No. 846,510. PATENTED MAR. 12, 1907.

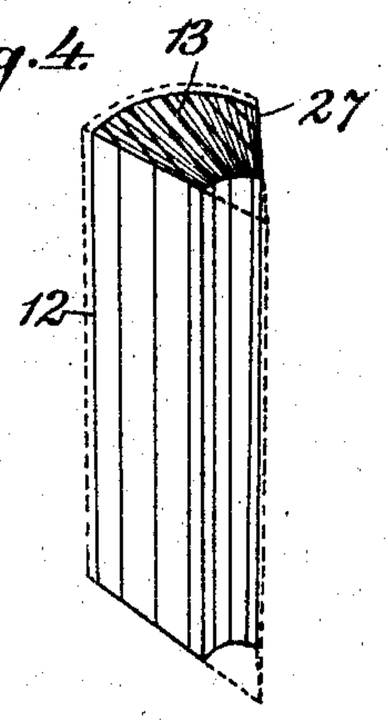
M. ROSENOW.

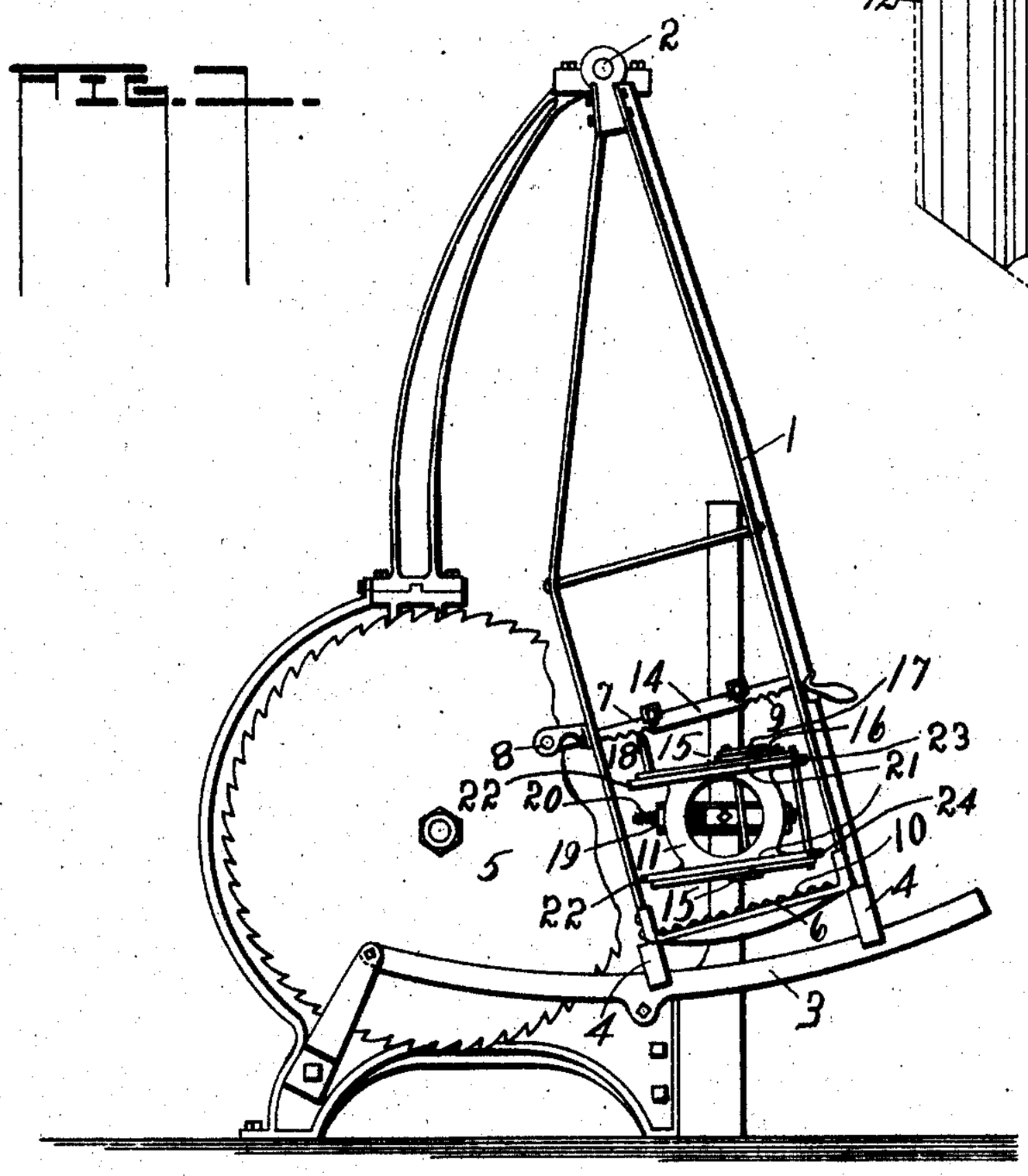
SAWING MACHINE.

