

(No Model.)

G. F. WETHERELL & R. B. JONES.

PRESSER ROLL.

No. 318,064.

Patented May 19, 1885.

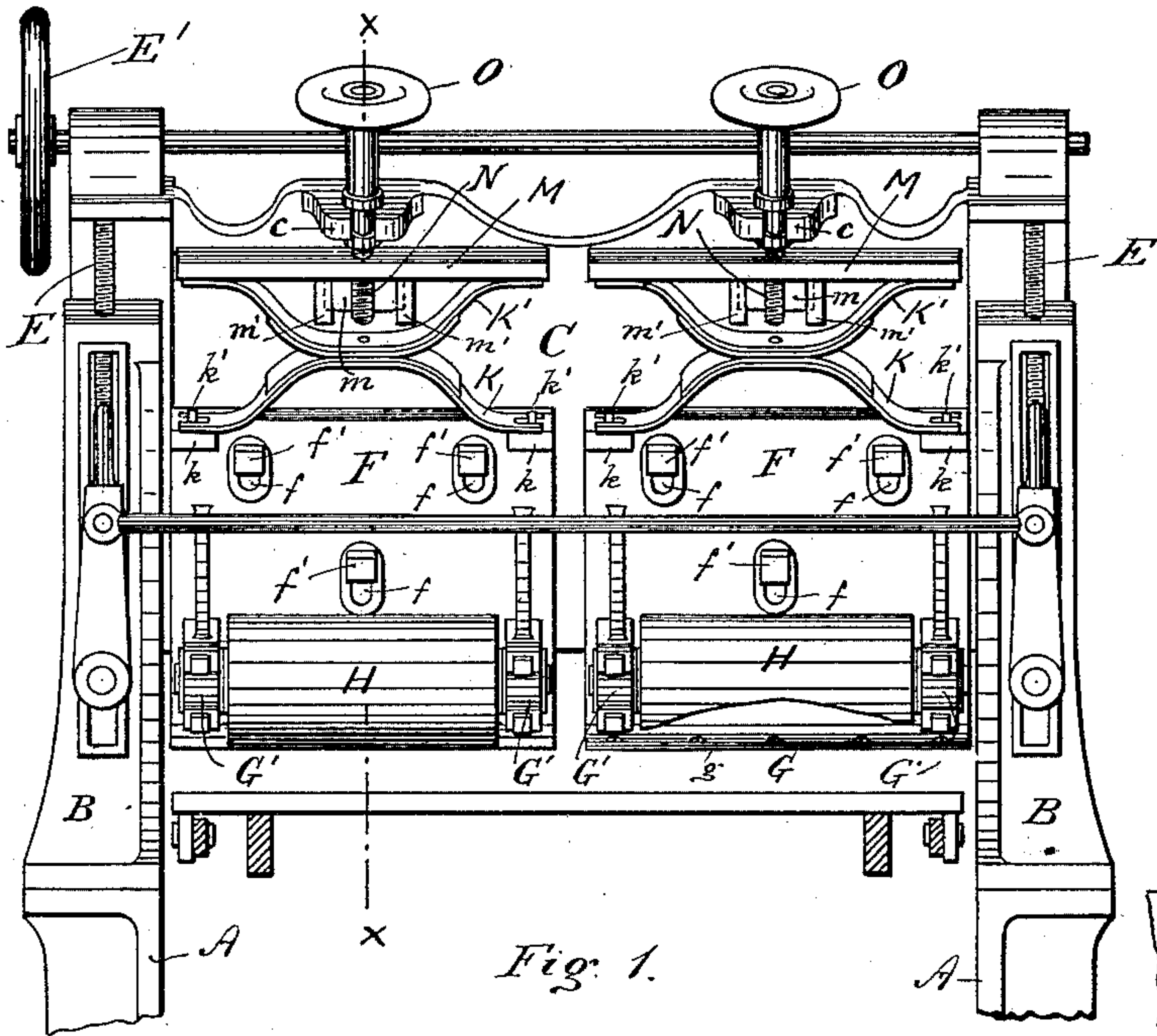


Fig. 1.

