

G. A. DICKIE.  
BEVELING AND LINE TRACING PLANER.  
APPLICATION FILED DEC. 12, 1916.

1,237,487.

Patented Aug. 21, 1917.

5 SHEETS—SHEET 1.

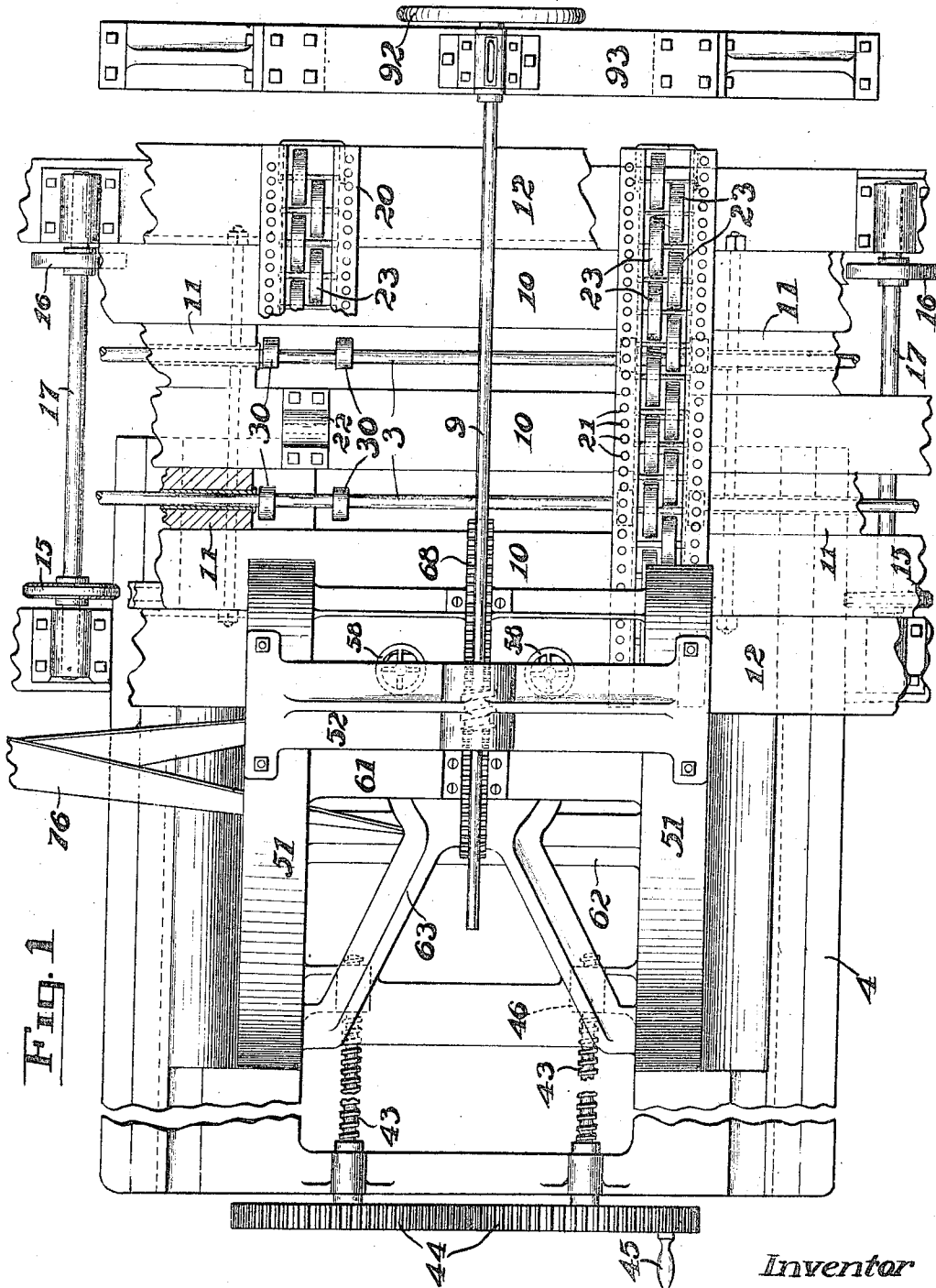


Fig. 1

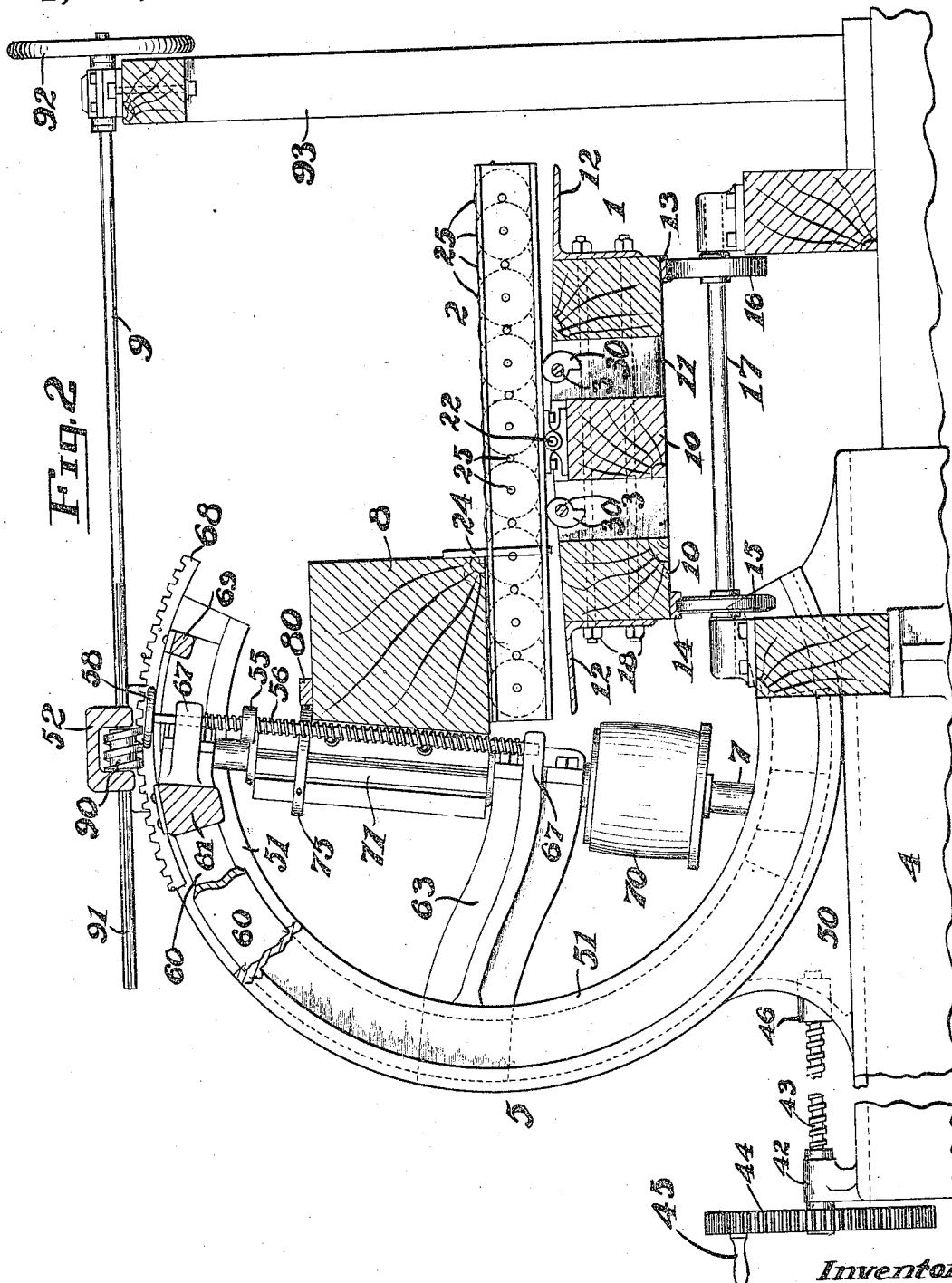
Inventor  
George A. Dickie  
By Henry L. Reynolds  
Attorney

