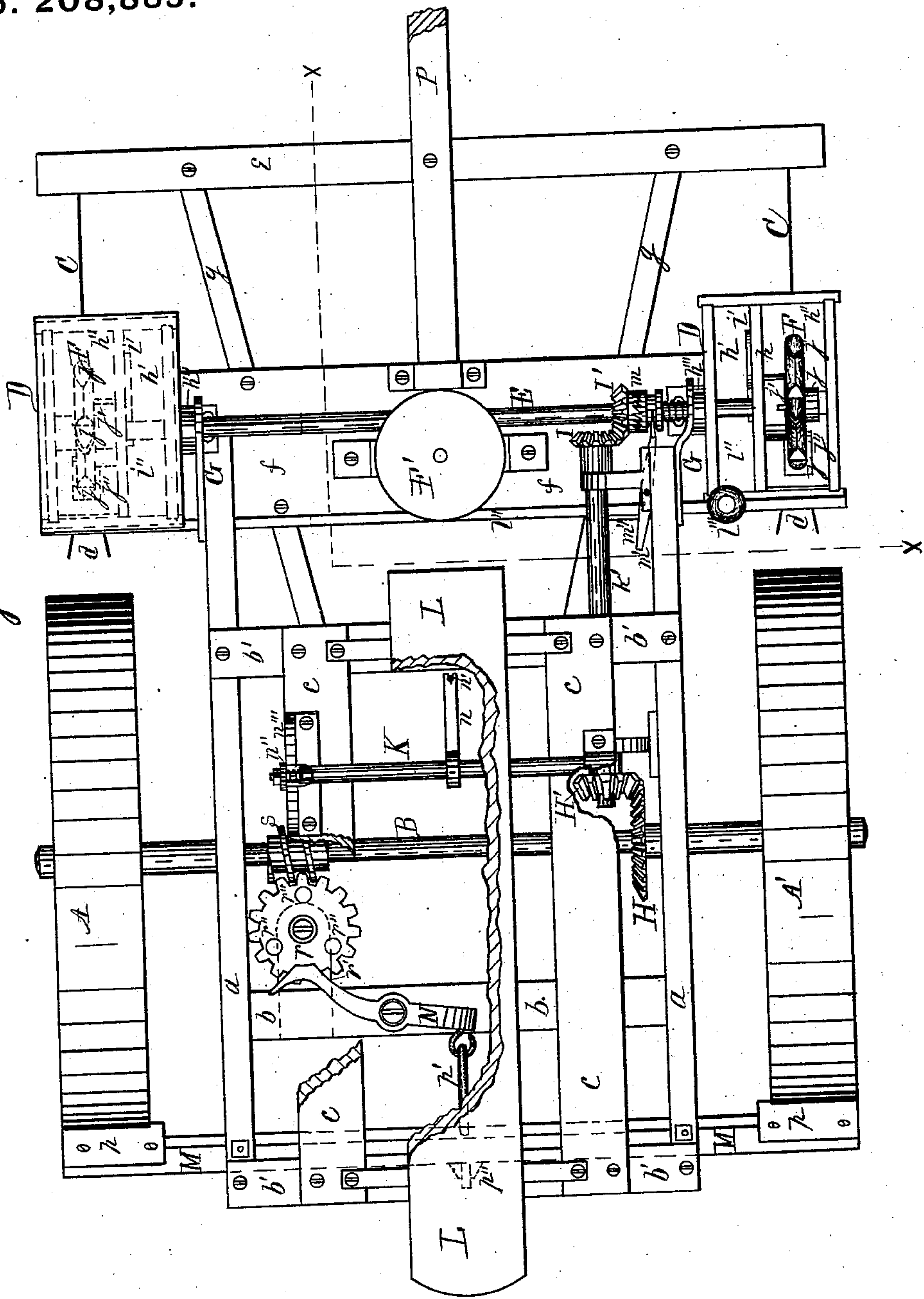


J. W. BRIGHAM & T. M. FLENNIKEN.  
Corn-Planter.

No. 208,885.

Patented Oct. 15, 1878.

Fig. 1.



WITNESSES,  
J. J. Sovereign  
A. O. Behel

INVENTORS,  
Jonathan M. Brigham,  
Theodore M. Fleniken  
Per Jacob Behel,  
Atty.

