

No. 871,231.

PATENTED NOV. 19, 1907.

L. G. MERRITT.
VENEER CUTTING MACHINE.
APPLICATION FILED OCT. 5, 1905.

2 SHEETS—SHEET 1.

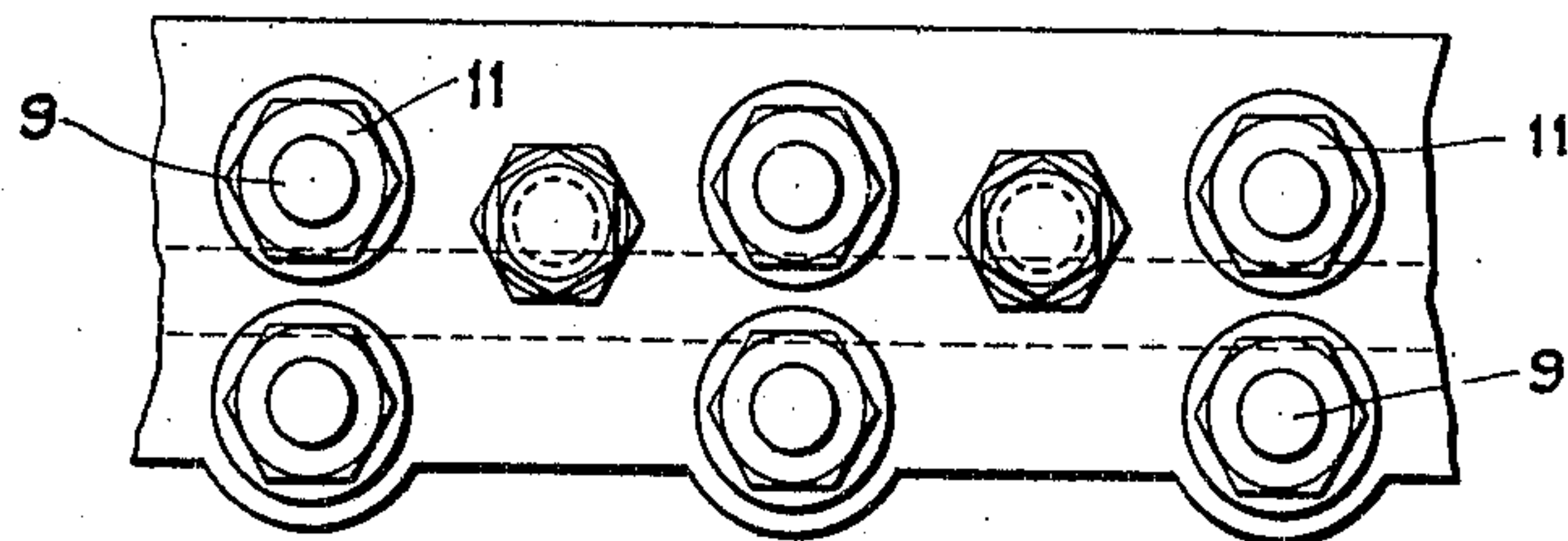


Fig. 3.

