H. D. WALLS.

Hand Planing Machines.

No. 211,811. Patented Jan. 28, 1879.

FIG. 1.

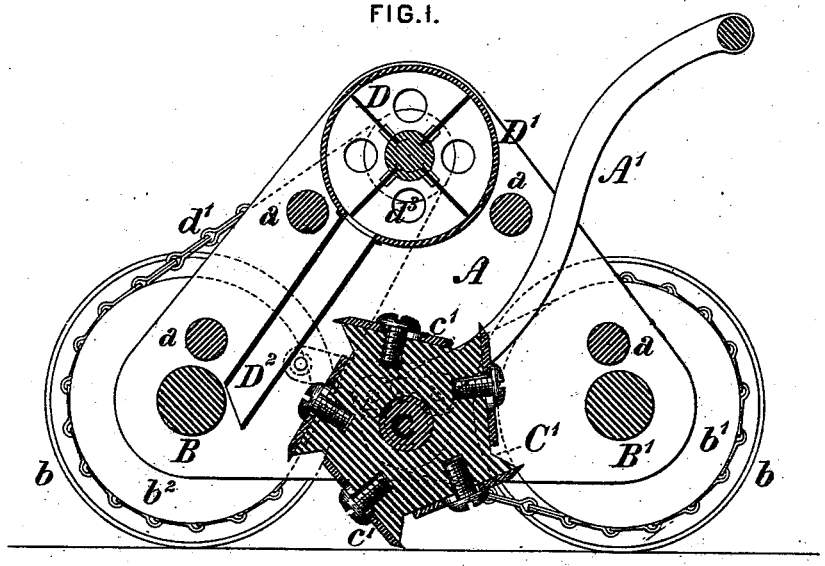


FIG. 2.

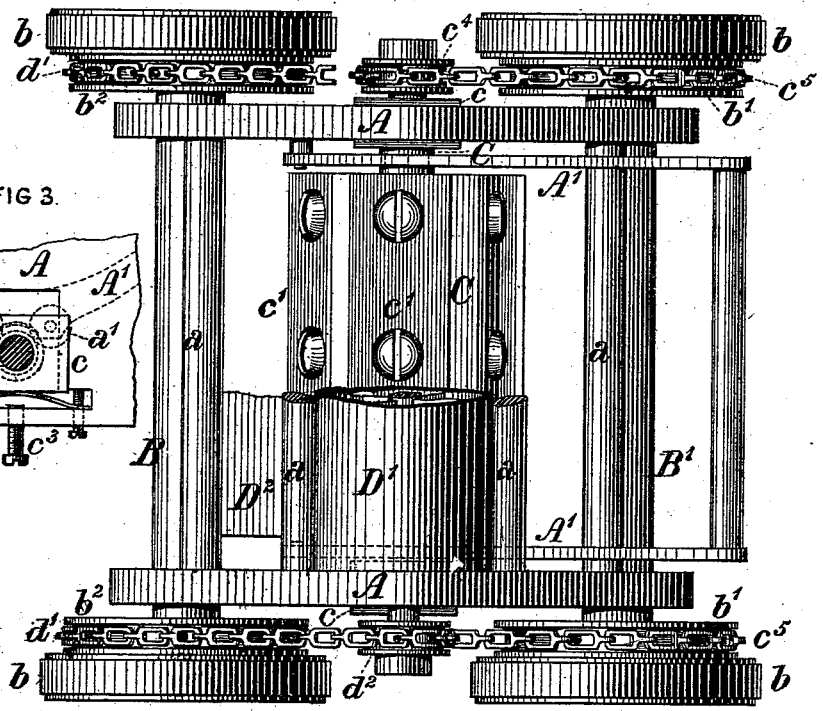
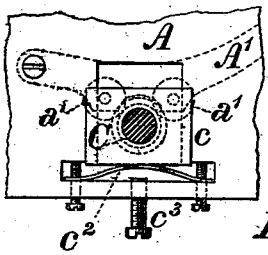


FIG 3.



WITNESSES:

Geo. A. Vaillant.

C. Hilkbrand.

INVENTOR

Henry D. Walls.

by J. Sturgeon Bell,

ATTORNEY

UNITED STATES PATENT OFFICE.

HENRY D. WALLS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HAND PLANING-MACHINES.

Specification forming part of Letters Patent No. **211,811**, dated January 28, 1879; application filed December 21, 1878.

To all whom it may concern:

Be it known that I, HENRY D. WALLS, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Hand Planing-Machines, of which the following is a specification:

The object of my invention is to provide a simple and effective device for smoothing the surfaces of flooring or other lumber by the application of manual power with greater convenience and rapidity of operation and uniformity of result than is practicable in the hand-planes ordinarily employed.

