

(No Model.)

2 Sheets—Sheet 1.

R. BROWN.

HARVESTER.

No. 343,002.

Patented June 1, 1886.

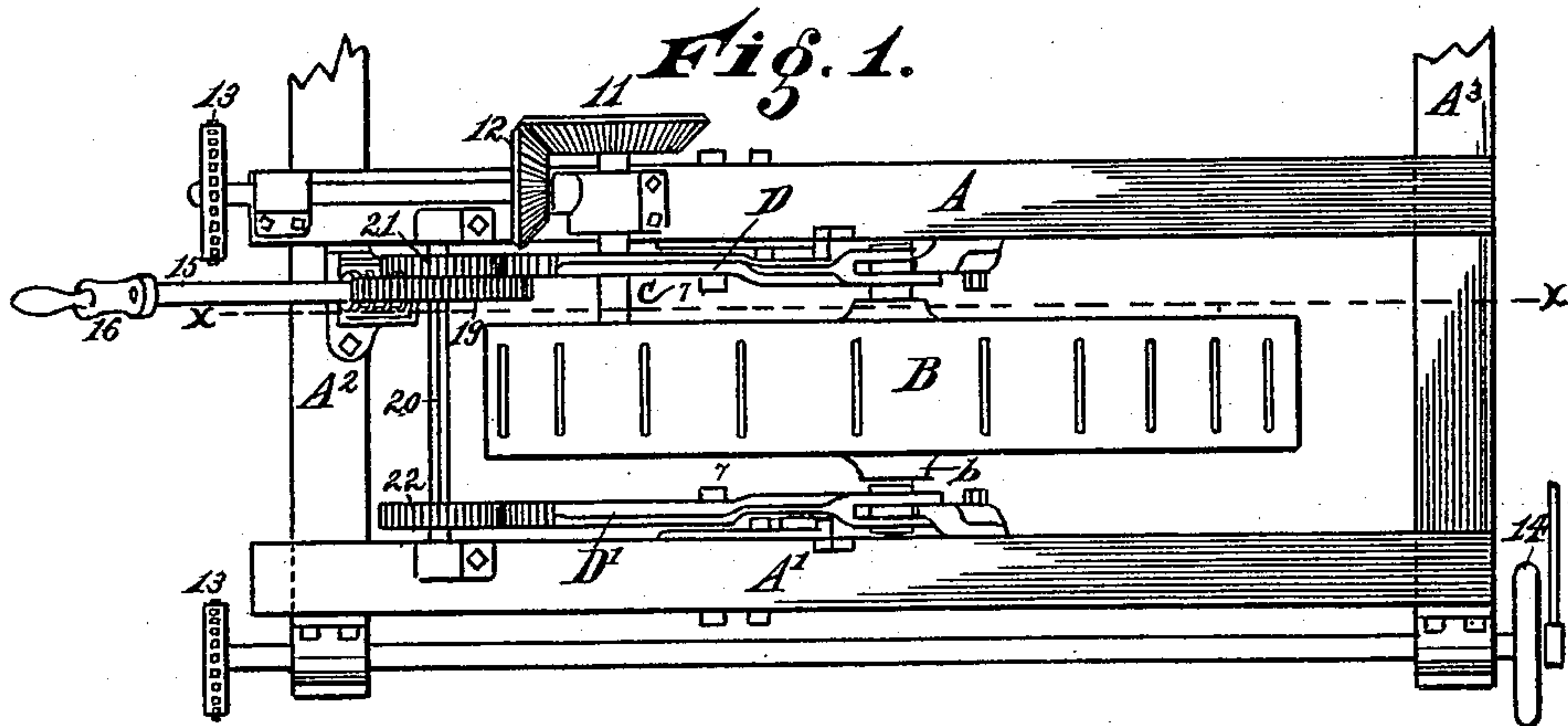


Fig. 3.

Fig. 6.

