

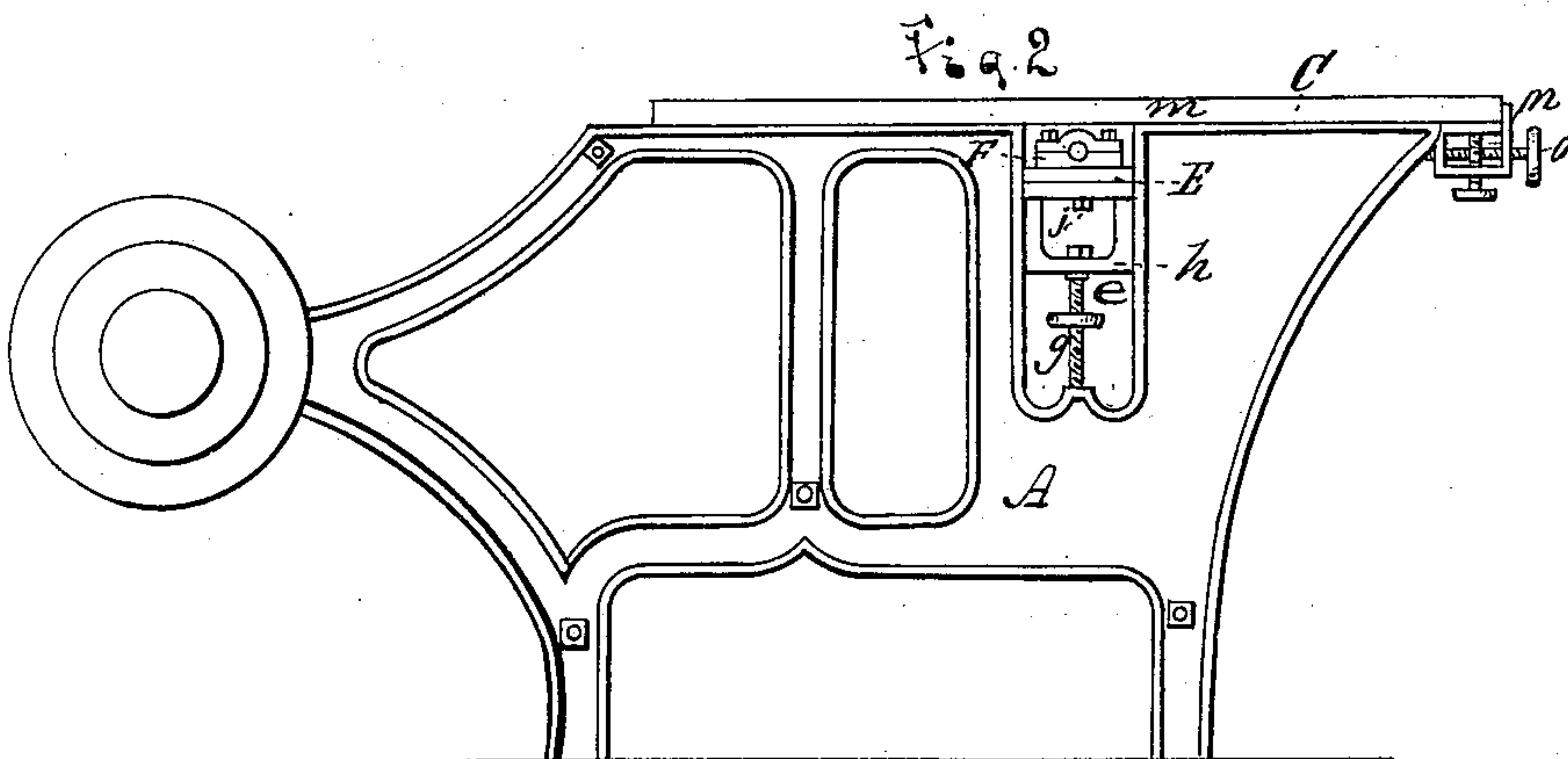
