

(No Model.)

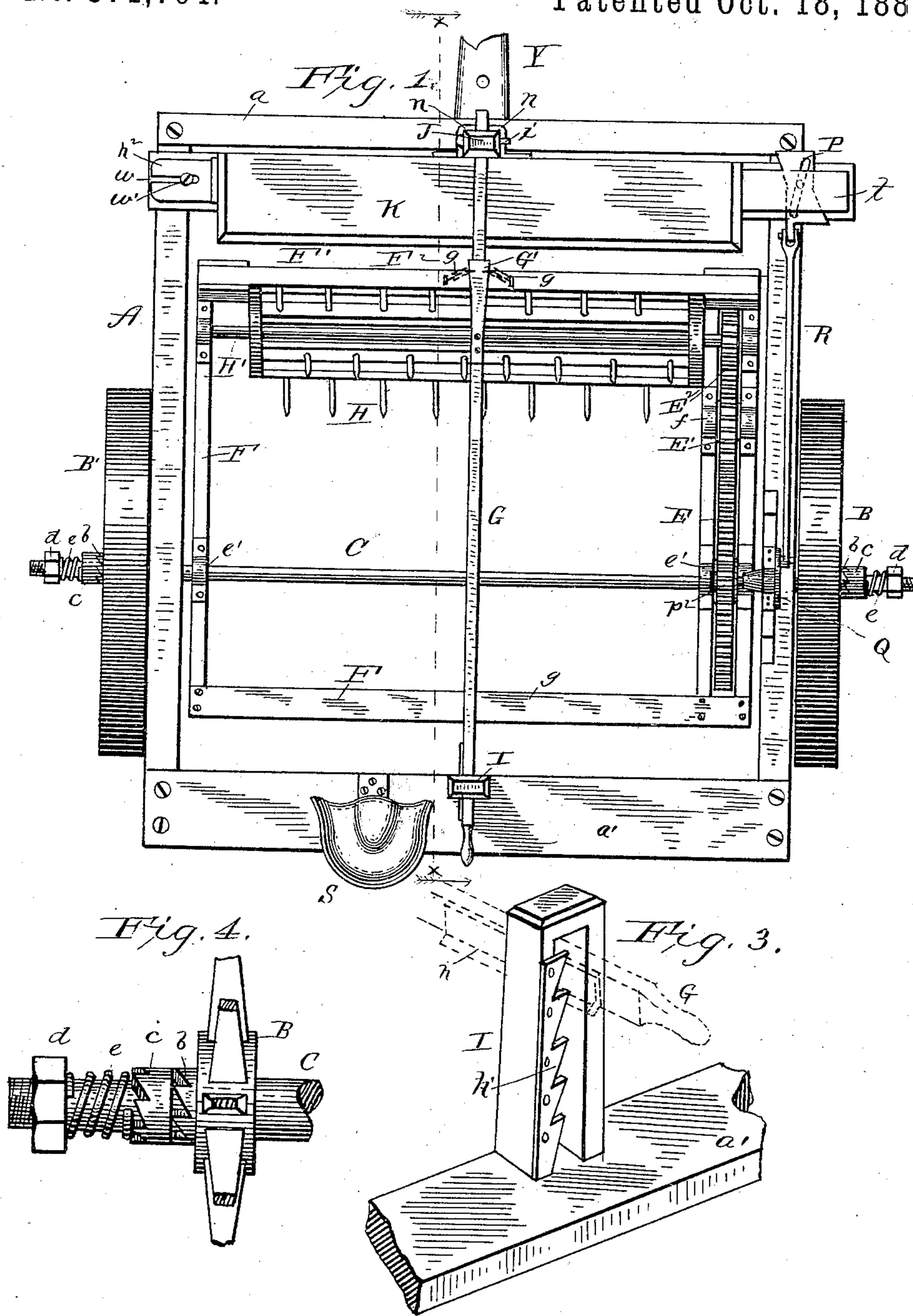
2 Sheets—Sheet 1.

J. KELLY.

COMBINED SEEDER AND HARROW.