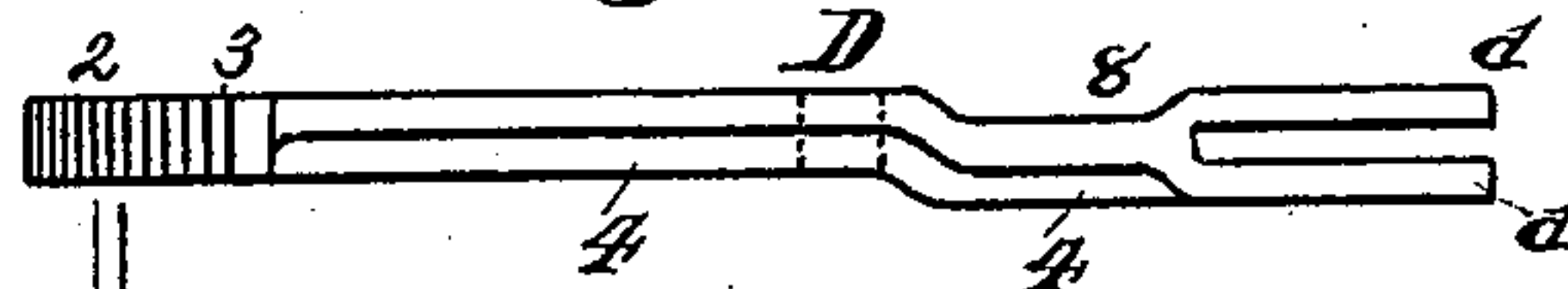
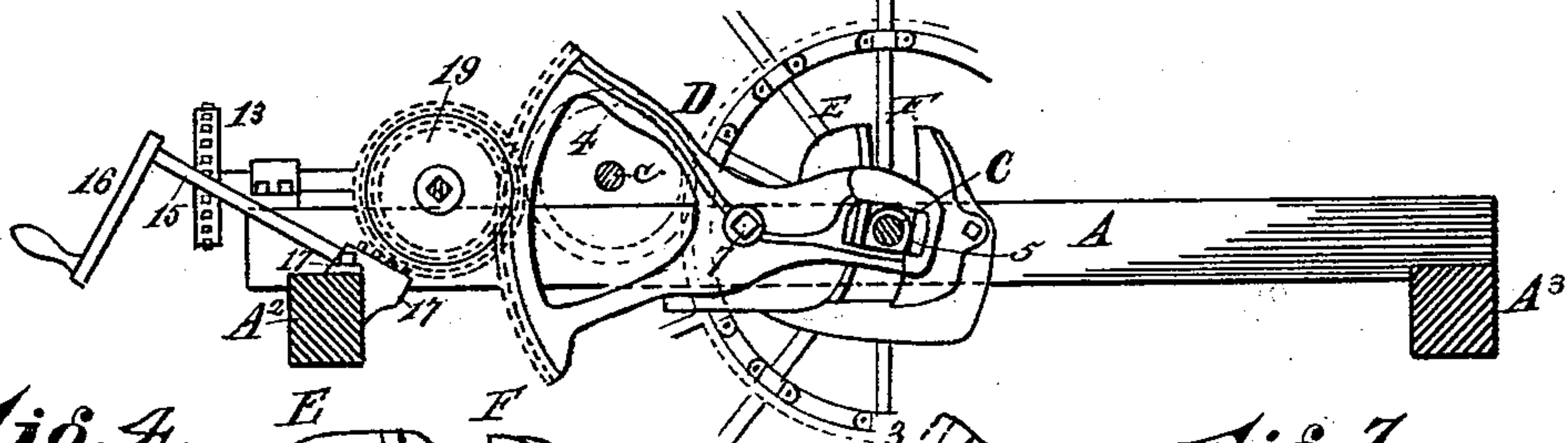


Fig. 4.

