

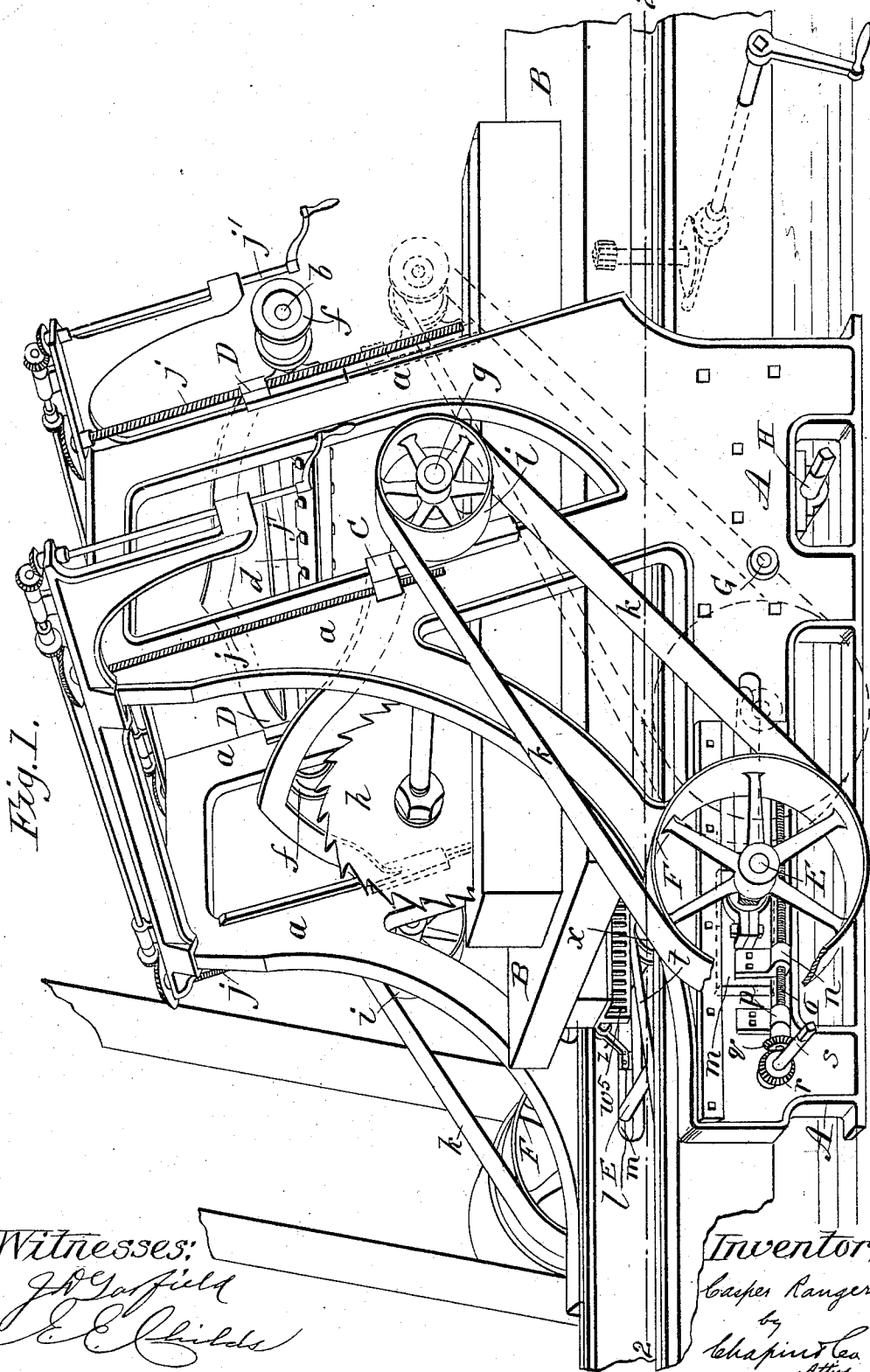
(No Model.)