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Fig. 3

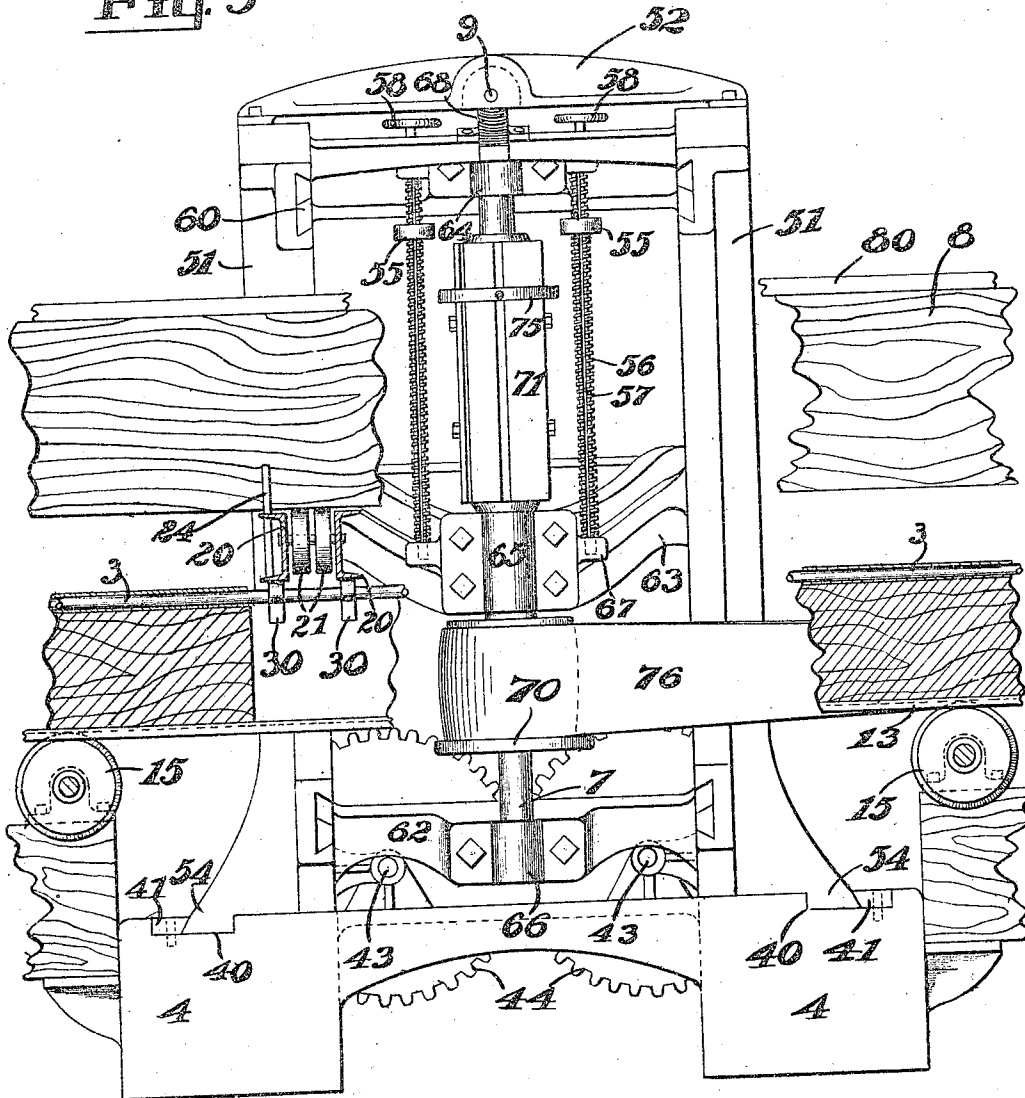
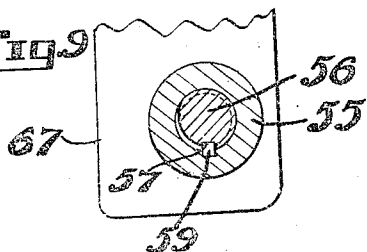


Fig. 9



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George A. Dickie  
By Harry L. Reynolds  
Attorney

