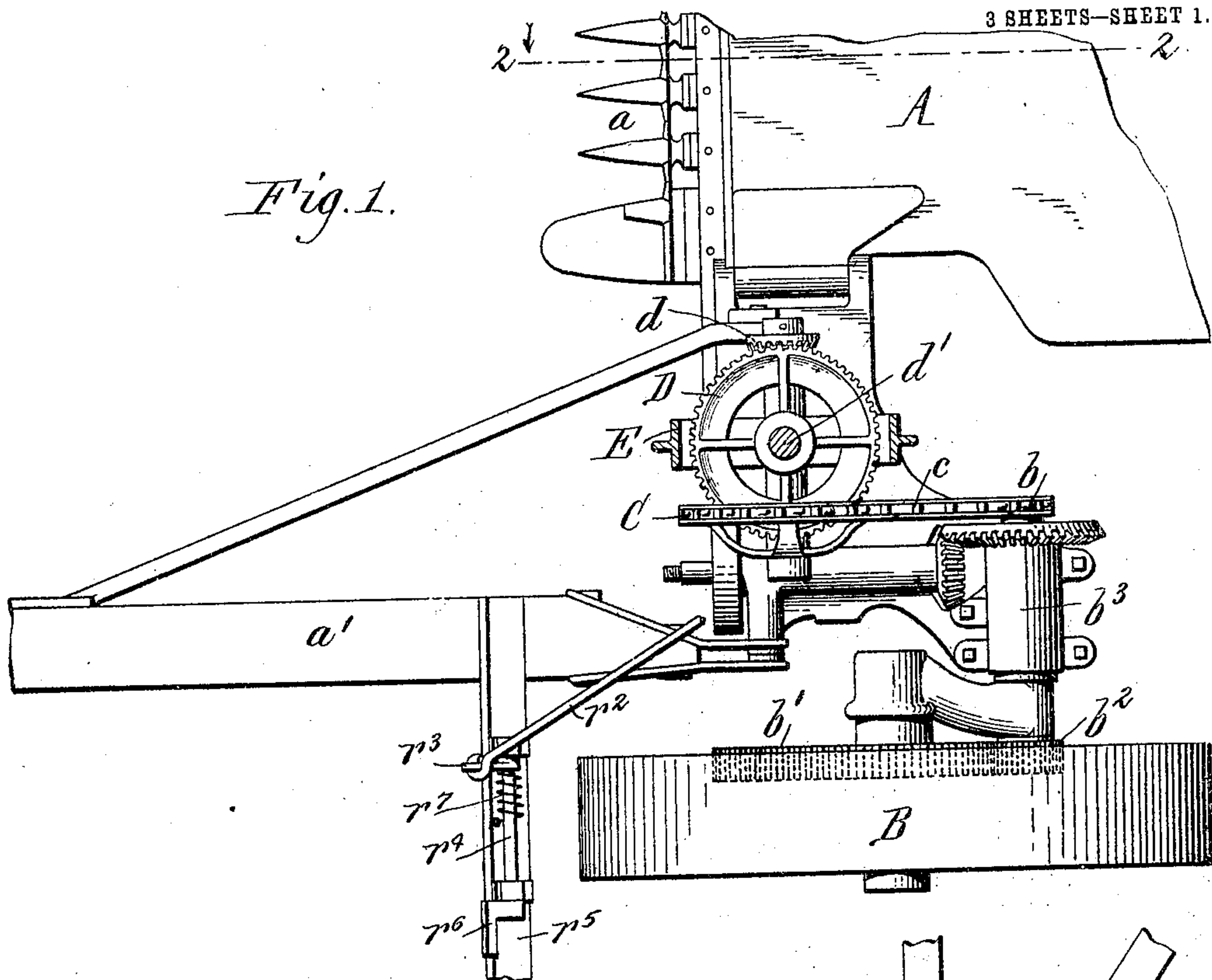
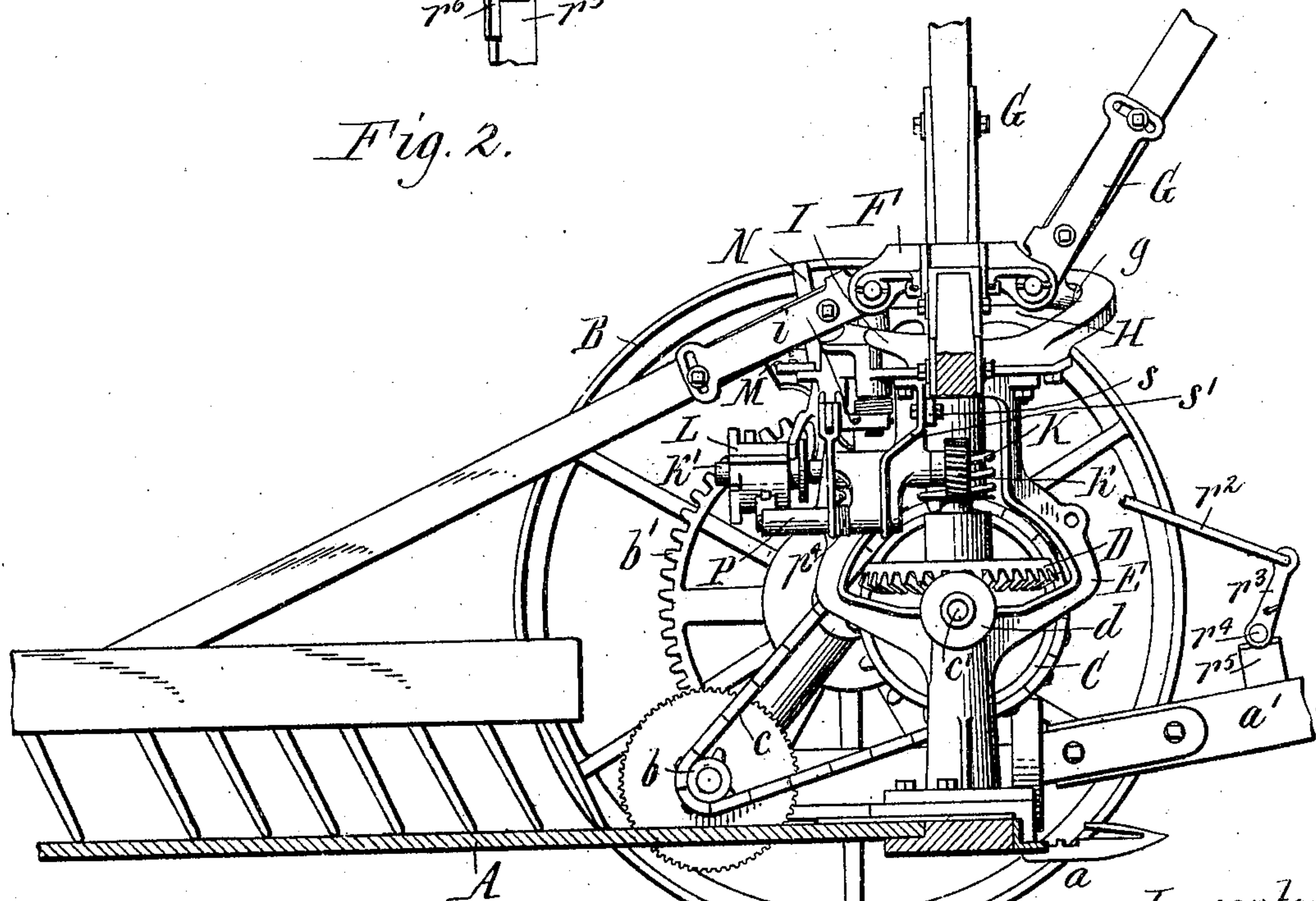