To this end my improvements consist in the combination of a wheeled truck or carriage having a bail or handle for the application of the propelling power of the operator, a rotating cutter driven from an axle of the carriage, and a device for removing obstructions from the path of the cutter, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through a hand planing-machine embodying my improvements; Fig. 2, a plan or top view of the same, with a portion of the blower-case removed to show the construction more clearly; and Fig. 3, a side view, in elevation, of one of the adjustable boxes of the cutter-shaft, showing the devices for varying the depth of cut.

To carry out my invention I provide a supporting truck or carriage composed of two side frames, A, connected by transverse rods or braces *a*, and resting upon the front and rear axles, B B′, each of which has a pair of wheels, *b b*, secured upon it. The peripheries of the wheels *b b* should be either slightly ridged or corrugated, or covered with wood, rubber, or other material suitable to prevent slipping and insure sufficient traction when the machine is moved over the surface of the lumber to be planed, which movement is imparted by means of a bail or handle, A′, pivoted to each of the side frames, A, and extending upwardly and in rear of the machine for a sufficient distance to be within convenient reach of the operator. A cutter-head, C′, having a series of cutters, c^1, attached adjustably to its periphery, is secured upon a transverse shaft, C, mounted in boxes or bearings *c*, about midway between the axles B B′. The boxes *c* of the cutter-shaft are fitted and have the capacity of vertical movement in slots formed in the side frames A of the carriage, being pressed upward therein by springs c^2. The upward tension of the springs c^2 is opposed by the pressure exerted by the operator upon the bail A′, each of the side arms of which bears, through friction-rollers *a′*, upon one of the boxes *c* of the cutter-shaft, by which arrangement the cutter may be raised or lowered at pleasure to vary the depth of cut, which can be limited by screws c^3, which are adjusted in the frames A, so that their upper ends shall bear against the under side of the springs c^2 when the boxes are in the position according with the greatest depth of cut desired, and thus any further downward movement be prevented.

I have, in this instance, shown the cutter-shaft as provided with a pulley, c^4, on each of its ends, said pulleys carrying chains c^5, which pass around larger pulleys, b^1, on the rear axle, B′, of the carriage, and impart rotation to the cutter-head therefrom. Pins or studs are formed on the peripheries of the pulleys b^1 and c^4, to prevent the slipping of the chains thereon. I do not, however, limit myself to this method of driving the cutters, as cog or frictional gearing may be employed, if preferred, to transmit motion thereto from either axle.

For the purpose of removing dust, grit, and other foreign matters from the surface of the lumber to be planed, and thereby protecting the cutters from contact therewith, a rotary fan or blower, D, is mounted in bearings in the frames A, above the cutter-head C′, and is rotated within a case or drum, D^1, by chains or belts d^1, passing around pulleys d^2 on the ends of its shaft and around larger pulleys, b^2, on the front axle. Air is drawn into the blower-case through openings d^3 in its ends, and is expelled through a downward-projecting discharge-trunk, D^2, in front of the cutter-head, the blast clearing away from the path of the cutters such loose foreign matters as may be resting on the surface of the lumber, and correspondingly preserving the cutters from wear and injury. I contemplate, moreover, in some cases, to employ to the

same end a rotating brush, located in front of the cutter-head, and driven by belting or gearing from the adjacent axle.

In the operation of the machine, the workman, having previously adjusted the set-screws c^3 to suit the desired depth of cut, takes hold of the rearwardly-projecting handle and pushes the machine before him over the surface of the lumber to be planed, and, by applying greater or less downward pressure upon the handle, lowers or raises the cutters during their revolution, to properly conform to the requirements of the work.

I claim as my invention and desire to secure by Letters Patent—

1. The combination, in a hand planing-machine, of a wheeled truck or carriage, a handle or bail by which manual power is applied for propelling said carriage, and a rotary planing-cutter mounted on the carriage and driven from a supporting-axle thereof, substantially as set forth.

2. The combination of a truck or carriage, a rotary cutter, and a blast-fan, substantially as and for the purpose set forth.

3. The combination of a truck or carriage, a rotary cutter mounted in boxes vertically adjustable thereon, springs which bear against the lower sides of said boxes, and a pivoted bail, by which pressure may be exerted upon the boxes in a direction opposite to that of the tension of the springs, substantially as and for the purpose set forth.

HENRY D. WALLS.

Witnesses:
J. SNOWDEN BELL,
GEO. A. VAILLANT.