

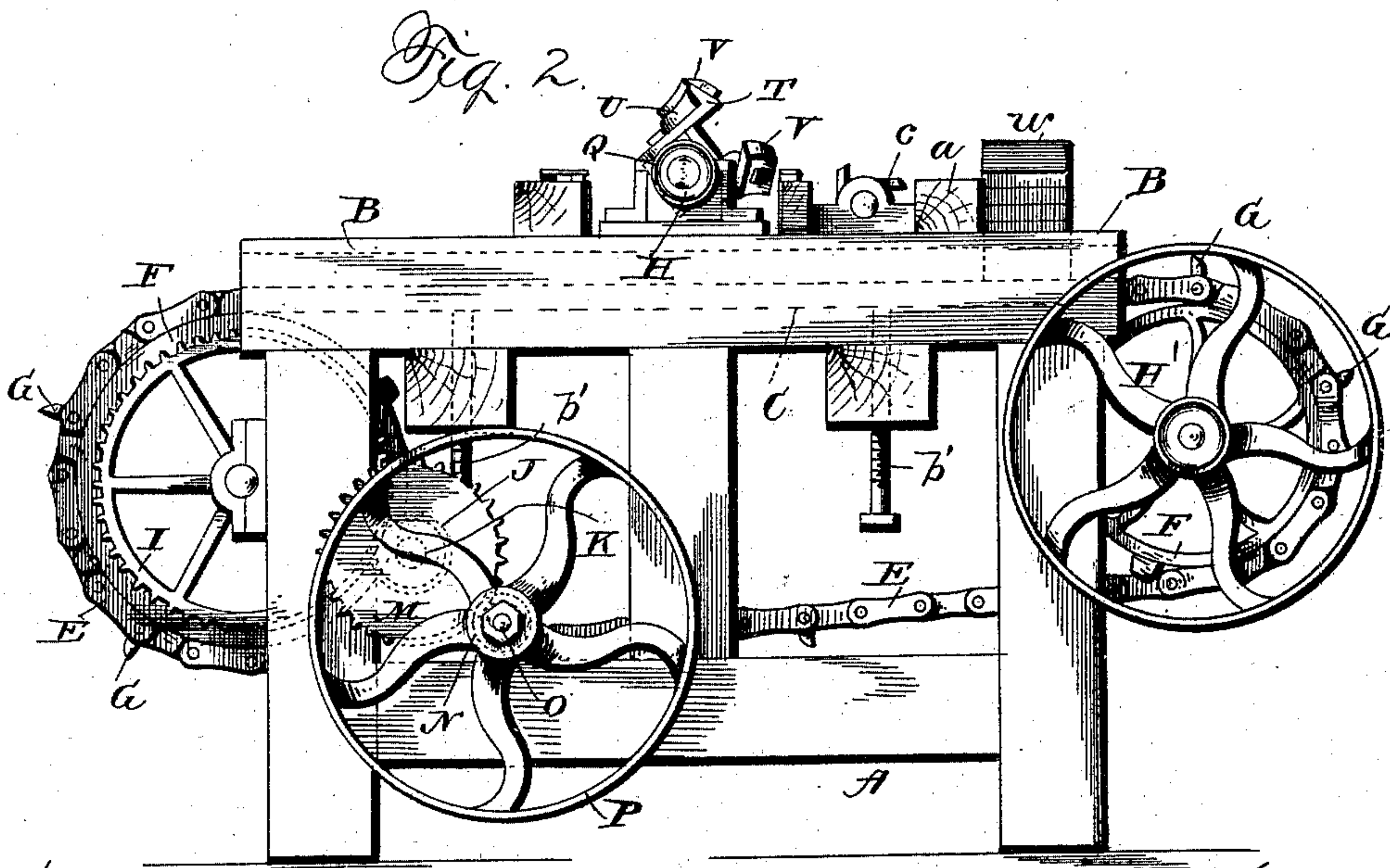
