

No. 627,099.

Patented June 20, 1899.

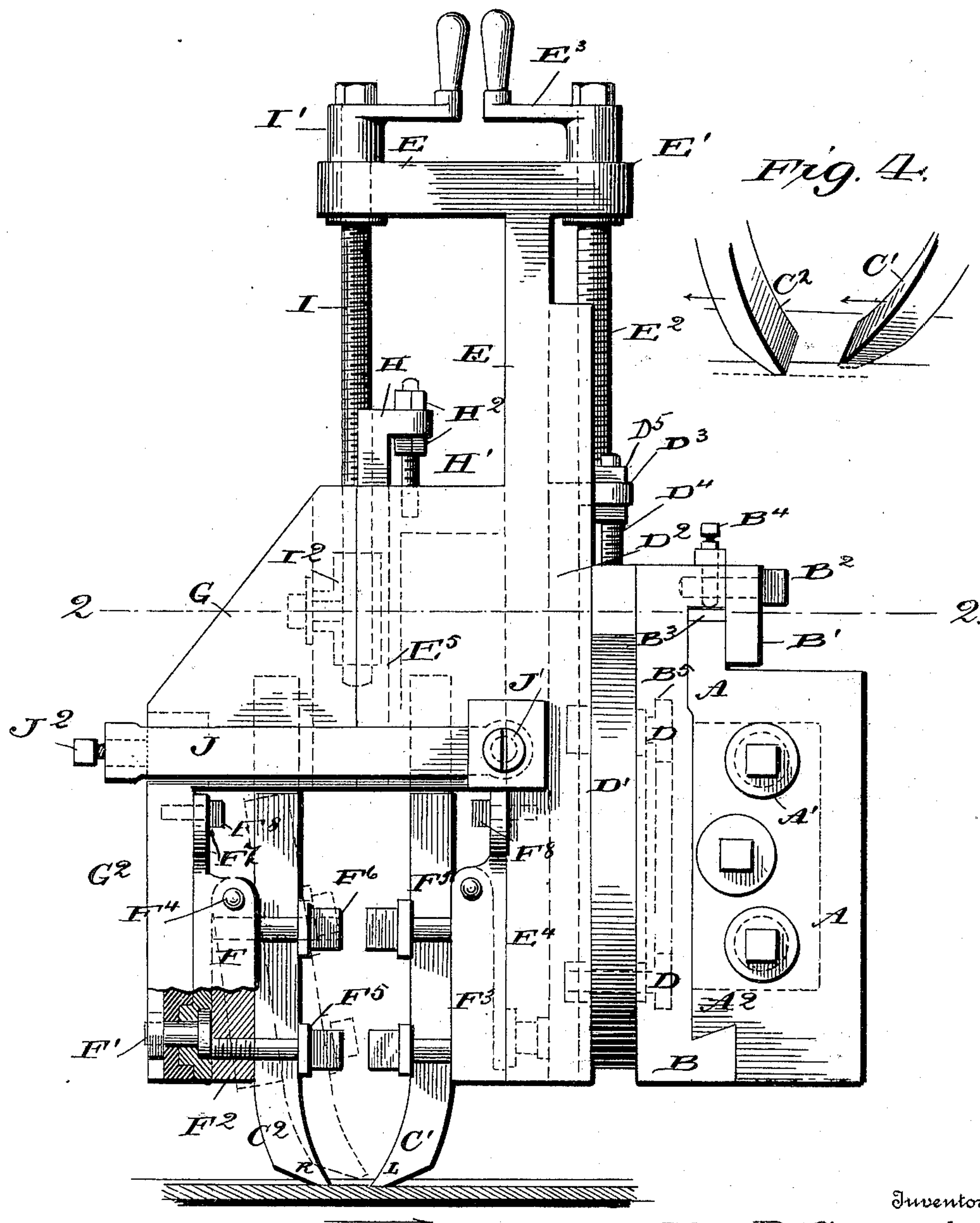
W. D. CLUGSTON.
CUTTER HEAD FOR PLANERS.

