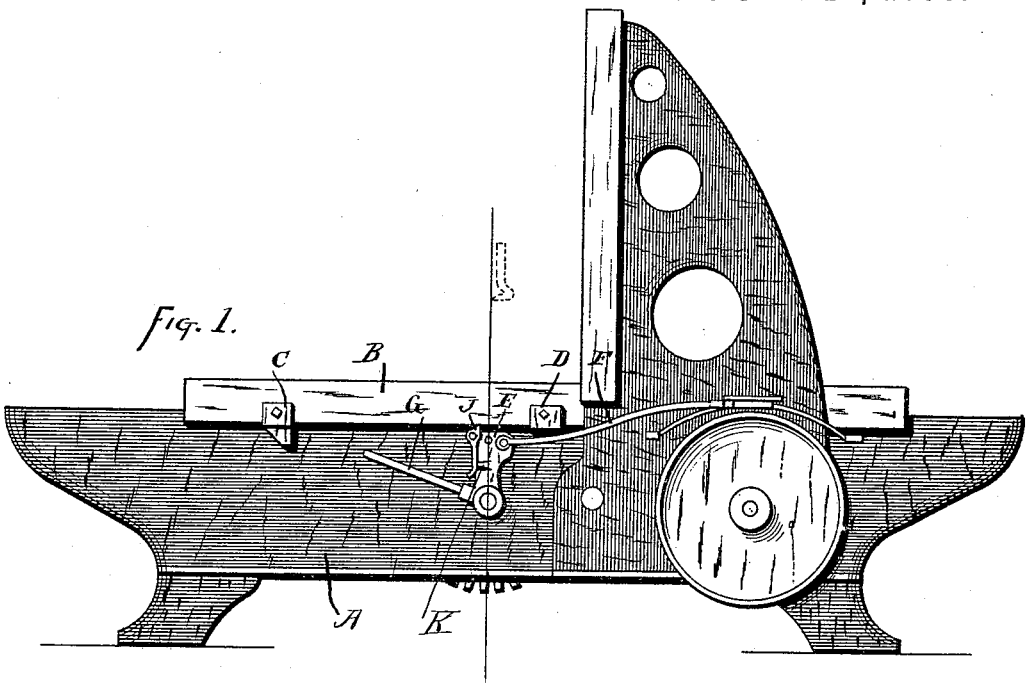
(No Model.)

G. A. GRAY.

METAL PLANING MACHINE.

No. 419,437. Patented Jan. 14, 1890.

Fig. 1.



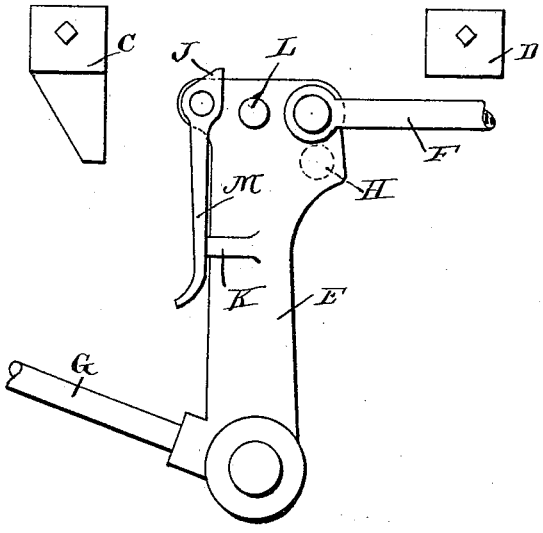


Fig. 2.

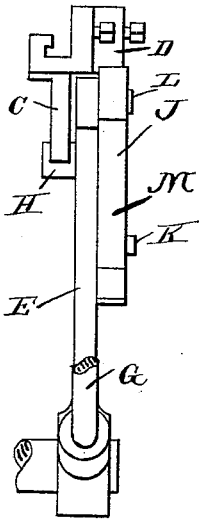


Fig. 3.

Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE A. GRAY, OF CINCINNATI, OHIO, ASSIGNOR TO THE G. A. GRAY COMPANY, OF SAME PLACE.

METAL-PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,437, dated January 14, 1890.

Application filed October 28, 1889. Serial No. 328,496. (No model.)

To all whom it may concern:

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

This invention pertains to improvements in the shifting apparatus of metal-planing machines, and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a planer exemplifying my improvements, the usual rail and its attachments being omitted as not necessary to an understanding of my improvement; Fig. 2, a side elevation, upon an enlarged scale, of the tumbler and dogs; Fig. 3, a front elevation of the tumbler and dogs.