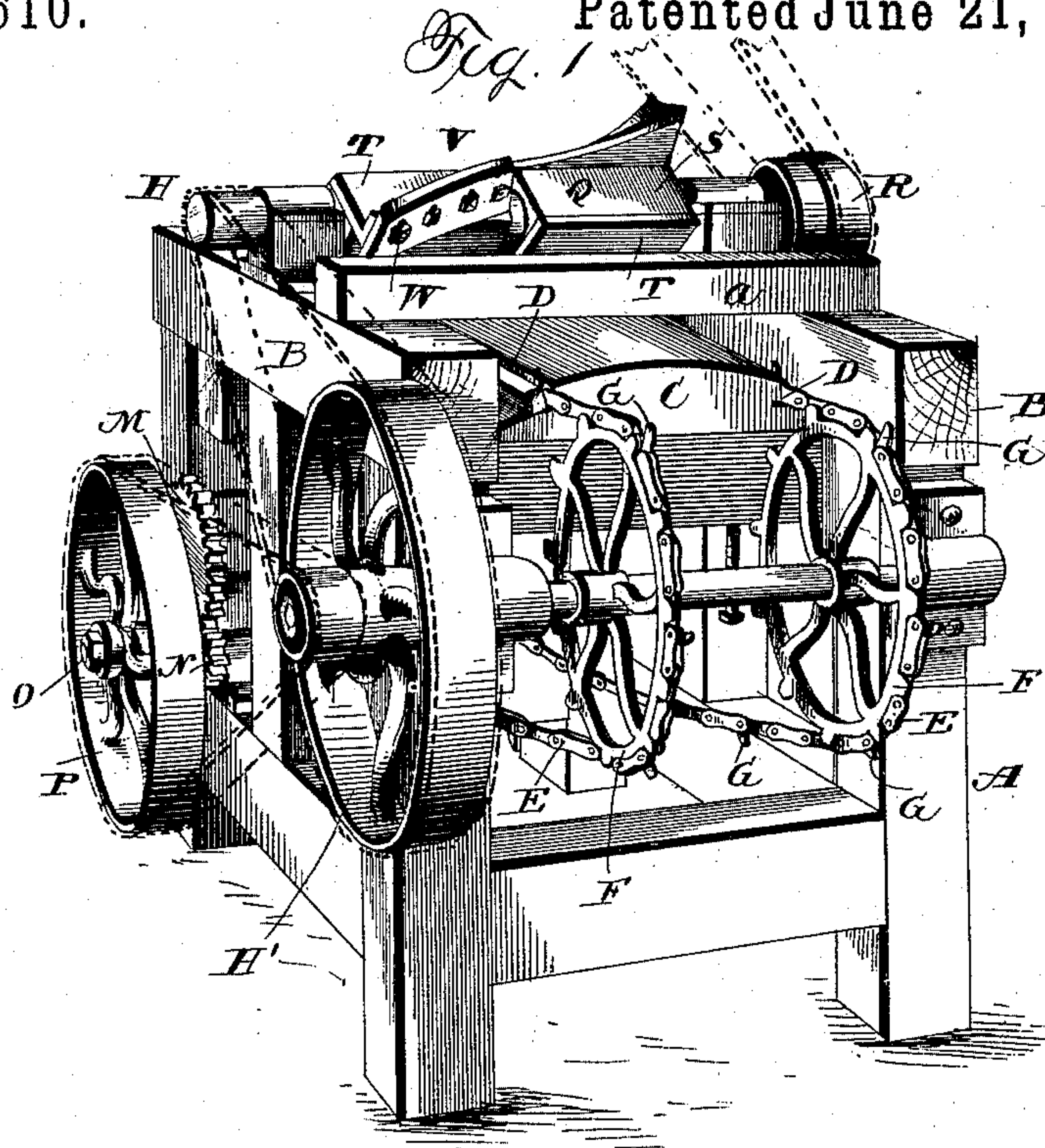
(No Model.)