(Application filed Jan. 10, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



Witnesses

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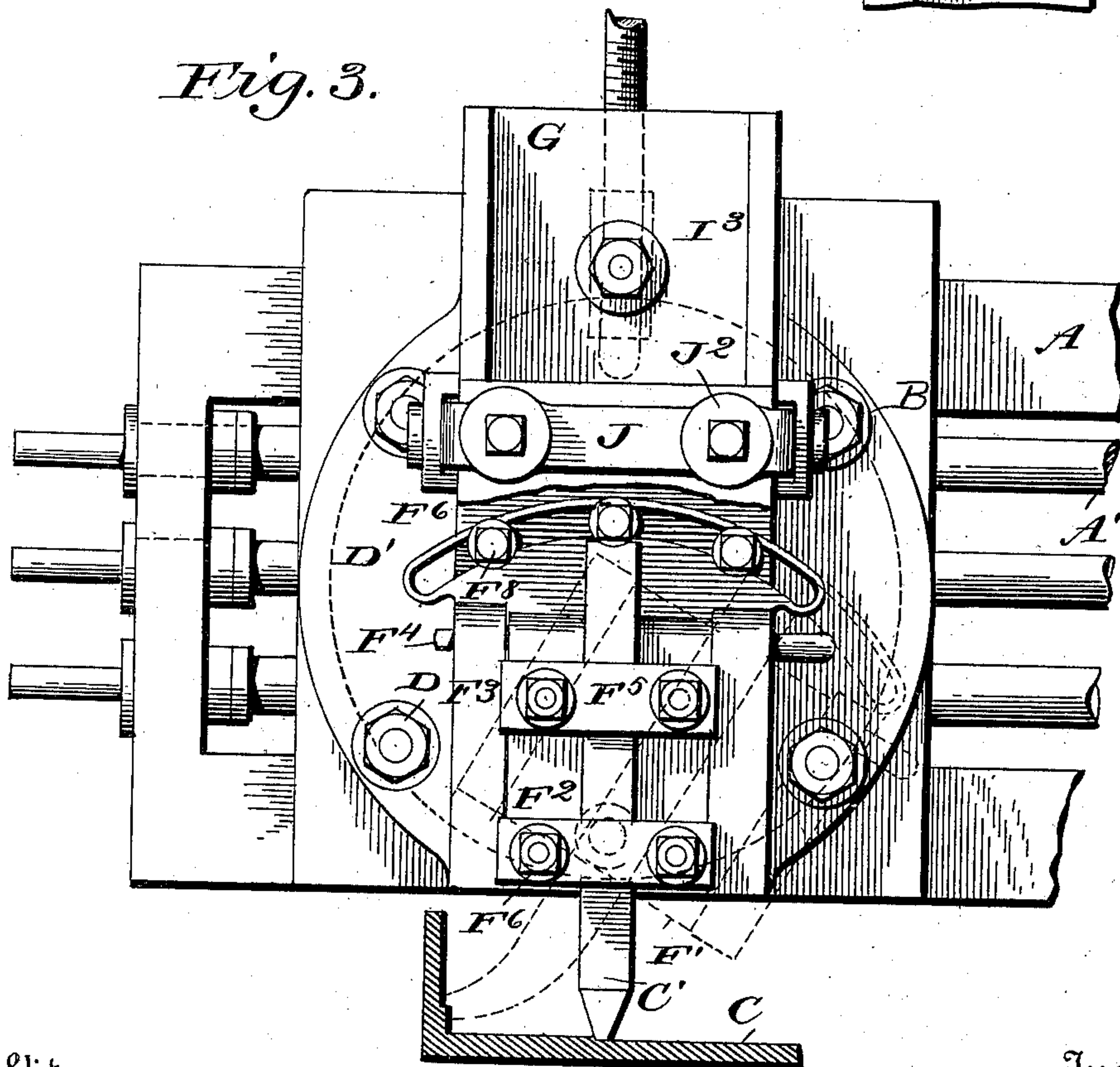
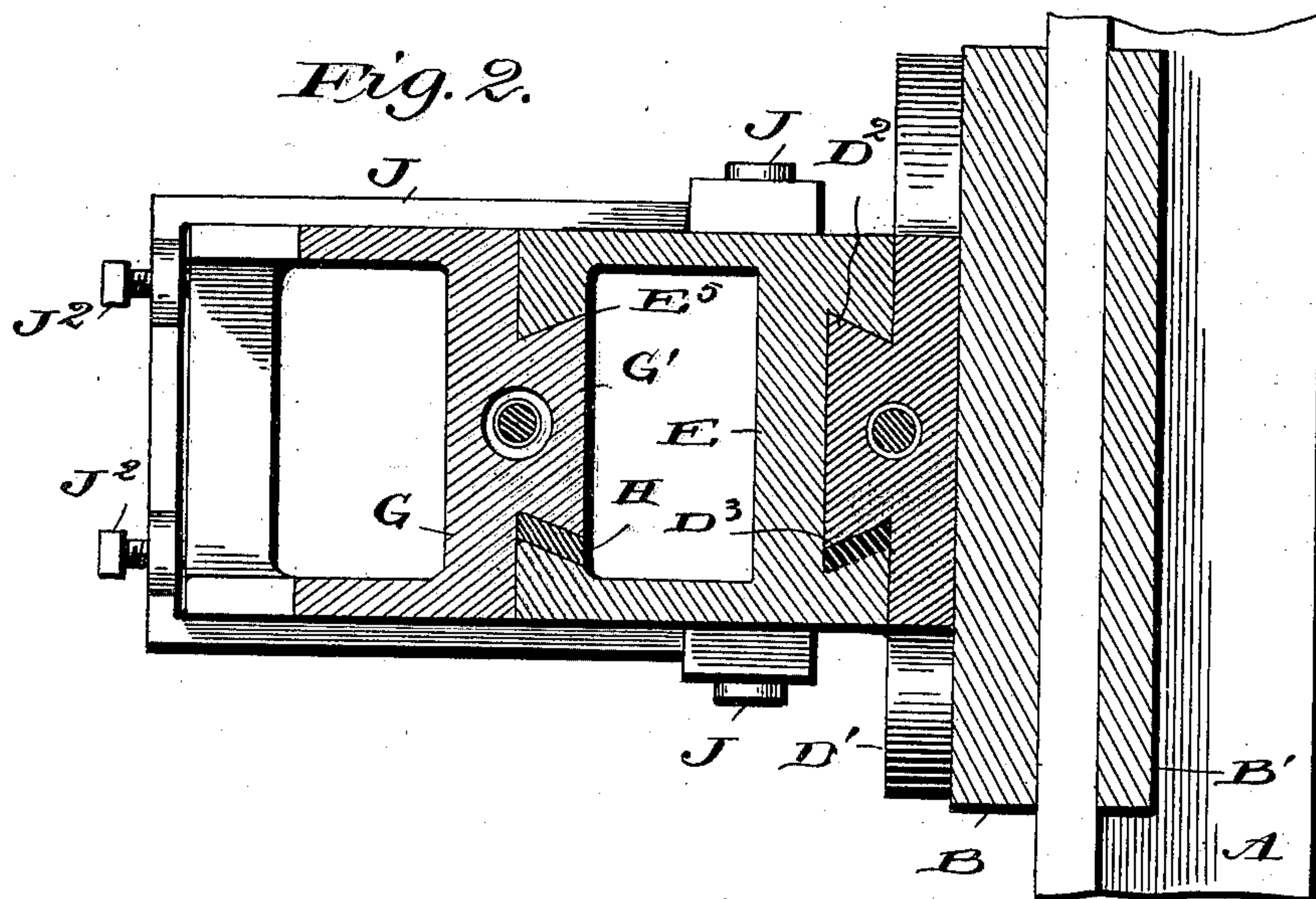
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM D. CLUGSTON, OF WILMINGTON, DELAWARE, ASSIGNOR OF ONE-FOURTH TO THOMAS STERLING, OF SAME PLACE.

