

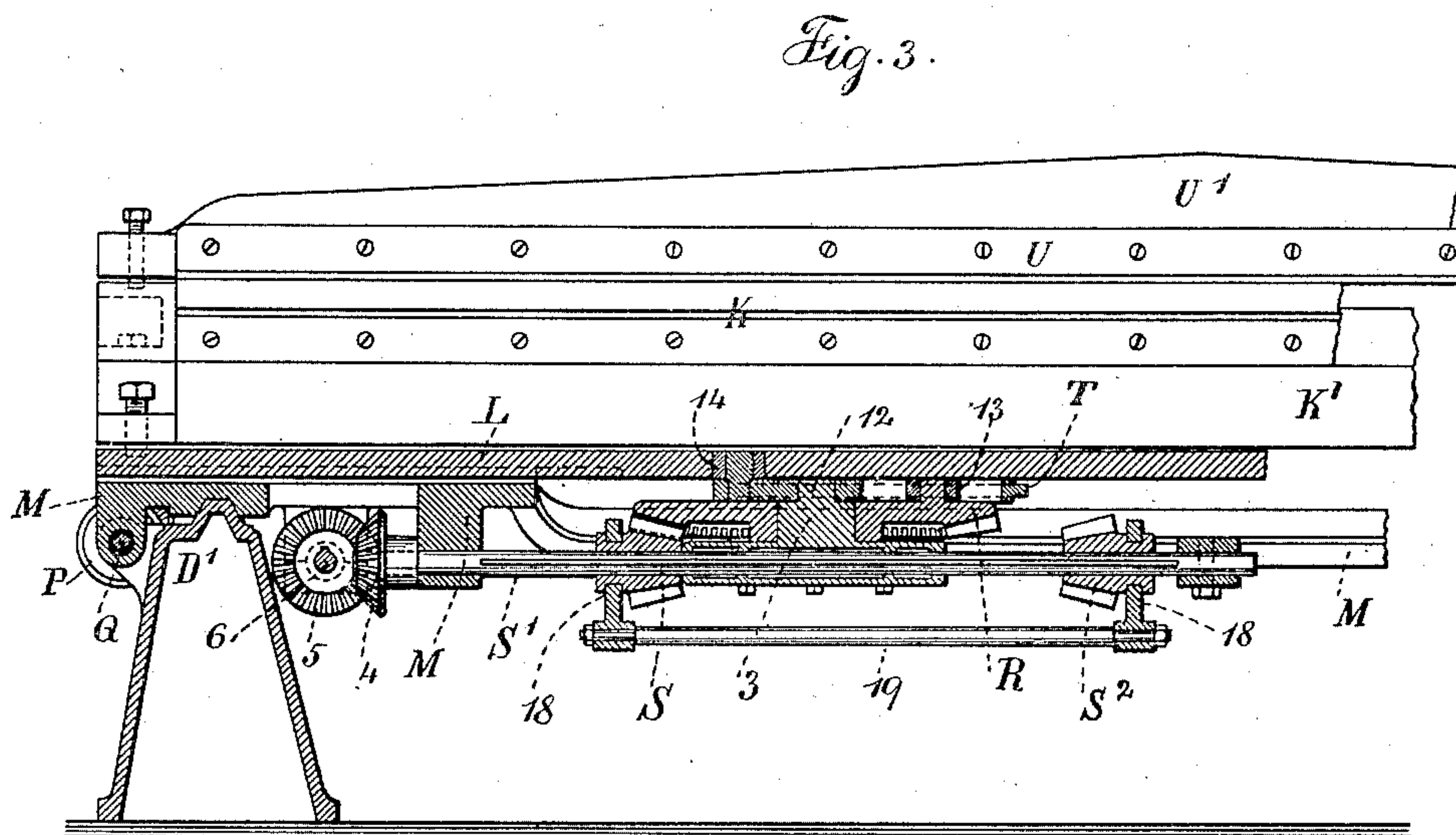