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Fig. 4

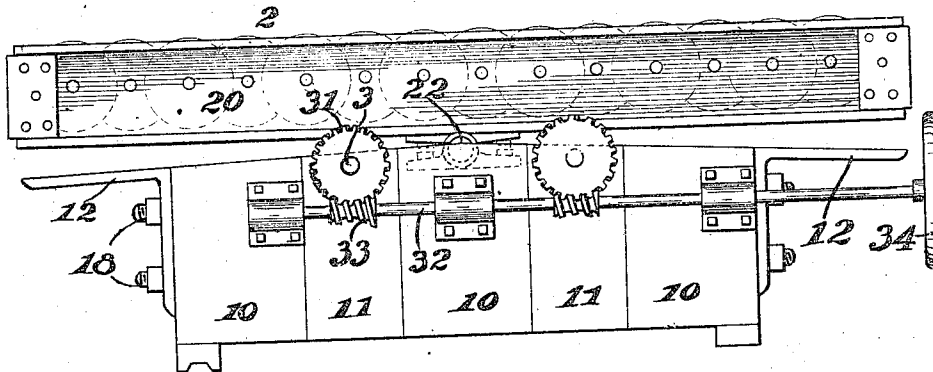
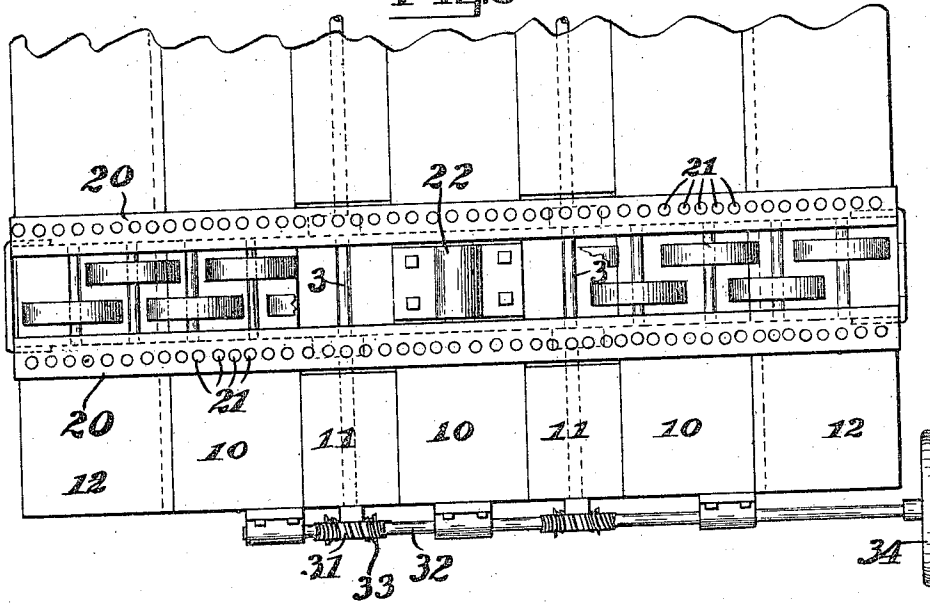


