

C. E. Patric,

Grain Drill,

No 85,472,

Patented Dec. 29, 1868.

Fig. 1.

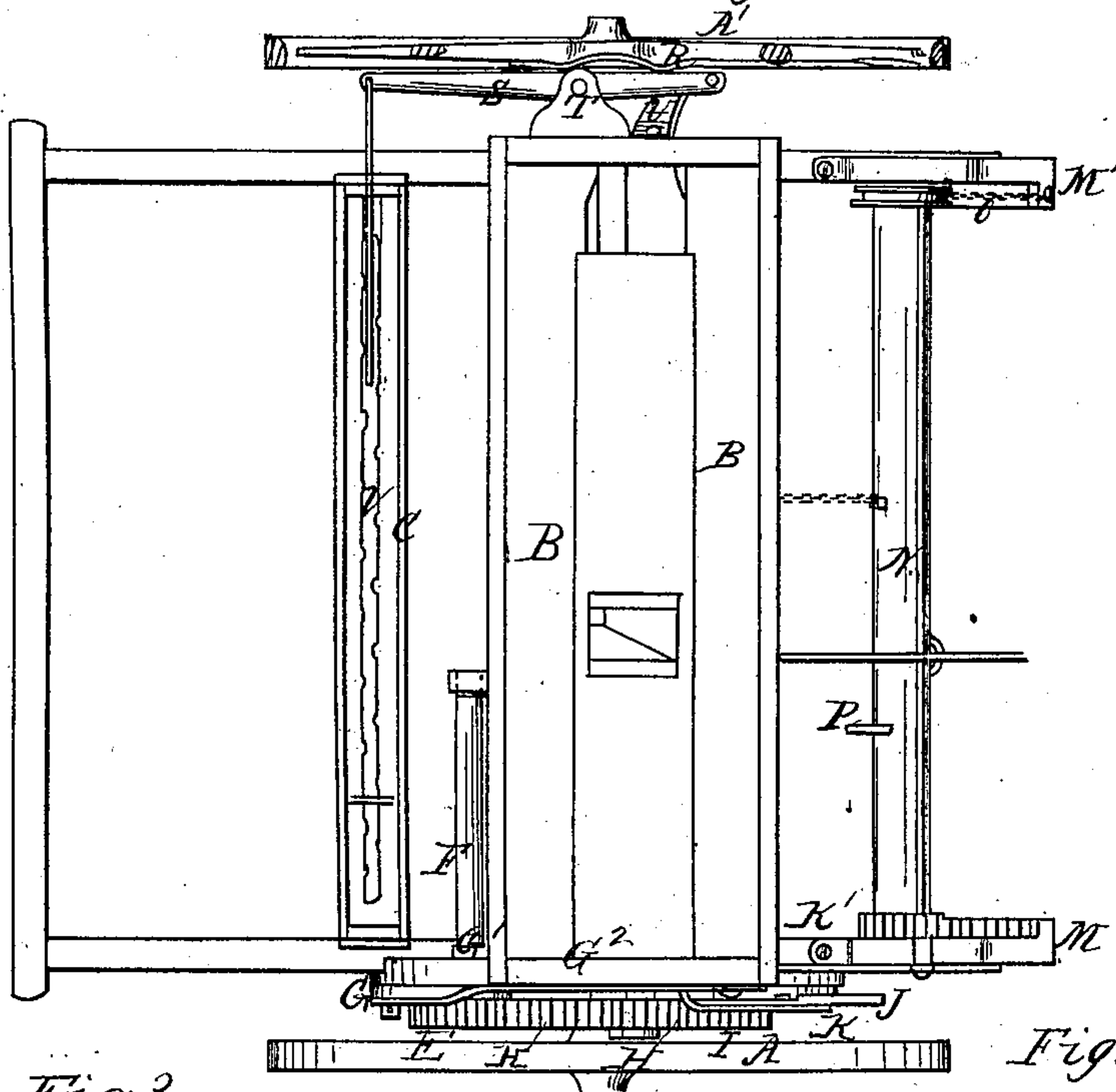


Fig. 3.