2 Sheets—Sheet 1.

M. S. RAWSON.
PLANING MACHINE.

No. 477,610.

Patented June 21, 1892.



Witnesses
C. J. Williamson.
W. R. Davis

Inventor
M. S. Rawson
By Alexander K. Davis
Atty

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

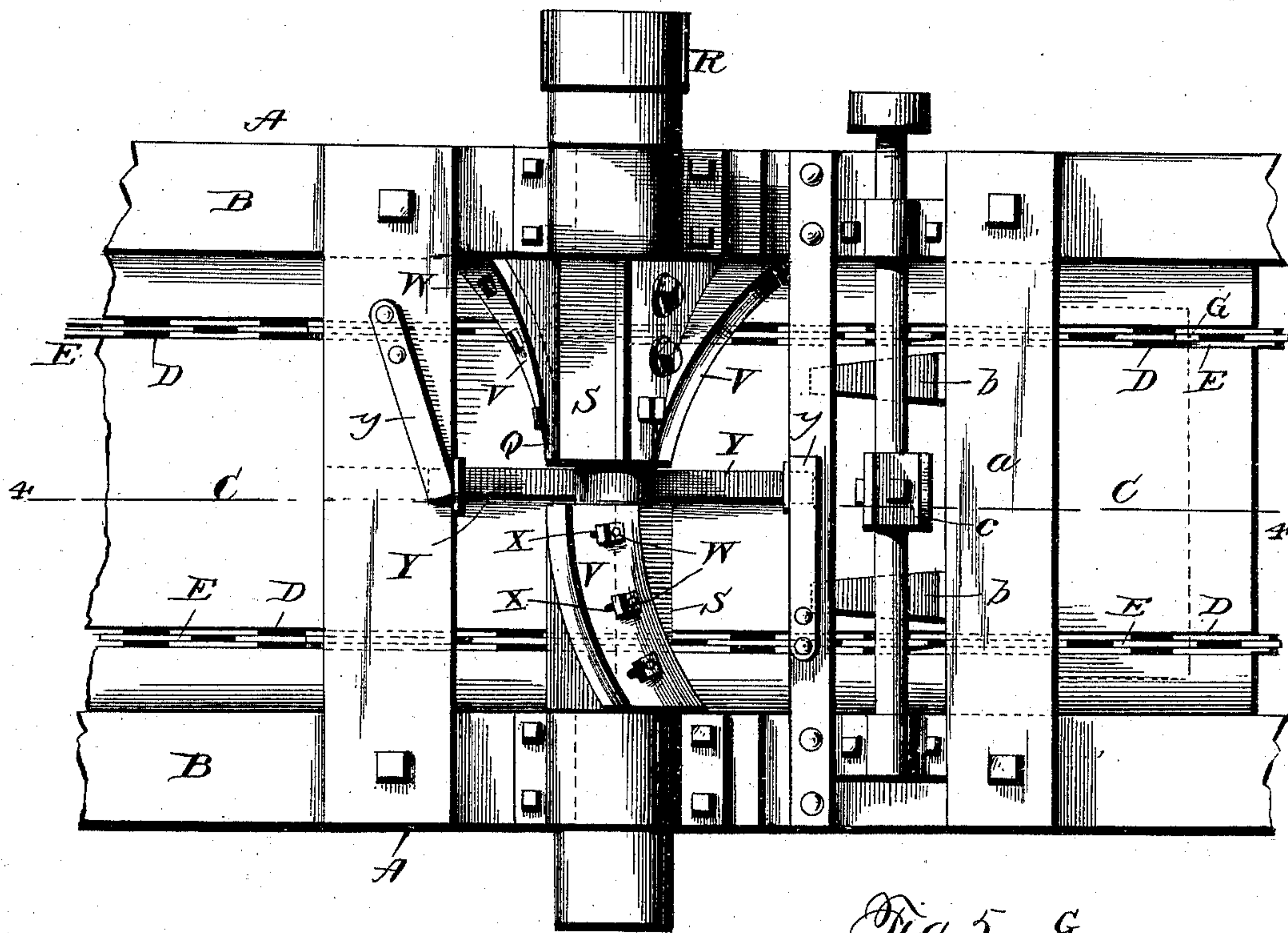


Fig. 6.

