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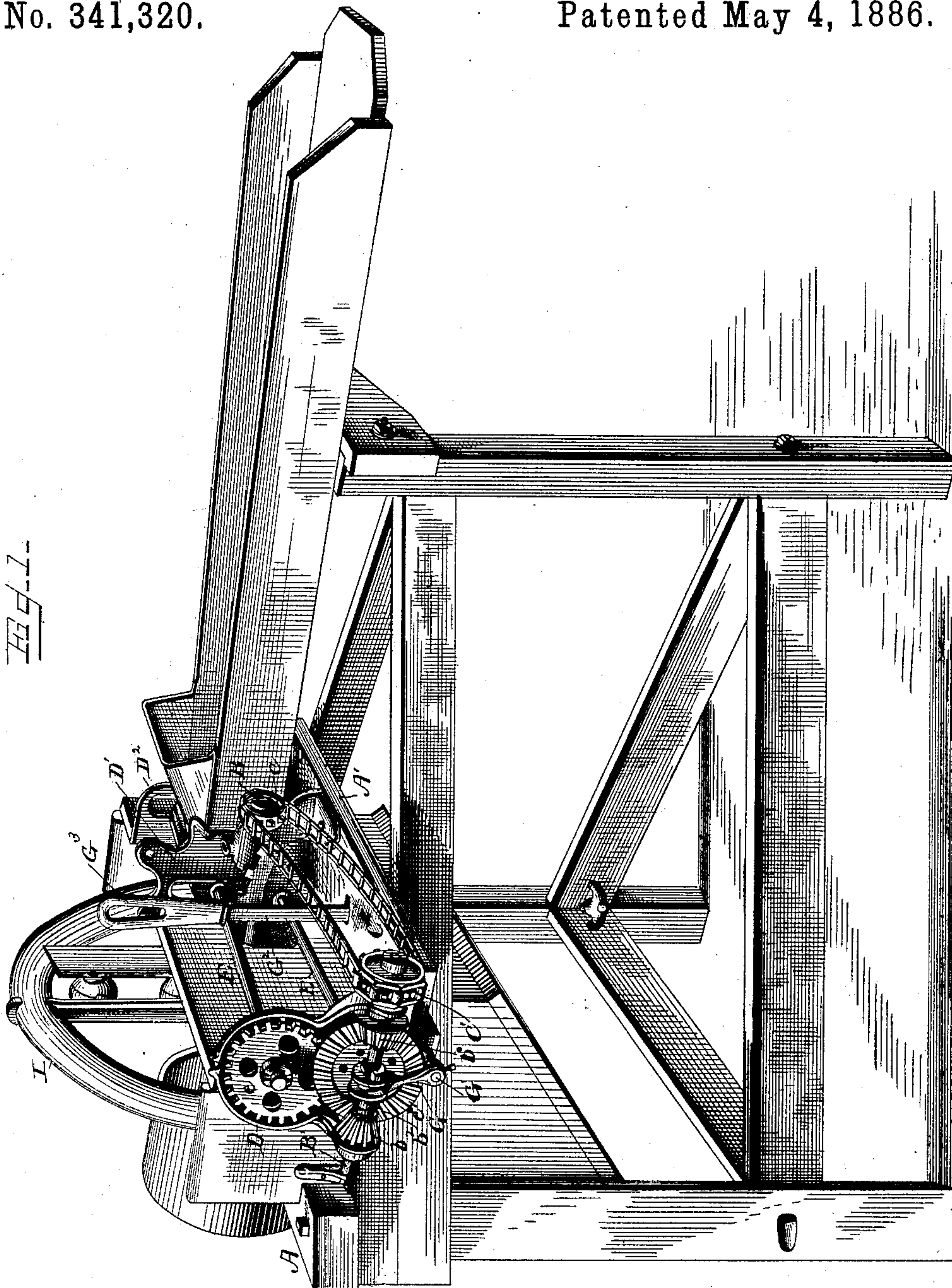
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J. DICK, Jr.

FEED CUTTER.

No. 341,320.

Patented May 4, 1886.



