(No Model.)

A. B. HUTCHINSON.

WOOD PLANING MACHINE.

No. 395,495. Patented Jan. 1, 1889.

Fig. 1.

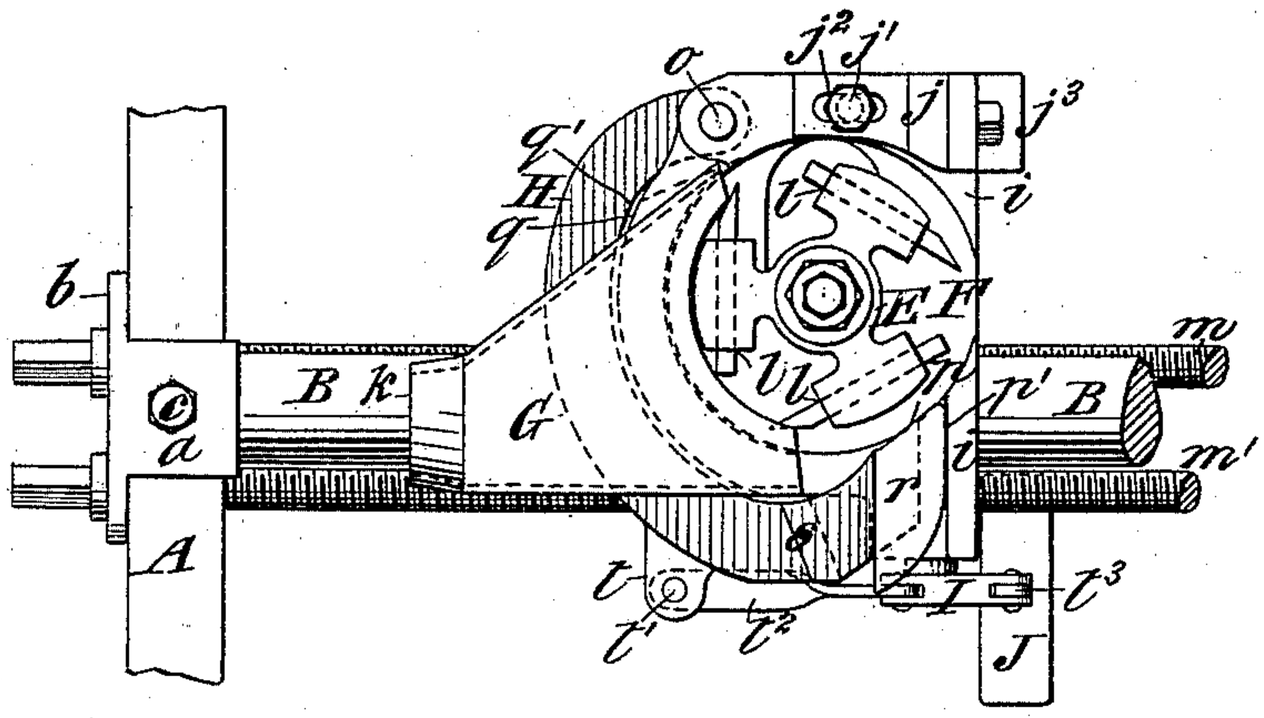

Fig. 2.

Fig. 3.

