

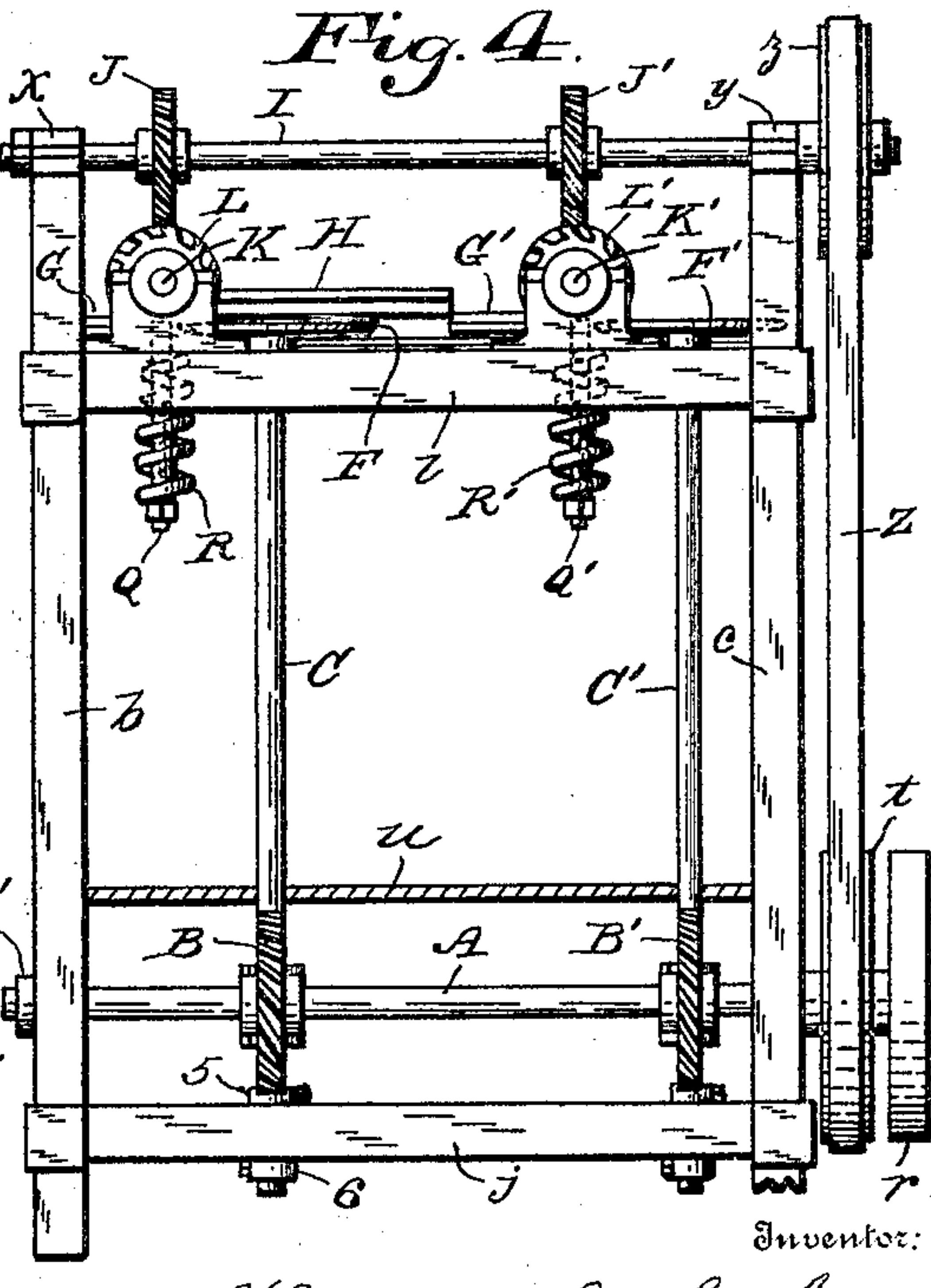
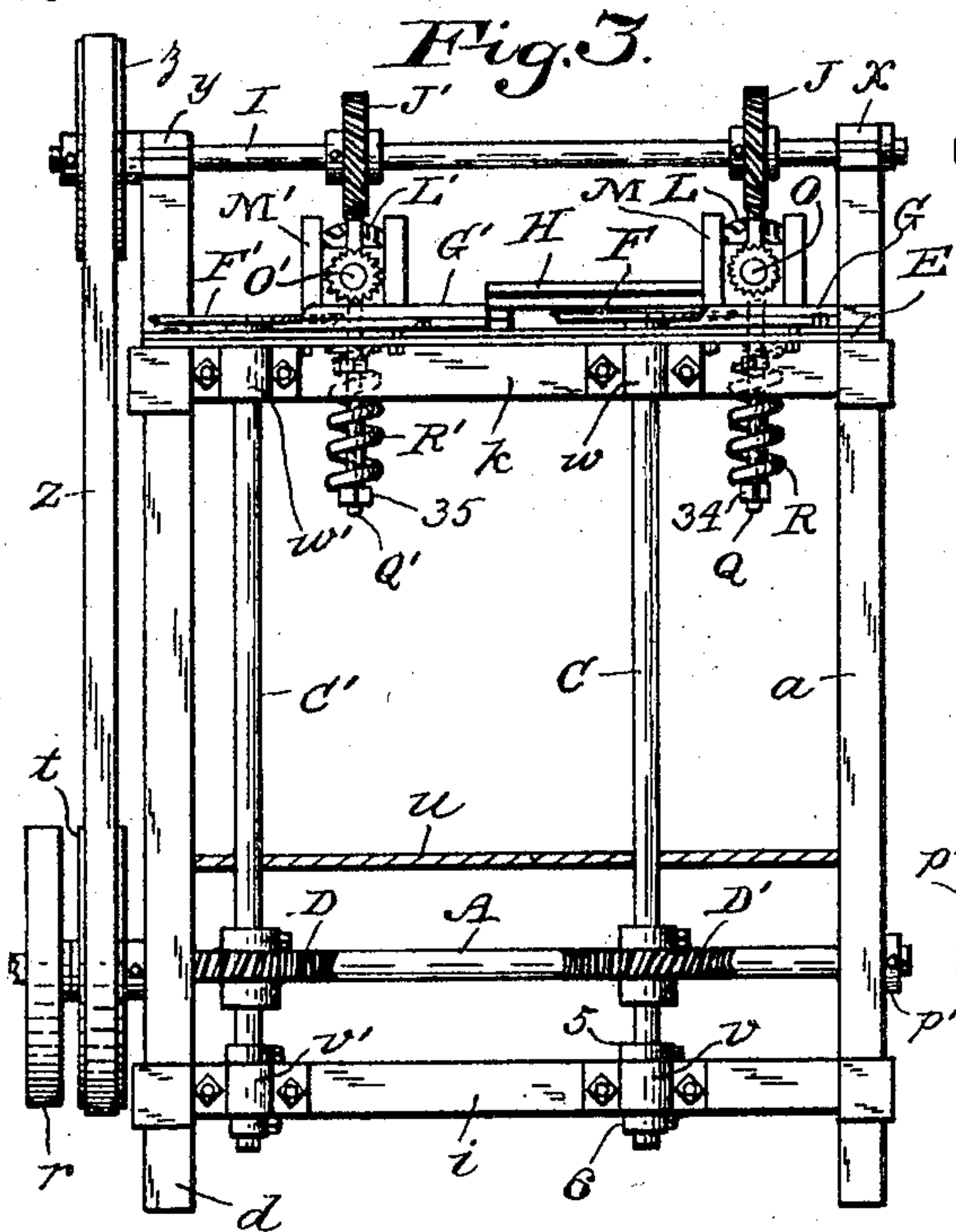
