

(No Model.)

G. A. GRAY, Jr.  
METAL PLANING MACHINE.

No. 296,951.

Patented Apr. 15, 1884.

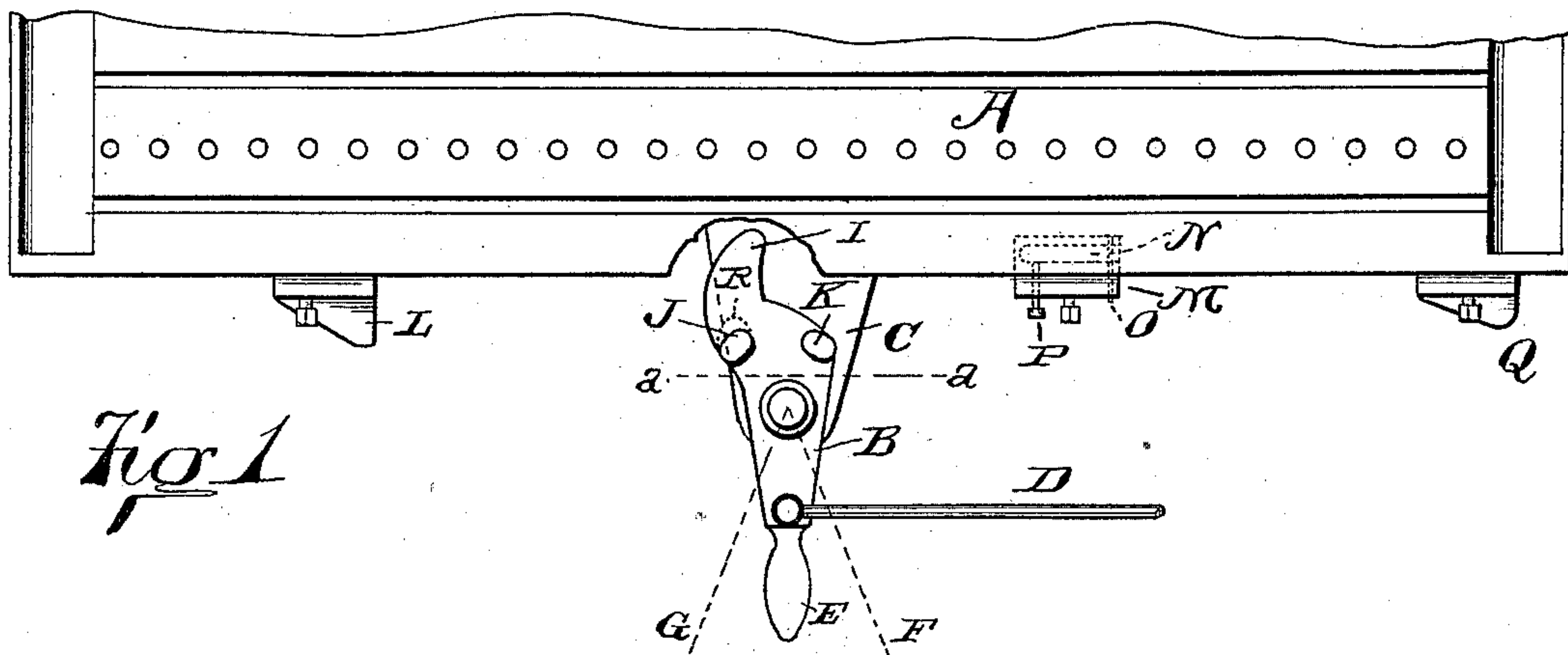
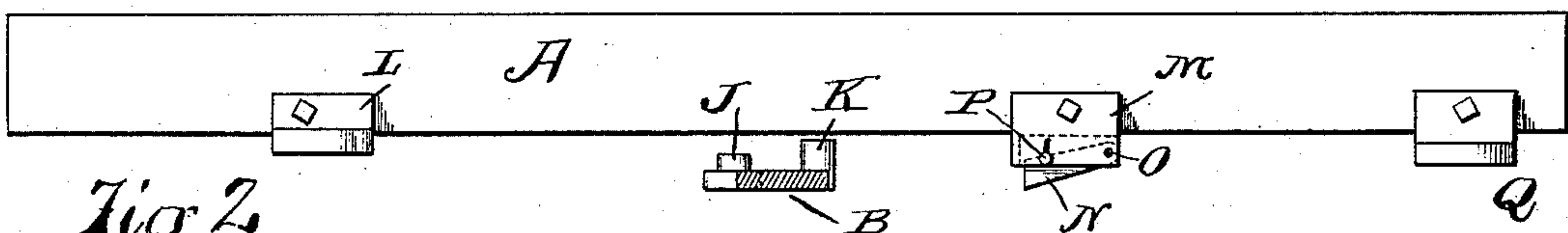