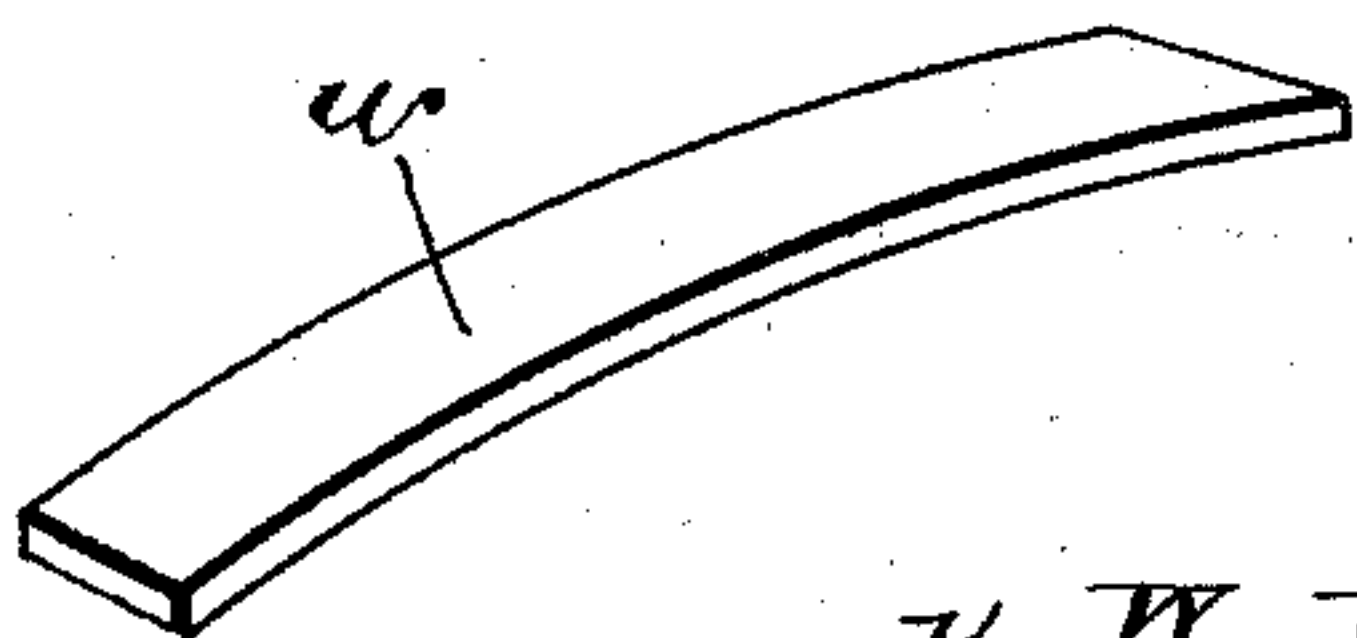


Fig. 4.