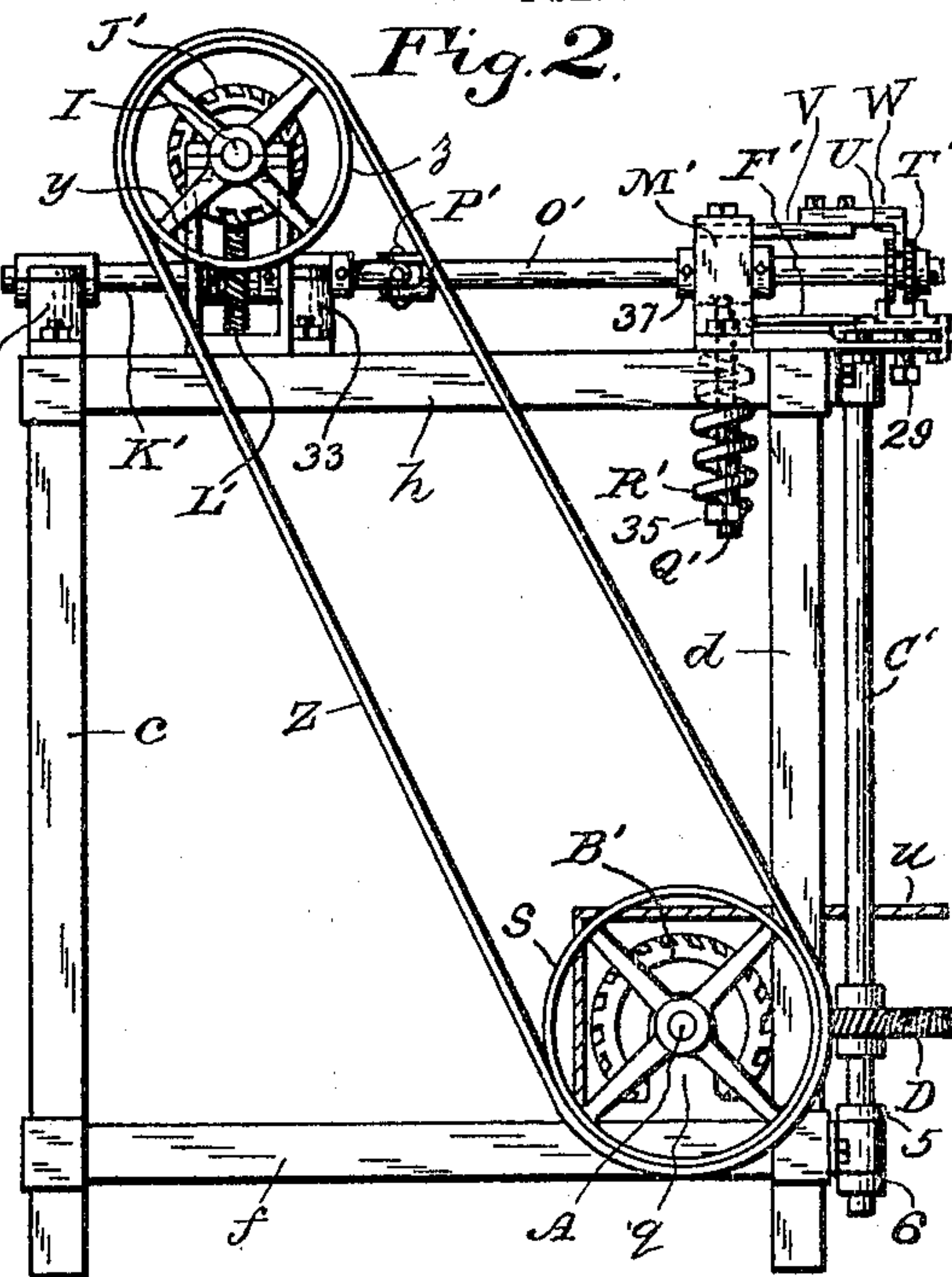
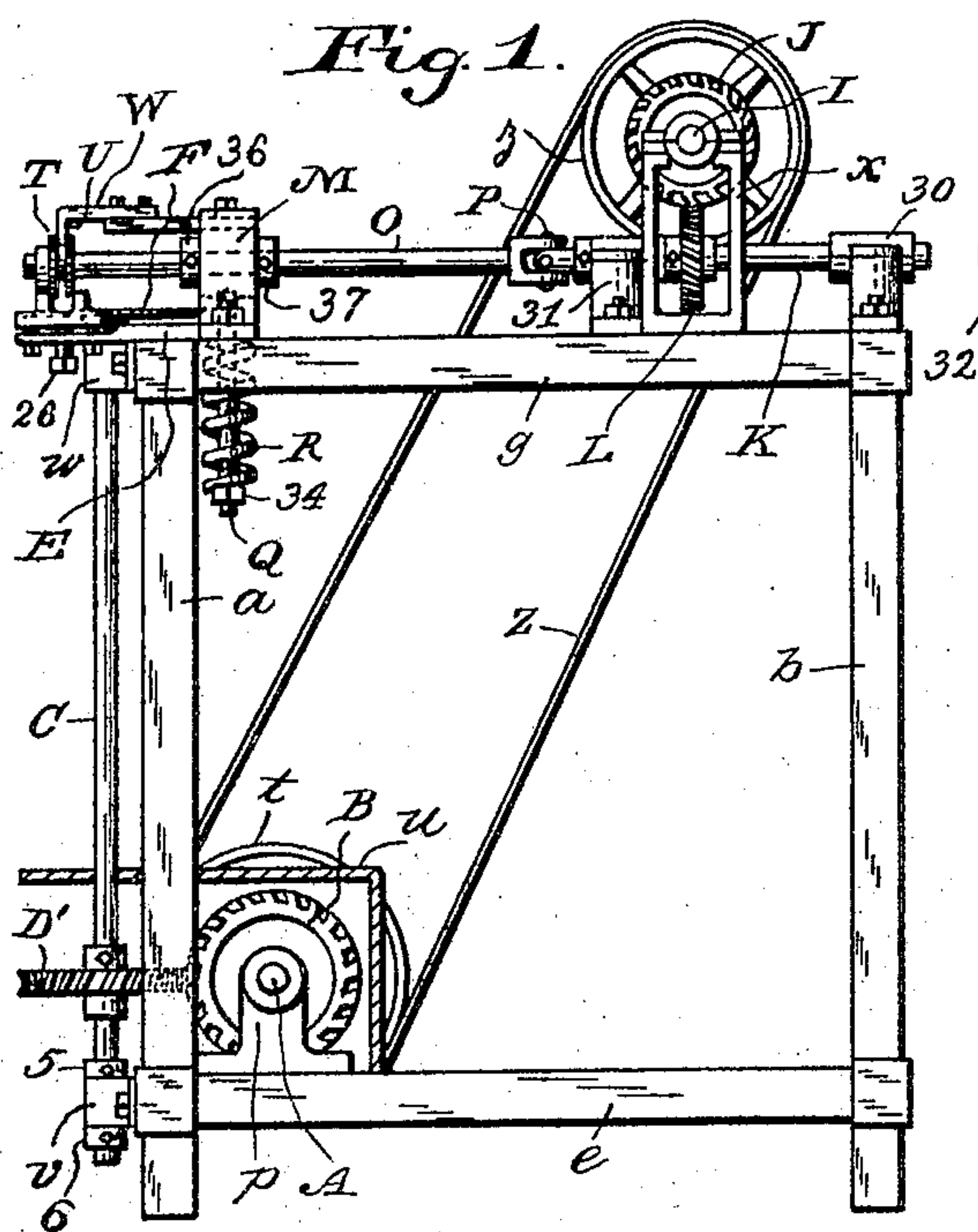
No. 798,465.

