No. 693,576. Patented Feb. 18, 1902.

W. O. VIVARTTAS.

PLANING MACHINE.

(Application filed June 8, 1901.)

(No Model.) 3 Sheets—Sheet 1.

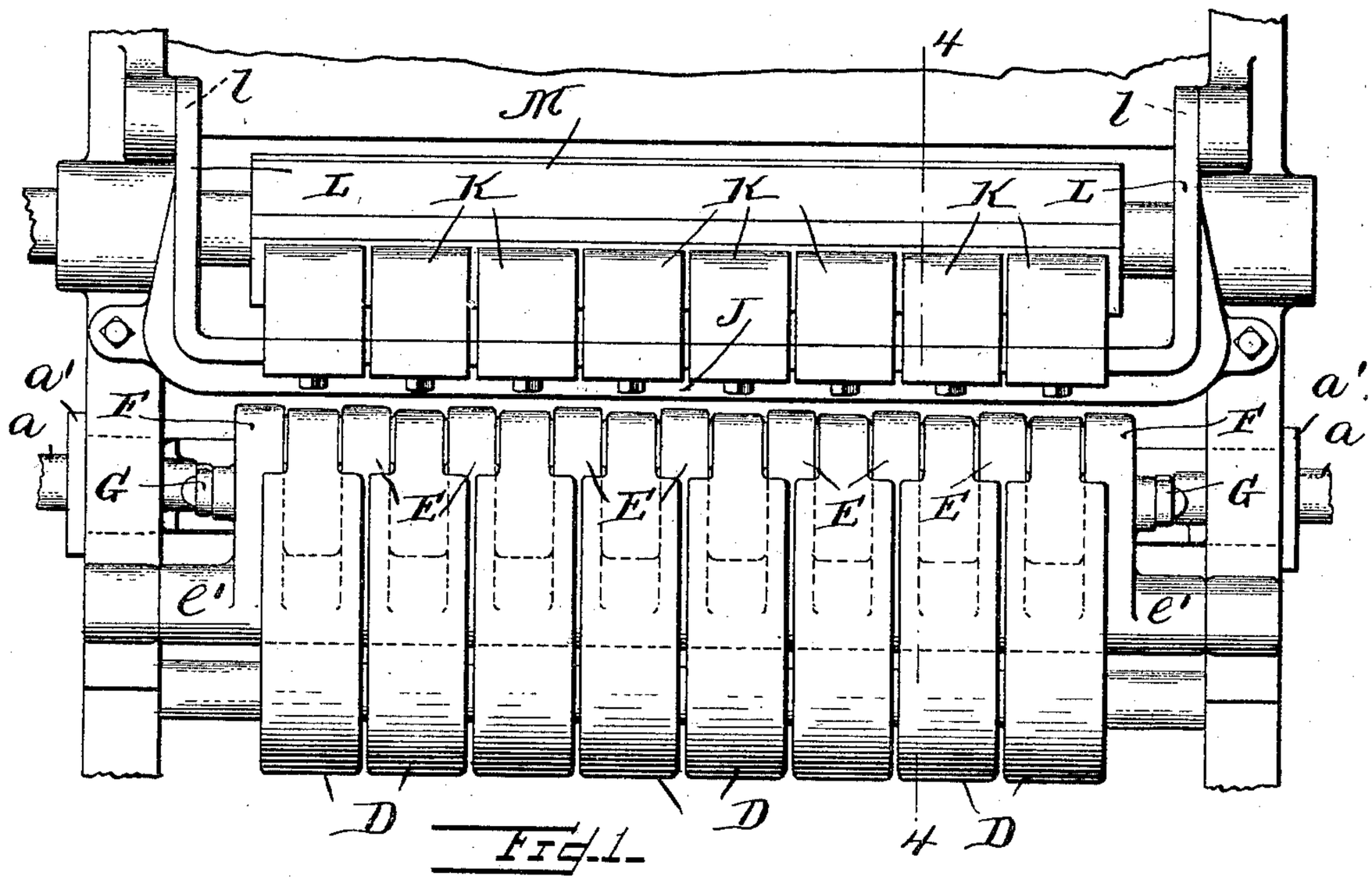

Fig. 1.

