

(No Model.)

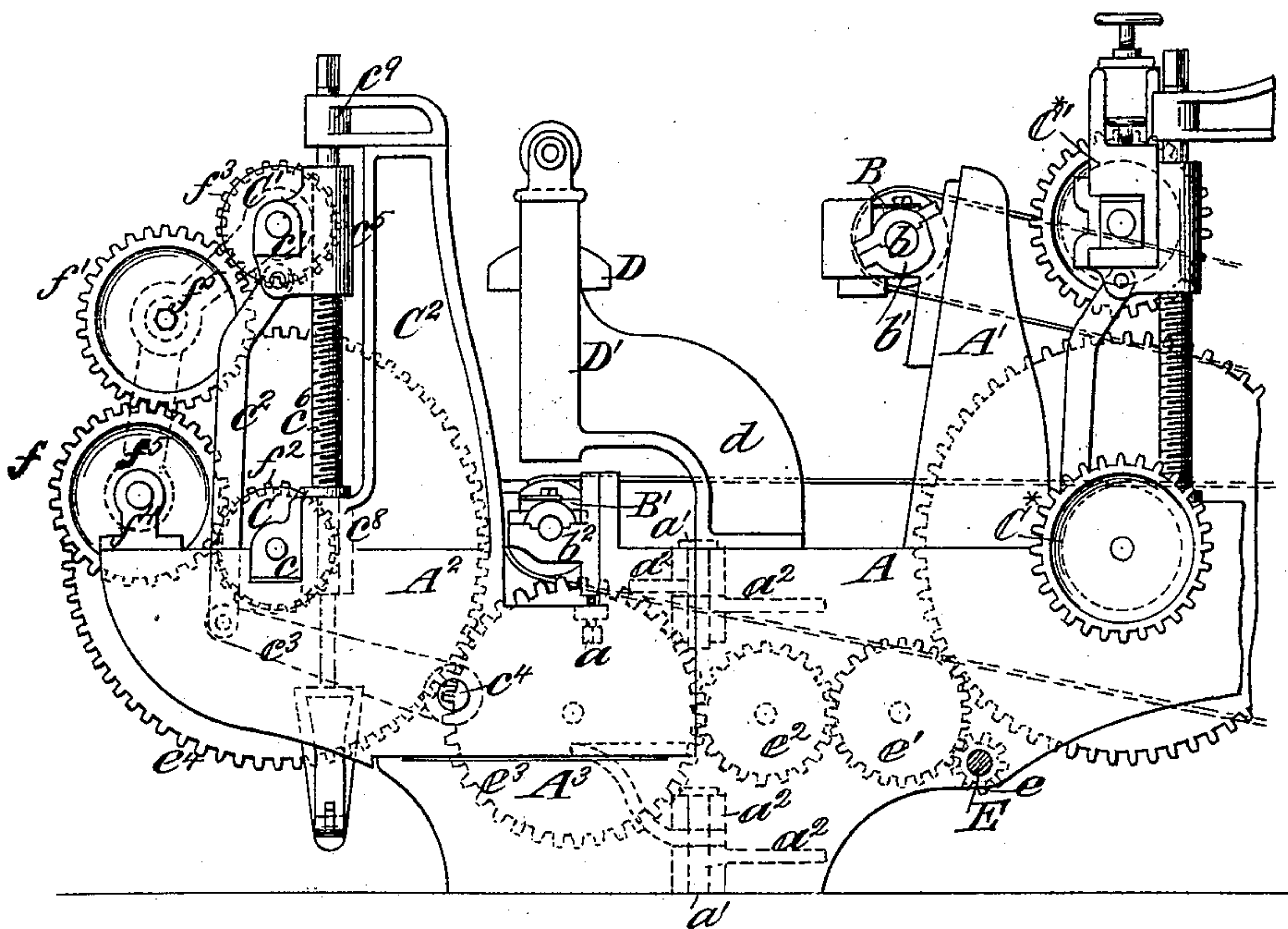
2 Sheets—Sheet 1.

J. F. WELCH.
WOOD PLANING MACHINE.

No. 390,047.

Patented Sept. 25, 1888.

Fig. 1.



Witnesses:

Joseph W. Roe.
O. Sundgren

Inventor:

James F. Welch
By attorneys
Brown & Hall

(No Model.)