PATENTED AUG. 29, 1905.

H. L. STALEY.
 DUPLEX BARK SPLITTING MACHINE.

APPLICATION FILED NOV. 16, 1904.

2 SHEETS—SHEET 1.



Witnesses:

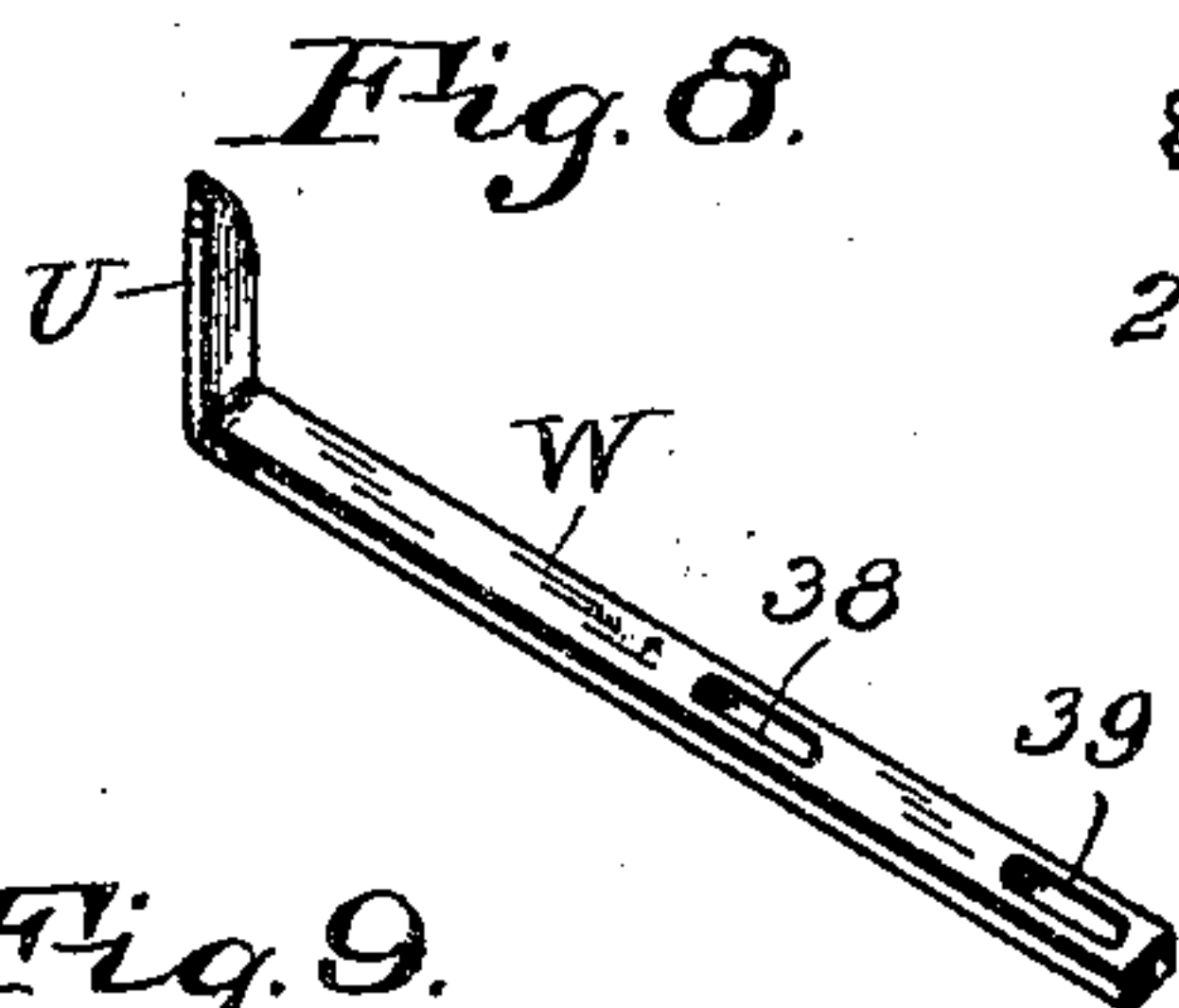
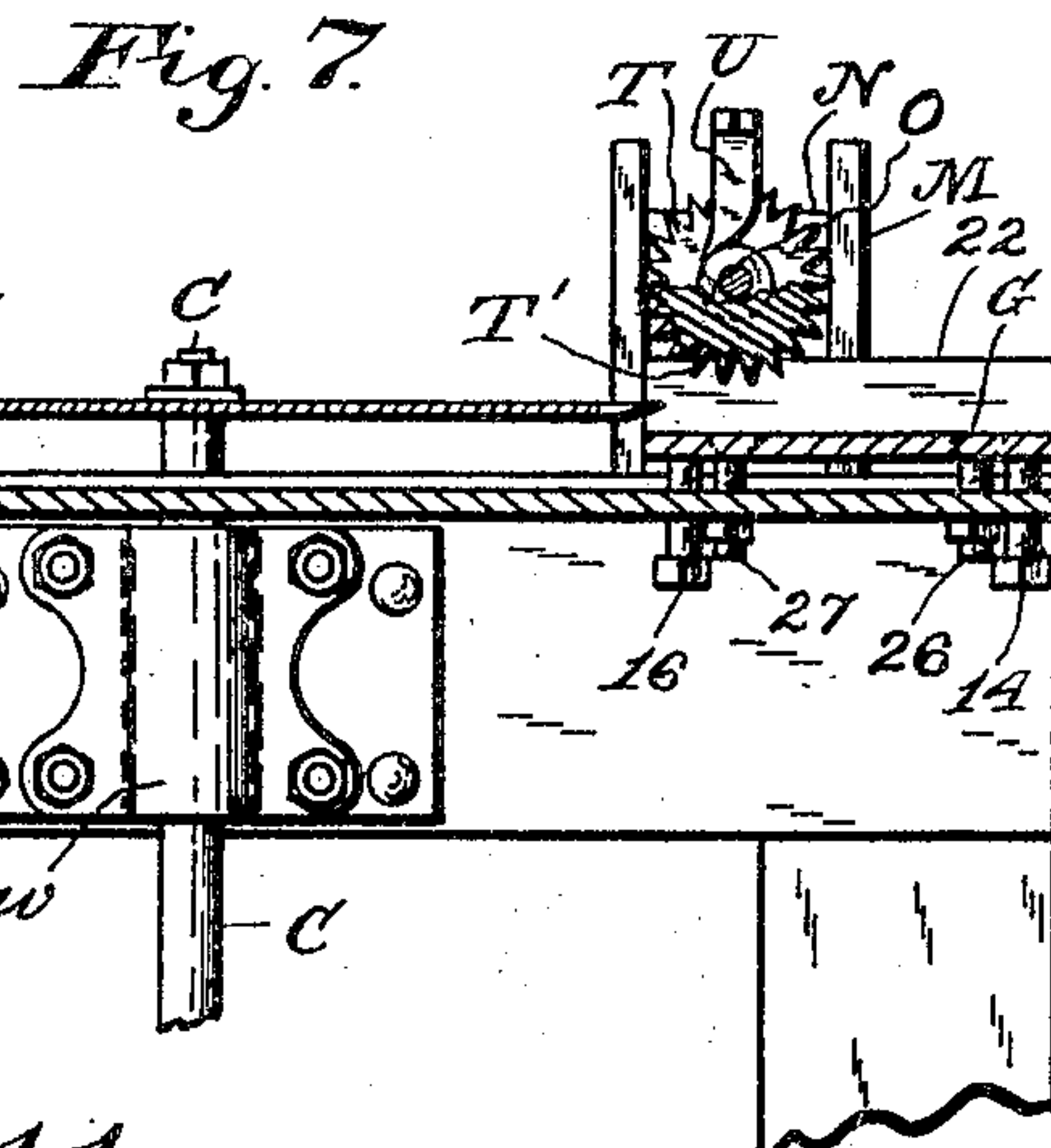
