

G. L. ROUSE.
 Improvement in Sawing-Machines.
 No. 132,181. Patented Oct. 15, 1872.

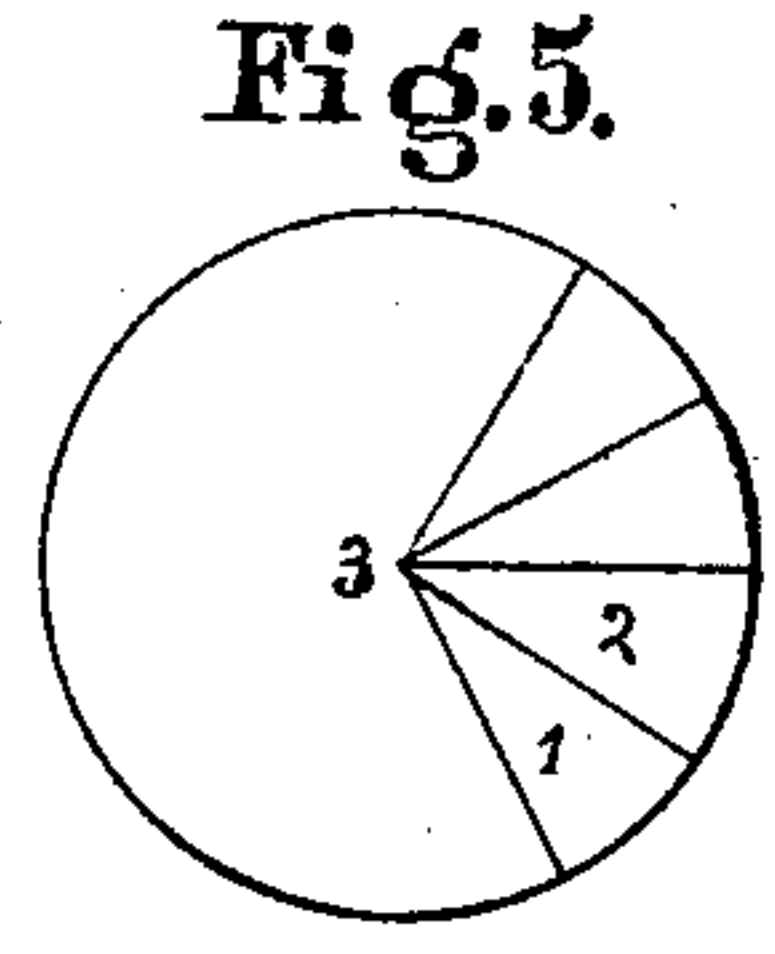
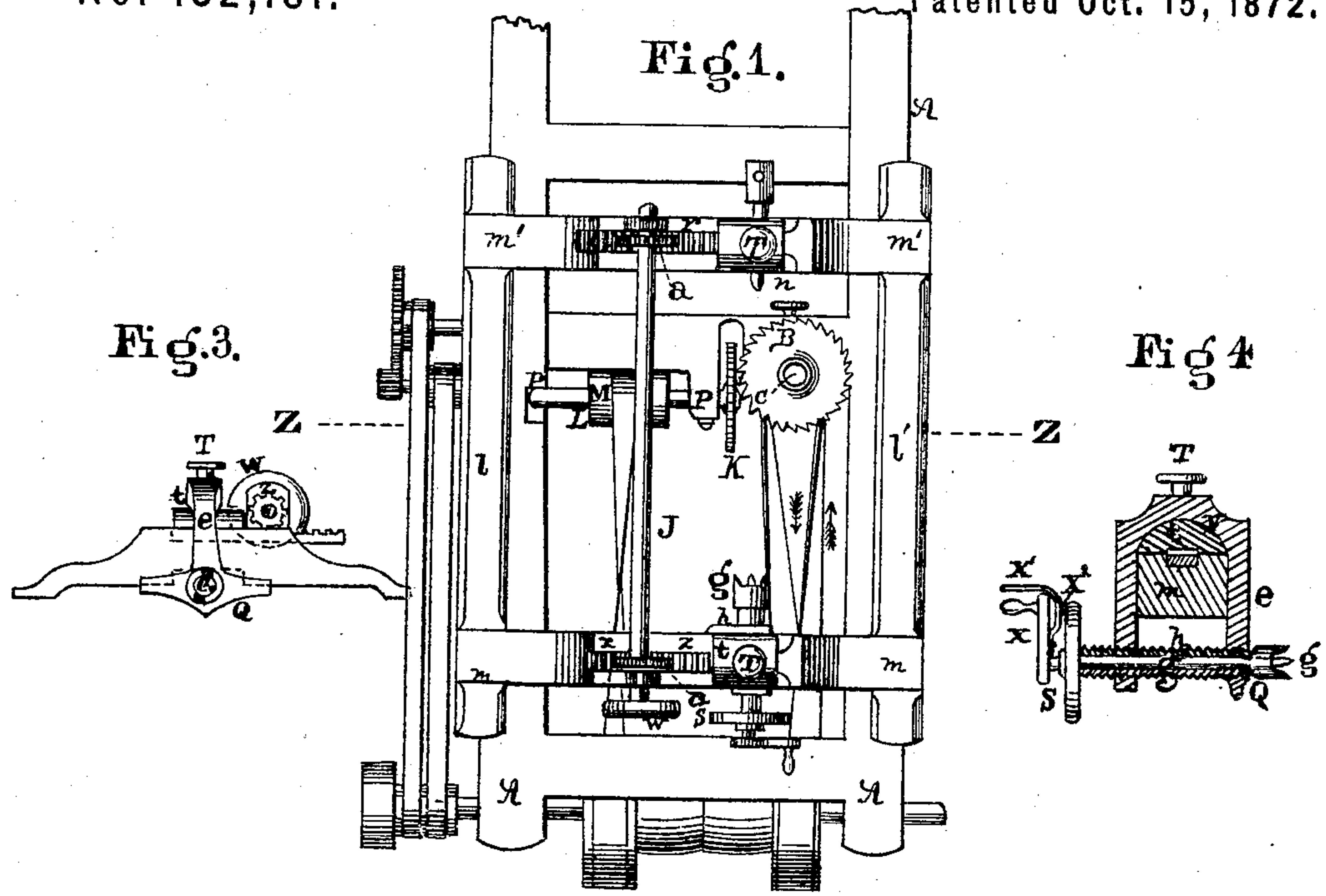