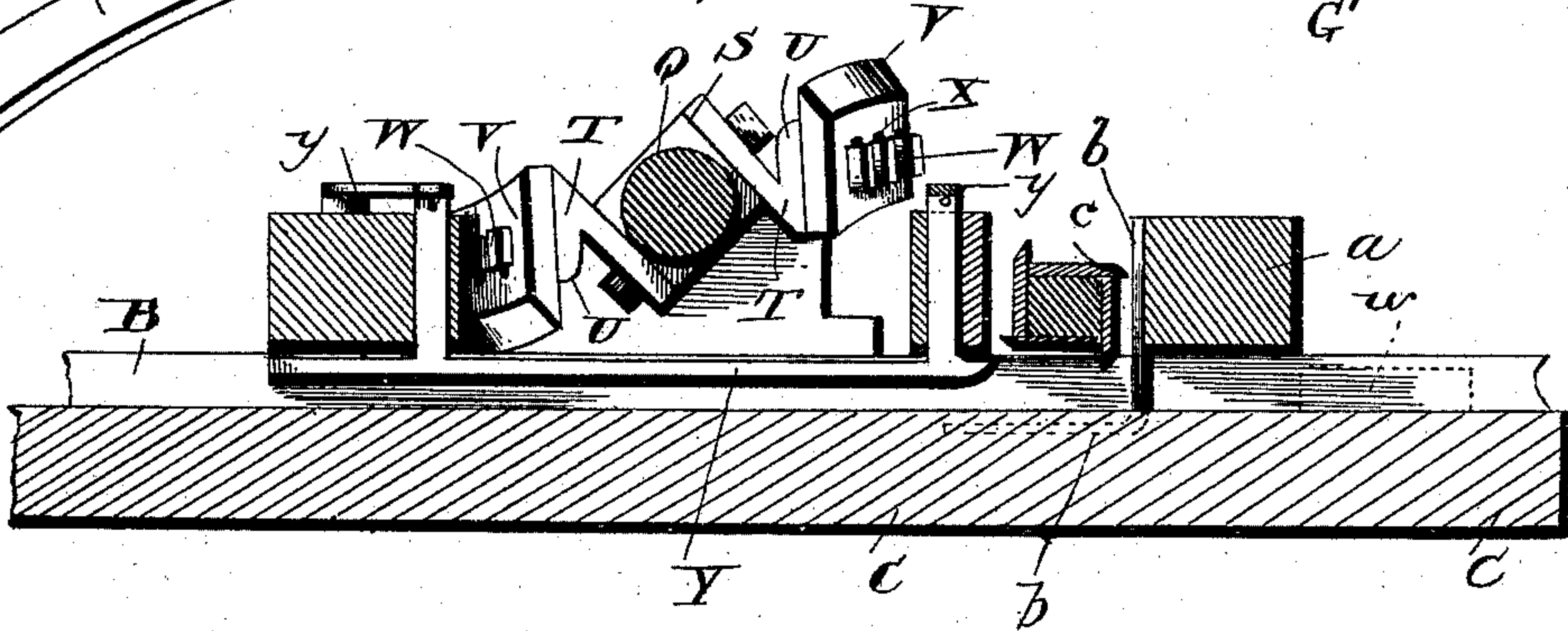
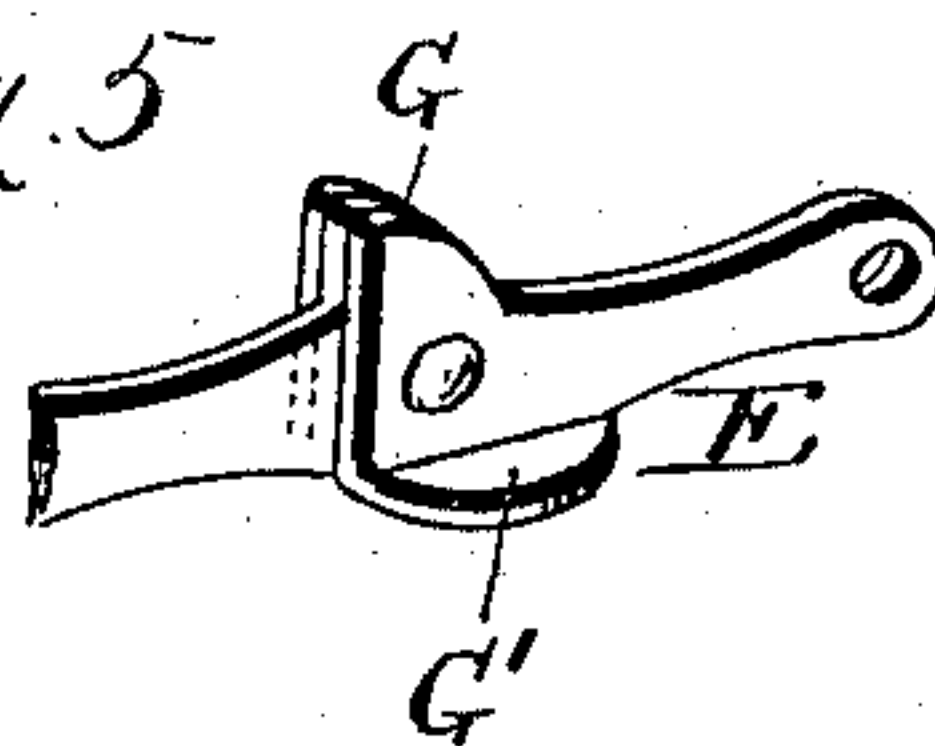


Fig. 5.



