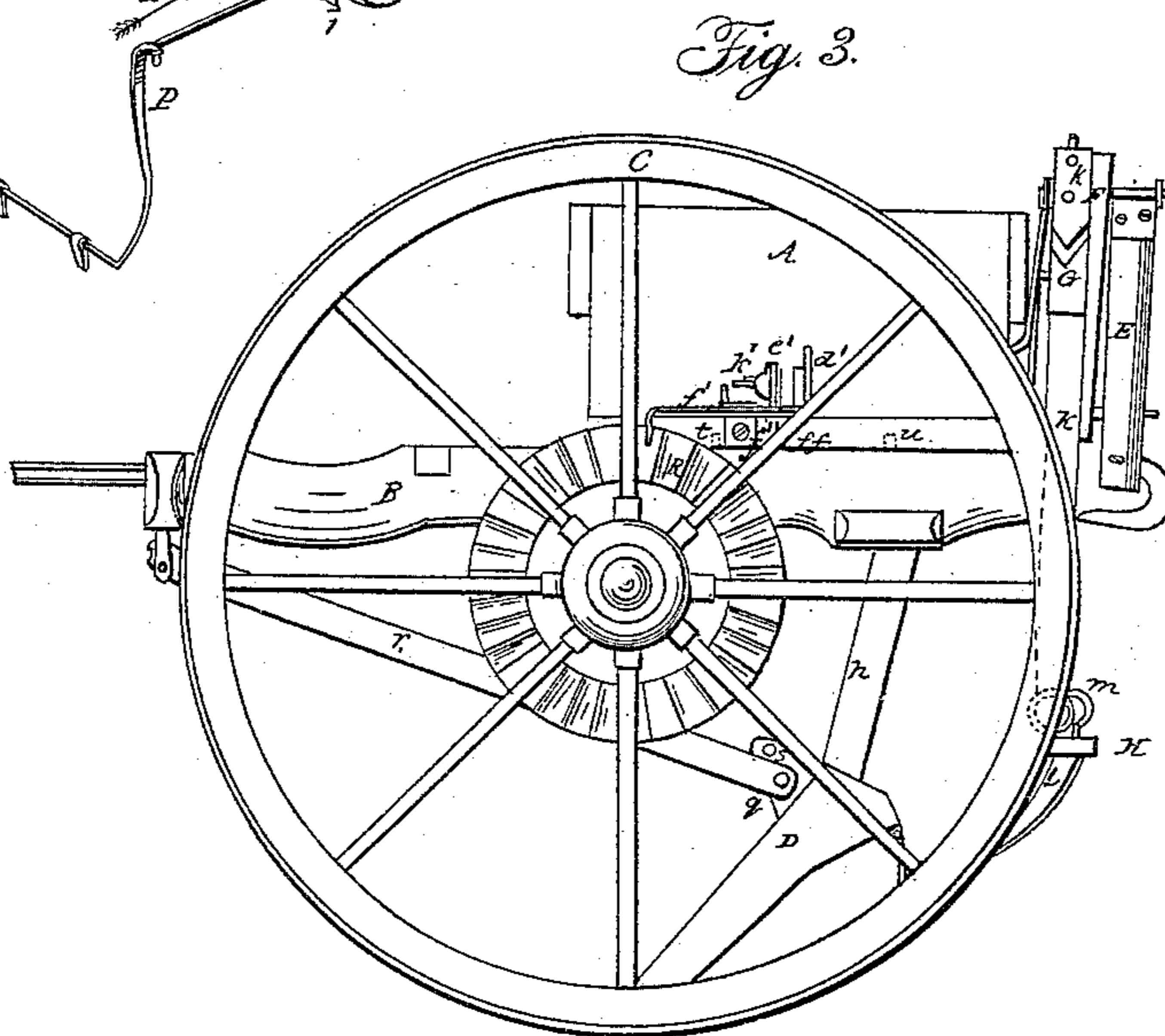
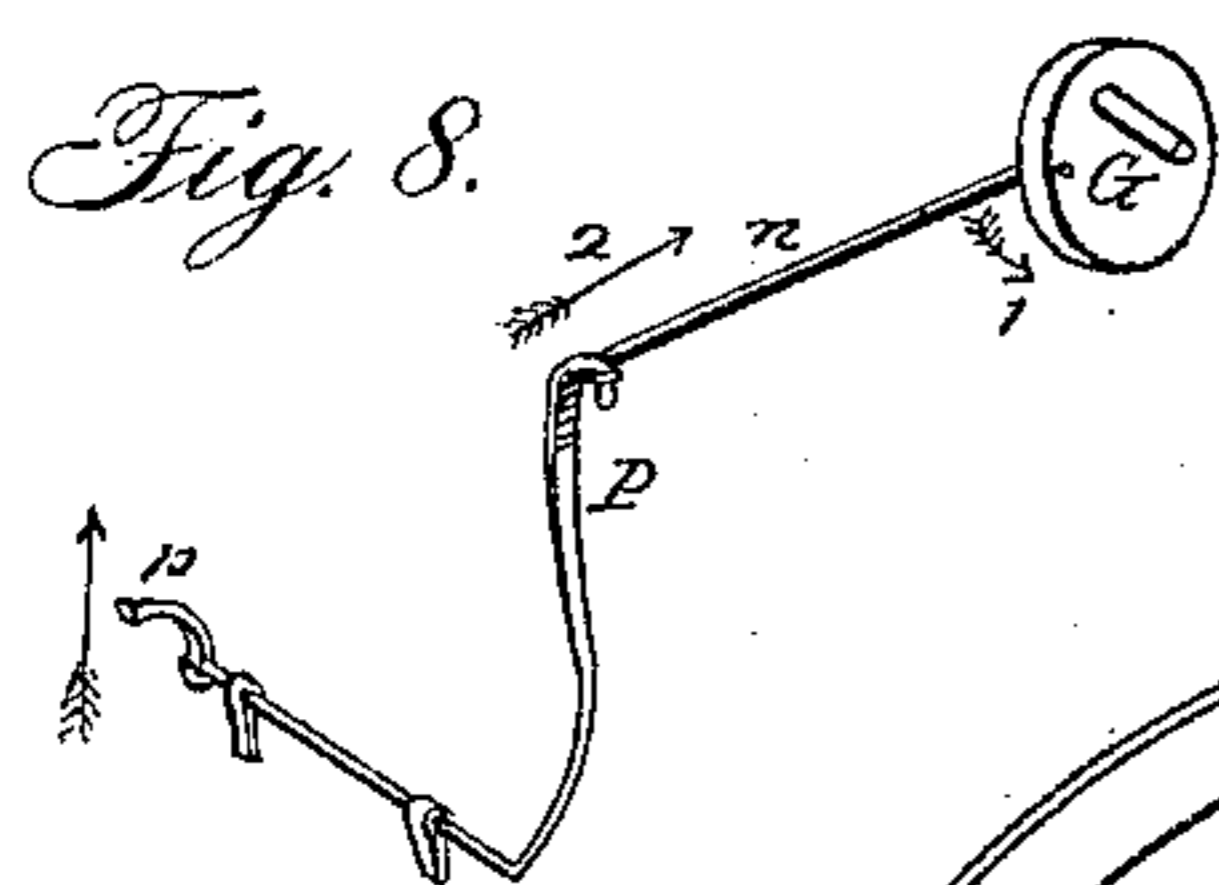