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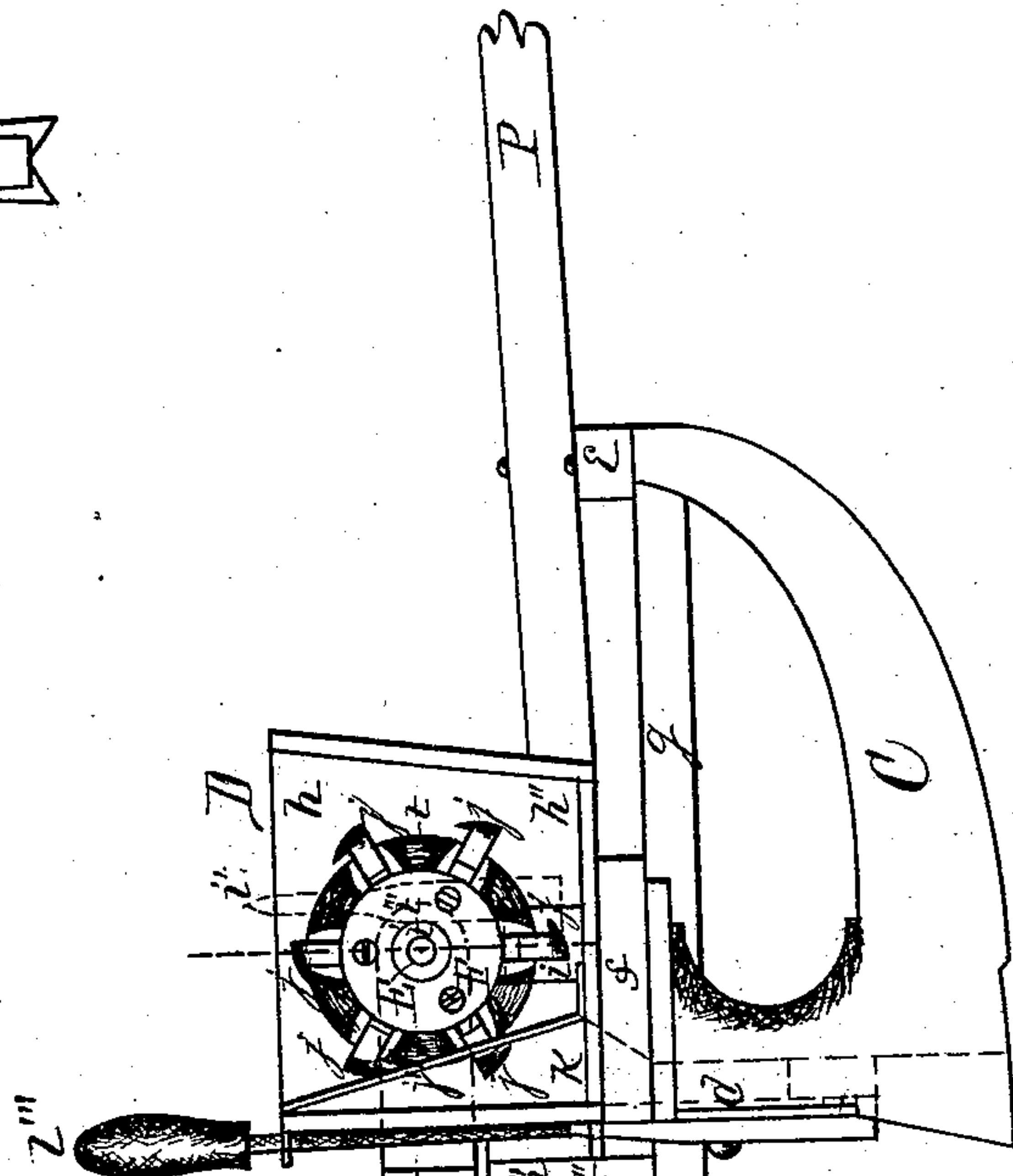
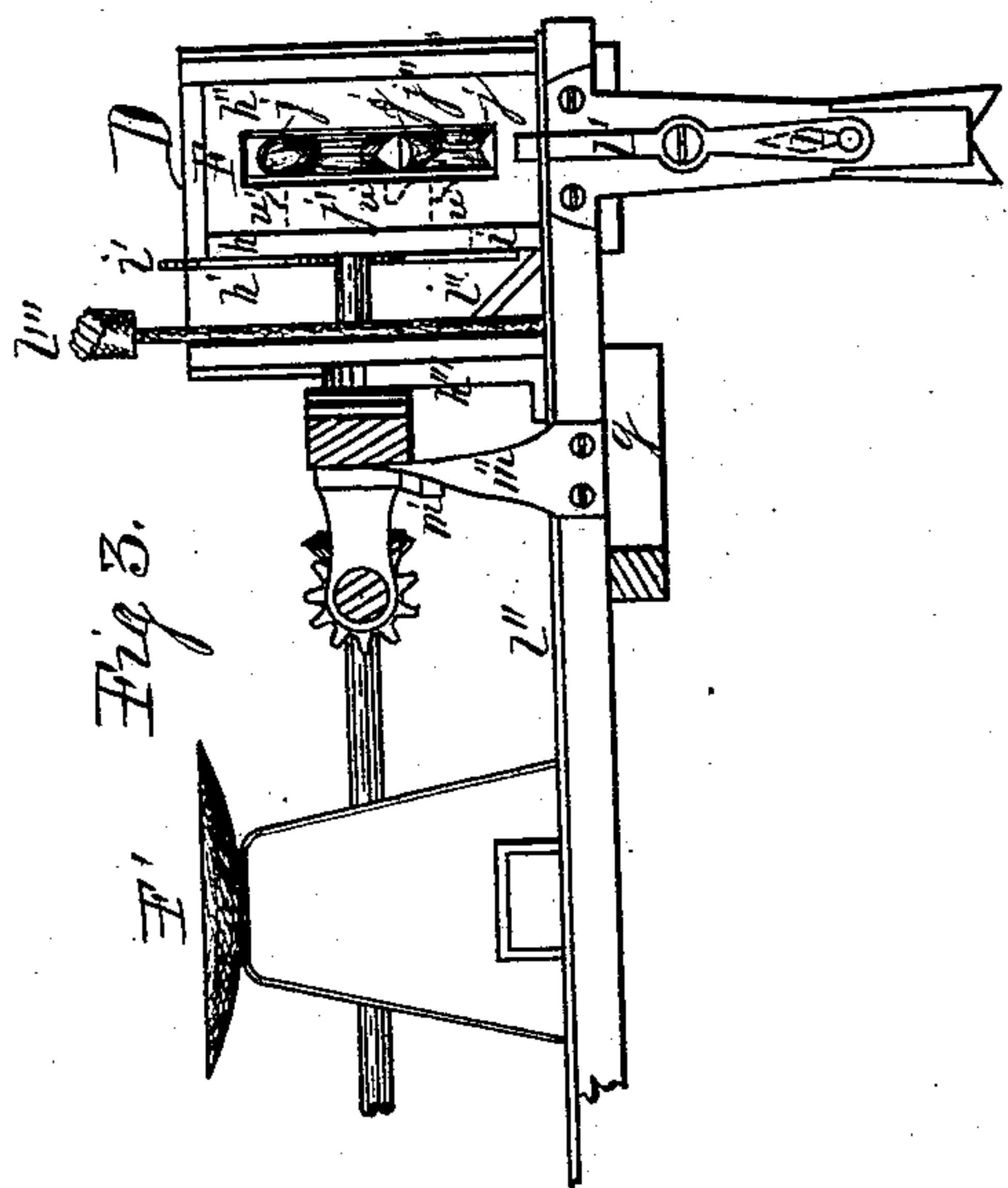


Fig. 2.

WITNESSES.

