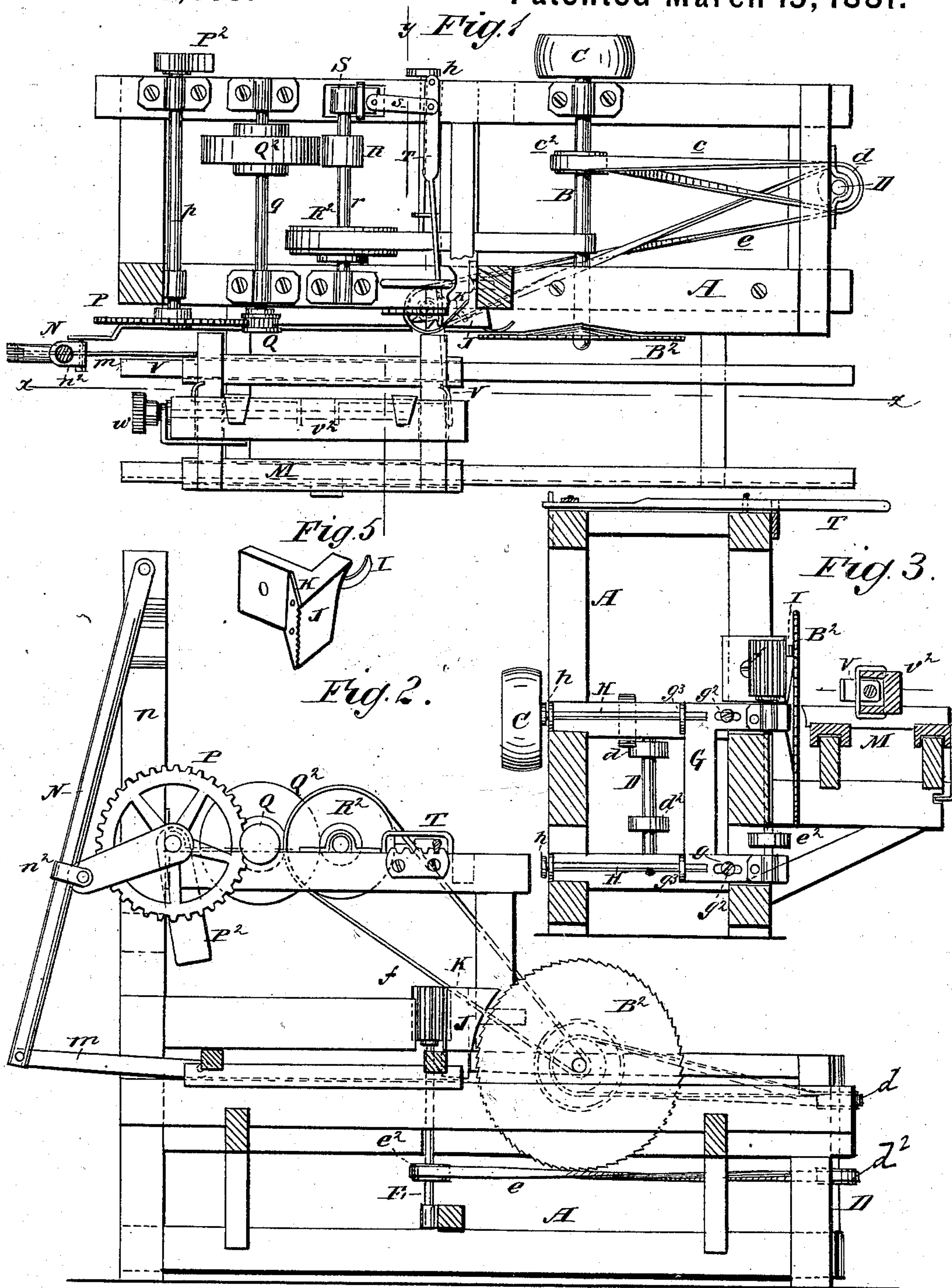


(No Model.)