Fig. 2.

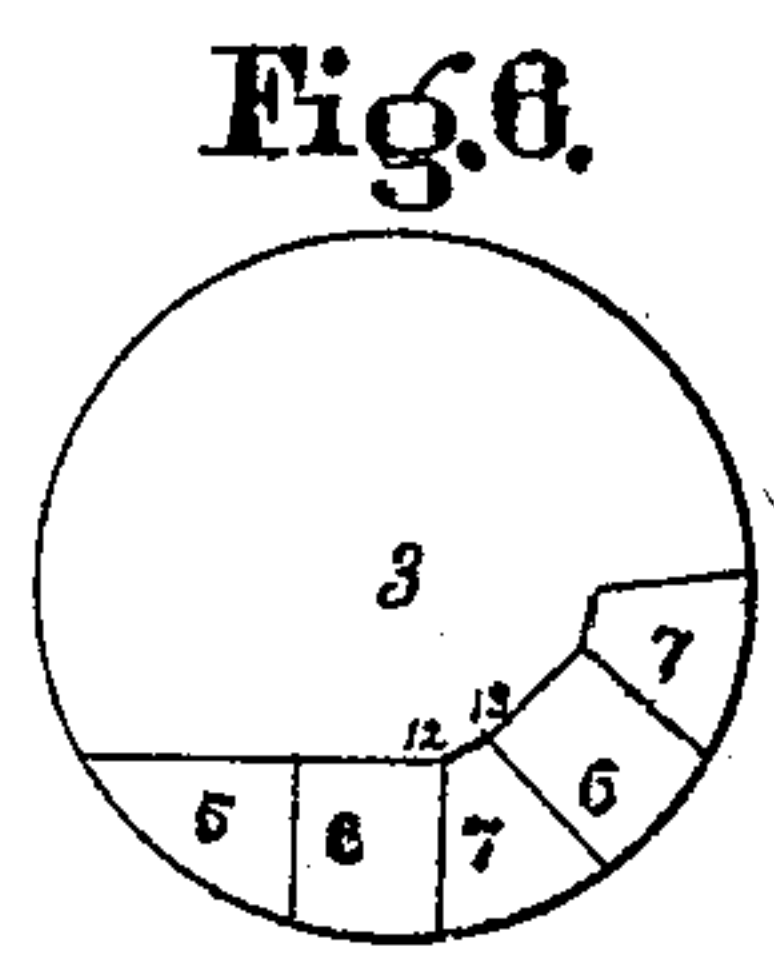
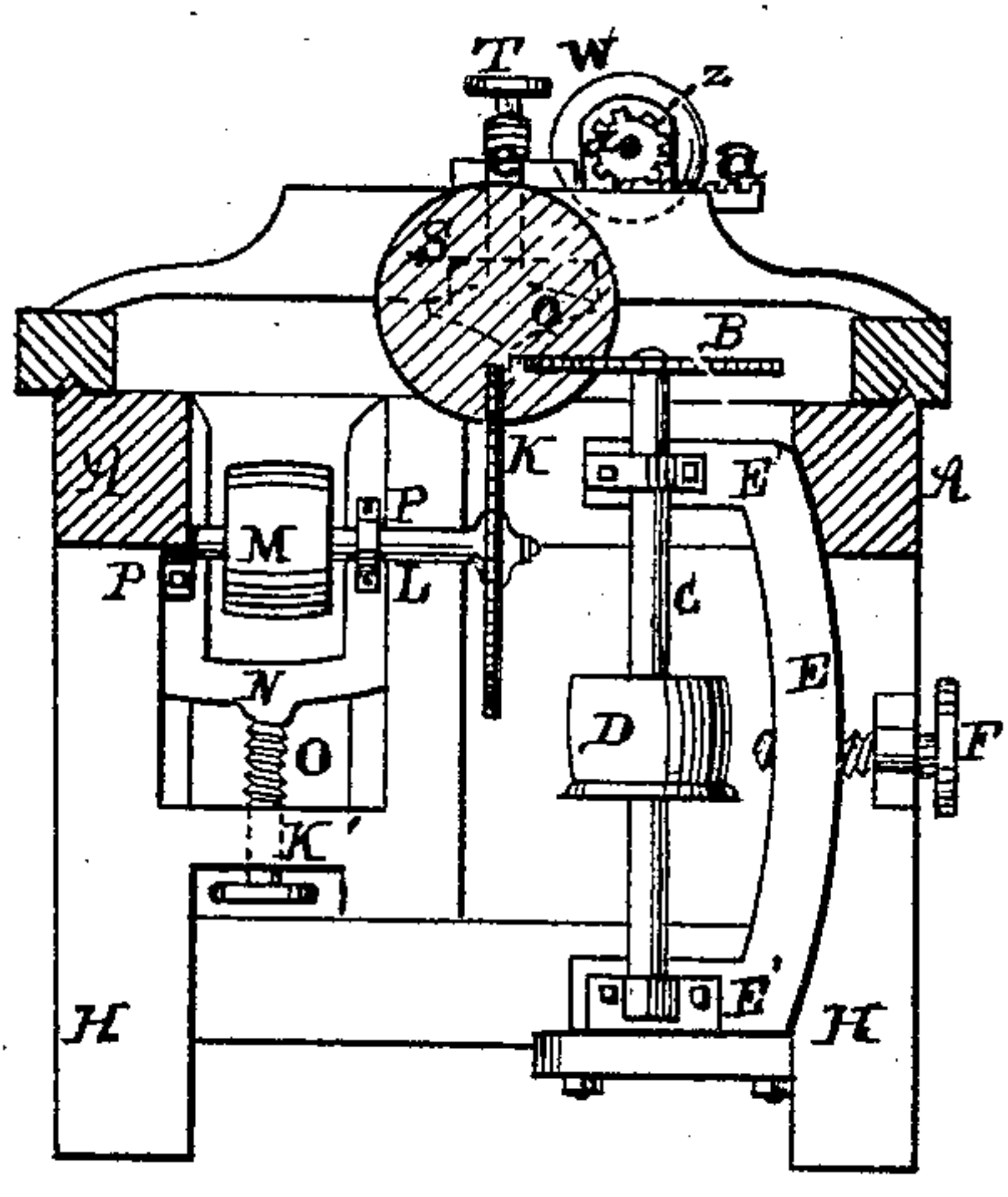


Fig. 6.