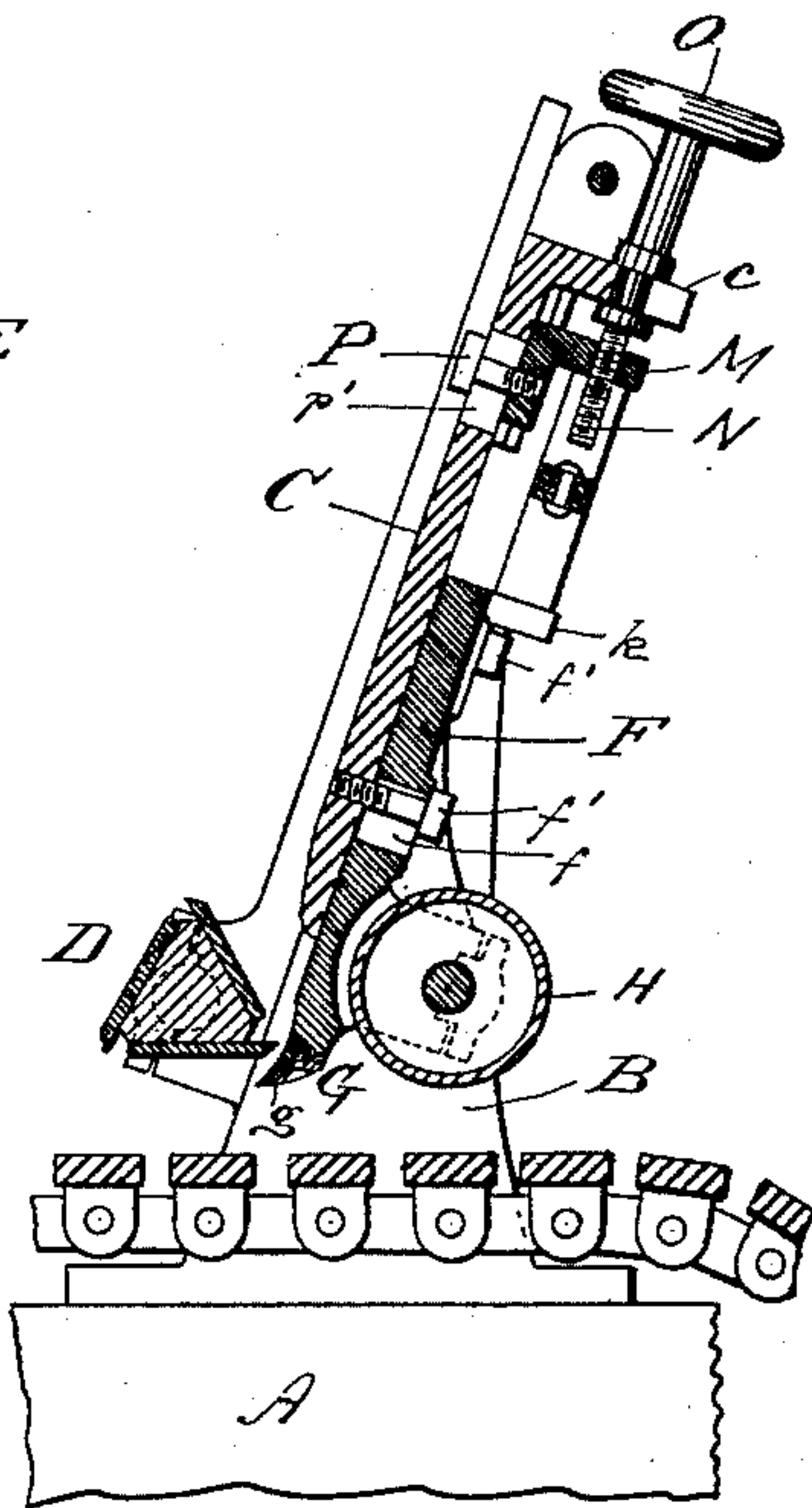


Fig. 2

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UNITED STATES PATENT OFFICE.