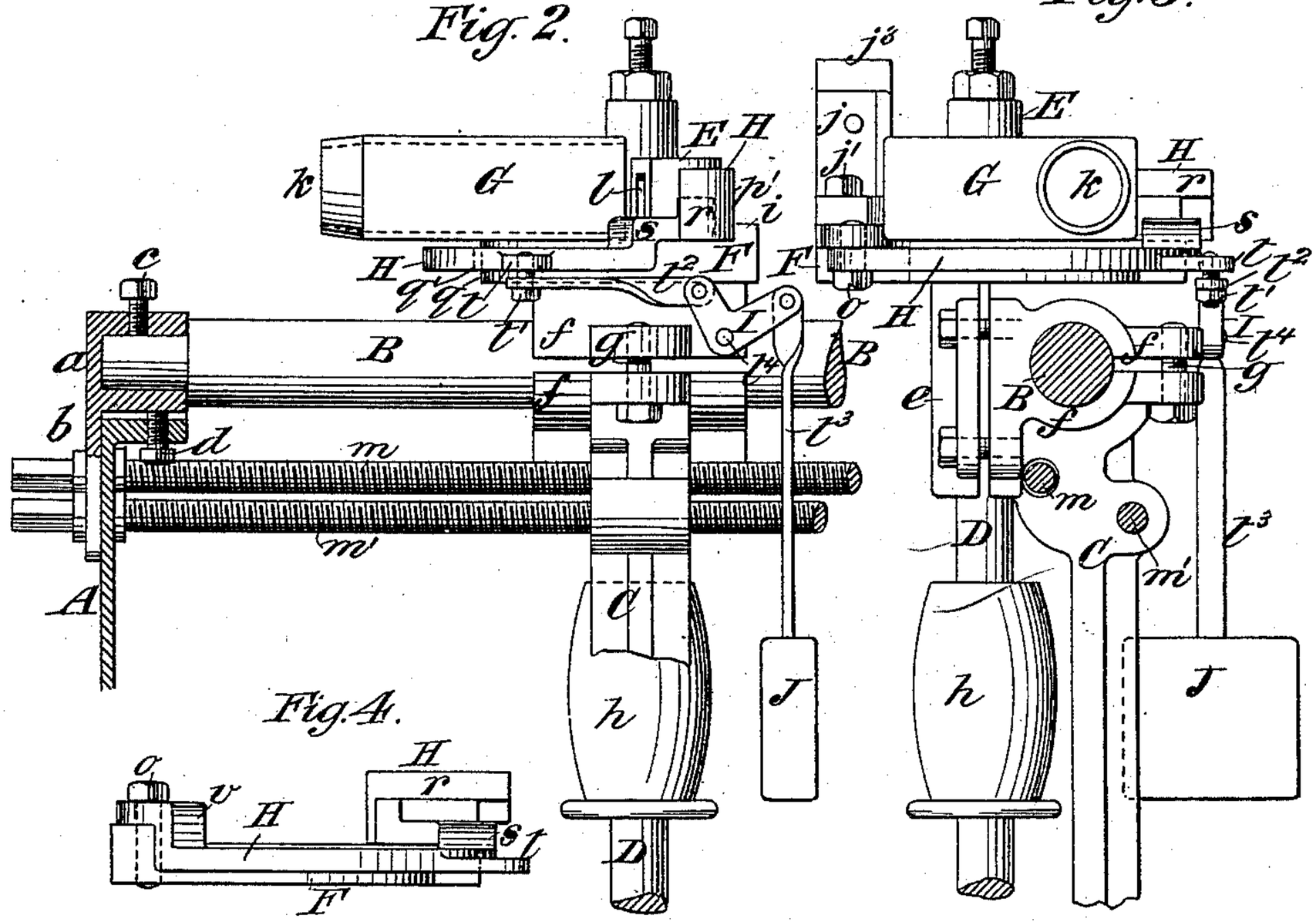

Fig. 4.

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UNITED STATES PATENT OFFICE.

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WOOD-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 395,495, dated January 1, 1889.

Application filed August 17, 1888. Serial No. 282,993. (No model.)

To all whom it may concern:

Be it known that I, ALFRED B. HUTCHINSON, 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, reference being had to the accompanying drawings.

The chip-breakers of planing-machines are ordinarily placed on the top of the head-plates, and the sap or resinous exudations of certain kinds of wood get in between the chip-breaker and the head-plate and cause the faces thereof to be clogged and to stick to each other.

The principal object of my invention is to prevent clogging from the above cause, which I do by a construction of the chip-breaker and a novel combination therewith of the other parts of the machine, as hereinafter described and claimed, whereby the greater portion of the chip-breaker is brought below or lower than and outside of the upper face of the head-plate.

I will proceed to describe the invention with reference to the drawings, and will afterward point out its novelty in claims.

In the drawings, Figure 1 represents a plan of certain parts of a planing-machine embodying my improvement; Fig. 2, a front view, part section, corresponding to Fig. 1; Fig. 3, a side view, part section, also corresponding to Fig. 1. Fig. 4 is a side view of a head-plate and a chip-breaker, illustrating a modification of my invention.

Similar letters of reference indicate corresponding parts in all the figures.

A designates a portion of a side frame of a planing-machine; B, a non-rotary bar extending transversely across the machine and supported at the end in bearings *a*, one of which is represented in the drawings formed in the plate or cheek-piece *b*. In the bearing *a* is a set-screw, *c*, for holding the bar B. Below the bearing *a* is a set-screw, *d*, inserted through a portion of the side frame and bearing against said bearing *a*.

C designates a spindle-frame. By turning set-screws *d* the spindle-frame C and all attachments thereof may be raised and lowered.

D designates one of a pair of side cutter-spindles, which are arranged in the usual manner side by side transversely of the machine and carry at their upper ends side cutter-heads, E, one of which is represented in the drawings affixed to the spindle D. The spindle D is supported in a bearing, *e*, in the spindle-frame C, and is represented as broken off below said bearing *e*. The spindle-frame C is supported by the bar B, having a split sleeve or collar, *f*, and a bolt, *g*, whereby it is secured on said bar.

h designates a side cutter-spindle pulley.

Just below the side cutter-head, E, is a head-plate, F, on the frame C.

i is a raised surface of the head-plate F, which should be level with the platen-plate of the planing-machine.

j is an upright or knee piece adjustably secured to the head-plate F by means of a bolt, *j'*, and a slot, j^2. The knee-piece *j* forms an edge-guide, and has secured to it, also adjustably, a lip or top guide, j^3.