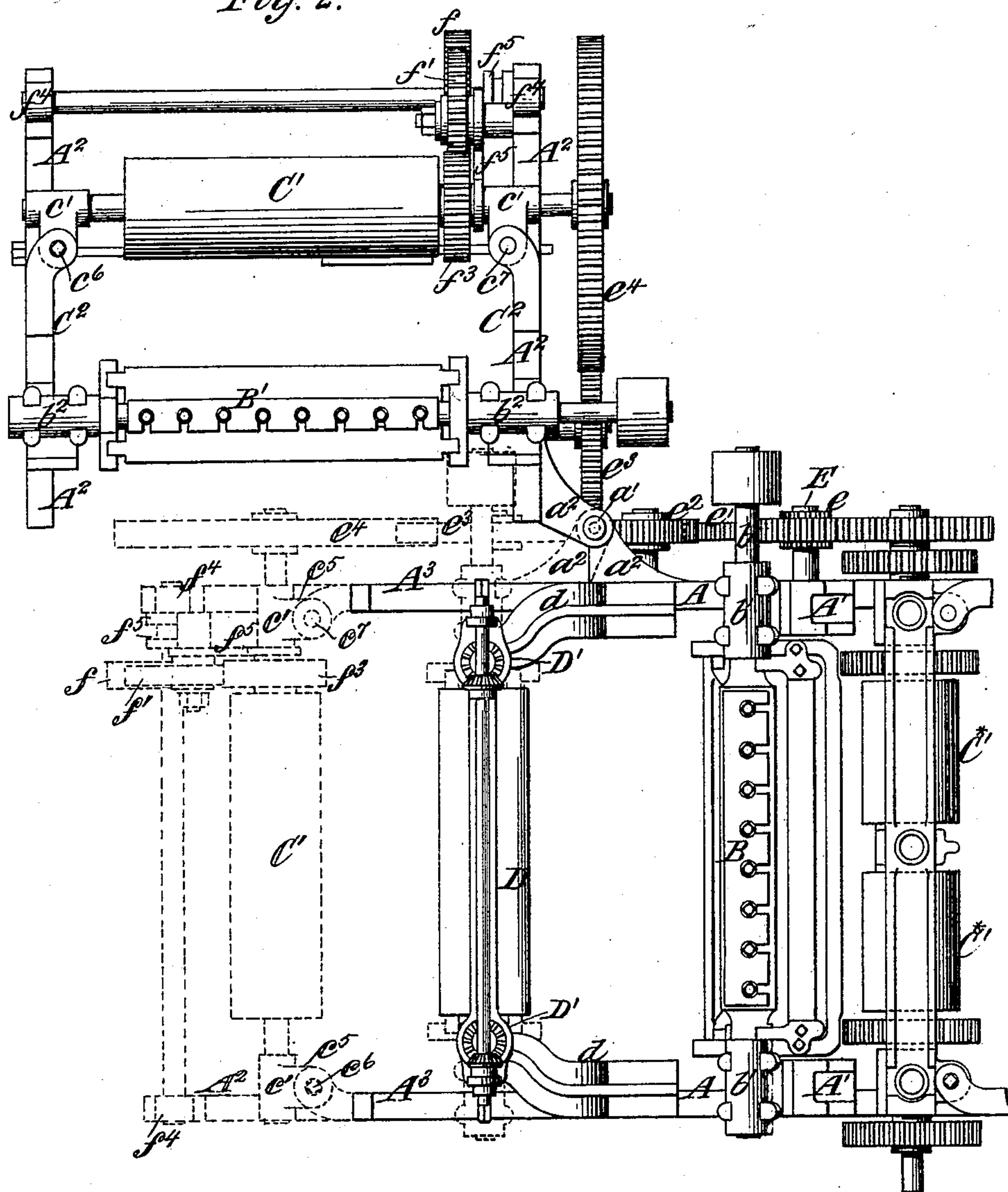
2 Sheets—Sheet 2.

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Fig. 2.



Witnesses:

Joseph W. Roe,
O. Sundgren

Inventor:

James F. Welch
by attorneys
Brown & Hall

UNITED STATES PATENT OFFICE.