WITNESSES

F. L. Ourada,
Rex. Smith.

INVENTOR

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Attorney

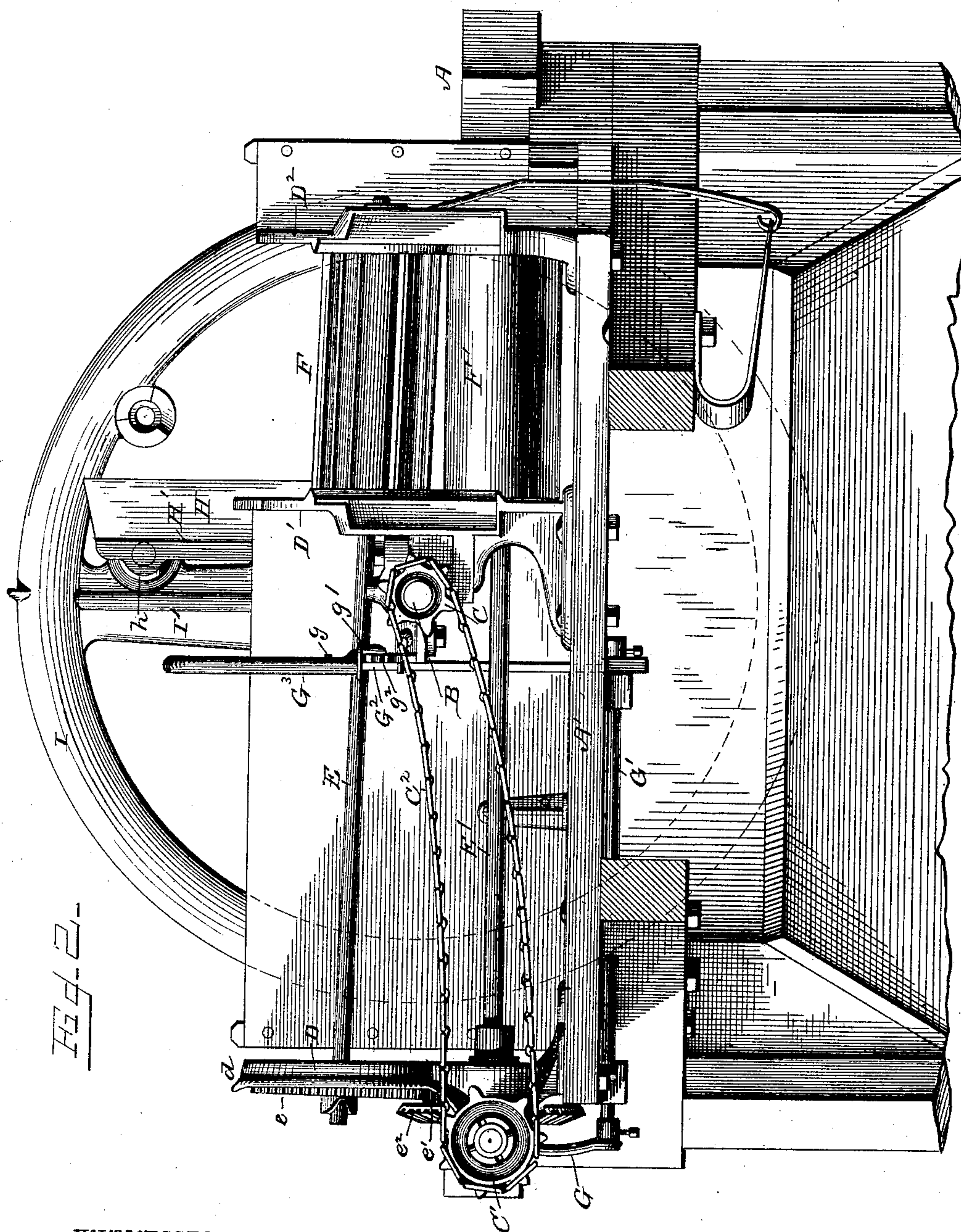
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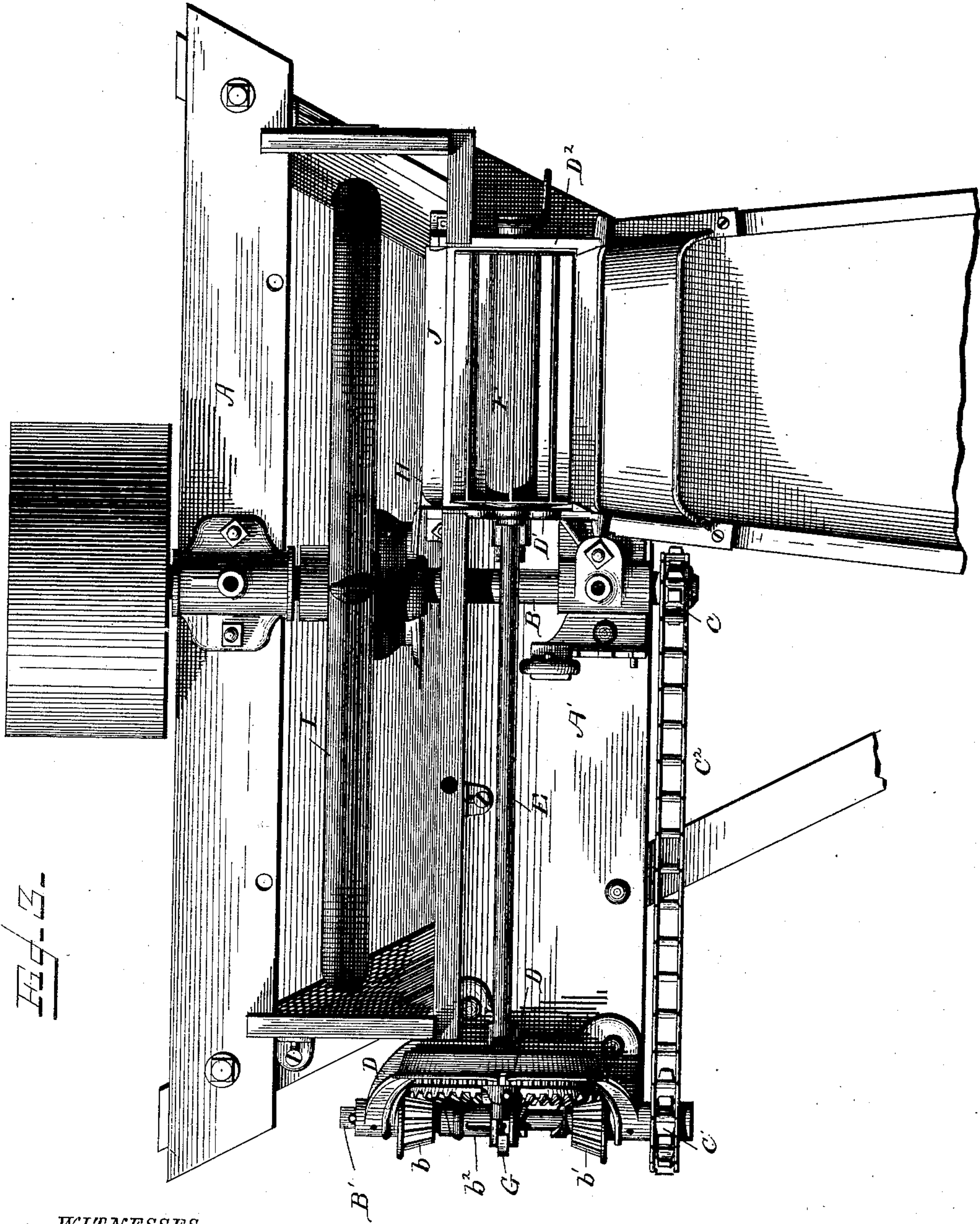
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Fig 4