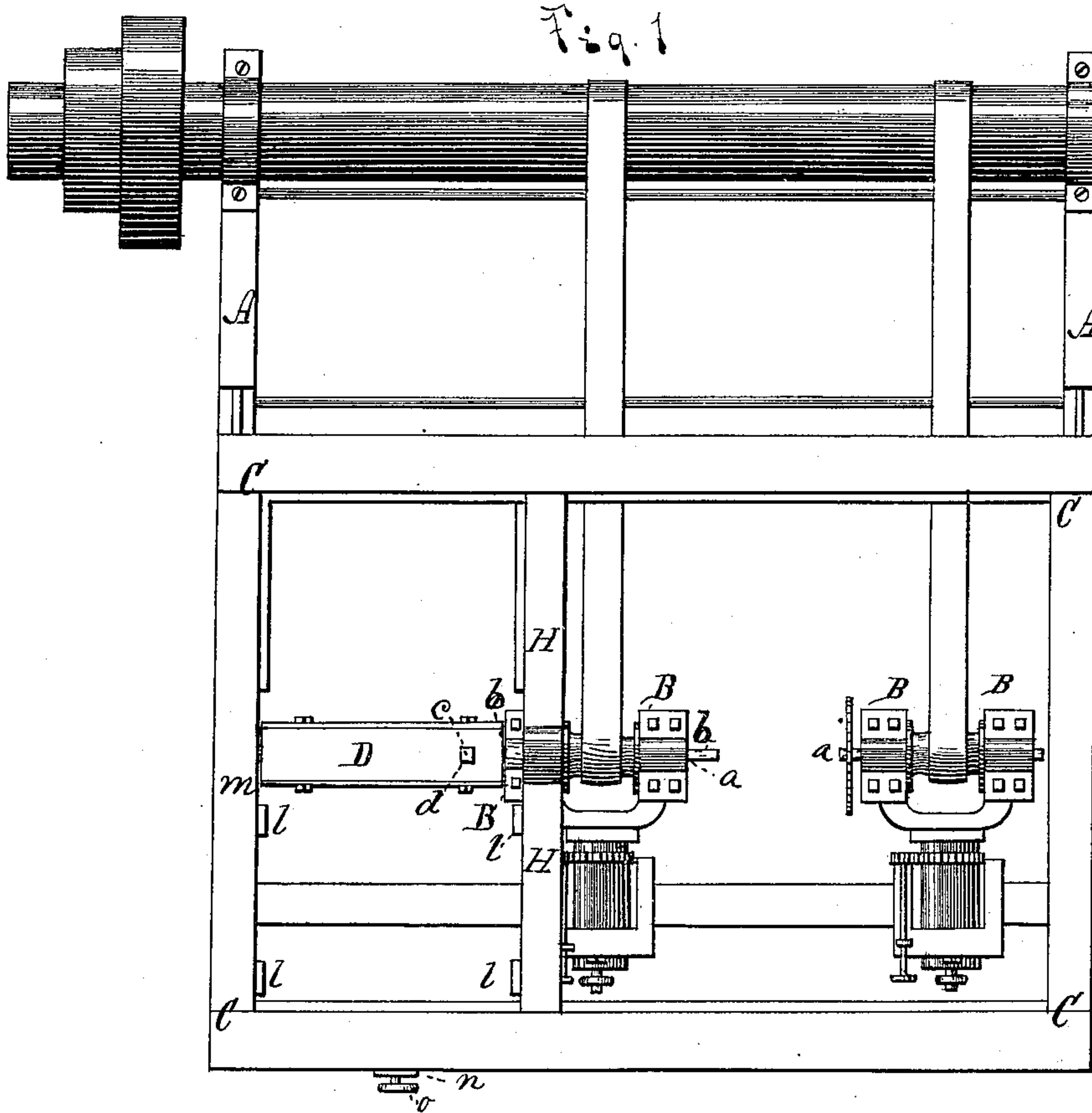
(No Model.)