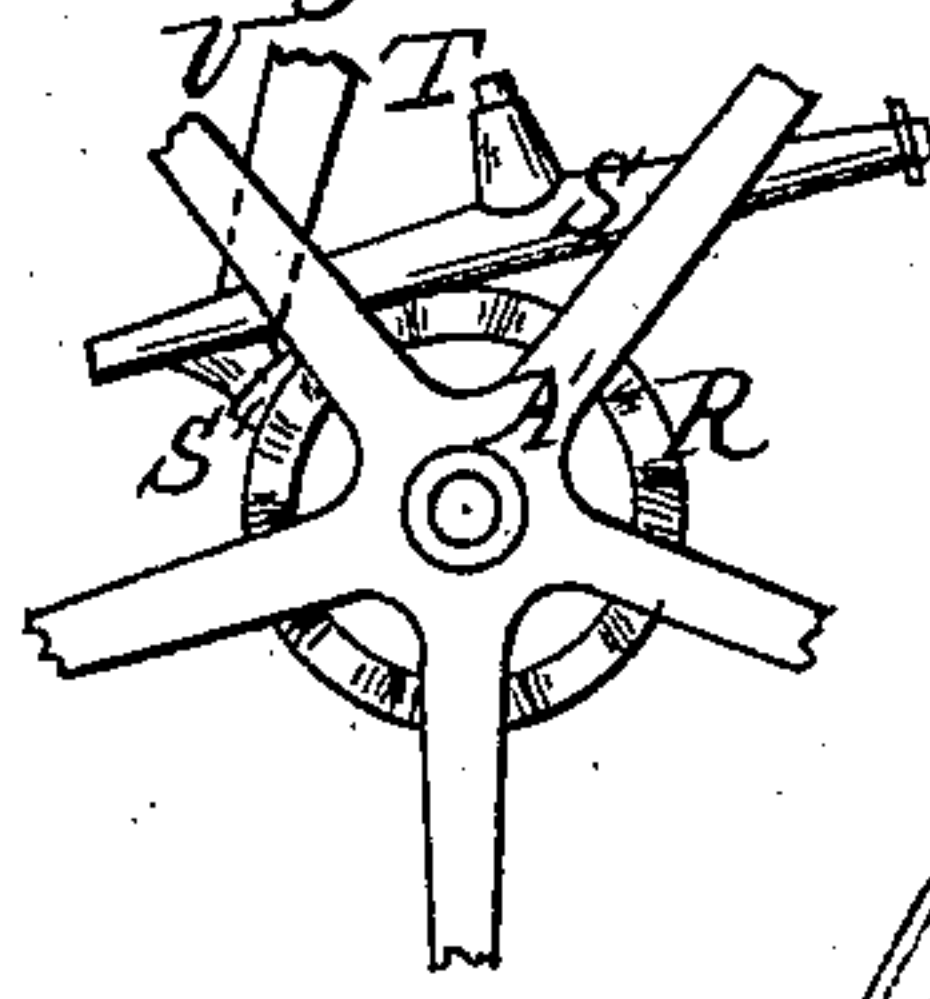


Fig. 2.