Fig 1



*Fig 2*

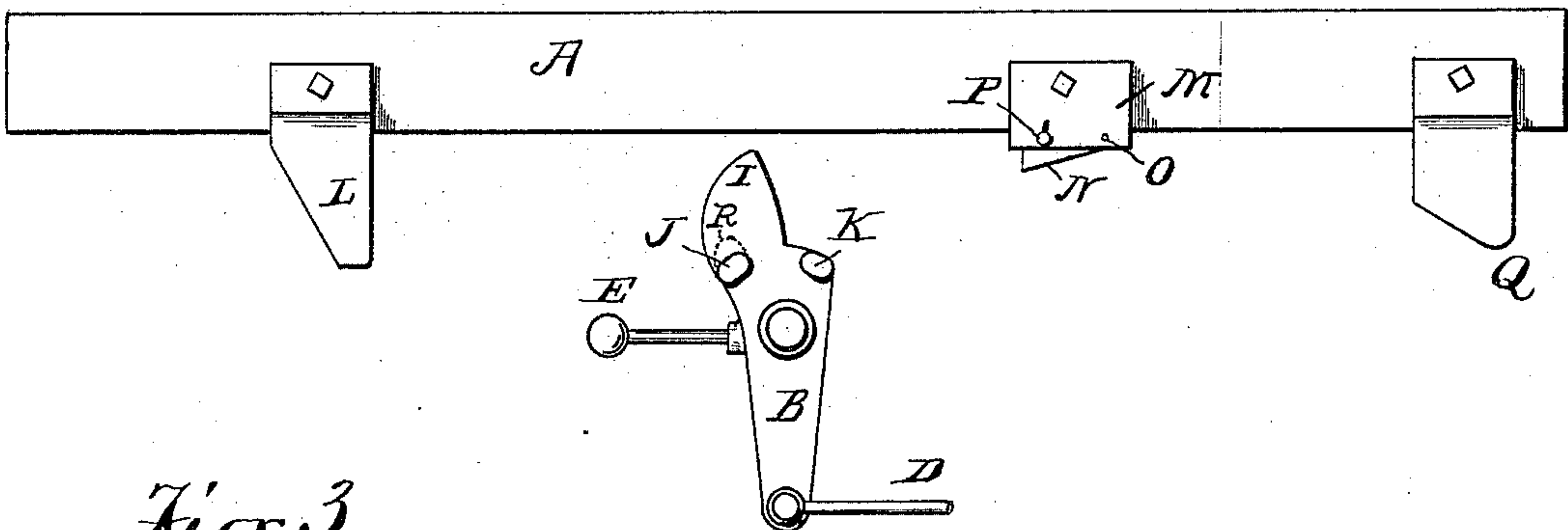


Fig 3

*WITNESSES:*

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# UNITED STATES PATENT OFFICE.

GEORGE A. GRAY, JR., OF COVINGTON, KENTUCKY.

## METAL-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 296,951, dated April 15, 1884.

Application filed October 22, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE A. GRAY, JR., of Covington, Kenton county, Kentucky, have invented certain new and useful Improvements in Metal-Planing Machines, of which the following is a specification.

This invention relates to the motion-controlling devices of metal-planing machines.

The object of the invention is to enable the table to run back past the back reversing-dog without endangering the planer by running the table entirely off its actuating-gear. By means of my invention the planer may operate as usual, and in case it is desired that the table be run farther backward than the length of cut requires, or than the back dog would naturally permit, the back dog may be manipulated so as to permit the table to have a further back travel, limited only by a third dog, which prevents the table leaving its gear.

In the accompanying drawings, Figure 1 is a plan of one edge of the planer-table with dogs and tumbler in position. Fig. 2 is a side view of the same, being shown in section on line *a a*. Fig. 3 is a side view modified to suit a planer having a vertical tumbler.