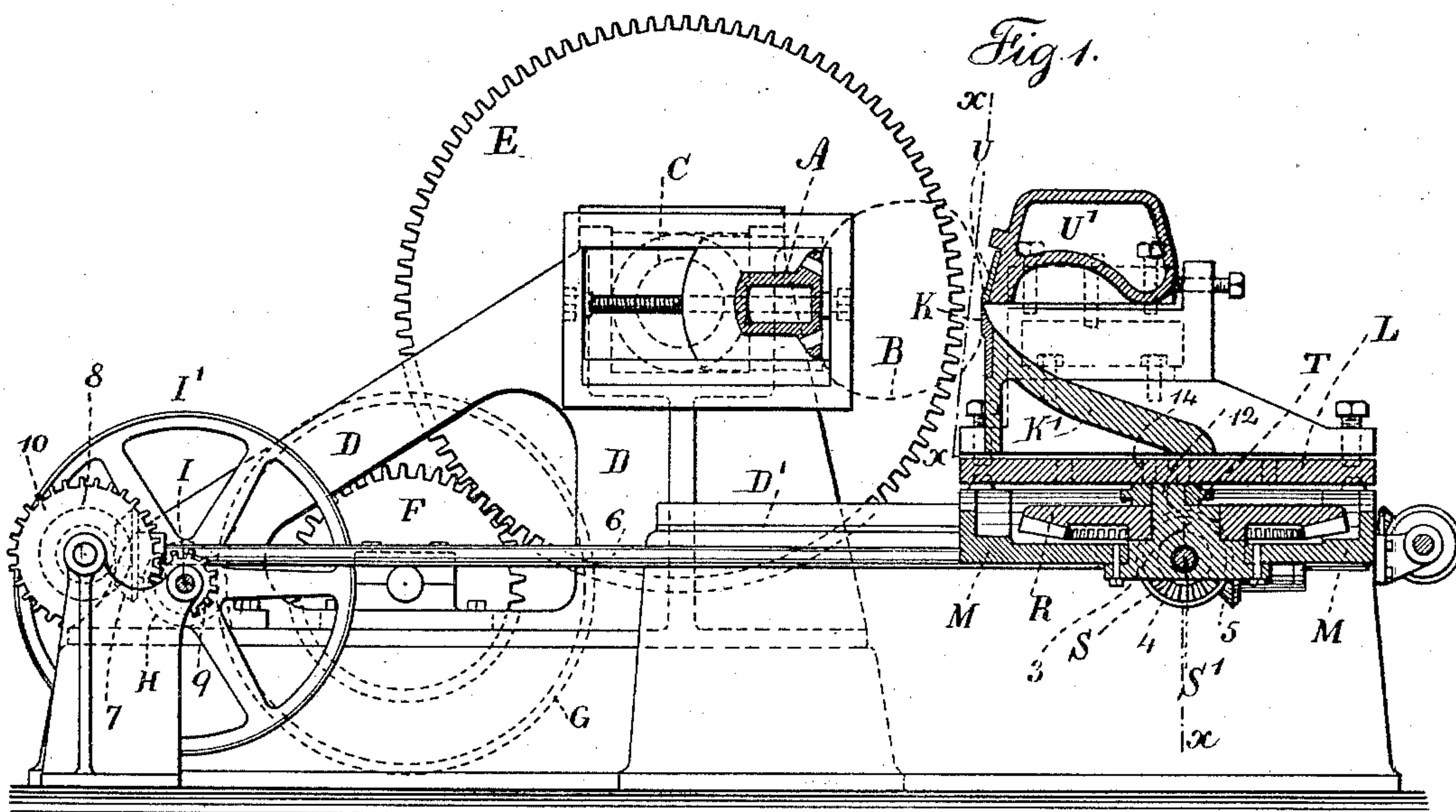
(No Model.)