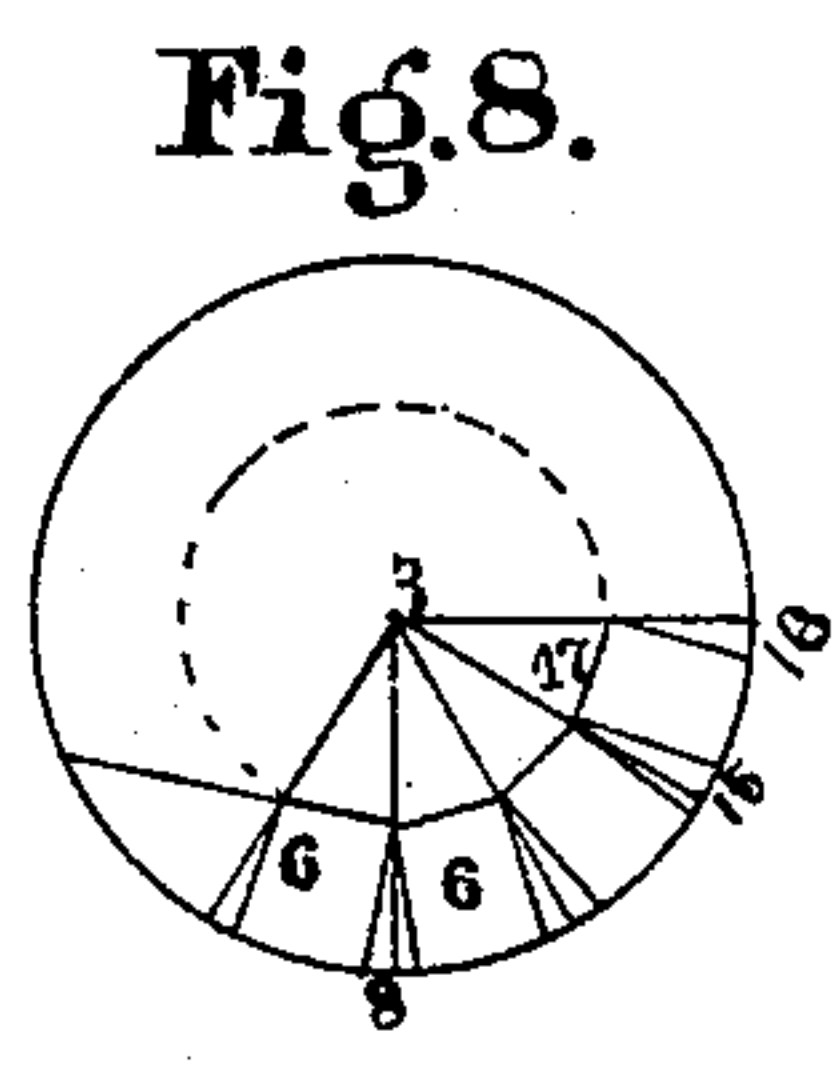


Fig. 8.