No. 371,764.

Patented Oct. 18, 1887.



Witnesses:
John S. Trench Jr.
C. D. Davis

Inventor:
Jacob Kelly
By *W. M. Alexander*
Attorney

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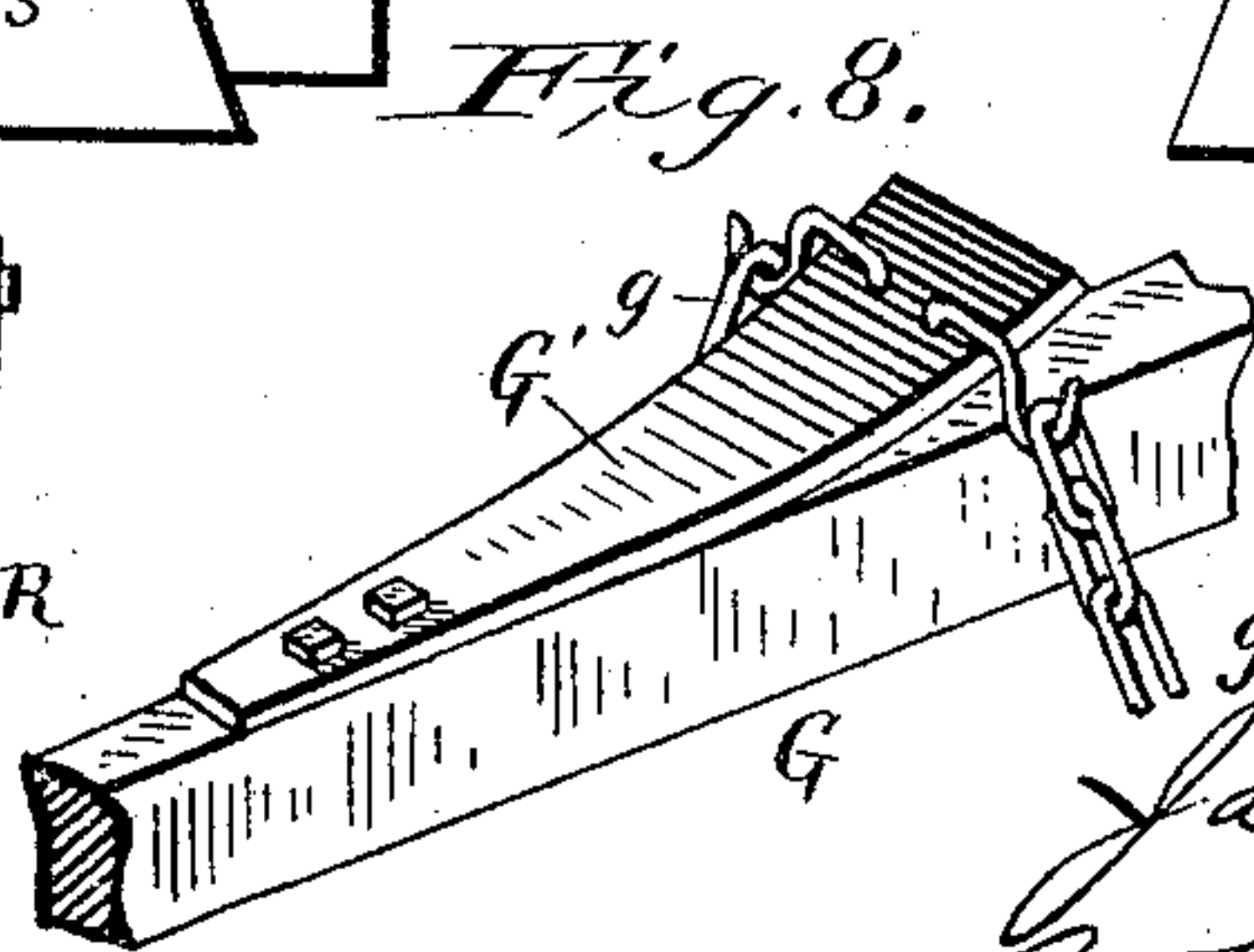
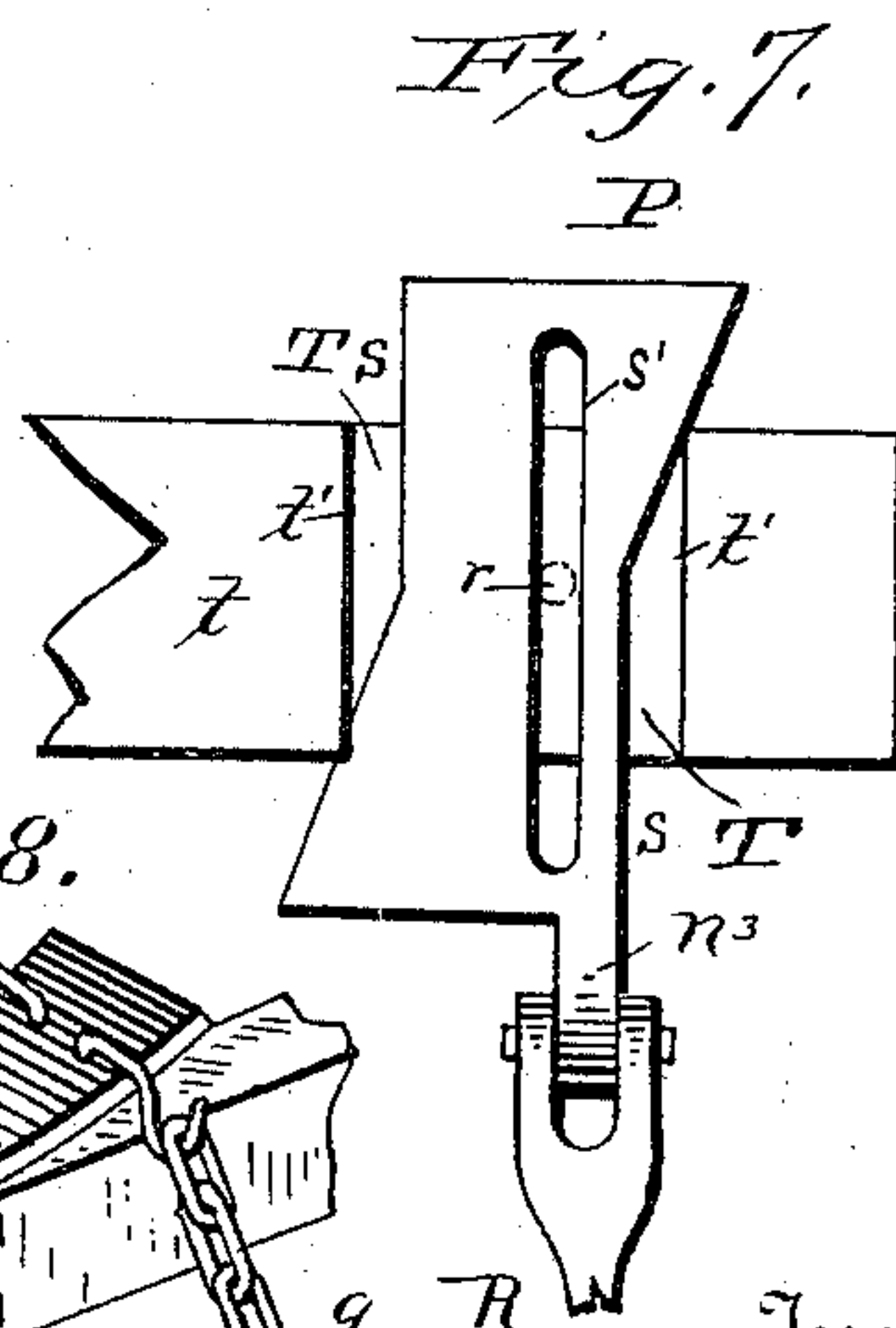
