

(No Model.)

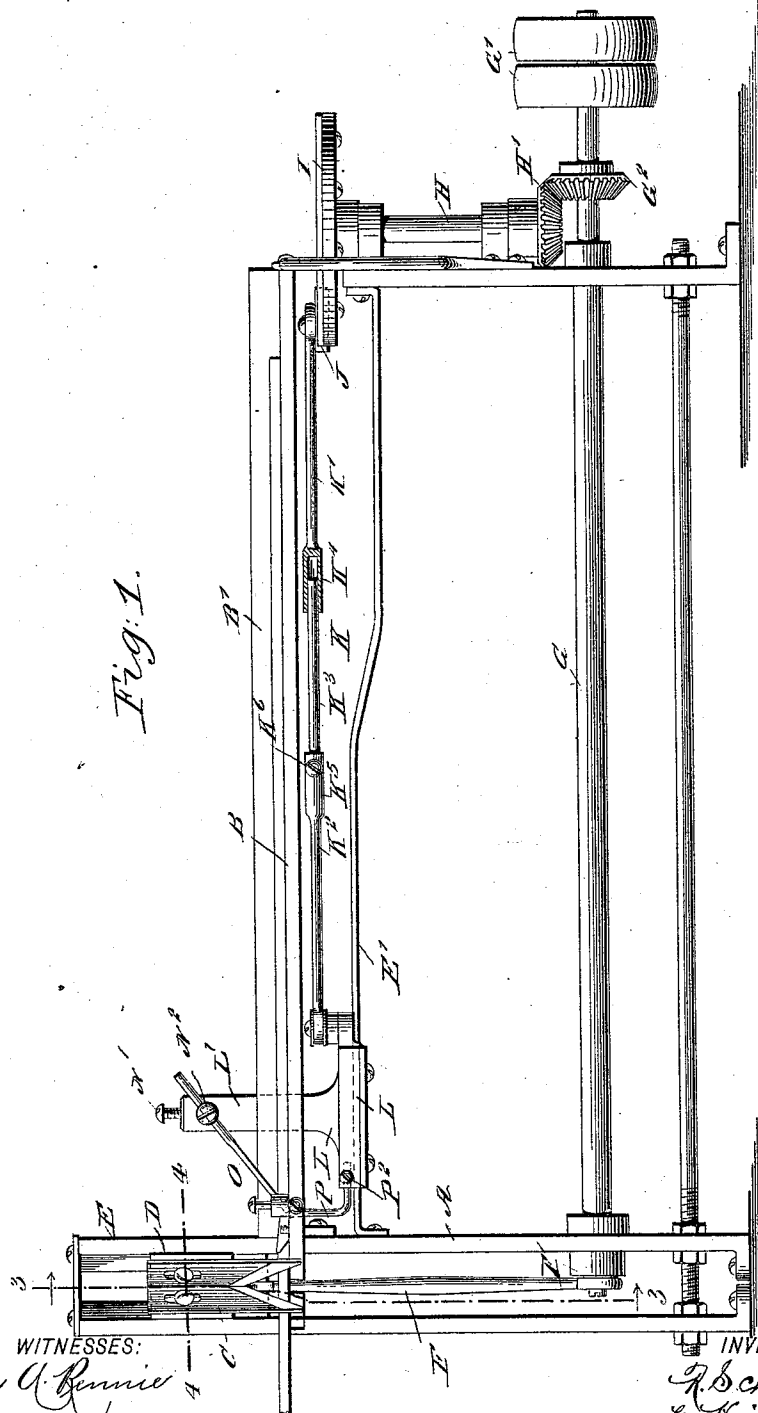
2 Sheets—Sheet 1.

R. SCHLEICHER & C. HEIMERDINGER.

CUTTING MACHINE.

No. 542,898.

Patented July 16, 1895.



WITNESSES:

John A. Bennie
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INVENTORS

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ATTORNEYS.

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2 Sheets—Sheet 2.