2 Sheets—Sheet 1.

J. J. HAYES.
VENEER CUTTER.

No. 467,577.

Patented Jan. 26, 1892.



Witnesses:
J. Stail
Chas. H. Smith

Inventor:
John J. Hayes
per Lemuel W. Ferrell atty.

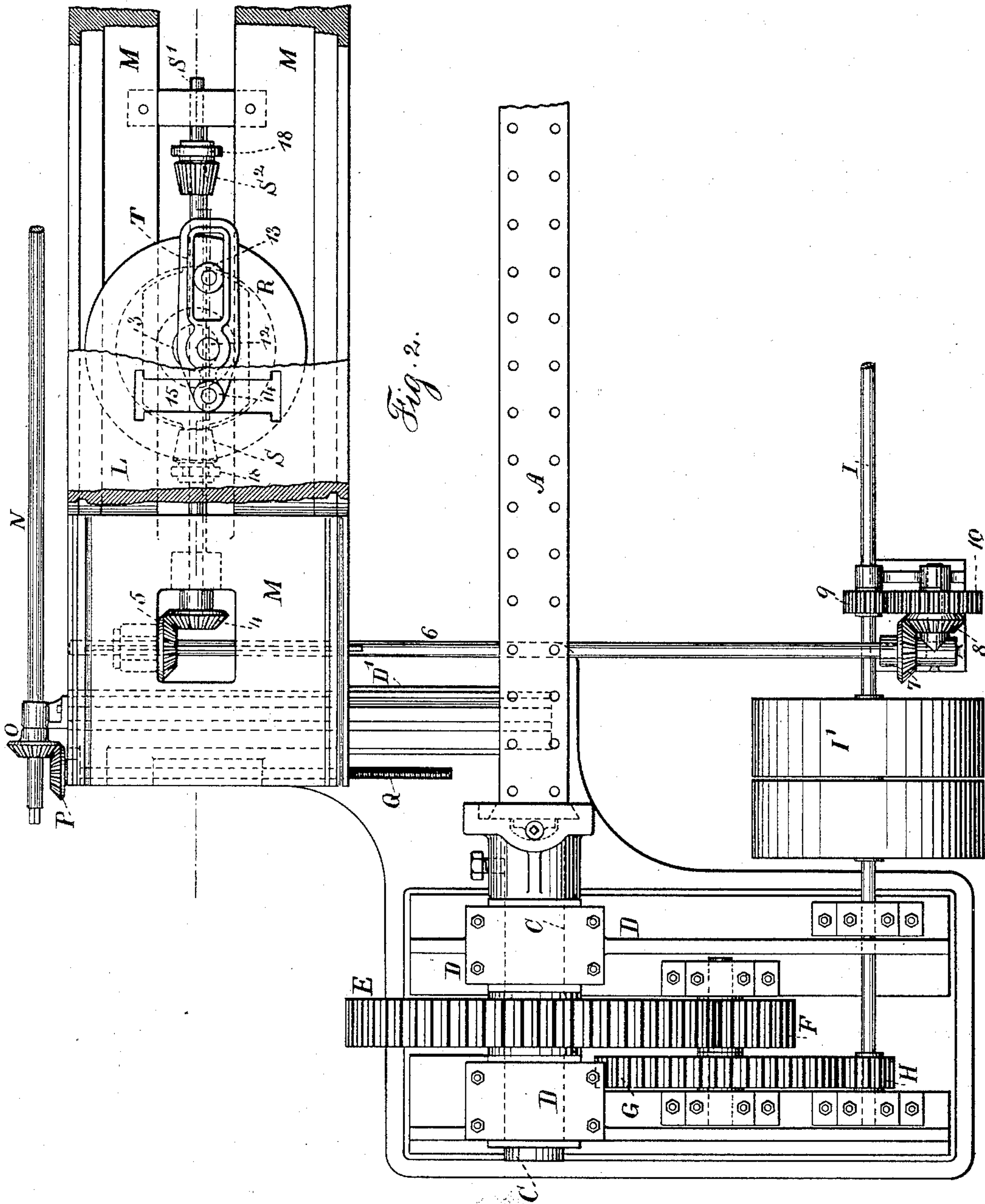
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UNITED STATES PATENT OFFICE.