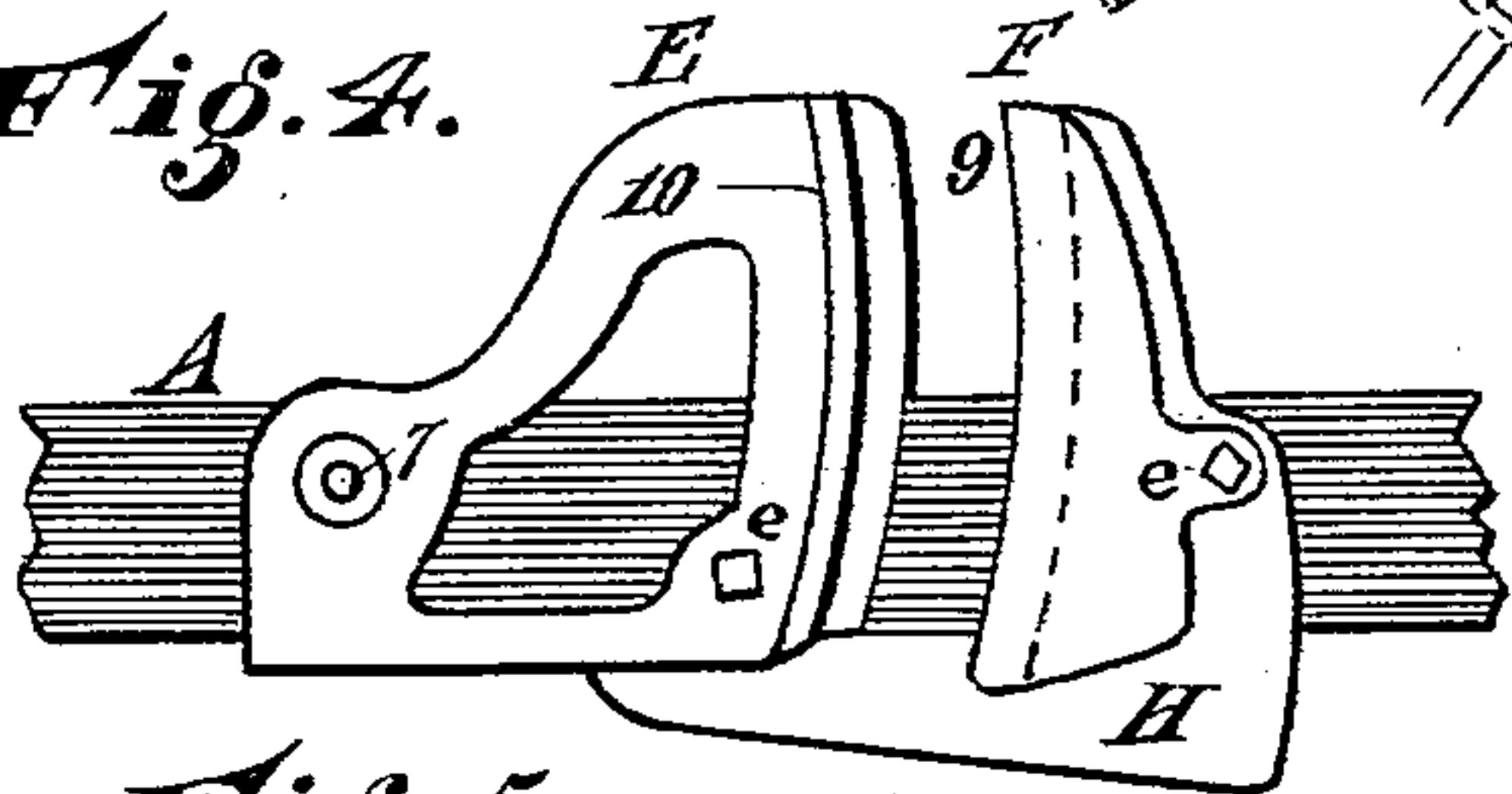


Fig. 7.