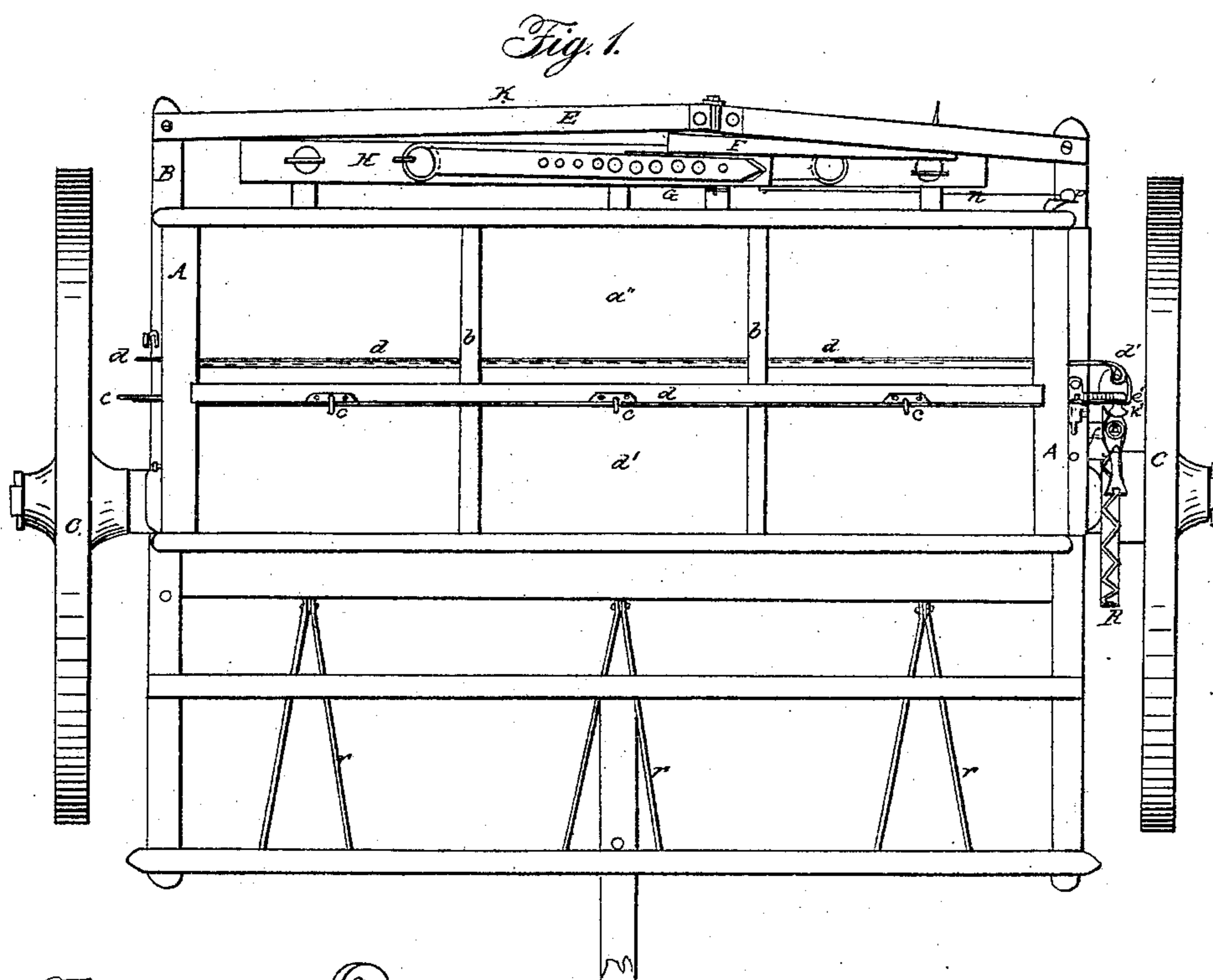