2 Sheets—Sheet 1.

H. A. HOLT.  
PLANING MACHINE.

No. 322,935.

Patented July 28, 1885.



WITNESSES

H. A. Clark,  
M. F. Hallen

INVENTOR,  
Henry A. Holt,  
By J. S. Brown

His Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

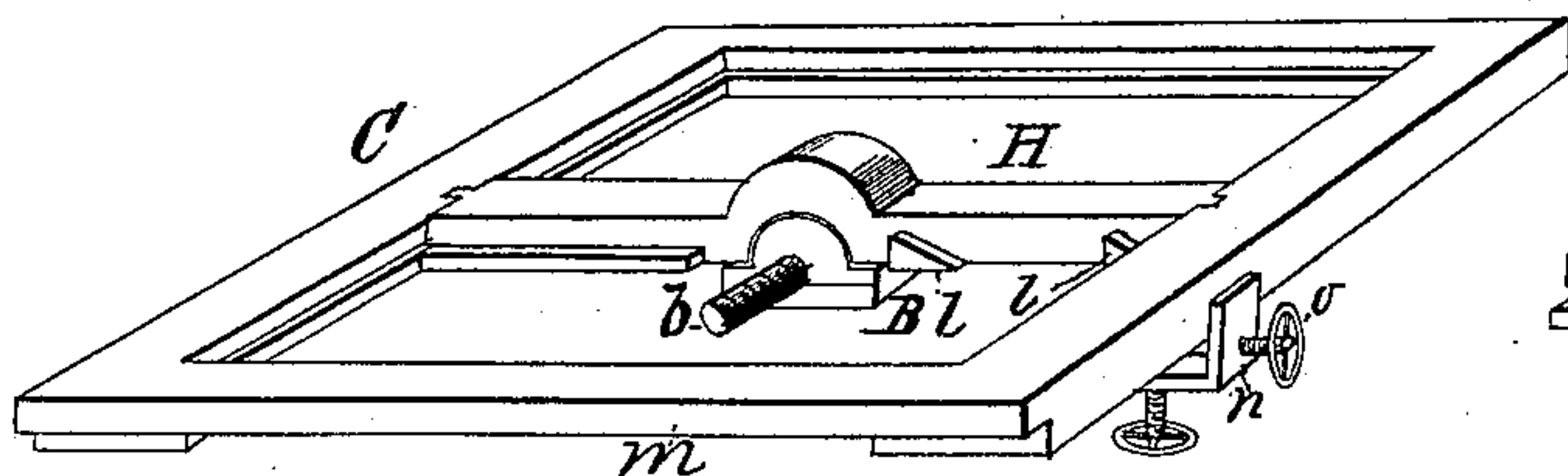


Fig. 4.



Fig. 6.



Fig. 5.

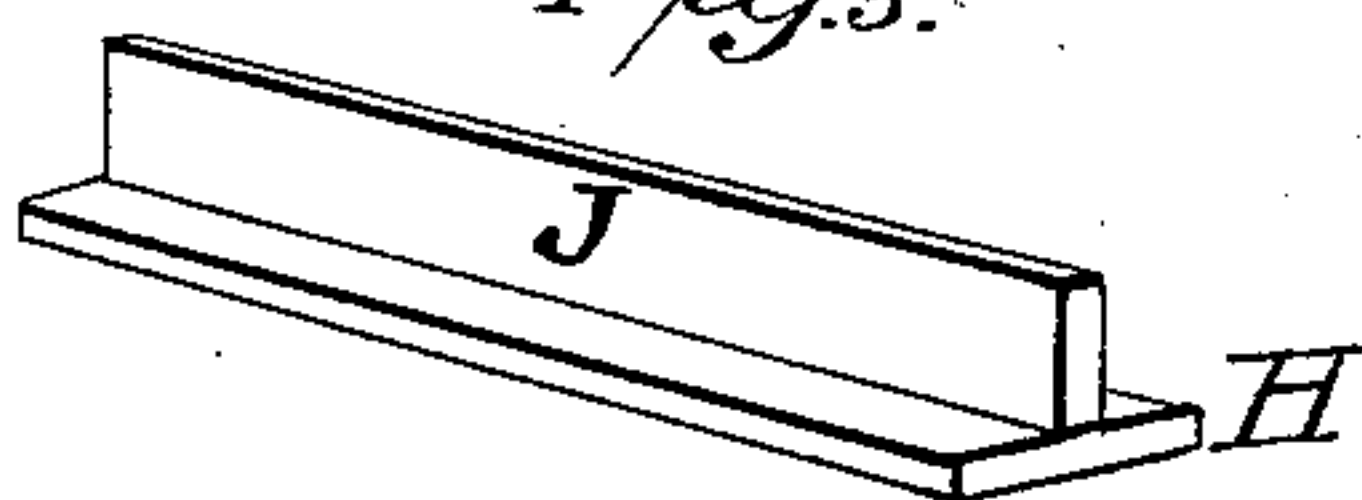


Fig. 7.

