(No Model.) 3 Sheets—Sheet 1.

T. A. COOK.

MATCH SPLINT CUTTING MACHINE.

No. 483,541. Patented Oct. 4, 1892.

Fig. 1

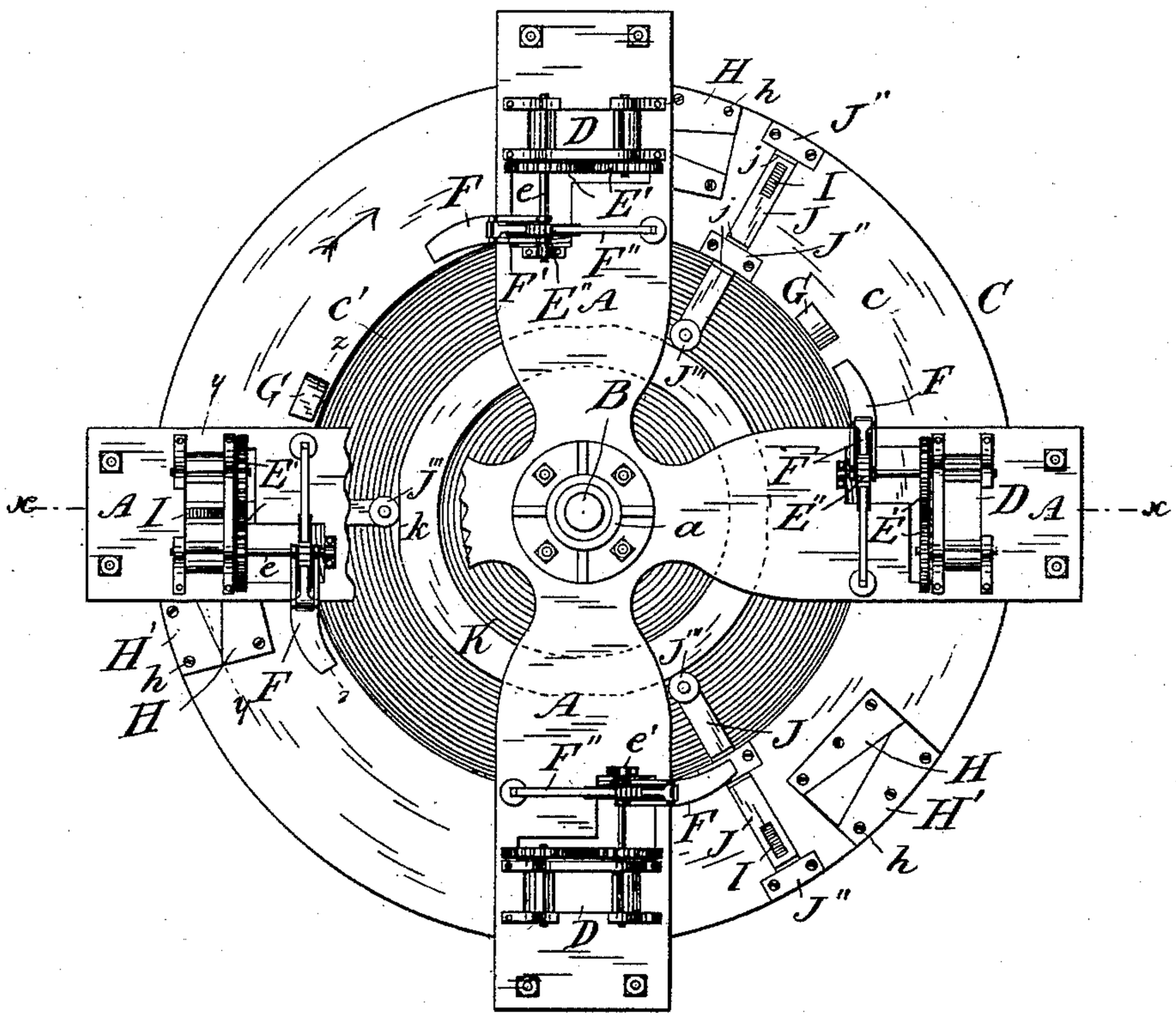
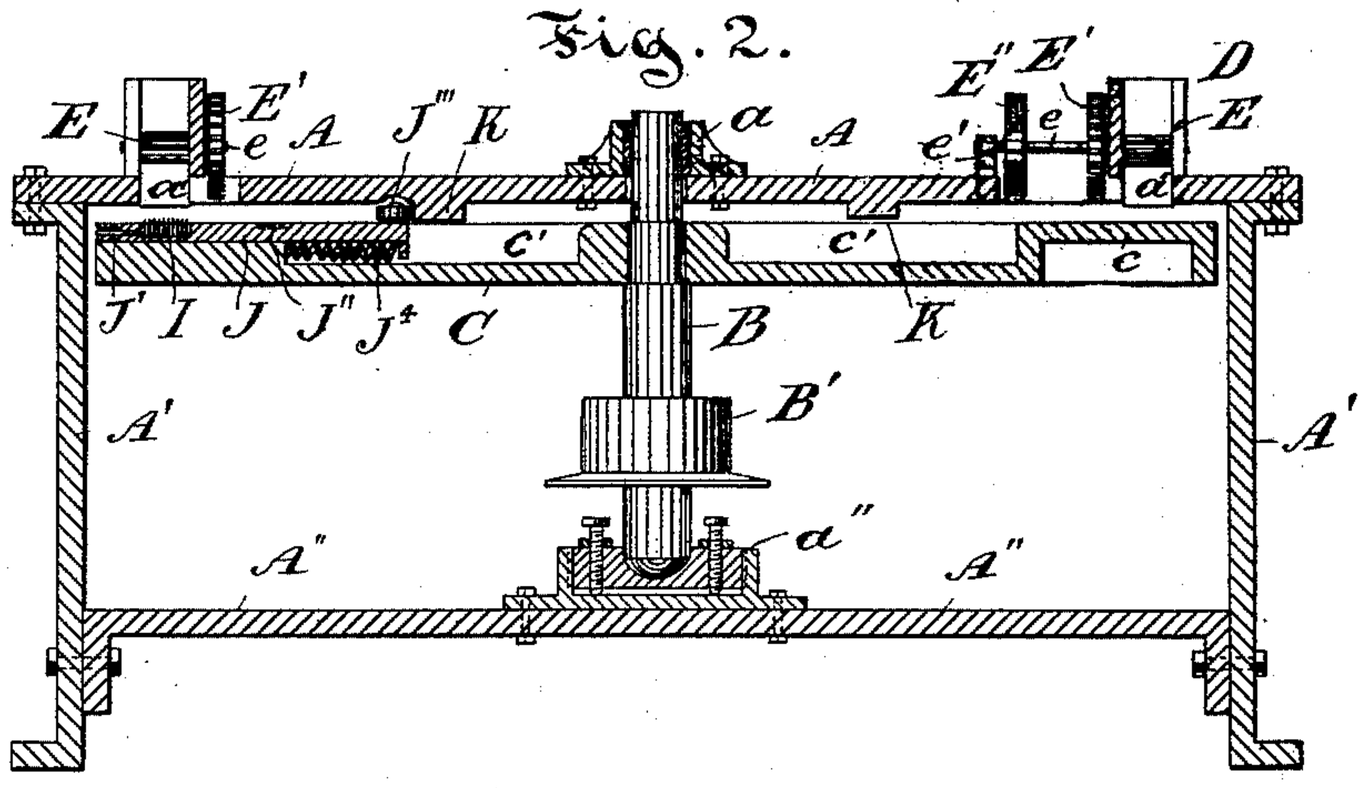