Fig. 2.



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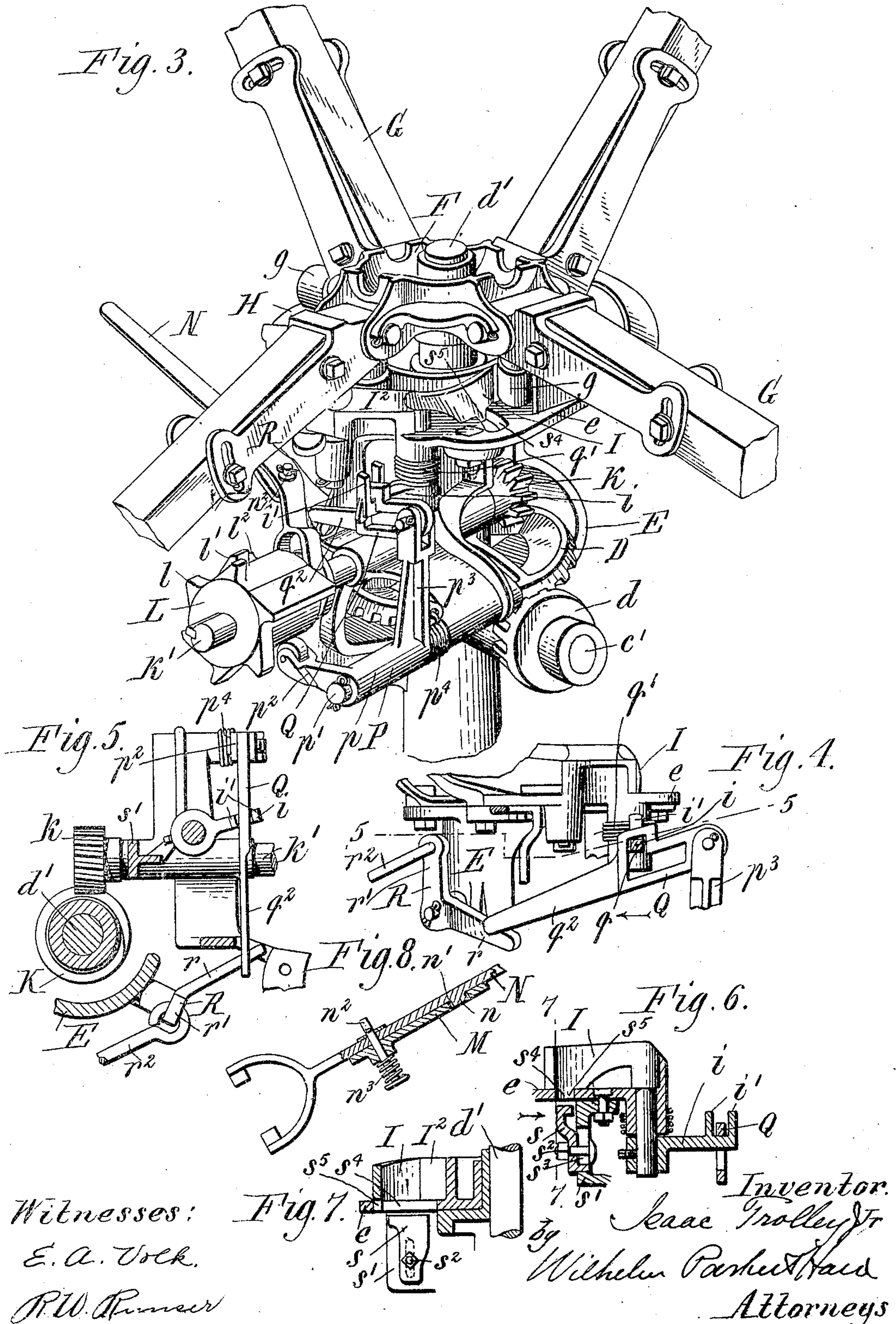
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3 SHEETS—SHEET 3.

Fig. 9.