G. M. & N. FAY.  
Combined Sawing, Grooving, and Planing Machine.  
No. 238,875.

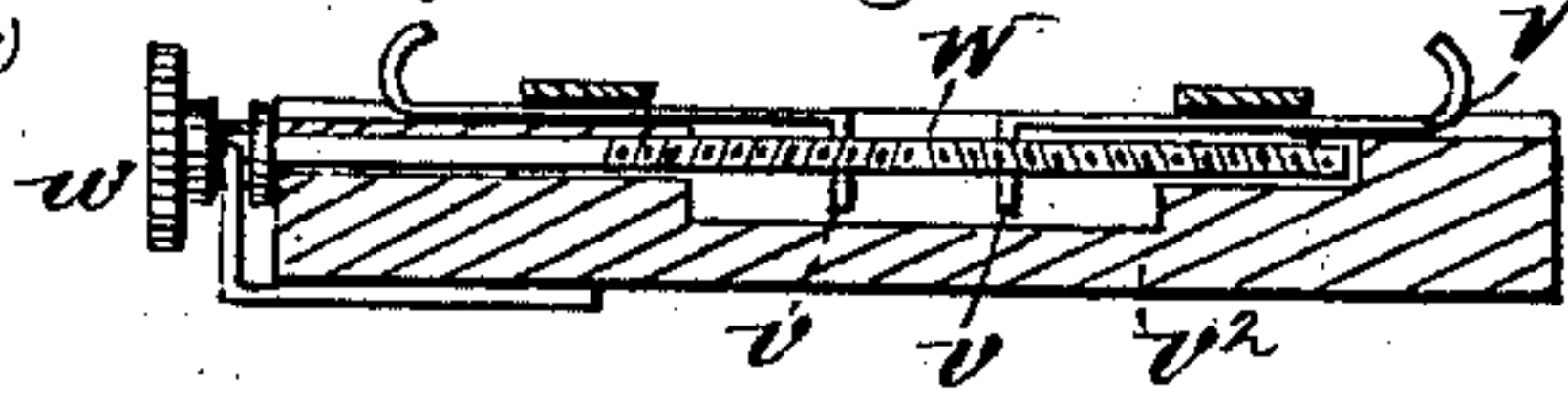
Patented March 15, 1881.



WITNESSES:

Francis M. Ardle  
C. Sedgwick

Fig. 4.



INVENTOR:

G. M. Fay  
N. Fay  
Mum & Co  
ATTORNEYS.



# UNITED STATES PATENT OFFICE.

GEORGE M. FAY AND NAHUM FAY, OF EUREKA, CALIFORNIA.

## COMBINED SAWING, GROOVING, AND PLANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 238,875, dated March 15, 1881.

Application filed October 14, 1880. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE M. FAY and NAHUM FAY, of Eureka, in the county of Humboldt, and State of California, have invented a new and useful Improvement in Combined Sawing, Grooving, and Planing Machines, of which the following is a specification.

Our invention relates to a machine which is more particularly intended for the sawing, planing, and grooving of boards to be used for roofing.

In the accompanying drawings, Figure 1 is a top view of a machine embodying our improvements. Fig. 2 is a longitudinal vertical section taken in the line  $x x$ , Fig. 1. Fig. 3 is a transverse vertical section taken in the line  $y y$ , Fig. 1. Figs. 4 and 5 are detail views.

Similar letters of reference indicate corresponding parts.

The working parts of the machine are supported by a frame-work, A, which may be of any suitable construction.

The saw  $B^2$  is carried by a shaft or arbor, B, carrying a driving-pulley, C, through which motion is received from the primitive power and transmitted to the working parts.