H. J. Sovereign  
A. O. Behel

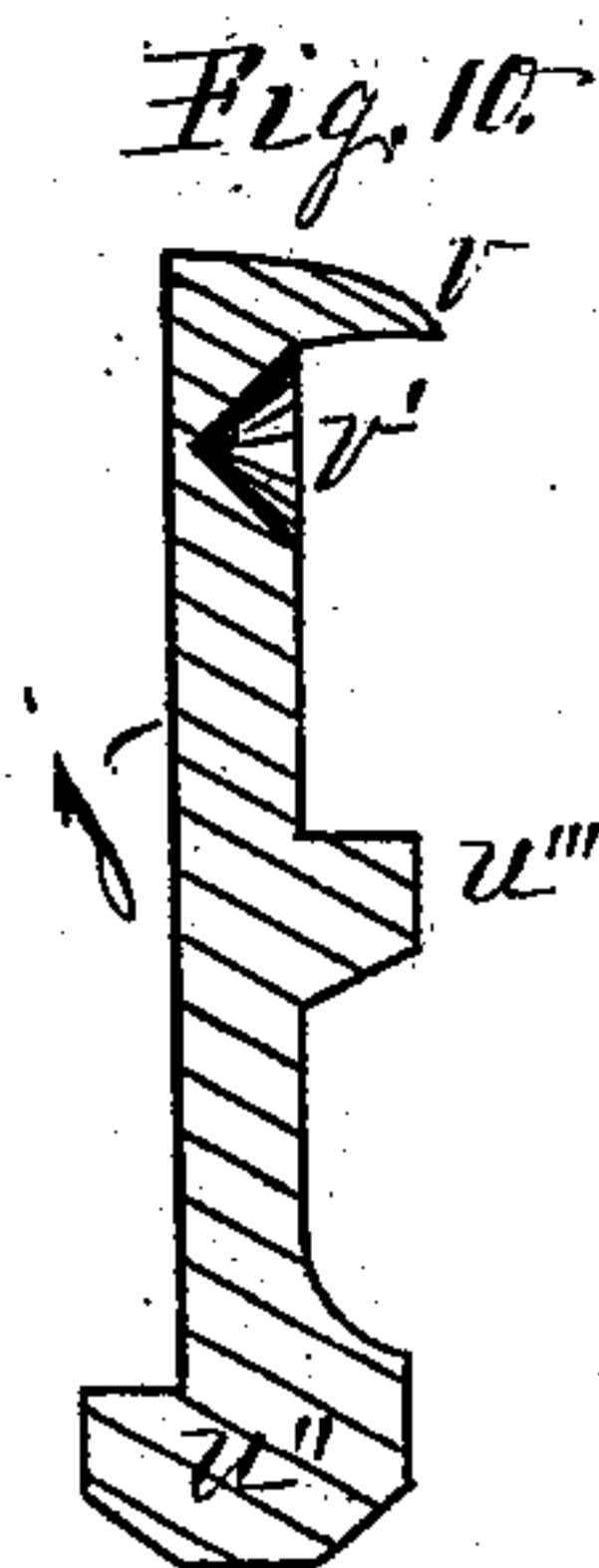
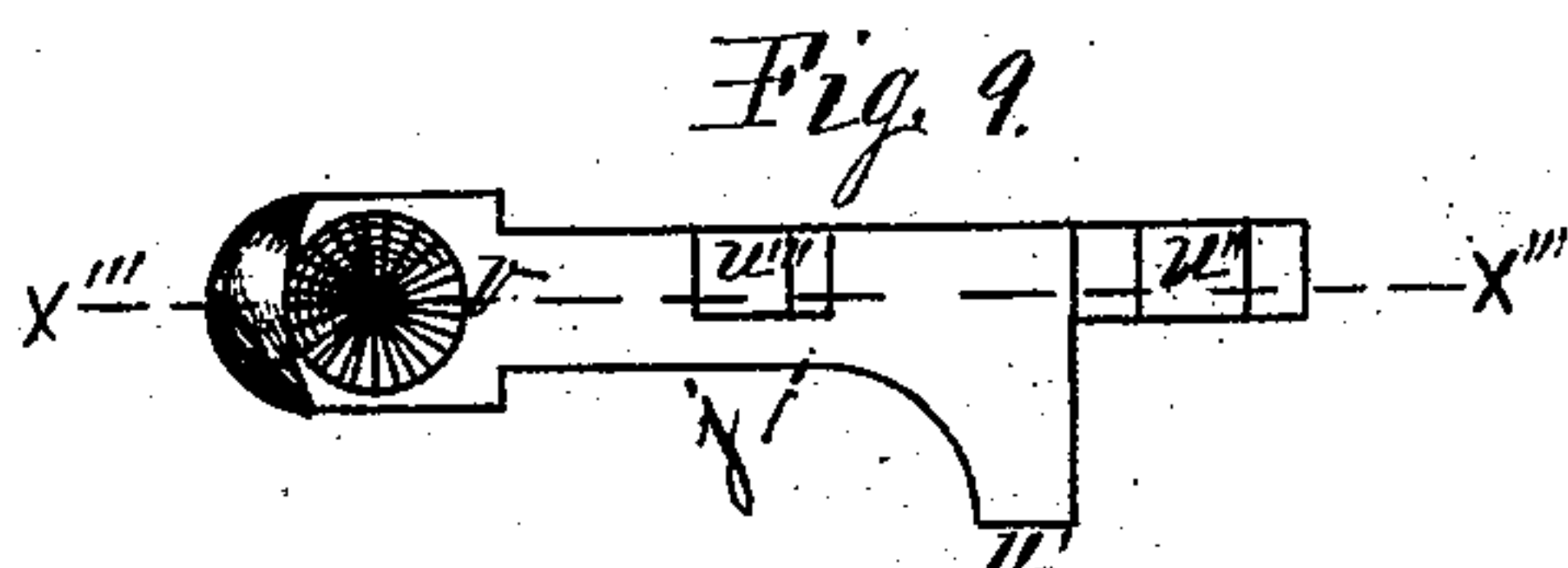
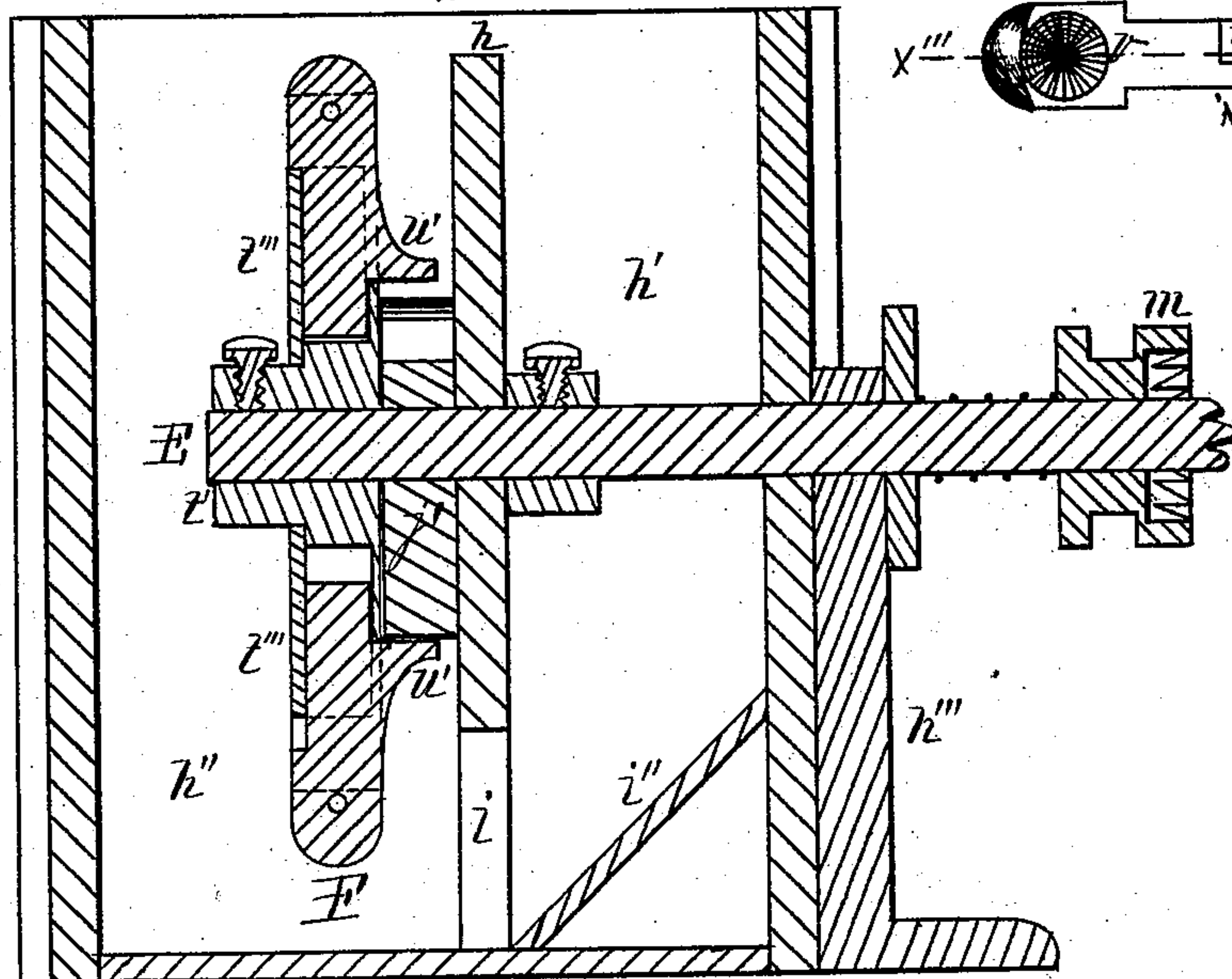