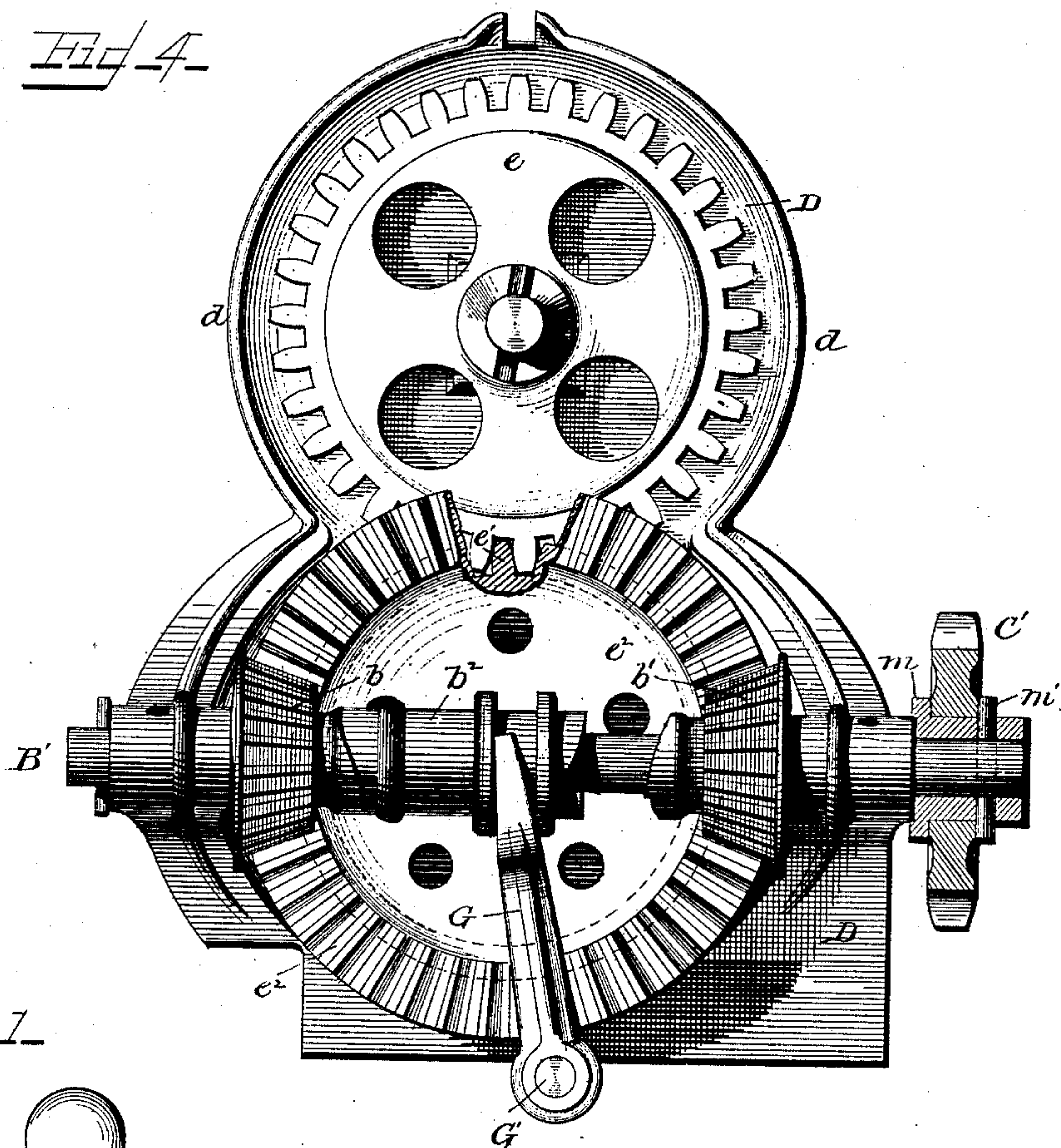


Fig 11

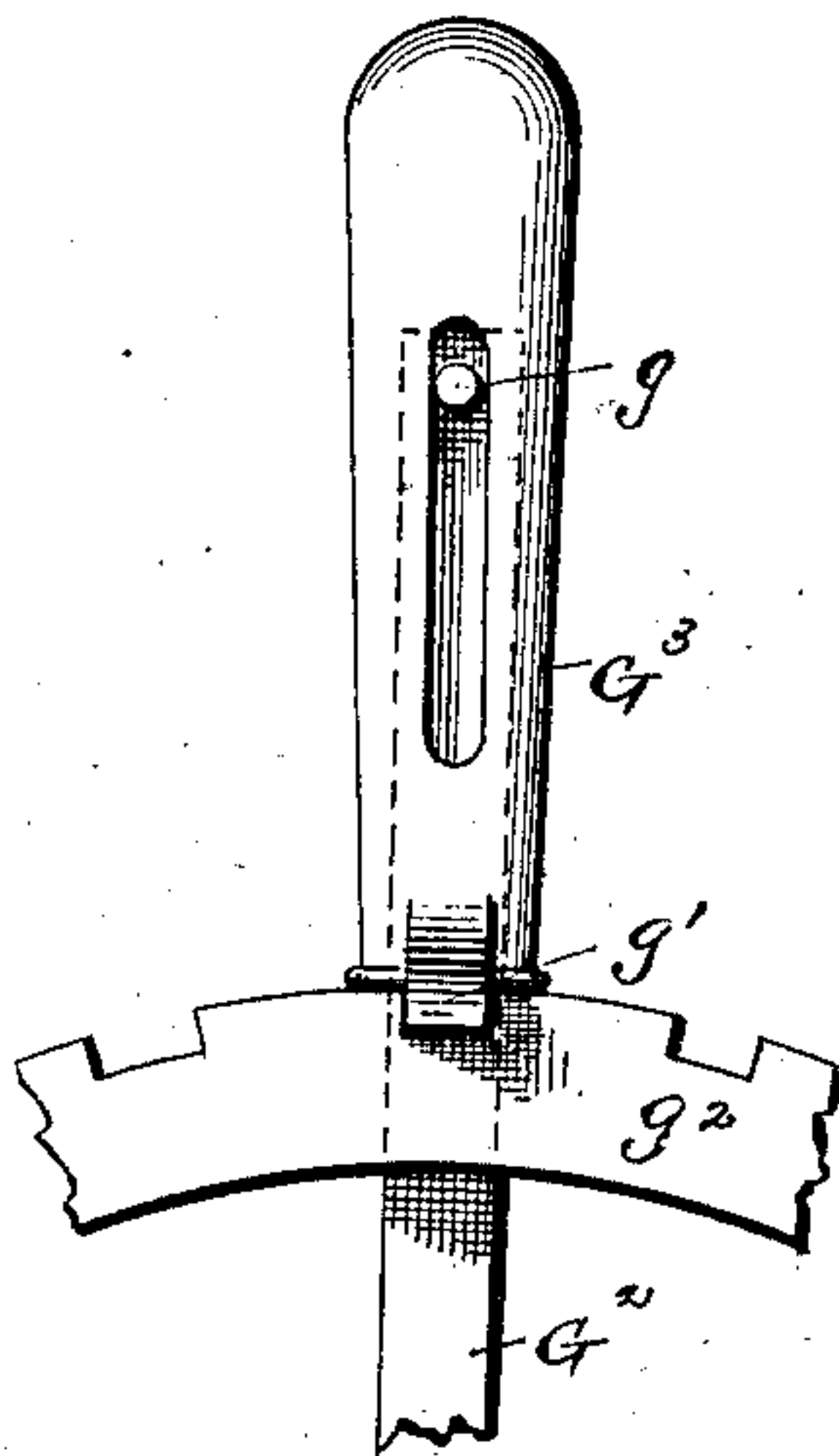
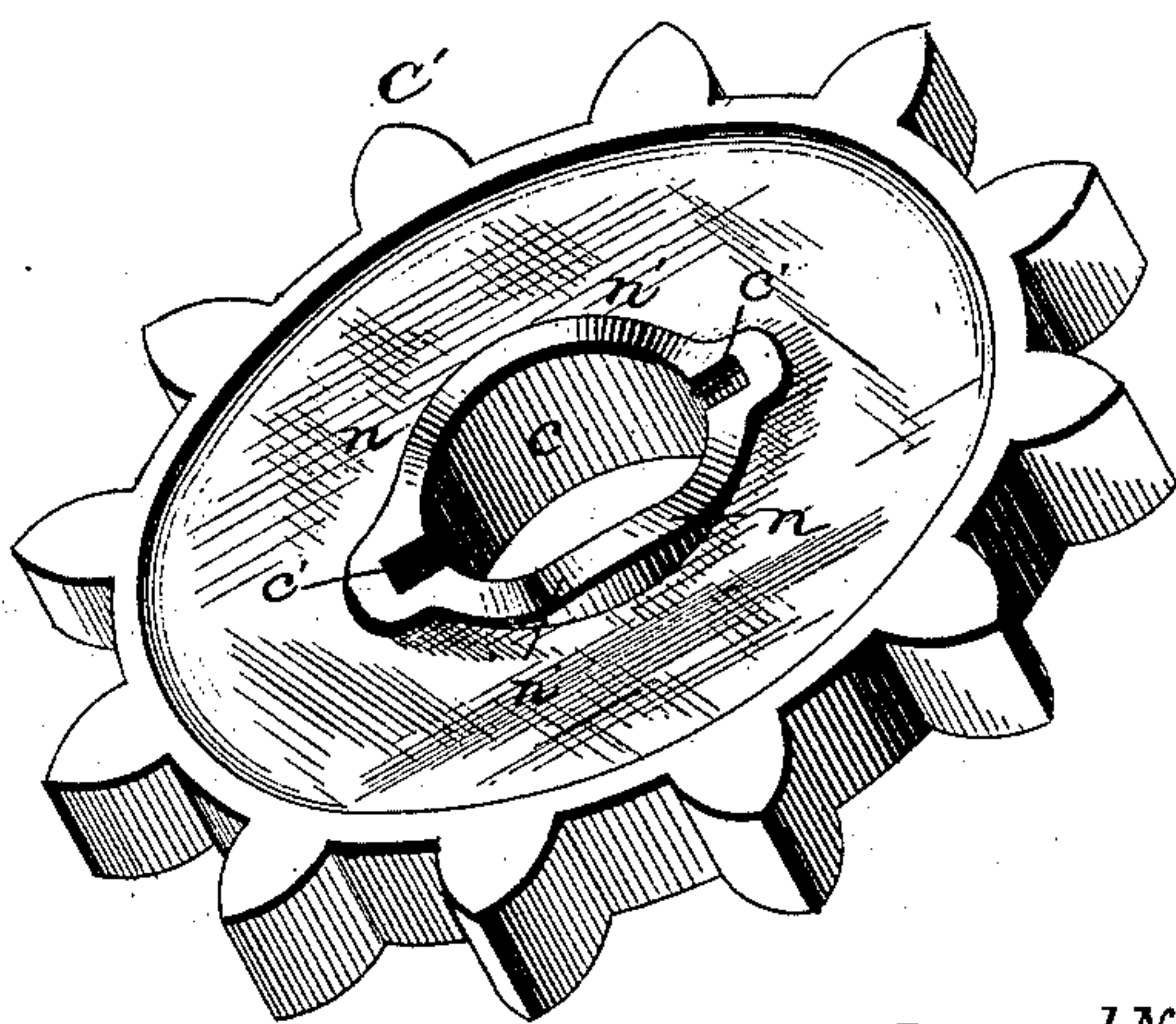