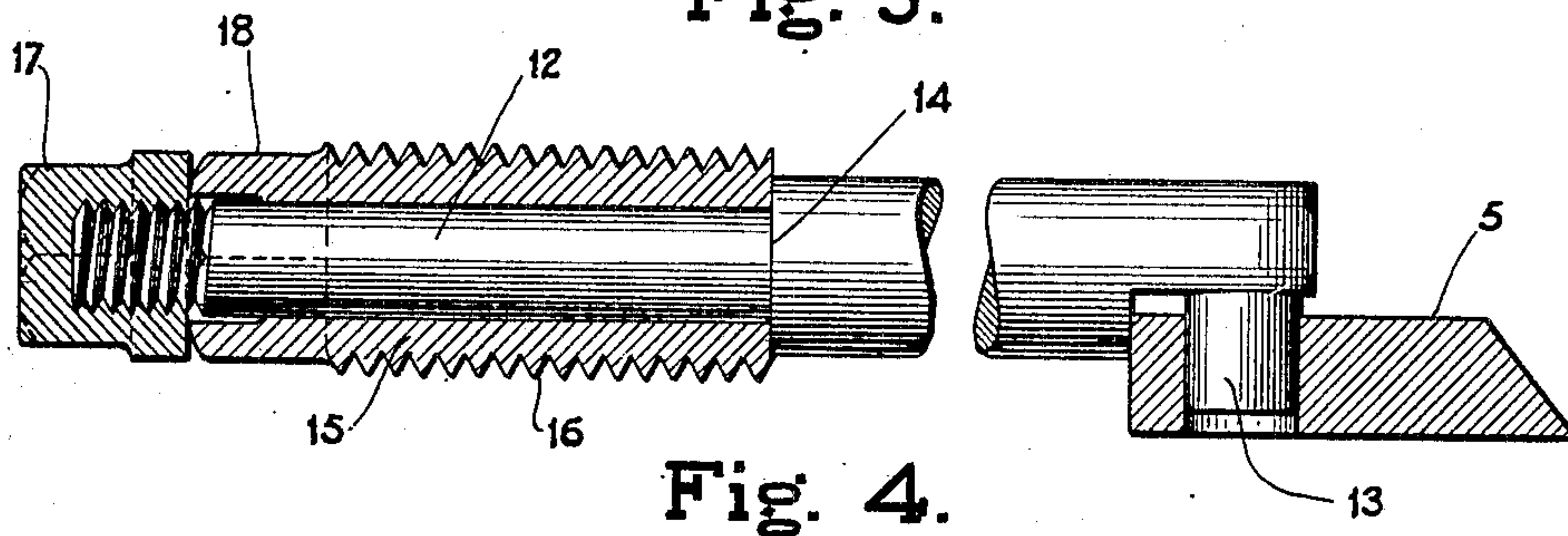


Fig. 4.

