F. H. CLEMENT & H. A. PERKINS.

WOOD PLANING MACHINE.

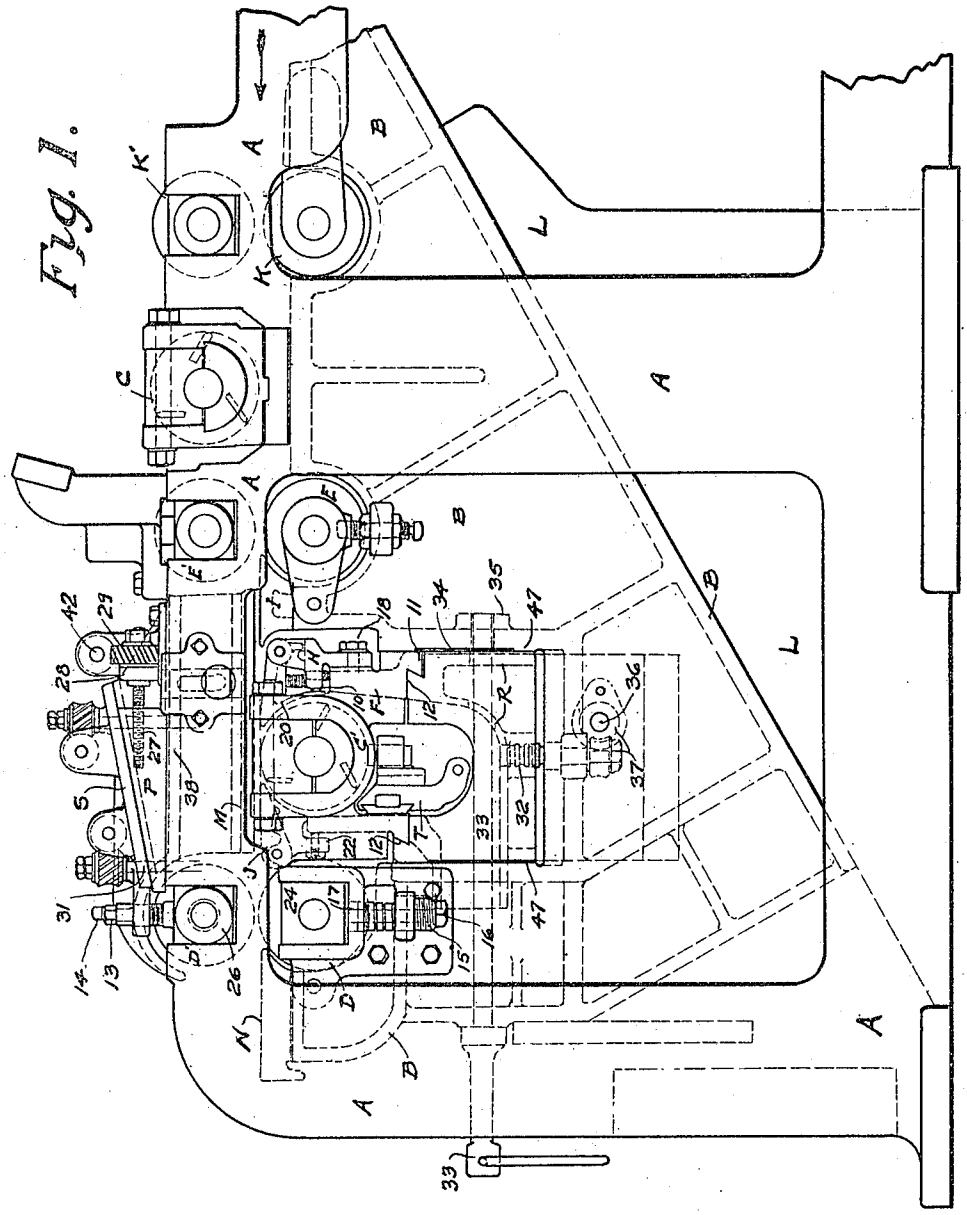
APPLICATION FILED JULY 26, 1917.

1,292,579.

Patented Jan. 28, 1919.

