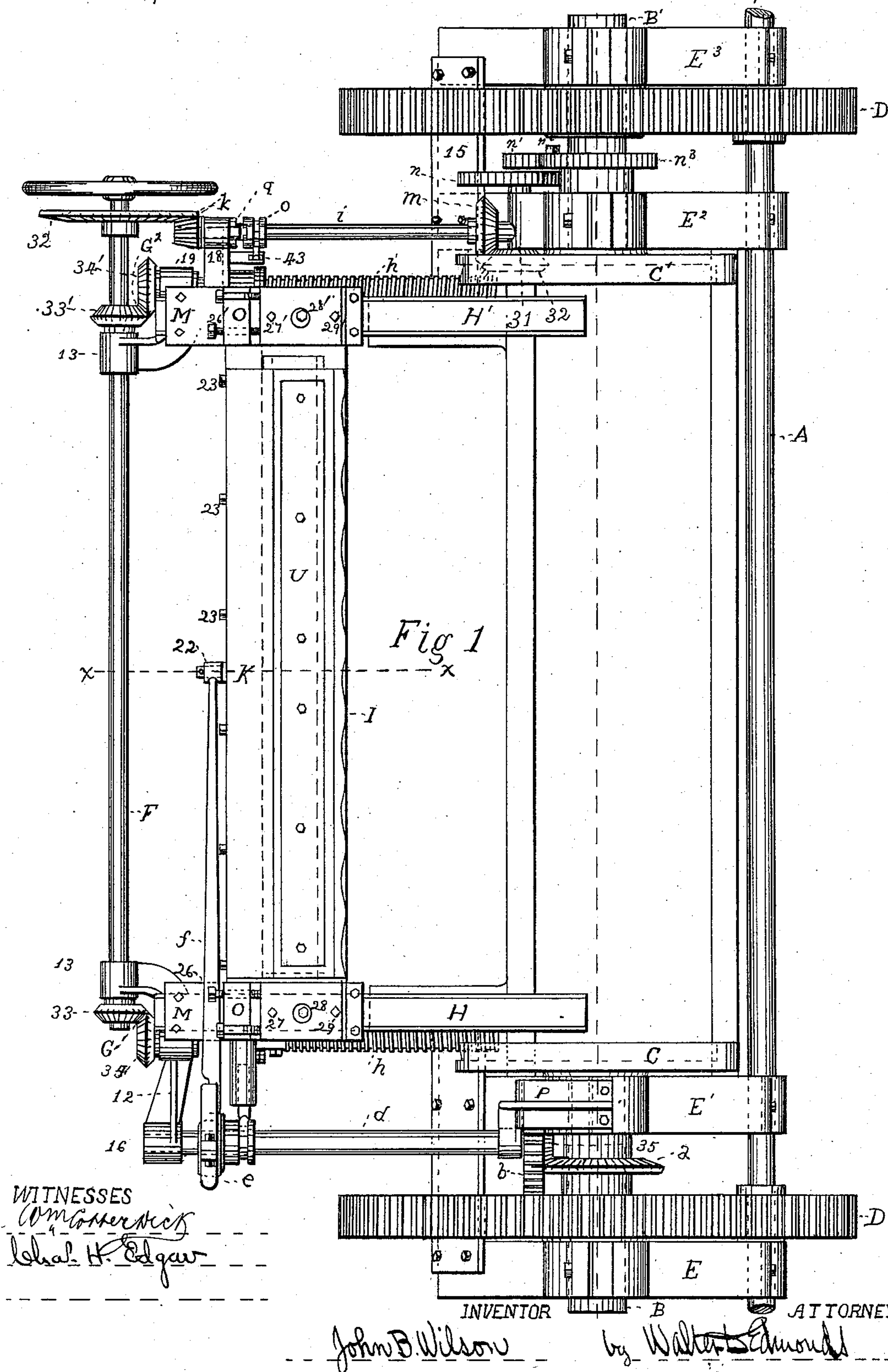


4 Sheets—Sheet 1.

No. 486,152.

Patented Nov. 15, 1892.



