

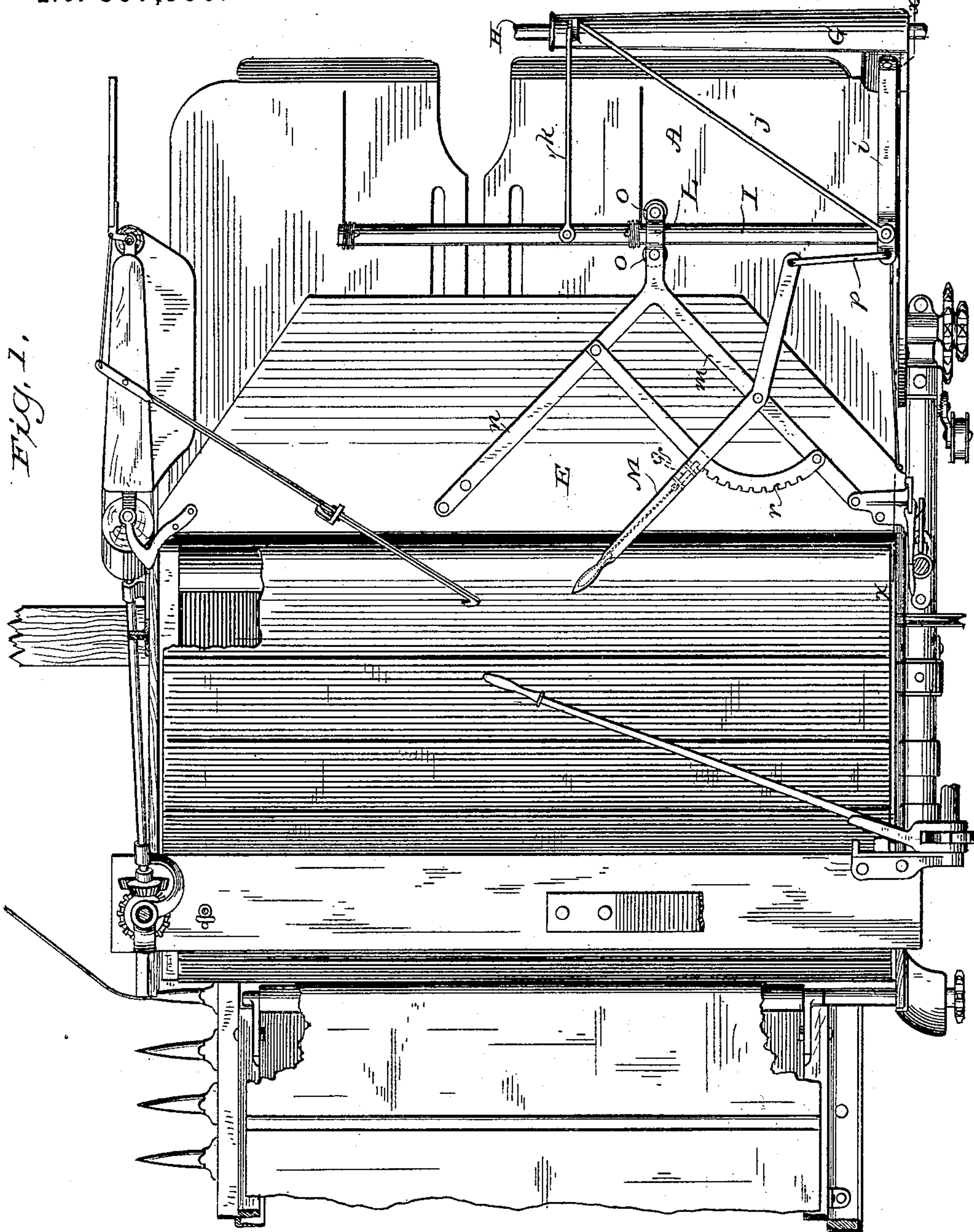
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4 Sheets—Sheet 1.

J. A. GRAHAM.
BINDER SHIFTING MECHANISM.

No. 397,356.

Patented Feb. 5, 1889.