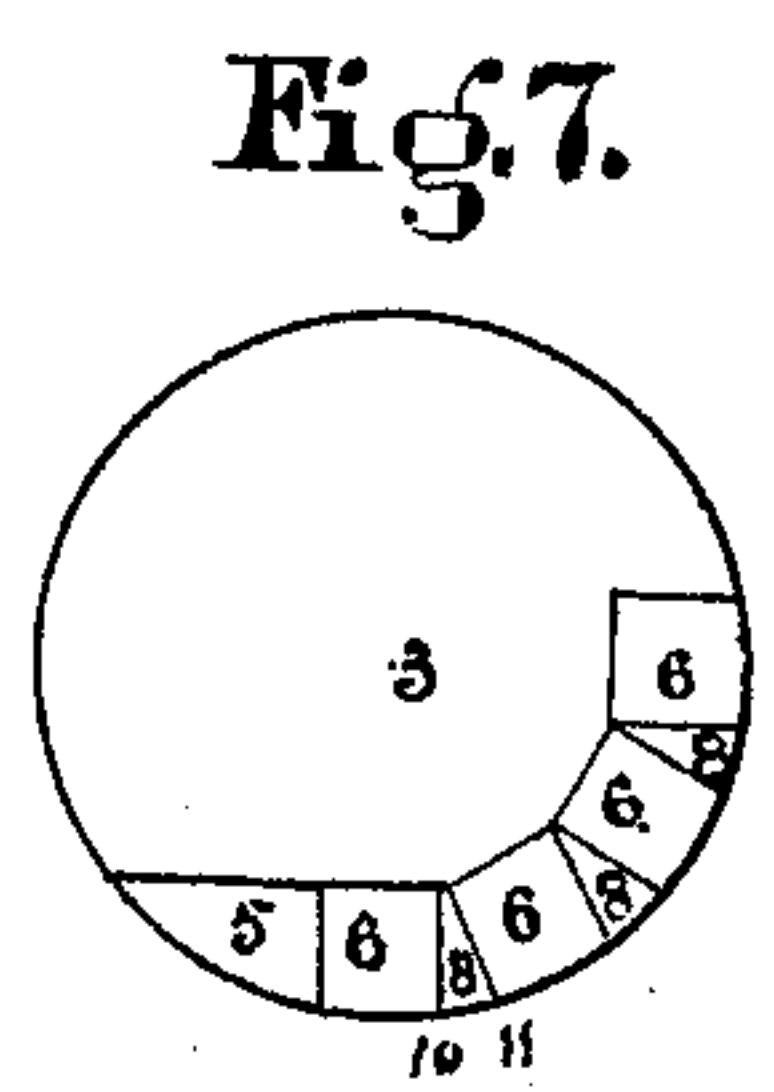


Fig. 7.

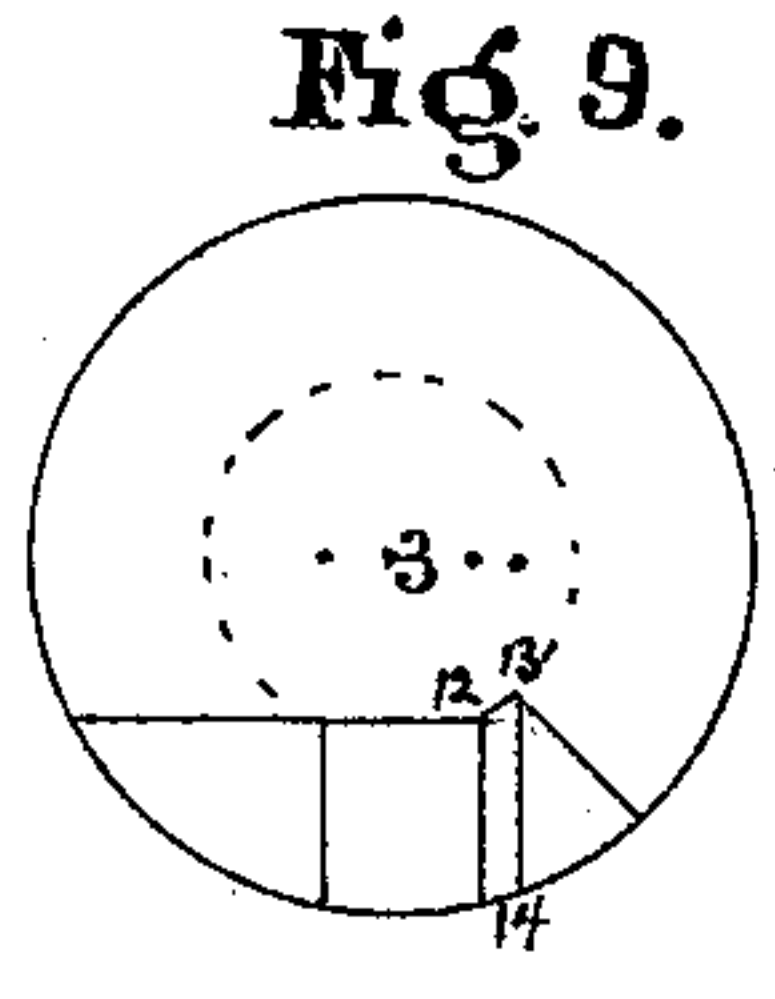


Fig. 9.

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GEORGE L. ROUSE, OF CINCINNATI, OHIO.

IMPROVEMENT IN SAWING-MACHINES.

Specification forming part of Letters Patent No. 132,181, dated October 15, 1872.

To all whom it may concern:

Be it known that I, GEORGE L. ROUSE, of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Sawing-Machines, of which the following is a specification:

The nature of my invention relates to the employment of two saws working at right angles to each other in connection with certain devices for properly presenting the timber to be cut up to the saws, whereby spokes, shafts, and fellies can be sawed out of a butt or log of timber in such manner that the necessity of sawing to the center of the butt is avoided and timber can be greatly economized.