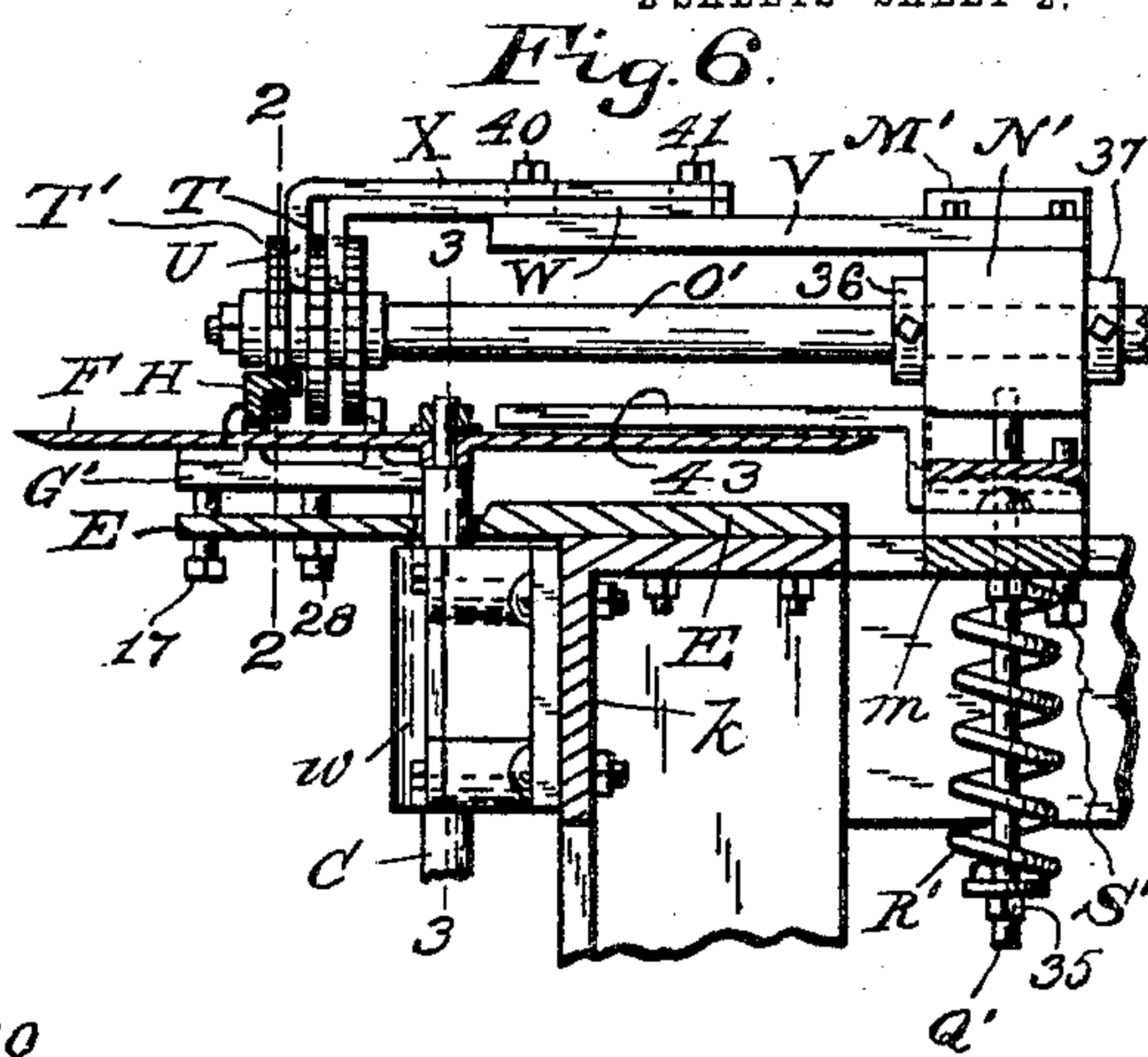
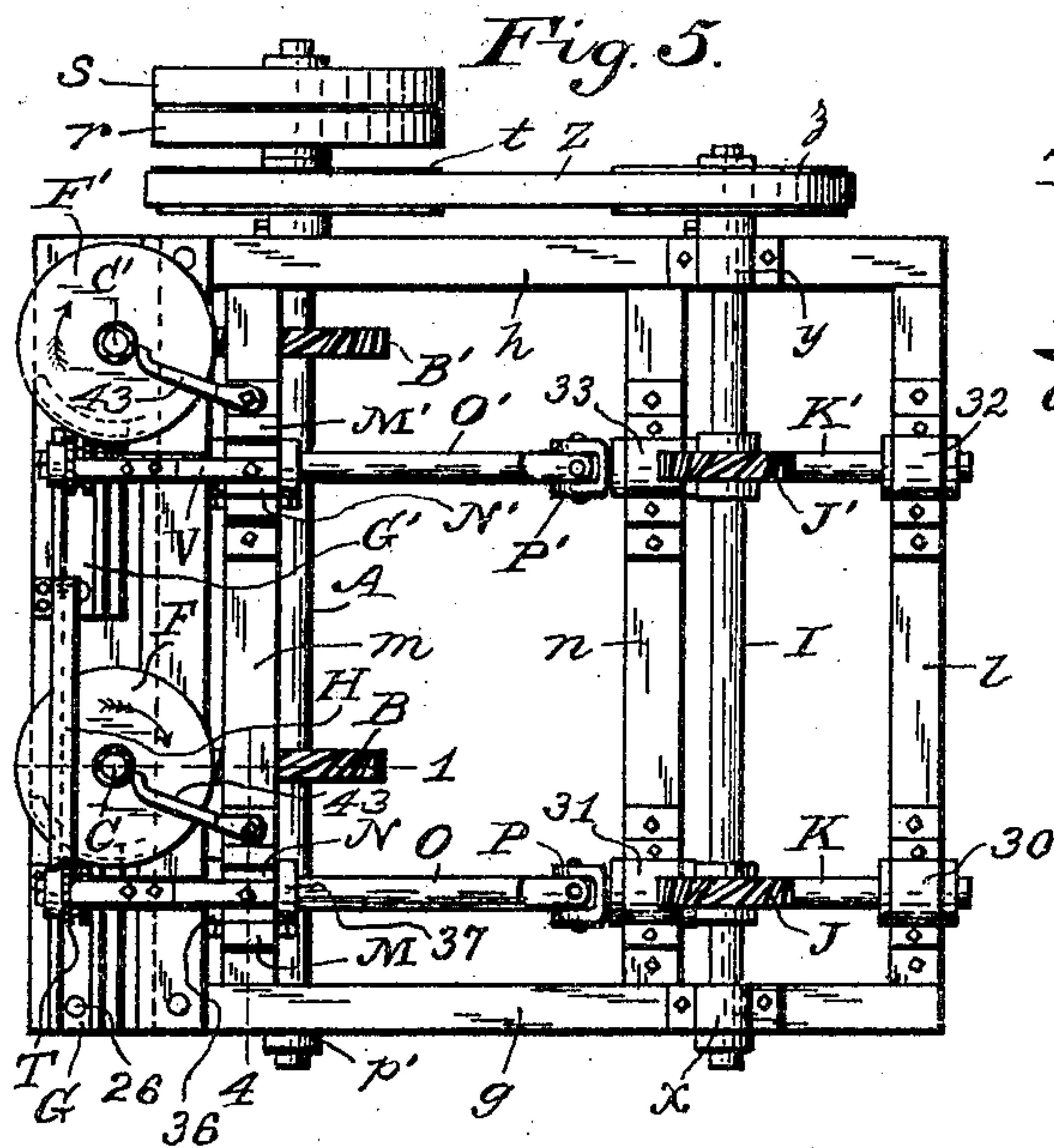
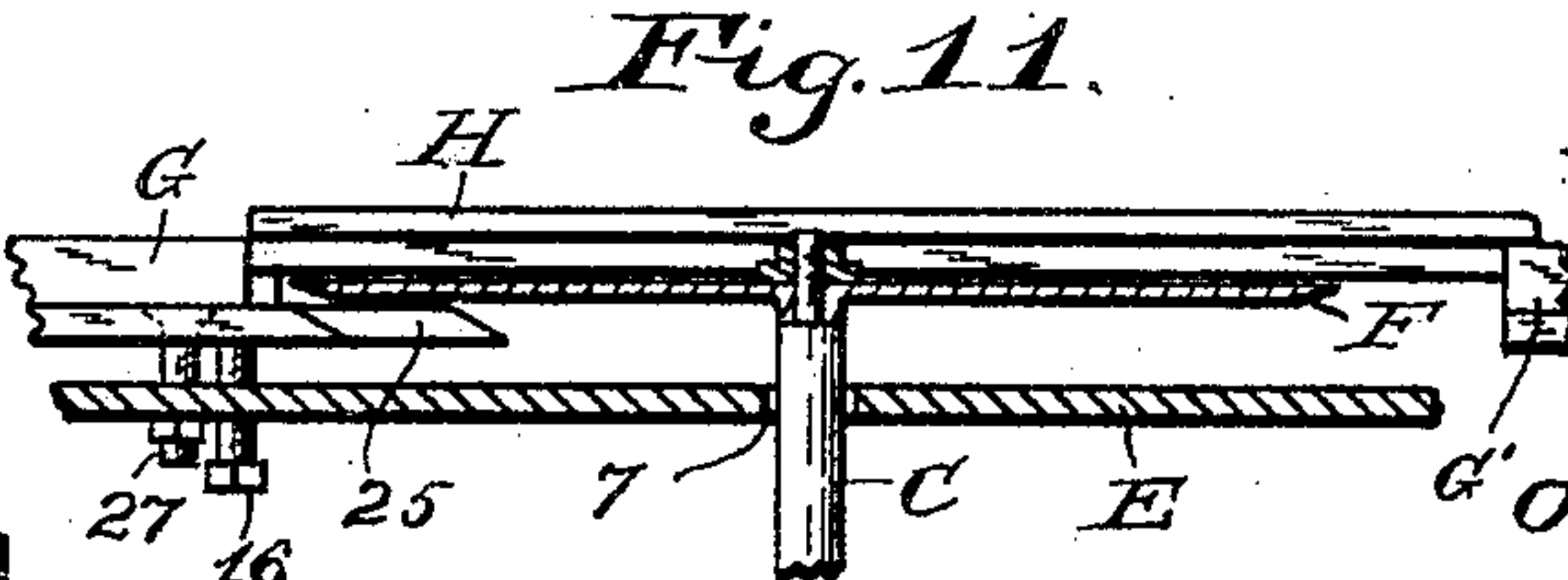