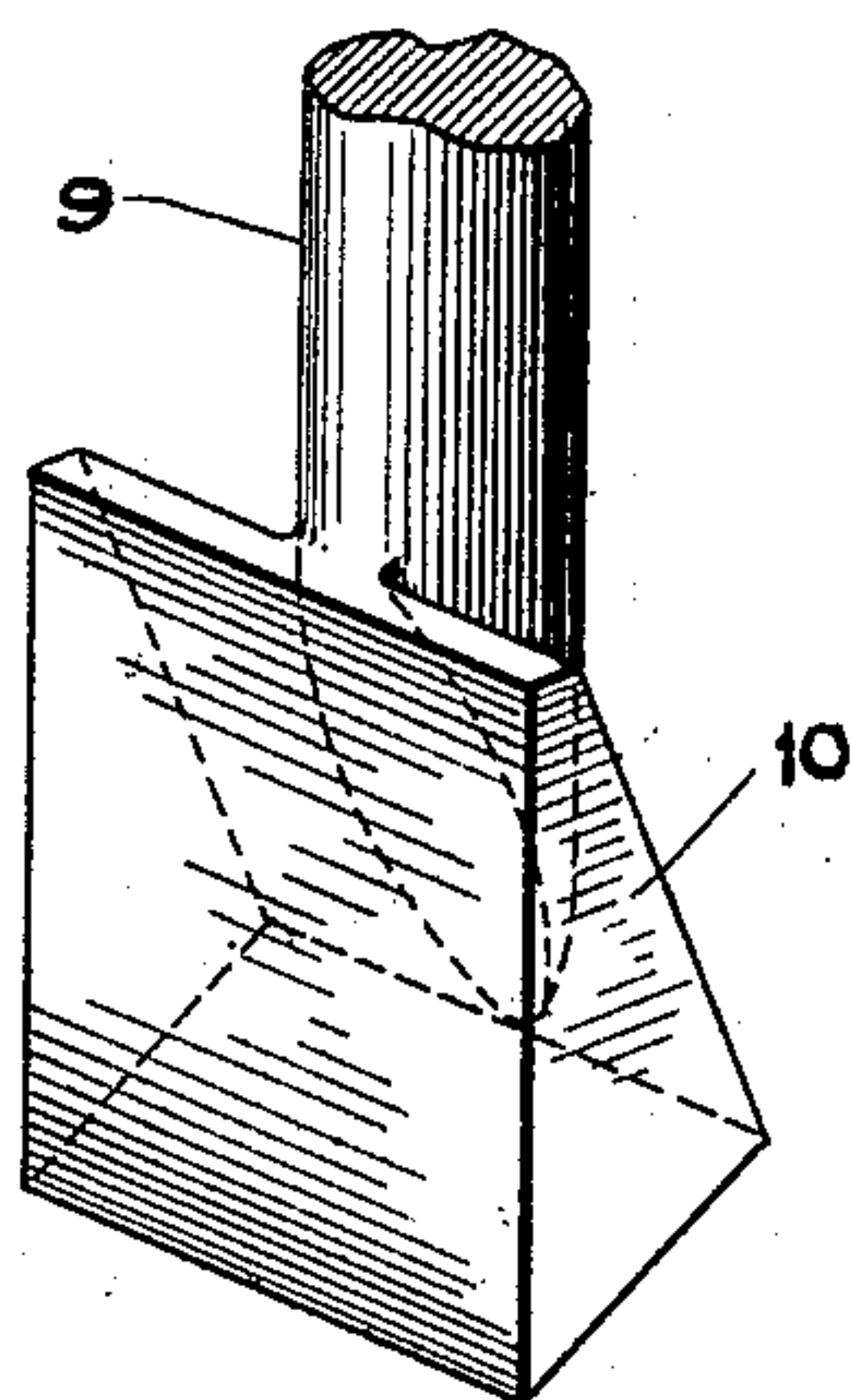


Fig. 2.

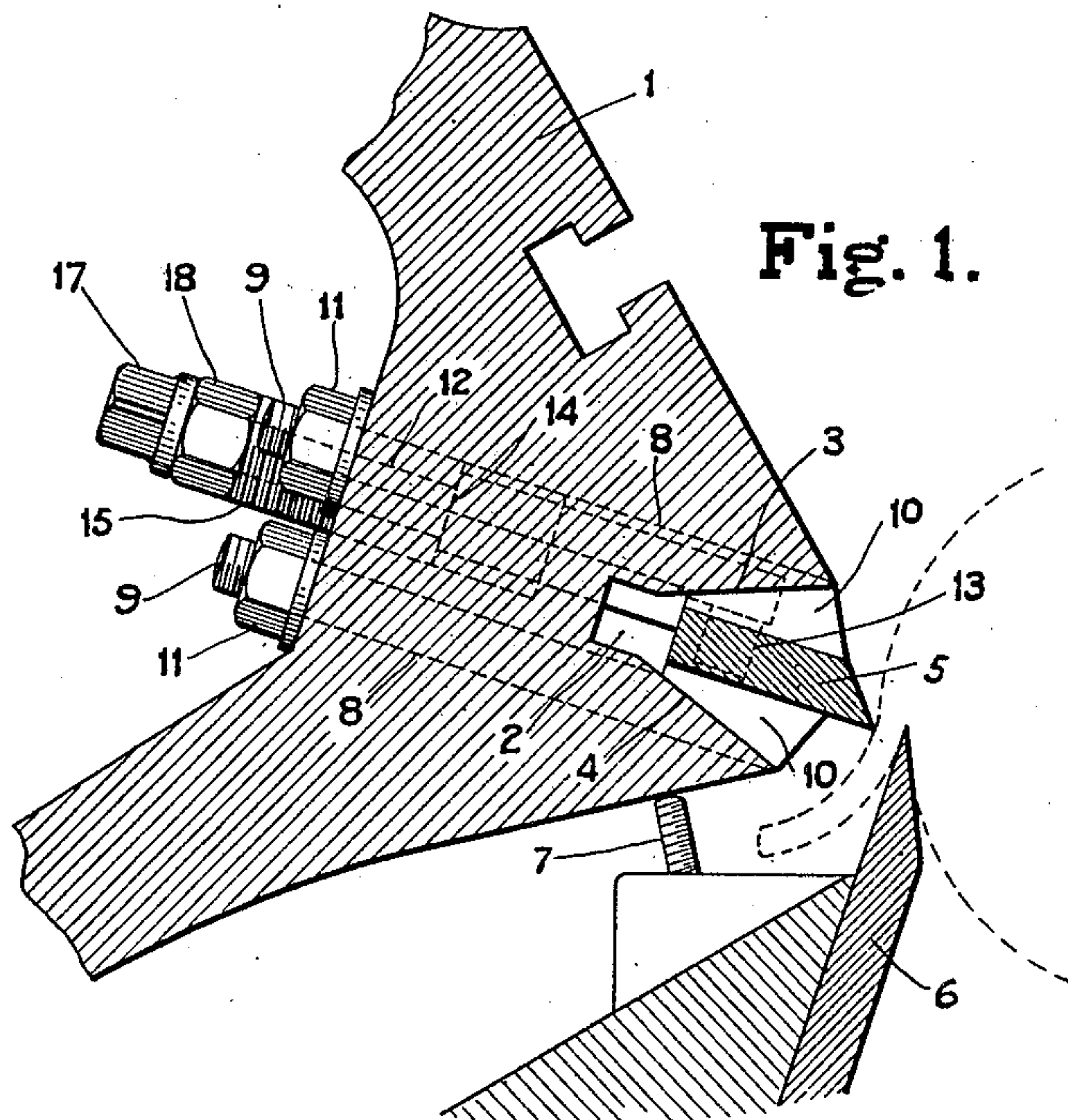


Fig. 1.