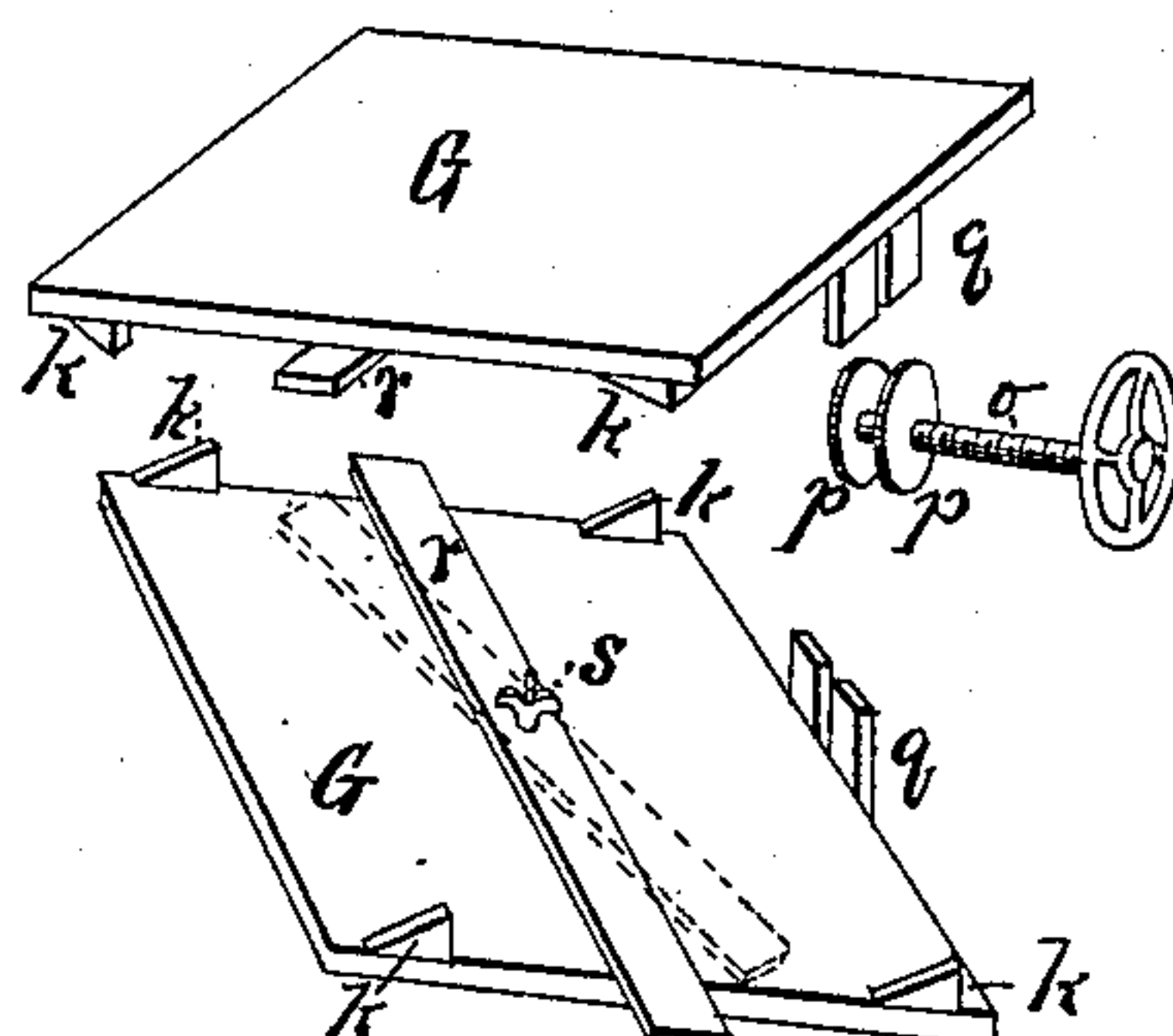