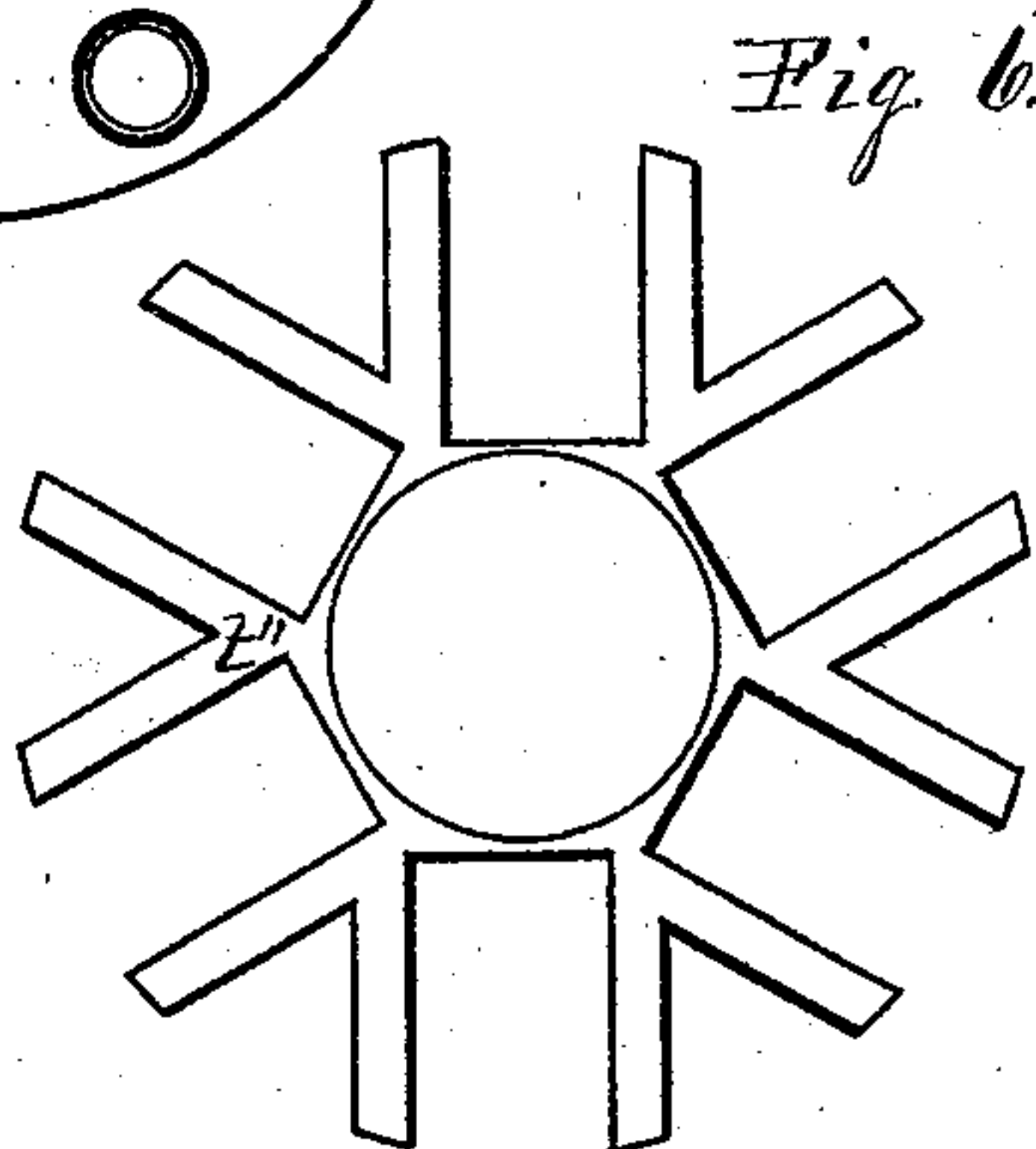
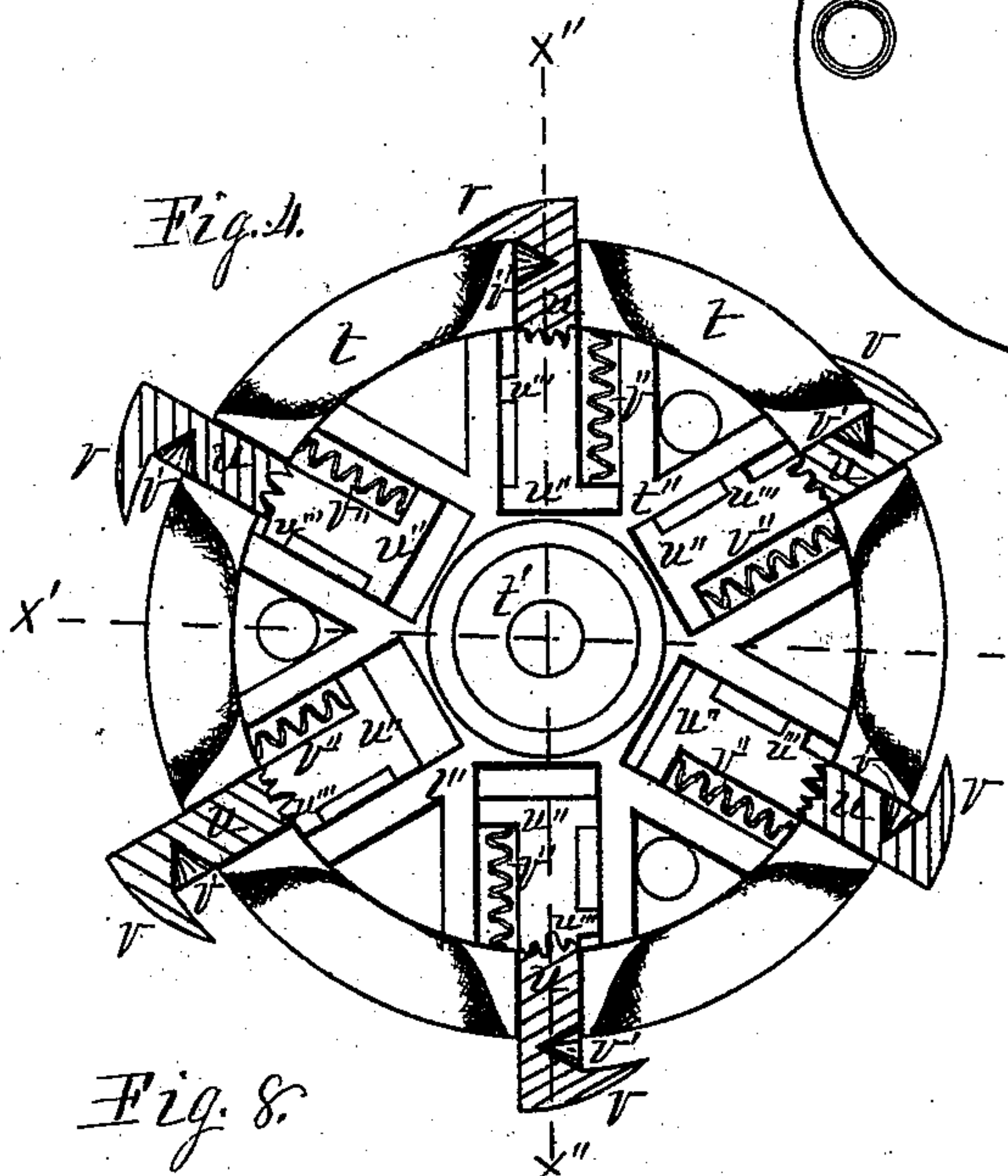
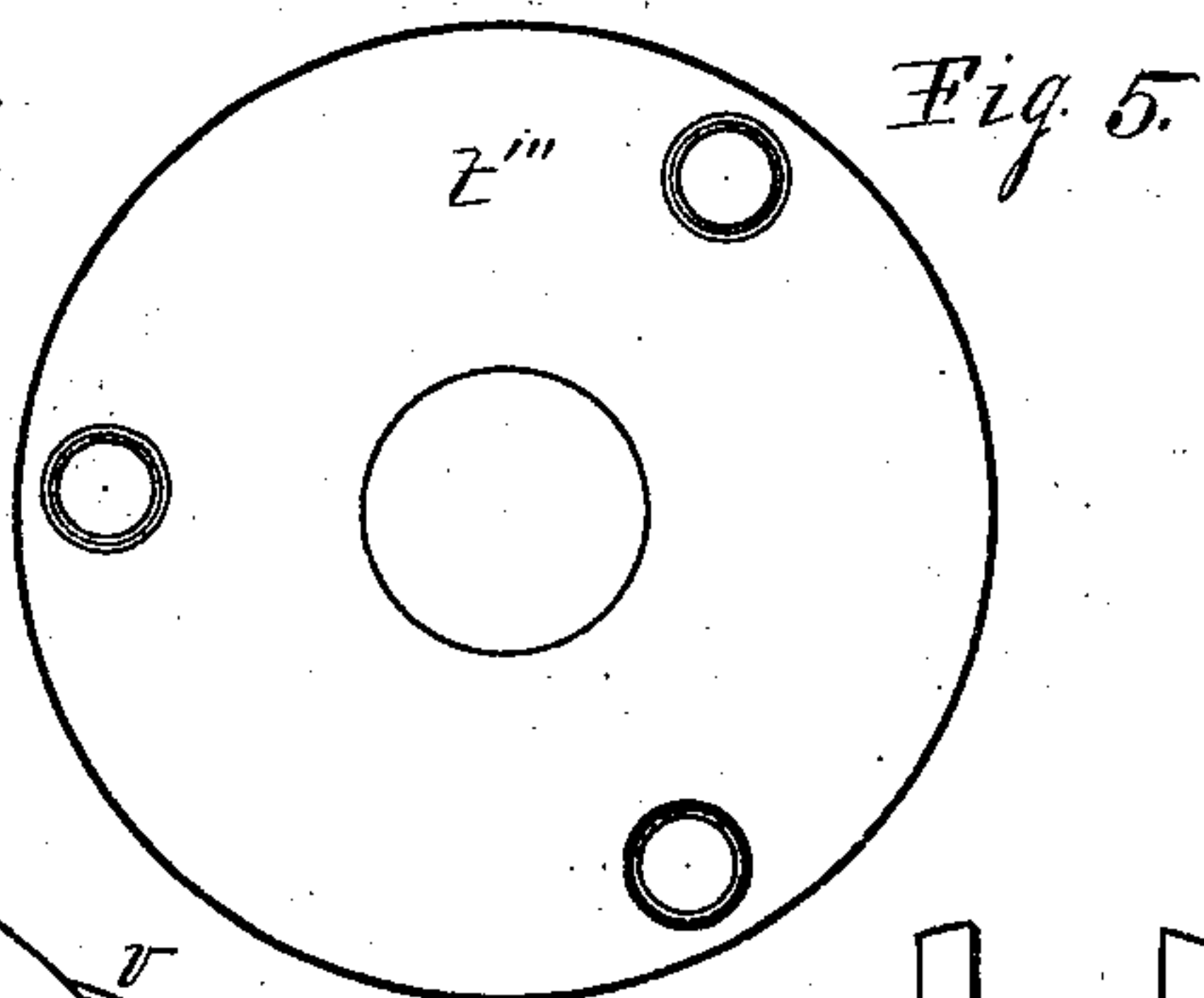