JAMES F. WELCH, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE GLEN COVE MACHINE COMPANY, (LIMITED,) OF SAME PLACE.

WOOD-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 390,047, dated September 25, 1888.

Application filed January 27, 1888. Serial No. 262,109. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. WELCH, of Brooklyn, (Green Point,) in the county of Kings and State of New York, have invented a new and useful Improvement in Wood-Planing Machines, of which the following is a specification.

The invention, although generally applicable to wood-planing machines, is particularly useful in the class of wood-planing machines which are termed "surfacing-machines," and is illustrated by the accompanying drawings as embodied in such a machine. In wood-planing machines the lower cutter-head is commonly at the delivery end of the machine, although beyond the cutter-head there may be a delivery-table or delivery-rolls, and one important object of my invention is to provide for obtaining ready access immediately to the lower cutter-head in order to sharpen or adjust the cutters thereon.

In the accompanying drawings, Figure 1 is a side elevation of as much of a surfacing-machine as is necessary to illustrate my invention, representing portions of the main framing and the feeding devices of the machine, the cutter-heads, and the supplemental frame, which is hinged to the main frame and which supports the lower cutter-head and the delivery-rolls. Fig. 2 is a plan corresponding with Fig. 1, and showing the supplemental frame and its attached parts in full outline as swung outward to the side of the machine to afford access to its cutter-head, and showing the same parts in dotted outline as swung into operative position in line with the main framing.

Similar letters of reference designate corresponding parts in both figures.

A designates the main frame of the machine, and B designates the upper cutter-head, the journals *b* of which are supported in bearings *b'*, adjustable upward and downward upon standards *A'*, erected upon the main frame A. The main frame also supports feed-rolls C C', of which there may be one or more pairs, but of which one pair only is represented, as these form no part of the present invention.

A² designates the supplemental frame, which constitutes one of the principal features of my invention, and upon which is mounted the

lower cutter-head, B', the bearings *b*² for which are adjustable upward and downward upon the said supplemental frame by means of set-screws *a*. As here represented, the said supplemental frame A² also carries a pair of feed or delivery rolls, C C'.

Whether there is a pair of delivery-rolls or simply a delivery-table in advance of the lower cutter-head, B', it is a difficult matter ordinarily to gain ready access to the lower cutter-head for sharpening or adjusting its cutters. It is to provide for such access that I mount the lower cutter-head in the supplemental frame A², which I hinge to the main frame at one side thereof. The hinge-joint *a'* *a*², by which the connection between the supplemental frame A² and main frame is made, is shown in Fig. 2 and by dotted lines in Fig. 1, and it provides for swinging the supplemental frame A² into line with the main frame A, as shown by dotted lines in Fig. 2, when the machine is to be operated, and for swinging the supplemental frame A² with the lower cutter-head, B', and the delivery-rolls C C' and their appurtenances laterally to one side of the main frame A, as shown by full lines in Fig. 2, whenever access is desired to be had to the lower cutter-head, B'.

It will be readily seen that when the supplemental frame A² is swung aside, as shown by full lines in Fig. 2, the lower cutter-head, B', is fully exposed and the workmen can step directly in behind it in order to sharpen or adjust the cutters.

As best shown in Fig. 1, the bearers *a*², to receive the hinge pins *a'*, are at the extreme top and bottom of the frame, as the supplemental frame A² and the parts which it operates are of considerable weight, and I provide upon the main frame A forwardly-extending portions A³ at both sides of the machine, and which constitute supports or rests for sustaining the supplemental frame A² when the latter is swung into line with the main frame. D designates a top presser, which is above the lower cutter-head, B', and which holds the lumber down and prevents its being raised by the action of the cutter-head upon it. This presser D may be raised and lowered, as is well understood, in the frame D', and this frame D' is

not supported upon the supplemental frame A^2 , which holds the cutter-head B' , but is supported by arms or brackets d from the main frame A . Consequently when the supplemental frame A^2 is swung outward, as shown in Fig. 2, the cutter-head B' is removed from below its presser D , and the latter therefore does not prevent access to the cutter-head, as it might if it and its frame D' were supported upon the supplemental frame A^2 .