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UNITED STATES PATENT OFFICE.

MANLY S. RAWSON, OF JAMAICA, ASSIGNOR OF ONE-HALF TO H. J. STEWART, OF LONDONDERRY, VERMONT.

PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,610, dated June 21, 1892.

Application filed June 5, 1891. Serial No. 395,248. (No model.)

To all whom it may concern:

Be it known that I, MANLY S. RAWSON, a citizen of the United States, residing at Jamaica, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Planing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention aims to provide a machine by the use of which roughly-formed chair-backs may be planed or dressed off on their convex sides rapidly and without close attention on the part of the operator.

A further object of the invention is to construct such a machine with the fewest possible parts capable of effecting the desired results.

These objects I accomplish by the use of the mechanism illustrated in the annexed drawings, and hereinafter fully described.

The invention consists, generally stated, in a peculiar arrangement of rotary knives above an endless carrier which engages the rough chair-backs and carries them to the knives, by which they are planed and finished on their convex sides; and it consists, further, in certain novel details of construction and arrangement of the parts, all of which will be pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a planing-machine constructed in accordance with my invention. Fig. 2 is a side view of the same. Fig. 3 is a plan view thereof. Fig. 4 is a longitudinal section of the same, taken on the line 4 4 of Fig. 3; and Fig. 5 is a detail view of a portion of one of the carrier-chains. Fig. 6 is a perspective view of a chair-back blank after having been planed by my machine.

The supporting-frame A may be of any suitable construction, and consists, essentially, in a pair of beams B and suitable supporting-legs therefor. Between the beams B, I provide a bed-plate C, having a convex upper surface corresponding to the curvature of the chair-backs, as most clearly shown in Fig. 1. This bed-plate is provided near its edges with the longitudinal grooves D, through which the carrier-chains E pass. These chains, it will be noticed, are endless and pass over

sprocket wheels or pulleys F at the ends of the machine, and they are provided at regular intervals with lugs or teeth G, which impinge against the front edges of the chair-backs, and thereby engage the same, so as to carry them to the knives.

Any suitable means may be employed to drive the sprocket-chains—such, for instance, as that shown, which is as follows: From a pulley H on one end of the cutting-knife shaft a belt (shown by dotted lines in Fig. 1 of the drawings) is run to a band-wheel H', loosely mounted on the extended end of the front sprocket-shaft, which band-wheel carries a pulley, from which a belt (also shown by dotted lines in Fig. 1) runs to a band-wheel P. The latter is mounted on a shaft O, which by means of a train of gears N, M, J, and I communicates motion to the rear sprocket-wheel shaft, and so to the chains.

As shown in Fig. 5, the chains are provided at suitable distances apart with laterally-projecting lips or flanges G', which engage laterally-extending slits in the walls of the guide-grooves D in the bed-plate to prevent any possibility of the chains rising out of said grooves when passing therethrough. The cutter-head Q is mounted on top of the frame at about the center thereof, and is provided at one end with a pulley R, from which by means of a belt (shown by dotted lines in Fig. 1) the same is driven. The cutter-head consists of a shaft having the flat or angular central portion S, and to this angular portion I secure the brackets or knife-holders T, which have lips or flanges U, to which the knives V are bolted. The knives are secured to the brackets by means of bolts passing through slots X in the knives and formed on or embedded in the concave lips of the brackets and the nuts W, mounted on the ends of the said bolts and turned home against the knives. The knives can thus be adjusted to and away from the edge of the lip to cut into the chair-back to a greater or less extent, and also to compensate for the wear on the edge of the knife. The cutting-knives are arranged to stand at angles oblique to the direction of travel of the chair-backs, with their central portions in position to engage the same first, so that in cutting they will begin at the cen-

across it, thus obviating all danger of rupturing of the back and shear or cut diagonally ing the grain of the wood, as only a small portion thereof is being cut by the knives at one
5 time, and also enabling the cutting to be easily done without undue expenditure of power and strain of parts.