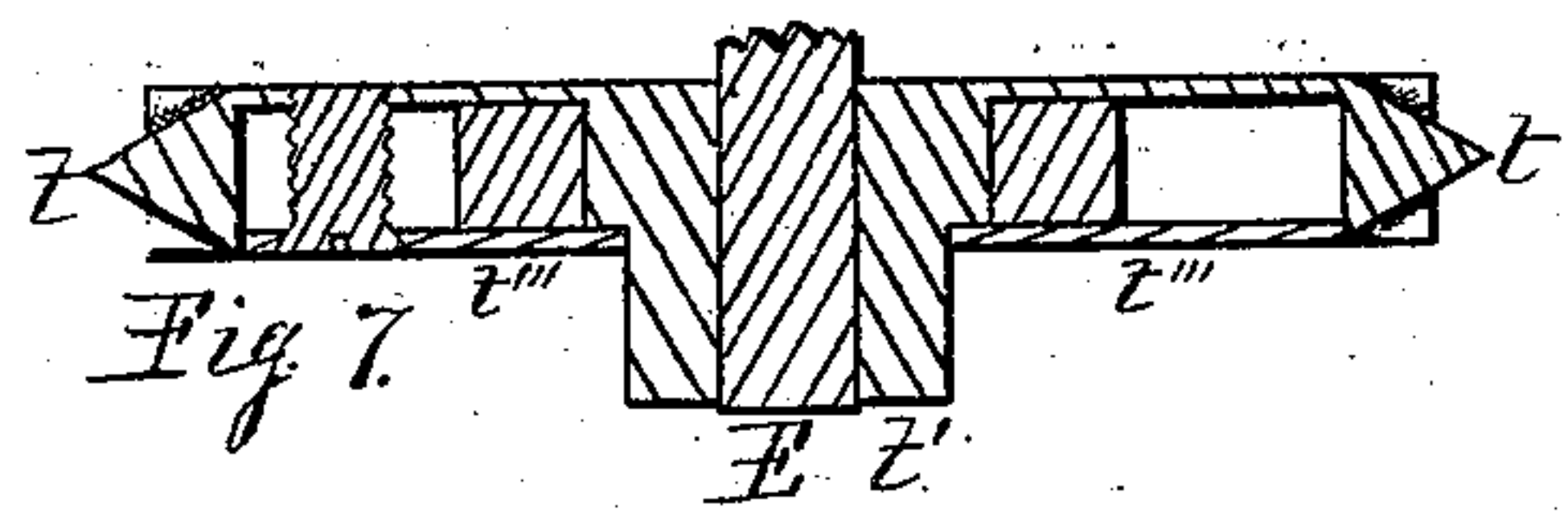
INVENTORS  
Jonathan W. Brigham.  
Theodore M. Fleniken.  
Per Jacob Behel.  
Atty.