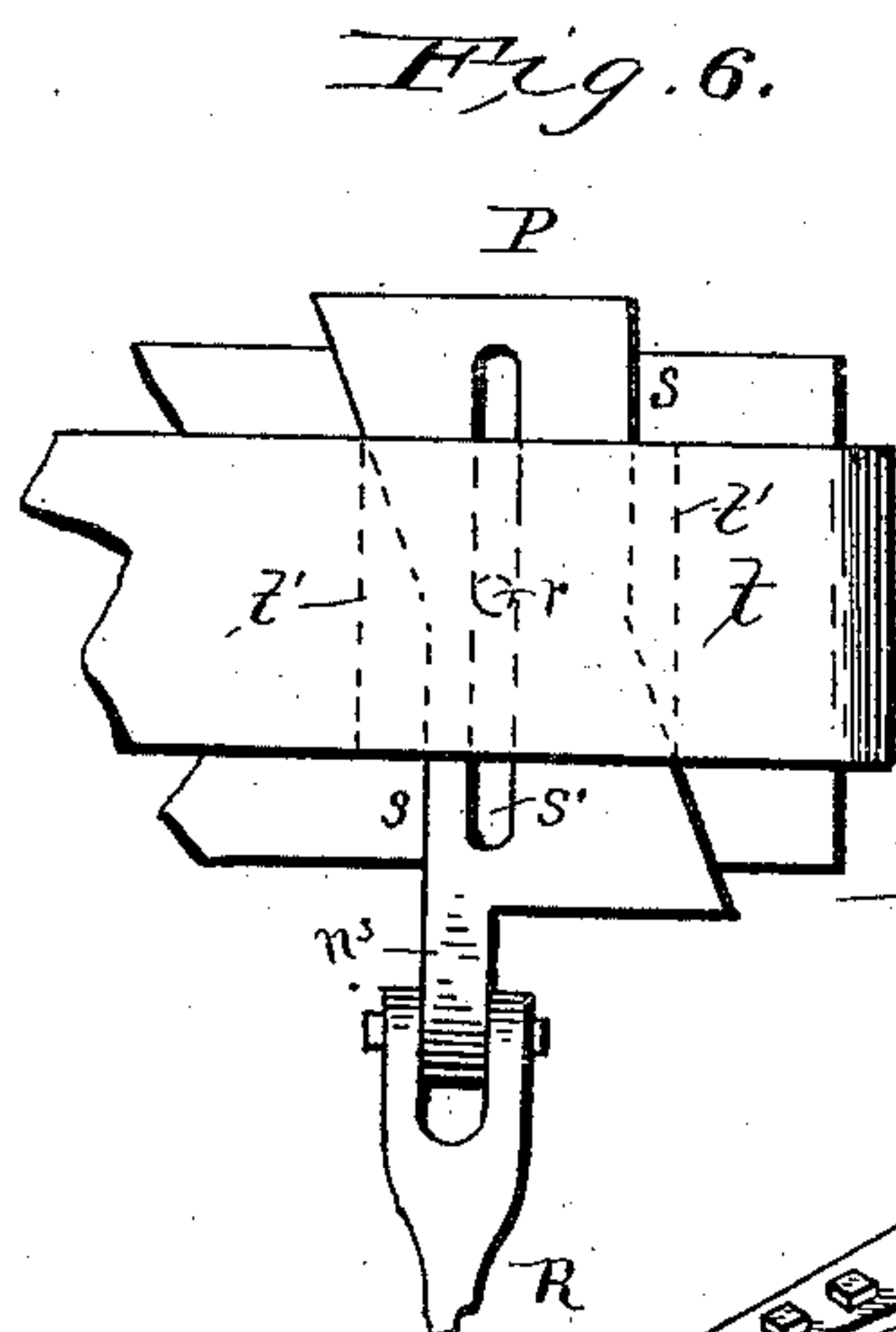
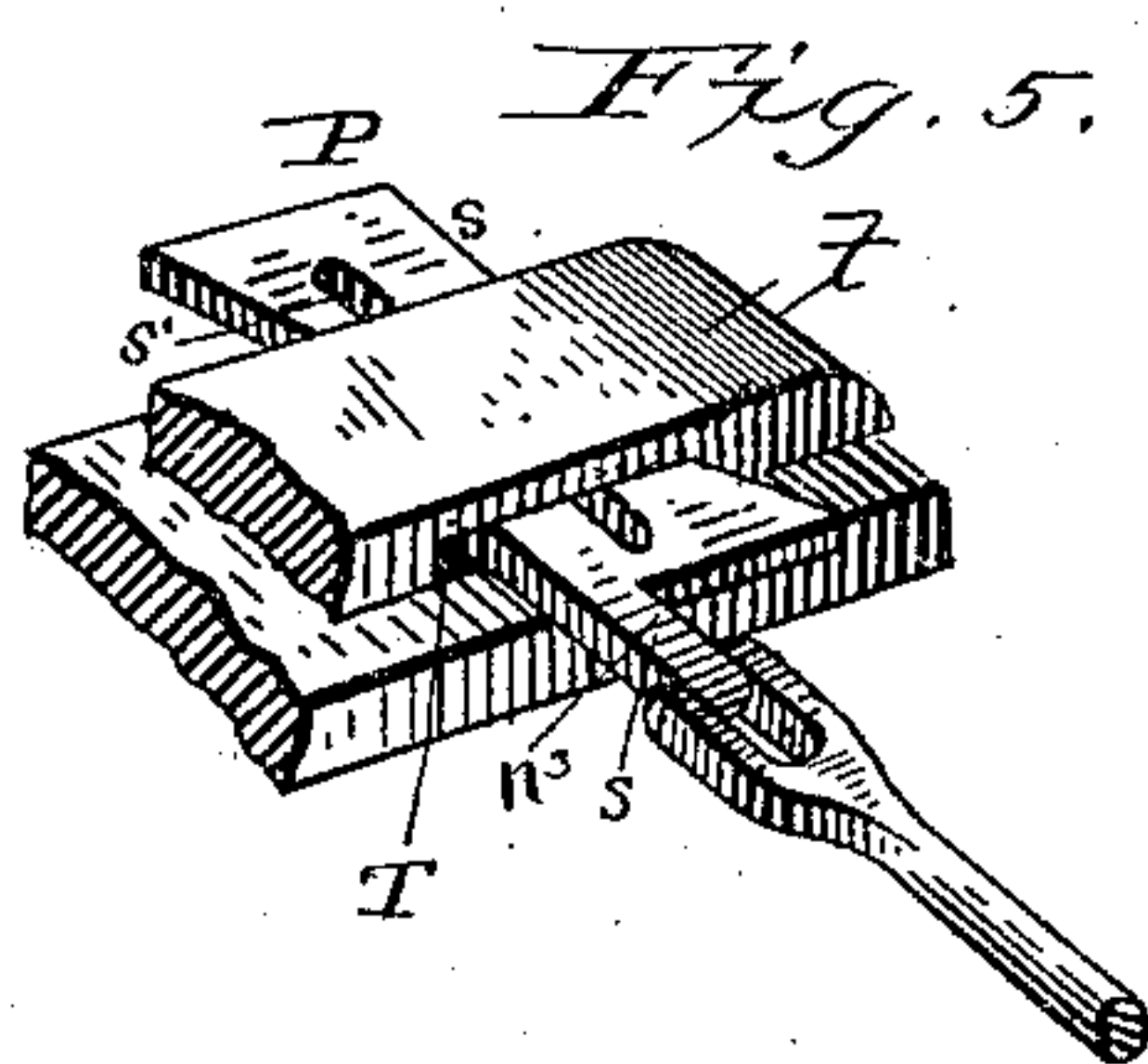
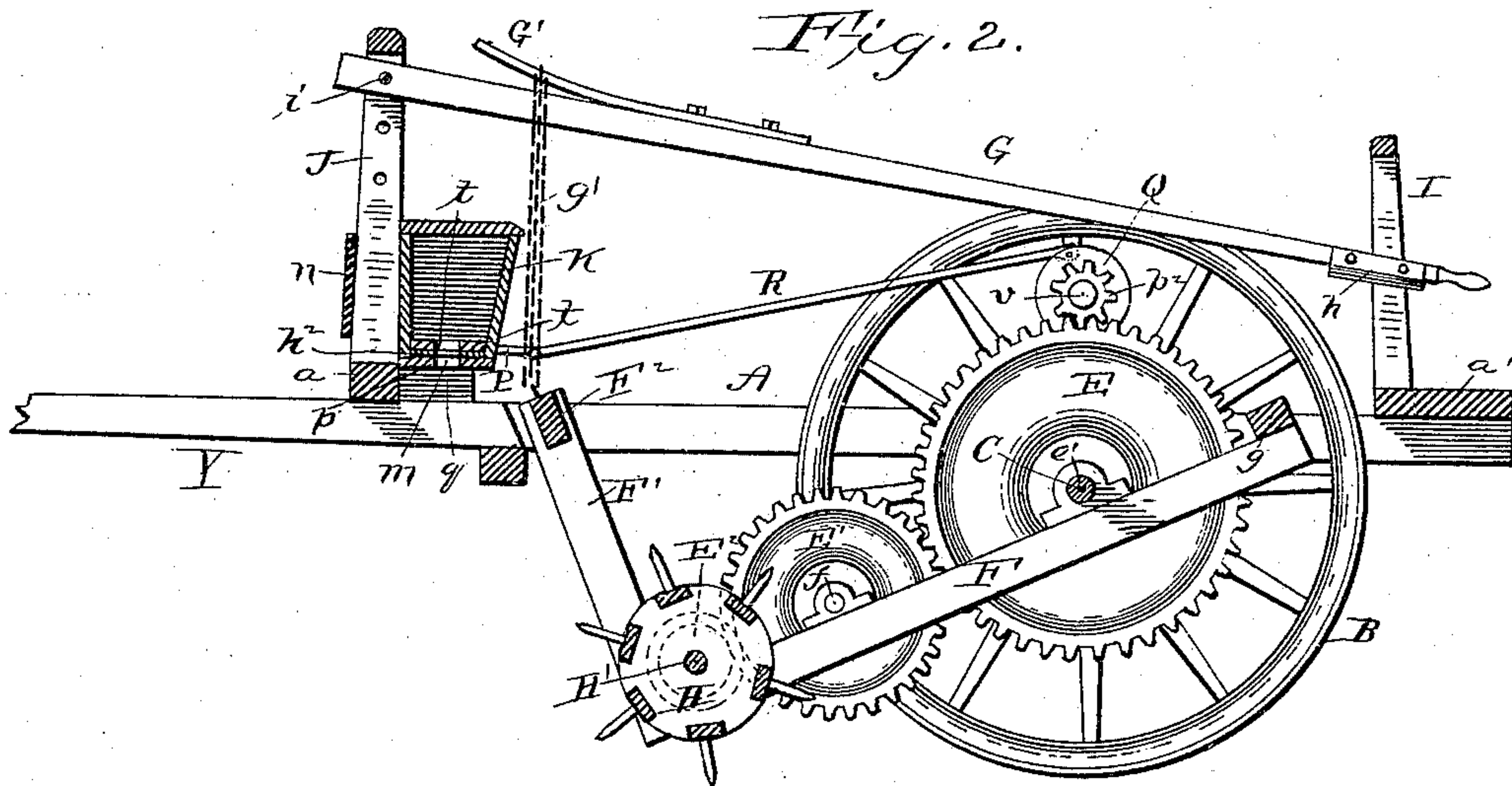
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UNITED STATES PATENT OFFICE.