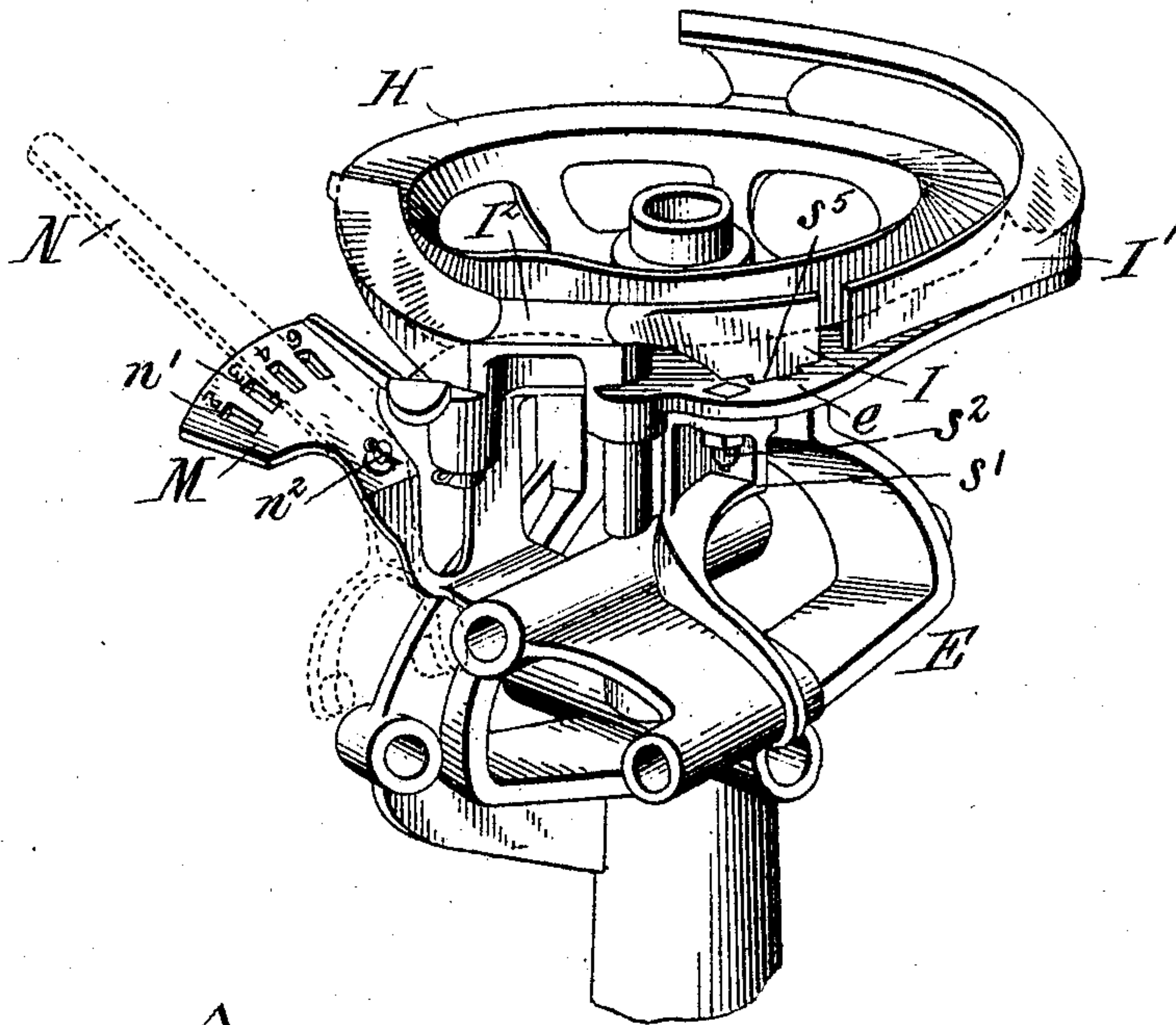