APPLICATION FILED JULY 12, 1905.

2 SHEETS—SHEET 1.

Fig. 4.





Witnesses:—
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Inventor.
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2 SHEETS—SHEET 2.

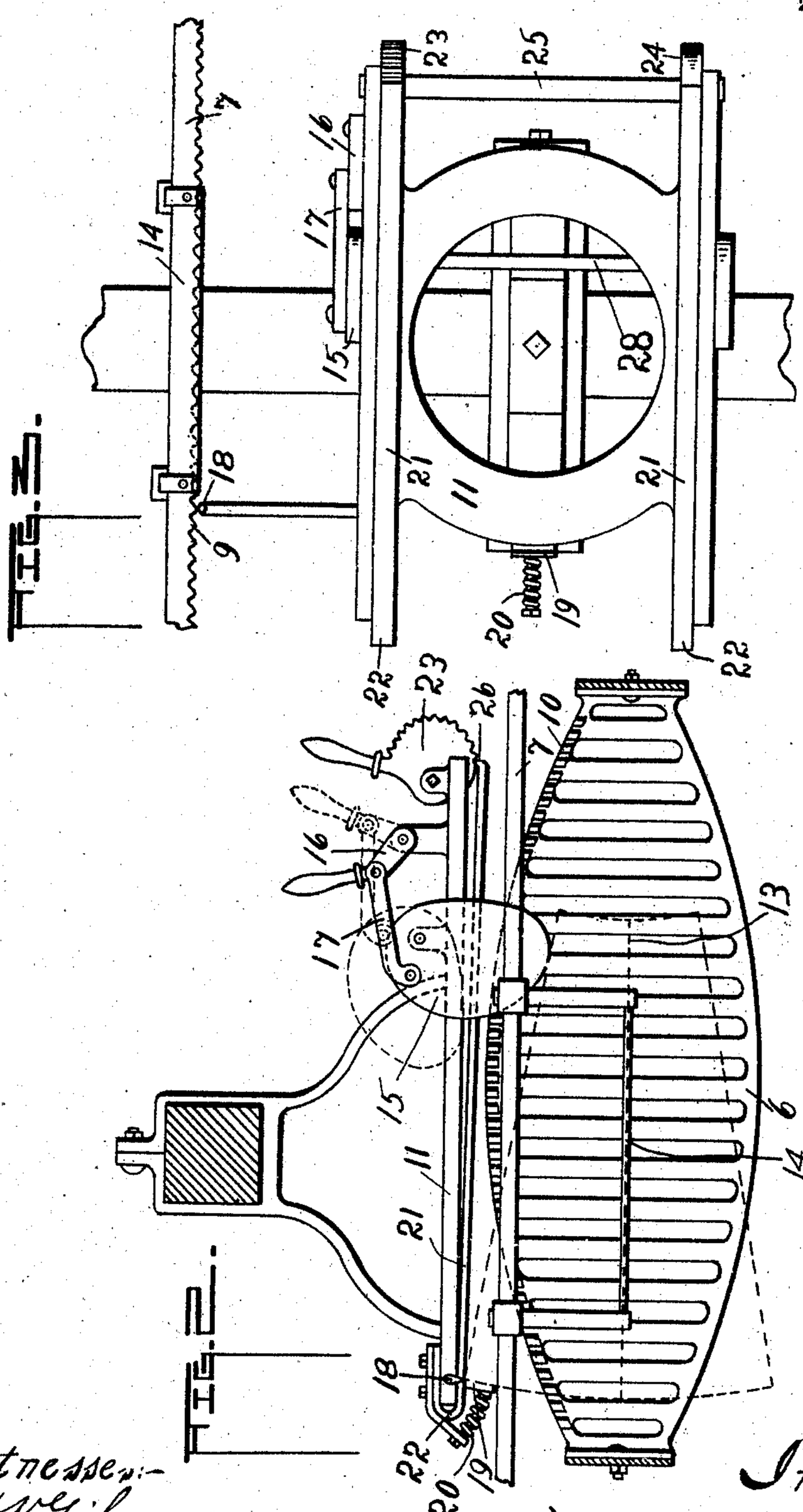

FIG. 2.