JACOB KELLY, OF BUTLER, MISSOURI.

COMBINED SEEDER AND HARROW.

SPECIFICATION forming part of Letters Patent No. 371,764, dated October 18, 1887.

Application filed August 16, 1887. Serial No. 247,101. (No model.)

To all whom it may concern:

Be it known that I, JACOB KELLY, a citizen of the United States, residing at Butler, in the county of Bates and State of Missouri, have
5 invented certain new and useful Improvements in a Combined Sulky-Plow and Seed-Sower, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain novel improvements in combined seeding-machines and pulverizers; and my invention consists in certain novel devices which are designed to facilitate the planting of seed and the harrowing of
15 the soil, which devices will be fully understood from the following description, taken in connection with the annexed drawings, in which—

Figure 1 is a top or plan view of the machine complete, a portion of the draft-pole being broken off. Fig. 2 is a section taken longitudinally and vertically through Fig. 1 in the plane indicated by dotted line *x x* thereon, looking in the direction of the arrows at the ends of the dotted line. Fig. 3 is an enlarged
25 perspective view of the ratchet-standard of the adjusting-lever for the rotative harrow or clod-crusher, showing, by the aid of dotted lines, one end of the said lever and its engaging-plate. Fig. 4 is a detail of the clutching
30 device reversed for the purpose of transporting the machine from one place to another without actuating the seed-slide or the rotative harrow. Figs. 5, 6, and 7 are views in detail illustrating the slotted cam-plate and its
35 immediate connections for giving a rectilinear reciprocating motion to the seed-slide. Fig. 8 is a perspective view of part of the adjusting-lever and its yielding spring attachment from which the rotative harrow is suspended.

40 Referring to the annexed drawings by letter, A designates a rectangular transporting-frame provided with a transverse beam, *a*, at its front end and a broad transverse support, *a'*, at its rear end. This frame is mounted on
45 two transporting-wheels, B B', which are applied loosely on an axle, C, suitably journaled in boxes secured to the bottoms of the longitudinal beams of the frame A. The outer ends of the hubs of both wheels B B' have ratchet-
50 teeth *b*, which are adapted at certain times to engage with ratchet-clutches *c c*, applied by

means of feathers on the outer extensions of the axle C, and held in engagement with the ratchet-teeth *b* by means of coiled springs *e*, interposed between the said clutches, and nuts
55 *d d*, screwed on the ends of axle C. When the serrated ends of the clutches are in opposition to the ratchets *b*, the machine will actuate the seed-slide, and also the harrow, when it is moved forward; but when the machine is
60 backed or turned about at the ends of the travel said slide and harrow will not be operated. When it is desired to transport the machine from one place to another and to back and turn without actuating either the seed-
65 slide or harrow, the clutches *c c* are reversed end for end, as shown in Fig. 4, so that the smooth ends of said clutches are caused to contact with the teeth of the wheel-hubs. This reversal is effected by simply removing the
70 nuts, the springs, and the clutches, reversing the latter, and then returning the same parts, as represented in the figure last referred to. The tension of the springs will prevent the nuts from jarring loose.

On the axle C, nearest the transporting-wheel B, is keyed a large spur-wheel, E. This spur-wheel E meshes with a similar spur-wheel, E', which in turn meshes with a pinion
80 spur-wheel, E², as indicated in Fig. 2.

F designates a vertically-vibrating frame which is hung by means of journal-bearings *e'* from the axle C, and which extends forward and aft thereof. This frame F is braced by a transverse bar, *g*, at its rear end, which may
85 serve as a pedal to aid the driver in his seat S to raise the harrow, which I am about to describe. This harrow H is composed of two banded heads and cross-bars having radial disintegrating-teeth or soil-pulverizers protruding from them, as clearly shown in Figs.
90 1 and 2 of the annexed drawings. The ends or heads of this rotative pulverizer H are rigidly keyed on a shaft H', which is journaled on the front parts of the longitudinal beams of the vibrating frame F, and on this shaft is
95 keyed the pinion E², above referred to. The intermediate spur-wheel, E', is keyed on a short shaft, which is journaled in boxes *f*, secured to the right-hand longitudinal beams of the
100 frame F. It will thus be observed that this frame F can be raised or lowered while the ma-

chine is in operation without disengaging the gears above described, for the reason that their axes are always coincident to the longitudinal axis of the axle C, from which the said frame F is hung. At the front end of the frame F, and rising perpendicularly from it, is a supplemental frame, F', provided with a horizontal cross-bar, F². (Clearly shown in Fig. 2.)