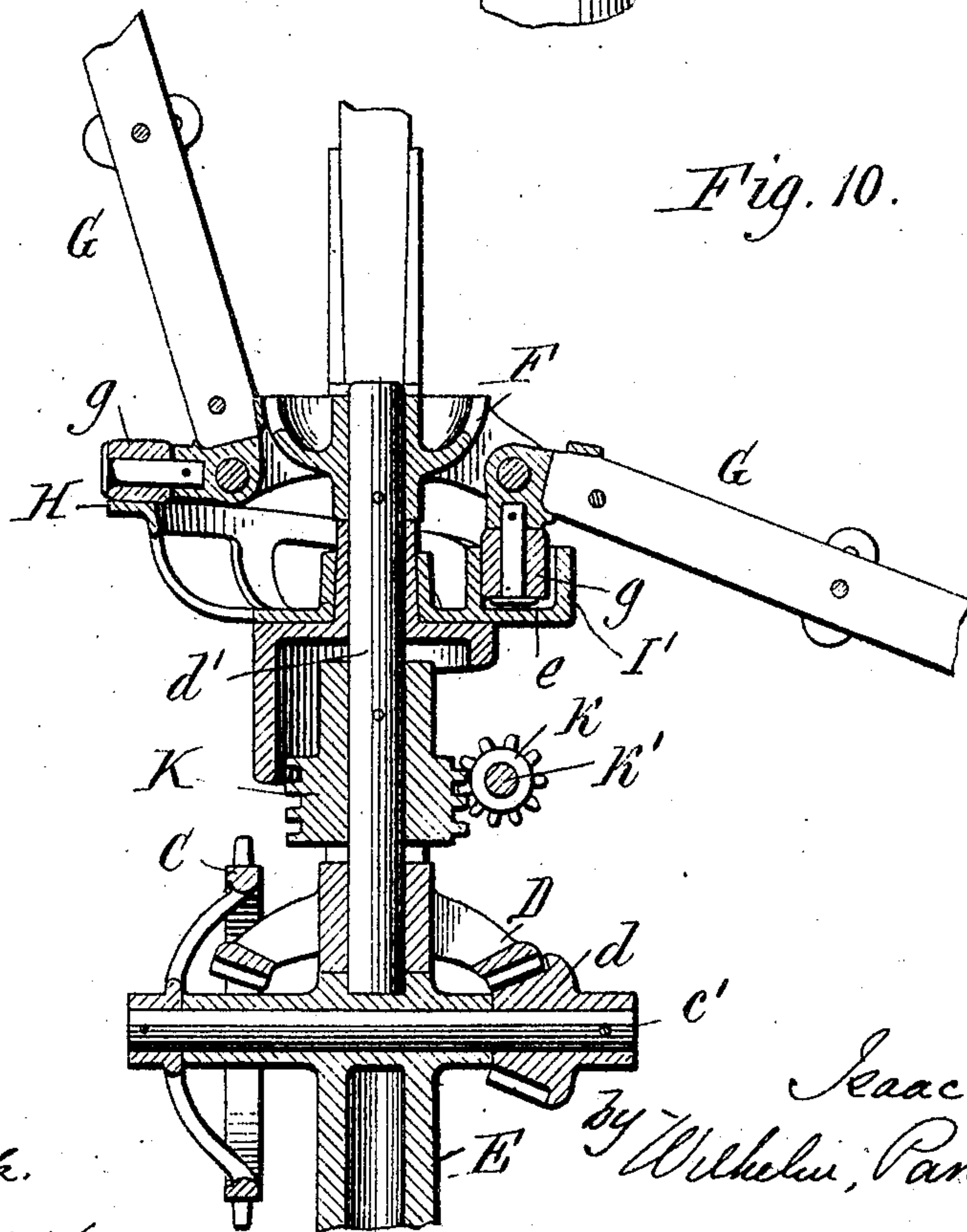