Fig. 5



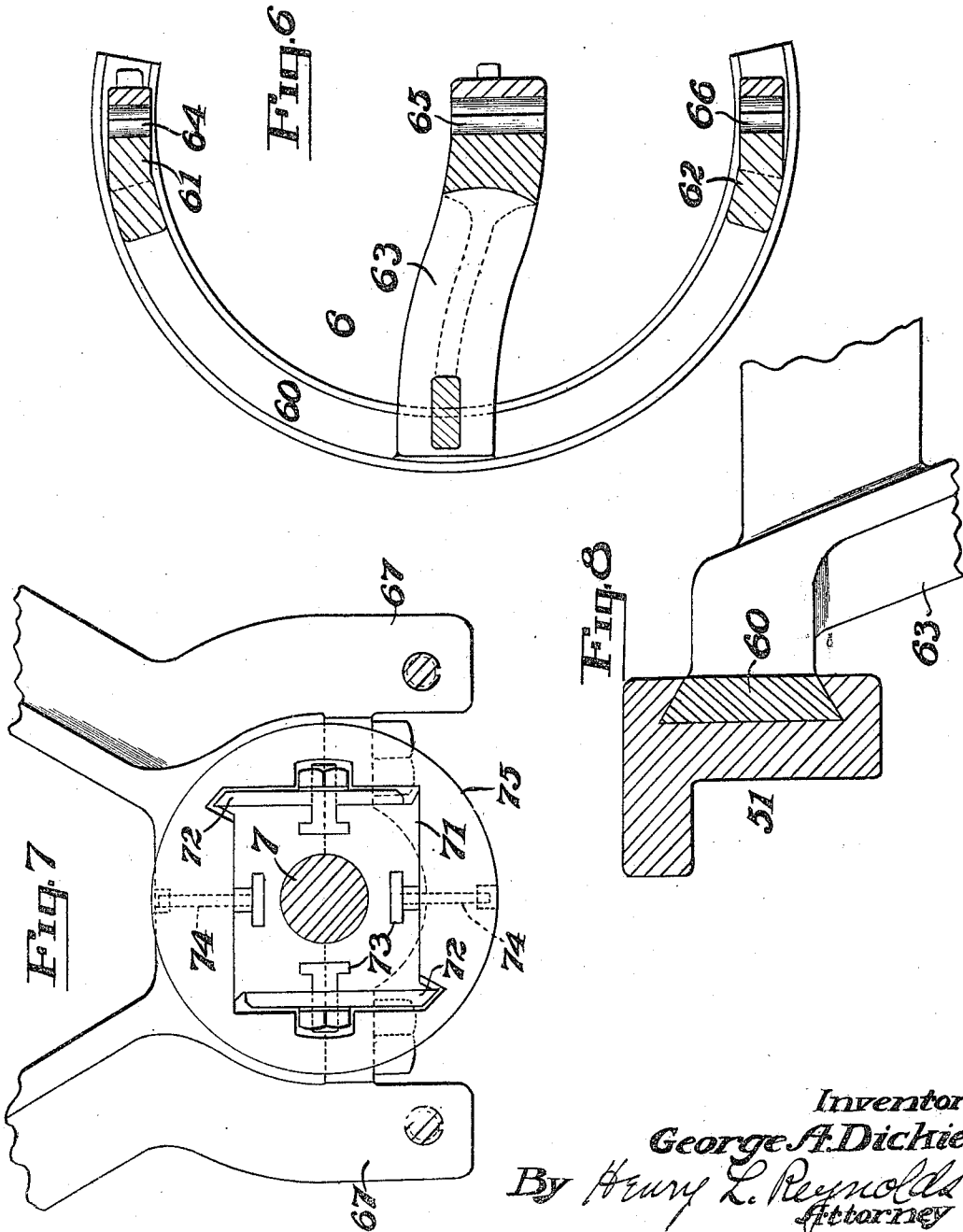
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*George A. Dickie*  
By *Henry L. Reynolds*  
Attorney

# UNITED STATES PATENT OFFICE.

GEORGE A. DICKIE, OF SEATTLE, WASHINGTON.

BEVELING AND LINE-TRACING PLANER.

1,237,487.

Specification of Letters Patent.

Patented Aug. 21, 1917.

Application filed December 12, 1916. Serial No. 136,404.

*To all whom it may concern:*

Be it known that I, GEORGE A. DICKIE, a citizen of the United States, and resident of the city of Seattle, county of King, and State of Washington, have invented certain new and useful Improvements in Beveling and Line-Tracing Planers, of which the following is a specification.

My invention relates to wood planers and particularly to planers designed for producing curved or beveled sides upon timbers. The type of planer to which it has been applied is that in which a reciprocating carriage is employed, the same being quite generally employed for dressing large timbers.

The object of my invention is to provide a planer of the latter type with means whereby it may be used to bevel timbers and to vary the angle of the bevel at different points without stopping the operation of the planer.

My invention consists of the parts and combinations of parts which will be hereinafter described and then particularly pointed out in the claims.

In the accompanying drawings I have illustrated my invention in the type of construction which is now preferred by me.

Figure 1 is a plan view of my beveling attachment showing a part of the planer carriage.

Fig. 2 is an elevation of the same parts, the carriage being in transverse cross section and a part of the frame of the attachment being broken away.

Fig. 3 is an elevation taken from across the carriage, parts of the carriage being shown in longitudinal section, but broken away directly in front of the beveling attachment.

Fig. 4 is an end elevation and Fig. 5 a plan view of the carriage showing the means employed for canting a timber upon the carriage.

Fig. 6 is a section on a vertical plane through the head carrying frame.