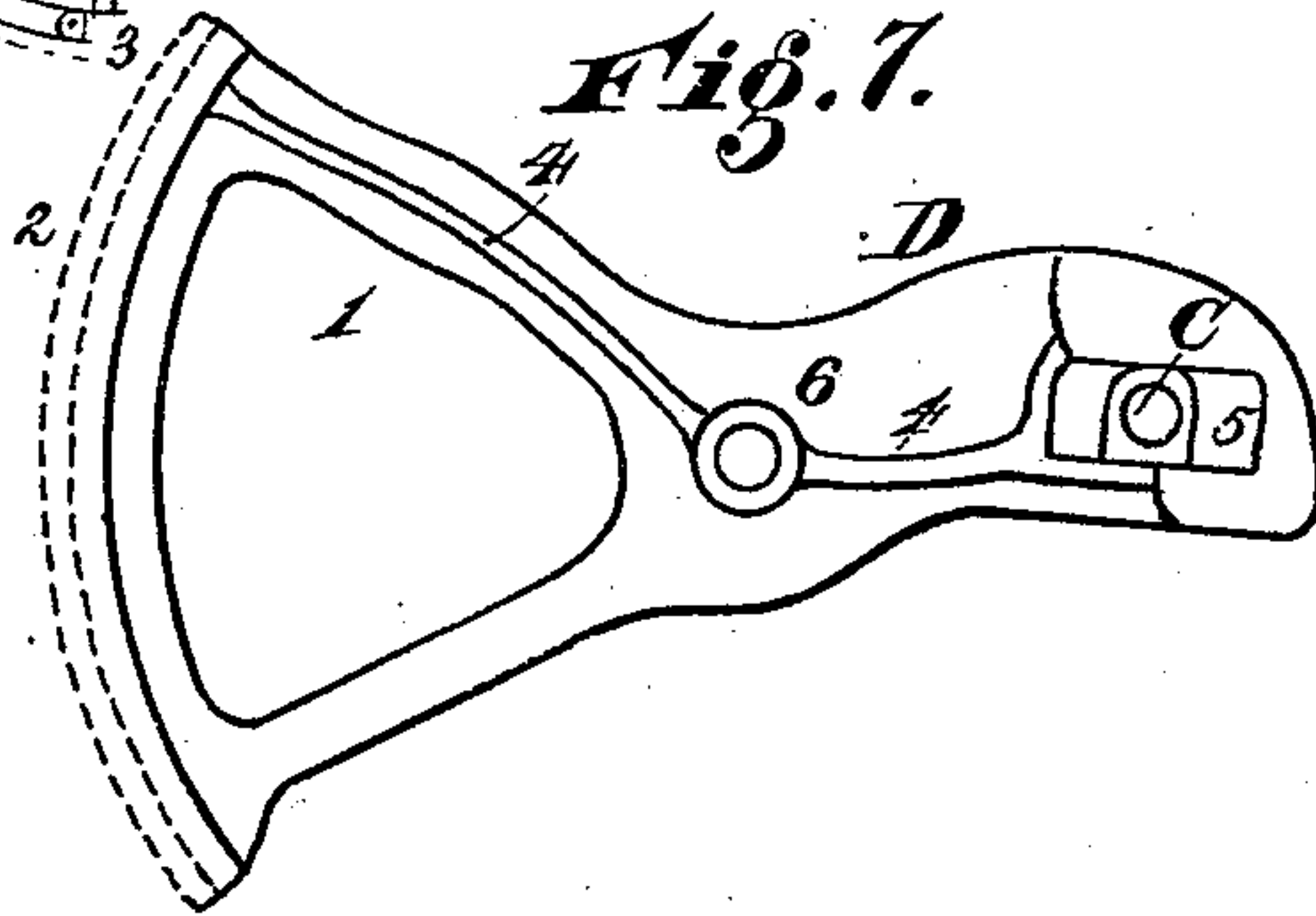
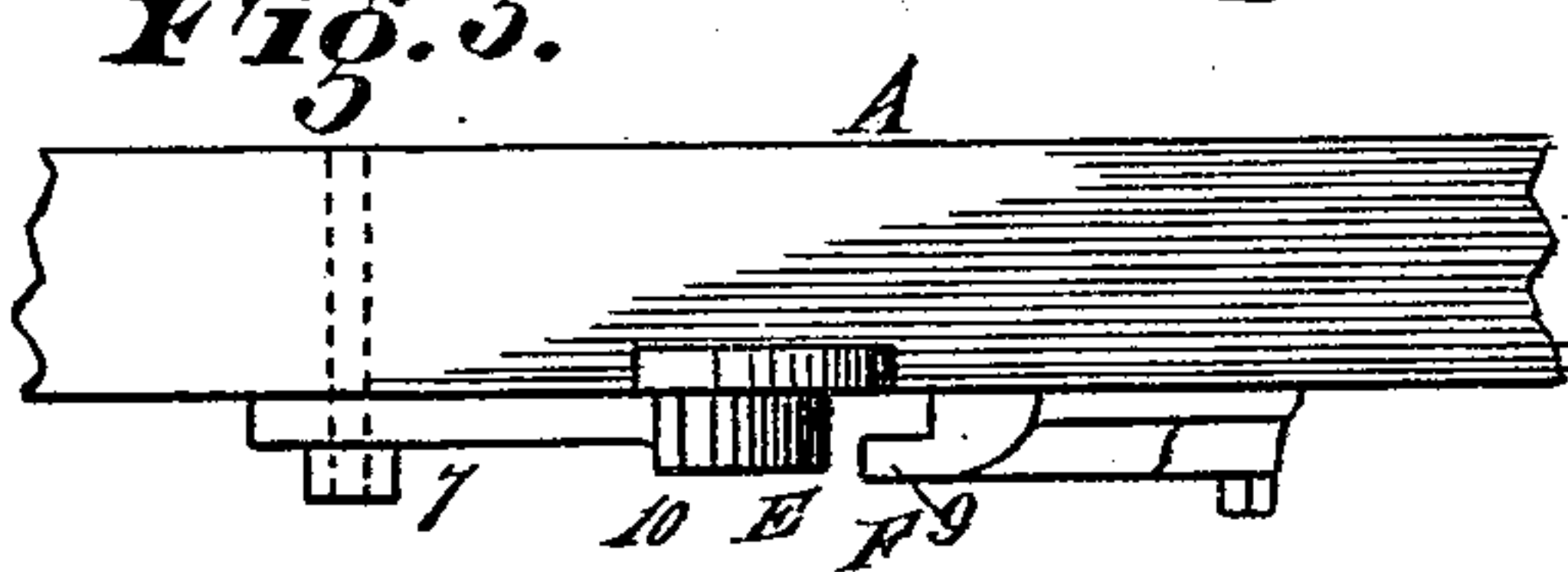


Fig. 5.



Attest

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Fig. 2.