2 Sheets—Sheet 1.

C. RANGER.
PLANING AND SAWING MACHINE.

No. 470,444.

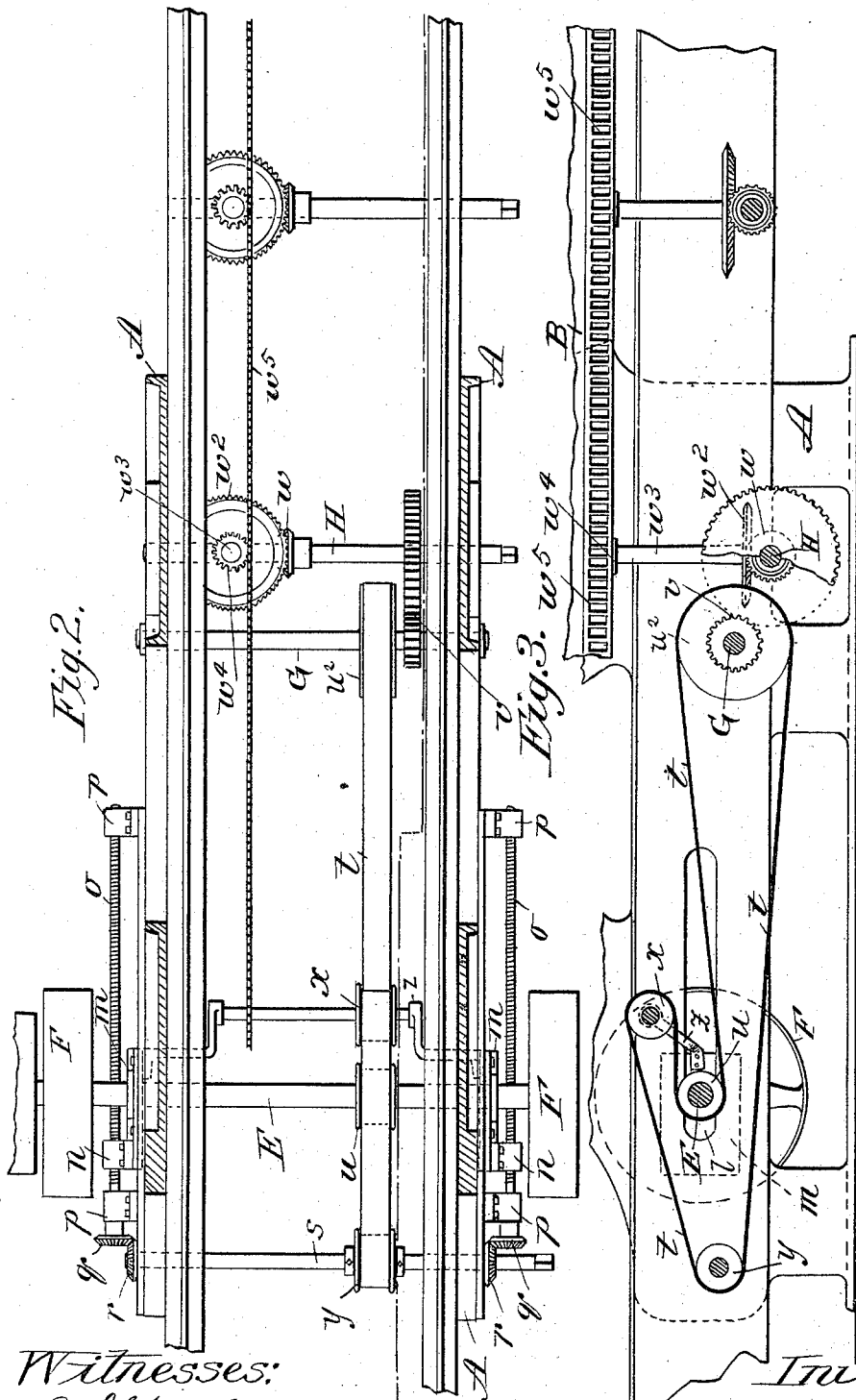
Patented Mar. 8, 1892.