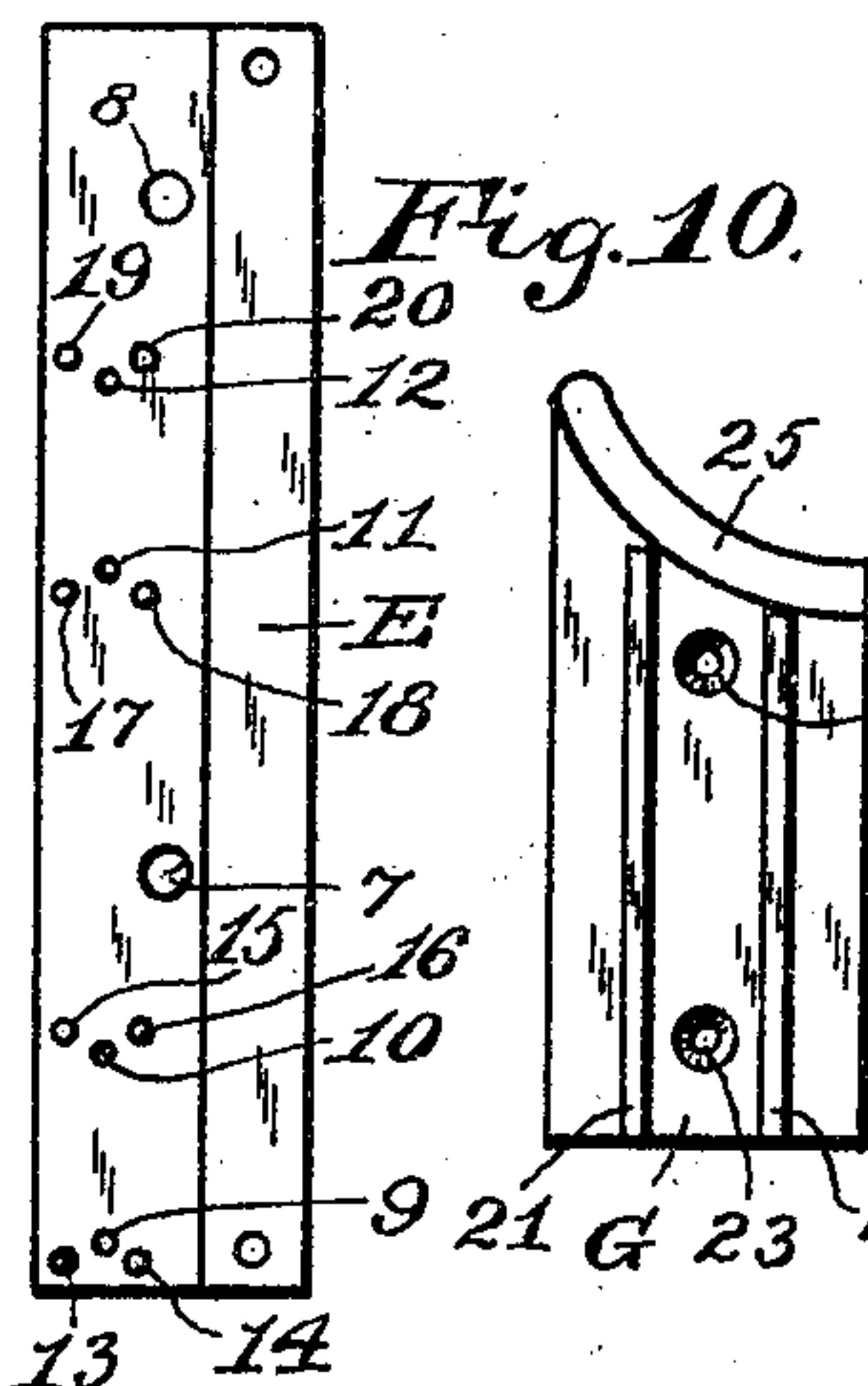
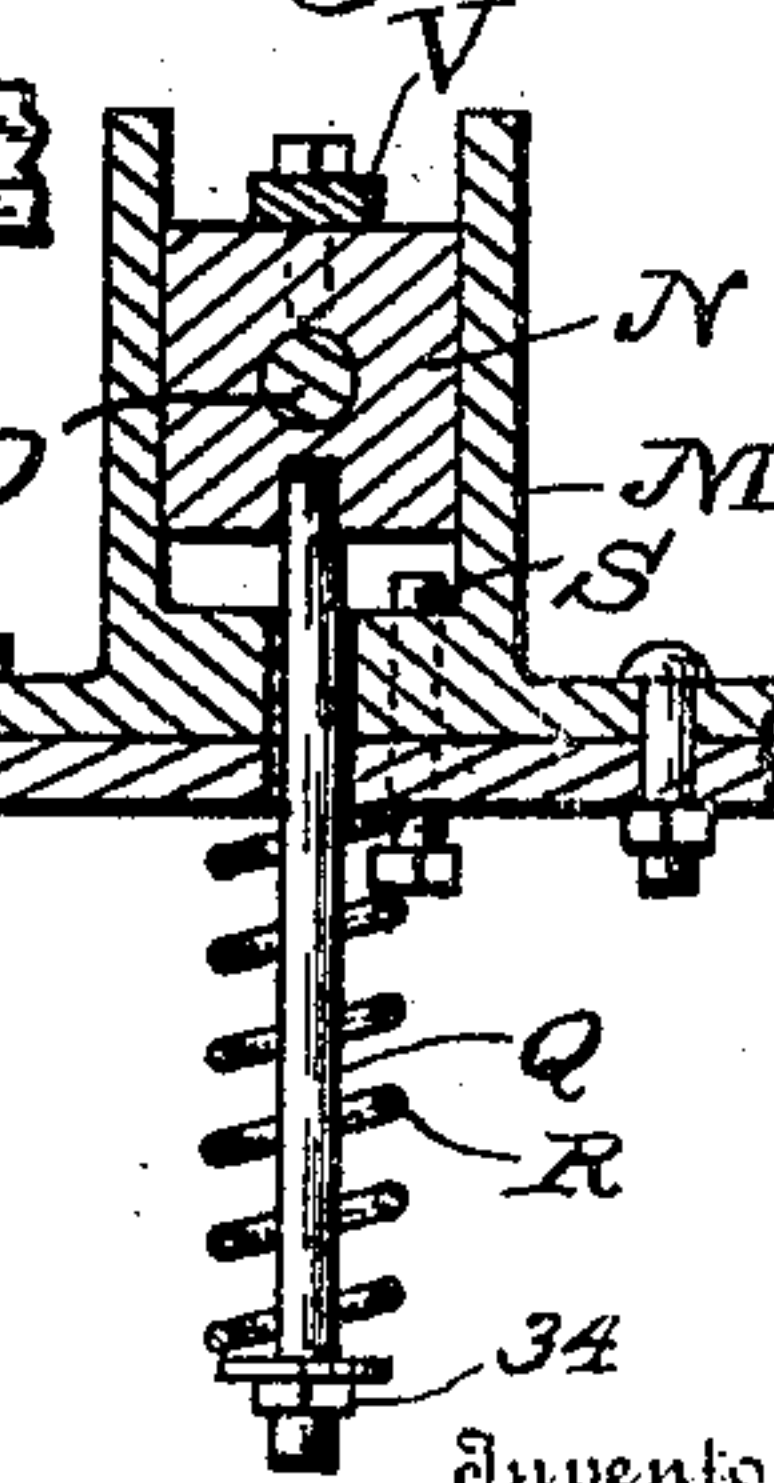
E. R. Marton.
 Stella Snider