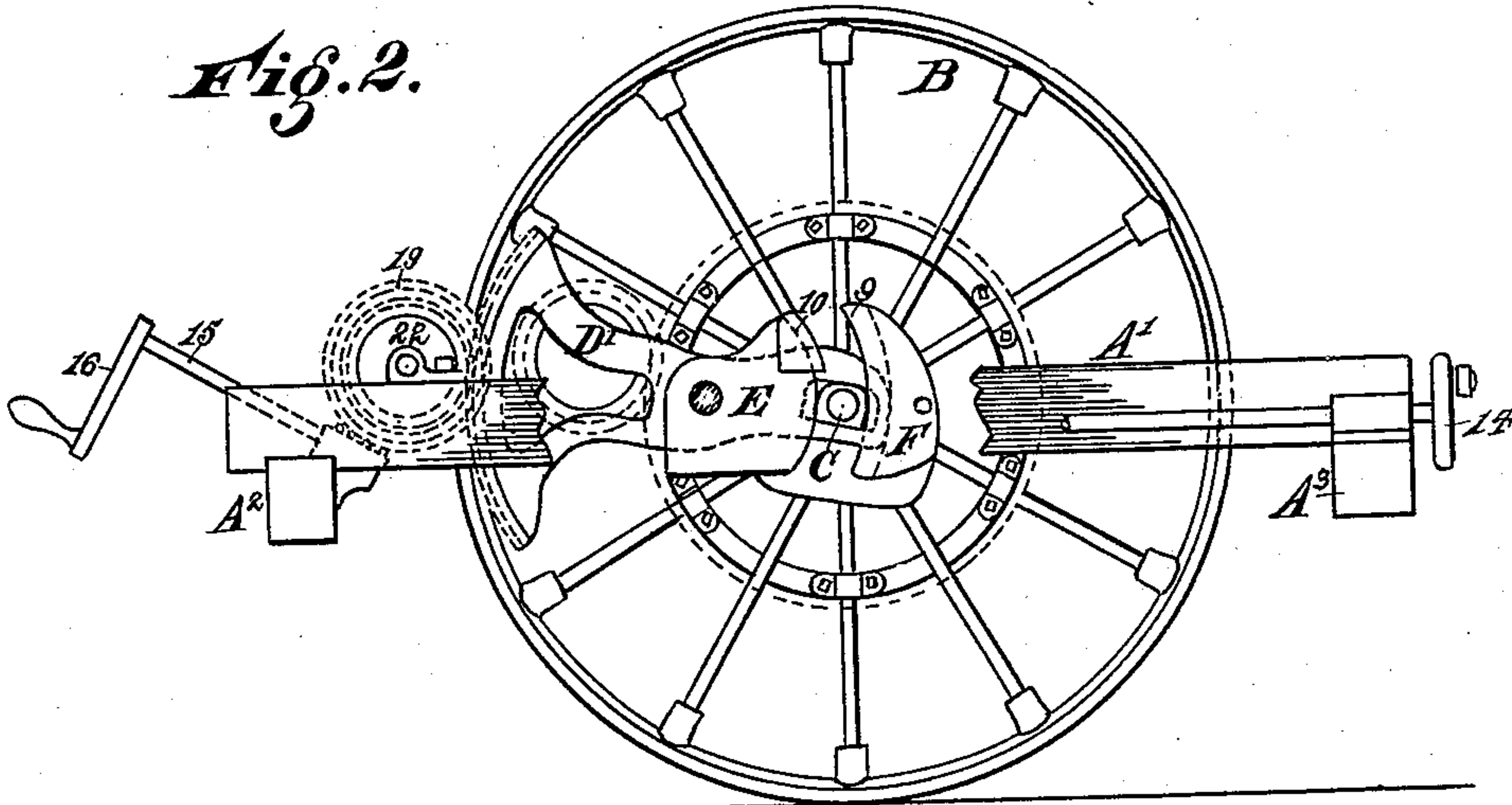


Fig. 8.

