

(No Model.)

2 Sheets—Sheet 1.

H. S. HOWARD.

PULVERIZER.

No. 353,947.

Patented Dec. 7, 1886.

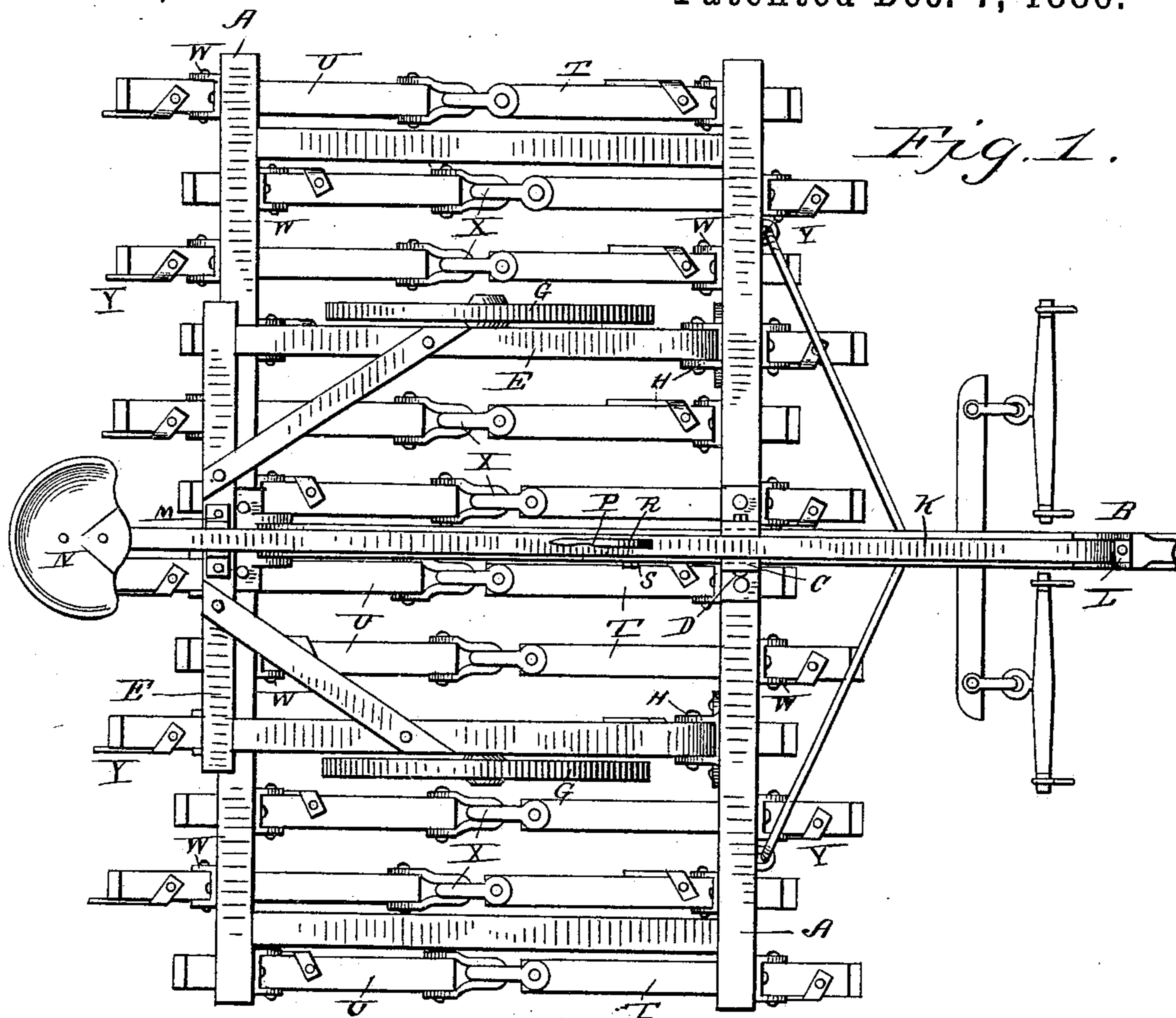


Fig. 1.