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2 SHEETS—SHEET 2.

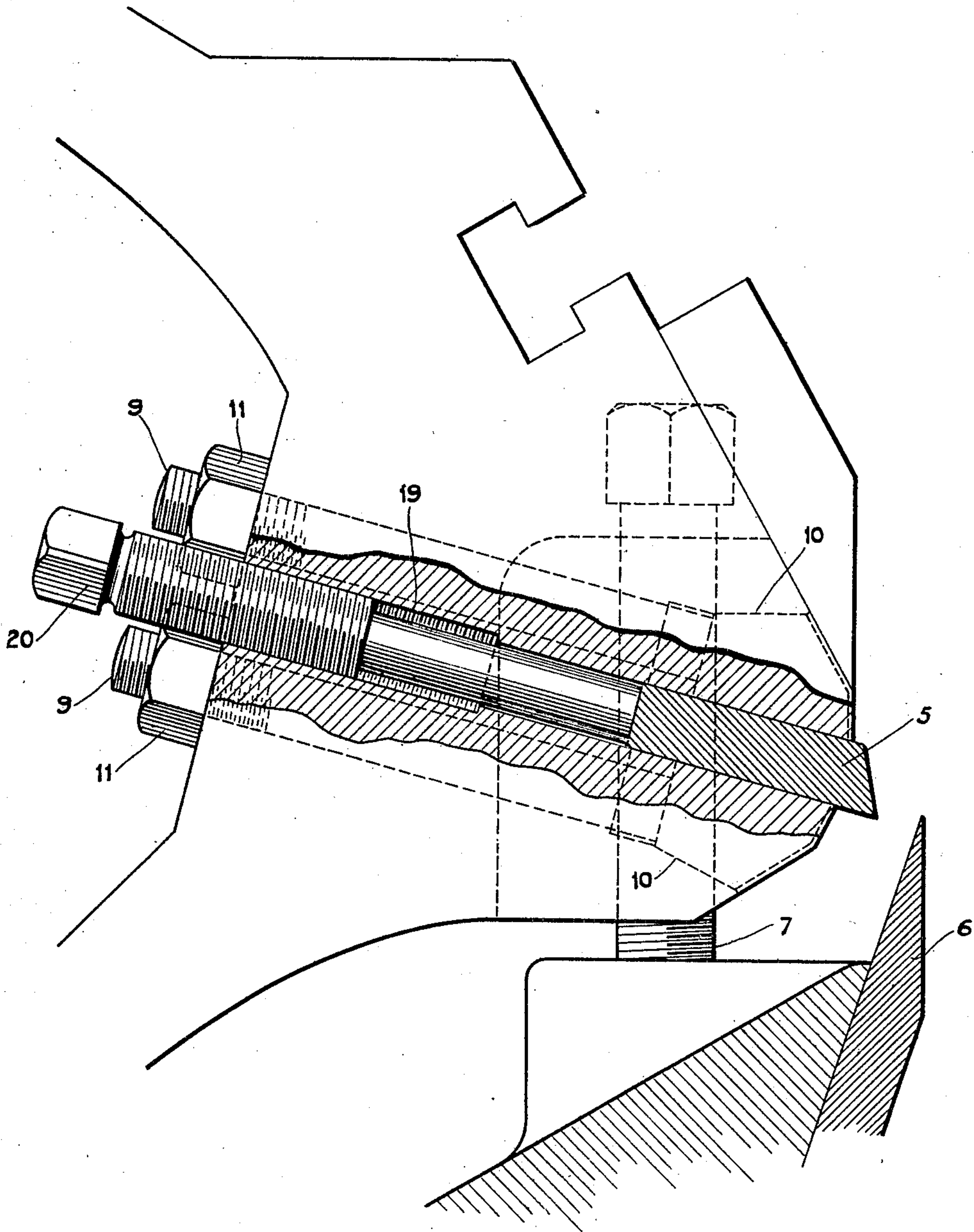


Fig. 5.

