

(No Model.)

4 Sheets—Sheet 1.

J. BORDWELL.
HARVESTER.

No. 290,733.

Patented Dec. 25, 1883.

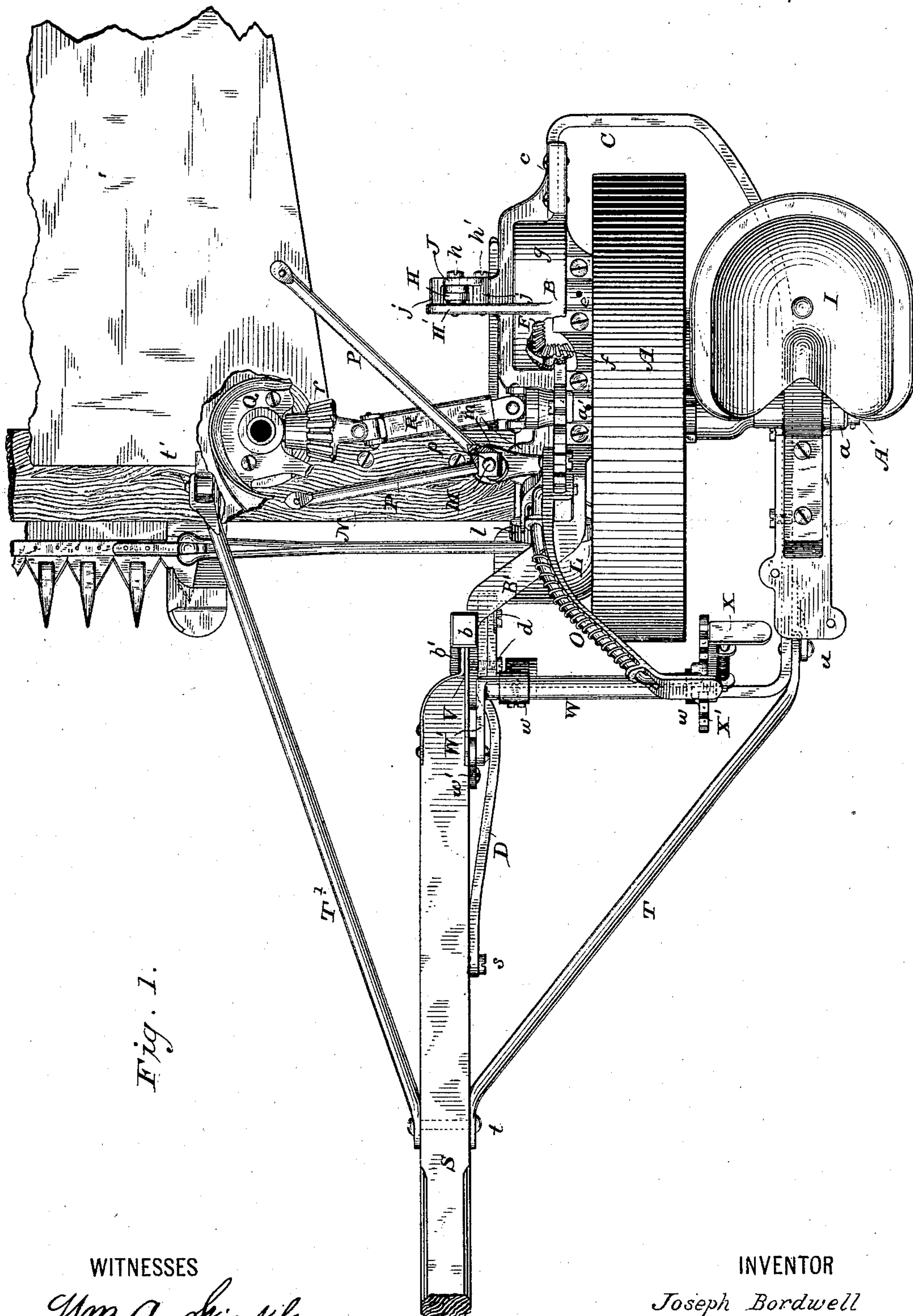


Fig. 1.