Harrison L. Staley,
 by
 E. J. Silvius,
 Attorney.

H. L. STALEY.
 DUPLEX BARK SPLITTING MACHINE.

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2 SHEETS—SHEET 2.

*Fig. 9.**Fig. 12.*

Witnesses:

E. R. Martin.
 Stella Snider

Inventor:
 Harrison L. Staley,
 by
 E. J. Silvius,
 Attorney.

UNITED STATES PATENT OFFICE.

HARRISON L. STALEY, OF MARTINSVILLE, INDIANA, ASSIGNOR TO THE
OLD HICKORY CHAIR COMPANY, A CORPORATION OF INDIANA.

DUPLEX BARK-SPLITTING MACHINE.

No. 798,465.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed November 16, 1904. Serial No. 232,962.

To all whom it may concern:

Be it known that I, HARRISON L. STALEY, a citizen of the United States, residing at Martinsville, in the county of Morgan and State of Indiana, have invented new and useful Improvements in Duplex Bark-Splitting Machines; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to machines that are designed to split bark, so as to produce thin ribbon-like strips or splints from strips of bark of natural thickness that have been previously split into suitable widths, the thin strips being adapted to be used for making chair seats and backs; and the invention has reference to the general structure of the machine, and more particularly to the apparatus for feeding the bark to the plurality of splitting-knives, which have been found to operate best when arranged horizontally, so that the ribbon-like strips may be drawn or fed out flatwise from the machine.

The objects are to provide a machine capable of severing two or more strips from the bark successively to the best advantage and which machine may be built compactly and cheaply and also be economically operated and be durable in use and easily adjusted to the varying requirements.

With the above-mentioned and other objects in view the invention consists in the novel parts or elements and in the combinations and arrangements thereof, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a front end elevation of the machine; Fig. 2, a rear end elevation; Fig. 3, a front side elevation; Fig. 4, a rear side elevation; Fig. 5, a top plan of the machine; Fig. 6, a fragmentary sectional elevation at the plane of the line 1 in Fig. 5; Fig. 7, a fragmentary sectional elevation at the plane of the line 2 2 in Fig. 6; Fig. 8, a perspective view of one of the feed-roll cleaners; Fig. 9, a top plan of the work-table of the machine; Fig. 10, a top plan of one of the feed-guides; Fig. 11, a fragmentary vertical sectional view at the plane of the line 3 3 in Fig. 6; Fig. 12, a fragmentary vertical sectional view at the plane of the line 4 in Fig. 5, and Fig. 13 is a frag-

mentary vertical sectional view at the axis of a feed-roll, showing the details of the cleaners therefor.

Similar reference characters in the several figures of the drawings designate corresponding parts or features.

In construction an open-work frame is provided which comprises four corner-posts *a b c d*, lower rails *e f* and upper rails *g h* at the ends, lower rails *i j* and upper rails *k l* at the sides, a top plate *m* at the front, and a top plate *n* between the plate *m* and the rail *l*. Upon the rails *e* and *f* near the posts *a* and *d* are mounted journal-boxes *p* and *q*, supporting a rotative main shaft *A*, having a collar *p'* at one end thereof, and on the opposite end of the shaft is secured a drive-pulley *r*, a loose pulley *s* being also mounted on the shaft. Near the frame a pulley *t* is secured also to the shaft *A* for communicating motion to the feed-rolls. Two worms *B* and *B'* are secured to the shaft *A* between its bearings. A guard *u* is suitably supported on the frame, so as to cover the shaft *A* and the elements that are arranged in proximity thereto. At the front side of the frame a pair of journal-boxes *v* and *w* and a like pair of boxes *v'* and *w'* are secured thereto, one pair supporting a vertical rotative splitter-shaft *C* and the other pair supporting a similar shaft *C'*, each shaft being provided with a collar *5* at the top and a collar *6* at the bottom of the lower box, providing end bearings for the shaft. The shaft *C* is provided with a gear-wheel *D'*, meshing with the worm *B*, and the shaft *C'* is provided with a gear-wheel *D*, meshing with the worm *B'*, the gear-wheels being secured to the shafts and driving them.

A work-table *E* is secured to the top of the frame and extends outwardly beyond the front side thereof. In the table are apertures and 8, through which the splitter-shafts extend, and also in the table are four bolt-holes 9 10 11 12 to receive bolts for securing the feed-guides to the table. The table is provided with two sets of adjusting-screws for the feed-guides, there being four screws in each set, as 13 14 15 16 and 17 18 19 20, respectively, each set being so disposed that the four corners of the base of the guide may rest on the upper ends of the screws, the heads of the screws being below the table. A splitter *F*, comprising a sharp-edge disk, is secured to the upper end of the shaft *C*, and a like

splitter F' is secured to the shaft C' above the table.

The feed-guides G and G' are alike, one for each splitter, and each guide comprises a broad base oblong in plan having guide-bars 21 and 22 on its top extending lengthwise of the base and forming a channel, in the bottom of which are countersunk holes 23 and 24 to receive the securing-bolts therefor. The four corners of the base rest upon four adjusting-screws, as above described. The tail end of the guide-base has a curved bevel upper face 25 extending under the splitter to lead the bark strips gradually away from the guide to prevent their tendency to curl or become crimped. Securing-bolts 26 and 27 draw one feed-guide down upon the adjusting-screws therefor, and like bolts 28 and 29 secure the other guide upon its adjusting-screws, the bolts having countersunk heads in the holes 23 and 24, and before they are tightened the adjusting-screws are to be manipulated so as to properly set the guides with respect to the splitters. After setting the guides G and G' a guide H is secured thereto extending across the top of the splitter F in order to prevent the splitter F from pushing the stock strip out of range of the guide G'. The guide H may, however, be otherwise supported, and it has a top guard extending laterally to prevent the stock strips from curling upwardly when they become relatively thin.

A journal-box *x* is mounted upon the top of the rail *g*, and a like box *y* is mounted upon the rail *h*, the two boxes supporting a rotative shaft I somewhat above the frame, and two worms J and J' are secured to the shaft between its bearings. A drive-pulley *z* is also secured to the shaft I, the pulley being driven by a belt Z, connecting it with the pulley *t*, whereby the feed-rolls are driven by the main shaft.

Upon the rails *l* and *n* two pairs of journal-boxes 30 31 and 32 33 are mounted, one pair supporting a rotative shaft K and the other pair a similar shaft K', one shaft having a gear-wheel L secured thereto meshing with the worm J and the other shaft having a gear-wheel L' secured thereto meshing with the worm J'. The shafts K and K' are situated below the shaft I and extend transversely thereto, being practically parts of the feed-roll shafts, having vibrating ends to which the feed-rolls are attached, as will further appear.

Upon the frame plate or bar *m* two guides M and M' are secured, having each a vertical guideway, a solid journal-box N being slidably fitted into one guideway and a like box N' being arranged in the other guideway. A rotative shaft O extends through the box N and is journaled therein, and a shaft O' is journaled in the box N'. The shaft O is connected to the shaft K by means of a universal joint P, and thus becomes a vibrating exten-

sion thereof. Likewise a similar joint P' connects the shaft O' to the shaft K'. The box N is normally held downwardly yieldingly by means of a threaded rod Q, secured thereto, a spring R, seated against the plate *m*, and a nut 34 on the rod engaging the spring, the box normally resting on an adjustable stop-screw S, inserted through the bottom of the guide M. The box N' is similarly provided with a rod Q', a spring R', a nut 35, and a stop S' for the same purpose. The end of each shaft O and O' is provided with a feed-roll, as T, which works between the members 21 and 22 of a feed-guide, so that the stock strips may pass under the roll to the splitter. The boxes N and N' are each prevented from moving along their shafts by means of a pair collars 36 and 37 on each shaft that are secured to the shafts at opposite ends of the boxes, fitting closely thereto without binding against the guides M or M'.