Fig 5



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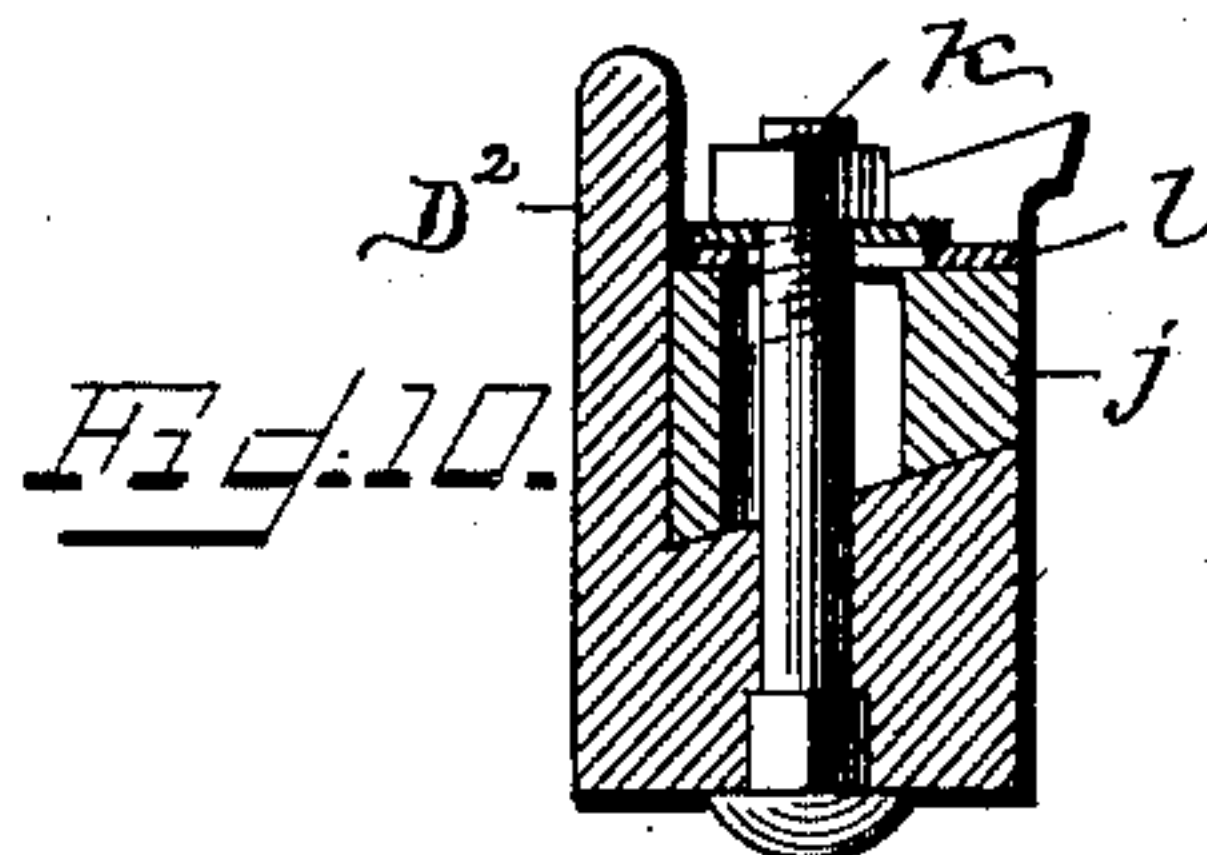