CUTTER-HEAD FOR PLANERS.

SPECIFICATION forming part of Letters Patent No. 627,099, dated June 20, 1899.

Application filed January 10, 1899. Serial No. 701,701. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM D. CLUGSTON, a citizen of the United States, residing at Wilmington, in the county of New Castle, State of Delaware, have invented certain new and useful Improvements in Cutter-Heads for Planers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to cutter-heads for planers, and particularly to such a head adapted for application to a planing-machine in which either the work or the tool is reciprocated.

The invention has for its object to provide the adjustment of the cutting-tools so that the same can operate in a position other than at a right angle to the work.

A further object is to provide independent vertical adjustment for each of the tools and also means whereby one of the tools and sliding heads may be removed from its associated member.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of the invention with part of one tool-holder in section. Fig. 2 is a horizontal cross-section on the line 2 2 of Fig. 1. Fig. 3 is a front elevation with the secondary tool-holder removed, and Fig. 4 is a detail view of the staggered arrangement of the cutting-tools.

Like letters of reference indicate like parts throughout the several figures of the drawings.

The letter A designates the cross-bar of a planer-machine of any construction, which bar is provided with the usual adjusting-screws A', which engage with and move the head-block B. These adjusting-screws are for the purpose of maintaining the usual lateral feed of the cutters for each complete reciprocation of the work C.

In this application the work will be described as the moving member during the planing operation; but it is obvious that the cross-head A may be moved and the work held stationary to accomplish the same result, as is well known in this art.