4 SHEETS—SHEET 1.

Fig. 1.



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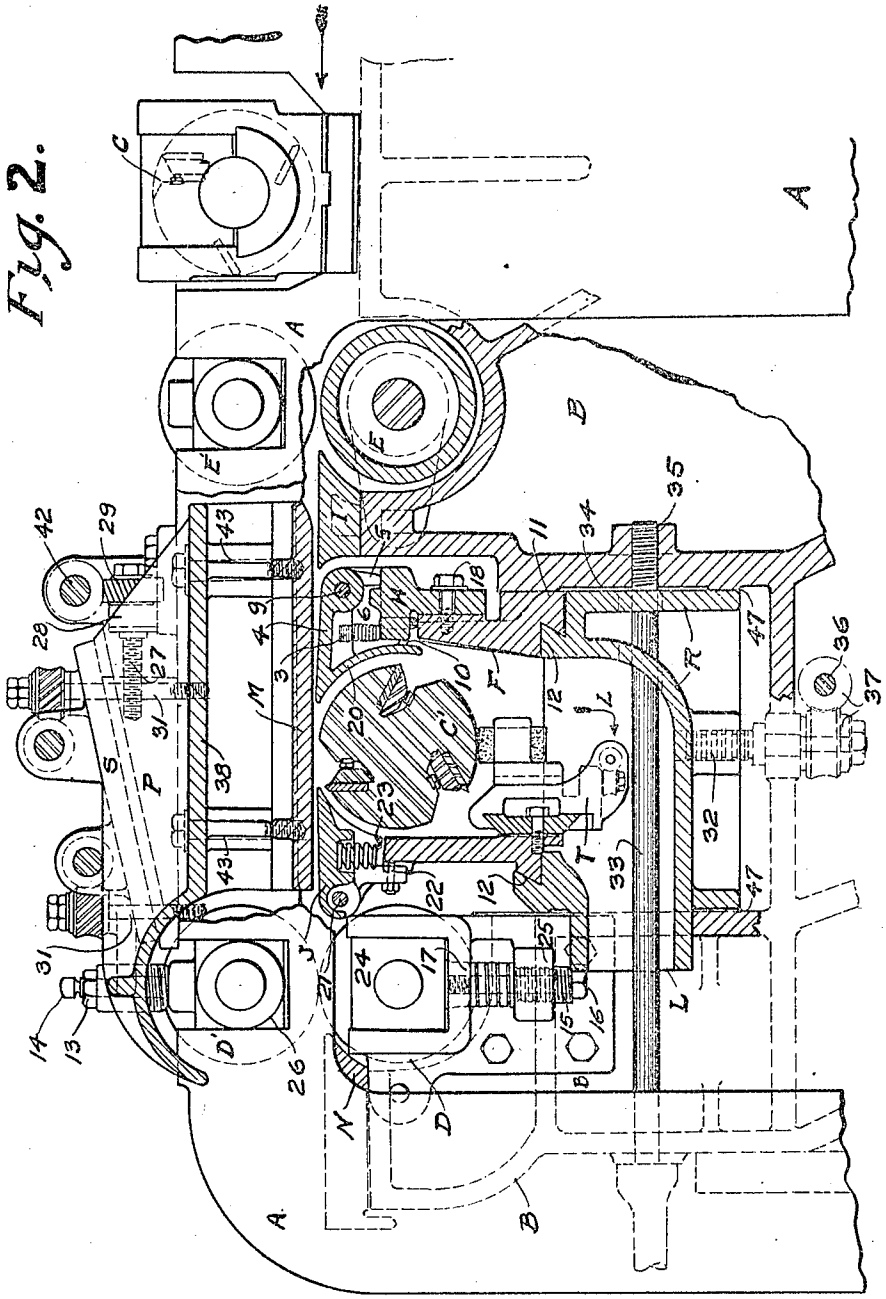
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