Fig. 10.



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UNITED STATES PATENT OFFICE.

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COUNTING MECHANISM FOR GRAIN-HARVESTERS.

No. 804,277.

Specification of Letters Patent.

Patented Nov. 14, 1905.

Application filed March 23, 1904. Serial No. 199,643.

To all whom it may concern:

Be it known that I, ISAAC TROLLEY, Jr., a subject of the King of Great Britain, and a resident of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Counting Mechanism for Grain-Harvesters, of which the following is a specification.

This invention relates to the counting mechanism which is employed in grain-harvesters in connection with the rotary rake-head and rakes and the switch for controlling the frequency of the raking action.

The object of this invention is to operate the switch from the counting-wheel by a positive and simple mechanism.

In the accompanying drawings, consisting of three sheets, Figure 1 is a fragmentary sectional top plan view of a harvester, showing the lower portion of the rake mechanism. Fig. 2 is a sectional longitudinal elevation in line 2 2, Fig. 1, looking in the direction of the arrow. Fig. 3 is a perspective view of a rake-head having a counting mechanism provided with my improvements. Fig. 4 is a detached side view of the slotted pawl connecting the actuating-lever with the switch-arm and connecting parts. Fig. 5 is a sectional top plan view of said pawl and connecting parts, the section being taken in line 5 5, Fig. 4. Fig. 6 is a detached sectional elevation of the switch and connecting parts. Fig. 7 is a sectional elevation in line 7 7, Fig. 6, viewed in the direction of the arrow. Fig. 8 is a longitudinal sectional elevation of the shifting-lever of the counting-wheel. Fig. 9 is a perspective view of the track of the rake-head and the stationary parts supporting the same. Fig. 10 is a vertical section of the rake-head and connecting parts.

Like letters of reference refer to like parts in the several figures.

A represents the platform; a , the finger-bar; a' , the pole, and B the main wheel of a grain-harvester.

b represents a sprocket-wheel, which is driven from the main wheel in any suitable manner and from which the power is derived for operating the counting mechanism. As shown, the sprocket-wheel b is driven from the main wheel by gear-wheels b' b^2 , the wheel b^2 being secured to the same transverse shaft on which the sprocket-wheel b is mounted and which is journaled in a bearing b^3 . The mo-

tion is transmitted from the sprocket-wheel b to a sprocket-wheel C by a chain belt c , Figs. 1 and 2. The wheel C is mounted on one end of a transverse shaft c' , which is provided at the opposite end with a bevel-pinion d , driving a horizontal bevel-wheel D, which latter is secured to the lower end of the vertical rake-shaft d' .