FIG. 1.

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SAWING-MACHINE.

No. 846,510. Specification of Letters Patent. Patented March 12, 1907.

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To all whom it may concern:

Be it known that I, MAX ROSENOW, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Sawing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference more particularly to sawing-machines for cutting staves, heading, and such like parts; and the object which I have in view is to provide means on the sawing-machine for adjusting the bolt on the carriage thereof so that the strips or slabs into which it is cut all have the medullary rays extending transversely across the width as nearly parallel to the flat faces thereof as is possible in consequence of the radial direction in which the medullary rays extend through the bolt.

The medullary rays, as is well known in the cooper's art, form resistant channels in barrel and such parts, into which the contained liquid gradually permeates, and to pervent the escape of the liquid therethrough it is necessary that the medullary rays extend so as to be either contained wholly within the inner and outer faces of such barrel parts—that is, so that they do not extend from the inner to the outer surface thereof or that they extend diagonally through such parts at such an angle that the distance from their inner to their outer openings is so great as to effectually prevent the passage of the liquid therethrough. Some liquids, particularly volatile liquids like alcohol and oil, penetrate very far into the medullary rays before being completely checked. Consequently barrel parts of alcohol and oil barrels must have the medullary rays inclined at a very sharp angle to the inner and outer faces thereof, so that the rays which extend from the inner to the outer surface of the barrel will be of sufficient length to effectually resist the passage of the liquid, and the market price of barrel parts varies in accordance with the direction in which the medullary rays extend therethrough and the consequent resistance which they offer to the passage of volatile liquids.

From the foregoing it is evident that it is of great importance that the medullary rays extend properly in barrel and such like parts, and it is accordingly of great importance in sawing a bolt into barrel parts that all the slabs into which it is cut have the medullary rays extending transversely across the width thereof, that as many of the slabs as possible have the medullary rays contained within the flat faces thereof—that is, having no rays extending from one flat face to the other—and that the remainder of the slabs have the medullary rays as nearly so as possible, so that the rays which extend from face to face are of as great length as is possible.

The bolt from which barrel and such parts are made is usually a fourth, sixth, or eighth sector of a section of a tree, from which said section the core and the bark is usually removed, forming a bolt with two diverging lateral faces and two concentric lateral faces in which the medullary rays radiate from the inner concentric to the outer concentric or bark face. In heading and stave sawing machines there is provided a carriage for carrying the bolt to and from engagement with the saw, and adjacent the carriage in its extended position there is provided a stationary gage against which the bolt is adjusted to regulate the thickness of the cut. In sawing a bolt so that the strips or slabs into which it is cut have the medullary rays extending therein in the manner hereinbefore indicated the bolt is adjusted on the carriage with one of the edges, formed by the juncture of the outer concentric or bark face with one of the diverging faces, against the gage, locked in position on the carriage in accordance with this adjustment, and the first strip sawed off. Then the bolt is adjusted and locked in position on the carriage with the new face (formed by cutting off the first strip) in contact with the gage and the second strip sawed off, and so on, each new face formed by the cutting off of the last strip providing the means for adjusting the bolt for cutting the next strip. Thus it will be seen that the whole bolt is cut in accordance with the initial adjustment of the bolt on the carriage. It is customary to employ experts, who from long experience are able to adjust the bolt so that the greater per cent. of the slabs into which it is sawed contain the medullary rays, as hereinbefore indicated. However, as the experts have to adjust the bolt by guess it is often improperly adjusted in its initial position, and in correcting the error of such misplacement a considerable portion of the bolt is wasted. In my invention, however, positive means are provided whereby the bolt may be given an initial adjustment such

that the slabs into which the bolt is sawed in accordance with said adjustment will have the medullary rays contained as much within and as nearly parallel to the flat faces thereof as is possible, the wider strips having the rays nearest so.

In the accompanying drawings, which illustrate my invention, and in which similar figures of reference refer to similar parts, Figure 1 shows a side elevation of a heading-saw equipped with my improvements; Fig. 2, an enlarged view of the bolt-gage and portions of the carriage of the heading-saw of Fig. 1 looking at the same from above; Fig. 3, a side view of the bolt-gage and a portion of the holding-lever; and Fig. 4, a perspective view of the bolt from which the barrel parts are made, the dotted lines indicating the bolt previous to the core and bark being removed, the radial lines on the upper end the medullary rays, and the heavy parallel lines on the upper end and the continuations thereof on the lateral faces the path of the saw.