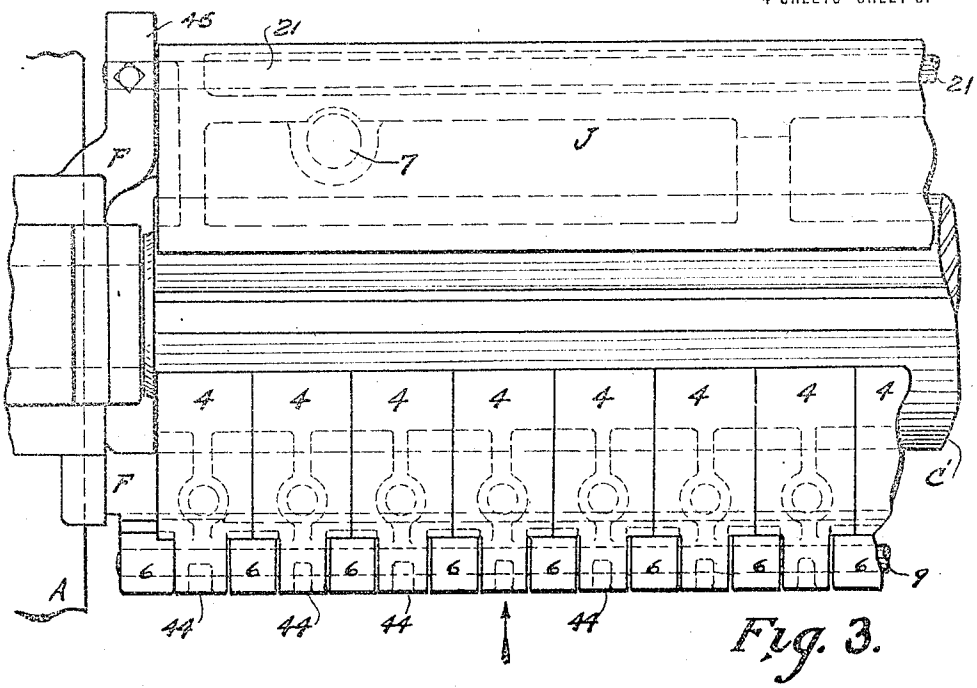


Fig. 3.

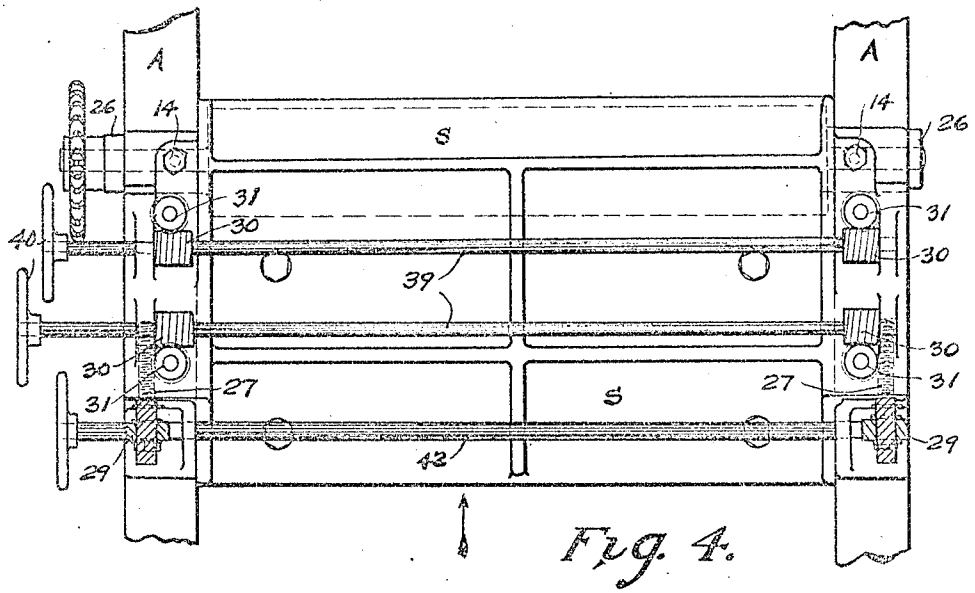


Fig. 4.

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4 SHEETS—SHEET 4.

Fig. 5.