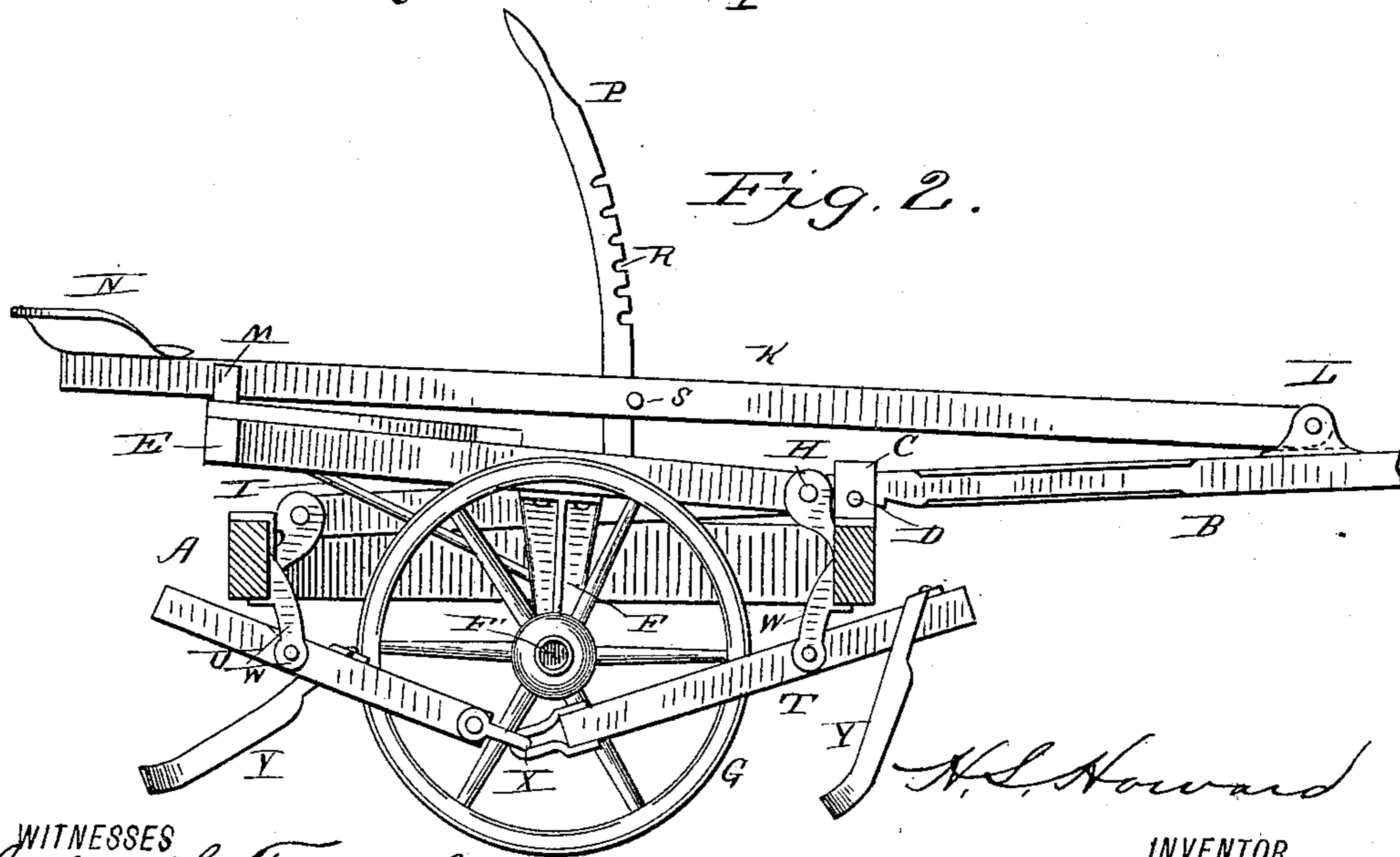


Fig. 2.

WITNESSES
John S. Finch
Chas. H. Davis

H. S. Howard
INVENTOR
Wm. H. Alexander
Attorney

(No Model.)