Witnesses

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W. E. Oliphant

Inventor

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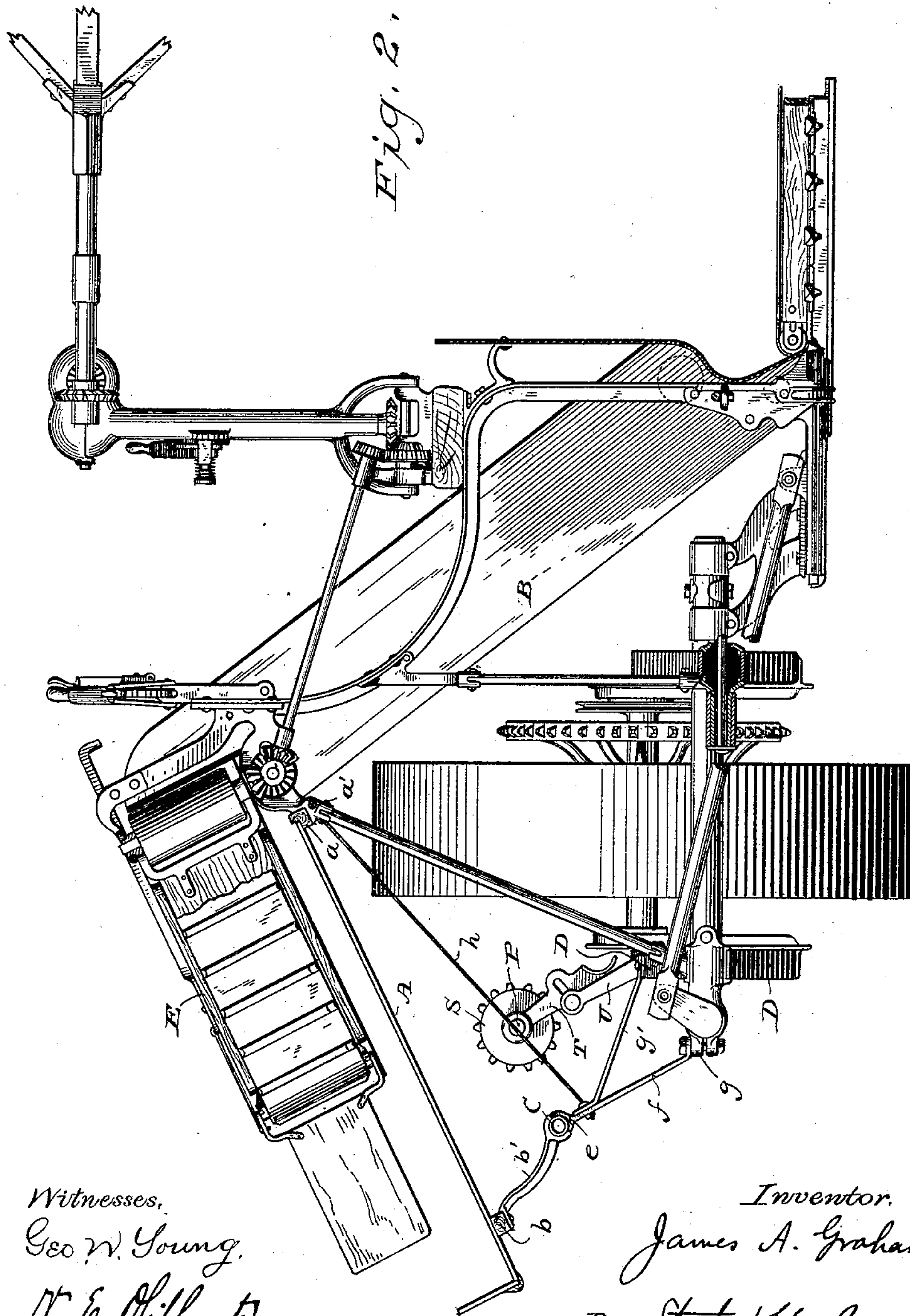
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4 Sheets—Sheet 3.

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Fig. 4.