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Witnesses,  
F. J. Loveriga  
A. O. Behol

Inventors,  
Jonathan W. Brigham  
Theodore M. Fleniken  
Per Jacob Behol  
Atty.



# UNITED STATES PATENT OFFICE.

JONATHAN W. BRIGHAM AND THEODORE M. FLENNIKEN, OF ROCKFORD, ILLINOIS.

## IMPROVEMENT IN CORN-PLANTERS.

Specification forming part of Letters Patent No. **208,885**, dated October 15, 1878; application filed January 15, 1878.

*To all whom it may concern:*

Be it known that we, JONATHAN W. BRIGHAM and THEODORE M. FLENNIKEN, both of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Corn-Planters, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a plan view of a corn-planter embodying our invention. Fig. 2 is a side elevation, and Fig. 3 is a rear sectional view on dotted line *x* of Fig. 1. Fig. 4 is a side elevation of the seed-wheel, in which the outer ends of the radial slides are in section on the central plane of the seed-wheel. Fig. 5 is the central portion of one side of the casing removed from the seed-wheel. Fig. 6 represents the radially-grooved central portion of the seed-wheel removed. Fig. 7 is a transverse section of the seed-wheel on dotted line *x'* of Fig. 4. Fig. 8 is a vertical transverse section of the seed-box and seed-wheel on dotted line *x''* of Fig. 4. Fig. 9 is a front face view of the radial seed-slides, and Fig. 10 is a lengthwise central section of the slide on dotted line *x'''* of Fig. 9.

In some of the figures portions are broken away for the purpose of showing the parts underneath.

The object of our invention in corn-planters is to improve the machine in its several parts, to render it more effective as a combined drill and check-row machine, and to produce a machine of simple construction, easy to operate, and provided with an automatic intermittent scraper to clear the carrying-wheels of adhering earth. To this end we have devised and constructed the machine represented in the accompanying drawings.

In the figures, A represents a carrying-wheel, fitted to revolve on the axle B, and a carrying-wheel, A', substantially the same as wheel A, is fixed to the axle-tree B, so that the axle-tree will revolve with the wheel. Parallel lengthwise side beams, *a*, are connected on their under sides by a transverse beam, *b*, and on their upper sides by transverse beams *b'*. These last beams are con-

nected on their upper sides by lengthwise beams *c*. All of these beams are firmly bolted together, as represented, and constitute a frame of rectangular form, which is mounted on the axle-tree B in such a manner as to permit the axle-tree to revolve freely in suitable bearings secured to the frame.