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UNITED STATES PATENT OFFICE.

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VENEER-CUTTING MACHINE.

No. 871,231.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed October 5, 1905. Serial No. 281,393.

To all whom it may concern:

Be it known that I, LOUIS G. MERRITT, residing at Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Veneer-Cutting Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to veneer-cutting machinery, and has for one of its objects the provision of mechanism adapted to change the contour of the pressure-bar or pressure-plate of a veneer-cutting machine so that the same may be made to conform to the edge of the knife.

Another object is to provide means for adjusting the pressure-plate bodily laterally or edgewise or to produce similar movements of portions of the same by springing portions thereof laterally or edgewise, said means operating also to clamp the pressure-plate in a fixed position after adjustment.

Another object is to provide single means adapted to move or spring the pressure-plate edgewise in either direction.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the mechanism hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is shown one of the various possible embodiments of my invention, Figure 1 is a vertical, sectional view through the pressure-plate support or cap, showing the pressure-plate located therein. Fig. 2 is a view in perspective partly broken away, showing an adjusting wedge. Fig. 3 is a rear elevation of a portion of the pressure-plate support or cap. Fig. 4 is a view in elevation of the means employed to adjust or spring the plate edgewise. Fig. 5 is a vertical, sectional view through the pressure-plate support and pressure-plate showing another embodiment of my invention.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Before entering into a detailed description of the specific features of my invention and

as conducive to a clearer understanding of certain of the important objects thereof, it may here be noted that, in veneer-cutting machines, it is of the utmost importance that the edge of the knife and the bearing surface of the pressure-bar or plate be disposed in a parallel relation throughout their whole extent or, in other words, that the contour of the knife and the pressure-plate shall follow each other, so that at all times there shall exist an opening of the same width therebetween; otherwise, the veneer to be cut will be rough and uneven, and the wood being cut will have a tendency to split or splinter, thus rendering the operation of the machine unsatisfactory and causing a loss by reason of spoiled material. As it is impossible to preserve the edge of the knife true by reason of the necessity of grinding and resetting the same at frequent intervals, and on account of the impracticability of distorting the knife so that the edge thereof will present a true line, it is desirable that the pressure-plate be so constructed as to be capable of being distorted in conformity to the irregularities of the knife edge. I have, therefore, found it desirable to provide means adapted to be operated to adjust the pressure-plate bodily or spring portions thereof laterally or edgewise, as desired, the adjusting means operating also to maintain the plate in any desired position firmly against movement. I have found it of advantage, moreover, to locate the adjusting means so that they may be manipulated from a convenient location not adjacent the knife and in such position that the operating parts cannot come in contact with water coming from the log during the operation of the machine. The above and other advantages are secured in constructions of the nature of that hereinafter described.

Referring now to the drawings, 1 denotes the pressure-plate support or casting, herein described as a "cap", which is provided in the forward portion thereof with a planed, wedge-shaped way 2 having inclined walls 3 and 4. Cap 1 is substantially triangular in cross-section. Located in planed way 2 is the pressure-bar or plate 5 made of steel and flexible so that it may spring laterally or edgewise. Plate 5 may be of any desired width or thickness. In practice, however, I have found a plate about one-half inch in thickness by two inches wide to be well adapted to accomplish the purposes of my

invention. Pressure-plate 5 is supported adjustably in planed way 2 by means presently to be described. The knife 6 is supported on the knife-carriage, made up preferably of an integral casting, and supports the forward end of cap 1 by suitable set screws, one of which is shown at 7.

Extending through two series of openings 8 arranged preferably at regular intervals in cap 1 are clamp-bolts 9, each of which is provided with a wedge-shaped head 10, and the inclined face of each of which engages an inclined wall of planed way 2, said bolts being capable of longitudinal adjustment by means of nuts 11. Clamp-bolts 9 are arranged in pairs, one above the other, so that the wedge-shaped heads 10 of each pair will be in opposed relation, and between the two series of wedge-shaped heads 10 is received the pressure-plate 5, as clearly shown in Figs. 1 and 5. I have found that the objects of my invention are best accomplished by arranging each pair of clamp-bolts at a distance of about three inches along cap 1. The distance, however, may be varied as desired. The pressure-bar is thus held by the wedge-shaped heads of clamp-bolts 9 at frequent intervals throughout its whole extent.