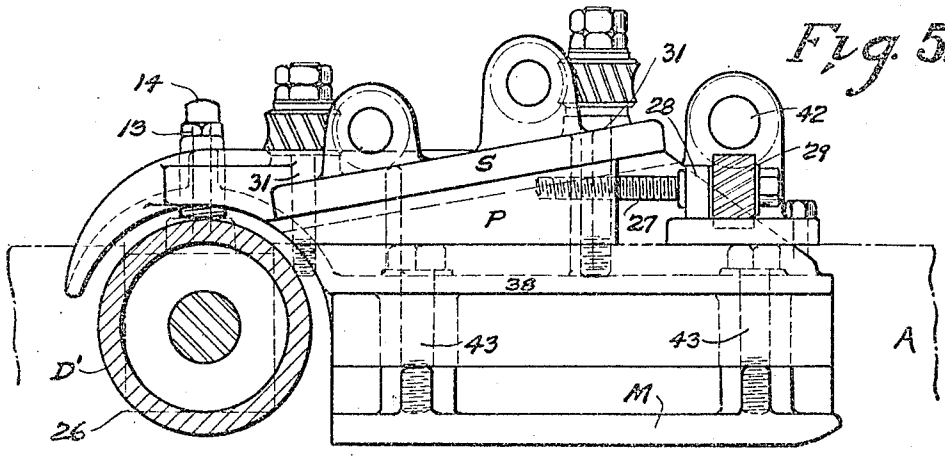


Fig. 8.

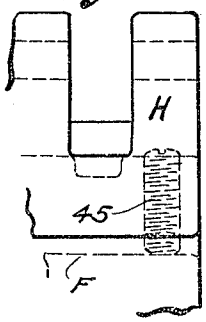


Fig. 6.

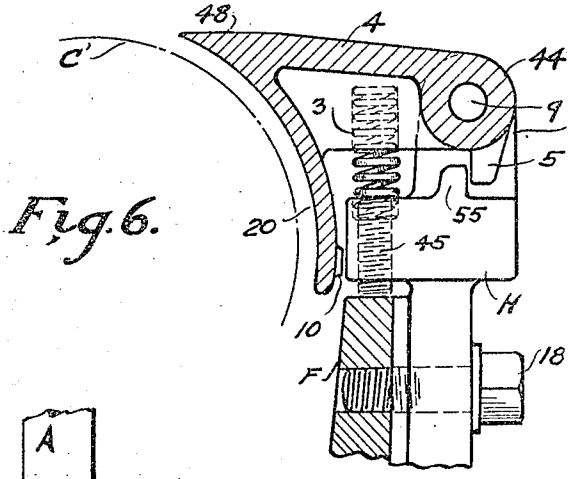
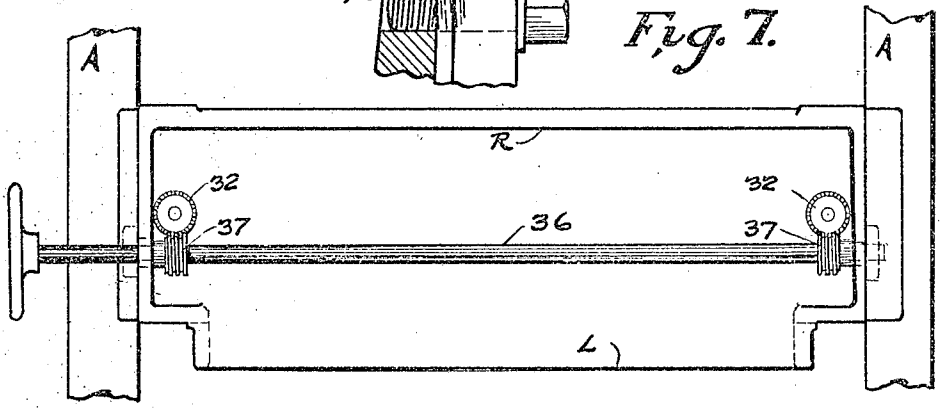


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK H. CLEMENT AND HIRAM A. PERKINS, OF ROCHESTER, NEW YORK, ASSIGNORS TO AMERICAN WOOD WORKING MACHINERY CO., OF ROCHESTER, NEW YORK, A CORPORATION OF PENNSYLVANIA.