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

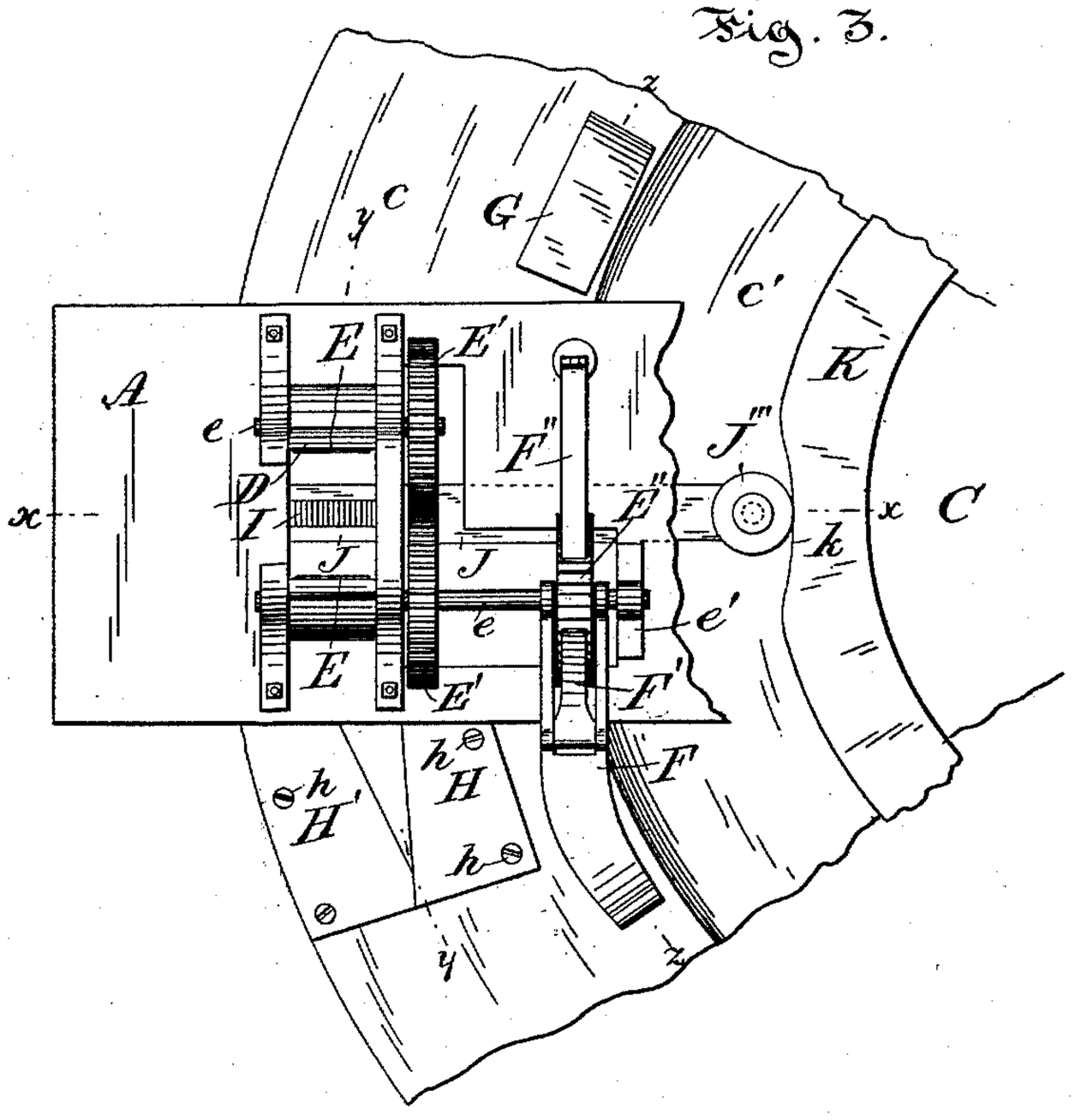

Fig. 4.