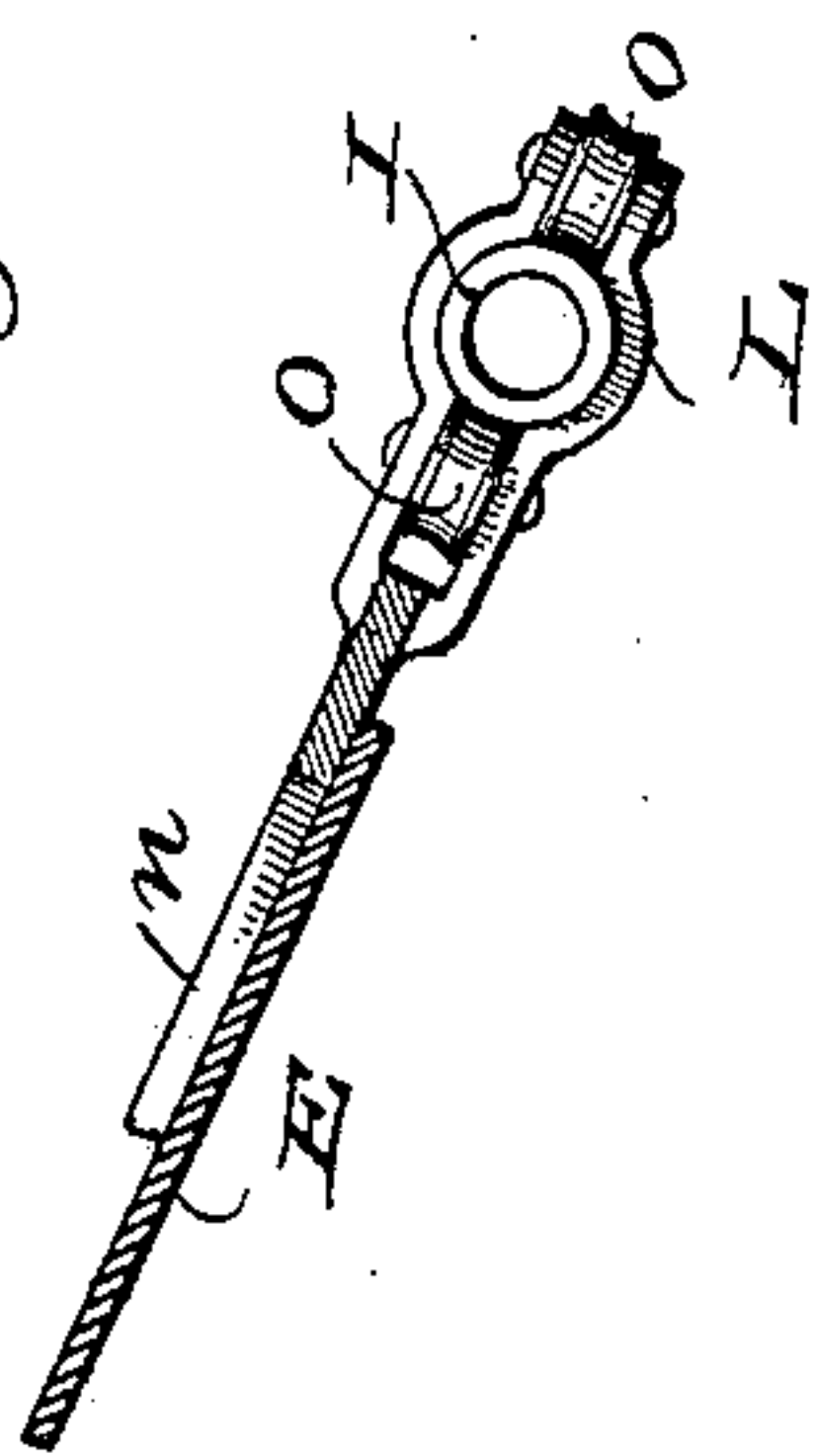


Fig. 5.