WOOD-PLANING MACHINE.

1,292,579. Specification of Letters Patent. Patented Jan. 28, 1919.

Application filed July 26, 1917. Serial No. 183,003.

To all whom it may concern:

Be it known that we, FRANK H. CLEMENT and HIRAM A. PERKINS, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Wood-Planing Machines, of which the following is a specification.

This invention relates to that class of planing machines known as double surfacers, and consists in general in improved mechanism connected with the under cutter head, by means of which the quality of surfacing is improved, gouging and clipping of the ends prevented and the stock planed parallel from end to end.

Furthermore, we obtain by our construction facility of adjustment of the cutter head, the chipbreaker, the pressure bar and the overbed plate which saves time in adapting the machine to different kinds of work.

In the accompanying drawings—

Figure 1 is a side elevation of that portion of a double surface planer containing the upper and lower cutter head, and parts coacting with them.

Fig. 2 is a sectional elevation of the same parts, showing especially those adjacent to and operating in connection with the lower cutter head.

Fig. 3 is a plan view of the lower cutter head and its chipbreaker and pressure bar.

Fig. 4 is a plan view of the overbed support and adjusting devices for the same.

Fig. 5 is an enlarged end elevation of the overbed plate, its supporting frame and the rear feed roll together with parts connected with them.

Fig. 6 is an enlarged cross section of the chipbreaker and supporting bar.

Fig. 7 is an inverted plan of the lower yoke supporting frame.

Fig. 8 is an elevation of one end of the chipbreaker supporting bar.

A, Figs. 1 and 2, is the main frame of the planer. B is the vertically adjustable bed which we have shown as being raised and lowered by means of wedges L, Fig. 1, on either side. C is the upper cutter head. E. E′ feed rolls, and C′ the under cutter head having bearings in the yoke F. This yoke slides transversely out of the machine on suitable ways. I is an intermediate bed plate receiving the stock from the rolls, E. E′. M is the lower cutter head bed plate or overbed, which holds the stock down while passing over the under cutter head. D. D′ are delivery rolls which take the stock away from the under cutter head, and N is the delivery bed plate secured to the main bed B in the usual manner.

The above description applies to parts which are common in double surfacers, and we make no claim to them as such. Our improvements are included in the following description:

H, Figs. 2, 6 and 8, is a bar extending across the machine parallel with the cutter head C′ and secured to the detachable yoke F by screws 18. This bar carries a number of lugs 6, Figs. 3 and 6, on its upper edge, between which are fitted chipbreaker sections 4. These sections are all hinged to the bar H, by a rod 9, which passes through holes in the lugs 6, and through corresponding ears 44 of the sections 4. These sections are fitted closely against each other on adjacent edges to prevent the entrance of dust and chips, but are each free to respond to the passage of the lumber over them. Under each section is provided a strong spring 3, resting upon the bar H, or in sockets provided for them, which thus operate to lift the sections to a point where the stop lugs 5 come in contact with a rib 55 on the bar H.

The sections 4 have a curved lip 20, Figs. 2 and 6, to guide the chips from the cutter head C′ down to the chute L. On the back of this lip is a stop 10, which limits the downward movement of the section and prevents its operating end 48 from coming in contact with the knives in the cutter head C′. The screws 18 pass through slots in the bar H, and set screws 45, Figs. 6 and 8, are applied to the bar at each end, which permit a vertical adjustment of the same and a consequent alinement of the working face 48 of the sections with the cutter head C′.

It will be noted that the sections of the chipbreaker are pivoted at a point forwardly of the cutter head and below the working surface of the intermediate bed plate I, so that they incline upwardly toward the cutter

head to be automatically moved into the plane of the bed plate I by a work piece in the machine.

J is the "bar behind the cut", and this also is hinged on a rod 21 which is secured in lugs 46 on the yoke F, and has two or more springs under it by which it is forced upward until the stops 22 strike the side of the yoke F: the stops 23 prevent the bar from being depressed too far.