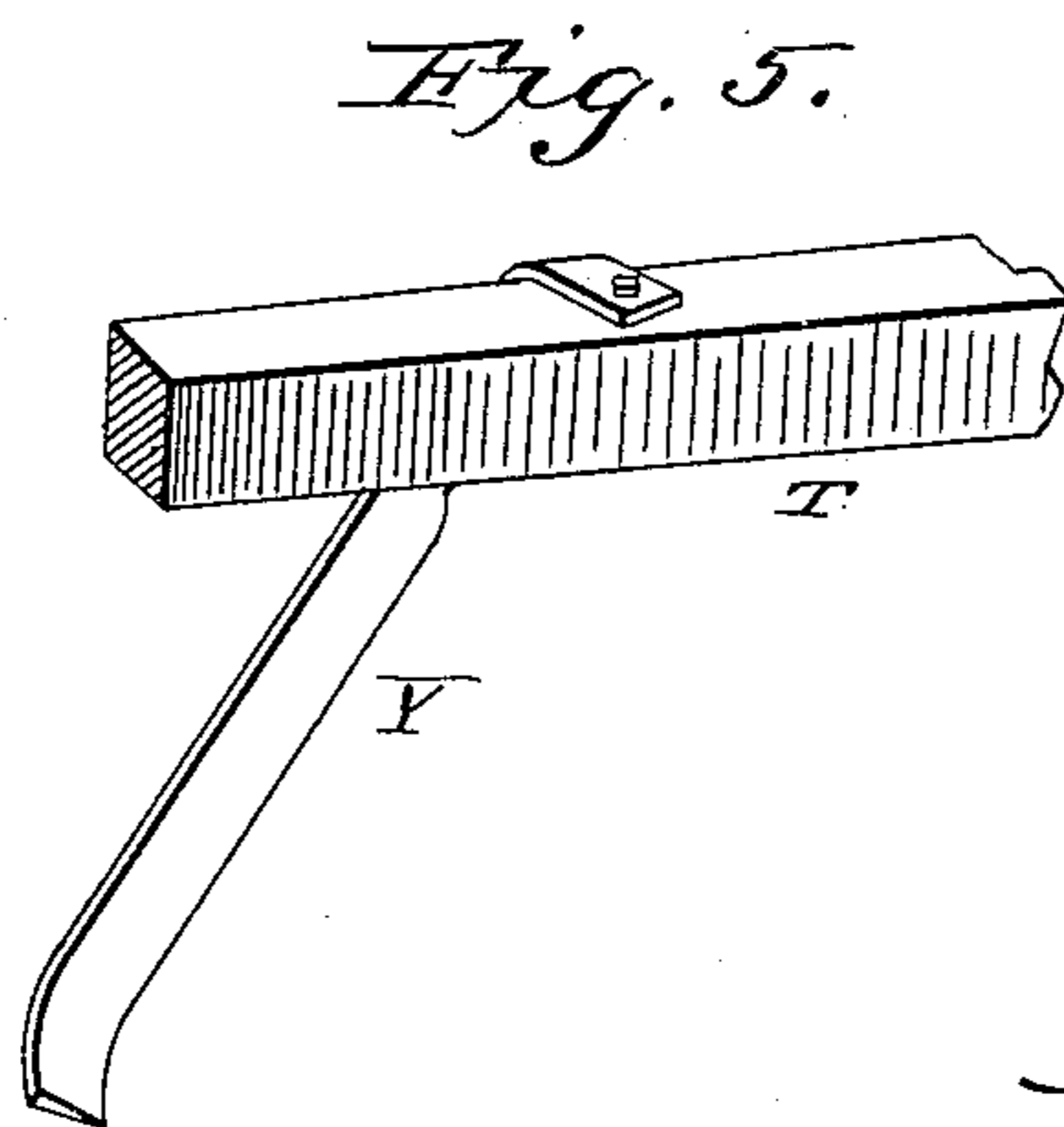
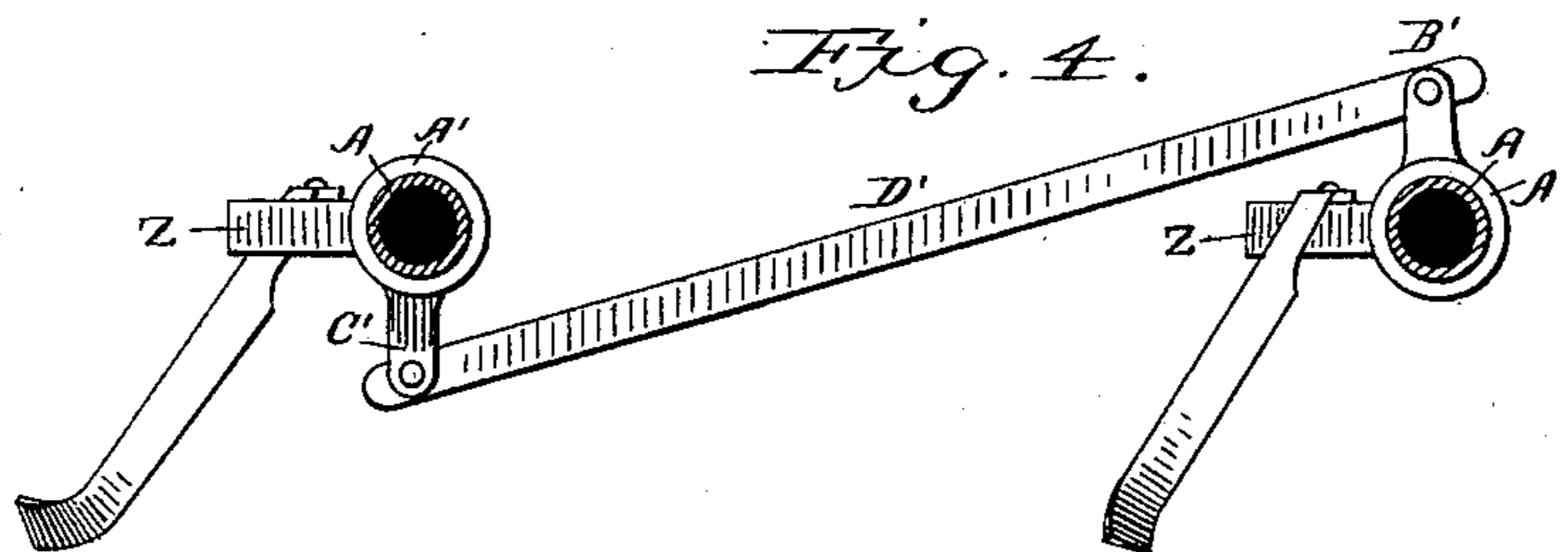