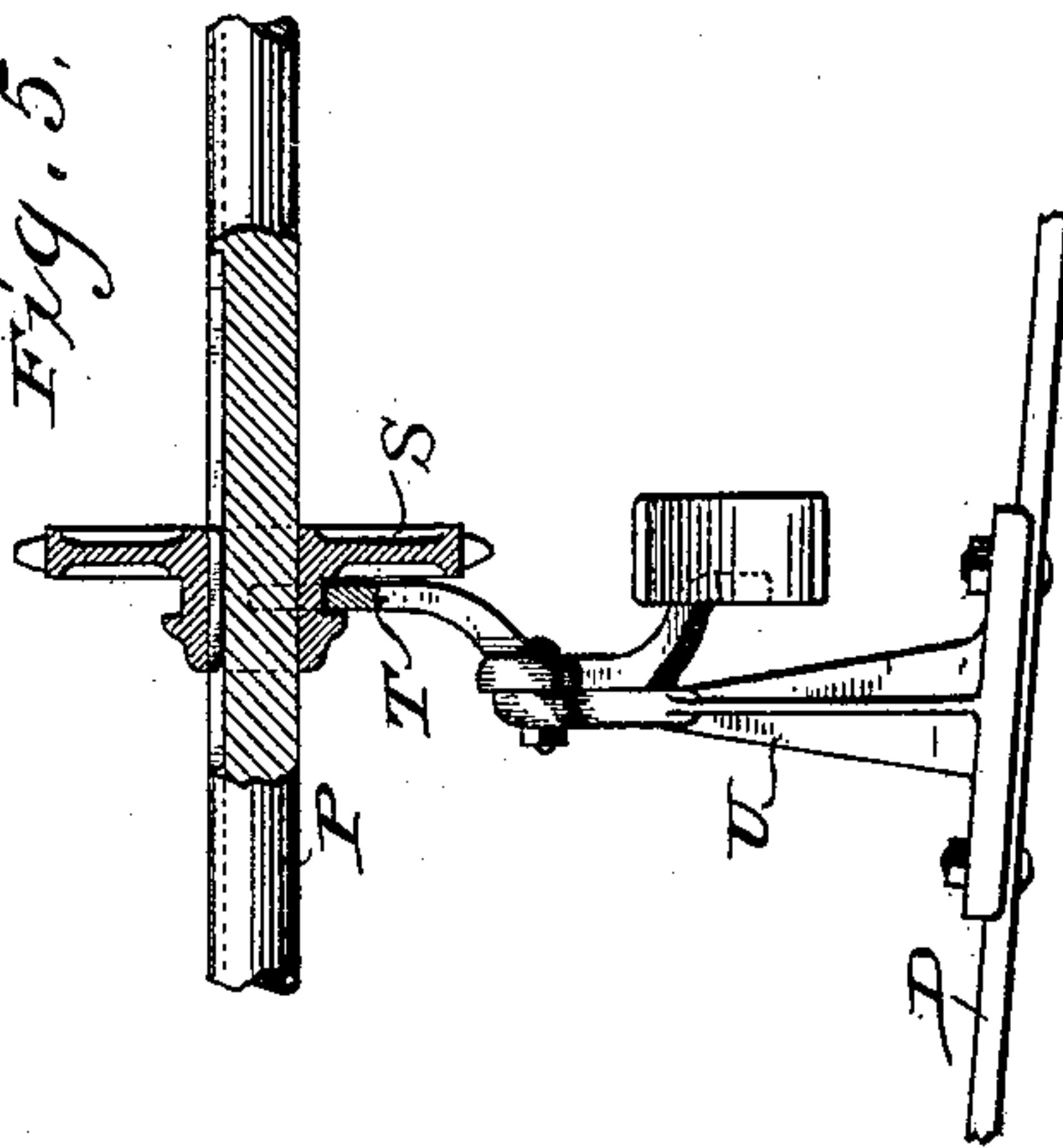