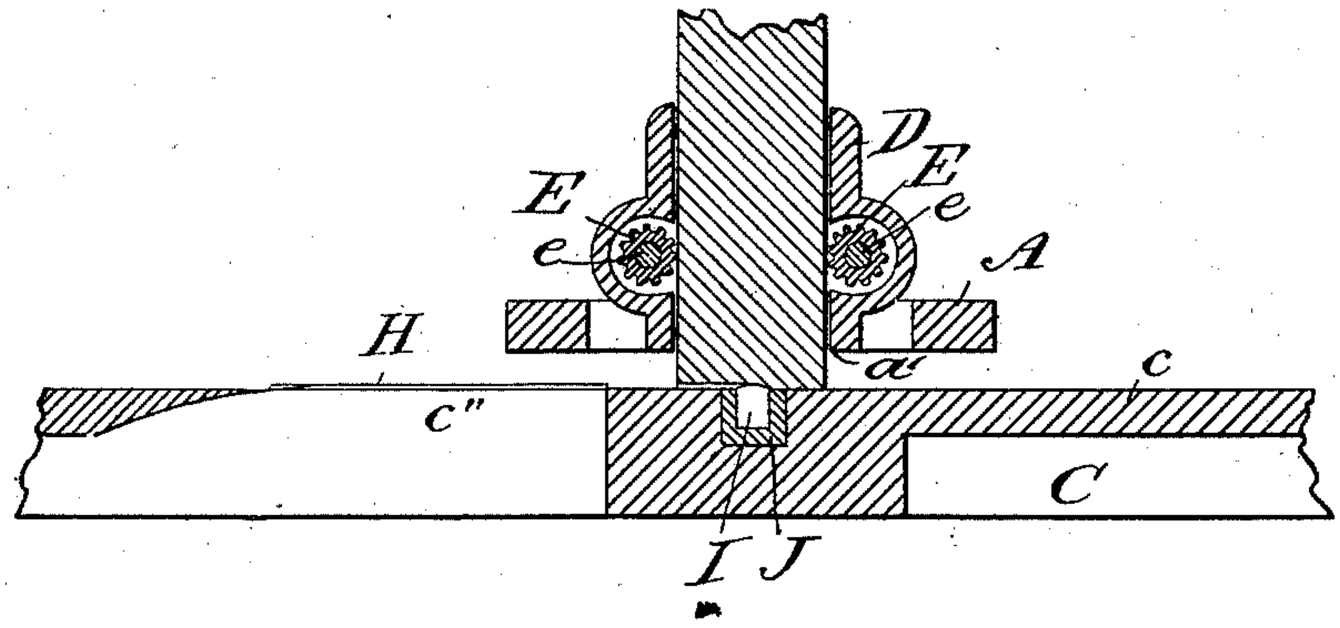

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Fig. 5.