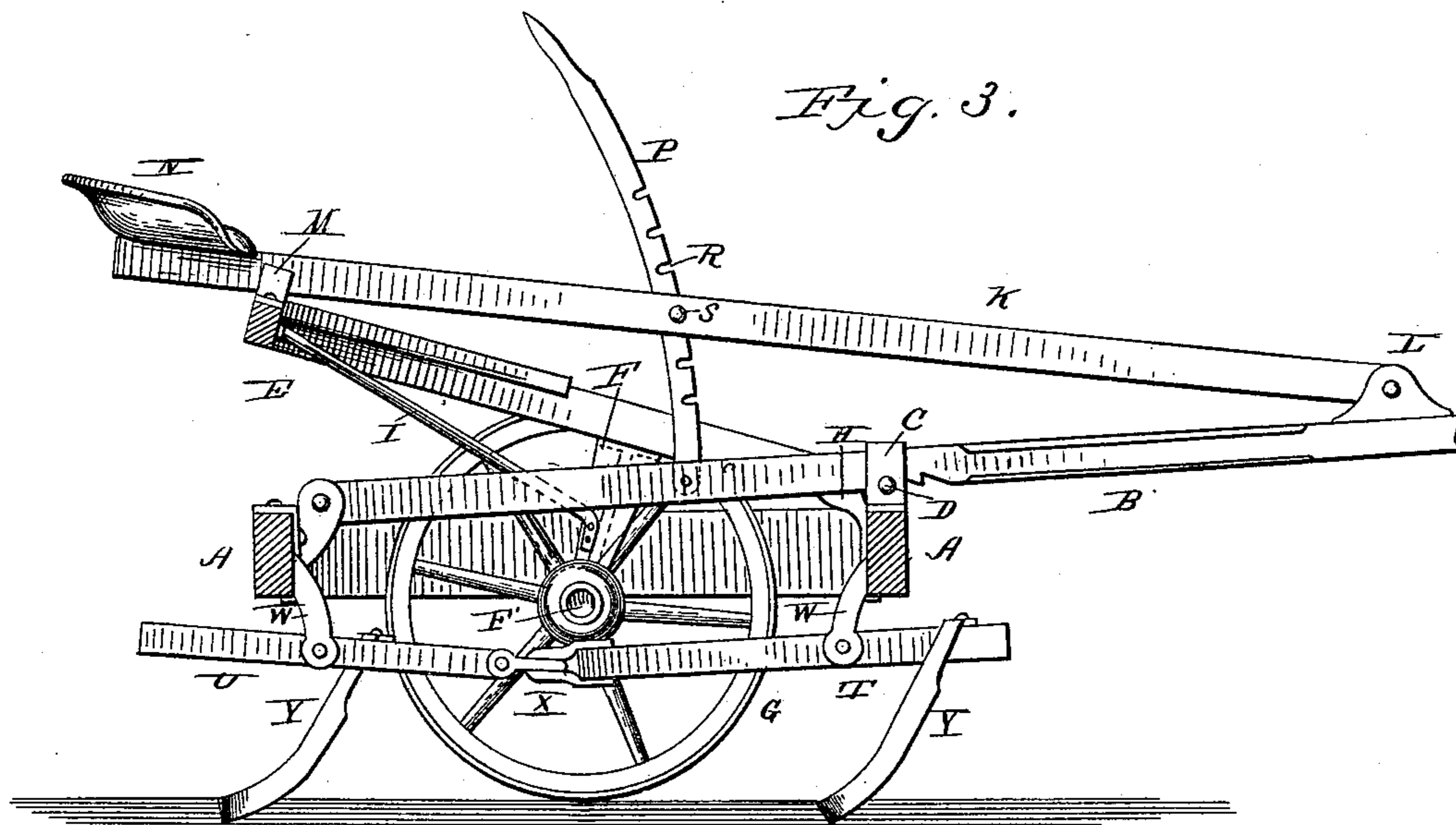
2 Sheets—Sheet 2.