Fig. 7 is a sectional plan taken just above the cutter head.

Fig. 8 is a section showing the circular guides.

Fig. 9 is a section taken just above guide rollers 55.

In certain kinds of work, as for instance in the construction of wooden ships, it is necessary to bevel the sides and edges of very

many of the timbers used and such bevels rather often vary in angularity throughout their length. To bevel a side or edge of a timber where the angle of the bevel is constant is easily done by tilting the shaft of a side head, but where this angle is constantly varying, something more must be done.

By my invention I mount a side head so that it may be tilted within a considerable angle and provide means for varying this angle while running. With this I also employ a guide strip which is secured to the timber in a curve conforming with the curve which it is desired to give the side of the timber, and employ a guide, or guides, carried by the head-carrying frame which engage the guide strip upon the timber to thereby determine the depth of cut and thereby the bevel given the side.

The carriage 1, is of a size to hold the largest timber to be worked upon, it is herein shown as having its bed mainly composed of timbers 10 separated by spacing blocks 11 and bound together by bolts 18. I have also shown it as having an angle bar 12 at each side. It also has track rails 13 and 14 on its under side, these running on wheels 15 and 16 carried on shafts 17.

The construction of the carriage may, however, be made widely different from this. I have not shown any means for reciprocating the carriage as this does not form any special feature of my invention. Any suitable carriage of this general type will answer for carrying out the larger part of my invention, and any suitable carriage traversing mechanism will answer.

The beveling attachment is located alongside the path of travel of the carriage. Where this device is installed as an attachment to a planer equipped to operate in the usual manner, I prefer to mount the device so that it may be withdrawn when desired. To this end I then employ a base 4 having guide ways 40 thereon which receive the feet 54 of the main frame, so that it may slide back and forth as needed. This may be done by threaded shafts 43 which are journaled in brackets 42 of the frame 4 and thread through nuts 46 secured to or forming a part of the main frame 5. Gears 44 connect the two shafts 43 to insure like movements. One of these may be given a handle, as 45.

The main frame has the cutter head carrying frame mounted thereon so that the latter may be turned about an axis which extends lengthwise and parallel, or substantially parallel with the direction of travel of the carriage. The manner illustrated for doing this is as follows:

The main frame has two upstanding arms, 51 forming a circularly curved segment of considerable extent. As shown these are rather more than half of a circle. These are separated lengthwise the carriage and have guide ways thereon upon which is mounted the cutter head carrying frame 6, which is shown separately in Fig. 6.

The guide ways, as shown, consists of undercut grooves in which fit the like shaped segment bars 60 of frame 6. The upper ends of these curved bars are connected by a bar 52, and may be otherwise connected.

The cutter head carrying frame 6 comprises the two circular segment bars 60 which are connected together in suitable manner and provided with bearings for the cutter head shaft. The upper and lower ends are connected by bars 61 and 62, respectively, these having bearings 64, 66 for the shaft. I also prefer to provide a central arm or arms 63 which provide a central bearing 65.

The cutter head 71 should, for the work referred to, be of considerable axial extent. I have shown a standard type consisting of a block 71, mounted on shaft 7 and having knives 72 secured to its sides. A driving pulley 70 is secured on the opposite side of the central bearing.

The central end of the cutter head, or that end which is toward the axis of the circular segments 51, 60, being the lower as illustrated, should extend to or just beyond the axis of these segments. The axis of the cutter head and of its shaft 7, should not be a diameter, but should be off-set enough to bring the cutting side of the head to a diameter. The axis of the segments should also coincide with the lower, outer finished edge of the timber.

As a convenient means for shifting the cutter head carrying frame to vary the bevel given the side of the timber, I have provided the frame 6 with a toothed circular segment 68 and have mounted an intermeshing worm 90 within a bar 52 which is connected with the guide ways 51. A shaft 9 has a key way 91, by which a key associated with the work will permit free sliding of the worm on the shaft while binding them to turn together. This feature is needed only if the attachment is to be moved bodily back from the carriage.

In connection with the above mechanism I employ a guide which is placed upon the stick being beveled. This preferably consists of a strip of wood 80 of a length to extend throughout the length of the stick

which is to be beveled. The stick or timber 8 has laid out upon its surface a line representing the distance to which it is to be cut back on this side. The guide strip 80 is then secured with its outer face inward from this line a distance determined by the dimensions of the guide wheels or rollers carried by the cutter head carrying frame.