WITNESSES

Wm A. Skink
Geo W. Young

INVENTOR

Joseph Bordwell

By his Attorneys

Maldwin, Hopkins & Heyford

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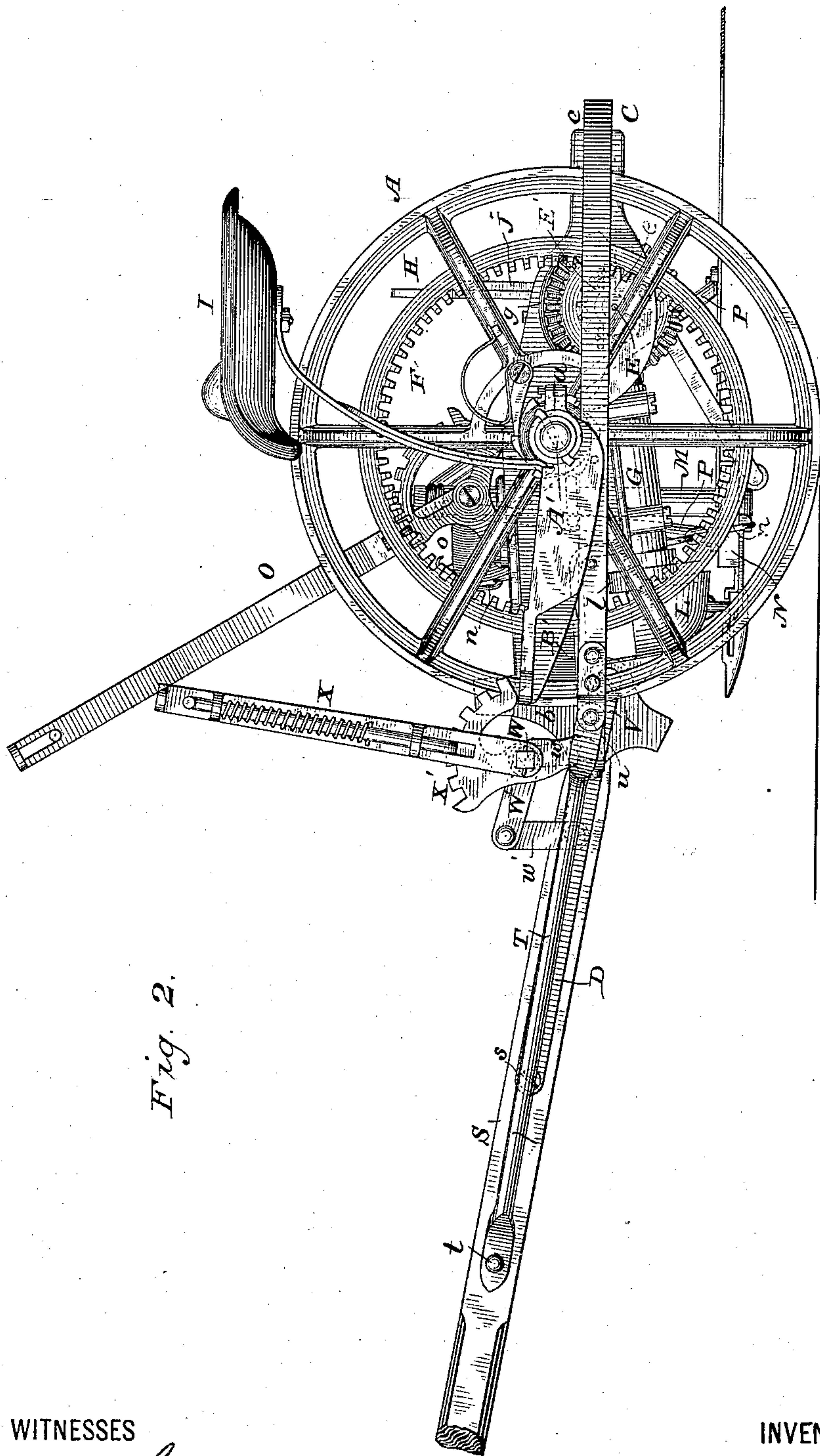


Fig. 2.