In the accompanying drawing, Figure 1 is a plan of my newly-invented machine; Fig. 2 is a vertical transverse section of said machine taken at the line Z of Fig. 1; Fig. 3 is a view in detail of one of the devices for adjusting the center laterally and vertically; Fig. 4 is a view of the device for revolving the butt on its center; Fig. 5 is an end view of a butt sawed according to the most approved methods in use prior to my invention; Fig. 6 is an end view of a butt, exhibiting one of my improved methods of sawing; Fig. 7 is an end view of a butt, showing another of my improved methods of sawing; and Figs 8 and 9 are plans adduced in explanation of my methods of sawing.

A is the frame of the machine, in the shape of a rectangular parallelogram, here supported on legs H H, &c. B is a horizontal circular saw, operated by a pulley, D, provided with a flange on its under side to support the band. This saw and pulley are fixed upon a mandrel, C, which is held in position by the arms of frame E and secured thereto by journal-boxes E' E'. This frame E is capable of lateral adjustment transversely to the length of frame A by means of guides upon its arms fitting into guide-ways upon horizontal parallel cross-beams stretched between the legs of frame A. This lateral adjustment of frame E is accomplished by means of a screw, F, working in a loose joint in the middle of frame E and engaging a female screw in the leg H of frame A and operated by a hand-wheel or other lever on its outer end. K is a vertical circular

saw, placed at right angles to saw B, and at such a point along the length of frame A that the center of its operating mandrel L is such a distance forward of a vertical plane which passes through the center of mandrel C and transversely through the frame that the two saws will cut out a right-angled section from a butt without interfering with each other. This saw is operated by a pulley, M, upon axle L, the latter being supported and journaled at P P in the horizontal arms of vertical frame N, which latter is elevated or depressed vertically by means of a screw, O, operated by a hand wheel or crank, turning in a loose joint in a fixed portion, K', of the frame, and having its thread fitted into a female screw in the middle of the lowest part of frame N. This frame, by guide-ways in its vertical arms, slides upon fixed vertical guides in a manner similar to frame E. While in the present device the mandrel L and pulley M are on that side of saw K which is furthest from mandrel C, I do not wish to be understood as limiting myself to that position of the mandrel L, but claim the right of placing said mandrel L and its pulley and the device for its vertical adjustment on that side of saw K which is on the right hand in Figs. 1 and 2, directly beneath saw B. This latter position of mandrel L simplifies the machine for heavy work. *m m' l l'* is a frame sliding horizontally upon frame A, parallel to and lengthwise with said frame. In this sliding frame *m m'* are each iron cross-pieces connecting the longitudinal pieces *l l'*. The bottom of *m* and *m'*, at a point opposite the saws, is arched, as shown by dotted lines in Figs. 2 and 3. A block, *t*, is attached to a ratchet, both of which slide in a guide-way, *r*, located in the top of *m*. A U-shaped strap, *e*, covers the top of block *t*, and descends on each side of the same to the bottom of the arch, where it is strengthened and kept in position by a wing, Q. This latter slides with straps *e*, block *t*, and ratchet *r*, when pinion Z, which engages the teeth of ratchet *a*, is turned. A vertical screw, T, engages a female screw in the center of the top of the strap, and is continued downward so that its bottom rests on the top of the block *t*. By turning this screw the wing, strap, and center are elevated or depressed vertically.

A precisely similar device of strap, ratchet, wing, and vertical screw is arranged in a precisely similar manner upon cross-piece *m*. The two ratchet-wheels *Z Z* are fixedly attached to and are operated simultaneously by a connecting-rod, *J*, which latter is turned by a wheel or other lever. By turning this wheel the centers are simultaneously moved to the right or left of the saw *K*. Through the lower points of the strap passes a center. That in *m'*, designated by *n*, is a simple center having its point toward the same. That in *m* is a compound center, and is constructed as follows, viz: *g* is a center attached to that end of a rod, *g'*, which is nearest the saws. Rod *g'* passes through and turns within a hollow rod, *h*, the latter being operated at its rear end by a wheel, *S*. Rod *h* has upon its periphery a screw-thread which engages a female screw in strap *e*.