I have shown two types of these guide wheels, these being each adapted for its special conditions and capable of either being used, as may best fit the conditions. One of these consists of a guide wheel 75, which is mounted directly upon the cutter head, so that it may be adjustable along the head to thereby engage the guide strip 80.

The other consists of the two rollers 55, which are adjustably mounted upon the shafts 56, which are journaled close alongside the cutter head. These shafts are threaded and also the rollers 55. The shafts 56 are provided, each with a key way 57 and also rollers 55. The shafts 56 may each be provided with a hand wheel 58 by which it may be held when adjusting the rollers 55. With a key in the key ways of shaft and roller, the two are bound together. This is secured by inserting a key 59. By removing the key, the roller may be run up or down.

The first thing to be done is to secure the guide strip 80 to the timber in conformity with the amount it is desired to cut away. The guide wheel, or rollers, as the case may be, are then adjusted to the height of the timber. The cutter head is then tilted enough to maintain the guide against the strip 80. This may be easily done by operating the wheel 92. In this manner a bevel of continuously varying angle may be formed on the timber.

The roller directly upon the cutter head is theoretically more accurate and correct than the rollers at each side of the head. For sharp variations in angle of bevels, which produce curves of relatively short radius, this type of guide wheel is best. Where, however, the curves are easier, the rollers 55 are essentially as good.

For convenience in handling timber upon the carriage, I prefer to mount upon the carriage a series of transversely extending bars or bunks 2, for carrying the timbers, and to provide these with rollers 23 which project slightly above the beams 20 which form the bunks.

The beams 20 are preferably of a metal section which has a top and bottom flange, as a channel bar. These flanges are provided with a series of holes 21, those in one beam being preferably staggered relatively to those in the other. I also prefer that those in the lower flange be slightly smaller than those in the upper, so that a pin 24 having its lower end slightly reduced in diameter

may be held against dropping through when placed in the holes. These pins provide a backing for the timber.

If the bunks or transverse beams be pivoted, the face of the timber may be given a bevel by tilting the bunks. I have, therefore, shown the bunks as pivoted centrally on pivots 22. Shafts 3 extend lengthwise the carriage and have cams 30 supporting the bunks. The bunks may be thus tilted. At the ends, or other convenient points on the carriage, work wheels 31 on shafts 3 and works 33 on a transverse shaft 32 turned by a wheel 34, may be used to turn the shafts 3. Small angled bevels of a continuous character may be conveniently made by tilting the bunks. In such cases the use of the guide strip 80 and the guide rollers may be unnecessary.

What I claim as my invention is:

1. In a beveling and line tracing planer, in combination, a traveling work holding carriage, a side head mounted for adjustment about an axis parallel with the direction of movement of the carriage, a flexible templet strip adapted to be secured to the work, and a cut-regulating-roller associated with the head and engaging said templet strip to control the depth of cutting of the head.

2. In a beveling and line tracing planer, in combination, a work holder, a side head mounted for adjustment about an axis extending parallel with the length of the work, a flexible templet strip adapted to be secured directly upon the work, a presser or follower member carried conjointly with the side head, and means for securing a traversing movement between the work and the side head lengthwise of the work.

3. In a line tracing planer, a reciprocating work holder, a cutter head, a flexible templet adapted to be secured directly upon the work, and a presser or follower member carried conjointly with the cutter head and adapted to control the depth of action of the cutter head by engagement with said templet.

4. In a beveling and line tracing planer, in combination, a reciprocating carriage, a frame supported alongside the carriage to turn about an axis which parallels the direction of travel of the carriage, a cutter head mounted upon said frame with its cutting edge in a line which intersects said axis, a depth gage carried by said head and a templet strip secured to the work and engaged by said depth gage.

5. In a beveling and line tracing planer, in combination, a movable work supporting table, a side cutting head mounted alongside said table, a templet strip adapted to be secured to the upper surface of the work, and a cut-regulating roll carried jointly with the cutting head and positioned to engage said

templet to thereby limit the depth of cut of the head.