GEORGE F. WETHERELL AND RICHARD B. JONES, OF CHICAGO, ILLINOIS,
ASSIGNORS OF ONE-THIRD TO RANSOM RICHARDS, OF SAME PLACE.

PRESSER-ROLL.

SPECIFICATION forming part of Letters Patent No. 318,064, dated May 19, 1885.

Application filed February 6, 1885. (No model.)

To all whom it may concern:

Be it known that we, GEORGE F. WETHERELL and RICHARD B. JONES, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wood-Planing Machines, of which we do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our present invention has relation to that class of wood-planing machines wherein a rotary cutter-head is employed for planing the surface of the lumber, and in particular does it relate to the improvement of means employed for sustaining the chip-breaker and presser-rolls, which are placed in front of and correspond with the cutter-head.

In this class of machines it has been heretofore customary to sustain the presser-rolls in independent housings, so that these rolls might adjust themselves to the varying thickness or irregularities of the lumber passing through the machine. Such housings were formed with grooves adapted to receive separate chip-breakers, which bore upon the lumber at points very near the line of travel of the cutter-knives, and through slots in the housings passed headed bolts which connected the housings to the main cross-head of the machine. Upon suitable flanges of the housings rested an equalizing-bar, against which bore the lower half of an elliptic spring which served to control the movement of both housings, and which was adjustably connected to a projecting lug of the cross-head by means of a suitable screw and plate. An example of this style of machine is furnished by Letters Patent No. 217,238 to Preble and Peoples, July 8, 1879.

The above-described construction of planing-machine, while constituting a decided advance in the art, has been found somewhat defective in the following particulars: In the first place, the cross-head of the machine, by which the housings were supported, terminated at such distance above the cutter-head

that the main body of the housings was left unsupported by the cross-head save through the medium of the headed bolts. For this reason there was great danger, particularly after the parts had become worn by long usage, of the chip-breakers being thrust into the path of the cutter-head when unusually thick lumber was forced violently into the machine, thereby demolishing the cutter-head or causing even more serious accident. Moreover, by the employment of a single elliptic spring for both housings, it was not possible to vary the degree of spring-pressure upon each roll, as is sometimes desirable when planing to the same thickness lumber of slightly different kinds or grades, nor was a satisfactory action of the spring obtainable when one roll only was operating and the other was out of use. It has also been found that the best results cannot be obtained with this old construction, for the reason that the elevation of one of the presser-rolls will cause an increased and undue pressure of the equalizing-bar upon the other roll, and for the further reason that the ends of the spring being fastened together, it did not yield with sufficient freedom to severe pressure on the rolls.

Our present invention has for its object to overcome the objections above noted; and to this end it consists, first, in arranging the cross-head at such a low point with relation to the cutter-head and chip-breaker that all danger of the chip-breaker and roll-housing being thrust into the path of the cutter-head will be avoided; secondly, in forming the chip-breaker in piece with the housings and connecting it to the cross-head in substantially the relation hereinafter described; thirdly, in providing separate sets of springs and adjusting mechanism for the housings; fourthly, in the employment of two sets of reversely-bowed springs having their ends loosely connected to the housings.

Our invention also consists in details of improvement hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims at the end of the specification.

Figure 1 is a view in front elevation of a portion of a planing-machine embodying our invention. Fig. 2 is a view in vertical section on line *x x* of Fig. 1.