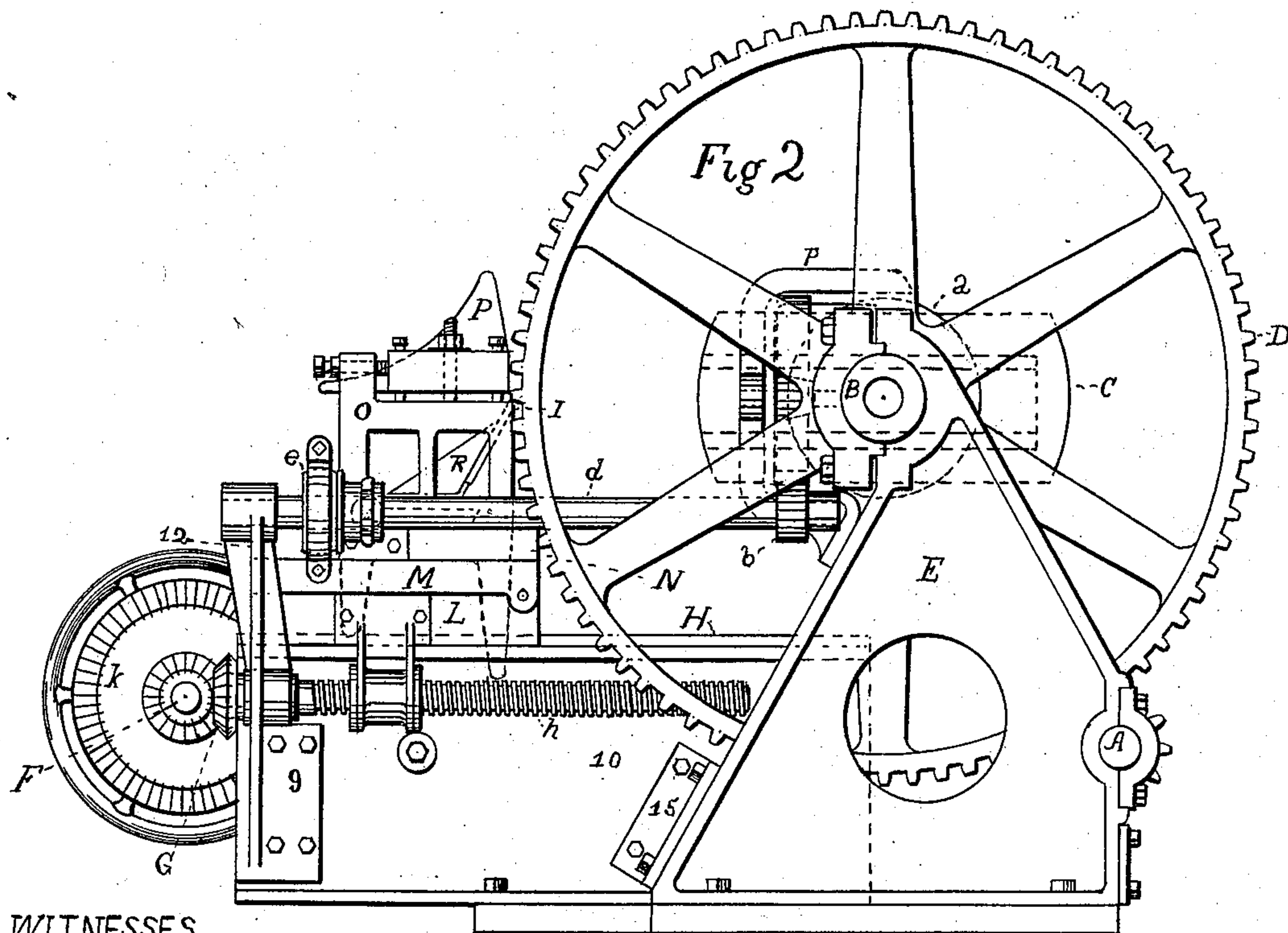
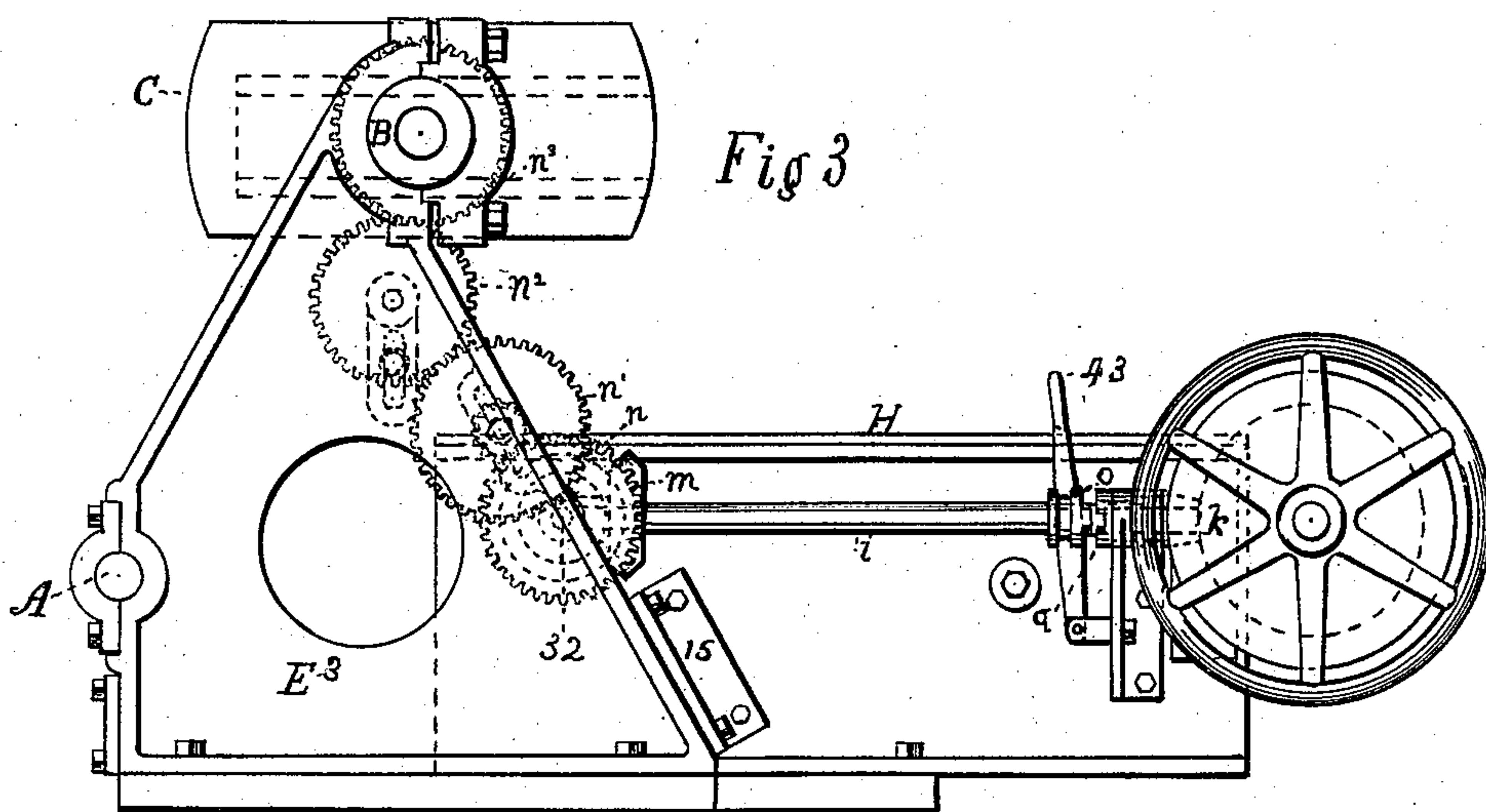
(No Model.)