6. In a beveling and line tracing planer, in combination, a movable work supporting table, a side cutting head mounted along- side said table, a templet strip adapted to be secured to the upper surface of the work, a cut-regulating roll carried jointly with the cutting head and positioned to engage said templet to thereby limit the depth of cut of the head, and means for adjusting said roll lengthwise the cutting head.

7. In a beveling and line tracing planer, in combination, a movable work supporting table, a side cutting head mounted alongside said table, a templet strip adapted to be secured to the upper surface of the work, a cut-regulating roll carried jointly with the cutting head and positioned to engage said templet to thereby limit the depth of cut of the head, and means for adjusting the axis of the cutting head while the machine is running about an axis extending parallel with the direction of movement of the carriage.

8. In a line tracing planer, in combination, a reciprocating work holder, a flexible templet strip adapted to be secured to a surface of the work adjacent that to be dressed, a cutter head mounted for bodily movement toward and from the work, and a depth gage mounted to move with the cutter head and adapted to engage said templet strip.

9. In a line tracing planer, in combination, a reciprocating work holder, a flexible templet strip adapted to be secured to a surface of the work adjacent that to be dressed, a cutter head mounted for bodily movement toward and from the work, a depth gage mounted to move with the cutter head and adapted to engage said templet strip and means for adjusting said depth gage lengthwise of the axis of the cutter head.

10. In a line tracing planer, in combination, a reciprocating work holder, a flexible templet strip adapted to be secured to a surface of the work adjacent that to be dressed, a cutter head mounted for bodily movement toward and from the work, a depth gage comprising a roller secured concentric with the cutter head and adapted to engage said templet strip and means for adjusting the depth gage lengthwise the axis of the cutter head.

11. In a beveling and line tracing planer, in combination, a traveling work holder, a frame member alongside said work holder and having two circular-segmental guides separated lengthwise of and concentric with an axis extending parallel with the direction of travel of the work holder, a cutter carrying frame having complemental circular-segmental guides having supporting engagement with those of the said frame, a toothed



gear segment carried by said cutter carrying frame, a fixedly journaled actuating gear member engaging said gear segment, and a cutter head journaled in said adjustable frame.

12. In a beveling and line tracing planer, in combination, a traveling work holder, a frame member alongside said workholder and having two circular-segmental guides separated lengthwise of and concentric with an axis extending parallel with the direction of travel of the work holder, said axis being in the plane of and just without the work supporting surface of the work holder, a cutter carrying frame having complemental circular-segmental guides having supporting engagement with those of the said frame, a toothed gear segment carried by said cutter carrying frame, a fixedly journaled actuating gear member engaging said gear segment, and a cutter head journaled in said adjustable frame to bring its cutting edge radial with the axis of adjustment.

13. In a line tracing planer, in combination, a reciprocating work holder, a flexible templet strip adapted to be secured to a surface of the work adjacent that to be dressed, a cutter head carrying frame mounted for angular adjustment about an axis which is parallel with the direction of travel of the work, a cutter head having its axis parallel with a radius extending from said axis of adjustment and its active cutting edge coinciding with such radius, and means for moving said cutter head carrying frame laterally toward and from the work.

14. In a beveling planer, in combination, a reciprocating work carrying table, a frame at one side of this table having guide ways extending outward from the table, a frame mounted for movement on said guideways and having arcuate guide ways concentric with an axis which extends parallel with the direction of movement of the work carrying table and substantially in the plane of the work supporting surface of the table, means for moving said latter frame upon its supporting guide ways, a cutter-head-carrying frame having complemental arcuate members engaging said arcuate guide ways, means for adjusting said cutter-head-carrying frame upon said arcuate guide ways, and a cutter head having its shaft journaled on said cutter-head-carrying frame to bring its active cutting edge radial with the axis of said arcuate guides.

15. In a beveling planer, in combination, a reciprocating work carrying table, a frame alongside said table and having arcuate guide ways concentric with an axis which substantially coincides with a side edge of said table, a cutter-head-carrying frame mounted for adjustment on said guide ways, a cutter head journaled on said latter frame to have its active cutting edge radial with the axis of said guideways and means for adjusting said cutter-head-carrying frame from the opposite side of the table.

Signed at Seattle, Washington, this 5th day of December, 1916.

GEORGE A. DICKIE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."