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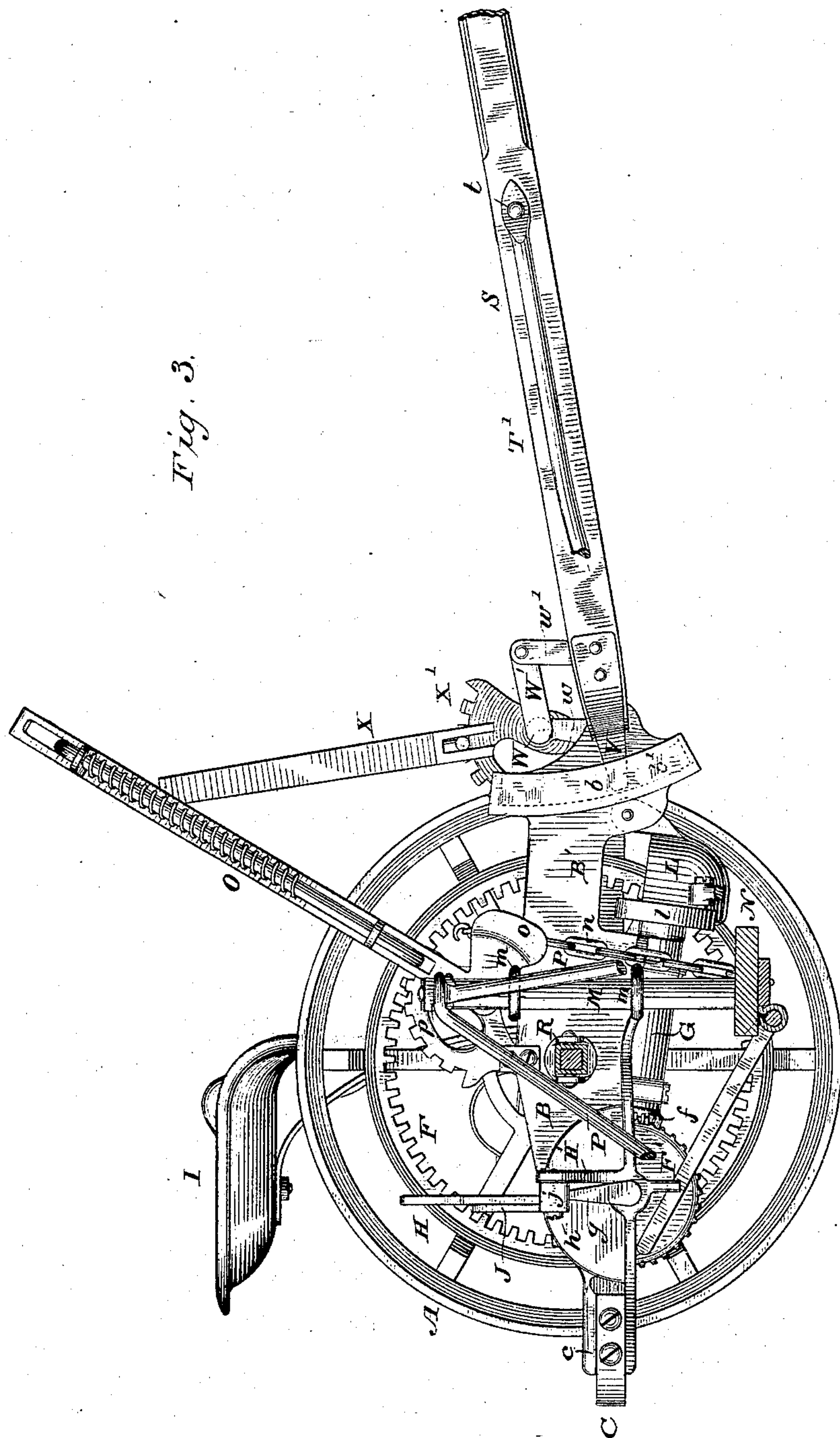
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Fig. 5.