4 Sheets—Sheet 2.

J. B. WILSON.
MACHINE FOR CUTTING VENEERS.

No. 486,152.

Patented Nov. 15, 1892.



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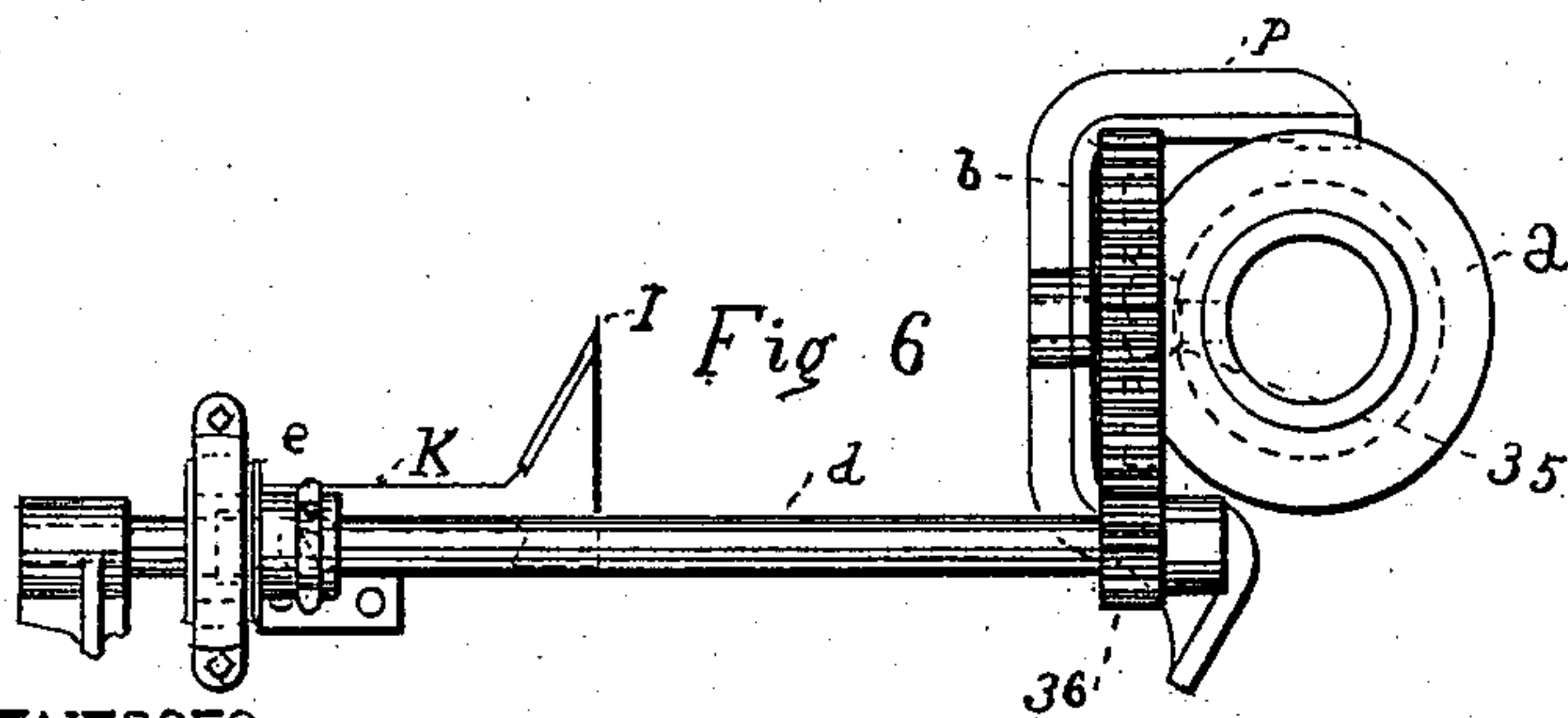
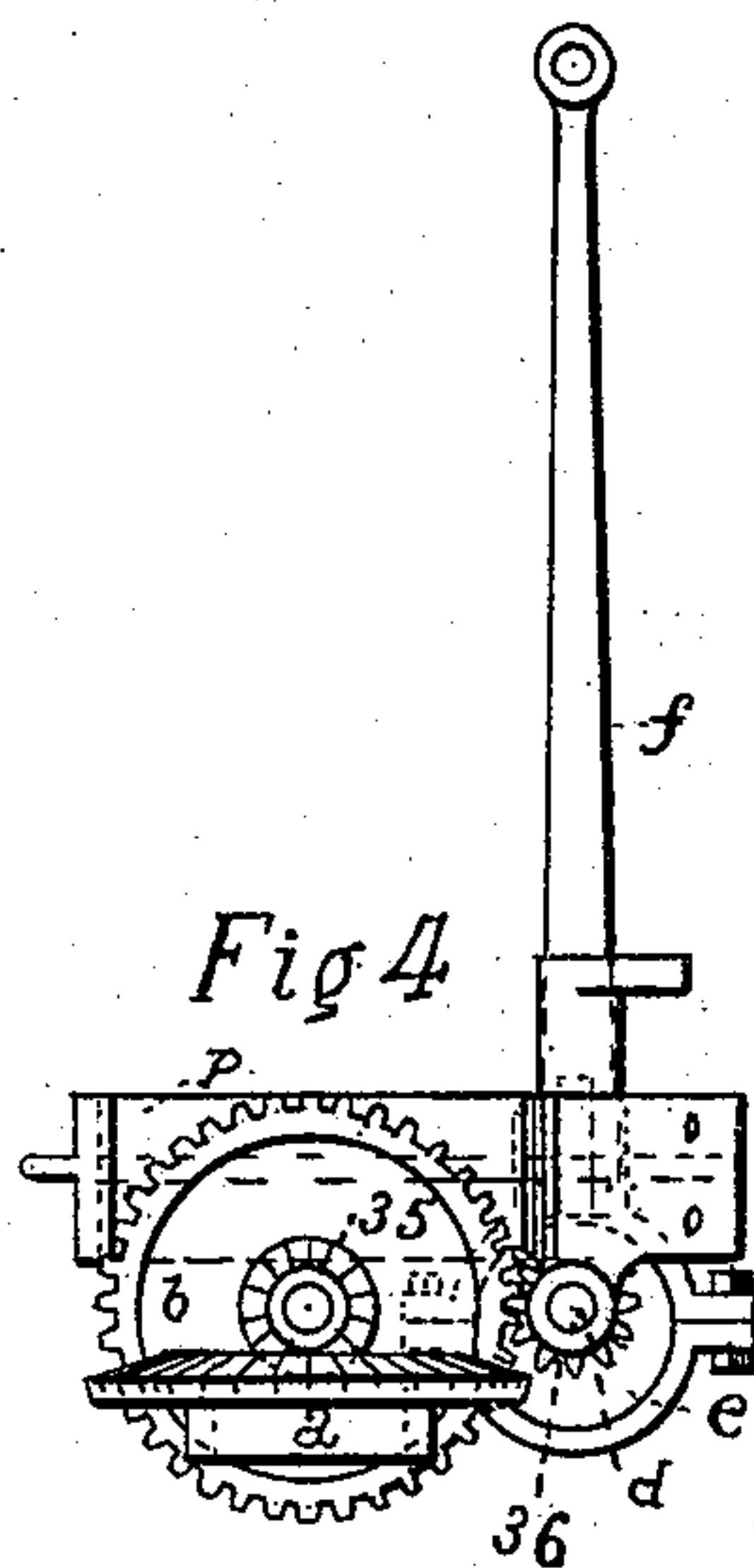