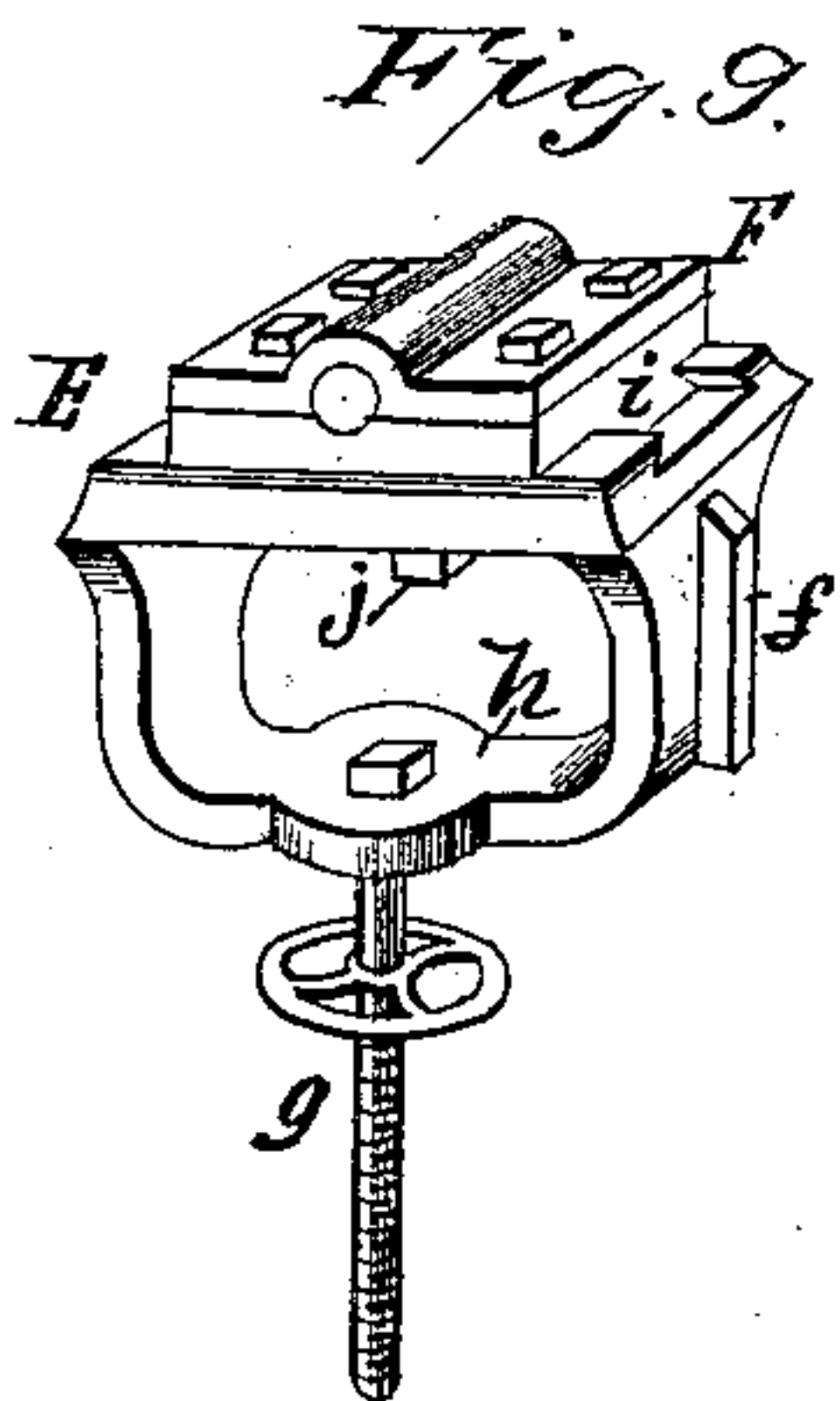