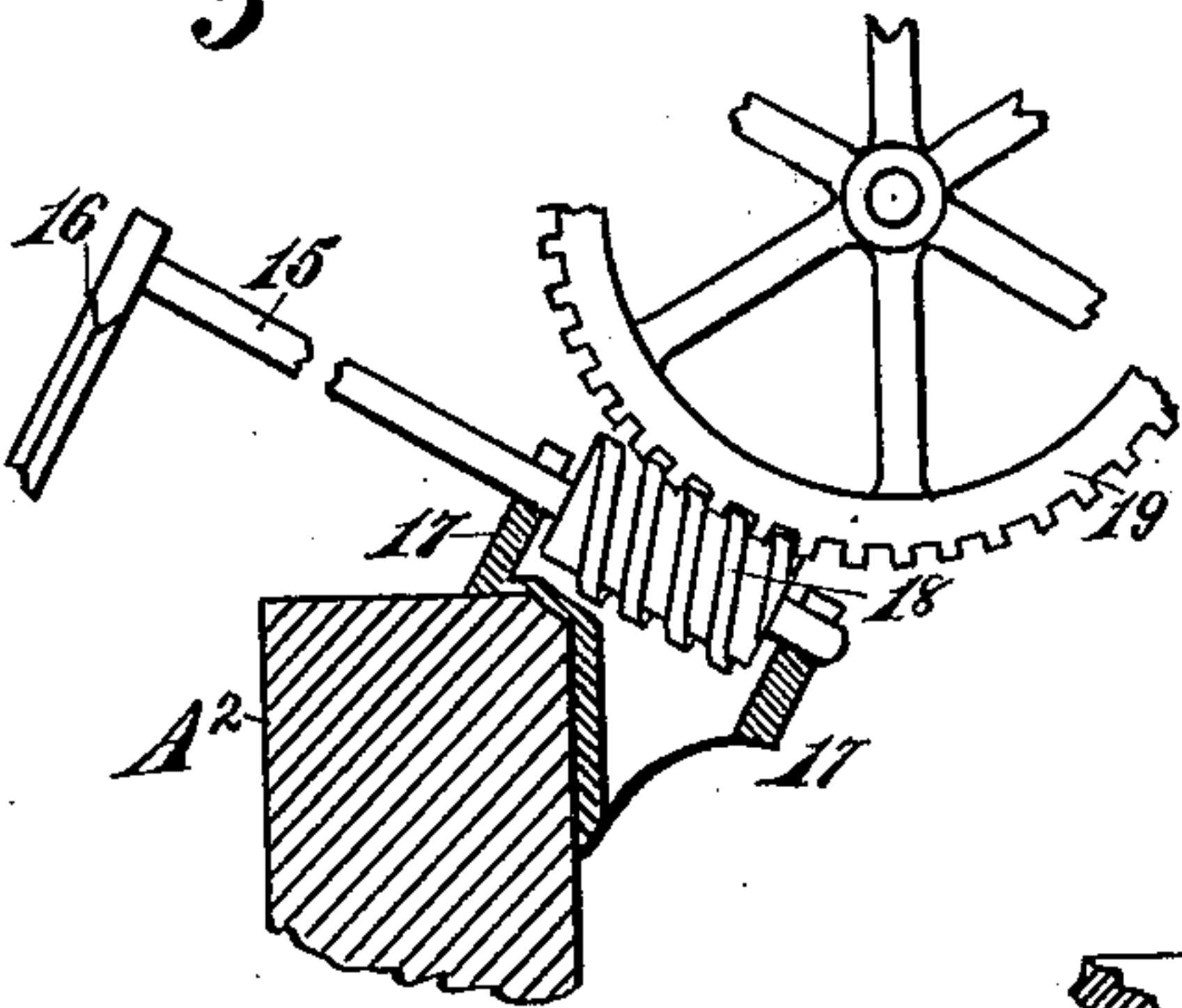


Fig. 9.

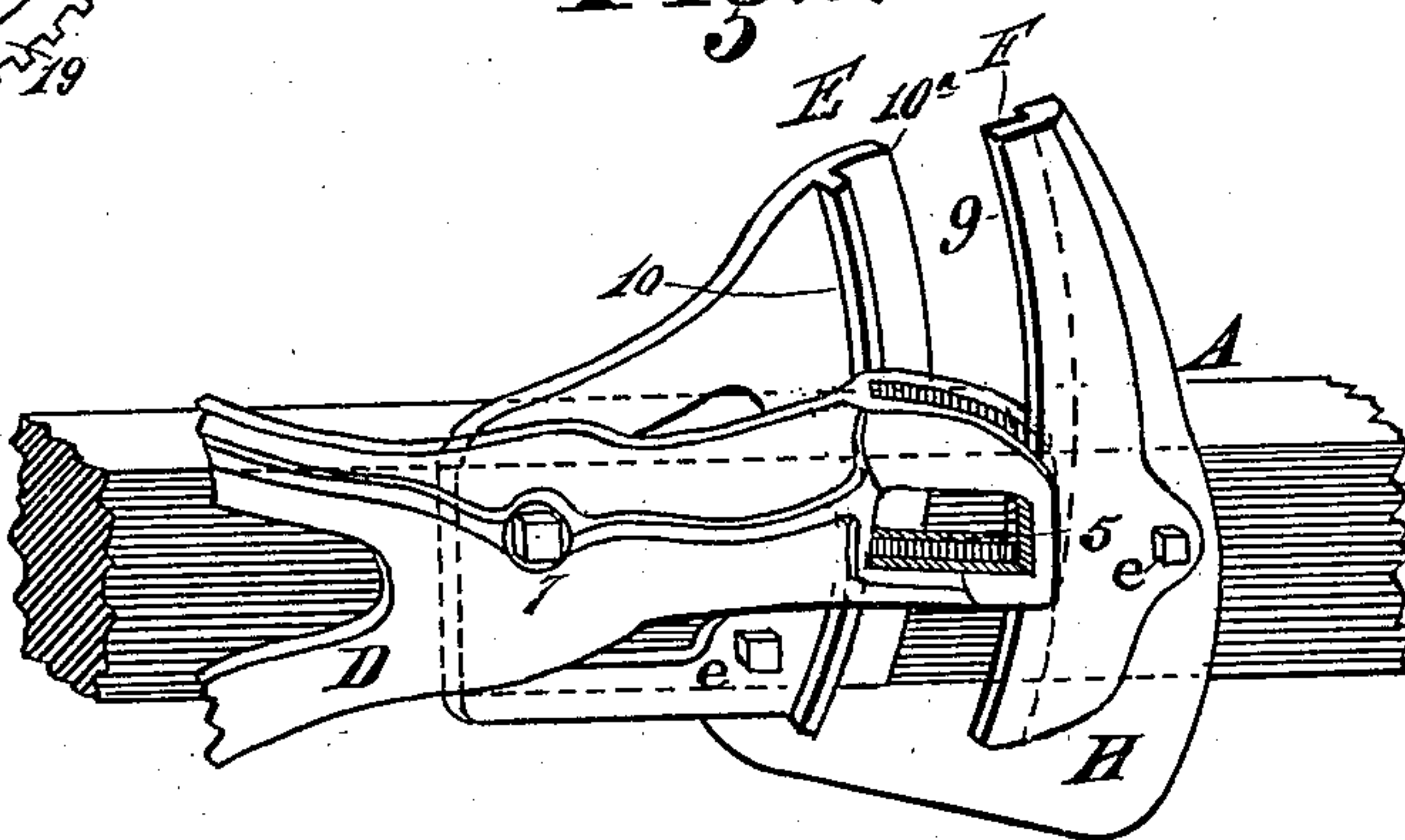
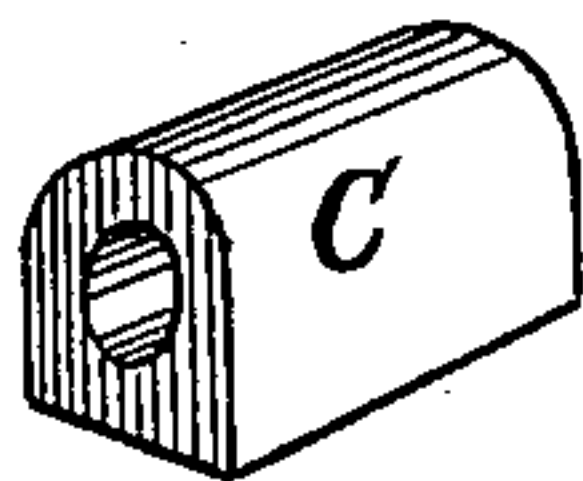