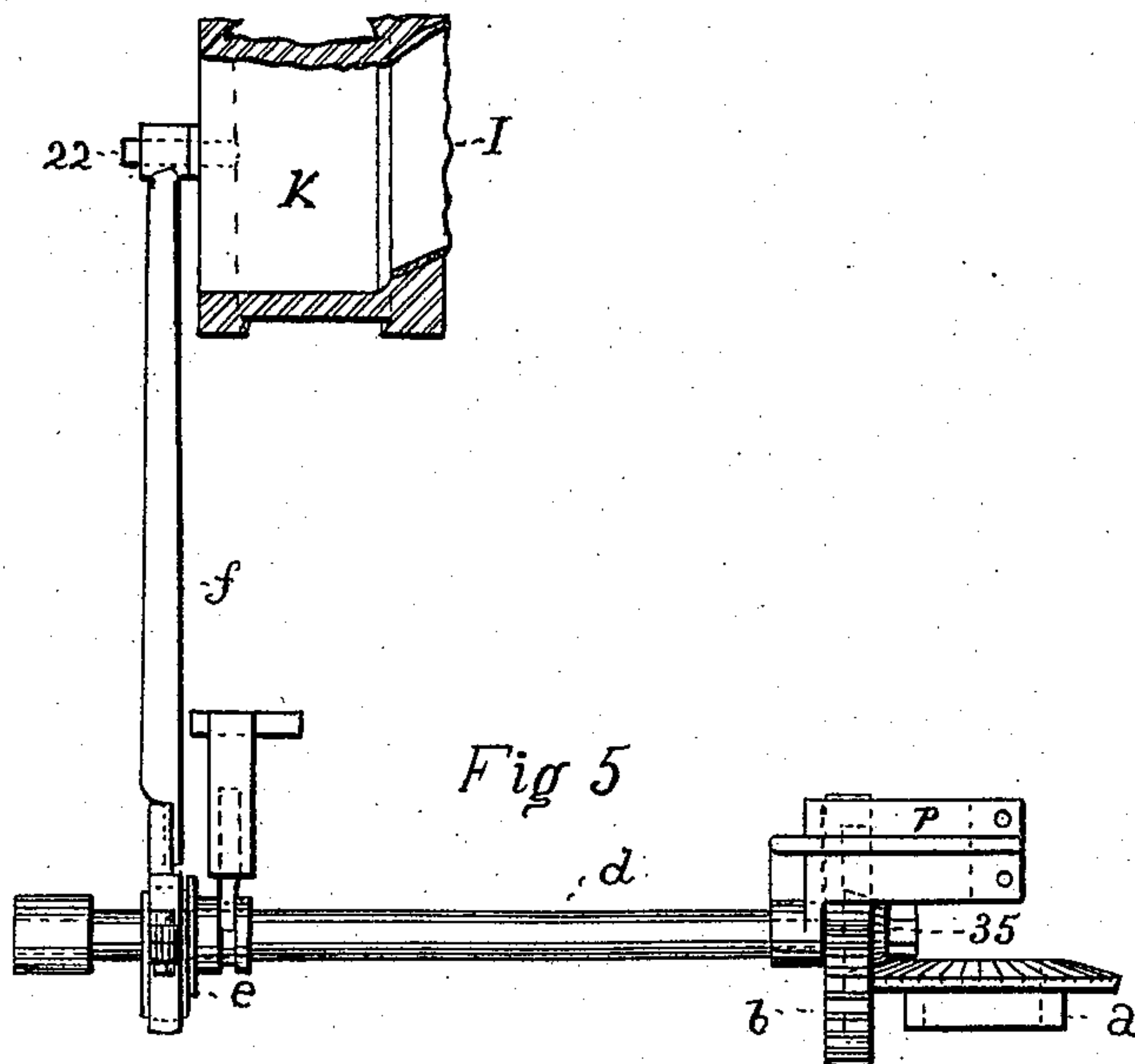
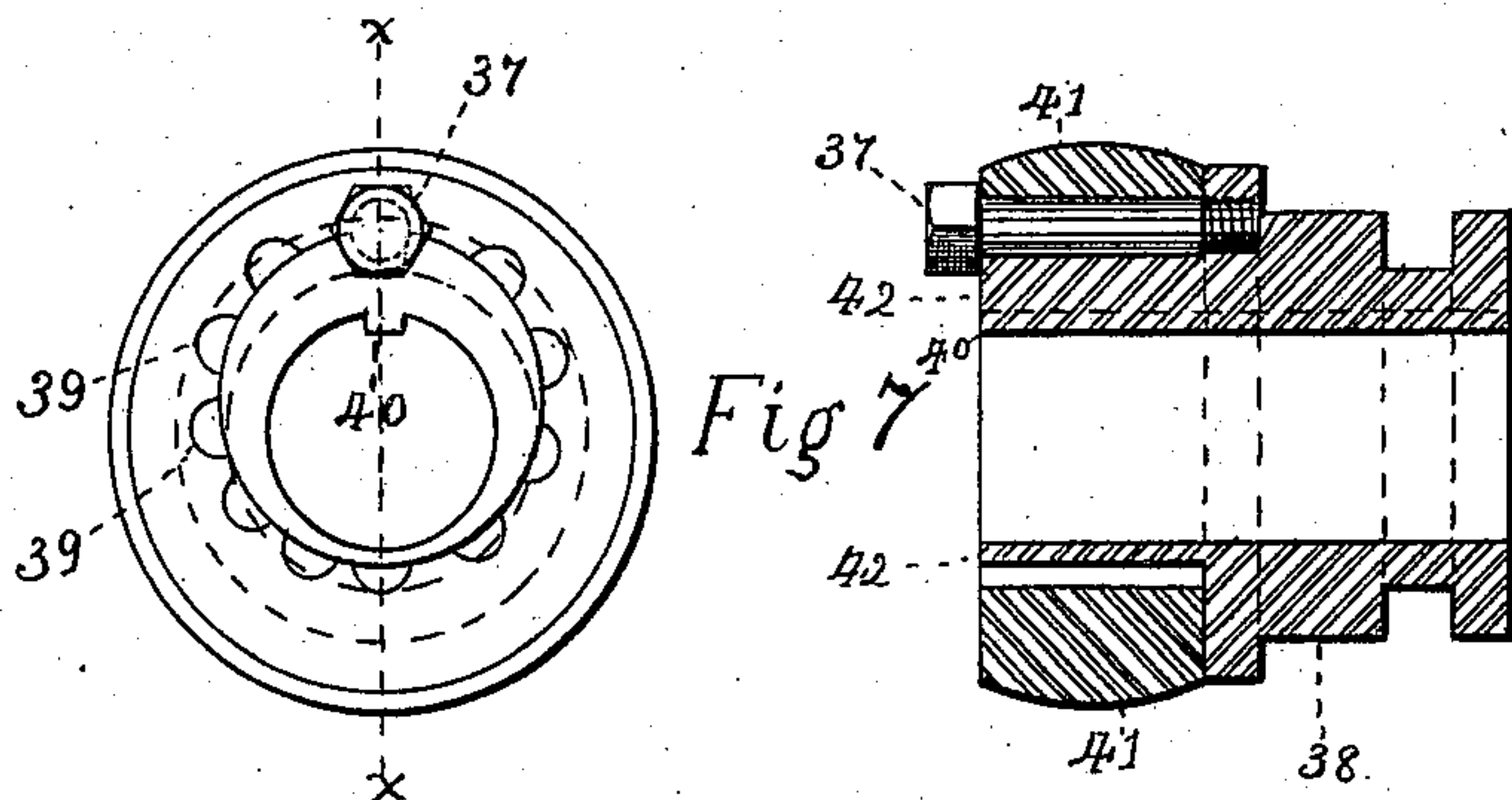
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No. 486,152.