G designates a funnel-shaped conductor attached to the head-plate, through which a current of air is maintained by the pressure caused by the rapid revolution of the cutter-head, the cutters of which throw a large proportion of the chips into said conductor, which chips are carried through by the said current of air and discharged through the outlet-opening *k*. The arrangement of this funnel-shaped conductor in relation to the chip-breaker and other parts herein represented constitutes no part of the present invention, but is part of the subject-matter of my application for patent, Serial No. 268,534, filed September 27, 1888.

l indicates slots or mortises for holding the cutters in the usual manner. (Indicated by dotted lines in Fig. 1.)

The spindle-frame C and all its appurtenances may be adjusted laterally of the machine by screws *m* and *m'*, which are held against lengthwise movement in the cheek-piece *b* and engage severally with nuts or screw-holes in the frame C.

H designates the chip-breaker, which consists of a lever, represented in this example as suitably curved and terminating in a nose, *r*, and fulcrumed at one end by the bolt or stud *o* to the under side of the head-plate F,

to swing horizontally on said stud or bolt *o*, and at the other end or nose *r* presenting a curved surface, *p*, on the side of the cutter-head, which conforms quite closely to the cutting-circle and forms a shaving-bonnet, whereby shavings from the side cutter-head are directed in a lateral direction from the machine or into and off through the conductor G. On the outer side of the nose *r* of the said chip-breaker H is a flat smooth vertical face or surface, *p'*, which is made to bear with a yielding pressure on the edge of the lumber passing through the machine.

q designates the outer vertical edge of the head-plate, and *q'* the inner vertical edge of the curved lever or chip-breaker H. The chip-breaker H from the fulcrum to the upward offset *s* near the nose *r*, upon which nose are formed the faces *p* and *p'*, is lower than or below and outside of the head-plate F. The nose *r* is raised by the upward offset *s* above and upon a projecting part of the head-plate F, the part of nose *r* which rests upon the upper surface of the head-plate being as small as may be practicable in order to reduce to a minimum the probability of sticking or clogging from the accumulation of resinous substances between the surfaces.

From the chip-breaker lever H projects a lug, *t*, to which is pivoted, by a screw or pivot-pin, *t'*, one end of a bell-crank rod, t^2, the other end of which is pivotally attached to an arm of the bell-crank I. From the extremity of the other end of the bell-crank I depends a rod, t^3, pivotally attached to said arm. To the lower end of said rod t^3 is attached a weight, J. The bell-crank I is fulcrumed to the split sleeve or collar *f* by a pivot pin or stud, t^4. The weight J, acting through the bell-crank and connections above described, always holds the point or face *p'* of the chip-breaker with a yielding pressure against the side of the work. When a very thick side cut is being taken, the chip-breaker is pressed back, and thereby raises the weight J, shortens its leverage, and reduces the pressure of the face *p'* against the work.

In the example of my invention shown in Fig. 4 the pivoted end of the chip-breaker H is arranged on the top of the head-plate F. Its horizontal contour is precisely like that first described and as shown in Fig. 1; but there is an upward offset at *e* from the part *q'* which is outside of the head-plate, in order to bring the pivoted end above the said plate. I prefer to arrange the pivoted end below; but as there is no considerable collection of resinous matter near the pivot that end may be above, provided the shape of the arm of the pivoted breaker is such as to bring the inner margin, *q'*, outside of the head-plate, as shown in Fig. 1.

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

1. In a wood-planing machine, the combination, with the side cutter-head and a fixed head-plate below the said cutter-head, of a chip-breaker pivoted to the under side of said plate, but having its nose above said plate, substantially as herein described.

2. In a wood-planing machine, the combination, with a side cutter-head and a head-plate below said cutter-head, of a chip-breaker pivoted to said plate and having the greater portion of its length outside of said plate, substantially as and for the purpose herein described.

3. In a wood-planing machine, the combination, with a side cutter-head and a head-plate below said cutter-head, of a chip-breaker pivoted to said plate and having the greater portion of its length below the upper surface of said plate, substantially as and for the purpose herein described.

4. In a wood-planing machine, the combination, with a side cutter-head and a head-plate below said cutter-head, of a chip-breaker pivoted to said plate, having the greater portion of its length below the upper surface of said plate, and having an upward offset, whereby its nose is brought above said plate, substantially as and for the purpose herein described.

5. The combination, with the spindle-frame C, the bearing *e*, and the head-plate F thereon, of a side cutter-spindle, D, fitted to turn in said bearing *e*, the cutter-head E on said spindle, and a chip-breaker lever, H, fulcrumed at one end to the under side of said head-plate F, having the upward offset *s* near to its nose *r*, and having the part between the fulcrum and the offset below and outside of the head-plate F, substantially as specified.

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