5 A designates the main frame of the machine, from which rise the upright posts B, by which is adjustably sustained the cross-head C in the usual manner, the adjustment of this cross-head, which carries the cutter-head B, being effected by means of the usual screws, E, hand-wheel E', and suitable co-operating mechanism. The cross-head C extends to a point approximately in line with the journal-bearing of the cutter-head, the purpose of this 15 being to guard the chip-breaker and housing against being forced into the path of the cutter-head, as will more fully appear. To the front of the cross-head are bolted the housings F, each provided with the slots *f*, of a size somewhat broader than the headed bolts *f'*, which secure them to the cross-head in such manner as to permit of a vertical and slight lateral or tilting movement as warped or irregular pieces of lumber are passing through 25 the machine. Integral with each of the housings F is formed the chip-breaker G, preferably furnished with the steel shoe *g*; and at right angles from the housings and in piece therewith project the journal-bearings G', which carry the presser-rolls H. At the upper part of the housings are formed the lugs *k*, provided with the pins *k'*, which fit within the slotted ends of the bowed springs K. Each set of springs consists, preferably, of the reverse bows K and K', the ends of the springs K' being connected to the under side of the adjusting-plate M, through which passes the adjusting-screw N, controlled by the hand-wheel O, and sustained by the flange *c* of the cross-head. On the back of the plate M is 40 formed the angular flange *m*, which moves between the lugs or ribs *m'* on the cross-head, and into which enters the threaded portion of the clamping-screw P, that passes through 45 the slot *p* of the cross-head.

From the construction of parts as thus defined, it will be seen that by extending the cross-head to a point approximately in line with the journal of the cutter-head it will 50 effectually guard against the danger of the chip-breakers and housings being forced into the path of the cutter-head. By forming the chip-breakers in piece with the housings they can be more securely held to the cross-head 55 than would be possible were the chip-breakers and housings separate.

The employment of separate sets of springs for the housings with mechanism for adjusting the tension of said springs independently 60 not only allows either of the presser-rolls to move without affecting the pressure of the other, but also enables the presser-rolls to exert different degrees of pressure in case lumber of different kinds or qualities is being planed to the same thickness. By employing the reversely-bowed springs having

their ends loosely connected to the housings' adjustable plate a more uniform and easier spring action is obtainable than is possible 70 where an elliptic spring with connected ends is used for both housings. By the construction of adjusting-plate and clamping-screw shown all strain is taken from the main adjusting-screw and its flange after the spring has been properly adjusted and the plate has 75 been clamped to the cross-head.

It will be readily seen that the precise details of construction above set out may be varied by the skilled mechanic without departing from the spirit of our invention, and 80 to such details, therefore, we do not wish to be understood as restricting our claims.

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

1. In a wood-planing machine, the combination, with sustaining-posts, of the cross-head having its main portion extending approximately in the horizontal plane of the journal-bearings of the cutter-head, and the chip-breaker and housings bearing against 90 said cross-head, substantially as described.

2. The combination, with the sustaining-posts, of the cross-head extending between 95 said posts, the housings connected to said cross-head, the chip-breakers formed in piece with said housings, and the presser-rolls and cutter-head journaled in said housings, said several parts being relatively arranged for co-operation substantially as described. 100

3. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, and the independent housings arranged transversely of the machine and connected to the cross-head, of the independently-adjustable plate-springs bearing against each of 105 said housings, said parts being relatively arranged for co-operation substantially as described.

4. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, the slotted housings, and bolts, of the chip-breakers formed in piece with the housings, the springs for exerting downward pressure on said housings, the cutter-head, and 110 presser-rolls, substantially as described. 115

5. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, and the housings, of the separate sets of reversely-bowed springs having their ends 120 loosely connected to the housings, substantially as described.

6. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head extending transversely of the machine 125 and connected to the sustaining-posts, and the housings connected to said cross-head, of the separate sets of springs for exerting pressure on said housings, adjustable bearing-plates, substantially as set forth, for said 130 springs, and bolts for clamping said plates to the cross-head, said several parts being rela-

tively arranged for co-operation substantially as set forth.

7. In a wood-planing machine, the combination, with the sustaining-posts, the cross-head, the slotted housings, and bolts for connecting the housings and cross-head, of the sets of reversely-bowed springs having slotted ends, the bearing-lugs for said slotted ends,

formed upon the housings, and adjustable bearing-plates for the springs, substantially as described.

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