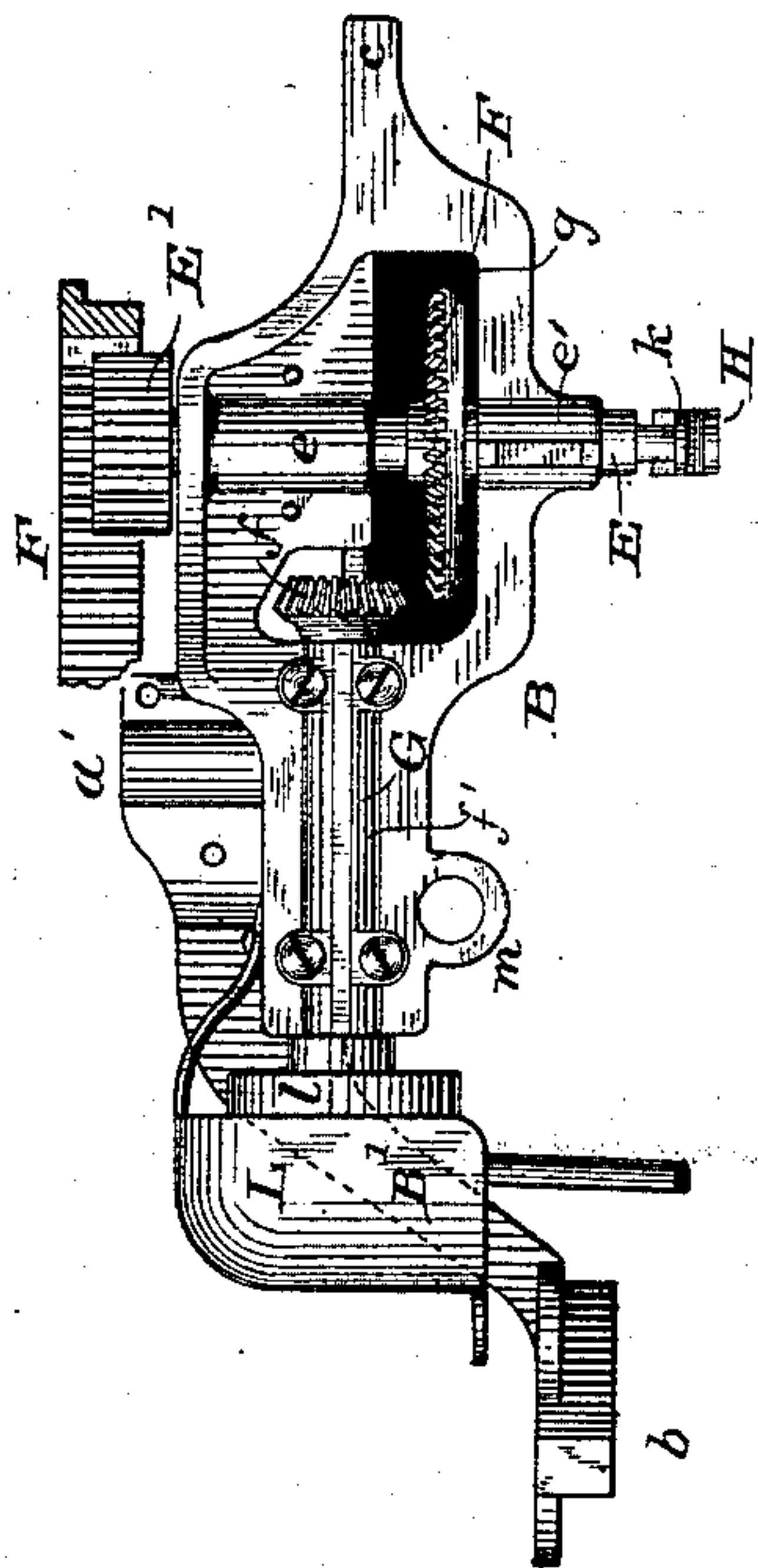
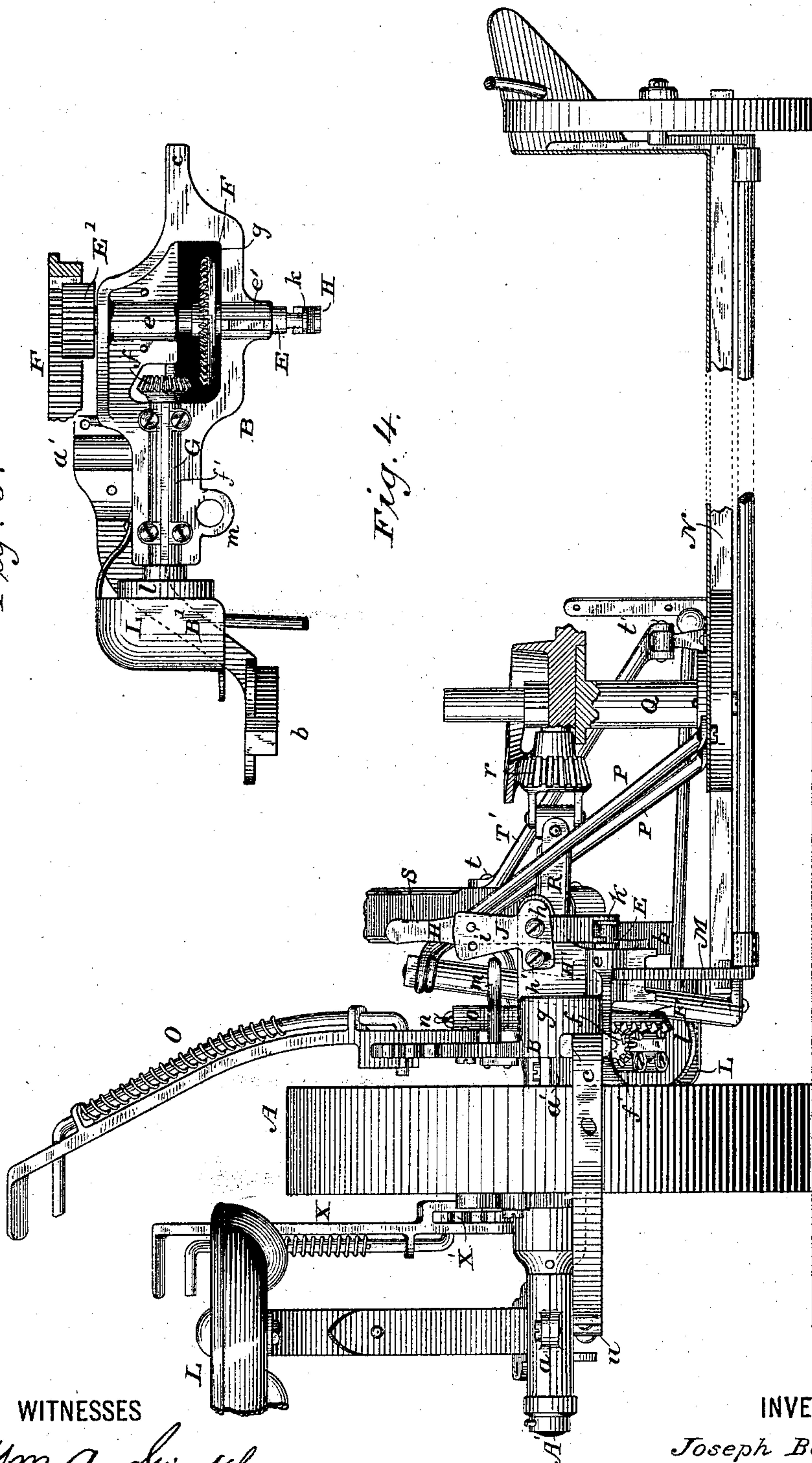