In order to impart motion to the delivery-rolls $C C'$, which are upon the supplemental frame A^2 , I provide gear-wheels connecting the lower roll, C , with the pinion-shaft E . Upon the shaft E is a pinion, e , which gears into a wheel, e' . This latter wheel gears into another wheel, e^2 , which in turn transmits motion to a wheel, e^3 , and the wheel e^3 is in gear with a large wheel, e^4 , upon the lower delivery-roll, C . It is desirable that the two wheels e^2 e^3 , which are respectively upon the main frame A and the supplemental frame A^2 , should not be disengaged by the swinging of the supplemental frame A^2 , because if they were thus disengaged the teeth of the two wheels would be likely to clash when the supplemental frame A^2 is swung back into operative position and would be very liable to produce breakage. Therefore, the hinge-pins a' are directly in line vertically with the pitch-line of the wheels e^2 e^3 , as shown in Fig. 2, and consequently when the supplemental frame A^2 is swung laterally to one side of the main frame A , as shown by full lines in Fig. 2, the wheel e^3 still remains in gear with the wheel e^2 , and therefore these two wheels cannot clash with each other when the supplemental frame is swung back to operative position.

The lower feed or delivery roll, C , is journaled in stationary bearings c ; but the bearings c' of the upper roll are vertically movable and are connected by rods c^2 with arms c^3 upon a rock-shaft, c^4 , which is fitted to bearings in the supplemental frame A^2 . Consequently as the upper roll, C' , rises and falls it is by the said rock-shaft c^4 constantly maintained in parallel position with the lower roll, C . The boxes c' , which constitute the bearings for the upper roll, are represented as provided each with a socket, c^5 . These sockets c^5 of the boxes c' at opposite ends of the roll respectively receive through them cylindric rods c^6 c^7 . These rods are supported at their lower ends in bearings c^8 and at their upper ends in bearings c^9 upon roll-stands C^2 . These means of providing for the adjustment of the upper delivery-roll on the supplemental table do not, however, constitute any part of the present invention, but are part of the subject-matter of another application, No. 278,960 $\frac{1}{2}$, filed July 3, 1888, and have only been so far briefly described for the purpose of explaining that the delivery-rolls on the supplemental frame have their own means of adjustment.

The upper delivery-roll, C' , receives motion from the lower one, C . For the purpose of transmitting this motion I have represented expansion-gears $f f'$, which are in gear, respectively, with gear-wheels f^2 f^3 upon the lower and upper rolls. The expansion-gear f is journaled in the fixed bearings f^4 , and the gear f' , which transmits motion from the wheel f to the wheel f^3 , is supported in the swinging links f^5 . This system of gears always transmits motion to the upper roll, C' , whatever be its vertical position.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a wood-planing machine, of a main frame supporting the upper cutter-head and feed-rolls, a lower cutter-head, and a supplemental frame carrying the lower cutter-head and hinged to the main frame at one side thereof, so that it may be swung laterally to expose the lower cutter head, substantially as herein described.

2. The combination, with a main frame supporting an upper cutter head and feed-rolls, of a lower cutter-head, a supplemental frame carrying the lower cutter-head and hinged to the main frame at one side thereof, a pair of delivery-rolls carried by the supplemental frame, and gear-wheels whereby they are driven from a shaft upon the main frame, the hinges of the supplemental frame being concentric or in line with the pitch-line of two of such wheels which are in engagement, whereby such wheels are not disengaged even when the supplemental frame is swung laterally aside, substantially as herein described.

3. The combination, with a main frame supporting an upper cutter-head and feed-rolls, of a lower cutter-head, and a supplemental frame supporting the lower cutter-head and hinged to the main frame at one side thereof, so that it may be swung laterally to expose the lower cutter-head, a presser above the lower cutter-head, and a frame wherein the presser is adjustable vertically, and which is supported by the main frame, so that when the supplemental frame is swung laterally the lower cutter head is carried from below its presser, substantially as herein described.

4. The combination, with a main frame and an upper cutter head and feed-rolls supported thereby, of the supplemental frame A^2 , hinged at a' to the main frame on one side thereof, and having a rest or support at A^3 upon the main frame on the other side thereof, and the lower cutter-head, B' , supported in said supplemental frame, substantially as herein described.

JAMES F. WELCH.

Witnesses:

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ALBERT YOUNG.