G represents the rake-arms pivoted to the rake-head F and provided with the usual rollers g , which run on the track H, provided with the switch I, and the stationary guides I' I^2 in front and rear of the switch.

All of the foregoing parts may be of any suitable or well-known construction and may be modified in various ways.

The switch is pivoted in the usual way upon the horizontal plate or table e of the standard and has its pivotal portion extending below the table e and provided at its lower end with a rearwardly-extending arm i , Figs. 3, 5, and 6.

K, Figs. 2 and 10, represents a worm which is secured to the vertical rake-shaft below the table e of the standard and which drives a worm-wheel k , secured to the forward end of a shaft k' , on the rear end of which the counting-wheel L is mounted. This wheel may be of any suitable construction and is preferably provided with teeth l l' l^2 , arranged in several series side by side, each series containing a different number of teeth for actuating the switch more or less frequently. The teeth indicated in the drawings are designed to open the switch for every second, third, fourth, or sixth arm, as indicated on the segment M, Fig. 9. The shifting-lever N, by which the counting-wheel is adjusted on the shaft k' to bring either set of teeth into operative position, is locked to this segment. This shifting-lever is provided on its under side with a tooth n , Fig. 8, which enters one of a series of notches n' in the segment, the pivot n^2 of the lever being provided with a spring n^3 , which holds the lever yieldingly in position on the segment.

P represents the actuating-lever, which receives motion from the counting-wheel and which transmits the motion by means of a slotted link or pawl Q to the switch-arm i . The actuating-lever is composed of a hub p , mounted on a stud p' , a horizontal arm p^2 , which is actuated by the teeth of the counting-wheel, and an upright arm p^3 , to which the slotted pawl Q is pivoted. The lever is

pressed with its arm p^2 against the counting-wheel by a coiled spring p^4 , which abuts against the lever and the standard or other fixed support.

5 The switch-arm i is provided at its end with two upwardly-projecting jaws i' , between which the slotted pawl Q is hung, Figs. 3 and 6. This pawl is provided in the upper side of its slot near its free end with an actuating
10 shoulder or recess q , which straddles the switch-arm i between the projections or jaws i' , so that the forward movement of the pawl produces an oscillating movement of the switch-arm in the direction of the arrow, Fig.
15 4, and opens the switch. The latter is yieldingly held in a closed position by a coiled spring q' , which abuts against the switch and the standard or other fixed support and which closes the switch during the return movement
20 of the pawl. This slotted pawl is provided with means by which the operator can lift the pawl out of engagement with the switch-arm when it is desired to render the rocking mechanism temporarily inoperative—for instance,
25 when sufficient grain has not been dropped upon the platform to render it advisable or necessary to rake the grain from the platform. The mechanism shown for that purpose is constructed as follows: q^2 is a nose or extension
30 which is formed on the free end of the slotted pawl Q and extends over the lower arm r of an elbow-lever R, Figs. 4 and 5, which is pivoted to the standard E or some other fixed support. The upper arm r' of this elbow-
35 lever is connected by a rod r^2 , Figs. 1, 4, and 5, to an arm r^3 , which is mounted on a horizontal rock-shaft r^4 . The latter is journaled on a support r^5 , extending stubbleward from the pole, and is provided with a treadle r^6 in
40 convenient reach of the operator. By depressing the treadle the elbow-lever R is actuated in such manner that the pawl Q is lifted with its actuating recess or shoulder above the switch-arm i , in which position of
45 the pawl the reciprocating movement thereof produces no movement in the switch-arm. The switch therefore remains closed, and no raking takes place while the pawl is held in this position by the operator. Upon releasing
50 the treadle the pawl returns to its operative position. The treadle-shaft is provided with a spring r^7 , by which the treadle and the rock-lever are returned to their normal position when the treadle is released.