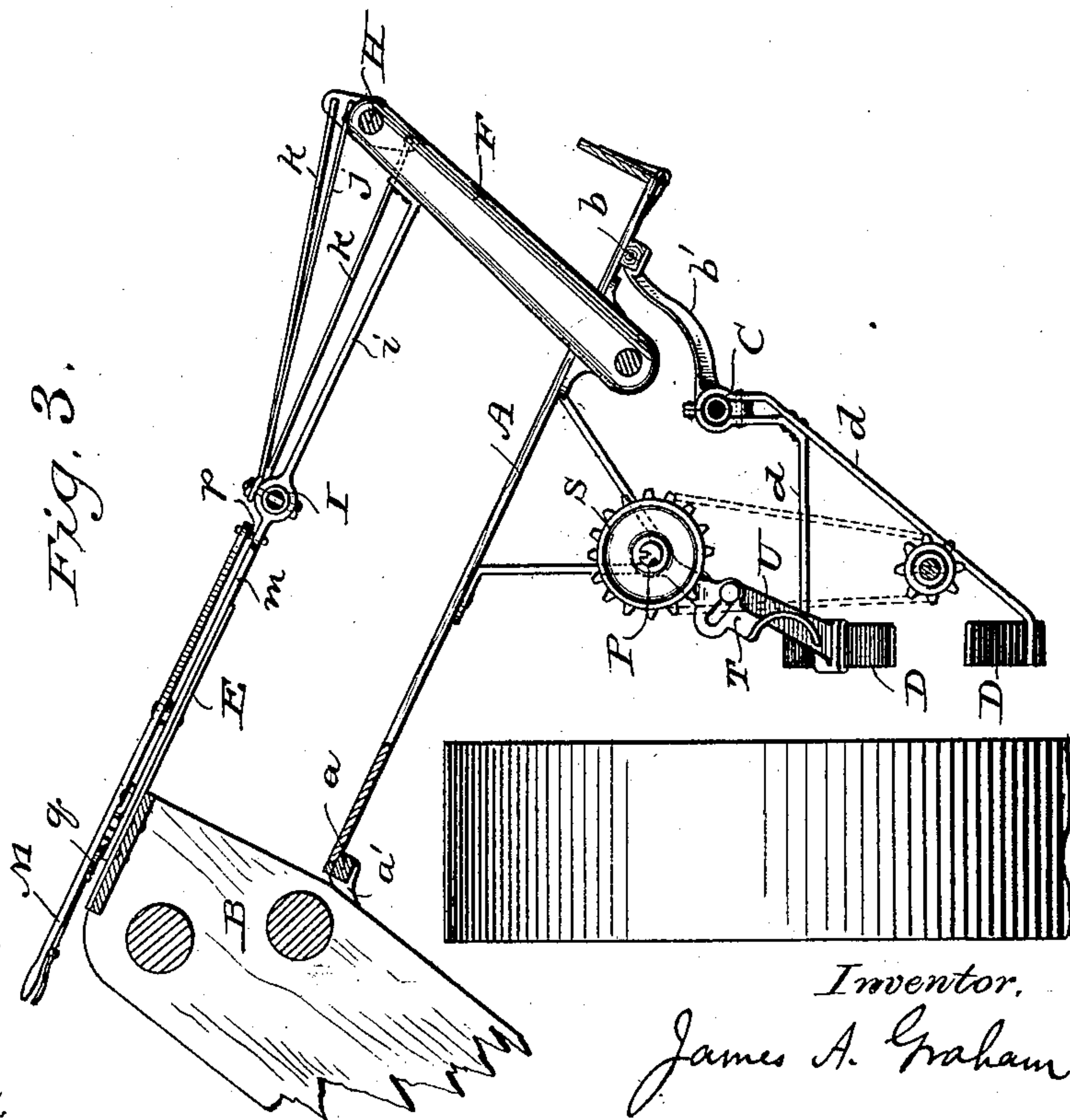