By turning wheel *S* the rod is caused to advance or retreat to or from the saws, carrying with it the center *g*, rod *g'*, and crank *X*. To enable me to rotate center *g* without turning rod *h*, I adopt any suitable device; the one I have invented and have in present use is as follows, viz: In front of crank *X* and to its center is attached a spring-crank, *X*¹, the crank portion of which when at rest springs outward toward wheel *S*. To the front of this crank I attach a pin or stud *X*², which I so place as to fit into holes bored at desired intervals in the rear side of the wheel or disk, *S*. This spring-crank is operated by a handle, *X*¹, placed over and sufficiently near the handle of crank *X*, to enable both handles to be easily grasped by the hand. The vertical saw is supposed to be the fixed center of the machine. The frame *m m' l l'* is caused to slide back and forth by proper pulleys or other gear, the pulleys being so arranged that when the said frame is started forward it will carry the butts of timber past the saws, and then back again to the point of starting. One arrangement of pulley for the purpose is shown in the accompanying drawing.

Mode of Operation.

The mode of operating my machine, is as follows, viz: I take the butt out of which the spokes are to be cut and fasten it in the machine, in position for sawing, by first placing one end of it upon center *n*. Wheel *S* is then revolved so that the screw of rod *h* carries forward center *g* and forces it into the other end of said butt. The centers are then simultaneously moved laterally over with their attachments by means of the lever *W* and adjusting device *Z a r t*, until the centers *g* and *n* are at a point at the right-hand of the saw *K*, equal to one-half of the width of the piece to be sawed. The frame *m m' l l'* is caused to pass over the saws, cutting off the piece 5, (see Figs. 6 and 7,) and then returned to the point of starting. The centers are then simultaneously moved laterally to the left of saw *K*, a distance equal to one-half of

the thickness of the piece to be sawed. The frame *m m' l l'* is then caused to again pass over the saws, cutting off the piece 6, Fig. 6, and then returned to the point of starting. The centers are moved laterally back to the aforesaid point, at the right of *K*. The handles are then grasped, thus pressing *X*¹ toward *X*, thereby releasing stop *X*² from its hole in disk *S*, and allowing crank *X* to be turned without altering the position of rod *h*. The butt is then revolved from point 10 to 11 on the circumference of the butt, Fig. 7. The butt is then, as aforesaid, passed over the saws, and piece 8 cut off, when the butt is returned to the starting-point. The operation of cutting off a 6 and an 8 piece is repeated in the same manner all around the butt. The object of cutting out the small waste-pieces 8, 8, &c., is to enable the growth to be at as near a right angle with the sides of the spoke-piece 6, &c., as is possible under any circumstances. After a complete round of wood has in this way been cut off from the butt the centers are lowered by means of screws *T T* until the butt is in position for a new round to be cut off, when the operation of sawing off spokes, as aforescribed, is repeated. In my second method of sawing the spokes, after centering the butt, the piece 5 is cut off, as aforesaid; the centers are then moved to a point to the left of *K* as much less than one-half of the width of the piece to be sawed as is the distance from 12 to 13, Fig. 6, measured on a line at right angles to the side of piece 6. In other words, the saw instead of cutting off 6 at 13, as in Fig. 9, now cuts off 6 at 12, and leaves the portion from lines 12 to 13 to be cut off with 8, thus leaving a piece, 14, composed of 8 and 7, which is large enough to make a spoke of. The last two operations of cutting off pieces 6 and 14 are alternately repeated till the entire round is cut off. The centers are then lowered and the next round is cut off in the same manner, and successive rounds are cut off in this manner till the butt is used up. The most approved method of cutting butts heretofore in use is that shown in Fig. 5.

By my first method, Fig. 6, I save cutting off corner ends of 1, 2, 3, &c., next the center, and thus preserve them to cut off a second round therefrom. I also save freight by relieving the spoke of all extraneous corners, 15 16, at the time of cutting same. By my second method, Fig. 6, I save the freight and transportation of the waste corners, as well as by my first method, and by adding (see Fig. 8) 15 and 16 together and adding piece 7, Fig. 7, I save timber, and thus make more spokes than by any method now in use.

By my approved method it will be observed that the cuttings are never in the direction of the center—that is, are never radiuses of the center—but are always in a direction to one side or the other of the center of the butt.

What I claim as my invention is—

1. The combination of the saws B and K and saw-frames N and E, whereby each saw is made adjustable separately in a direction transverse to the axis thereof, substantially as described.

2. The compound center $g g' h$ with the disk and spring for coupling or releasing the parts, substantially as described.

3. In a spoke-cutting machine, the combina-

tion of the straps or stirrups $e e$, centers g and n , and racks and pinions by which said centers may be laterally adjusted simultaneously through the medium of the connecting-rod J.

GEORGE L. ROUSE.

Witnesses:

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