Fig. 8.



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# UNITED STATES PATENT OFFICE.

HENRY A. HOLT, OF WILTON, NEW HAMPSHIRE.

## PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 322,935, dated July 28, 1885.

Application filed April 22, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. HOLT, of Wilton, in the county of Hillsborough and State of New Hampshire, have invented certain Improvements in Wood-Working Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Letters Patent No. 159,514 were granted to me, dated February 9, 1875, for an improved machine for doing various kinds of wood-working, and Letters Patent No. 265,604 were granted to me, dated October 10, 1882, for additional improvements on the machine previously patented as above.

My present invention consists in several special features of improvement on the machine as previously patented, adding other capabilities thereto, although they may be applied to machines otherwise organized, and I do not confine the improvements to this special adaptation, which, however, I shall herein describe in order to more fully and clearly illustrate their construction and operation and to show one complete means of applying the same to practical use.

The accompanying drawings represent these improvements in detail and their connection with and adaptation to a machine having the general construction substantially as in my Patent No. 265,604.

Figure 1 represents a top view of a machine provided with a carriage as shown and described in my Letters Patent No. 159,514, the machine and carriage being provided with my present improvements; Fig. 2, a side view of the same; Fig. 3, a view of the improved carriage in perspective; Fig. 4, a perspective view of the movable cross-bar of the carriage, showing a modified construction; Fig. 5, a perspective view of the movable cross-bar of the carriage when provided with a gage; Fig. 6, a perspective view of a cylinder for a buzz-planer adapted to be used with the machine; Fig. 7, a perspective view of an adjustable table used on the carriage; Fig. 8, a perspective view of the under side of the table; Fig. 9, a perspective view of an adjustable bearing for one end of the planer-cylinder applied to one side of the machine-frame.

Like letters designate corresponding parts in all the figures.

The frame or body of the machine is marked A in the drawings, and, being constructed substantially as shown and described in the former Letters Patent, it will not be specifically described here.

The blocks or frames B B, on which the working-tools are mounted, and designated by me as "arbor-blocks," are assumed to have the adjustments set forth in my second Letters Patent above referred to, and to that extent they need no description here.

The carriage C is constructed and mounted substantially as set forth in my first-named Letters Patent. The improvements added thereto by my present invention only will be described in this specification.

The first improvement which I here describe has for its purpose the application of a planing-cylinder or cutter-head, D, to the machine for buzz-planing. For this purpose I employ one of the arbor-blocks B, as shown in Fig. 1, on which to mount one end of the planer-cylinder, and I mount the other end of the cylinder in a bearing, E, Figs. 1, 2, and 9, located in one side of the frame A.

By mounting one end of the planer-cylinder on one of the arbor-blocks, I obtain several advantages: first, the ordinary driving-belt of the arbor-block serves to drive the planer-cylinder, and no separate belt for the purpose is required; second, the several adjustments of the arbor-block enable me to mount any length or size of cylinder on the machine, and to adjust it accurately to the position required without any additional parts whatever; third, the planer-cylinder is quickly attached to the machine and as quickly detached to enable other work to be done on the machine; and, in general, it will be understood that thereby, with a few dollars additional cost, the machine is converted into a useful planing-machine. Now, to apply the planing-cylinder to one of the arbor-blocks, I show in Fig. 6 means for attaching the cylinder to the driving arbor or spindle *a* of the arbor-block, so that it may be driven thereby. This arbor ordinarily has projections or tangs *b*, for attaching the various other tools or instruments in use on the machine. One of these tangs is



employed to couple the cylinder or cutter-head D to the arbor or spindle *a*. The tang *b* has a screw-thread cut upon it, so that it may simply be screwed into the end of the cylinder; but it is preferable to employ a separate nut introduced into a mortise or cavity, *d*, in the side of the cylinder, into which nut the tang of the arbor is screwed.

Any equivalent means of attaching the cylinder to the driving-arbor may be used instead of that herein described.