Fig. 10.



Attest

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UNITED STATES PATENT OFFICE.

ROBERT BROWN, OF MIAMISBURG, OHIO, ASSIGNOR TO HOOVER & GAMBLE,
OF SAME PLACE.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 343,002, dated June 1, 1886.

Application filed April 29, 1885. Serial No. 163,853. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BROWN, a resident of Miamisburg, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

My invention relates to an improvement in harvester-frames.

The object of my invention is to provide a new and improved means for raising and lowering the main frame relatively to the height of the driving-axle.

Various modes of raising and lowering the main frame of harvesters have been employed hitherto; but great difficulty has been experienced in getting a steady rigid frame, and yet one whose height from the ground could be readily changed and still secure a rigid set, avoiding vibrations due to lost motion in the joints and parts. The hereinafter-described devices accomplish this result very perfectly, all of which will be fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of my improvement attached to an ordinary single driving-wheel harvester; Fig. 2, a side elevation partly in section; Fig. 3, a section on line *x x*, Fig. 1; Fig. 4, an enlarged elevation of the segmental journal-guides; Fig. 5, a top plan view of the same; Fig. 6, a top plan view of one of the lifting-sectors; Fig. 7, an inside plan view of the lifting-segment; Fig. 8, an enlarged elevation of the lifting-gears; Fig. 9, an enlarged perspective view of the lifting-sector, shown in proper relation to the segmental journal-guides. Fig. 10 is a perspective view of one of the journal-boxes.

A A represent the side rails of the main wheel-frame, A² A³ the front and rear rails.

B represents the master or driving wheel.

b represents hubs for securing the axle to the wheel.

C represents the journal-box of the main axle.

DD' represent two sector-levers, pivoted one on each side the wheels or center-pins, 7, secured to the side rails, A A', respectively. The rear part of the sector-lever D, which is that one upon the inside of the frame, is provided with an opening, 1, through which the

counter-shaft, *c*, passes. This opening is made of large dimension, to allow of the movement of the lever without interfering with the counter-shaft, as well as to lighten the weight of the lever. Sector-lever D is shown in detail in Fig. 7, and has the following features additional.

2 represents a segment upon the rear end of the lever, provided with rack-teeth 3.

4 represents a strengthening-rib.