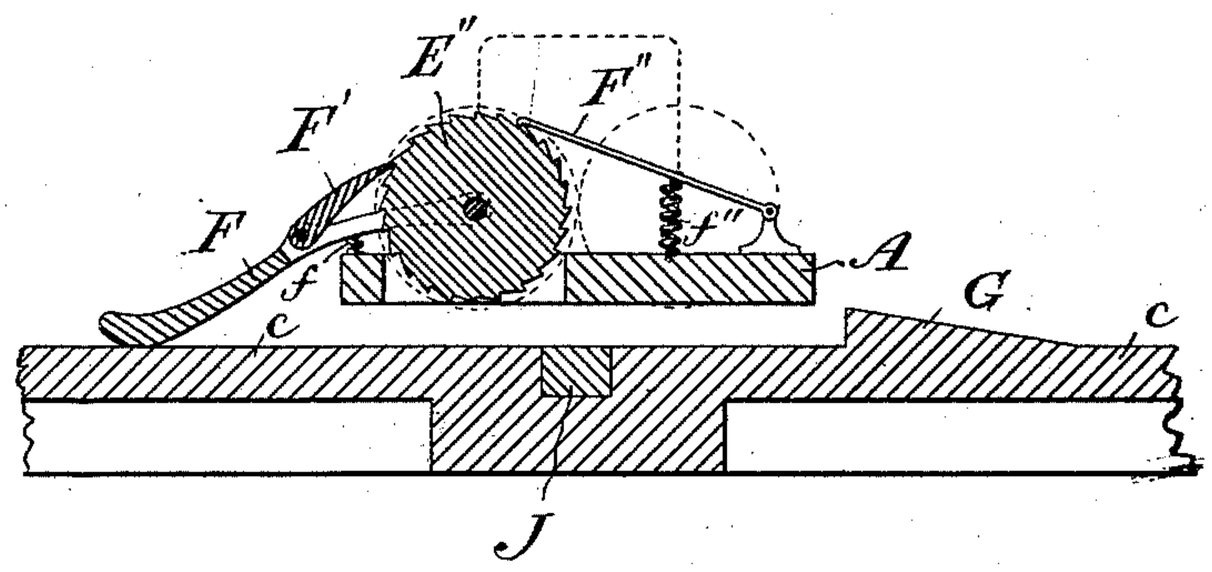
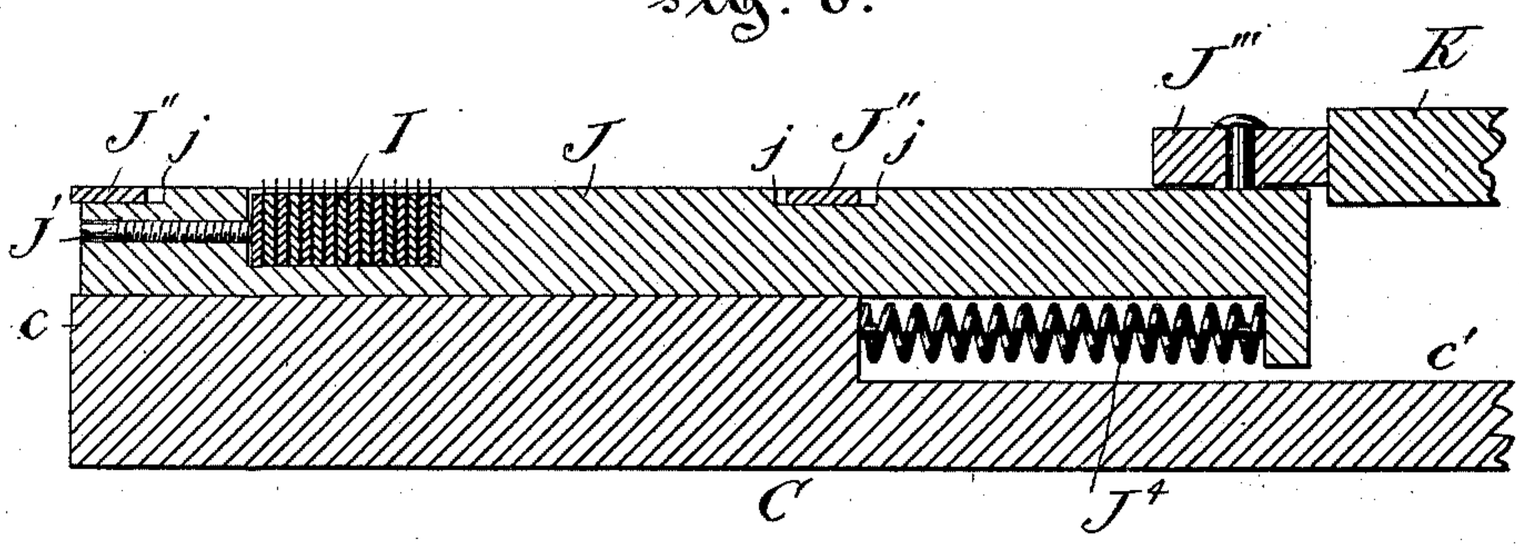


Fig. 6.



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UNITED STATES PATENT OFFICE.