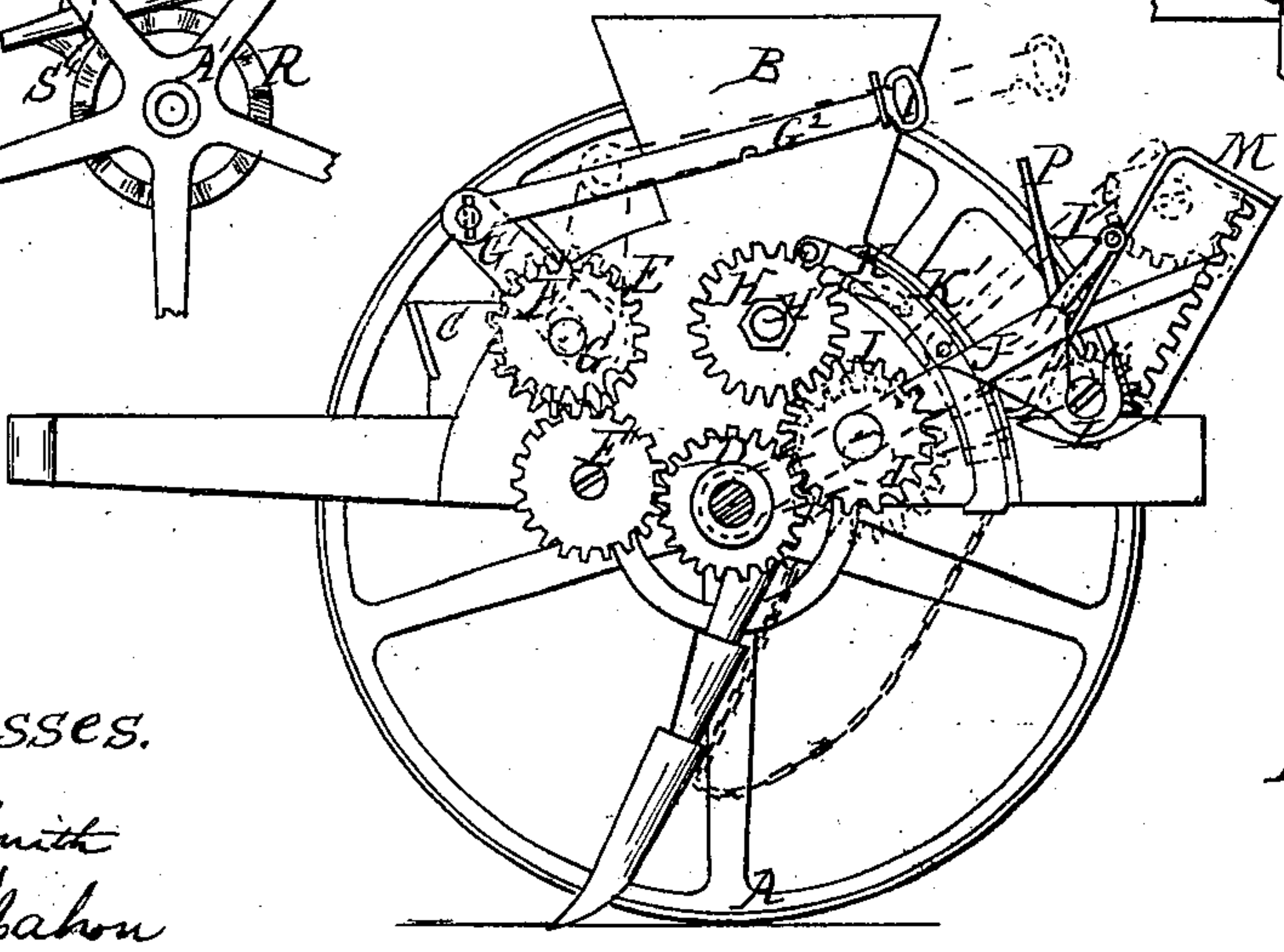
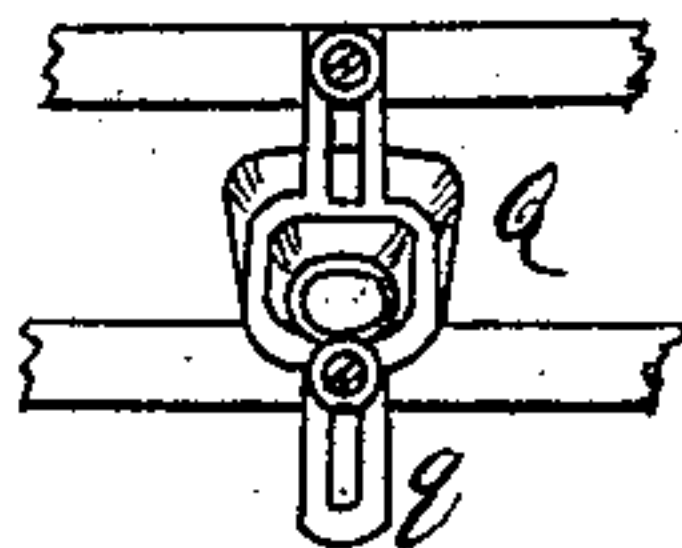


Fig. 4.