The bearing E, in which the journal of the other end of the planer-cylinder runs, is placed in a notch or opening, *e*, in the side of the frame A. It is necessary or very desirable that this bearing should have a vertical adjustment, to co-operate with the vertical adjustment of the arbor-block on which the other end of the cylinder is mounted, so that the cylinder may be placed at any desired height in relation to the carriage or table on which the stuff is fed to the planer-cylinder, and so that different sizes of cylinder may be used, if desired. In this connection, and for this purpose, I construct the bearing so as to be vertically adjustable in the notch of the frame A, and I represent in Fig. 9 means for effecting this adjustment. The bearing has vertical ribs *f* on its opposite vertical edges to fit in grooves or ways in the vertical edges of the said frame - notch *e* of the frame, (not shown in the drawings,) and to effect the adjustment of the bearing I show a screw, *g*, turning in a bearing, *h*, at the bottom of the main bearing E, and screwing down into the frame A at the bottom of the notch *e*. It is also necessary or desirable that the bearing should be laterally and horizontally adjustable, to correspond with the lateral horizontal adjustment of the arbor-block carrying the other end of the planer-cylinder, for adjusting the tightness of the driving-belt, or for any other purpose. I also show in Fig. 9 a method of effecting this adjustment.

The pillow-block F, which forms the immediate bearing for the cylinder-journal, has a sliding lateral horizontal movement in relation to the axis of the cylinder upon the main bearing or block E. The pillow-block is shown as having a tongue, *i*, of dovetail form on its lower side, to fit in a way of the same form in the top of the main bearing.

To secure the pillow-block in any position, a suitable set-screw or set-screws should be used. I show a jam-screw, *j*, screwing upward through the top of the main bearing to press against the lower side of the pillow-block.

In connection with this buzz planer-cylinder I employ a front table, G, supported by and made adjustable up and down by means in connection with and mounted upon the carriage C, used for general purposes on the machine. I show the table in Figs. 7 and 8, and the construction of the carriage to receive and adjust the table in Figs. 3 and 4. The table has four supporting-lugs, *k k k k*, all inclined equally

in the same direction, substantially as shown. These inclined lugs rest on four inclined lugs or supports on the carriage. Two of these supports, *l l*, I form on or attach to a laterally-movable cross-bar, H, on the carriage. This cross-bar is held fixedly in place by tenons on its ends fitting in notches in the sides of the carriage, as shown in Figs. 3 and 4; or it may be made laterally adjustable equally at both ends, and retained accurately and fixedly in any position to which it may be adjusted by means of adjusting-screws, as described in my former Letters Patent No. 59,514; but since a means of adjustment is fully described in that patent, I do not in the present specification show any means therefor, simply referring to that patent for the description, and here merely representing the cross-bar itself. The other two supporting-lugs for the table I place on the inner edge of one end beam, *m*, of the carriage, but have not shown them in the drawings. With this construction it is obvious that a horizontal movement of the table upon these supporting-lugs will raise or lower the whole table equally, according to the direction in which the table is moved or adjusted. I show in Figs. 4 and 7 means for effecting the horizontal adjustment of the table. Attached to one side of the carriage C is a fixed screw-nut, *n*, in which turns an adjusting-screw, *o*. On the inner end of the screw are two disks, *p p*, a little distance apart, between which disks enters a notched plate, *q*, projecting downward from the table, the notch of the plate fitting over the screw. This device couples the table to the screw, so that it is moved forward and backward with the same; but it obviously does not interfere with lifting the table from the carriage. To hold the table firmly on the carriage, however, a button or swinging bar, *r*, is attached to the under side of the table by a pivot-screw, *s*. The bar projects beyond the sides of the table so as to reach under the cross-bar H and end carriage-beam, *m*, respectively, thereby holding the table in place. The bar *r* is made somewhat elastic, and the screw *s* tightens it up to any desired degree of force. To release the table the fastening-bar *r* is turned around far enough to free it from the carriage, as indicated by dotted lines in Fig. 8. The pitch of the inclined lugs should properly be such, and the distance of the rear edge of the table from the planer-cylinder, that in adjusting the table up and down the rear edge of the table should move nearly in a tangent to the path of the cutter-edges of the cylinder, so as to have nearly the same position relative thereto at all times. The back table may simply rest on ledges upon the inside of the frame of the carriage and upon one side of the cross-bar, and it need not be adjustable up and down. It, however, may be so adjustable by means similar to that just described for adjusting the front table.