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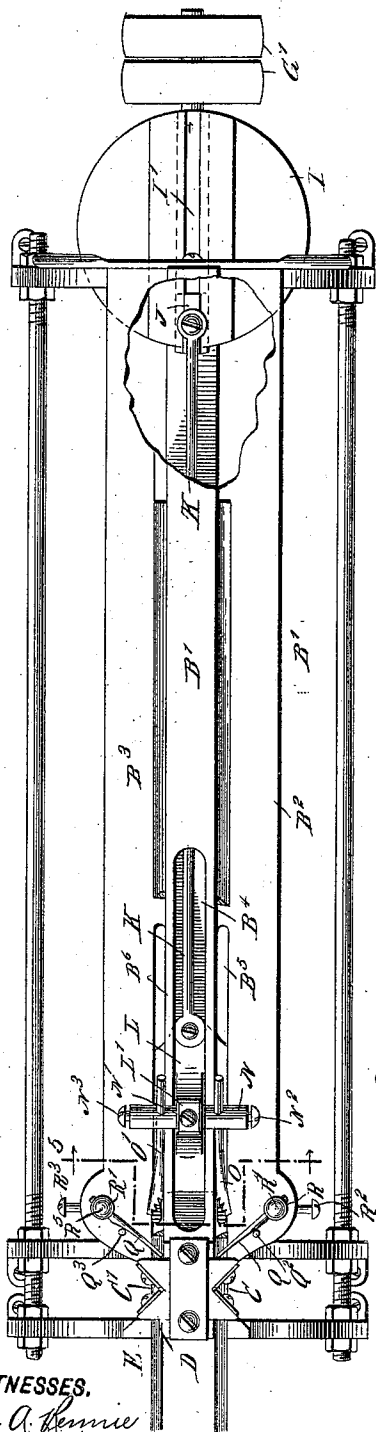


Fig: 2.

WITNESSES.

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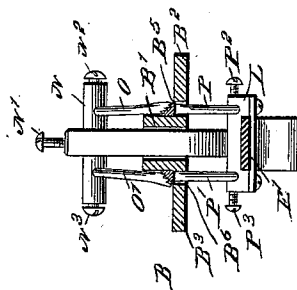


Fig: 5.



Fig. 4.

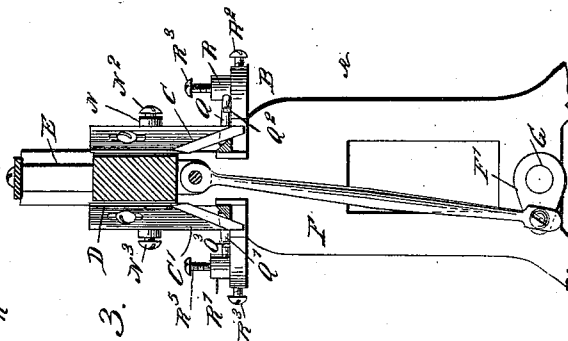


Fig: 3.

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UNITED STATES PATENT OFFICE.

ROBERT SCHLEICHER AND CHARLES HEIMERDINGER, OF LOUISVILLE,
KENTUCKY.

CUTTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 542,898, dated July 16, 1895.

Application filed October 25, 1894. Serial No. 526,975. (No model.)

To all whom it may concern:

Be it known that we, ROBERT SCHLEICHER and CHARLES HEIMERDINGER, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Cutting-Machine, of which the following is a full, clear, and exact description.

The invention relates to woodworking machinery; and its object is to provide a new and improved cutting-machine more especially designed for cutting strips for lining and other purposes to the desired length and also to the miter.

The invention consists of a reciprocating cutter-head carrying the knives for cutting and mitering the strips and a variable-feed mechanism operating in conjunction with the said head, to feed the strip forward to the desired length during the return stroke of the said head.

The invention also consists in certain parts and details and combinations of the same, as will be hereinafter fully described and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement with parts in section. Fig. 2 is a plan view of the same with parts broken out. Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1. Fig. 4 is a sectional plan view of the cutter-head and its guideway on the line 4 4 of Fig. 1, and Fig. 5 is a transverse section of part of the feed mechanism on the line 5 5 of Fig. 2.

A suitably-constructed frame A is provided with a feed-table B, formed with a longitudinally-extending ridge B', dividing the said table into two longitudinally-extending tables B² and B³, each adapted to carry a strip of wood, so that two strips can be fed forward on the table to a double cutter-head, as hereinafter more fully described.