H. NYCUM.

Grain-Drill

No. 9,468

Patented Dec 14. 1852.



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Fig. 2.

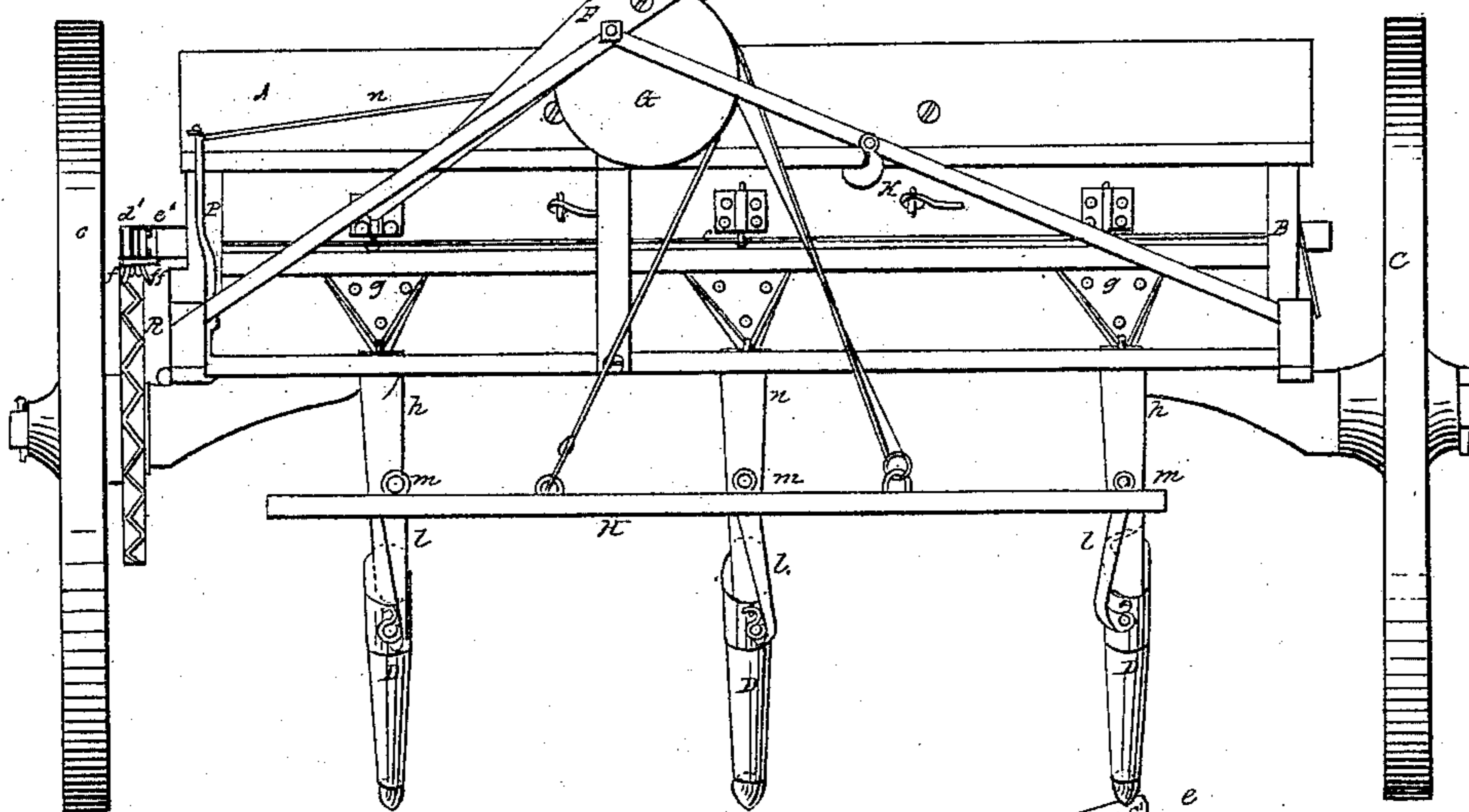


Fig. 5.

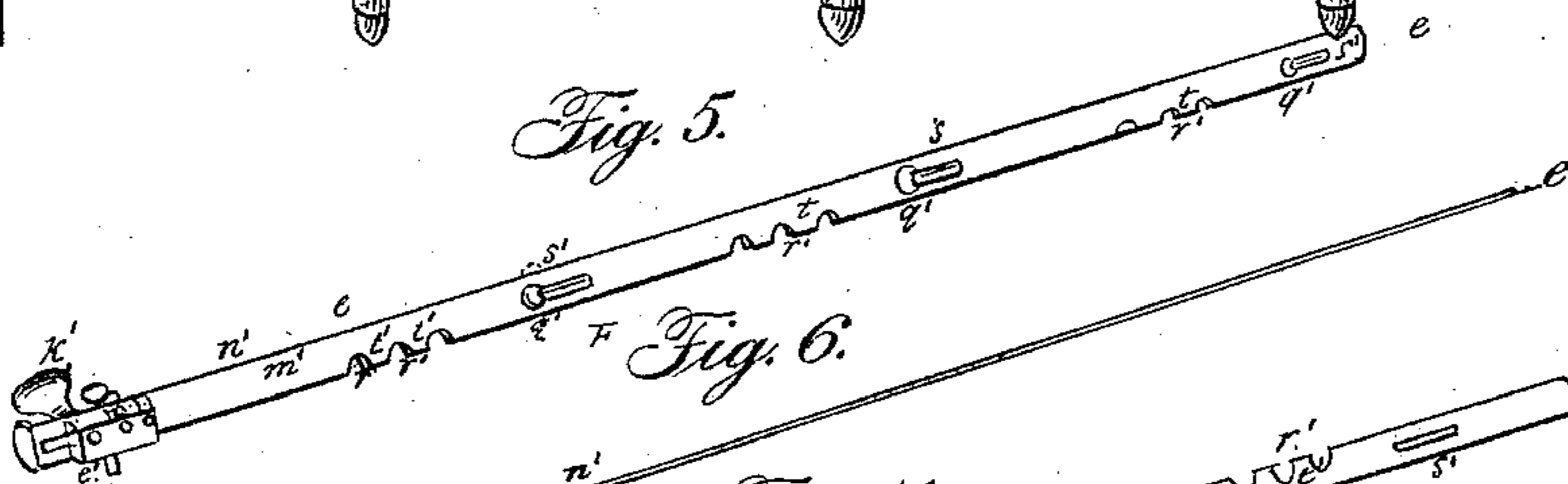


Fig. 6.