A cross-bar, H, of the construction shown in Fig. 3, may be specially provided for the



use of the planer, having the ledge and supporting-lugs, as shown, and, since the carriage remains stationary while the planer is being used, there may be an upward curve in the middle of the bar over the bearing of the cylinder, as shown, to enable the said cylinder to be brought up higher in relation to the carriage and tables thereon than otherwise could be effected. I however may use, as a modification of the cross-bar just described, the construction shown in Fig. 4, which shows a simple plain cross-bar, H, of ordinary construction for general use; and for the purpose of planing I employ, in connection with the cross-bar, a cap-bar, H', as shown, having a groove in one edge, so that the sides of the groove will embrace one edge of the cross-bar which fits in the groove; or other means of attachment to the cross-bar may be employed. This cap has the supporting-lugs *l l* and supporting-ledge, like those on the cross-bar H. (Shown in Fig. 3.) This cap-bar is to be removed when the cross-bar is to be used for other purposes.

As another special improvement in the machine I mount upon the cross-bar H, of ordinary construction, a gage plate or bar, J, as shown in Fig. 5, to be used for all the purposes of a gage or guide in cutting out or working stuff. Since the cross-bar is laterally adjustable, this construction obviates the necessity of providing a separate means of mounting and adjusting a separate gage.

I claim as my invention—

1. In a wood-working machine, the combination, with an adjustable arbor block or carrier having vertical, horizontal, and angular adjustments, substantially as set forth, and a planing-cylinder attached at one end to and driven by the arbor or spindle of the said arbor-block, and having its bearing at the other end adjustable in the frame of the machine, substantially as and for the purpose herein specified.

2. The combination of an arbor block or carrier having vertical, horizontal, and angular adjustments, substantially as set forth, a planing-cylinder mounted at one end on the said arbor-block, and a bearing for the other end of the said planing-cylinder having both a vertical and a horizontal adjustment in the frame of the machine, substantially as and for the purpose herein specified.

3. In a wood-working machine, the combination of an arbor block or carrier having adjustments substantially as set forth, a planing-cylinder mounted at one end on the said arbor-block, and having its bearing at the

other end adjustable in the frame of the machine, a carriage, C, and a table, G, mounted upon the said carriage and adjustable in height thereon tangentially to the pathway of the revolving planing-cylinder, substantially as and for the purpose herein specified.

4. The combination of the arbor block or carrier having adjustments substantially as set forth, a planing-cylinder mounted at one end on the said arbor-block, and having its bearing at the other end adjustable in the frame of the machine, a carriage, C, provided with a laterally-adjustable cross-bar, H, having inclined lugs *l l* thereon, and with inclined lugs on one of its end beams, *m*, and the table G, having inclined lugs *k k k k*, resting upon the lugs of the carriage, and having a horizontal adjustment on the said carriage-lugs, substantially as and for the purpose herein specified.

5. The combination of the arbor block or carrier having adjustments substantially as set forth, a planing-cylinder mounted at one end on the said arbor-block, and having its bearing at the other end adjustable in the frame of the machine, a carriage, C, having an end beam, *m*, and cross-bar H, and an adjustable table, G, supported by the said end beam and cross-bar of the carriage, and provided with an elastic swinging attaching-bar, *r*, substantially as and for the purpose herein specified.

6. The arbor block or carrier having adjustments substantially as set forth, a planing-cylinder mounted at one end on the said arbor-block, and having its bearing at the other end adjustable in the frame of the machine, a carriage, C, having a laterally-adjustable cross-bar, H, which is provided with a gage-plate, J, substantially as and for the purpose herein specified.

7. In a wood-working machine, a bearing, E, having a vertical adjustment in the frame A of the machine, and provided with a laterally-adjustable pillow-block, F, in combination with the planing-cylinder D, and arbor block or carrier having vertical horizontal, and angular adjustments, substantially as set forth, on which the said planing-cylinder is mounted, and by means of which it is driven, substantially as and for the purpose herein specified.

The above specification signed by me this 25th day of February, 1884.

HENRY A. HOLT.

Witnesses:

H. J. TAFT,  
SEWALL PUTNAM.