55 Sometimes it is desirable to so adjust the operation of the rakes that they will act constantly and lay the grain in a continuous swath instead of operating intermittently and delivering a gavel at a time. In order to ef-
60 fect this constant operation without the constant attention of the driver, the switch is provided with a stop device which can be adjusted to lock the switch in an open position, in which position of the switch every rake
65 descends to the platform and operates to rake

the grain from the same. This device consists, as shown in Figs. 6 and 7, of a stop s , which can be adjusted to engage behind the switch when the latter has been forced out to its open position. The stop is made verti- 70 cally adjustable on a bracket s' by a bolt s^2 and slot s^3 or other suitable means. The table e is provided with a slot s^4 , in which the guide-lug s^5 of the switch plays, and the stop s is arranged beneath the slot s^4 , so that it can be 75 projected upwardly through the slot. When the stop s is secured in this upwardly-projecting position, it engages behind the switch or its guide-lug s^5 and prevents the switch from closing. When the operator desires to 80 swath the grain, as above described, he secures the stop device in this upwardly-projecting position. The stop now holds the switch open without further attention on the 85 part of the operator, and the swathing operation continues while the stop device remains in this position. When the operator desires to again operate the rakes intermittently in the usual way for delivering gavels, he se- 90 cures the stop in the lower position, (represented in Figs. 6 and 7,) in which the stop does not interfere with the usual movement of the switch.

In my improved counting mechanism the motion is transmitted from the rake-shaft to 95 the counting-wheel and from the latter to the switch in a very simple and direct manner and by positively-acting parts.

I claim as my invention—

1. The combination of a rotary rake-head, 100 a switch therefor, a counting-wheel, an actuating-lever engaging said wheel and actuated thereby, and a pawl connecting said actuating-lever with said switch, substantially as set forth. 105

2. The combination of a rotary rake-head, a pivoted switch therefor, a counting-wheel, an actuating rock-lever having a lower arm which engages said wheel, an arm on said switch, and an actuating-pawl connecting the 110 upper arm of said rock-lever with the arm on the switch, substantially as set forth.

3. The combination of a rotary rake-head, a switch therefor, an arm on said switch, a counting-wheel, an actuating rock-lever en- 115 gaging said wheel, and a slotted pawl attached to said actuating-lever and engaging with its slotted portion the arm on the switch, substantially as set forth.

4. The combination of a rotary rake-head, 120 a switch therefor, an arm on said switch, a counting-wheel, an actuating rock-lever engaging said wheel, and a slotted pawl attached to said actuating-lever and provided in its slot with an actuating-recess which engages said 125 switch-arm, substantially as set forth.

5. The combination of a rotary rake-head, a switch therefor, an upright rake-shaft, a worm on the same, a counting-wheel driven 130 from said worm, an actuating rock-lever en-

gaging said wheel, and a slotted pawl attached to said actuating-lever and provided in its slot with an actuating-recess which engages said switch-arm, substantially as set forth.

5 6. The combination of a rotary rake-head, its shaft, a switch for said rake-head, a worm on said shaft, a counting-wheel and its shaft, a worm-wheel on the shaft of the counting-wheel and meshing with said worm, an actuating-lever engaging said counting-wheel, and a pawl connecting said lever with said switch, substantially as set forth.

15 7. The combination of a rotary rake-head, a switch therefor, a counting-wheel, means for operating the switch from said counting-wheel, and a throw-off device for rendering said actuating means temporarily inoperative, substantially as set forth.

20 8. The combination of a rotary rake-head, a switch therefor, a counting-wheel, a pawl actuated from said counting-wheel for operating the switch, and means for temporarily rendering said pawl inoperative, substantially as set forth.

25 9. The combination of a rotary rake-head, a switch therefor having an actuating-arm, a

counting-wheel, a pawl actuated from said counting-wheel and engaging said arm, and means for temporarily disengaging the pawl from said arm, substantially as set forth. 30

10. The combination of a rotary rake-head, a switch therefor having an actuating-arm, a counting-wheel, a pawl actuated from said counting-wheel and engaging said arm, and a disengaging-lever in control of the driver for disengaging the pawl temporarily from the switch-arm, substantially as set forth. 35

11. The combination of a rotary rake-head, a track having an opening, a switch in said track, an adjustable stop arranged below said opening and adapted to be projected through the same behind the switch when the latter is open or to be withdrawn out of the way of the switch, and means for securing said stop in its upper position, substantially as set forth. 40 45

Witness my hand this 16th day of March, 1904.

ISAAC TROLLEY, JR.

Witnesses:

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