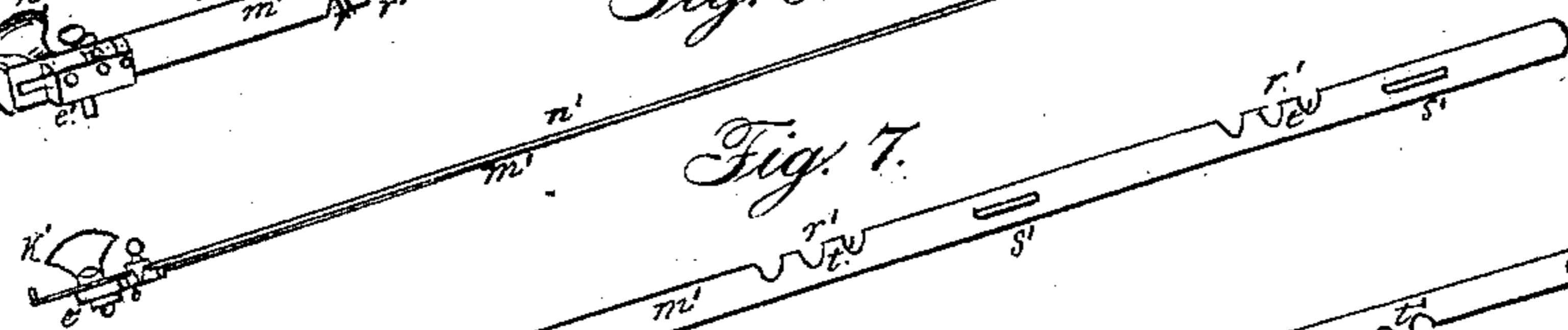


Fig. 7.