Fig. 3.



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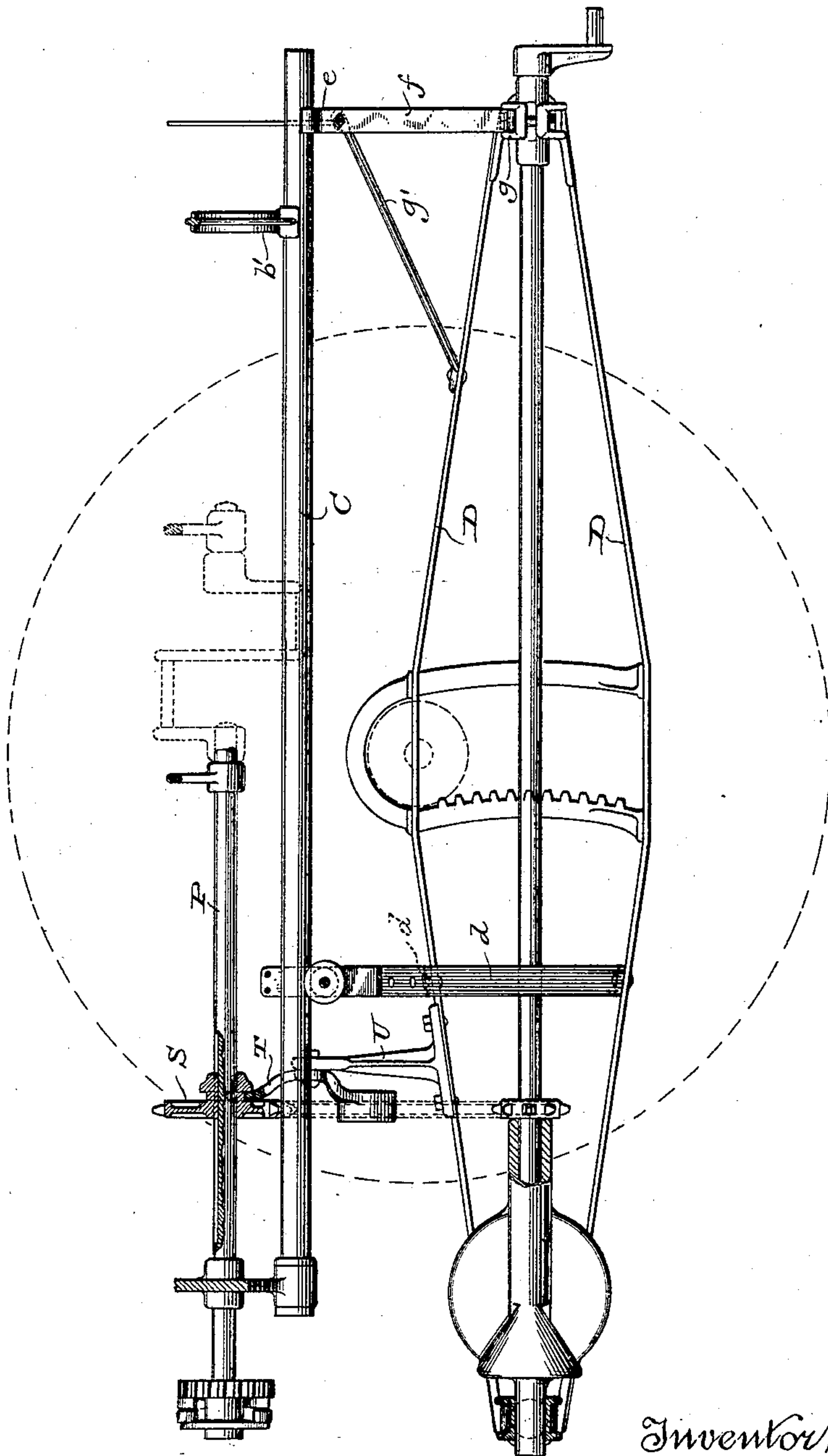
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Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES A. GRAHAM, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE MILWAUKEE HARVESTER COMPANY, OF SAME PLACE.

BINDER-SHIFTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 397,356, dated February 5, 1889.

Application filed November 14, 1887. Serial No. 255,039. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. GRAHAM, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Binder-Shifter Mechanism; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to harvesters and binders; and it consists in improved mechanism for shifting the binder, which will be fully described hereinafter.

In the drawings, Figure 1 is a plan of a harvester and binder embodying my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a section on line X X, Fig. 1. Figs. 4 and 5 are details. Fig. 6 is an elevation from the stubble side of the harvester, showing the supports for the binder-deck.