Patented Nov. 15, 1892.



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(No Model.)

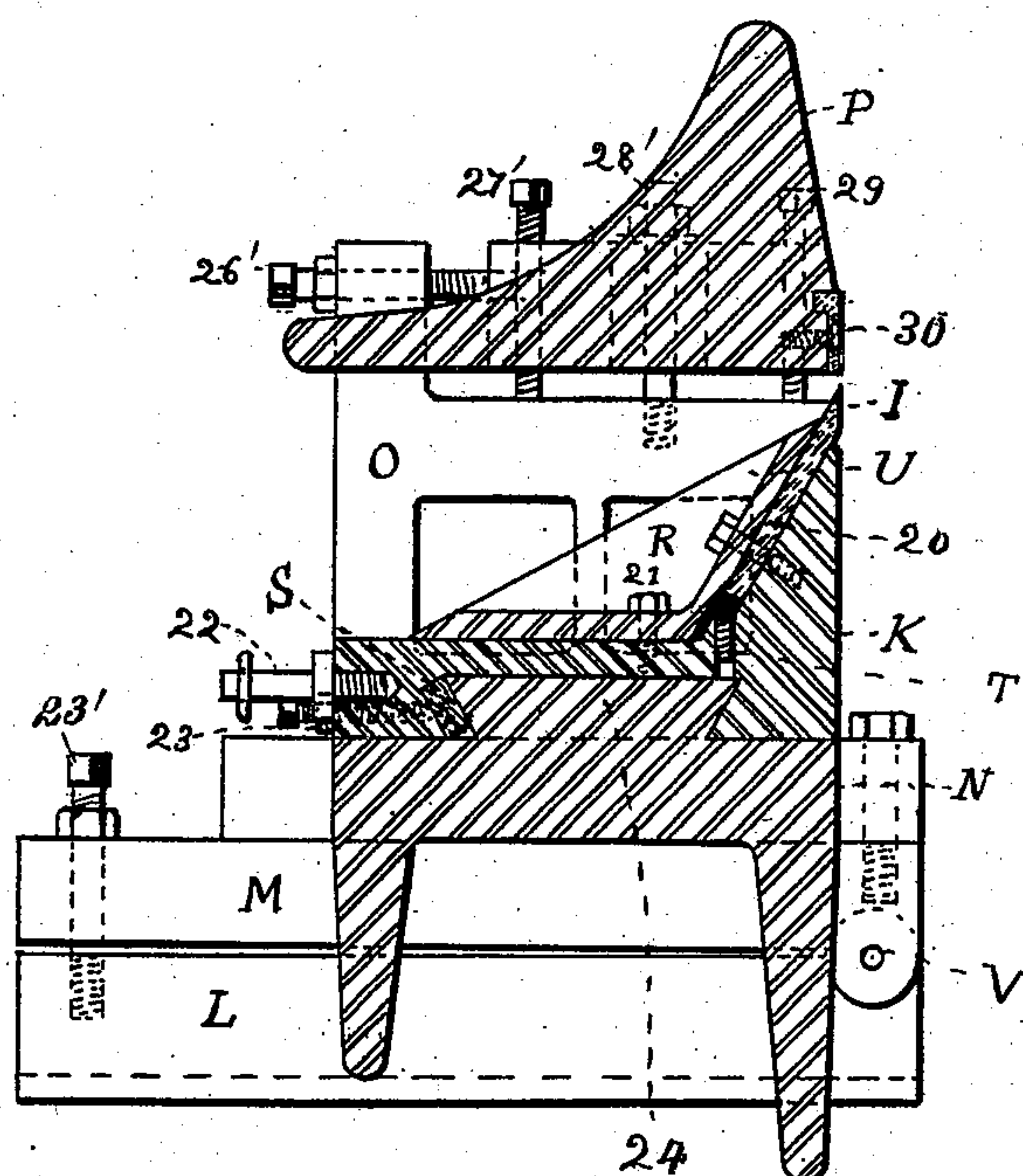
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Fig. 8.



● F

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UNITED STATES PATENT OFFICE.

JOHN B. WILSON, OF BROOKLYN, NEW YORK.

MACHINE FOR CUTTING VENEERS.

SPECIFICATION forming part of Letters Patent No. 486,152, dated November 15, 1892.

Application filed April 15, 1890. Serial No. 348,130. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. WILSON, of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and
5 useful Improvements in Machinery and Machines for Cutting Veneers, of which the following is a full, true, and exact description, reference being had to the accompanying drawings, which are hereby made a part of
10 the specification.

The object of my invention is to produce mechanism, as well as a completely-organized machine, whereby there may be given to a
15 veneer-cutting knife a reciprocating motion, whereby the cutting capacity of the edge of said knife is increased, so as to cut more readily than heretofore under adverse conditions—as where, for instance, the knife-edge
20 is corrugated and a reciprocating motion imparted thereto to enrich the grain of the veneer, or, again, in a case where, for instance, the knife, though straight-edged, is used in cutting unusually-hard and figured logs.

The object of my invention is, further, to
25 secure greater uniformity of thickness than heretofore in veneers by increasing the precision, steadiness, and regularity of motion with which the log, cap or guide piece, and
30 knife are operated with relation to each other. I attain these objects by the various mechanical elements and by the machine illustrated in the drawings, in which—

Figure 1 represents a plan or top view of my said machine, the knife-cap P of Fig. 8
35 being removed and not shown; Fig. 2, an end view thereof; Fig. 3, an end view of a portion of said machine, showing the arrangement of feed-gearing. Fig. 4 is a detail view showing inner side of connecting-rod and eccentric
40 and shaft and gears connecting same with spindles. Fig. 5 is a top view of the parts illustrated in Fig. 4, showing the operation of the knife and knife-carriage. Fig. 6 is an end view of the same parts, as shown in Figs.
45 4 and 5, taken from the same end of the machine as is illustrated in Fig. 2. Fig. 7 is a detail showing the method of regulating the throw of the eccentric and stroke of the connecting-rod and also of the knife. Fig. 8 is a
50 cross-section of the knife-cap, knife, knife-carriage, and other parts, taken at the dotted line x, shown in Fig. 1.

Similar letters and numerals refer to similar parts.