The head A is provided with opposite flanges A², which fit similar ways upon the block B, which block is provided with a removable attaching-plate B', secured by any suitable means—for instance, a screw B³. For the purpose of receiving the wear in the movement of the block B upon the cross-bar A a wear-plate or gib B³ is introduced between the same and upon the surface of the upper projection A². An adjusting-pin B⁴ bears upon this gib. The block B is also provided with a circular undercut or recessed groove B⁵, adapted to receive the heads of bolts D, which pass through and are carried by a circular head D'. This arrangement of parts permits the bodily oscillation or adjustment upon a circular line of the cutter-head. From the face of the head D' a V track or projection D² extends, upon which slides the main vertically-sliding head E, which is provided with a suitable grooved recess to fit said projection. An adjusting gib or block D³ is introduced between these parts to compensate for wear and is adjusted upon a threaded pin D⁴ by means of oppositely-set nuts D⁵.

The main sliding head E is provided at its upper portion with oppositely-extending arms E' for the purpose of adjustment. This adjustment is effected by a rotatable threaded rod E², passing through an arm E' and provided at its upper end with an operating-handle E³, the rotation of which will feed the head E in either direction upon the track D². This head E is provided with a depending portion E⁴, upon which is pivotally mounted a tool-holder F by means of a pivoting-bolt F' passing through the lower portion of the holder F and rotatably mounted in the part E⁴. The tool-holder is provided with a swinging frame F², pivoted in the lugs F³ by means of a pin F⁴, so that the frame may move away from the head upon which it is carried. The tool is attached to the part F² by means of any suitable clamping-blocks F⁵ and threaded bolts F⁶, passing through the blocks and into the frame F². The entire tool-holder is rotatable upon the pivot F' and is held in its adjusted position by means of the segmental slot F⁷ and bolts F⁸ passing through said slot and into the portion E⁴ of the head. This means of mounting permits the tool-holder to be adjusted so that the tool will cut at any

angle relative to the head upon which it is carried—for instance, as shown in Fig. 3, wherein the tool in full lines is cutting at right angles to the head, while it may be adjusted, as shown in dotted lines, to cut at a different angle. The tool C' is thus held in position and is vertically adjustable by means of the sliding head E and rotatably adjustable by means of the connecting-head D' and block B.

Upon the main sliding head E a secondary head G is mounted, said secondary head being provided with a V-flange G', adapted to slide in a V way or recess E⁵ in the front of the main head E, and the usual wear between these parts is compensated for by means of a gib or key H, adjustable upon a threaded pin H² by means of the nuts H³, similar in construction to the gib D³, previously described. This secondary head is vertically adjustable upon the main head E by a threaded rod I passing through an arm E' and provided with an operating-handle I'. The lower end of this rod is seated in a suitable threaded socket I², (shown in dotted lines in Fig. 1,) whereby the rotation of the rod will vertically adjust the head G in the ways E⁵ of the head E. This socket I² is held to the rear wall of the head G by means of a securing-bolt I³, and the lower part of the head G is provided with a depending portion G², to which are secured a tool-holder and swinging frame F and F², as heretofore described. These opposite parts are similar in construction and need not therefore be separately described; but the tools carried thereby are mounted with their cutting edges directed in opposite directions, so that during the movement in one direction the tool C' will cut, while in the returning movement the tool C² is brought into operation, as hereinafter described.

In order to firmly and positively secure the secondary head G to the main head E, a bail J is pivotally mounted, by means of screws J', upon the head E, and the outer face of this bail is provided with adjustable screws J², adapted to engage the secondary sliding head G and maintain the same in proper relation. When it is desired to remove the head G, the bail can be removed from the main head and the secondary head moved upward until the flange G' thereof leaves the way in which it travels.

Both the main sliding head E and secondary head G are suitably cored or recessed, as shown in dotted lines in Fig. 1 and in full lines in Fig. 2, to provide a space to receive the upper end of a tool when the same may be of greater length than the depending portion of the head, as shown in dotted lines in Fig. 1. This permits the adjustment and use of tools of any ordinary length.