In the drawings, 1 represents the usual pendent carriage of the ordinary heading-saw, pivoted at 2 to an extension of the saw-standards, and 3 an arcuate guide engaged by the bifurcated ends of the extensions 4 on the pendent carriage 1 to confine the reciprocation of the said carriage 1 to a plane parallel with the saw 5. Upon the bottom of this pendent carriage 1 is a table 6, upon which the bolt to be sawed is carried, and a holding-lever 7, pivoted to the pendent frame, as shown at 8, clamps and holds the bolt in position during the operation of sawing, the said holding-lever 7 being serrated or toothed on its lower edge, as at 9, as is also a portion of the table 6, as at 10, so as to prevent the bolt from slipping or shifting.

At the side of the bolt-carriage and at a distance beyond the plane of the saw equal to the thickness of the slabs to be sawed is located the bolt-gage 11, against which the bolt is adjusted on the carriage 1 previously to being sawed to regulate the thickness of the cut. This bolt, which is shown in perspective in Fig. 4, must be adjusted with one of the lateral edges 12 bearing against the bolt-gage previous to the first cut being made and the bolt adjusted after each slab is sawed off, so that the new surface contacts with the bolt-gage, and locked in such position by means of the holding-lever 7 for sawing off each succeeding slab.

As has been said, because of the requirements of staves and heading it is necessary to saw the bolt so that the slabs or strips will contain the medullary rays in the manner hereinbefore indicated. It has been found by actual experiment that if the bolt is given an initial position on the carriage against the bolt-gage in the usual manner and adjusted so that the centrally-disposed medullary ray (which is perceptible on the end of the bolt as a line 13 of Fig. 4) parallel with the plane of the saw and the slabs tapered slightly toward the narrow portion of the bolt the best results would be obtained. One of my devices for effecting this result consists of a blade 14, which has a sliding relation with the holding-lever 7, so as to be capable of adjustment in different positions parallel to said holding-lever, which is itself parallel to the plane of the saw. In using this device the bolt is seated upon the table 6 of the carriage 1 with its lateral edge 12 in contact with the bolt-gage 11, and the bolt is adjusted so that the lower edge of the blade 14 coincides with the marking of the medullary ray, centrally disposed between the diverging faces of the bolt, which appears on the end of the bolt as a line 13, in which position the centrally-disposed medullary ray is necessarily parallel with the saw. As can be seen, this gives the operator a positive means for adjusting the bolt in position for cutting the first strip, and the bolt is adjusted after the first strip is sawed off by placing each succeeding new face (formed by cutting off the last strip) in contact with the bolt-gage.

I am aware that other means may be employed for giving the bolt its initial position, one of which means I have herein shown, which is constructed as follows: Pivotally secured to the upper and lower portions of the bolt-gage 11 so as to rotate in a plane at right angles to the direction of extension of the bolt on the carriage are the cams 15, mounted on the axis 28 so as to be rotated simultaneously and correspondingly by means of the hand-operated lever 16 and connecting-rod 17 and be thrown outward into position beyond the surface of the bolt-gage 11, as shown in full lines in Fig. 2, and to be thrown out of position, as shown by dotted lines in the same figure, in which position no part extends beyond the surface of the bolt-gage, as can be seen. It is customary in the art to use fractional sectors of sections of a tree-trunk, and, as can readily be seen, every similar sector, no matter what the diameter of the tree may have been, when placed with the edge 12 thereof against the bolt-gage 11 on a fixed line and bearing against the said cams 15 will have the centrally-disposed medullary ray extending in the corresponding direction and in my invention I make the cams 15 of such a size that when thrown into position and the bolt placed on the carriage with its lateral edge 12 on a fixed line on the bolt-gage and its lateral surface bearing against said cams that the said centrally-disposed medullary ray will be parallel with the plane of the saw. The cams 15 may be made adjustable on the shaft or axis 28 and adapted to be locked in various positions thereon or may be otherwise arranged so that they may be adjusted to extend beyond the surface of

the bolt-gage at proper distances for any fractional sector from which the bolt may be formed.