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

JOSEPH BORDWELL, OF BROCKPORT, NEW YORK, ASSIGNOR TO DAYTON S. MORGAN, OF SAME PLACE.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 290,733, dated December 25, 1883.

Application filed August 2, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH BORDWELL, of Brockport, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

My invention relates to improvements applicable to harvesters of the class having single drive-wheels and hinged tongues, especially that type of this class of machines in which the main frames inclose or surround the driving-wheels, and the finger-beams and platforms have vertically-adjustable connection with the main frames by means of posts secured to the heels of the finger-beams and sliding in bearings of the main frames.

My improvements are shown as engrafted upon a machine in many respects more or less nearly resembling that described in United States Letters Patent No. 218,615, granted to my assignee August 19, 1879.

In the accompanying drawings, which show all those features of a fully-organized machine which are needed in describing a suitable application of my improvements, Figure 1 is a plan view with the raking mechanism and various other parts omitted or broken away. Fig. 2 is a view in elevation as seen from the outer or stubble side of the machine. Fig. 3 is a view in elevation as seen from the inner or grain side of the machine, with the finger-beam and other parts in section or broken away. Fig. 4 is a rear elevation with parts broken away. Fig. 5 is a bottom view, showing the inner part or gearing-supporting portion of the main frame and the gearing carried thereby, the gearing being in the "out-of-gear" position.