JOHN J. HAYES, OF BROOKLYN, NEW YORK.

veneer-cutter.

SPECIFICATION forming part of Letters Patent No. 467,577, dated January 26, 1892.

Application filed July 31, 1891. Serial No. 401,270. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. HAYES, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Veneer-Cutters, of which the following is a specification.

Veneers have heretofore been cut by machinery in which there is a stock upon which the log-section is bolted, and this stock receives a continuously-revolving movement, and a knife is employed for cutting the veneer, said knife occupying a fixed position, and against which the log is rotated, and the knife receives an endwise movement during the cutting operation, so as to shear the wood without tearing it. In machinery of this class difficulty has been experienced in returning the knife to the commencing position with sufficient rapidity, so as to insure the proper adjustment both of the log and of the knife, if necessary, between one rotation and the next. In my present invention a peculiar differential crank-motion is made use of, whereby the knife is moved rapidly while not in action, and said knife receives an endwise motion that is very regular during the time the cutting operation is being performed.

In the drawings, Figure 1 is a cross-section of the knife and mechanism for supporting the same. Fig. 2 is a plan view, with the knife and its bed partially removed to show the parts that are beneath the same; and Fig. 3 is an elevation of the knife and section at the line *xx*, Fig. 1.

The stock A, to which the log-section B is attached by screws or other suitable means, is mounted at its ends upon shafts C, supported by suitable frames D, and driven by gearings E F G H, and there is a driving-shaft I, extending the entire length of the machine and driven by suitable power, such as a belt to the pulley I', and it is to be understood that these devices are duplicated at the respective ends of the machine; but only one end of the machine is represented in Fig. 2, and in this figure only a portion of the stock A is shown.

The knife K is screwed to a suitable stock K' upon the slide-rest L, and this slide-rest is supported by the bed M, which bed M is mov-

able transversely upon the portion D' of the frame, so as to set the knife nearer to or farther from the log-section, and with this object in view the shaft N is made use of, having beveled gears O P to the screws Q, which are provided at the two ends of the bed M to give motion to the same, as required, and this shaft N is to be rotated by hand or other suitable means between one cut and the next, so as to set the knife up for cutting the required thickness of veneer, and during the cutting operation the slide-rest L receives an endwise movement to cause the knife to act with the shearing cut while in contact with the log. To accomplish this object the gear-wheel R is mounted upon a stationary pivot 3, supported by the bed M, and the miter-teeth of this wheel R are upon the under side and in gear with the pinion S upon the shaft S', that is driven by the miter-gears 4 5, to the cross-shaft 6, that receives motion from the driving-shaft I by suitable gearing, such as the miter-gears 7 8, pinion 9, and wheel 10, and it is to be understood that the gearing is so proportioned that the miter gear-wheel R revolves in unison with the shafts C and the stock A, holding the log. The miter-gear 5 is upon a feather on the cross-shaft 6, so as to slide with the bed M as the same is moved laterally, and the pinion S is preferably fitted upon a feather, so that it may be slipped out of gear with the miter-wheel R whenever necessary. Upon the stud 3 is a smaller and eccentric stud 12, which forms the pivot for the lever T, which lever T is slotted and receives the roller 13 upon the stud, projecting up from the miter gear-wheel R, such roller being within the slot of the lever T, and at the other end of this lever T is a pin or roller 14, which passes up into a transverse slot 15 in the slide-rest L. It will now be apparent that as the miter gear-wheel R is revolved the pin or roller 14 on the lever T gives end motion to the slide-rest L, knife-stock, and knife, and if the stud 12 were central to the stud 3 the movement given endwise to the knife would be at the same speed in one direction as in the other; but in consequence of the stud 12 being eccentric the roller 13 on the miter gear-wheel R is nearer to the stud 12 in one portion of its movement and