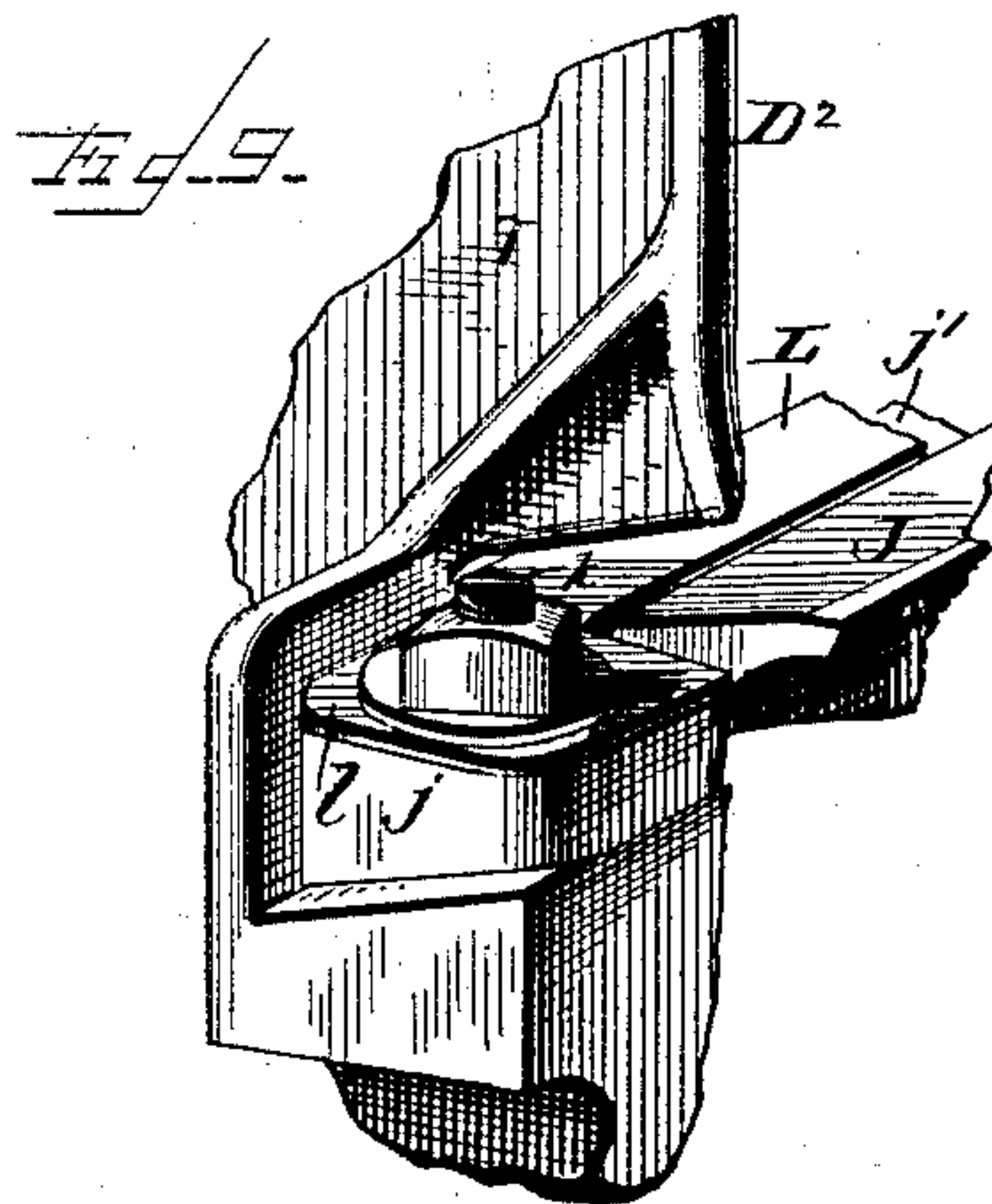
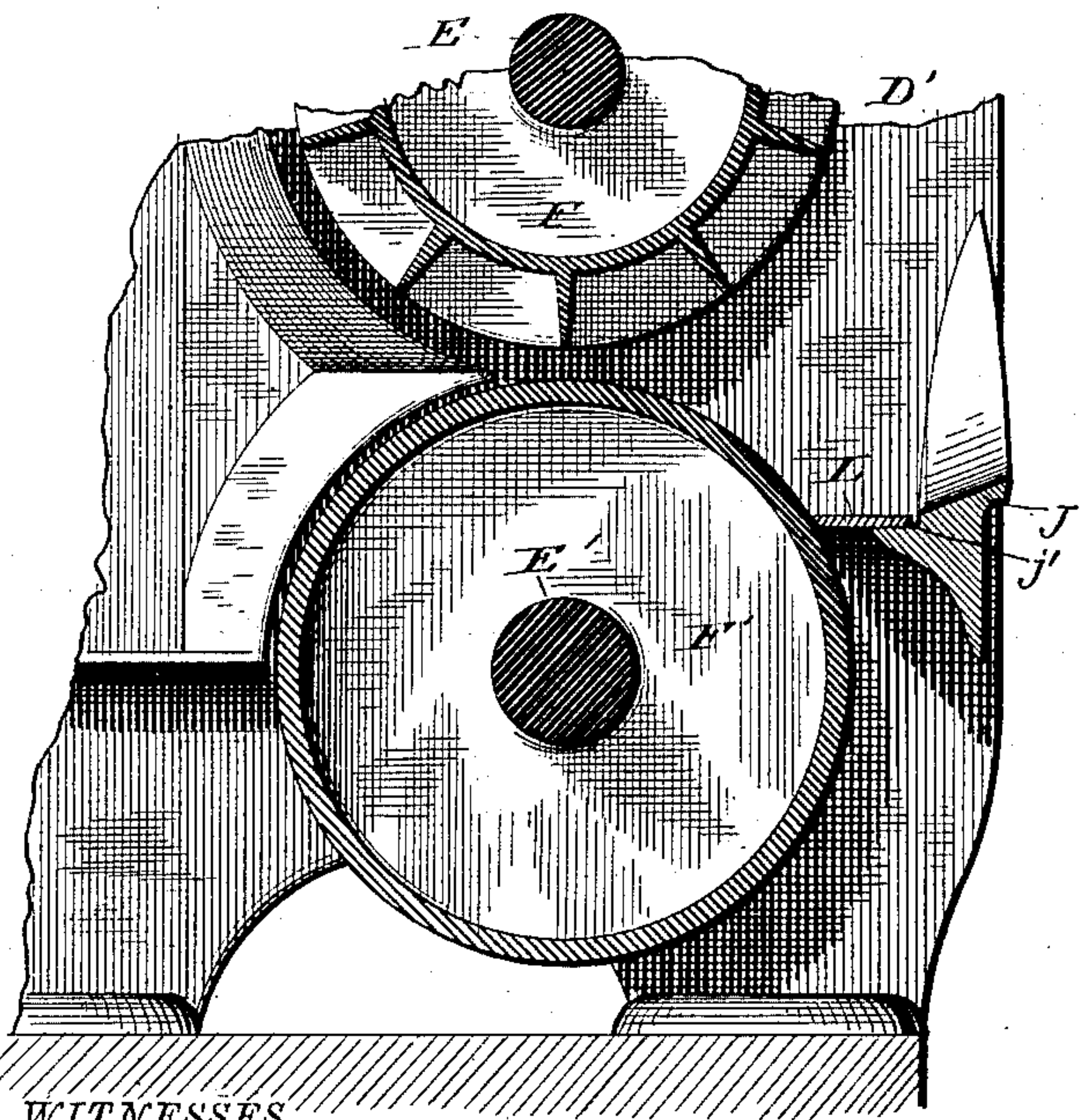
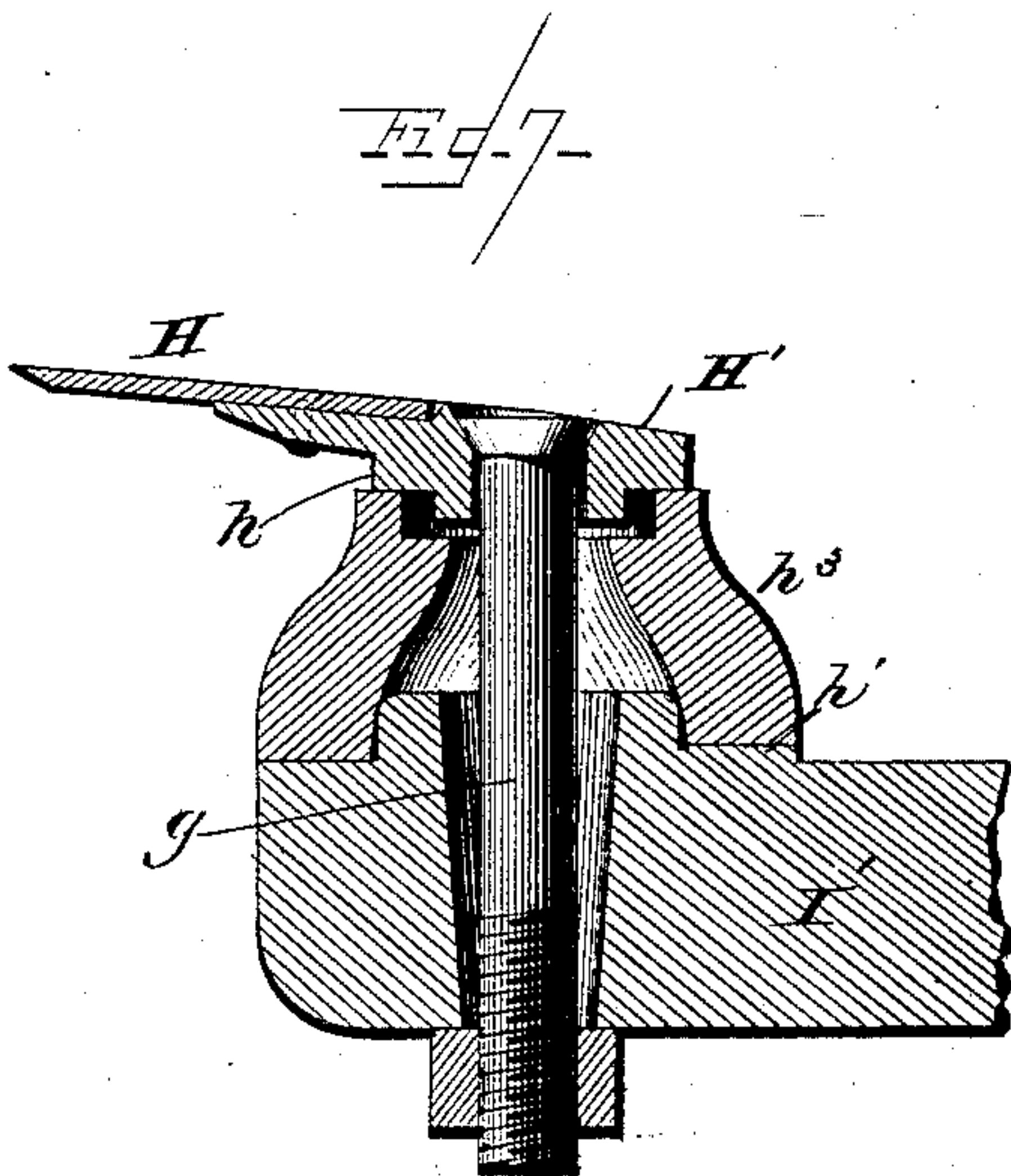