For the purpose of indicating the line at which the lateral edge 12 of the bolt must contact with the bolt-gage 11 I provide either one of the two following constructions, or both. A pointer 18 may be placed upon the upper portion of the bolt-gage so as to indicate the proper position of the edge of the bolt, or a spring-actuated indicator 19, normally held, by means of the spring 20, in the position shown in Fig. 2 and adapted to swing against the pressure of the spring 20 out of the path of the bolt as the said bolt moves forward to be engaged by the saw. The bolt when given its initial position by the means I have last described will be placed on the carriage in the position shown by the dotted lines in Fig. 2 and with the indicators properly placed on the bolt-gage and the cams 15 extending the proper distance outward from the bolt-gage will be so positioned that the centrally-disposed medullary ray thereof will be parallel to the plane of the saw. After being properly positioned and locked in that position by means of the holding-lever 7 the cams 15 are thrown to their inoperative position and the first strip sawed off from the bolt. After this first strip has been sawed off the remainder of the bolt is positioned for sawing by simply placing each new surface formed in contact with the bolt-gage. In connection with these devices and for the purpose of sawing slightly-tapered slabs I have provided the following construction: On the bolt-gage 11 the parallel strips 21 are provided, secured at the ends nearest the saw to the bolt-gage and adapted by spring-pressure of the portion 22 thereof to lie in contact with the surface of the bolt-gage. At the opposite ends of the said strips and pivotally secured to the said bolt-gage are the cams 23 and 24, similarly arranged on the axis 25, so as to rotate correspondingly. Against these cams the ends of the strips 21 bear, the lower cam being provided with a smooth surface and the upper cam 23 with a notched surface, and there is a projection 26 on the end of the upper strip, so that the cams may be rotated, swinging the strips angularly away from the guide-board and locked in different positions of adjustment by the engagement of the said projection on the upper strip with the notches of the cam 23. By this means the bolt-gage can be adjusted so that the strips which are sawed from the bolt will taper slightly. Thus, as can be seen, after the bolt has been given its initial position by the means heretofore described or other suitable means and the first strip (shown at 27 in Fig. 4) sawed off a flat surface is made, which is placed in contact with the bolt-gage for the sawing of the second strip. This flat surface, as is evident, provides a ready means for adjusting the bolt for sawing off the second strip, and the remainder of the bolt is adjusted in a similar way, the means which I have heretofore described for adjusting the block being adapted to give the bolt its initial position.

These devices which I have herein described and shown as applied to the heading-saw are equally suited for use on the stave-saw, each of which saws consists, essentially, of a reciprocating carriage in proximity to a bolt-gage, against which the bolt is adjusted and locked in position on the carriage previous to being moved into contact with the saw. It is evident to those acquainted with the art that the blade 14 can be arranged on the holding-dog which locks the bolt on the carriage of the stave-saw and movable laterally thereon or otherwise mounted on the carriage or carriage-bed to indicate the line with which the centrally-disposed medullary ray of the bolt must coincide to be sawed in the most satisfactory manner. The cams 15 may also be arranged on the bolt-gage of the stave-saw so as to be capable of being thrown in position to engage the lateral surface of the bolt to be sawed. In the stave-saw, however, the necessity for the indicators is obviated, for the bolt when resting with its curved or bark surface upon the supporting-surface of the carriage with its lateral edge against the bolt-gage and its lateral surface in contact with the said cams necessarily can have but one position.

While I have herein shown and described certain forms of my invention as applied to the heading-saw, I am aware that other equivalent means may be used to effect the same purpose, and I am also aware that my invention can be applied to any sawing-machine wherein the bolt to be sawed is carried by a reciprocating or moving carriage.

What I claim is—

1. In a sawing-machine, the combination of a saw, a carriage adapted to carry the work to and from engagement with the saw, a gage for regulating the thickness of the cut, and withdrawable means on said gage adapted to be projected from the face of the gage across the path of the saw for preliminarily adjusting the work on the carriage.

2. In a sawing-machine, the combination of a saw, a carriage adapted to carry the work to be sawed to and from engagement with the saw, a gage for regulating the thickness of the cut, cam-disks adapted to be projected forward from the face of the gage, and means for indicating the line of contact of the forward edge of the work with the gage.

3. A machine for sawing in planes parallel to a predetermined line not parallel to the edge of the work, comprising the combination with a saw and a traveling carriage, of means for preliminarily placing the work on said carriage embracing a gage located at one

side of the path of the carriage to engage the forward end of the work on the carriage to regulate the thickness of the cut, and a withdrawable means adapted to be projected beyond the plane of the face of said gage to engage a rearward point of said work.

4. A machine for sawing in planes parallel to a predetermined line not parallel to the edge of the work, comprising the combination with a saw and a traveling carriage, of means for preliminarily placing the work on said carriage embracing a gage located at one side of the path of the carriage to engage the forward end of the work on the carriage to regulate the thickness of the cut, and means on the carriage to engage the top of the work to indicate the relation between the line of cut of the saw and the position of the work on the carriage.

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

MAX ROSENOW.

Witnesses:
E. M. GILES,
MARY E. COMEGYS.