Each feed-roll is grooved, so that the teeth thereof may more readily press into the bark, and as preferably constructed each roll is composed of a number of toothed disks, as T T' T'', separated slightly on the shaft by spacing-washers and all secured by a nut 42 or otherwise. This is a powerful feed-roll for the purpose; but ordinarily fragments of the outer bark-surface stick in and choke the grooves or the spaces between the disks, and in order to prevent the choking closely-fitting chisel-edge cleaners U are maintained between the disks or in the grooves, as the case may be. The cleaners are preferably each attached to a bar V, that is secured to the top of a box N or N' by means of an intervening shank W or X, attached to the cleaner, one shank being secured on the top of the other and both to the bar and adjustable independently with respect thereto by means of slots 38 and 39 in the shanks, through which screw-bolts 40 and 41 extend into the bar V. Thus side friction of the cleaners in the grooves of the roll is prevented.

In order to keep the splitters F and F' clear of debris, deflectors 43 are attached to the machine-frame and extend partially across the upper faces of the splitters.

In practical use the stock strips are to be placed, with the inner side of the bark under, in the guide G and pushed endwise under the feed-roll therein, and the roll will force the strip across the top of the splitter F, which will at the same time split off a thin splint that will pass under the splitter onto the table E and be taken care of by an attendant, the stock strip being guided by the guide H to the guide G', in which the strip will be automatically fed to the splitter F', which will sever a second thin splint from the stock strip, the latter being again run through the machine, as before. The feed-rolls will rise and fall on the uneven surface of the stock

strips and automatically adjust themselves to the varying thicknesses of the strips. The cleaners will effectively prevent the bark fragments from clogging the feed-rolls. The worm-gears provide the steady smooth motion so desirable in machines of this character. Each feed-guide should and may be adjusted independently to attain the best results, and this may be readily done by means of the adjusting-screws provided for the purpose.

Having thus described the invention, what is claimed as new is—

1. A bark-splitting machine including a frame, a main shaft mounted horizontally in the frame, a plurality of worms secured to the main shaft, a table mounted on the frame provided with a plurality of sets of adjusting-screws extending above the top thereof, a plurality of shafts mounted vertically on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, splitters secured to the vertical shafts, feed-guides resting upon the tops of the adjusting-screws and provided each with a securing-bolt engaging the table and holding the feed-guide upon a set of the adjusting-screws, a plurality of feed-roll shafts mounted horizontally on the frame, driving connections between the feed-roll shaft and the main shaft, and feed-rolls attached to the feed-roll shafts and cooperating with the feed-guides.

2. A bark-splitting machine including a frame, a main shaft mounted horizontally in the frame, a plurality of worms secured to the main shaft, a table mounted on the frame, a plurality of shafts mounted vertically on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, splitters secured to the vertical shafts, a plurality of feed-guides mounted upon the table, a plurality of feed-roll shafts comprising each a part journaled in a pair of fixed bearings and a vibratory part journaled in a movable bearing, universal joints connecting the parts of the feed-roll shafts together, driving connections between the feed-roll shafts and the main shaft, and feed-rolls attached to the feed-roll shafts and cooperating with the feed-guides.

3. A bark-splitting machine including a frame, a main shaft mounted horizontally in the frame, a table mounted on the frame, a plurality of worms secured to the main shaft, a plurality of shafts mounted vertically on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, splitters secured to the vertical shafts, a plurality of feed-guides mounted upon the table, a plurality of feed-roll shafts mounted horizontally on the frame and having each an end part journaled in a movable bearing, guides for the movable bearings, driving connections between the feed-roll shafts and the main shaft, grooved feed-rolls attached to the feed-roll

shafts, and cleaners arranged in the grooves of the feed-rolls and supported by the movable bearings.

4. A bark-splitting machine including a frame, a main shaft mounted in the frame and having a plurality of worms secured thereto, a table mounted on the frame, a plurality of feed-guides mounted adjustably upon the table, a plurality of shafts mounted vertically on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, a plurality of splitters secured to the vertical shafts, one to each shaft, a guide-bar extending across one of the plurality of splitters above the upper face thereof and cooperating with a plurality of feed-guides, a plurality of feed-roll shafts mounted horizontally on the frame, driving connections between the plurality of feed-roll shafts and the main shaft, and feed-rolls attached to the feed-roll shafts and cooperating with the feed-guides.

5. A bark-splitting machine comprising a frame, a main shaft mounted in the frame, a plurality of worms secured to the main shaft, a table mounted on the frame provided with a plurality of sets of adjusting-screws extending above the top thereof, a plurality of vertical shafts mounted on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, splitters secured to the vertical shafts, feed-guides resting upon the tops of the adjusting-screws and provided each with a pair of securing-bolts engaging the table and holding the guide upon a set of the adjusting-screws, a plurality of feed-roll shafts comprising each a part journaled in a pair of fixed bearings and a vibratory part journaled in a movable bearing, universal joints connecting the parts of the feed-roll shafts together, driving connections between the feed-roll shafts and the main shaft, grooved feed-rolls attached to the feed-roll shafts, and cleaners arranged in the grooves of the feed-rolls and vibrating with the vibrating parts of the feed-roll shafts.

6. A bark-splitting machine comprising a frame, a rotative main shaft mounted horizontally in the lower portion of the frame and having a plurality of worms secured thereto, a plurality of shafts mounted vertically on the frame and having gear-wheels secured thereto engaged by the worms and driven thereby, splitters secured to the vertical shafts, a table mounted on the frame, a plurality of feed-guides mounted adjustably upon the table, a plurality of feed-roll shafts comprising each a part journaled in a pair of fixed bearings and a vibratory part journaled in a movable bearing, universal joints connecting the parts of the feed-roll shafts together, gear-wheels secured to the feed-roll shafts, a counter-shaft mounted on the frame and having a plurality of worms secured thereto and engaging and driving the gear-wheels of the

feed-roll shafts, driving connections between the counter-shaft and the main shaft, grooved feed-rolls attached to the feed-roll shafts and coöperating with the feed-guides, and feed-
5 roll cleaners supported adjustably by the movable bearings of the feed-roll shafts and extending into the grooves of the feed-rolls.

7. In a bark-splitting machine, the combination with a frame, a journal-box guide
10 mounted on the frame, a table mounted on the frame, a rotative splitter operating above the table, a feed-guide mounted on the table, and a rotative vibrating shaft driven in harmony with the splitter, of a journal-box mounted on
15 the shaft and movable in the journal-box guide, collars secured to the shaft at opposite ends of the journal-box, a grooved feed-roll secured to the shaft and coöperating with the feed-guide, a support secured to the journal-
20 box, and a plurality of feed-roll cleaners co-

operating with the feed-rolls and having shanks adjustably secured to the support, substantially as set forth.

8. In a bark-splitting machine, the combination with a frame, a plurality of rotative
25 splitters, a plurality of feed-guides, and a plurality of feed-rolls coöperating with the feed-guides, of a guide-bar attached to a plurality of the feed-guides and extending across one of the splitters, and deflectors supported by
30 the frame and extending partially across the splitters and coöperating to keep the guide-bar clear of debris, substantially as set forth.

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

HARRISON L. STALEY.

Witnesses:

BLANCHE LYON KEENER,
W. R. McCracken.