Witnesses.

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C. E. PATRIC, OF MACEDON, NEW YORK.

IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. 85,472, dated December 29, 1868.

To all whom it may concern:

Be it known that I, C. E. PATRIC, of Macedon, county of Wayne, and State of New York, have invented certain new and useful Improvements in Grain-Drills, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a plan or top view of the drill. Fig. 2 is an end view, showing, in red lines, the operation of the devices for throwing the distributor into and out of action. Fig. 3 is a view of the device for vibrating the grass-seeder. Fig. 4 is a view of the adjustable tube or grain-spout, with means for adjusting the same.

The object of my improvement is to render more perfect the operation of throwing into and out of action the grain-seeding device, and for communicating motion thereto; also, to so construct the machine that the grass-seeder can be used either in front of or behind the grain-seeder; also, to adapt the grain-spouts to deliver the grain from each alternate one in the rear of the others, or on the same transverse line, as may be desired.

I have also a novel means for hanging and elevating the back roller, and an improvement in the devices for throwing into and out of gear the shaft which operates the guano-distributor.

The nature of these improvements will be more fully understood by reference to the drawing, in which A A' are the wheels, upon which are mounted the frame supporting the hoppers B and C, B containing grain and C grass-seed. D is a pinion, rigidly attached to the wheel A. E is a pinion, attached to and driving the shaft F, which in turn drives the guano-distributers, placed, when required, between the grain and seed hoppers, but not shown on the drawing. E' is a transmitting or intervening pinion. G is a round plate or block of metal, closely fitted into the wooden side-piece supporting the hoppers, and rotated upon its own axis by means of the arm G¹ and notched bar G². In this plate, G, I form a bearing for one end of the shaft F. This bearing is placed eccentric to the plate G, so that when the said plate is rotated the pinion E is thrown in and out of gear.

H is a pinion, driving the shaft which operates the grain-distributers. This pinion may be removed by taking off the nut H' and one of a larger or smaller size substituted therefor, for the purpose of changing the speed of the distributers. I is a transmitting-pinion, mounted upon the arm J. K is a strap or guard, serving to confine the arm J in the notches or recesses of the carrying-sector K', which is operated by the slotted bent lever L, which is pivoted upon the standard M at L'.

The line of direction in which the sector K' moves is controlled by a slot in one end of the sector fitting over a pin and a pin in the other end playing in a slot in the wooden frame-work of the drill. To this pinion is attached the bent lever M.

M' are two standards, supporting the roller N. This roller has a chain, O O', at each end. One end of each of these chains is fastened to the top of the standard, so that when the roller is rotated upon its own axis by means of the lever P, the chains O are wound up in the grooves fitted for them, and the roller is thereby elevated to any desired height, carrying with it the grain-tubes, which are attached to it by means of lifting-chains.

Q, Fig. 4, is an adjustable grain-spout, provided with a link (not shown in the drawing) for attaching to the distributor. q is a bail or hanger for adjusting and holding in position the spouts. The bail is fastened to the frame-work of the drill by means of bolts or screws passing through the slots in said bail. R, Fig. 3, is an undulating or corrugated cam-wheel, fastened to and moving with the wheel A', supporting the frame of the drill. S is a lever, carrying upon an arm the friction-wheel S'. This lever is vibrated or rocked upon its bearings at T by means of the track R and spring U.

C is a hopper for containing the grass-seed, the slide V of which is connected with and is vibrated by the lever S.

The operation of my drill is as follows: After putting a proper quantity of seed-grain and guano into their respective hoppers I thrust the bar G² forward until the pinion E is in gear with the pinion E'. The notch in the bar at G², dropped over the lower leg of the staple or pin, serves to keep the bar in position.

The grain-distributers I put in operation as

follows: Having determined the amount to be sown per acre, I place upon the shaft carrying the grain-distributers a pinion of such size as will give them the rapidity of motion necessary; then lower the lifting-roller down to the bottom of the standard, thereby throwing the bent lever and sector K' forward. This also lets the teeth down on the ground. Next raise the arm J until the pinion I engages with the pinion H; then slip the arm into one of the notches on the sector or rack K'.