The single driving and main supporting wheel A is loosely mounted on the axle A', which turns in suitable outer and inner divided bearings, a a', of the main frame. This suspended main frame rocks about the axle, as further on to be explained, and is made in sections, as follows: The gearing-supporting part or inner portion, B, of the frame consists of a single casting. This casting, from a point a little in advance of the axle, inclines inwardly, and at the end of this inclined front part or arm, B', of the casting it is widened out vertically and forms a segment or vertically-curved

cross-head, b, which is provided with a groove or recess, b', extending lengthwise of it. The recess thus formed at the inner front corner of the main frame constitutes a guideway, in which a lug on the heel of the tongue plays, as in turn to be described, when the frame is rocked. At its rear end the frame-casting is provided with a flanged seat or recess, c, in which is fitted and bolted one end of a bent wrought-iron frame-bar, C, which constitutes the outer portion of the main frame. This bar crosses in rear and in front of the drive-wheel. At the inner front corner of the main frame the bar C thereof is bent backward and secured in suitable way—as by bolts d d—to the cross-head portion b of the inner section, B, of the frame. A forwardly-extending arm, D, of the frame is secured rigidly to the frame-sections B and C by the bolts which unite these sections at the inner front corner of the frame. The inner frame-section, B, supports a counter-shaft, E, which is mounted in suitable bearings, e e', in said section, and has the pinion E' keyed fast to it. This pinion is actuated by the internal gear, F, of the drive-wheel. The counter-shaft is adjustable by sliding endwise in its bearings in the frame, and carries a bevel-gear, F', for actuating a bevel-pinion, f, on the crank-shaft f'. This crank-shaft crosses beneath the axle, and is supported at the under side of the section B of the frame in a suitable sleeve-bearing, G. The bevel-gear F' is fastened to the sliding counter-shaft between its bearings e e', and slides therewith in an arched-over recess, g, in the frame-casting B. The frame is thus made to protect this gear, and the shafts E and f' being supported in the one-piece frame-casting B, injurious variations in their positions relatively to each other can only be occasioned by wear of parts. The counter-shaft is moved endwise to throw the gear F' into and out of mesh with the crank-shaft pinion by means of a shipping-lever, H, supported on the frame-section B by means of an arm, H', formed therewith and projecting inwardly. This lever rocks toward and away from the drive-wheel, and also has a slight movement in a direction at right angles with this rocking movement upon a pivot, h, by which it is somewhat loosely mounted. The lever is located within convenient reach of the

driver when occupying the seat I. The screw or bolt constituting the pivot *h* passes through a detent-bracket, J, which is provided with lugs *jj*, which are drawn up to and held against the rear side of the inwardly-projecting arm H' by means of the pivot-bolt and another similar bolt or screw, *h'*. The lever plays in the space between the bracket-lugs, and is acted upon by a short coiled spring fitted partly in a recess in the lever and partly between it and the arm H'. As will be obvious, the spring acts with a tendency to hold the lever against the detent-bracket, or else force it toward it after it has been moved in the opposite direction. A rearwardly-projecting short pin on the lever serves to engage it with one or other of a pair of holes, *i*, in the detent-bracket. At its lower end the lever is notched or forked to engage a collar or annular flange, *k*, at the inner end of the counter-shaft, where it projects through the frame.

It will be readily understood from the above description that the counter-shaft may be moved endwise to engage and disengage the bevel gear and pinion to throw the cutting apparatus into and out of gear, and that the shipping-lever may be held in either position by the detent devices. A shield, L, for the crank-wheel *l* is either cast with or suitably attached to the frame-section B, and this shield connects by one of the bolts *d* with the cross-head *b* at the inner front corner of the frame. The inner section, B, of the frame is formed with two bearing-lugs or short perforated arms, *m m*, one above the other, projecting inwardly. The upper lug is a little longer than the lower one. A slightly-inclined post, M, secured at its lower end to the heel of the finger-beam N, passes up through these bearing-lugs, and slides vertically in them as the finger-beam and platform are raised and lowered by means of a lever, O, segment *o*, and chain *n*, as usual in this class of machines. The finger-beam heel-post M is braced by means of two inclined diverging brace-rods, P P, which at their lower ends are fastened, respectively, to the platform in rear of the rake-post Q and to the finger-beam in front of the rake-post. At their upper ends the braces have eyes formed in them to fit over the reduced and threaded upper end of the heel-post. A nut, *p*, fitting over the ends of the braces, serves to hold them in place. A tumbling-shaft, R, connected with the inner end of the axle, passes between the inclined diverging braces P P and actuates a pinion, *r*, for driving suitable raking mechanism in well-known way.