In the operation of planing-machines the operator often desires to allow the work to back out quite a distance, so as to be readily inspected. To do this he usually loosens the back dog, and he must readjust this back dog to restore the planer to working-stroke. Sometimes a flip has been added to the back dog, so that the dog could be made to pass the tumbler without operating the tumbler; but there is a tendency in modern construction to make the table run back at very high speed, and under such circumstances any manipulation of the back dog, or of a flip attached to it, while the table is in motion becomes a very risky and uncertain operation. A turnover piece of flip has in some cases been attached to the tumbler, by means of which the tumbler could be virtually suppressed when desired. The defect in this device rests in the fact, first, that it acts to suppress the tumbler as regards both dogs, and, second, that the flip requires restoration by hand. In my improved device the tumbler is provided with a flip which, being manipulated by hand, virtually suppresses the tumbler so far as the back dog is concerned, the flip automatically restoring itself to position.

In the drawings, A indicates the bed of the planer; B, the table; C, the front dog, or the dog which acts on the tumbler at the end of the cutting-stroke and effects the reversal of the table motion, both dogs being adjustable along the edge of the table, as usual; D, the back dog; E, the tumbler, which may be of any appropriate or usual construction, adapted to be moved by the operation of the dogs and serve in operating the belt-shifting apparatus, the exemplification showing the tumbler as having the form of the usual arm, pivoted to the side of the bed and vertically disposed, with its upper end in position to be engaged by the dogs, which alternately oscillate it; F, the ordinary connection by means of which the tumbler transmits motion to the belt-shifting apparatus; G, the hand-piece of the tumbler, to serve as a means by which the tumbler may be oscillated by the operative independent of the dogs; H, a rigid lug upon the tumbler, arranged to be struck by the front dog C, this lug in the exemplification projecting from the rear of the tumbler in the usual manner, the arrangement being such, as usual, that the front dog passes to the rear of the tumbler and engages the lug H and oscillates the tumbler to the right and shifts the belt or belts to arrest the cutting motion of the table and install the backing motion; J, a pawl or flip pivoted to the tumbler and presenting itself in position to be struck by the back dog B, this flip having a counterbalancing-tail whose weight tends to maintain the flip in normal position to be engaged by the back dog; K, a stop on the tumbler, engaged by the tail of the flip when the flip is in normal position; L, a stop on the tumbler to limit the swinging of the flip upon its pivot, and M the tail of the flip.

Under ordinary conditions the upper end of the flip acts in the usual manner as a rigid tooth on the tumbler. The back dog will engage this tooth and oscillate the tumbler to the left and operate the belt-shifting apparatus to arrest the backing motion and install the cutting motion. When the back dog strikes the flip, the tendency of the flip is to oscillate on its pivot, but the stop K prevents any such oscillation; but if the operative desires the table to back beyond the normal point he will press the flip-tail M to the left. The upper end of the flip is thus moved out of the path of the back dog and the table can move back until the belt motion is reversed by operating the tumbler by hand. As soon as the back dog has passed the tumbler the

operative moves his hand from the flip-tail and its weight immediately restores it to normal position against the stop K. On the return-trip of the table the back dog will come in contact with the non-working side of the upper end of the flip, but the flip will yield by oscillating on its pivot, and the dog will thus ride over the flip, which, after the passage of the dog, will automatically restore itself to normal position, the riding of the back dog over the flip having no effect to operate the belt-shifting.

The object of the stop L is merely to put a reasonable limit to the movement of the flip when the operative tips it to non-working position. This stop is not essential, though desirable.

The device is very simple and very efficient and permits of ready use with planers arranged for the highest modern rates of backing speed.

I claim as my invention—

1. In a planing-machine, the combination, substantially as set forth, with a bed, a table, a front dog, a back dog, and a belt-shifting connection to be operated through the medium of a tumbler, of a tumbler connected with such belt-shifting connection and arranged to be engaged by the front dog, and a flip or pawl pivoted to the tumbler and arranged to be engaged by the back dog on the backing-stroke of the table, so as to effect a proper movement of the tumbler and to be pushed out of the path of the back dog without moving the tumbler when the back dog engages the flip or pawl at the cutting-stroke of the table.

2. In a planing-machine, the combination, substantially as set forth, with a bed, a table, a front dog, a back dog, and a belt-shifting connection to be operated by means of a tumbler, of a tumbler engaged by such belt-shifting connection and arranged to be moved by said dogs, a flip or pawl pivoted to said tumbler and presenting itself in the path of the back dog, and provided with a counterbalancing-tail engaging a stop on the tumbler and serving to maintain the flip or pawl in normal position to be engaged by the back dog on the backing-stroke of the table, and arranged to be turned on its pivot so as not to be engaged by the back dog.

3. In a planing-machine, the combination, substantially as set forth, with a bed, a table, a front dog, a back dog, and a belt-shifting connection to be operated by a tumbler, of a tumbler pivoted to the bed and vertically disposed, and provided with a lug to be engaged by the front dog on the cutting-stroke of the table, and provided with a stop, a flip or pawl pivoted to the tumbler and presenting itself in the path of the back dog, and provided with a tail engaging said stop on the tumbler, and adapted to be moved away from said stop by hand or to be moved away from it automatically by the action of the back dog on the cutting-stroke of the table.

GEORGE A. GRAY.

Witnesses:
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ADOLPH RICHTER.