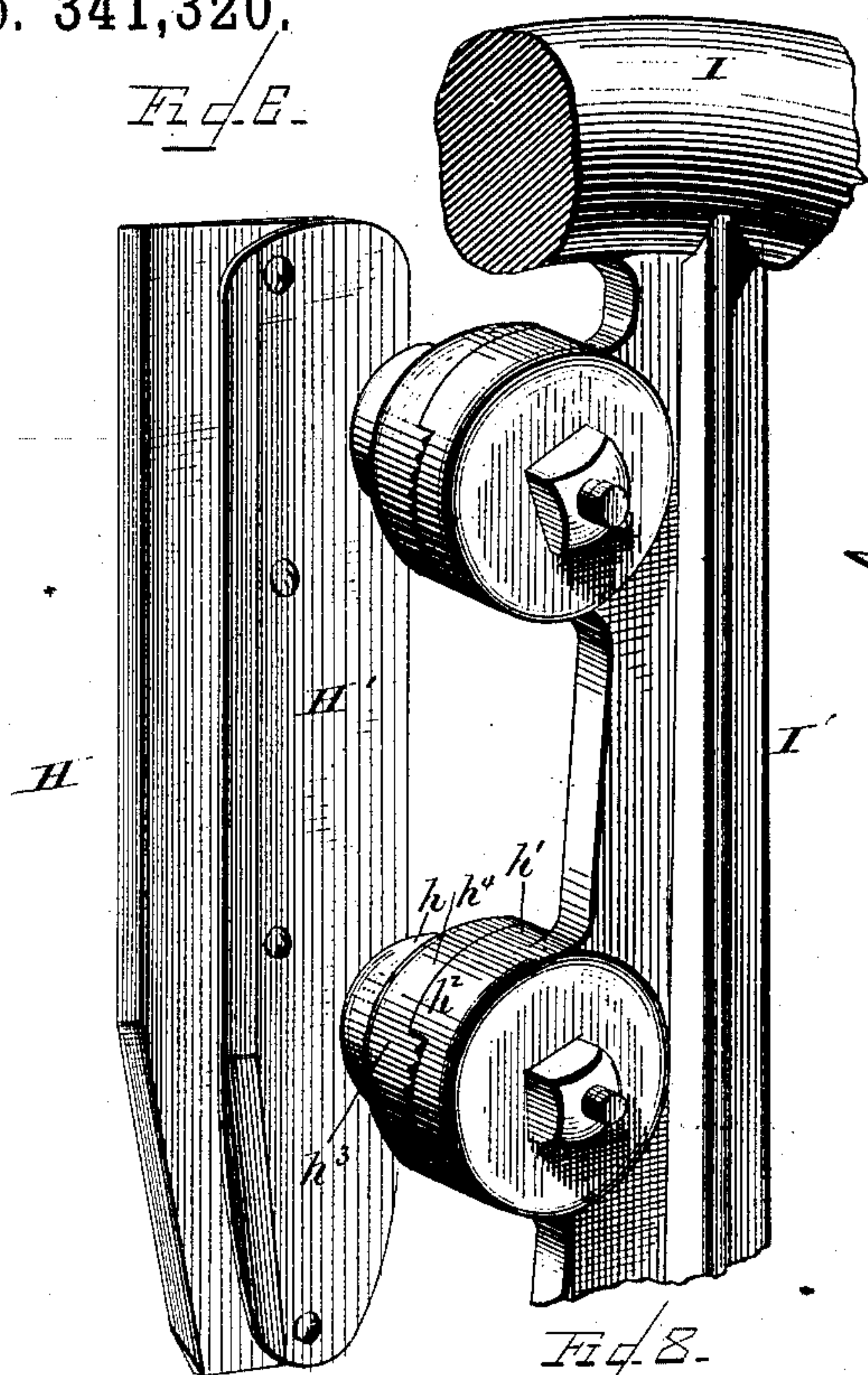
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UNITED STATES PATENT OFFICE.