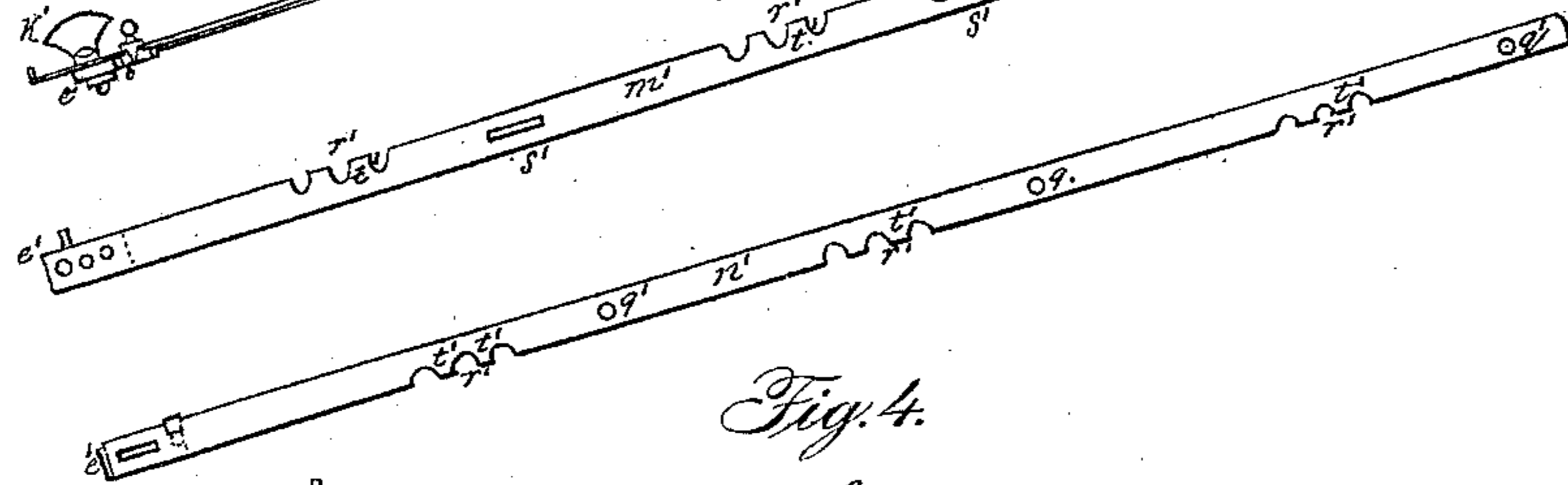
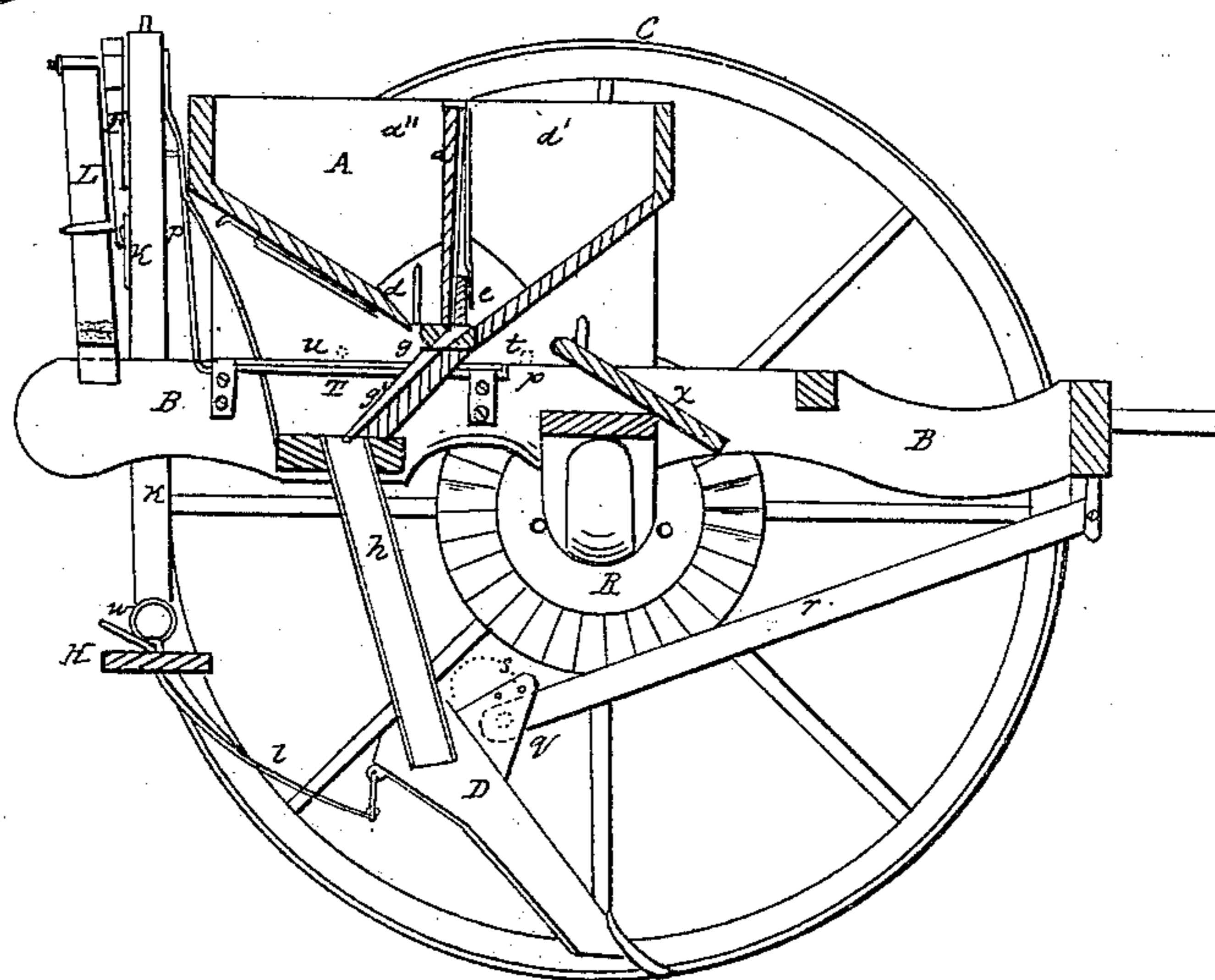


Fig. 4.



# UNITED STATES PATENT OFFICE.

HENRY NYCUM, OF UNIONTOWN, PENNSYLVANIA.

## IMPROVEMENT IN SEED-PLANTERS.

Specification forming part of Letters Patent No. 9,468, dated December 14, 1852.

*To all whom it may concern:*

Be it known that I, HENRY NYCUM, of Uniontown, in the county of Fayette, and the State of Pennsylvania, have invented new and useful Improvements on the Machine for Drilling Grain; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a top view of the machine. Fig. 2 is a back view. Fig. 3 is an end view. Fig. 4 is a vertical section through a tooth and parallel to the end of the machine. Fig. 5 is a perspective view of the feeding-slide. Fig. 6 is a horizontal projection of the same. Fig. 7 shows the two plates of which the feeding-slide is composed when separated. Fig. 8 is a perspective view of the bent lever, connecting-rod, and eccentric wheel for raising the hopper when the feeding is required to be thrown out of operation, the hopper being raised when the eccentric moves in the direction indicated by arrow No. 1.

The same letters refer to the same parts in all the figures.