Between each pair of clamp-bolts there is provided an opening extending through cap 1, which receives a bolt 12 from an end of which extends a lug or teat 13 engaging in an opening drilled in pressure-plate 5, as clearly shown in Fig. 4. In order to set bolts 12 so that they will both push and pull, each bolt is provided with a shoulder 14 adapted to be engaged by a thimble 15 sleeved thereon, the thimble being threaded exteriorly, as at 16, into its opening in cap 1. A nut 17 is provided upon the end of each of bolts 12, and thimbles 15 are confined between nuts 17 and shoulders 14, as clearly shown in Fig. 4. Thimbles 15 are provided with hexagonal or squared nuts or heads 18, so that they may receive a wrench, and nuts 17 are slightly smaller than heads 18 to allow the wrench to pass beyond them.

Having thus described my invention, the operation of this embodiment of the same, which should be largely obvious from the above description, is substantially as follows: During the operation of the machine, pressure-plate 5 is clamped firmly between the wedge-shaped heads 10 to prevent a lateral movement thereof, while bolts 12 through thimbles 15, which are threaded in cap 1, prevent a movement of the same edgewise. When a new knife or one that has been resharpened is set in the machine, and should the cutting edge thereof be untrue or out of a straight line, that part of the pressure-plate adjacent the depressed or raised portions of the edge of the said knife may be made to conform to said contour by loosening certain of the nuts on clamp-bolts 9 and tightening

the nuts upon the corresponding clamp-bolts on the opposite side of said pressure-plate, and the wedge-shaped heads sliding upon the inclined surface of planed way 2 will cause the portion of pressure-plate adjacent thereto to be sprung laterally or, as in the present instance, substantially vertically. It will, therefore, be seen that, by a manipulation of clamp-bolts 9, pressure-plate 5 may be made to assume any desired contour to conform to the corresponding contour of the knife edge. By adjusting a number of bolts in the same zone, the pressure-plate may be sprung with a gentle curve or may be given an abrupt curve, as by adjusting but one pair of clamp-bolts. When it is desired to spring plate 5 horizontally or edgewise, it is only necessary to loosen nuts 11 on clamp-bolts 9 to allow pressure-plate 5 to slide therebetween, and a rotation of thimbles 15 in either direction will cause bolts 12 to push or pull, producing a corresponding movement of that portion of pressure-plate 5 engaged by said bolts. This arrangement enables the operator to set the pressure-plate to conform with every possible variation of the knife edge from a straight line up and down, or sidewise, the pressure-bar being clamped in any desired position by simply tightening nuts 11 upon clamp-bolts 9. At this point it may be noted that by the terms "vertical" and "horizontal", as herein used in the specification and claims, is meant any corresponding movements of the pressure-plate relative to the knife edge, but are not used in a limiting sense as the pressure-bar and knife may, in use, assume many other working positions, that shown herein being merely illustrative to disclose the invention. Should it be desired to remove the pressure-plate bodily from the machine, it is only necessary to loosen nuts 11 of clamp-bolts 9 and remove nut 17 from bolts 12, thereby allowing bolts 12 to slide from thimbles 15, allowing the free removal of the plate.

In the embodiment shown in Fig. 5, pressure-plate 5 is clamped between the wedge-shaped heads 10 of clamp-bolts 9, as in the embodiment above described, and extending through threaded openings 19 in cap 1 are set screws 20 engaging the edge of pressure-plate 5, a set screw being arranged between each pair of co-acting wedges 10. It will, therefore, be seen that pressure-plate 5 may be sprung up or down by means of wedges 10 and clamped firmly in any desired position, the edgewise adjustment being accomplished by means of set screws 20.

In either of the embodiments above described, it will be apparent that a bodily movement of the pressure-bar in a parallel direction may be accomplished by an equal loosening of the clamp-bolts on one side thereof and a corresponding tightening of

those upon the other side. In the embodiment shown in Figs. 1 to 4, an equal rotation of thimbles 15 in either direction will cause an equal edgewise movement of pressure-plate 5 throughout its whole extent, the direction of movement depending upon the direction of rotation of said thimbles. As shown in Fig. 5, a bodily movement of the pressure-plate in the cap may be accomplished by an equal rotation of set screws 20.