Near one end of the frame A is a vertical shaft, D, carrying two pulleys,  $d$   $d^2$ . This shaft receives motion from the shaft B by means of a belt,  $c$ , passing around a pulley,  $c^2$ , on shaft B, and the pulley  $d$  on shaft D, and this motion is transmitted by a belt,  $e$ , passing around the pulley  $d^2$  and a pulley,  $e^2$ , to a vertical shaft, E, which carries said pulley  $e^2$ , and which is located near the center of the frame A. The upper end of the vertical shaft E carries the cutter-head  $f$ , which may be of the ordinary or any suitable description, and may, if desired, be so arranged that it may be removed and a gang of saws substituted. The shaft E is journaled in bearings carried by a frame, G, which is arranged to slide transversely of the frame A. Said frame G is connected to said frame A by means of screws  $g^2$  passing through slots  $g$  in the frame G and into cross-pieces of the frame A. The frame G is provided with screw-threaded lugs  $g^3$ , which engage with screw-rods H, working in bearings in the frame A, and provided with hand wheels or knobs  $h$ .

By turning the rods H in one direction or the other the shaft E may be moved nearer to or farther from the edge of the frame A, in order to regulate the depth of cut made by the cutters.

Between the cutter-head  $f$  and the saw  $B^2$  is a stationary knife, K, arranged at an angle of about forty-five degrees with relation to the line of travel of the work. The edge of this knife is toothed or serrated, so as to form grooves in the work which passes in contact with it. The knife is attached to a guide consisting of a block, J, which is secured to the frame A, and to the rear end of this guide is attached a curved spring, I, at a point near the periphery of the saw  $B^2$ , and at a distance therefrom corresponding with the thickness of the board to be sawed, which thickness is thereby gaged and the formation of nibs or stubs prevented.

The log-carriage M is of any suitable description. It is connected at one end, by a rod,  $m$ , to the lower end of a lever, N, the upper end of which is pivoted to a standard,  $n$ , rising from the frame A. On the lever N slides a swivel-eye,  $n^2$ , which is connected by a crank-pin to a gear-wheel, P, near the periphery of said wheel. The wheel P is carried by one end of a shaft,  $p$ , the other end of which carries a counterbalance-weight,  $P^2$ . The gear-wheel P engages with a pinion, Q, on a shaft,  $q$ , which also carries a friction-pulley,  $Q^2$ . This friction-pulley engages with a friction-pulley, R, on a shaft,  $r$ , provided with a band-wheel,  $R^2$ , around which passes a belt from the shaft B. One end of the shaft  $r$  is journaled in a stationary bearing, and the other is journaled in a sliding pillow-block, S, which is connected by a link,  $s$ , with a lever, T, on the top of the frame A. By moving the lever T in one direction the friction-pulleys R and  $Q^2$  are disengaged. By moving said lever in the opposite direction the pulley R is made to engage with the pulley  $Q^2$ , so as to give a rotary motion to the pinion Q and wheel P, and thus, through the sliding swivel-eye  $n^2$ , move the log-carriage so as to feed the work to the saw.

The log-dog consists of two hooks, V V, the shanks of which slide in grooves in a block,  $v^2$ , which rests on the carriage M, and is later-



ally adjustable thereon. Each shank is provided with a screw-threaded lug, *v*, through which passes a right-and-left-hand-threaded screw-rod, *W*, provided with a hand wheel or knob, *w*. By turning the screw-rod in one direction or the other the hooks *V V* are moved nearer to or farther from each other, so as to engage with or be disengaged from the ends of the log.

The log being in place on the carriage and fed to the work, the inner surface is first engaged by the cutter-head *f*, which planes it; then by the knife *K*, which forms grooves in it, and then by the saw *B*<sup>2</sup>, which saws off the board thus planed and grooved. The spring *I* prevents the forming of nibs or stubs on the corners of the boards.

Having thus described our invention, we

claim as new and desire to secure by Letters Patent—

1. The combination, with a log-carriage, of a saw, *B*<sup>2</sup>, stationary grooving-knife *K*, and planing cutter-head *f*, for the purpose of successively planing, grooving, and sawing each plank from the log, as described.

2. The combination, with saw *B*<sup>2</sup>, stationary grooving-knife *K*, and guide *J*, of the curved spring *L*, attached to the rear end of said guide and near the periphery of said saw, to prevent the formation of nibs or stubs on the ends of the boards, as described.

GEORGE M. FAY.  
NAHUM FAY.

Witnesses:

JOHN S. MURRAY, Jr.,  
ALPHEUS W. RANDALL.