The strips are simultaneously fed forward to sets of knives C and C', secured on a vertically-disposed cutter-head D, mounted to reciprocate vertically in guideways E, forming part of the frame A, the said sets of knives C and C' being each provided with two knives set at a mitering angle to each other and hav-

ing their lower cutting-edges beveled, as plainly indicated in Fig. 3, so as to effect a shearing cut on the strips of wood at the time the cutter-head moves downward, it being understood that the front ends of the tables B² and B³ are cut in V shape for the passage of the knives C and C' to permit the downward movement of the knives and to form a bearing for the strips at the sides of the cut to be made. The knives C and C' are held adjustably on the cutter-head D, and can be conveniently removed to readily sharpen the cutting-edges whenever required.

The cutter-head D is pivotally connected at its under side by a pitman F with a crank-arm F', secured on the forward end of a shaft G, extending longitudinally and mounted in the lower part of the frame A, as plainly indicated in Figs. 1 and 3. The shaft G is provided with a fast and loose pulley G', connected by belt with other machinery for imparting a rotary motion to the said shaft G.

Now it will be seen that when the shaft G is rotated the crank-arm F' and pitman F will impart a reciprocating motion to the cutter-head D, so that the sets of knives C and C' on their downward movement cut the strips of wood extending over the tables B² and B³, and on the upward stroke of the said cutter-head and knives the strips are fed forward by a feeding mechanism presently to be described, and likewise driven from the said shaft G.

On the shaft G is secured a bevel gear-wheel G² in mesh with a bevel gear-wheel H', fastened on the lower end of a vertically-disposed shaft H, mounted to turn in suitable bearings secured to the rear end of the frame A. On the upper end of this shaft H is fastened a horizontally-disposed disk I, having diametrical guideways I', in which is held adjustably a block J, pivotally connected by a pitman K with a slide L, mounted to slide longitudinally on a suitable guideway E', forming part of the frame A, and arranged under the table B. The pitman K can be lengthened and shortened according to the throw desired to be given to the slide L, which throw is regulated by adjusting the block J accordingly in the guideway I' of the disk I.

The pitman K is preferably made in three parts K' K² K³, of which the middle part K²

has its ends extending into sockets K^4 and K^5 formed on the end parts K' and K^2 of the said pitman. Set-screws K^6 , held on the said sockets K^4 and K^5 , serve to fasten the middle part K^3 in position on the end parts K' and K^2 , and when it is desired to adjust the length of the rod then one or both of the set-screws are loosened and the parts shifted to obtain the desired length.

The slide L is provided with a post L' extending upward through an elongated slot B^4 formed in the ridge B' , and in the upper end of this post L' is fitted a transversely-extending rod N, carrying the pawls O and O', operating on the strips of wood to be fed forward on the tables B^2 and B^3 , respectively, it being understood that the lower ends of the said pawls O and O' are flattened and preferably serrated or formed with teeth so as to engage the top of the strips to move the latter forward on the forward movement of the slide L. The pawls O and O' are preferably made of spring-steel, and any desired inclination can be given to the same by turning the rod N in its bearings in the post L' and then fastening the said rod in position by a set-screw N' , screwing the top of the post into the said rod. The pawls O and O' are held adjustably in the rod N, and are secured therein by set-screws N^2 and N^3 , respectively, so that the said pawls can be readily adjusted for various thicknesses of strips to be fed forward on the tables B^2 and B^3 .

The pawls O and O' operate in conjunction with rods P and P', respectively, secured to the slide L and extending through slots B^5 and B^6 , respectively, in the tables B^2 and B^3 , as plainly illustrated in Fig. 5, the upper ends of the said rods P and P' being directly opposite the ends of the pawls O and O' and engaging the under side of the strips of wood, so that the latter are securely held in place between the set-screws of pawls and rods O P and O' P' on the forward stroke of the slide L. The rods P and P' are held adjustably in the slide L, so as to bring their upper ends directly opposite the ends of the pawls O and O' when the latter are adjusted, and in order to securely hold the said rods in position in the slide set-screws P^2 and P^3 are employed.

In order to press the strips of wood against the sides of the ridge B' , we provide spring-arms Q and Q', respectively, having flattened ends, said arms being held adjustable in vertically-disposed blocks R and R', respectively, mounted to turn in bearings formed on the tables B^2 and B^3 near their front ends, the said blocks being adapted to be fastened in place in the tables by set-screws R^2 and R^3 , respectively. Set-screws R^4 R^5 , respectively, in the top of the blocks R and R' serve to fasten the spring-rods Q and Q' in position in the blocks. Stop-pins Q^2 and Q^3 , held on the tables B^2 and B^3 , respectively, limit the outward swinging or bending of the said rods Q and Q'. The rods Q and Q' extend ob-

liquely to the path of the strips fed forward, and the forward ends of the said rods are in close proximity to the sets of knives C and C', respectively, to securely hold the strips in position while the knives cut the same on their downward motion.