From the foregoing description it will be obvious that the entire holder can be adjusted or rotated upon the nuts D within the grooved circular recess B⁵ of the sliding block B. The main vertically-adjustable head E is also ad-

justable upon the block B, and in this manner the cutter C' may be raised or lowered, as desired, and if the cutter C² be not independently adjusted both of the cutters will be simultaneously elevated or depressed. If in any character of work it is desirable to adjust the cutter C² to work in a different plane from the cutter C', the same can be accomplished by means of a rod I, which will vertically adjust the secondary head G upon the main head E. The pivotal mounting of the two holders F also permits the same to be singly or collectively used upon surfaces of the work lying at different angles to the cross-rod upon which the holders are supported. Each of these tool-frames is independently adjustable upon its pivoted frame F², so that the planer is adapted to operate upon almost any form of casting or work to which it may be applied. In planing a plate or plane surface if the work be begun at the left and the work moved in the direction of the arrow in Fig. 1 the cutter C' will first remove a portion of the surface, while the cutter C² will swing with its pivoted frame F² into the position shown in dotted lines and travels over the face of the work, while when the plate returns to complete its reciprocation the cutter C² will operate and the work pass beneath the cutter C', the same traversing the surface previously cut. These cutters are slightly staggered, as in Fig. 4. For instance, each is provided with a cutting-face of one-eighth of an inch, so that the movement in one direction cuts one-eighth of an inch and the return movement one-eighth of an inch, making a total surface planed of one-fourth of an inch, and the head-block B is then adjusted one-fourth of an inch to begin the next cut. The tools are provided with their cutting-faces in opposite directions for the purposes just described and are located between the depending portions of the main vertical sliding frame and the secondary frame G, so as to bring the cutting-faces close to each other.

It will be obvious that changes may be made in the details of construction and conformation of the several parts without departing from the spirit of this invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a cutter-head for planers, the combination with a cross-bar of a planing-machine, of a head-block movable thereon, a vertically-sliding head carried by said block, a device for vertically adjusting said vertically-sliding head, a secondary vertically-sliding head supported by and adjustable with said first sliding head, means for independently adjusting said secondary head, a cross-head carrying said adjusting devices and tool-holders carried by each of said heads; substantially as specified.

2. In a cutter-head for planers, the combination with a cross-bar of a planing-machine, of a head-block movable thereon, a vertically-

sliding head carried by said block, a device for vertically adjusting said vertically-sliding head, a secondary vertically-sliding head supported by and adjustable with said first sliding head, means for independently adjusting said secondary head, and tool-holding devices upon each head pivotally mounted in both a vertical and horizontal plane to permit lateral and longitudinal oscillation of the tool; substantially as specified.

3. In a tool-holder, a vertically-sliding head provided with a cross-arm having bearings at opposite ends, an adjusting device cooperating with one end of said arm to adjust said head, a secondary vertically-sliding head, an independent supporting and adjusting device carried by the opposite end of said cross-arm and secured to said secondary head, and tool-holding devices carried by said heads; substantially as specified.

4. In a tool-holder, a vertically-sliding head provided with a cross-arm having bearings at opposite ends, an adjusting device cooperating with one end of said arm to adjust said head, a secondary vertically-sliding head, an independent supporting and adjusting device carried by the opposite end of said cross-arm and secured to said secondary head, tool-holding devices carried by said heads, and a pivoted bail surrounding said secondary head; substantially as specified.

5. In a tool-holder, a vertically-sliding head and means for adjusting the same, a secondary vertically-sliding head supported thereon and adjustable therewith, an independent adjustment for said secondary head, tool-holding devices mounted upon depending extensions from said heads, and oppositely-disposed tools pivotally mounted upon said devices to swing toward each other and overlapped or staggered; substantially as specified.

6. In a cutter-head, the combination with a laterally-sliding head-block, of a head ro-

tatably adjustable thereon, a vertically-sliding head mounted upon said rotatable head, a tool-holding device carried by said vertically-sliding head, a secondary head supported by and adjustable with said vertically-sliding head, independent means for adjusting the secondary head, and a tool-holding device carried by said secondary head; substantially as specified.

7. In a tool-holder, a vertically-sliding head, a cross-arm to said head, means cooperating with said arm to adjust said head, a secondary vertically-sliding head, an independent supporting and adjusting rod secured thereto and mounted in the arm of said main vertically-sliding head, independent tool-holding devices for each head pivotally mounted in both a vertical and horizontal plane to permit lateral and longitudinal oscillation of the tool, and a pivoted bail mounted upon one head and removably engaging the secondary head; substantially as specified.

8. In a tool-holder, a vertically-sliding head, a cross-arm to said head, a rod cooperating with said arm to adjust said head, a secondary vertically-sliding head, an independent threaded adjusting-rod secured thereto and mounted in the arm of said main vertically-sliding head, independent tool-holding devices for each head pivotally mounted in both a vertical and horizontal plane to permit lateral and longitudinal oscillation of the tool, a pivoted bail mounted upon one head and removably engaging the secondary head, dovetailed or V ways between said heads, and adjustable gibs in said ways; substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM D. CLUGSTON.

Witnesses:

CHARLES GREEN,
JAMES W. GREEN.