C are dividing runners of the usual form, fitted with an open heel and a vertical seed-tube, *d*. These runners are secured at their forward upturned ends to a transverse beam, *e*, and at their rear ends to the wide transverse beam *f*, provided with openings over the seed-tubes. These beams are connected on their under sides by converging beams *g*, which extend rearward of the beam *f*, and are connected at their rear ends by a crosswise beam, *g'*. These parts are firmly bolted together, as represented, and constitute the forward frame of the machine.

D are seed-boxes of rectangular form, as represented in the drawings, and are divided by a vertical lengthwise partition, *h*, into two compartments—a seed-receptacle, *h'*, into which the seed is placed, and a compartment, *h''*, from which the seed is distributed. The partitions *h* are each fitted with an opening, *i*, to admit the seed to flow through them from the receptacles *h'* into the distributing-compartments *h''*, and are also provided with a pivoted swinging slide, *i'*, for the purpose of regulating the quantity of the flow by means of increasing or lessening the capacity of the openings *i* to admit the seed. The bottoms of the seed-receptacles are made in hopper form by means of the inclined bottoms *i''*, to conduct the seed to the openings.

These seed-boxes are provided with openings through their bottoms near their rear ends, which, when the boxes are in place on the outer ends of the beam *f*, to which they are securely fixed, will be over the openings in the beam. E is a transverse horizontal shaft, fitted to revolve in bearings *h'''*, which rise from the transverse bar *f* on the inner sides of the seed-boxes. The ends of this shaft pass through the outer walls on the inner sides of the seed-boxes, through the seed-receptacles *h'*, through the lengthwise partitions *h*



and cams  $j'$ , secured to their sides, and into the distributing-compartments  $h''$  a sufficient distance to receive the seed-distributing wheels.

$F$  are seed-distributing wheels, which in some particulars resemble the seed-wheels described in a patent issued to Jonathan W. Brigham, October 31, 1876. These seed-wheels are constructed in disk form, and in this instance are composed of the several parts represented in the drawings, of which the main portion is constructed with an outer rim,  $t$ , slotted transversely to receive the outer portions  $u$  of the radial seed-slides  $j$ , and are also slotted radially to receive their projecting lug  $u'$ . This portion of the disk is formed with a central hub,  $t'$ , between which and the outer rim it is recessed on one side to receive the center portion,  $t''$ , which is slotted radially to receive the enlarged inner ends,  $u''$ , of the seed-slides and their guide-lugs  $u'''$ . This center portion is placed in the recess in the main portion of the seed-wheel in such a manner as to receive the seed-slides, to permit them to slide freely in the grooves.  $j$  are the seed-slides above referred to, of which Figs. 9 and 10 are enlarged views. The outer end of each of these seed-slides is formed with a lip,  $v$ , projecting from its forward side, which overlaps a portion of the periphery of the seed-wheel. These seed-slides are provided with conic-formed countersinks  $v'$ , formed from their front in the forward sides of the slides, immediately under the forward-projecting lips. These slides are placed in the radial grooves in the seed-wheels, with the enlargements  $u''$  and  $u'''$  serving as guides to direct their sliding movement.  $v''$  are spiral springs placed in the radial grooves on the rear side of the seed-slides, with one end resting on their rear enlargement  $u''$ , and their outer ends resting against the inner edge of the outer rim,  $t$ . The action of these springs serves to force the seed-slides toward the center of the disk.  $t'''$  is a ring-plate of proper size to pass onto the hub  $t'$  of the seed-wheel, and to cover its recessed portion, so as to incase the inner portions of the seed-slides. This ring-plate is secured in place by means of sufficient screws. The peripheries of the seed-wheels between the seed-slides are beveled from their centers on each side, leaving but a small portion immediately under the forward projecting lips of the seed-slides, with a square periphery. These distributing-wheels are secured on the outer ends of the shaft  $E$  in the distributing-compartments  $h''$ , to revolve therein with the shaft; and in their revolutions the seed-slides will be made to operate by means of their projecting lugs  $u'$  coming in contact with the face of the cams  $j'$ , which are placed in such eccentric position relatively with the seed-wheels that in their revolutions the slides will be forced outward on their descending and under sides, and that they will permit the spring action to force them inward on their ascending and upper sides. The distributing compartments  $h''$  of the seed-boxes are divided by means of the inclined partitions  $j''$ , form-

ing delivery-chambers  $k$ , which communicate with the vertical seed-tubes  $d$  (shown in dotted lines) by means of openings cut through the bottoms of the seed-boxes and through the wide cross-beam  $f$ . The inclined partitions  $j''$  are slotted to permit the seed-distributing wheels to revolve in the slots.

The seed, being placed in the receptacle, will flow through the opening in the partition into the distributing-compartment in contact with the revolving seed-wheel, and will be received in the opening between the periphery of the seed-wheel and forward-projecting lips of the seed-slides as they descend into and their under sides pass through the seed, and will be so centered in the countersink as to prevent more than a single grain of corn or other similar seed being caught and held by the spring action between the forward-projecting lips of the slides and the square portion of the periphery of the wheel immediately under them, to be carried up on its ascending side and over its summit through the slotted partition, where, by the opening of the seed-slides on their descending sides, it will be discharged, a grain at a time, into the delivery-chamber, which communicates with the vertical seed-tube in the heel of the runner, to conduct it into the furrow formed by the dividing-runner. These vertical seed-tubes are provided with flipper-valves  $l$ , (shown in dotted lines,) pivoted centrally in the tubes, and at their lower ends to the pivoted lever  $l'$ , which is connected at its upper end to the sliding connecting-rod  $l''$ , to be operated by means of the vertical hand-lever  $l'''$ , in such a manner as to throw the flipper-valves crosswise of the tubes, to retain the seed on its upper side until the desired number of seeds accumulate, when it can be thrown to the opposite side, and permit the accumulated seed to drop through the open heels into the furrow formed by the runners, and the flipper-valve will be in position to arrest the seed delivered into the tubes by the rotary seed-wheel to form a second hill. This operation is performed by an attendant carried on the machine, mounted on the seat  $F'$ , supported on brackets secured to the cross-beam  $f$ , and is employed for the purpose of planting seeds in hills or in check-rows.

When used as a drill, the flipper-valve is fixed in a vertical position, to permit the seed to pass it on either side as it is delivered by the seed-distributing wheel in the delivery-chamber  $k$ . The number of seeds to be deposited in the hills and the distance between the seeds when in drills are determined by the relative velocities of the carrying-wheels and the seed-distributing wheels, which will be hereinafter explained.