In the drawings, A represents the table of the planer; B, the tumbler; C, the tumbler-support; D, the rod connecting the tumbler with the belt-shifting apparatus, whatever it may be; E, the tumbler-handle, by means of which the tumbler is operated by hand; F, a dotted line indicating the position of the tumbler when the table is on its forward or cutting motion; G, a dotted line indicating the position of the tumbler when the table is on its backward or non-cutting motion; I, the tumbler-toe, to be struck by the back dog; J, a lug on the tumbler, to be struck by the stop-dog; K, a lug on the tumbler, to be struck by the front dog; L, the front dog; M, the back dog; N, a striking-latch pivoted in the back dog; O, the pivot of the latch; P, a knob attached to the latch, and Q the stop-dog. The dogs adjust, as usual, along the edge of the planer-table, and the dogs L and M effect the shifting of the belt, and the consequent reversal of the table motion, as usual. The latch N forms the striking part of the back dog, M.

In the ordinary operation of the planer, the dog L, at the end of the forward stroke, strikes

lug K, throws tumbler to the position indicated by line G, and causes the table to reverse its direction of motion. At end of backing stroke the dog M, by its latch N, strikes toe I, throws tumbler to position indicated by dotted line F, and causes the table to make a new cutting stroke, and so on as long as desired. If it be desired to run the table out from under the rail further without disturbing the back dog, M, the latch N is lifted up by the knob P. This practically suppresses the dog M, and the table continues its backward motion until the stop-dog Q strikes the lug J and throws the tumbler into the neutral position, thus stopping the table. When it is desired to restart the planer, the tumbler is thrown by hand to the position indicated by the line F. The table then starts forward, the latch N automatically giving way in passing the tumbler, and the motion proceeds as before, being governed by the dogs L and M. For short planers the stop-dog Q may be rigidly fixed near the back end of the table, so that the lifting of the latch will simply serve to permit the table to move back its full stroke and then stop; but the arrangement of the stop-dog to be adjusted to any point is preferable.

Metal-planers are ordinarily arranged to have their tables travel backward about twice as fast as they travel forward. Under such circumstances the construction specified will probably prove all that is desired. There has, however, lately been a tendency toward greatly increasing the backing speed of planer-tables, such backing speed in some cases being as much as five times the cutting speed. Under such circumstances it will readily be understood that while the table is moving back at this extraordinary speed it will not come to rest immediately when the stop-dog Q throws the tumbler to the neutral point, as previously specified. Momentum at these high backing speeds may carry the table far beyond the proper point, and this force is so liable to vary that its action cannot be properly compensated for by any skillful setting of the stop-dog Q. For this reason I so construct the parts in connection with planers to run back at extraordinary speeds that the stop-dog Q will not only throw the tumbler to the neutral point, but will throw the forward belt into action. This



causes the planer-table to commence its slow forward motion, causing the stop-dog to immediately strike the lug K and throw the tumbler to the neutral position. It will be readily understood that the only change thus effected in the operation of the device is that the stop-dog is caused to perform its function while the planer is on a slow forward motion, instead of upon the rapid backing motion. The change is effected by extending the lug J, as indicated by the dotted lines R.

In the drawings I show in Figs. 1 and 2 the tumbler arranged horizontally, and in Fig. 3 the tumbler arranged vertically. I contemplate such modifications in the forms of the dogs as will adapt the invention for use with any of the well-known forms of reversing-tumblers.

In the drawings I simply illustrate the principle of my invention and the best mode in which I contemplate applying that principle.

I claim as my invention—

1. In a metal-planing machine, the combination, substantially as set forth, of a revers-

ing-tumbler, a front dog adjustable along the table, and adapted to throw the tumbler into position to give the table a backing motion, a suppressible back dog adjustable along the table, and adapted to throw the tumbler into position to give the table a forward motion, and a stop-dog adapted to throw the tumbler into a neutral position.

2. In a metal-planing machine, the combination, substantially as set forth, of a reversing-tumbler, a front dog, a suppressible back dog, and a stop-dog adjustable along the table.

3. In a metal-planing machine, the combination, substantially as set forth, of a reversing-tumbler, a front dog, a suppressible back dog, and a stop-dog fitted to throw the tumbler and start the forward table motion, and upon its retreat to throw the tumbler to a neutral point.

GEORGE A. GRAY, JR.

Witnesses:

ERNST RICHTER,  
HERMAN ERDMAN.