G designates a long hand-lever, the front end of which is pivotally attached to a standard, J, rising from the front transverse beam of the main frame A, the pivotal attachment *i* being adjustable vertically for the purpose of changing the fulcrum height of the said lever J. The rear part of this lever is in close and convenient relation to the driver's seat S, and passes through a vertically-slotted standard, I, rising from the rear broad support of the main frame A. One of the vertical limbs of this standard I has secured to it a toothed plate or rack, h', the teeth of which are pitched upward and adapted to engage with a plate, h, which is secured to the lever J, for the purpose of holding the lever positively and the front end of the frame F at any desired height. By means of chains or other suitable flexible connections, g', I suspend the frame F from the free end of a broad leaf-spring, G', which is secured at one end upon the hand-lever G. I thus allow a free vertically-shaking motion of the frame F and the pulverizer H, whether the adjusting-lever G be rigidly fixed to its standard I or not.

K designates the seed-hopper, which is sustained upon the front transverse end of the main frame A and rigidly secured to the upwardly-tapered standard J by means of a broad tapered sheath, n. The extremities of the bottom p of the hopper K are blocked at q, and this bottom is provided with numerous apertures, m. The blocks afford bearings upon the longitudinal beams of the main frame in rear of the front transverse beam thereof.

On top of the bottom of the hopper, and resting thereon, is a thin sheet-metal cut-off, h², and above this cut-off is a rectilinear reciprocating slide, t. The cut-off strip is slotted at w and provided with a set-screw, w', as shown in Fig. 1, for the purpose of gaging the size of the discharge-apertures.

The slide t has angular apertures through it and is free to receive rectilinear reciprocating motion. One end of this slide is slotted cross-wise to form shoulders t' t', against which acts a peculiarly-shaped slotted cam-plate, P, which receives endwise movement from a crank-wheel, Q, acting through the medium of a pitman-rod, R, one end of which is pivoted on the wrist-pin of the said crank-wheel, and

the other end of said rod is pivoted to a rear extension, n³, of the said cam-plate.

The crank-wheel Q is keyed on the short shaft v of a pinion, p², the journal-bearing of which shaft v is upon the frame F and in such relation to the axis of the axle C that said pinion p² will always properly engage with the master-wheel E.

The cam-plate above described is practically hexagonal and has two angles which impinge against the shoulders t' of the transverse slot T in the under side of the slide t, and two parallel edges, s s, which are in the line of thrust. Through this cam-plate is a longitudinal slot, s', through which a stud, r, passes, which is fixed to the right-hand extension of the bottom of the hopper. It will thus be seen that when the cam-plate is moved endwise, as described, the seed-slide will receive a positive rectilinear movement at right angles to the line of draft.

The draft-pole Y is rigidly secured to the front cross-beam of the main frame, and also to a cross-bar a little to the rear of the said front cross-bar.

One of the essential features of my invention is the spring G', secured on the lever G, and the supplemental frame hung from the axle of the transporting-wheels by means of chains, whereby the said frame and its rotary harrow are allowed a downward elastic motion when in operation. Thus the harrow-teeth will be kept practically clear of accumulations.

Another important feature of my invention is the cam-plate P, which reciprocates the seed-slide, said plate having a longitudinal straight slot and two oblique edges which impinge against the shoulders t' t' of a straight groove transversely through the seed-slide.

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

The combination, in a seeding and harrowing machine, of a main frame supported upon the axle of driving and transporting wheels, a vertically-movable auxiliary frame, F, hung from said axle, a rotative harrow on said frame, its driving-gear, the pedal-bar g, the front upwardly-extended frame, F', being part of said frame F, the adjusting hand-lever G, and the spring G', flexibly connected to the frame F', all substantially in the manner and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

JACOB KELLY.

Witnesses:

JOHN R. FERGUSON,
ROBT. A. ATKISON.