JOSEPH DICK, JR., OF CANTON, OHIO.

FEED-CUTTER.

SPECIFICATION forming part of Letters Patent No. 341,320, dated May 4, 1886.

Application filed June 26, 1885. Serial No. 169,848. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH DICK, Jr., of Canton, county of Stark, and State of Ohio, have invented new and useful Improvements in Feed-Cutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to the manner of securing the supporting piece or back which carries the knife adjustably and removably to the arm of the fly-wheel; to the construction and manner of combining the stationary knife or cutter and the guard or scraper for keeping the material operated upon from winding on the feed-rolls with each other and their support, whereby they are both held in place by and can be independently adjusted upon the same retaining-bolts, and to the manner of connecting the interchangeable sprocket-wheels with their shafts, facilitating their being changed for varying the feed, all as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a feed-cutter embracing my improvements. Fig. 2 is an end view or front elevation of the same, taken at the side from which the material operated upon is fed to the cutters, with the feed trough or box removed. Fig. 3 is a plan view of the same, or so much thereof as is necessary to show my improvements. Fig. 4 is a side elevation, enlarged, of the gears on the feed-roll shafts and of the means for actuating them, throwing them into or out of action, and changing their direction of rotation. Fig. 5 is a perspective view of one of the sprocket-wheels detached. Fig. 6 is a perspective view of one of the rotating knives and its connections, and Fig. 7 a section through said knife and one of its connections with the fly-wheel arm; Fig. 8, a vertical transverse section through the feed-rolls, their guard or scraper, and the stationary knife or cutter, and Fig. 9 a perspective view of one end of said scraper and knife and their support. Fig. 10 is a sectional view showing slots in the stripper-plate and cutter, and Fig. 11 is a detail view.

The frame of the machine is by preference made in the triangular form indicated in the drawings, as giving compactness with the de-

sired strength and steadiness or support, and has the main driving-shaft B, which, as shown, constitutes also the fly-wheel shaft mounted at one end in a suitable bearing in one of the upper horizontal bars, A, of one side of the triangular frame, and projecting beyond said bar to receive the crank or band wheel through which motion is imparted to said shaft in any suitable manner. The inner end of the shaft B has its bearing in a transverse frame-bar or gear-plank, A', and projects beyond said bearing and plank to receive a sprocket-wheel, C, from which, through a chain, C', and sprocket-wheel C', motion is imparted to a secondary shaft, B', mounted in suitable bearings in a gear stand or bracket, D, secured to one end of the gear-plank A'. The stand or bracket D has bearings formed in it for the geared ends of the feed-roll shafts E and E', the opposite or forward ends of these shafts being supported in bearings in standards D' and D'', secured to the forward end of plank A'. The feed-rolls F and F', which may be of any usual or preferred form, are located between the standards D' and D'', and are secured in any suitable manner to and made to rotate with the shafts E and E', and the slots forming the bearings in the standards D' and D'', for the shaft E, are elongated vertically, to adapt said shaft, with its feed-roll, to yield to the varying thickness of the material passing between the rollers, in a manner well understood.