The machine consists of a seed-trough, A, a frame, B, two driving-wheels, C, the drill-teeth D, and the gearing by which the teeth are raised and the machine thrown out of operation. The seed-trough A is divided into two parts, *a' a''*, by means of the partition *a*, the part *a'* being intended to receive and distribute the grain and the part *a''* to do the same with guano, lime, or other fine manure. These two divisions are again subdivided by the partitions *b b* into three compartments. This arrangement prevents the grain and manure from accumulating on one side when working on uneven ground or from other causes. In these compartments and on the partition *a* are the gates *c c*, which, when closed, shut off the grain from their respective drills. The grain and manure are kept agitated and prevented from choking the mouths of the channels *g g* by means of the reciprocating motion of the two metal slides *d e*, which motion is occasioned by the ends *d' e'* of the slides being fastened by means of pins to a vibratory lever, *f*, which has a vibratory motion caused by the forked end of one arm of the lever running on the perimeter of a crimped wheel fastened to the hub of one of the driving-wheels. This lever

works horizontally upon a bearing, *f'*, fastened to the frame B by the bolt *f''*, around which it can be turned for the purpose of throwing the pins of the slides out of gear.

Leading from the seed-trough are the channels *g g*, which receive the grain and manure and conduct them to the tubes *h h*, whence they flow through the drill-teeth D to the ground.

Attached to the rear of the frame B is the miter-bar E, which consists of two wooden bars of unequal length, with their lower ends firmly fastened to the frame B and their upper ones secured together by a metal plate, the angle at the vertex being one hundred and thirty degrees. Through the metal fastening at the vertex of this angle passes a bolt, which serves as an axis for an eccentric wheel, G, moved by means of a lever, F, secured to it. The bolt also serves as a fulcrum for the lever. Connected with this eccentric wheel by the straps *k k* is the hanging bar H, which is perforated with holes of sufficient size to admit of the passage of the straps *l l l*, each fastened to the rear of one of the drill-teeth. These straps are prevented from slipping through the bar by means of the rings *m m m*. The object of this arrangement is that by pressing on the long arm of the lever F and carrying it round to the catch K the bar H is raised, and in so moving carries with it the rings *m*, which by reason of their connection with the drill-teeth D cause them to be drawn up simultaneously, so as to clear any obstacle. Another object is also effected by this movement of the lever F. The whole distributing apparatus is thrown out of gear, for, attached to the eccentric wheel G is the small rod *n*, which is connected with the extremity of the long arm of the bent lever P *p*. When the lever F is pulled down and fastened at K the extremity of the long arm of the lever P *p* moves toward the wheel G, and in so doing lifts the short arm *p*, Figs. 4 and 8, under the seed-trough A, causing the end of it to be raised so high that the pendent fork of the vibrating lever *f* no longer touches the crimped wheel R. The working thus stopped, and the teeth raised out of the way, the machine is free to move to any other position with the same facility as a common cart.

By means of the straps *l l l* any one of the teeth can be raised to pass an obstacle and

lowered, at pleasure. If it be required to use but part of the teeth, any number of them can be raised up and fastened to pins on the frame B by the straps *l l*, the proper gates in partition *d* shut down, and then the machine will work as well as if all the teeth were down. The ease with which the teeth are raised, either singly or in combination, presents an obvious advantage over any of the drills now in use.

The miter-bar and eccentric wheel are sufficiently elevated not to interfere with working the machine.

The hanging bar H, being close to the rear of the teeth, allows the operator to step in and with his foot to remove the rubbish which from time to time accumulates on the points, thus obviating the necessity which exists when using other drills of raising the tooth to clear the point of small obstacles.

With regard to the drill-teeth, the construction differs but little from those in common use, being simply metal tubes having a steel point in front of each. They are fastened to the drag-bars *rr* by the joints *q q*, and are kept from moving backward by the pins *s s* passing through the finger of the joint and resting against the top of the rear ends of the drag-bars *rr*. These pins are of wood, and are not as strong as the other parts of the joints, so that should the teeth come violently in contact with any obstacle the pin would give way and the machine not be damaged. This, however, I do not claim as new.

To set the machine in operation the lever F is released from the catch K, which movement lowers the teeth to the ground, and at the same time lets down the pendent fork of the vibratory lever *f* upon the perimeter of the crimped wheel R. This wheel turns as the driving-wheel moves forward, causing the lever *f* to vibrate. The motion of the vibratory lever produces a reciprocating motion of the slides, which agitate the grain and manure and cause them to flow into the channels *g g*, leading to the drill-teeth, through the tubes of which they pass into the ground.