Passing under the cutter-head and secured to the transverse beams on the top of the machine is a central longitudinal presser-bar Y,
10 which bears upon the chair-backs as they pass through the machine and holds them firmly upon the bed-plate so that they cannot twist. Said bar Y is held yieldingly upon the passing backs by means of two flat springs *y* and *y*, arranged to press downwardly upon shanks,
15 which extend upwardly through the frame-beams at opposite ends of the bar, as clearly shown in Fig. 4. The cutting-knives are separated by a space substantially equal to the width of the presser-bar, as the same extends beneath them. The bed-plate, it is to be observed, is adjustable vertically toward or from the knives, as by screws *b' b'*, in order to enable
20 backs of different thicknesses to be planed and to regulate the degree of planing which shall be done. The slack in the carrier chains E permits this slight adjustment of the bed without the necessity of a corresponding adjustment of the sprocket-wheels upon which
30 said chains are mounted. The longitudinally-curved rough chair-backs *w* are placed over the bed-plate at the front end of the machine and arranged against a transverse beam *a*, to the rear side of which I secure the springs *b*,
35 that bear upon the chair-backs and hold them steady upon the bed-plate until after they have passed under the presser-bar. I have shown, and in practice I prefer to employ, a small central cutter *c*, near the beam *a*, which
40 will cut away the surface of the chair-back slightly at its center, so that it may easily pass under the presser-bar. The cutter *c*, in addition to forming a surface upon the blank, whereby the latter may easily pass under the
45 presser-bar, also reduces the central portion of the blank, so that when the latter has been operated upon by the cutters V it will have received its proper contour. This cutter may
50 be driven from a pulley on the large or main cutter-shaft.

The operation of my machine will be readily understood. The blanks or rough chair-backs *w* are piled at the front end of the machine, as seen in Fig. 2, and the machine then
55 set in motion. As the chains pass under the chair-backs the lugs or teeth thereon will impinge against the front edge of the bottom chair-back, and thereby push the same rearward toward the cutter-head. As soon as the back has passed entirely from under the lot of backs the next one will fall upon the chain by the force of gravity and the operation of feeding to the knives be repeated. The
65 back is carried through the machine by the

chains and will be successively operated upon by the knives, as will be readily understood, so that the entire upper surface will be made smooth.

It is obvious from the foregoing description, taken in connection with the accompanying drawings, that I have produced a planing-machine that will be automatically operated and that the only attention needed is to keep up the supply of rough backs.
75

The machine is composed of very few parts, and these few are arranged in such a manner as to be readily accessible for the purpose of repairing or cleaning, and therefore the cost of maintaining the machine will be very slight.
80 The convex bed-plate and the presser-bar arranged above the same effectually prevent the twisting of the backs as they pass through the machine, and consequently the danger of spoiling the backs or of damaging the machine is reduced to a minimum. By moving in channels or grooves the chains are maintained in straight lines, and they are thereby prevented from sagging, so as to become disengaged from the back, besides being prevented from disengaging themselves from the sprocket-wheels. It is evident that the backs of the blanks are only planed off on their upper or convex sides by this machine.
85 90

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—
95

1. In a planing-machine, the combination of a frame, a transversely-curved bed-plate supported by said frame, a cutter-shaft supported by said frame and arranged transversely of and above the bed-plate, separated cutting devices mounted on said shaft, having their edges curved to correspond to the curvature of the bed-plate, a presser-bar arranged above the bed-plate and between the cutting devices, and an independent cutting device forward of the presser-bar and in line with it, substantially as described.
100 105

2. In a planing-machine, the combination of a frame, a vertically-adjustable bed-plate mounted in said frame, a cutter-shaft mounted on said frame transversely of and above the bed-plate, separated cutting devices mounted on said shaft, a pressure-bar mounted above the bed-plate and between the cutting devices, an independent rotary cutter forward of the presser-bar, carrier-chains running in longitudinal grooves in the bed-plate and having the upwardly-projecting lugs, sprocket-wheels for said chains, mounted on transverse shafts in the framing of the machine, and suitable operating mechanism, substantially as described.
110 115 120

In testimony whereof I affix my signature in presence of two witnesses.
125

MANLY S. RAWSON.

Witnesses:

AMOS A. GOODELL,
CLARENCE K. GOODELL.