The standard or bracket D has a horizontal flange, d, formed on its rear or outer face, said flange serving to cover and protect the toothed peripheries of the spur-gear wheels e and e', secured to the ends of the shafts E and E', and meshing one with the other. The shaft E' has a bevel-gear, e'', secured to its end outside of gear e', which bevel-gear is permanently in mesh with the two oppositely-faced bevel-pinions b and b', arranged upon opposite sides of the axis of gear e'', as shown, and mounted loosely on the secondary shaft B'. The inner ends of the hubs of the pinions b and b' are clutch-faced, and between them on the shaft B' is mounted a sliding sleeve, b'', feathered to and turning with said shaft and having clutch-faced ends adapting it to engage either of the pinions b or b', for causing it to rotate with the shaft B'.

G is a shifting arm or fork secured at its lower end to and turning with a rock-shaft, G', mounted in suitable bearings on the lower face of the gear-plank A', and provided with a lever-arm, G², projecting up through a slot in said plank to within convenient reach of the operator or attendant. The upper end or fork of the arm G engages a groove in or passes between collars fast on the clutch-sleeve b², the arrangement being such that the attendant by vibrating the lever G² and rocking the shaft G' and arm G can slide the clutch-sleeve b² to cause it to engage and drive either the pinion b or b', and thereby to change the direction of rotation of the feed-rolls as desired, or to an intermediate position between said pinions out of engagement with both, thereby stopping the rotation of the feed-rolls while the rotation of the driving-shaft and of the fly-wheel fast thereon is continued. This is important in order to enable the attendant to quickly check the feed of and to withdraw from between the feed-rolls unsuitable substances which may accidentally or otherwise have got in with the material being operated upon.

The lever G² has on its end a sliding handle, G³, which is provided with a longitudinal socket adapting it to fit over and to slide up and down on the end of the lever-arm G², and the latter is provided with a pin, g, which passes through a slot in the handle G³ and prevents the handle from becoming accidentally lifted off the arm G². This socketed handle G³ is provided on its lower end with a pin or spur, g', which engages a notched segment or rack, g², formed on or secured to the standard D', or other suitable support, and which serves to hold the lever-arm G², and with it the clutch-sleeve b², at the desired adjustment.

The knives or rotating cutters H, one of which is shown enlarged in the detail views, Figs. 6 and 7, are substantially in the form indicated, of steel, each made tapering at its inner end and beveled to an edge from its outer side, which at its heel or rear edge rests in the rabbeted side of a supporting piece or back, H', to which the knife is secured by means of suitable countersunk bolts or rivets, as shown. The supporting-back H' may be of cast or wrought metal, as preferred, and is provided on its outer face near its ends with cylindrical hubs or bosses h, through which the bolts g pass for securing the knife to similar hubs or bosses, h', on the arms I' of the fly-wheel I. The faces of the hubs or bosses h' on the arms I', and also of those on the back pieces, H', if desired, are made cam-faced, or with a series of two, three, or more inclines, h², and interposed between them and the bosses h are washers h³, having correspondingly-shaped inclines h⁴ on their faces, so arranged that by loosening the bolts g, turning the washers, and again tightening the bolts, the knives may be set nearer to or farther from the fly-wheel arms, as may be required for insuring their proper action.

The knife-backs H' are countersunk to receive the heads of the bolts, as shown in Fig. 7, thereby preventing the latter from interfering with the proper action of the knives.

The stationary knife or blade is in cross-section of the form substantially as indicated in Fig. 8, and is provided at its ends with perforated lugs or ears j, which rest in suitable sockets formed for their reception in the standards D' and D², held in place therein by means of bolts k. The upper face of the cutter J is provided back of its cutting-edge with a rabbet at j', in which rests the rear edge of the guard or stripper plate L, which, like the cutter J, is provided at its ends with perforated ears l, which rest upon the ears j, and are secured to the standards D' and D² by the same bolts k which fasten the cutter J. The eyes or perforations in the ears j and l on the ends of the cutter J and stripper L are elongated transversely of said parts in such manner that by loosening the bolts k the cutter J may be adjusted outward toward the fly-wheel, and the cutters thereon and the stripper-plate L may be at the same time, if required, moved inward snugly against the smooth feed-roll F', for stripping or preventing the material being operated upon from winding on said roll, after which, by tightening the bolt k, both the cutter and stripper will be held against displacement.

The construction for securing the sprocket-wheels to their shafts is shown in Figs. 4 and 5, where the shaft B' is shown provided near the end to which the sprocket-wheel C' is secured with a fixed annular flange or collar, m, which may be a shoulder on the shaft, if preferred, and outside thereof with a fixed pin or spur, m', between which and the collar m there is room on the shaft for the hub c of the wheel C'. The hub is grooved or slotted at c' c' to adapt it to be passed over the pin and shaft, and is provided with "swells" or double inclines n n' on its outer side adjacent to the pin m' and between the grooves in such manner that when the wheel is passed over the pin and turned in either direction the inclines will ride up on the pins and crowd the wheel snugly against the collar, thereby insuring its rotation therewith. By reversing the direction of rotation of the wheel it can be readily released and removed and another of different diameter, similarly constructed, can be put in its place. The main driving and fly wheel shaft B may have its sprocket-wheel C made and applied in the same manner, and by changing the wheels from one shaft to the other, or putting on others of different diameters, the feed may be readily varied, as desired.

Parts of the machine not particularly described may be constructed in any usual or preferred manner.

Having now described my invention, I claim as new—

1. The fixed or stationary knife-bar, in com-

5 bination with the feed-roll guard or scraper, each provided with the slotted ears or ends, and the connecting-bolts for uniting said scraper and knife and permitting their independent adjustment, substantially as described.

2. The sprocket-wheel, through which motion is imparted to the feed-rolls, provided with the grooved and cam-faced hub, in combination with the fixed shoulder or collar, and

the pin on its shaft for securing it to said shaft, substantially as described.

In testimony whereof I have hereunto set my hand this 22d day of June, A. D. 1885.

JOSEPH DICK, JR.

Witnesses:

JOHN C. WELTY,
JAY M. COGAN.