C. RANGER.
PLANING AND SAWING MACHINE.

No. 470,444.

Patented Mar. 8, 1892.



Witnesses:
J. B. Garfield
E. C. Childs

Inventor,
Casper Ranger,
by Chapin & Co.
Attys.

UNITED STATES PATENT OFFICE.

CASPER RANGER, OF HOLYOKE, MASSACHUSETTS.

PLANING AND SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 470,444, dated March 8, 1892.

Application filed June 24, 1891. Serial No. 397,390. (No model.)

To all whom it may concern:

Be it known that I, CASPER RANGER, a citizen of the United States, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Planing and Sawing Machines, of which the following is a specification.

This invention pertains to sawing or planing machines, one object of the invention being to adapt a machine which is driven from a common source of power for work either as a planer or a sawing-machine.

Other objects are carried out under the invention, as will hereinafter more fully appear.

The invention consists in constructions and combinations of parts, as below set forth and explained, and pointed out in the claims.

Referring to the accompanying drawings, in which the improved machine is illustrated, Figure 1 is a perspective view of the middle and principal portion of the machine, end portions of the supporting-frame or bed and of the carriage not being shown. Fig. 2 is a plan view and horizontal section taken about on the plane indicated by line 2 2, Fig. 1. Fig. 3 is a sectional elevation taken on line 3 3, Fig. 2.

In the drawings, A represents the frame or bed of the machine, of a construction as usual or suitable in planing and sawing machines in which a long travel of a carriage B is desired, and at the intermediate portion of the frame there are opposing uprights *a a*, in which are formed vertical ways for heads C and D, one of which supports a shaft *b*, carrying a rotary planer *d* and a pulley *f*, and the other supports a shaft *g*, carrying a circular saw *h* and a pulley *i*. Each head C and D has therefor and in engagement therewith an adjusting-screw shaft *j j*, there being also an operating crank-shaft *j'* and gearing, as common in planer-machines.

E represents the main or common driving-shaft of the machine, and is to receive its rotation in any suitable manner, and said driving-shaft has thereon the driving-pulley F, around which is the belt *k*. The driving-shaft F is adjustably mounted on the machine-frame, whereby it may be moved and held in confinement, so that the belt *k* may engage either the pulley on the planer-shaft or the

pulley on the saw-carrying shaft whether said shafts are in elevated or lowered positions.

The driving-shaft E is passed transversely through longitudinal slots *l* in the machine-frame and is directly supported by the bearing and slide blocks or boxes *m m*, which are supported for a longitudinal movement on the frame. A lug or part *n* of each of said slides is in engagement with the intermediate portion of a longitudinal screw-shaft *o*, one being provided at each side of the machine, each of which shafts has its end portions supported and held against endwise movement in the lugs or brackets *p* of the frame. Each of the screw-shafts *o o* has on its end a bevel-gear *q*, with which engage the bevel-gears *r r* of the transverse shaft *s*, which is supported on the frame and projected beyond one side thereof, whereat may be applied a crank-handle or hand-wheel for conveniently turning the shaft and effecting the feed or adjusting movement through the said gearing of the driving-shaft.

The carriage is operated through driving connections therewith from the main shaft E in much the usual manner, the belt *t* working on the pulley *u* on the main shaft imparting the rotation to the counter-shaft G, such belt working on the pulley *w*², fixed on the latter shaft. The shaft G gears into the one H, as at *v*, and shaft H has the bevel-gear *w* thereon, which meshes with the bevel-gear *w*³ on the vertical shaft *w*³. The said vertical shaft at its upper end carries a pinion *w*⁴, which works in the longitudinal rack *w*⁵ on the carriage. This mechanism as last above described is not believed by me to be particularly novel; but I have combined therewith features of novelty which relate to the adaptability of said mechanism to be driven from the main driving-shaft equally well under all locations of the latter, and, noting especially Fig. 3, it will be seen that there is fixed on the frame of the machine, back of the driving-shaft E, an idler-pulley *y*, and there is another idler-pulley *x*, which is in substance yoked or connected to and held from and adapted to move in unison with the driving-shaft E, the said latter idler being at the other side of the driving-shaft from the position occupied by idler *y*. As particularly shown, the idler *x* is

held on bracket-arms Z, which are secured to and move as one with the blocks m, forming the bearings for the driving-shaft. Whether the driving-shaft E is moved forwardly or rearwardly the belt t will have practically the same tension for effecting the driving of the carriage.