THOMAS A. COOK, OF OTTAWA, CANADA, ASSIGNOR TO EDWARD WILLIAM COOK, OF SAME PLACE.

MATCH-SPLINT-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 483,541, dated October 4, 1892.

Application filed March 5, 1891. Renewed August 20, 1892. Serial No. 443,560. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. COOK, of the city of Ottawa, in the Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Match-Splint-Cutting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part hereof.

My invention, which will be hereinafter fully set forth and claimed, relates to machines for cutting match-splints.

The object of my invention is a match-splint-cutting machine having a continuous rotary motion.

Figure 1 is a top view of my improved machine. Fig. 2 is a vertical transverse section of the same on line *x x*, Fig. 1. Fig. 3 is a top view of one of the heads on a larger scale. Fig. 4 is a vertical transverse section of the same on line *y y*, Figs. 1 and 3. Fig. 5 is a detail view of the feed mechanism, being a vertical section on line *z z*, Figs. 1 and 3; and Fig. 6 is part of the vertical transverse section on line *x x*, Figs. 1 and 3, on a larger scale.

A, Figs. 1 and 2, is a spider-shaped table, consisting of four radial arms integrally connected at the center, so as to form a table having large portions cut away, said arms being supported at their extremities by legs A′, connected below by cross-bars A″, the whole forming a framework. In the center of said frame is journaled in the bearing *a* and step *a″* a vertical shaft or spindle B, having a pulley B′ between the two bearings. Upon said spindle is firmly mounted a circular disk or table C, having a broad raised rim *c*, the upper surface of which bears close to the bottom surface of the arms A, a space or clearance a little more than the thickness of a match-splint being allowed between the two surfaces. The raised rim *c* causes a recess *c′* between said rim and the hub of the disk at its upper surface.

Upon each arm A and over the rim *c* is secured a feed-box with feed-gear, and in the rim *c* are secured several rows of incisor knives or spurs and slicing-knives, three sets, more or less, being employed, the spurs being set a little in advance of the slicers.

D, Figs. 1, 2, 3, and 4, is a box of the usual construction as used in this class of machinery, being open at top and bottom and, preferably, also open in the center part of the front, having a clear internal length and width equal to the length and width of a splint-block and firmly secured upon said arm over and extending down into an opening *a′*, which allows the block to pass snugly through the same. At each end of said box, and as near the bottom of it as may be found practical, is a cylindrical cavity containing a channeled roller E, journaled in the front and back of the box and having its surface slightly projecting into the cavity of the box, so as to bear tightly on the crosscut ends of the splint-block. The axles *e* of said rollers project at the rear of the box and have mounted upon them spur-wheels E′, gearing into each other, and one of said axles is lengthened out further and has mounted upon it a ratchet-wheel E″, said axle being supported by the additional outside bearing *e′*.

F, Fig. 5, is a forked lever straddling the ratchet-wheel E″ and journaled upon its axle. Its free end bears upon the table-rim *c* and upon cams G in the form of inclined planes set on said rim in the path of said lever, and in passing over which it is caused to rise and fall, said lever being weighted or preferably held down by a spring *f*. Upon said lever is pivoted a pawl F′, gearing in the ratchet-wheel E″, and F″ is a detent pivoted upon the arm A and held in gear by the spring *f″*. The lift of the cam G is adapted to the pitch of the ratchet-wheel E″, and that is proportioned to the thickness of the match-splint to be cut, so that the splint-block will be fed down by the rollers E so much as the slicing-knife is desired to take off the block.

H H′, Figs. 1, 3, and 4, are the slicing-knives, consisting of blades having their beveled cutting-edges at an angle, so that when the two are secured in place the heels of the cutting-edges meet at an acute angle and leave a triangular or V-shaped space between them. They are held by screws *h* in a recess at the edge of an opening *c″* in the rim *c*, their up-

per surfaces standing the thickness of a match-splint above the surface of said rim.