A is the binder-deck, whose upper edge is loosely supported on a strip, *a*, that is secured to suitable brackets, *a'*, that project from the elevator-frame B, and adjacent to its lower front edge the said binder-deck is secured to the upper end of an arm, *b'*, which arm is secured to and projects up from the gas-pipe C, that forms part of the binder-frame, the said upper end of said arm *b'* being preferably shaped to receive and be attached to a strengthening-strip, *b*, secured to the under side of said binder-deck. The lower portion of the binder-deck from about its center to its rear edge rests upon and is secured to the binder-frame in the usual manner. This gas-pipe C is supported near the rear end of the harvester by braces *d d*, that project from the cross-truss D D of the harvester-frame, the two braces *d d* intersecting to form a loose bearing for the gas-pipe to slide in; and at its opposite end this gas-pipe is supported in a bearing, *e*, in a standard, *f*, that projects up from an arm, *g*, on the lower front stubble corner of the harvester-frame, and this standard is braced by a strap, *g'*, to the truss D, as well as by a rod, *h*, that extends from near its upper end to the upper portion of the elevator-frame, as shown clearly in Fig. 2.

E is a hood, preferably of sheet metal, that is secured at one edge to the upper portion of the elevator-frame, so that its opposite edge

will project over the binder-deck toward the standard F and arm G of the binder-frame, which carry the knotter-shaft H.

A gas-pipe, I, is rigidly suspended between the hood E and sleeve G, and parallel to them, by a brace, *i*, that extends from one end of the said gas-pipe to the standard F and braces *j k k*, that extend from said gas-pipe to sleeve G, and this pipe runs through a bearing, L, in an arm that projects from the intersecting ends of two diagonal braces, *m n*, that are secured to the hood E, which forms a part of the harvester, and said bearing L is preferably formed by bifurcating the arm of the two braces *m n* horizontally to form jaws that are internally concaved to conform to the shape of the gas-pipe, which jaws are held together to form the bearings for the gas-pipe I by suitable bolts or rivets, and either or both of these bolts or rivets may form the axle or axles of a roller or rollers, O, which may be interposed to facilitate the sliding of the gas-pipe I, which forms a guide-bar. A lever, M, is pivoted to the brace *m*, and one end of this lever is connected by a rigid link, *p*, with the binder-frame through brace *i*, while its other end forms a handle and carries a pawl, *q*, for engagement with the teeth of a rack-brace, *r*, one end of which is secured to each of the braces *m n*.

The driving or packer shaft P is hung from the binder-deck in the usual manner, as shown in Fig. 3, and shifts with the binder, as is usual, and the sprocket-wheel S, which is splined on shaft P, is prevented from shifting with it by a spanner, T, that projects up from a standard, U, that in turn is secured to the truss D. The arms of the spanner T enter a groove in the hub of the sprocket-wheel S and hold it in position above the driver-sprocket without interfering with its revolution.

The needle-shaft (not lettered) has its bearing, as usual, in the lower horizontal arm of the binder-frame, and the packer-shaft has the usual location of the packer-shaft in grain binders.

The operation of my device is very simple, and is as follows: When the binder is to be shifted, the lever M is released by withdrawing the pawl *q* and moving the handle of the

lever to the right or left to draw or thrust the binder in the desired direction, the lever M acting on link *p*, which in turn acts upon the frame F G of the binder, the parts being centered and prevented from cramping by the gas-pipe I and its bearing L, which bearing L also sustains some of the weight of the binder and causes it to move freely over its lower supports.

10 The brace *i* extends directly from the standard F to the adjacent end of the pipe I. The braces *k* extend from the pipe I, one slightly upward to an ear on the upper side of the sleeve G, and the other to a like ear on the under side, while the brace *j* extends diagonally from the junction of brace *i* and pipe I to the upper lug on the sleeve G, to which the outer end of upper brace, *k*, is attached.

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

1. The combination, with the binder-frame and deck, of the elevator-frame, and braces

extending therefrom over the binder-deck and forming a bearing, a guide-bar braced to the binder-frame and adapted to slide in said bearing, and a lever pivoted on the harvester and connecting it with the binder-frame, substantially as described.

2. The combination, with the binder-frame and deck, of a hood extending from the elevator-frame, braces extending from the hood and forming a bearing, a guide-bar braced to the binder-frame and adapted to slide in said bearing, and a shifting-lever pivoted to the hood and connecting it with the binder-frame, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

JAMES A. GRAHAM.

Witnesses:

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N. E. OLIPHANT.