farther therefrom at another portion of its movement, and the speed of the motion given to the slide-rest L will be greatest when the roller 13 is nearest to the eccentric stud 12, and the reverse, and the parts are so arranged and timed with reference to the stock and log section that the veneer is being cut during the time that the roller 13 is describing the arc of a circle most distant from the eccentric stud 12, and the motion at this time given to the knife-stock and knife endwise will be very uniform while the roller 13 is traveling more than one hundred and eighty degrees, and the return movement will be given to the knife more rapidly by the roller 13 acting upon the lever T in describing an arc of less than one hundred and eighty degrees, during which movement the roller 13 is nearest to the eccentric stud 12 and the lever T is moved from a position parallel to the shaft S' to the opposite parallel position to said shaft, and the endwise motion given to the knife for cutting continues during more than one hundred and eighty degrees of the revolution of the stock and log-section. Hence during the time of contact of the knife with the log-section the endwise movement given to the knife is very uniform and the cutting operation is rendered very perfect.

It is usually advantageous to make use of a second pinion S² on the shaft S' and at the opposite side of the miter gear-wheel R, and these pinions S and S² are connected by collars 18 and a rod 19, the distance between the pinions being sufficient for one of them to be out of gear while the other is in gear. By this arrangement either pinion S or S² can be brought in gear with the wheel R to revolve such gear-wheel R in either one direction or the other and to move the knife either one way or the other during the cutting operation.

It is preferable to make use of a throat-plate U above the edge of the knife K, such throat-plate being supported by a stock U', resting at its ends upon bearings on the slide-rest L, and this throat-plate and stock are adjustable, so that the throat-plate may rest in contact with the surface of the log while the veneer is being cut by the knife, thus insuring great accuracy in the thickness of the veneer and preventing any vibration of the log or of the knife.

This invention is available with a veneer-cutting machine where a log is held at its ends and rotated; also, on machines where the log is moved in a plane instead of being rotated.

With soft wood it is sometimes advantageous to adjust the parts so that the quick end-

wise movement will be given to the knife during the cutting operation.

I claim as my invention—

1. The combination, with the stock for holding the log-section and mechanism for moving the same, of a knife for cutting the veneer, a stock and slide-rest for supporting such knife, and a differential crank-motion for moving the knife-stock and slide-rest endwise during the cutting operation and returning the parts to the place of beginning more rapidly while the knife is out of action, substantially as set forth.

2. The combination, in a veneer-cutting machine, of means for holding and moving the log or log-section, a knife for cutting the veneer, a stock and slide-rest for supporting the same, an adjustable bed carrying the slide-rest, a miter-wheel and stationary stud for the same supported by the bed, gearing for revolving the miter-wheel, a slotted lever, and an eccentric stud for the same, a pin or roller upon the miter-gear for giving motion to the lever, and a pin or roller on the lever acting in a transverse slot upon the slide-rest for giving motion to the knife-stock and knife, substantially as set forth.

3. The combination, in a veneer-cutting machine, of means for supporting and moving the log or log-section, a knife and stock and a slide-rest for supporting the same, a throat-plate and its stock above the knife and supported by the slide-rest, and a differential crank-motion for moving the slide-rest endwise during the cutting operation and returning the knife to the place of beginning with a more rapid motion while the knife is out of contact with the log, substantially as set forth.

4. The combination, in a veneer-cutting machine, with the knife and its stock, of a slide-rest supporting the same, a bed upon which the slide-rest and knife can be moved endwise, mechanism for adjusting the bed laterally, a miter-gear upon the bed below the slide-rest, a differential crank mechanism for connecting the miter-gear and the slide-rest, and two pinions at opposite sides of the miter-gear and adapted to be slipped into or out of action for giving motion to the miter-gear and differential crank mechanism in the one direction or the other, substantially as set forth.

Signed by me this 27th day of January, 1891.

JOHN J. HAYES.

Witnesses:

CHAS. H. PENDLETON,
JOHN MCGUIRE.