D is the lower delivery roll, preferably located close to the bar J. Springs 17 are placed under the boxes 24 of the feed roll shaft, and hollow jack screws 15 threaded into lugs 25 on the bed B, support the springs and the roll boxes which are free to move vertically. Bolts 16 pass through the hollow jack screws, and are threaded into the boxes 24: by this means the boxes may be adjusted and the tension of the springs varied as required. The roll D is adjusted by the screws 16, slightly above the delivery bed N, whereby the lumber receives the pressure of the springs 17 and is pressed against the upper roll D'.

R is a frame supporting the yoke F, and made vertically adjustable in the main frame A by means of screws 32 which are located at opposite ends of the frame R and are operated simultaneously by a cross shaft 36 and gearing 37 attached. Thus, the yoke F with the cutter head C' and attached parts, can be adjusted to the cut or dropped down to take no cut, independently of the main bed B. The frame R is fitted closely into a recess in the sides of the bed B, and carries within it the chip chute L. Ways 12 are provided on the upper face of the frame, beveled so as to lock into corresponding ways on yoke F. A projecting flange 11, Fig. 2, on this yoke comes in contact with the wall of the bed B, and the frame R is cleared as shown at 34 from the said wall, but has side bearings at 47 in the recess of the bed B.

For the purpose of clamping up the yoke F and frame R rigidly to the bed B, we provide bolts 33 passing through the frame R and that part of the bed B outside of the frame R, said bolts being threaded into the bed at 35: thus, when these bolts are tightened up they operate to clamp the yoke F against the bed at the point 11, and at the same time draw it downward to its seat by the wedging action of the beveled ways 12. By this means the yoke F, cutter head C' and the attached parts are clamped rigidly to the bed B, which is necessary to the production of good work, and at the same time the frame R is clamped with them at points 47.

The overbed plate M is attached in any suitable manner to a supporting frame S, extending across the machine frame and clamped thereto by screws 31 of which there are preferably four as indicated in Fig. 4. We have shown these clamp screws as connected together in pairs by cross shafts 39 and suitable worm gearing 30, by which the clamping can be quickly done by the operator through hand wheels 40. For the purpose of adjusting the overbed plate M to the surface of the stock coming from the top cutter head C, we provide wedges P fitted under suitable bearing flanges on the frame S and resting on the top of the machine frame A. These wedges are adjustable longitudinally by means of screws 27 which are operated synchronously by a cross shaft 42 and two pairs of gears 29. A hand wheel on shaft 42 is located conveniently to the operator. The clamping screws 31 pass either through slots in the wedges P, or slightly to one side.

By the use of the wedge adjusting screws 27 and gearing 29, we are enabled to make a micrometric adjustment of the frame S and overbed plate M, whereby the bed plate and its attachments can be nicely adjusted to the lumber passing over the plate I, with upper side surfaced.

Instead of supporting the upper delivery roll D' upon the frame of the machine as is common, we provide boxes 26, Figs. 2, 4 and 5, which are fitted to move freely in vertical recesses in the frame A, but are attached to and move with the supporting frame S. One method of such attachment is shown, consisting of hollow jack screws 13 which are threaded into bosses on the frame S and press against the boxes 26 or projecting bosses thereon. Clamping screws 14 pass through the jack screws, and are threaded into the boxes 26. It will be seen that when the clamp screws 14 are drawn tightly against the jack screws, the boxes are held rigidly to the frame S, but when the jack screws 13 are turned, the roll D' is raised or lowered with reference to the surface of the overbed plate M. The usefulness of this arrangement and adjustment is apparent when we consider that the upper cutter head C, varies the line of its cutting, by reason of the knives becoming dull, or changed in position by resetting, or shortened by "jointing" to produce even action; it then is necessary to adjust the overbed plate M to accommodate the line of cut so as to produce a constant pressure on the lumber and not spring or bend it in its passage through the planer. To accommodate this satisfactorily and preserve the accurate alinement of the plank according to its upper surface, the feed roll D' must necessarily be controlled by the overbed plate and adjusted to it.