H. S. HOWARD.

PULVERIZER.

No. 353,947.

Patented Dec. 7, 1886.



WITNESSES

Charles H. Davis
John S. Finch

INVENTOR

H. S. Howard
W. M. Alexander
Attorney

UNITED STATES PATENT OFFICE.

HARLAN S. HOWARD, OF MADISON, WISCONSIN.

PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 353,947, dated December 7, 1886.

Application filed September 2, 1886. Serial No. 212,536. (No model.)

To all whom it may concern:

Be it known that I, HARLAN S. HOWARD, a citizen of the United States, residing at Madison, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Pulverizers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain improvements in that class of cultivators generally known as "pulverizers;" and it has for its objects to give the pulverizing-teeth an automatic movement while the cultivator is in operation, so as to thoroughly disintegrate and pulverize the sod, and also to provide for conveniently lowering and elevating the frame carrying the pulverizing-teeth, as more fully hereinafter specified. These objects I attain by the means illustrated in the accompanying drawings, in which—

Figure 1 represents a top view of my improved pulverizer; Fig. 2, a sectional view showing the frame elevated so as to raise the pulverizing-teeth from the ground; Fig. 3, a similar view showing the frame depressed and the teeth down; Fig. 4, a detached view showing a modification of the means for giving the teeth the proper automatic movement, and Fig. 5 a perspective view of a portion of one of the drag-bars and its attached tooth.