By means of the divided seed-boxes the receptacles  $h'$  may be filled with seed, and by means of the slides  $i'$  the flow of the seed through the partition may be regulated so as not to rise in the compartments  $h''$ , from which the seed is distributed, to interfere with the accurate working of the machine in the delivery of the seed.



Plates G are hinged on the shaft E, and are secured to the forward ends of the side beams, *a*, which connect the two frames in a flexible manner, to vibrate vertically on the same transverse center on which the seed-wheels revolve, but rigid laterally.

H is a beveled toothed gear-wheel, secured to the axle-tree B, the teeth of which engage the teeth of a beveled pinion, H', on the rear end of shaft *k'*, which is placed lengthwise of the machine, supported in bearings which project from the inner side of one of the side beams, *a*, placed in such position thereon as to bring the shaft lengthwise in line with the axle-tree B and the transverse shaft E.

A miter-gear wheel, I, is fixed on the forward end of the shaft *k'*, and a similar miter-gear wheel, I', is placed loosely on the shaft E, in such position that its teeth will engage the teeth of the wheel I.

The gear-wheel I' is connected to the shaft E by a spring saw-toothed clutch, *m*, arranged in such a manner that in backing the machine it will be thrown out of gear and stop the distribution of seed, which will again commence with its forward movement.

*m'* is a lever pivoted to the under side of the forward bearing of the shaft *k'*, near the inner side of the right-hand side beam, *a*. Its forked forward end enters the annular groove in the spring-clutch in such a manner as to disengage the clutch *m* by an inward movement of the rear end of the lever. *m''* is a wedge-shaped piece, placed in a vertical position, with its inclined edge inward, and is secured to the rear face of the transverse bar *f* in such position that when the front frame is raised its inclined edge will come in contact with the rear end of the lever *m'*, causing its forward end to move outward and carry with it the spring portion of the saw-toothed clutch, and disengage it from the bevel-gear wheel I' and stop the distribution of seed. This action will be reversed on lowering the machine, and the distribution of seed will again commence.

K is a transverse rock-shaft, fitted in bearings on beams *c*, and is provided with a central arm, *n*, having its free end slotted to receive the upper end of a cord or chain, *n'*, the lower end of which is connected to the transverse beam *g'*.

The outer end of the rock-shaft K is fitted with a lever, *n''*, provided with a lever-spring detent to engage the segment-ratchet *n'''*, which is secured to the frame. This device is employed for the purpose of raising and lowering the machine to regulate its running depth, and to hold it in an elevated position for transportation.

*o* is a stop secured on the transverse beam *g'*, which, when the machine is raised, will come in contact with the front upper transverse beam, *b'*, to limit the upward movement of the forward frame.

L is the driver's seat, supported on brackets secured to the upper beams of the rear frame, and it extends rearward, for the purpose of

enabling the driver to shift his position rearward to counterbalance the forward frame, to enable him to raise the machine in all ordinary cases without the use of the lever *n''*.

M is a scraper-beam hinged to the under side of the frame, rearward of the carrying-wheels, in such a manner as to freely swing back and forth. To the ends of this beam are secured scrapers *p*, which, when the beam is swung forward, will come in contact with the rims of the carrying-wheels, and, if held in contact therewith while the wheels revolve, will scrape the adhering earth from the wheels.

N is a lever of the form represented in the drawings, and is pivoted on the lower transverse beam, *b*. Its rear end is connected to the scraper-beam by rod *p'*, having its rear end screw-threaded and fitted with a screw-nut, *p''*, by which the scraper may be adjusted to act with greater or less force against the wheels. *r* is a spiral-toothed gear-wheel, fitted to revolve on a proper bearing on the forward end of a bracket, *r'*, secured to the rear under transverse beam, *b*. This spiral-toothed gear-wheel is fitted with upward-projecting studs *r''*, which, as the wheel is revolved, will come alternately in contact with the curved free end of the lever N and force the scraper against the wheels. *s* is a screw-gear, fixed on the axle-tree in such position that its spiral thread will engage the spiral teeth on the wheel *r*, and cause it to revolve as the machine is drawn forward, and will cause the studs *r''* to act on the lever N alternately, and, through its connection with the scrapers, will produce an automatic intermitting action of the scrapers on the peripheries of the carrying-wheels, to free them from adhering earth. P represents the tongue, which is secured to the transverse beams *e* and *f* of the forward frame.

From the foregoing it will be seen that our machine is designed to plant two rows as the machine is drawn over the ground, and can be used as a check-row planter, by which a given number of seeds may be planted in check-rows in hills with greater certainty than with the ordinary planter now in use. It is also designed to be used as a seed-drill, to deposit the seed in drills, one in a place.

These machines may be constructed to deposit any given number of grains in a hill, at any given distance between hills, or in drills to deposit a single grain at any regular given distance, by varying the relative size of the gear-wheels to regulate the relative movement of the carrying and seed distributing wheels to meet the requirements.

We are aware that corn-planters have been made in some particulars similar to ours; hence we do not claim the same, broadly; but

What we do claim as our invention is—

1. The automatic intermitting scraper herein described, operated by means of the rotating carrying-wheel, for the purpose of removing adhering earth from the periphery of the carrying-wheel, substantially as hereinbefore set forth.



2. The combination, substantially as herein described, of the screw-gear and the spiral-toothed gear-wheel, constructed and operating to impart an intermitting movement to the scrapers through the rotary movement of the carrying-wheels, to cause the scrapers to come in contact with the peripheries of the carrying-wheels intermittingly, to remove the adhering earth therefrom automatically, as hereinbefore set forth.

3. The combination, with shaft E, upon which the front frame swings in free connection with the rear frame, said shaft being provided with gear I' and spring-clutch m, of horizontal lever m', which is fulcrumed to the main frame, and the upright wedge-piece m'' which is rigidly secured to the front frame, said lever and wedge-piece being adapted to automatically engage with each other as the rear body of the front frame is swung upward in its movement upon said shaft E, substantially as set forth.

4. The combination, with the worm formed on the axle, worm-gear meshing therewith, and provided with the upright studs, of the horizontal oscillating lever, which intermittingly engages with said studs and indirectly operates the scraper-beam, substantially as described.

5. The combination, with worm formed on the axle, gear meshing therewith and intermittingly actuating by stud engagement the horizontal oscillating lever, of the link which connects with the scraper-beam, and is provided with a clamp-nut on its outer tapped extremity, substantially as set forth.

JONATHAN W. BRIGHAM.  
THEODORE M. FLENNIKEN.

Witnesses:

A. O. BEHEL,  
DUNCAN FERGUSON.