It will of course be plain that on running as a sawing-machine, as indicated in the drawings, on desiring to raise the saw-carrying head to accord with different work the difference in distance between the saw-carrying shaft and the driving-shaft may be provided for by moving the driving-shaft transversely of its axis. By sufficiently moving the driving-shaft the belt may without removal from the main-shaft pulley be put for work around the pulley on the planer-shaft, and of course the planer-head may be raised or lowered on properly regulating the relative position of the driving-shaft.

What I claim, and desire to secure by Letters Patent, is—

1. In a wood-working machine, a frame supporting a transverse shaft carrying planer-knives, and a second transverse shaft carrying a rotary saw, each of said shafts having a driving-pulley, and a single driving-shaft movable in the frame relatively to the planer and saw shafts, said driving-shaft having a pulley from which a single belt may be carried to either the planer or saw pulley and the tension of the belt regulated by moving the driving-shaft, all substantially as described.

2. In a wood-working machine, a frame having a transverse saw-shaft vertically adjustable therein, a transverse planer-shaft, each of said shafts having a belt-pulley, and a single driving-shaft supported in bearings adjustable longitudinally of said frame, said driving-shaft having a pulley in alignment with the belt-pulleys on the saw and planer shafts, whereby the driving-shaft may be adjusted to convey power either to the planer or saw shaft by a single belt, all substantially as described.

3. In a wood-working machine, the frame having a transverse planer-shaft vertically adjustable in said frame and having a belt-pulley, a transverse saw-shaft having a pulley, and a driving-shaft supported in bearings adjustable longitudinally of the frame and having a belt-pulley, whereby the driving-shaft may convey power to either the saw or planer shaft by a single belt, substantially as described.

4. In a wood-working machine, a transverse saw-shaft having its bearings vertically adjustable in the frame by means of adjusting-screws, a planer-shaft having its bearings vertically adjustable by screws, each shaft having a belt-pulley, and a single driving-shaft having its bearings adjustable longitudinally of the frame and having a belt-pulley in alignment with the pulleys on the saw and planer shaft, whereby the saw or the planer may either one be driven by the same belt and tension adjusted from the driving-shaft.

5. In a wood-working machine, a transverse shaft bearing a wood-cutting tool, said shaft vertically adjustable in the frame and having a driving-pulley, a driving-shaft adjustable longitudinally of the frame and having a pulley connected to said first-mentioned pulley by a belt, a movable carriage and a driving counter-shaft therefor, a pulley on the driving-shaft and a pulley on the counter-shaft in the line therewith, an idler-pulley supported on the frame and an idler supported from the same support as the driving-shaft, and a belt passing over the said pulley on the driving-shaft, both idlers, and the counter-shaft, all combined substantially as described.

6. The combination, with a head supporting a carrying-shaft for a wood-working tool, said shaft having a driving-pulley and said head being adjustable upward and downward, of a main driving-shaft mounted in movable bearings and having thereon a pulley, a belt around said latter pulley and the shaft-pulley of the movable head, all whereby when the head is raised or lowered the driving-shaft and its pulley may be correspondingly moved forward or backward to maintain the driving-belt at the proper tension, substantially as described.

7. In a wood-working machine, a frame having a main driving-shaft longitudinally adjustable therein, a saw-shaft vertically adjustable in said frame, and a planer-shaft vertically adjustable in the frame, each of said operating-shafts having its driving-pulley in alignment with the pulley on the main shaft, whereby the same belt may be made to transmit power from the driving-shaft to either the saw or planer shaft, all combined substantially as described.

CASPER RANGER.

Witnesses:

A. F. HITCHCOCK,
J. D. GARFIELD.