The letter A indicates the main frame of the pulverizer, which is pivotally secured at its rear to the rear end of the beam B, which passes through a metallic brace, C, secured to the forward part of said frame. The said beam is notched on the under side and one of the notches rests over a bolt, D, passing through said brace and secured therein.

E indicates a frame mounted on standards F, which carry the axles F' at their lower ends, the forward ends of said frame being pivoted between lugs H, secured to the main frame A.

G indicates the wheels of the pulverizer. The frame E is provided with braces I, extending to and connecting with the standards F, by which said frame is held rigidly in proper position.

The letter K indicates a beam pivoted at its forward end between the lugs L, secured to the beam B, and extending backward over the rear of the frame E, on which it rests, being

confined laterally by means of lugs M, secured to said frame. Upon the rear end of said beam is located the driver's seat N.

P indicates a lever, which is fulcrumed at its lower end in a slot in the beam B, and passes through a slot in the beam K. The said lever is notched on its forward edge, as indicated by the letter R, the notches being adapted to engage a bolt, S, passing through the said beam K, so as to adjust the frames with respect to each other and hold the teeth on or off of the ground, as more fully hereinafter explained.

The letters T and U indicate a series of drag-bars, which are pivoted to the front and rear beams of the main frame between lugs or hangers W, secured to the same. The adjoining ends of each set of the series are provided with links X, which connect with each other, so as to connect the said bars, causing the front and rear bars to move together. To the said bars are secured the pulverizing-teeth Y, which are secured alternately on opposite sides of the bars, so as to thoroughly work and pulverize the ground as the cultivator passes over it.

In the modification shown in Fig. 4 the frame A is constructed of tubular iron—such as ordinary gas pipe—and the teeth are secured to lugs Z, having sleeves A', which work on the frame so as to give the teeth the proper movement. The sleeves are also provided with lugs B' C', projecting above and below, respectively, which are connected by a pivoted bar, D', so as to cause the sleeves to move simultaneously to operate the teeth. The teeth at their forward sides are formed with "knife-edges," and at their lower ends may be curved in opposite directions, as plainly shown in Fig. 4 of the drawings, so as to chop and disintegrate the sod.

The operation of my improved pulverizer is as follows: During transportation, or while out of use, the main frame is elevated as shown in Fig. 2, which is done by depressing the rear end of the beam K. The parts when in this position are locked by securing the lower notch of the notched lever over the bolt provided for the purpose. When in operation, the main frame is dropped by elevating the beam K and locking the notched lever by engaging one of its upper notches with the bolt.

As the drag-bars are drawn over the ground the teeth, coming in contact with the clods, rocks, or other irregularities, are permitted to move in such manner as to clear the obstructions and not to interfere with the draft or travel of the machine, while they move mutually thereby, giving them a pounding action, which effectually pulverizes the sod.

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

1. In a pulverizer, the combination, with the main frame, of two rows or series of teeth-supports, each support provided with a pulverizing-tooth and being pivotally secured to the main frame, and the supports of the forward series connected to the supports of the rear series so as to have a mutual operation, substantially as set forth.

2. In combination with the main frame, the drag-bars pivoted thereto and connected by means of links at their adjoining ends, so as to move simultaneously, substantially as specified.

3. The combination, with the main frame, of the frame secured to the standards carrying the axles of the machine, the beam secured to said frame and the beam carrying the seat

and resting upon the last-mentioned frame, and the notched lever and bolt, whereby the parts of the machine are adjusted, substantially as specified.

4. The combination, with the main frame of a pulverizer, of two rows or series of drag-bars, each of said bars pivotally secured to the main frame and provided with pulverizers, and the rear ends of the forward series connected to the adjacent ends of the rear series, so as to have a mutual operation, substantially as specified.

5. The combination, with the main frame of a cultivator or pulverizer the front and rear beams of which are each provided with a series of hangers, W, of the front and rear series of drag-bars, T and U, pivotally secured to the said hangers, the pulverizing-teeth secured to the said drag-bars, and the links X, connecting the adjacent ends of the two series of drag-bars together, substantially as specified.

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

HARLAN S. HOWARD.

Witnesses:

GEO. WALKER,
W. H. DAVIS.