It will, accordingly, be seen that I have provided mechanism well adapted to achieve the objects of my invention characterized by increased simplicity and efficiency. The pressure-plate is held securely in the planed way in the cap and a great amount of pressure can be applied to spring it as required. The adjustment of the pressure-plate in all directions may be accomplished by means of one wrench, and from a convenient location removed from the knife, which, in the present instance, is in the rear of the cap. The provision of the mechanism whereby the bolts are caused to push or pull the pressure-plate furnishes a simple construction and one possessing many advantages, among which is the elimination of the use of set screws.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention could be made without departing from the scope thereof, I intend that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense. I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a veneer cutting machine, in combination, a pressure plate, a pressure plate support, a wedge-shaped member adapted by a movement relative to said pressure plate to spring a portion thereof in a vertical direction, and a second wedge-shaped member upon the opposite side of said pressure plate adapted in conjunction with said first-mentioned member to clamp said plate in any position to which the same is sprung.

2. In a veneer-cutting machine, in combination, a pressure-plate, a pressure-plate support, and a plurality of wedge-shaped members arranged upon either side of said plate, said wedge-shaped members being adapted to be operated to clamp said plate in a fixed position.

3. In a veneer-cutting machine, in combination, a pressure-plate support, a pres-

sure-plate arranged therein and adapted normally to assume a horizontal position, and a plurality of wedge-shaped members some of which are arranged above and others in the support of said pressure-plate, each one of said wedge-shaped members being adapted to be operated to distort the horizontal contour of said plate.

4. In a veneer-cutting machine, in combination, a support, a plurality of wedge-shaped members arranged in said support, and a pressure-plate arranged within said support and interposed between certain of said wedge-shaped members and adapted to be clamped in a fixed position thereby.

5. In a veneer-cutting machine, in combination, a support, a pressure-plate arranged in said support, and a plurality of serially-arranged wedges interposed in the support of said pressure-plate, either of said wedges in the series being adapted to be operated to clamp said pressure-plate in a fixed position against the wedges of another of said series.

6. In a veneer-cutting machine, in combination, a support, a pressure-plate arranged within said support, a series of wedge-shaped members arranged in the support of said pressure-plate, a series of wedge-shaped members arranged above said pressure-plate, the wedge-shaped members of one of said series being in vertical alinement with the corresponding wedges of the other of said series, and means for operating said wedge-shaped members to spring said plate in a vertical direction.

7. In a veneer-cutting machine, in combination, a support, a pressure-plate mounted in said support, a plurality of pairs of opposed wedge-shaped members arranged at regular intervals along said plate, and means for operating each of said pairs of wedge-shaped members to spring said plate in a vertical direction.

8. In a veneer-cutting machine, in combination, a support, a pressure-plate arranged in said support, a series of wedges arranged at regular intervals beneath said pressure-plate, a series of wedges arranged at regular intervals above said pressure-plate, corresponding wedges of each series being in opposed relation, and means for manipulating each corresponding pair of wedges to spring said plate in a vertical direction, said wedges being adapted to clamp said plate firmly in its sprung condition.

9. In a veneer-cutting machine, in combination, a pressure-plate, a support for said pressure-plate provided with a planed way, a series of wedges arranged at regular intervals in said planed way and interposed beneath said pressure-plate, a series of wedges arranged at regular intervals in said planed way above said pressure-plate, corresponding wedges of each of said series being in op-

posed relation, and independent means for operating each of said wedges to spring said pressure-plate in a vertical direction, said means being adapted to cause said wedges to clamp said plate in its sprung condition.

10. In a veneer-cutting machine, in combination, a pressure-plate, a support for said pressure-plate, said support being provided with a planed way, said planed way having inclined walls adapted to receive said pressure plate, a series of wedges interposed between an inclined wall of said planed way and said pressure-plate beneath the same, a series of wedges interposed between an inclined wall of said planed way and said pressure-plate above the same, corresponding wedges in each of said series being arranged in opposed relation, and means for operating each of said pairs of opposed wedges to spring a portion of said plate vertically and to clamp the same firmly in a sprung condition.

11. In a veneer-cutting machine, in combination, a pressure-plate, a support for said pressure-plate, a series of wedges arranged at regular intervals beneath said pressure-plate, a series of wedges arranged at regular intervals above said pressure-plate, corresponding wedges in each of said series being arranged in opposed relation, bolts extending through said support to the rear thereof from each of said wedges, and nuts on each of said bolts, said nuts being adapted to operate said bolts, whereby said wedges are caused to spring portions of said plate in a vertical direction and to clamp said plate in a sprung condition.