The operation of our invention is similar to that of the ordinary type of double surfacing planers, except that by reason of our improvements the parts and adjustments described are more efficient, the quality of the work greatly improved and the quantity increased. We have not deemed it necessary

to mention the special form of cutter head shown, nor the novel arrangement of the jointer slide T, Fig. 2, each of which is the subject of a former patent issued to these applicants.

By the use of the sectional chipbreaker in connection with a lower cutter head, we are enabled to insure the contact of narrow strips with the overbed plate at all times, no matter how roughly they may be sawed nor how thin they are, thus producing smooth parallel work on stock that could not heretofore be surfaced on both sides.

What we claim as our invention and desire to secure by Letters Patent is:

1. In a double surface planer, the combination of a frame, an upper cutter head supported thereon, an under cutter head adjustably supported in said frame, an overbed for said under cutter head, a vertically adjustable supporting frame in which said overbed is supported, an upper feed roll adjustable on said frame, and means for adjusting said frame to properly aline said overbed and feed roll with the cut of the upper cutter head.

2. In a double surface planer, the combination of a frame, an upper cutter head supported thereon, an under cutter head adjustably supported in said frame, an overbed for said under cutter head, a vertically adjustable supporting frame in which said overbed is supported, an upper feed roll, bearings therefor movable in said frame, means for adjustably securing said bearings to said overbed supporting frame, and means for adjusting the latter to properly aline said overbed and feed roll with the cut of the upper cutter head.

3. In a double surface planer, the combination of a frame, an upper cutter head supported thereon, an under cutter head adjustably supported in said frame, an overbed for said under cutter head, a vertically adjustable supporting frame in which said overbed is supported, an upper feed roll secured to said frame, inclined bearing flanges on opposite sides of said frame, wedges cooperating with said flanges for adjusting said frame vertically to properly aline the overbed and feed roll with the cut of the upper cutter head, means for moving said wedges synchronously, and means for clamping said frame in adjusted position.

4. In a double surface planer, the combination of a main frame, an upper cutter head revolubly supported therein, a vertically adjustable frame having transversely extending guideways supported in said main frame, a yoke slidably mounted in said guideways, a lower cutter head revolubly mounted in said yoke, a lower feed roller mounted in said vertically adjustable frame, means for adjusting the opposite sides of said frame synchronously, and means for clamping said frame in the main frame and the yoke to said frame.

5. In a double surface planer, the combination of a main frame, an upper cutter head revolubly supported thereon, a vertically adjustable yoke supporting frame mounted therein, a yoke slidably mounted on said frame, interlocking guideways on the yoke and the frame, a single means for clamping the yoke to its supporting frame and the supporting frame in the main frame, and an under cutter head revolubly supported in the yoke.

6. In a double surface planer, the combination of a frame, an upper cutter head revolubly mounted therein, a bearing yoke adjustably supported in said frame, an under cutter head mounted in said bearing yoke, a chipbreaker comprising a plurality of sections pivotally supported on said yoke, means for resiliently pressing said sections into contact with the work piece, means for limiting the reciprocatory movements of said sections, and means for adjusting said yoke to the work piece.

7. In a double surface planer, the combination of a frame, an upper cutter head revolubly mounted therein, a bearing yoke adjustably supported in said frame, an under cutter head mounted in said bearing yoke, a chipbreaker comprising a plurality of sections, a bar adjustably mounted on said yoke on which said sections are pivotally supported, a chip deflecting lip on each section, resilient means for pressing said sections into contact with the work and means for adjusting said yoke to the work piece.

8. In a double surface planer, the combination of a frame, an upper cutter head revolubly mounted therein, an under cutter head, a chipbreaker comprising a plurality of independently movable sections adjacent said under cutter head, yieldable means for pressing each of said sections into the path of the work piece, and an adjustable bar on which said sections are mounted to move about a common pivotal axis.

9. In a double surface planer, the combination of a frame, an upper cutter head supported therein, a yoke adjustably supported in said frame, an under cutter head revolubly supported in said yoke, a chipbreaker pivotally supported on said yoke in front of the cut, a bar behind the cut also pivotally supported on said yoke, and means for adjusting said yoke to the work piece.

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HIRAM A. PERKINS.

Witnesses:
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JULIUS H. BRUCE.

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