I I, Figs. 1, 2, and 6, are spurs or incisor-knives, which do not essentially differ from those in present use, consisting of short, thin, and narrow strips of steel having their cutting-edges rounded and beveled from both sides. They are set in a slot in a bar J, with or without distance-pieces between them, so that the cutting-edges stand the thickness of a match-splint apart, and are held in position by a screw J′, passing through the end of said bar and pressing against the end knife. Said bar J is set and adapted to slide in a bed sunk radially across the surface of the rim *c*, being held down by removable guide-pieces J″ placed near each edge of the rim, for which shouldered recesses are provided in said bar, room for play being allowed between the inner edge and said guides and the shoulders *j*. The inward-projecting end of the bar J is prolonged and carries a friction-roller J‴, bearing against the inner edge of the rim *c*, against the rim of a large cam K, secured to the under side of the arms A, and pressed against it by a spring J^4. The cam K is circular, with the exception of a straight or flat (properly speaking, slightly concaved) part *k* opposite each box D and under each arm A, so that the incisors are guided parallel to the splint-block and following the grain of the wood when it is being drawn over them.

The machine operates as follows: A block from which the match-splints are to be cut is inserted in each box D and fed down as far as it will go, having first been cut to proper length and properly squared. These boxes are stationary, being supported upon the stationary arms A. The table C, rigidly mounted upon the vertical shaft B and carrying the knives, rotates, being driven by a belt on the pulley B′ in the direction of the arrow, Fig. 1, so that the spurs or incisors I pass under the block first and make a series of incisions over the whole width and throughout the length of the block the thickness of a match apart. As soon as the spurs or incisors have scored the block the front end or wide mouth of the angular opening of the slicers H strikes the block and severs from it the incised portion, being the portion between the knife-edge and the upper surface of the rim *c*, and which slice immediately separates into single splints when dropping through the opening *c*″ in the table. As soon as the table C has turned far enough to allow the slicers to complete the cut the cam G has reached the lever F and begins to lift it, and the pawl F′ turns the ratchet-wheel E″, and with it the wheels E′ and the rollers E, which latter feed the block down ready for passing over the next set of cutters and repeating the operation, each revolution of the table C producing as many cuts at each set of knives as there are boxes D containing blocks, being twelve cuts in the machine herein illustrated.

I claim as my invention—

1. In a match-splint-cutting machine, the combination of a table consisting of spider-shaped arms supported upon a rigid framework providing support for bearings of a central vertical shaft, a horizontal rotary disk having a broad raised rim set close to the under side of the table-arms and mounted upon the central shaft, provided with pulley, a series of movable bars bedded in the rim of said disk holding near their outer ends a series of spurs or incisors projecting above the surface of said rim, a spring pressing each of said bars toward the center and against a cam, a spring-shaped central cam bearing on the ends of said bars, a pair of slicing-knives inclosing with their cutting-edges a V-shaped space set in said rim after each row of spurs, a feed-box secured upon each spider-arm and over the rim of the disk, provided with channeled feed-rollers geared together, and means for actuating said rollers after each operation of the slicers, substantially as set forth.

2. In a match-splint-cutting machine, the combination of a spider-shaped table A, supported upon a frame, a central disk C upon a shaft B, journaled centrally in said table and frame, feed-boxes D, set over and into openings near the outer ends of the table-arms A and having feed-rollers geared together, a ratchet-wheel E″ upon the axles of one of the feed-rollers, a weighted lever F, straddling said ratchet-wheel and journaled upon its axle and its free end bearing upon the rim *c*, a pawl F′, pivoted upon said lever and engaging said ratchet-wheel, a detent F″, pivoted upon the arm A and engaging said ratchet-wheel, and cams G, secured upon the disk C and adapted to pass under and raise the lever F, substantially as set forth.

In testimony whereof I have signed in the presence of the undersigned witnesses.

T. A. COOK.

Witnesses:

A. HARVEY,

A. TROWSE.