It will be seen that the arm J has for its center of motion the center of the pinion D. Consequently, in whatever position the said arm J may be placed, the pinion I is always in gear with the pinion D, being, in fact, merely rotated about it in the arc of a circle. This enables me to change the size of the pinion H without making a corresponding change in the size of the pinion D.

When, from any cause, I wish to lift the teeth out of the ground and throw the distributers out of action, I depress the lever P. This elevates the roller N, the wrist of which, N', operating through and by means of the bent lever L, sector K', and arm J, withdraws the pinion I, thereby stopping the delivery of the grain until I again lower the teeth.

It will be apparent that the ordinary devices for throwing the seed-distributers into and out of action simultaneously with and by means of the mechanism employed for lifting the grain-tubes cannot be used advantageously with machines in which the roller to which is attached the chains for lifting the tubes is itself raised and lowered by means of chains or a rack and pinion.

It is desirable that the seeder should be thrown out of action with the first movement of the roller, before the tubes are taken from the ground, and then so held until they are down ready to enter the ground again. This cannot be done by making the connection directly from the roller to a clutch or an equivalent device by an arm or rod, as is ordinarily done, because the distance traveled by the roller is greater than would be convenient for the clutch or intervening pinion to move; and if a slotted lever or arm were used, then the seeder will remain in action until the shaft has nearly reached the limit of its upward throw. But by the use of a shipping-lever provided with a cam-slot open at one end, so that the projection on the roller, whether it be in the form of an extension of the journal upon which the shaft rotates or a pin or crank projecting from the shaft itself, shall, upon motion being communicated to it by the operator, immediately disconnect or throw out of gear the seeder, and then pass out of the slot to any desired distance, without further affecting the gearing; then, when the shaft is being lowered, it will, just before reaching the lower end of its throw, enter the cam-slot and bring the seeder again into action.

This device can be used equally well in case the bearings of the pinions should be made

stationary and the rack travel—that is, a rack at each end of the shaft, with a cross-bar connecting the two with the tube-chains attached to said cross-bar. In this case all that is necessary is to have one end of the bar, or a pin or wrist attached thereto, engage with and operate the shipping-lever by means of the cam-slot. The only thing essential about the movement of the wrist or its equivalent is that it shall have a positive reciprocating motion, and whether the line of its travel be straight or curved is immaterial, as a slight variation in the form of a slot is all the change necessary to make it work perfectly with either motion. It is not absolutely necessary that the slot shall be open at one end. It can, if desired, be made long enough to allow the pin to travel in it any required distance, provided that portion of it (the slot) above the cam conforms to the track followed by the pin, thus allowing the pin to move freely without affecting the shipping-lever, except at the beginning of its upward stroke and at the close of its downward stroke.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. Connecting the lever for throwing the seed-distributer into and out of action with the lifting-roller which raises the seed-tubes in such manner that the said shipping-lever shall be acted upon only while the seed-tubes are in proper position to deliver the grain.

2. In seeding-machines in which the seed-tubes are lifted by means of a traveling roller or equivalent, controlling the delivery of the seed through the motion of the roller or bar to which the seed-tubes are connected.

3. The construction of the device for transmitting motion from the driving-wheel to the distributer of a grain-drill or seeding-machine, in such manner that a limited or fixed throw of the shipping-lever may be made to throw the distributers into and out of action, while provision is also made for varying the speed of the distributers relative to that of the driving-wheel.

4. I do not claim, broadly, a traveling roller for raising the seed-tubes, such device being embraced in a patent granted to me December 17, 1867; but I do claim the traveling roller or bar for raising the seed-tubes out of the ground when operated by means of the chains or cords, for the purpose set forth.

5. The grain-spouts of a grain-drill or seeding-machine made adjustable in such manner as to deliver the grain to the drill-teeth arranged in different positions.

6. The eccentric rotating bearing G, in combination with the arm G¹, shaft F, and shaft G², for throwing the pinion E into and out of gear.

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Witnesses:

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