12. In a veneer cutting machine, in combination, a support, a pressure plate located in said support, a pair of members one of which is located upon either side of said plate adapted to spring said plate in a vertical direction and then clamp the same in its sprung condition, and a member in engagement with said plate adapted to spring the same edgewise.

13. In a veneer-cutting machine, in combination, a pressure-plate, a pressure-plate support, means located upon either side of the plate and free from but in engagement therewith adapted to spring the same in a vertical direction, and means having a positive connection with said plate adapted to spring the same edgewise in either direction.

14. In a veneer-cutting machine, in combination, a pressure plate a plurality of serially-arranged members positioned on opposite lateral sides of said plate adapted to be operated to spring said plate laterally and to clamp the same in a fixed position, and a plurality of serially-arranged members having a positive engagement with said plate adapted to spring portions of said plate edgewise in both directions.

15. In a veneer-cutting machine, in com-

ination, a support, a pressure-plate mounted in said support, a series of wedges arranged beneath said pressure-plate at regular intervals, a series of wedges arranged above said pressure-plate at regular intervals, corresponding wedges of each of said series being in opposed relation, means for operating said wedges to spring said pressure-plate laterally and to maintain the same in a fixed position, and a plurality of serially-arranged members each of which has a positive engagement with said plate, one of said members being arranged intermediate adjacent wedges of each of said series, said members being adapted to be operated to spring said plate edgewise in either direction and to maintain the same in a fixed position.

16. In a veneer-cutting machine, in combination, a pressure-plate and a support therefor, said pressure-plate being provided with a plurality of equally-spaced openings, a plurality of bolts extending through said support, each of which is provided with a projecting lug adapted to be received in the openings of said pressure-plate, thimbles upon each of said bolts, said thimbles being threaded into said support, and means upon each of said bolts engaging said thimbles, each of said thimbles being adapted to reciprocate said bolts in said support, whereby said plate may be sprung edgewise in either direction.

17. In a veneer-cutting machine, in combination, a pressure-plate and a support therefor, said pressure-plate being provided with a plurality of spaced openings, a plurality of bolts each of which extends through said support to enter an opening in said pressure-plate, nuts on each of said bolts, thimbles on each of said bolts having a threaded engagement with said support, each of said thimbles being interposed between a shoulder on its bolt and a nut on the end thereof, said thimble being adapted to be operated in either direction through said pressure-plate, whereby said pressure plate is sprung edgewise in either direction.

18. In a veneer-cutting machine, in combination, a pressure-plate, a support for said pressure-plate provided with a planed way, wedges arranged at regular intervals in said planed way at either side of said pressure-plate, corresponding wedges upon either side of said pressure-plate being arranged in opposed relation, bolts extending from said wedges through said support to the rear thereof, nuts on said bolts adapted to clamp said wedges in engagement with said pressure-plate, said pressure-plate being provided with a series of regularly arranged openings, each of said openings being arranged intermediate adjacent wedges, bolts extending through said support, each of which is provided with a hooked portion adapted to be received in an opening in said

pressure-plate, nuts on said bolts, and thimbles arranged on said bolts between shoulders thereon and said nuts, said thimbles being threaded into said support, said thimbles being capable of rotation in either direction, whereby said bolts are reciprocated in said support to spring the same edgewise and to maintain the same in a sprung condition.

19. In a veneer cutting machine, in combination, a pressure plate support, a pressure plate mounted thereon, and a plurality of members for adjusting said plate which extend through said support in parallel relation adapted to be manipulated from the rear of said support, certain of said members being adapted to spring said plate laterally and others thereof being adapted to spring the same edgewise.

20. In a veneer cutting machine, in combination, a support, a pressure plate, a plurality of members extending through said support and engaging said pressure plate, means upon certain of said members adapted

ed to be operated to spring said plate laterally and means upon others of said members adapted when operated to spring said pressure plate edgewise, all of said means being capable of manipulation from a common location.

21. In a veneer-cutting machine, in combination, a support, a pressure-plate mounted in said support; independent means extending through said support adapted to spring said pressure-plate laterally, and independent means extending through said support adapted to spring said pressure-plate edgewise, both of said independent means being capable of manipulation from the rear of said pressure-plate.

In testimony whereof I affix my signature, in the presence of two witnesses.

LOUIS G. MERRITT.

Witnesses:

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CLARA FITHIAN.