The manure-agitator *d* is nothing more than a metal bar notched on both sides, the protruding end *d'* being furnished with a pin which works in the rear arm of the vibratory lever *f*.

The graduated slide *e* for feeding the grain is composed of two metal plates, *m' n'*, so arranged by the heads *q'* and the grooves *s'* that one plate will move longitudinally upon the other. Upon the lower edges of the plates are the apertures *r' r'*, forming the feeding-apertures through which the grain passes. When the plates are in such a position that the corresponding apertures in each plate coincide the maximum quantity of grain will pass to the drill-tubes. By moving the plates upon each other the feeding-apertures in the slide *e* continue to diminish until they are entirely closed, in which case the apertures in the one plate are covered by the parts *t'* between the apertures of the other. Upon the upper edge

of the protruding end *e'* of the slide is a scale showing the number of bushels and parts of a bushel of grain to the acre which will pass through the feeding-apertures at any given position of the sliding plates with respect to each other. The end *e'* of the slide has also a clamp-screw, K', which fastens the plates together when set for use. This sliding feeder is passed longitudinally through the seed-trough, and rests upon its edge against metal guides fastened to the partition *a*. It is fastened by a pin in the lower edge of the protruding end *e'* to the rear arm of the vibrating lever *f*, which, when the machine is in operation, gives the slide *e* a reciprocating motion. This motion agitates the grain and causes it to pass through the feeding-apertures to the channels which lead to the drill-tubes, and thence to the ground. The feeding-apertures are so arranged as to be in sets of three at the mouth of each of the channels *g g g*. This arrangement of the feeding-slide enables the farmer to sow the proper quantity of grain to the acre by simply adjusting the gage.

The machine can also be adapted to sowing broadcast by moving the seed-trough forward until the pin *t* on the frame B enters the hole *u* in the bottom rim of the seed-trough. In this case the rear fork, *f f*, of the vibratory lever *f* passes over the perimeter of the crimped wheel R, which, when set in motion by the driving-wheel, causes the lever to vibrate, and thus produces the before-mentioned reciprocating motion of the slides. In this new position of the seed-trough the apertures through which the seed passes being in advance of the channels which lead to the drill-tubes the seed falls over the apron X, and is uniformly distributed over the surface of the ground. The drill-teeth passing after the seed serve to cover the greater part of it with earth.

The vibratory lever *f* is of metal, having its fulcrum at *z*, upon the bearing *f'*. The forward arm is turned down and forked, so as to inclose the perimeter of the crimped wheel R. The angular points of this wheel by its revolution alternately strike the branches of the fork and produce a vibratory motion of the lever *f* about its fulcrum *z*. The rear arm of the lever is also furnished with a pendent fork, *f f*, set midway between the holes which receive the pins upon the ends of the slides *d e*. This fork is acted upon in the same manner by the crimped wheel R, and produces the same motion upon the lever *f* when the seed-trough is moved forward.

The crimped wheel R for operating the slides is of metal, and consists of a circular disk, around the perimeter of which is a band made up of a series of trapezoidal figures so placed that the angles are alternate of one hundred and twenty degrees. This wheel is securely fastened to the hub of one of the driving-wheels. By the before-mentioned action upon the forked arm of the vibratory lever *f* the working part of the machine is kept in motion. This arrangement, for its simplicity, is superior to the other

movements now in use. The sharp edges of the crimped wheel R, striking alternately against the branches of the pendent fork of the vibratory lever *f*, insure a quick motion, which is not arrived at by the undulatory disk used in some machines. The simplicity of arrangement is such that any one can adjust and keep in order the working parts.

The lever P *p* for raising the end of the seed-trough is a bent lever having its two arms connected by a round bar at right angles to both, lying along the side T of the frame B, to which it is held by metal straps, thus forming the fulcrum of the lever. The short arm *p* is flush with the top of the bar T, when the machine is in operation, and is elevated by the lever F to throw the working parts out of gear.

What I claim as my improvements, and desire to secure by Letters Patent, is—

1. The construction of the compound grain-slide *e*, Fig. 7, as described, by which the amount of grain required to be sown is graduated at pleasure, as herein fully set forth.

2. The miter-bar E, constructed as described, to raise the apparatus for lifting the drill-teeth and throwing the slides out of gear completely out of the way of the operator, thus allowing him to get at the drill-teeth for the purpose of clearing them of obstructions with a facility altogether unknown in machines constructed with a horizontal bar in the rear.

In testimony whereof I have hereunto subscribed my name before two subscribing witnesses.

HENRY NYCUM.

Witnesses:

WM. WILSON,  
F. C. ROBINSON.