The framework of the machine is erected
55 upon and, if desired, secured to the floor or any other suitable support. Said framework may be adapted in any well-known way to afford the requisite support and bearing for the various parts of the machinery.
60

That particular form of supporting framework which I have illustrated in the drawings consists, substantially, of four main stands E E' E² E³, suitably braced and fitted, so as to
65 be rigid, also vertical supports 10 for the ways H H', and various brackets and bearings for shafts, such as 9 11 12 13 16 17 18 19, the construction and operation of all of which will be readily understood. Turning in bearings provided in these main stands is the main shaft
70 A, provided with pinions, which mesh with the gears of the main gear-wheels D D, which latter are rigidly mounted upon spindles revolving in suitable bearings supported by said
75 main stands E E' E² E³, and to each of the inner ends of these spindles is secured a chuck C C', of the usual construction, and these
chucks carry the stay-log in the usual well-known manner.

The stay-log of a veneer-cutting machine is
80 so well understood that I have not illustrated it. To this stay-log is bolted in the usual way the log from which the veneers are to be cut and which is caused to revolve with the stay-log by the revolution of the chucks.
85

I is the knife, which may have a corrugated edge, as shown in Fig. 1. The knife is bolted to the knife-carrier K, which may be constructed of cast-iron.

T is one of a series of screws by the raising
90 or lowering of which the exact position of the knife may be regulated.

U is the knife-binder, through which pass the bolts 20 and 21, the former securing the knife and the latter assisting in securing the
95 knife-binder to the knife-carrier. The knife-binder may also be made of cast-iron.

R is one of a series of stiffening-ribs forming parts of knife-binder.

22 is the bolt upon which the connecting-
100 rod f is pivoted at one of its extremities.

S is a key or gib extending, preferably, the entire length of the knife-carrier and which is held and adjusted into position by the set-

screws 23. The knife-carrier K, with all its attached parts, is caused to reciprocate by means of the connecting-rod *f*, as hereinafter described.

5 K slides backward and forward upon a beveled track 24, which is fixed to or a part of knife-bed N.

As will be readily seen, the peculiar shape of this track assists in preserving in exactly
10 the required position the cutting-edge of the knife I, and a close fit between the knife-carrier K and this track is constantly secured by advancing the gib S by means of the screws, so as to fill up any space caused by
15 wear.

The knife-carriage N is fixed upon an adjusting-frame M, hinged to the slides L by hinge V, whereby adjustment in position of the knife-edge may be still further secured
20 by action of screw 23', as will be readily understood from the drawings. (See Fig. 8.) The slides L travel upon the fixed ways H H', so as to approach the knife toward the log during the process of cutting and to enable the
25 same to be withdrawn when desired with all its connected parts.

O O' are blocks or brackets upon which is mounted the knife-cap P. (See Fig. 8.) This cap may be made of cast-iron. It is held in
30 position and variably adjusted by means of the adjusting-screws 26 26', 27 27', 29 29' and by screw-bolts 28 28', provided with nuts, as shown in Fig. 8. As will be readily seen, by means of these bolts and screws the angle and
35 distance of the knife-cap relative to the remaining parts of the machine may be varied and adjusted, the screw-bolt 28 passing through a slot, as indicated by the dotted lines in Fig. 8.

40 30, Fig. 8, shows the guiding-lip of the cap, which is preferably made of steel and screwed firmly to the cap. It remains to describe the mechanisms whereby the reciprocating as well as forward motion is conveyed to the
45 knife.

The forward movement of the knife is secured by the feed apparatus as follows: To the spindles B' is fixed the gear-wheel n^3 , which meshes with another gear-wheel n^2 ,
50 and the latter in turn with another n' . The shaft of n' is provided with a pinion, which meshes with gear-wheel n , which is on one extremity of shaft 31, at the opposite extremity of which is beveled gear 32, engaging with
55 corresponding beveled gear m , fixed near one extremity of cross-shaft i , at the opposite extremity of which is beveled pinion k , which meshes with beveled gear 32 on main feed-shaft F. Fixed to F are beveled pinions 33
60 33', which mesh with corresponding beveled pinions 34 34', which latter are fixed to feed-screws $h h'$. These feed-screws are threaded through knife-bed N and by their rotation in either direction, as will be readily understood, cause same, with its attached parts, to
65 advance either backward or forward along the ways H H'.

The reciprocating motion of the knife is secured as follows: To the spindle B is fixed beveled gear a , meshing with pinion 35, (see
70 Figs. 4 and 5,) the latter being fixed to shaft carrying gear-wheel b , which meshes with pinion 36 on shaft d , which carries eccentric e , to which is strapped in the usual way connect-
75 ing-rod f , the opposite extremity of which is sleeved upon pin-bolt 22. It is desirable to be able to vary the throw of the eccentric, so as to increase or diminish at will the reciprocation of the knife, according to the nature
80 of the wood or the kind of figure desired. This is readily accomplished by the device a detail of which is shown in Fig. 7, which contains a front view of said device and a sectional view, taken at line $x x$, of said front
85 view. To the eccentric-shaft d is keyed by feather 40, engaging with slot in the shaft in the usual well-known way, a sleeve 38. One end of this sleeve 42 42 is in shape eccentric and is grooved to fit the set-screw 37. Over
90 this eccentric portion of the sleeve is fitted in turn a second sleeve 41, also of eccentric shape and provided along its inner side with a series of grooves to receive set-screw 37, any
95 one of which said grooves, in combination with the aforesaid groove in 42, constitutes a close-fitting passage for the insertion of the set-screw 37. It will be apparent that by revolving the exterior sleeve 41 the amount of
100 "throw" or extent of eccentric will be proportionately varied, and when the degree of eccentricity desired has been attained the two sleeves are secured together by inserting and
securing home the set-screw 37.