5 represents a slot in the forward end of the sector-lever, of the proper shape and size to receive the box C and allow it proper movement lengthwise of the lever. These slots are elongated sufficiently to permit the necessary lateral movement of the boxes C. This movement is rendered necessary by the fact that, to preserve the mesh between the driving-gear on the ground-wheel and the gear on the counter-shaft, the boxes must move in a curve struck from the center of the counter-shaft *c*, while the levers DD' move in arcs struck from the studs 7. The slots 5 are therefore longer than the width of the boxes C, to permit the lateral movement of the boxes as the levers are vibrated.

6 represents a boss, pierced with a hole to receive a center bolt, 7, which passes through the inner side rail, A.

Sector lever D at its forward end is provided with an offset, 8, (shown in Fig. 6,) whereby the lever is carried over the flange 10 on guide E, and its pivotal point brought closely against the frame at the point 7. Beyond the offset the end of the lever is bifurcated, having forks *d d*, which embrace the lip 9 of the segment-guide F, forming a close joint with the guide and preventing lateral displacement. The sector-arm D', upon the opposite rail A', is not shown in detail, but is of the same general form as sector D. The object of these sector-arms is to raise and lower the frame relatively to the axle journaling in the boxes C.

In order that the journal-boxes may be guided as the frame moves up and down, so as to prevent displacement of the pinion on the counter-shaft *c* from the gear-rim on the main wheel, I have provided two segmental guides, EF—one in front, the other in rear, of the journal-box C—of such shape as to receive

and guide the boxes, as well as to prevent lateral movement of the forward end of the sector-arm in the manner shown in Fig 9.

The forks *d* straddle the flange 9 on sector F, and a flange, 10, is provided on sector E, to act as a guide to the sector-arm in rear of the journal-box, so that the sector-arm is supported and kept in firm relation to the segment-plates E F both laterally and vertically. The opening between the segment-plates E F is a curve struck from the center of the counter-shaft *c*, for reasons already given.

The segment-guides E F are preferably cast integral with a connecting-piece, H, extending below the side rail, to which the guides are secured by bolts *e*.

I do not wish to limit myself to the form of connecting the segments to the side rail, as the details of construction are not important.

11 12 represent transmitting bevel-gears, receiving their power from the driving-wheel B through the counter-shaft *c*, in the usual manner.

13 represents other transmitting-gears.

14 represents a crank.

In order to raise and lower the frame on the journal-boxes, I provide the crank-shaft 15, having a crank-arm, 16, and journaled in brackets 17, attached to the rail A².

18 represents a worm, keyed on shaft 15, and arranged just beneath and meshing with the teeth of a spur-gear, 19, so that when the crank 16 is turned it will drive the spur-gear.

21 22 represent smaller spur-gears, keyed upon shaft 20, having the proper size and pitch of teeth to engage the teeth of the segment-racks on the rear ends of the levers D D', so that when shaft 20 is driven by the worm-gear the levers D D' are simultaneously actuated, thereby raising and lowering the frame on the journal-boxes C, these boxes moving in their segment-guides E F.

The width of the boxes C is just equal to the distance between the flange 10 on guide E and the edge of flange 9 on guide F, and said boxes are carried by elongated slots 5 in the forked ends of the levers D D', the ends of the boxes being in close proximity to the side beams of the wheel, frame, or partly upon the rail and partly upon the forwardly-projecting flange 10* of the guide E, which is sunk in the wood of the rail, as shown in Fig. 5.

The counter-shaft *c* has bearing upon the innerside rail of the frame, and extends through the opening in the rear part of the lever. It has a pinion on its end engaging with a gear-rim on the main wheel.

I claim—

1. In a harvester-frame, the combination, with the main driving-wheel, of an axle journaled in boxes at both ends, segment-guides between which said boxes have adjustment vertically, sector-levers fulcrumed upon the main frame and having slotted ends, which extend over said guides and carry the journal-boxes, and mechanism for moving the sector-levers in either direction, substantially as described.

2. The combination, with the sector-levers D D', fulcrumed upon the harvester-frame, and having upon one end slots to receive the journal-boxes of the main axle, and upon the other end toothed surfaces meshing with actuating-gears, of segment-guides E F, between which the journal-boxes move, and a worm and shaft meshing with one of the actuating-gears, substantially as described.

3. In combination with the sector-levers D D', having their forward ends forked, the segmental guide F, provided with a flange, 9, for preventing lateral displacement of the sector-levers, substantially as described.

4. In combination with the sector-levers D D', pivoted to the side rails of the main frame, and having their forward ends slotted to receive and hold the boxes C, which are guided in their vertical movement by the guides E F, substantially as described.

5. In combination with the sector-levers D D', pivoted to the side rails of the main frame and having their forward ends slotted to receive and hold the boxes C, one or more segment-guides secured to the main frame on each side and serving as guides to the journal-boxes and to prevent lateral displacement of the levers, substantially as described.

In testimony whereof I have hereunto set my hand.

ROBERT BROWN.

Witnesses:

LEWIS H. ZEHRING,
E. WEIDNER.