Now, it will be seen that when the shaft G is rotated and strips are held under the pawls O and O' then the strips are fed forward on the forward movement of the slide L, which takes place at the time the cutter-head D, with its cutters or knives C and C', is moved into an uppermost position. By this arrangement the strips are fed under the knives to the desired length, and then on the further movement of the shaft G the cutter-head D moves downward and causes the knives C and C' to cut the strips at a miter at the time the slide L is receding and its pawls O and O' glide over the top surfaces of the strips. After the cut is made the cutter-head D is on its return or upward stroke at the time the slide L has not fully reached its rearmost position, so that the cutter-head D when on its upward stroke has moved the knives C and C' sufficiently above the tables B^2 and B^3 to permit a forward feeding of the strips by the now forward movement of the slide L. It is understood that this peculiar movement is obtained by placing the crank-arm F' and the disk I in corresponding positions on the shafts G and H.

It will be understood that instead of making the machine with double tables and a double cutter-head it may be made single; but we prefer the construction shown, as a single operator can conveniently attend to the machine. The strips cut to the desired length are mostly used as lining-strips in boxes.

The construction of the arms Q Q' and pawls O O' with rounded upper portions, as shown, makes it possible to turn said parts axially in such a way as to cause their flattened ends to bear firmly on the faces of the strips to be cut. Where said strips are in the form of moldings with one inclined or beveled side, this construction is quite important, as it enables said pawls and arms to be made to press against said inclined sides and thereby hold the strips properly against the sides of the longitudinal ridge.

By making the cutters C C' with the outer sides of their inclined cutting-edges lower it is evident said outer sides of the cutting-edges will engage the outer sides of the strips adjacent to the arms Q Q' first, so as to hold said strips firmly up against the sides of the ridge during the cutting operation.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In a cutting machine, the combination of a table having a raised longitudinal portion, the opposite sides of which form, respectively, longitudinal guides for the inner adjacent sides of two strips of material to be cut, a vertically reciprocating cutter head

having cutters to cut the material fed along the respective guides, said cutter head being arranged between the guides with its cutters projecting in opposite directions across planes of said guides and having inclined cutting edges, the outer portions of which are lowermost and are adapted to engage the outer sides of the material on the table and hold the same firmly against the guides during the cutting operation, substantially as set forth.

2. In a cutting machine, the combination of a table having a raised slotted longitudinal portion, the opposite sides of which form, respectively, longitudinal guides for the inner adjacent sides of two strips of material to be cut, vertical guideways at one end of said table, aligned with the raised portion thereof, a cutter head vertically movable in the guideways and having at opposite sides knives projecting in opposite directions across the planes of said longitudinal guides on the table, a longitudinal guide bar located under the table, a slide on said guide bar having a post extending up through the longitudinal slot in the raised portion of the table, arms extending in opposite directions from the post over the respective longitudinal guides on the table, pawls secured to said arms and adapted to engage the material fed along said guides, a horizontal shaft journaled below the table and extending longitudinally of the machine,

a vertical shaft at one end of the machine geared to said horizontal shaft and provided with a crank disk, a connecting rod connected at one end to the crank disk and at the other end to the slide, a crank on the opposite end of the horizontal shaft and a pitman connected at its lower end to said crank and at its upper end to the cutter head, substantially as set forth.

3. In a cutting machine, the combination of a table having two longitudinal guides for the inner adjacent sides of two strips of material to be cut, a vertically reciprocating cutter-head having cutters to cut the material fed along the respective guides, means for feeding the material, said cutter-head being arranged between the guides with its cutters projecting from its opposite sides in opposite directions beyond the planes of said guides, and having inclined cutting edges the outer portions of which are lowermost and are adapted to engage the outer sides of the material opposite the guides on the table and hold the same firmly against the guides during the cutting operation, substantially as set forth.

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CHARLES HEIMERDINGER.

Witnesses:

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HARRY D. JOHNSON.