43 is a lever connected with sleeve o and whereby the latter is moved upon shaft i , so as
105 to lock or unlock with sleeved pinion k , whereby the feed-shaft and its connected parts may be connected or disconnected relatively to the feed-gear, sleeve o being keyed to shaft i .

From the foregoing description of the various parts of my machine its method of operation will, I believe, be readily understood
110 by any person skilled in the art to which it relates.

It is obvious that the log or portion of wood
115 to be cut into veneers having been bolted to a common stay-log firmly held by chucks C C' in the usual well-known way and power having been applied to the main shaft A the log or wood to be cut will be revolved, and the
120 knife-edge I and cap P having been properly adjusted relatively to each other and to the log—that is, so that the guiding-lip of the cap shall be brought into close contact with the log slightly in advance of the knife—a veneer
125 will be cut in consequence of the pressure of the wood against the knife-edge caused by said revolution, assisted by the simultaneous reciprocation of the knife-edge, whereby the same is caused to cut with a drawing motion,
130 and the various parts of the machine having been properly adjusted the relative position of cap and knife-blade to the edge of the log will be maintained automatically by the op-

eration of the feed-gear mechanism described. The rapidity of the feed, and consequently the thickness of the veneer, may be regulated in the usual well-known way by the arrangement of the feed-gears $n' n^2$.

n^2 is removable, and a gear having any desired number of teeth may be substituted therefor, and n' is arranged so as to be placed in various positions in order to mesh with the substituted gear, and this principle of substitution, whereby the rapidity of the movement of the feed-screws is controlled, may be indefinitely extended throughout this chain of gear wheels and pinions.

In order to attain the best results with my machine in cases where a corrugated knife-edge is made use of, the relation between the revolutions of the spindles B B' and of the eccentric-shaft d should be such that the revolutions of the latter within a given time shall approximate as nearly as may be to a multiple of the revolutions of said spindles. With this limitation the relations of these revolutions to each other may be infinitely varied, the gearing being, of course, regulated accordingly.

Among the features of my invention which are particularly novel and useful I may enumerate the following, viz: the imparting to the knife-edge of a drawing motion in directions transverse or substantially transverse to its simultaneous forward movement through the wood, whereby the cutting power of the edge is greatly increased and a smoother and more perfect cut effected in all cases, and in the case of a corrugated edge a beautiful enrichment or variation of the grain of the veneer. Again, another novel and extremely-beneficial feature of my invention is that veneer-cutting may be thereby effected by the use of a non-reciprocating knife-cap P or guiding-lip 30, in combination with a reciprocating knife-edge moving thereunder. The cap or lip thus serves not only to add steadiness to the log as it moves past it in the direction of its revolution, but also helps to hold the surface portions of the log in fixed position as against the reciprocating movement of the knife. The log having been steamed or otherwise treated, as is customary, to soften its substance is elastic, and under the drag of a reciprocating knife, particularly a corrugated one, tends near its surface to move more than is desirable in the direction of the reciprocation, which tendency is largely overcome by the pressure and friction of the non-reciprocating cap. Indeed, it would be difficult to obtain entirely satisfactory results with a corrugated reciprocating knife were it not for this novel function which I have discovered in a non-reciprocating cap or guiding-lip when combined with an oscillating knife. Again, my arrangement of the rod f , which

connects the eccentric with the knife-carriage, is novel and exceedingly useful in that said rod is so extended and placed that the point at which its motion is transferred to said knife-carriage is at or about the center of the rear of the latter, whereby I find that less power is required to reciprocate the knife-carriage and the power is applied with the least possible machinery and in the most uniform and steady manner, all of which is particularly desirable in a machine designed for the purposes described. Again, the dovetailed or beveled shape of the sides of the groove in the knife-carriage K and the corresponding shape of the track in the knife-bed N upon which the grooved carriage reciprocates are particularly advantageous in that the parts are thereby enabled to slide back and forth relatively to each other with the greatest freedom, while at the same time a close and exact union between them in a transverse direction is constantly maintained, whereby the edge of the knife is held, as is indispensable to good work, in a fixed and proper relation to the log in spite of the strains and leverage thereon caused by cutting into the log as the latter rotates against it, and, finally, the arrangement of longitudinal gib S, with its complement of adjusting-screws 23, is of great advantage in preserving a close and exact fit between the beveled edges of the two parts last referred to.

What I claim as new, and desire to secure by Letters Patent, is the following, viz:

1. In a veneer-cutting machine, a corrugated lengthwise-reciprocating knife, substantially as and for the purpose described.

2. In a veneer-cutting machine, the combination of a non-reciprocating guiding-lip with a lengthwise-reciprocating knife, substantially as and for the purpose described.

3. In a veneer-cutting machine, the combination of a non-reciprocating guiding-lip 30 with a corrugated reciprocating knife I, substantially as and for the purpose described.

4. In a veneer-cutting machine, the combination of reciprocating knife-carriage K, non-reciprocating knife-cap P, having guide-lip 30, connecting-rod f , eccentric e , eccentric-shaft d , gearing connecting latter with main shaft, and feed-screws, shafts, and gearing, substantially as and for the purpose described.

5. In a veneer-cutting machine, in combination with reciprocating knife-carriage and eccentric, a reciprocating arm or rod f , connecting said eccentric and carriage and attached to latter about its middle, substantially as and for the purpose described.

JOHN B. WILSON.

Witnesses:

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