From the above description it will be seen that a compact arrangement of parts and a very strong connection between the frame and finger-beam are secured. The tongue S has jointed connection by a pivot, *s*, with the main-frame arm D, which, as before described, extends forward from the inner front corner of the frame. The pivotal attachment of the tongue to the frame-arm D is at a point in advance of the heel of the tongue, and near

the point at which the front ends of two braces, T T', are pivoted to the opposite sides of the tongue by a bolt, *t*. These tongue-braces have jointed connection at their rear ends, respectively, with the main frame and with the finger-beam, the brace T being secured by the pivot *u* to the outer front corner of the frame, while the brace T' is connected by a pivot, *t'*, with a bracket-post, U, on the finger-beam. A metallic guide-lug, V, secured to the heel of the tongue, projects into the guideway-groove of the segment *b* of the frame-casting B, and as the frame is rocked about the axle this lug plays up and down in its guideway in the arc of a circle described from the center of the pivot *s*, by which the tongue is hinged to the forward end of the frame-arm D. The frame is rocked by means of a cranked rock-shaft, W, mounted to turn in bearings in brackets *w w*, secured to the front portion of the frame-bar C. At the outer end of this rock-shaft a lever, X, is secured to it, and this lever is provided with a suitable spring-detent, engaging with a segment-rack, X', to hold the rock-shaft in any desired position of adjustment. The detent-rack is formed with one of the bearing-brackets *w*. At its inner end the rock-shaft is connected with the tongue by means of the crank W' and the link *w'*. This link is pivoted at one end to the rock-shaft crank and at its other end to the tongue, at a slight distance in advance of its heel or guide-lug, and in rear of the pivotal connection between the frame-arm D and the tongue.

From the above description it will be seen that the driver, while in his seat, can rock the main frame and depress the cutting apparatus by moving the rocking lever X forward, and elevate the cutting apparatus by moving the lever backward to rock the frame in the opposite direction. As the range of movement of the tongue-heel, as it is vibrated to rock the frame, is considerable, a long and strong guideway for the heel-lug is necessary, and such a guideway is economically provided by forming it integral with the one-piece frame-casting B, as described.

It should also be noticed that a strong, cheap, and light frame is formed by the casting or inner section and the outer section or frame-bar C, connected therewith at front and rear.

I claim as of my own invention—

1. The combination of the casting or inner section of the frame, the bent frame-bar or outer section of the frame, crossing in front and rear of the driving-wheel, and united at its ends to the inner section, and the arm D, extending forwardly from the inner front corner of the frame, as and for the purpose hereinbefore set forth.

2. The combination of the platform, the finger-beam, its heel-post, the main frame, the bearing-lugs projecting inwardly therefrom, and in which the heel-post slides up and down, the diverging braces, connecting the top of

the heel-post with the platform and finger-beam, and the tumbling-shaft, actuated by the axle and passing between the post-braces, to drive the rake-actuating pinion, substantially
5 as hereinbefore set forth.

3. The combination of the main frame, formed with the grooved segment at its inner front corner, the forwardly-projecting frame-arm, the tongue jointed to the frame-arm, the
10 guide-lug at the heel of the tongue, the cranked rock-shaft linked to the tongue, and the lever

and detent devices by which the rock-shaft is actuated and held, substantially as and for the purpose hereinbefore set forth.

In testimony whereof I have hereunto sub- 15
scribed my name this 31st day of July, A. D.
1883.

JOSEPH ^{his} × BORDWELL.
_{mark.}

Witnesses:

E. T. LAMB,

H. C. HAMMOND.