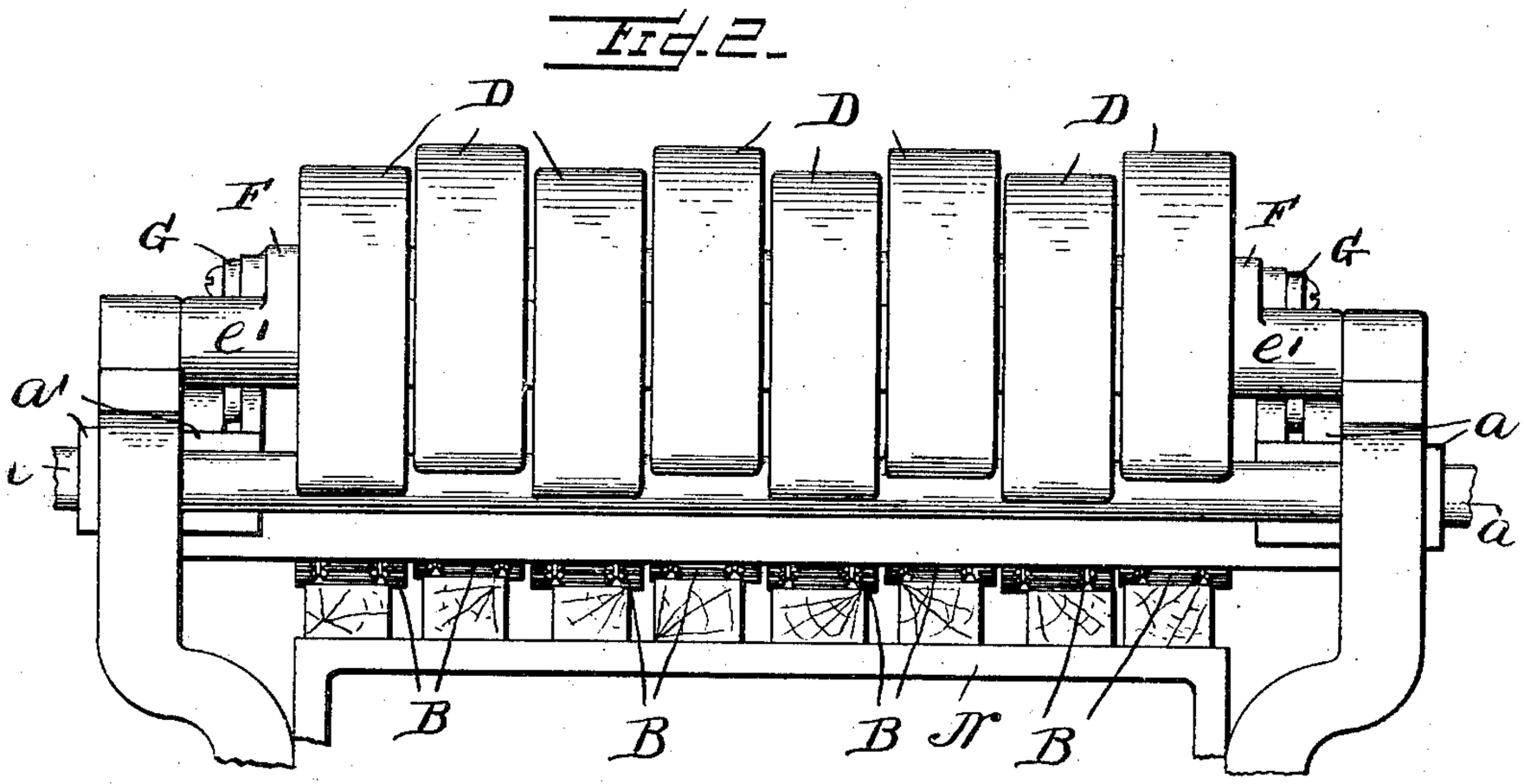

Fig. 2.

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Fig. 4.

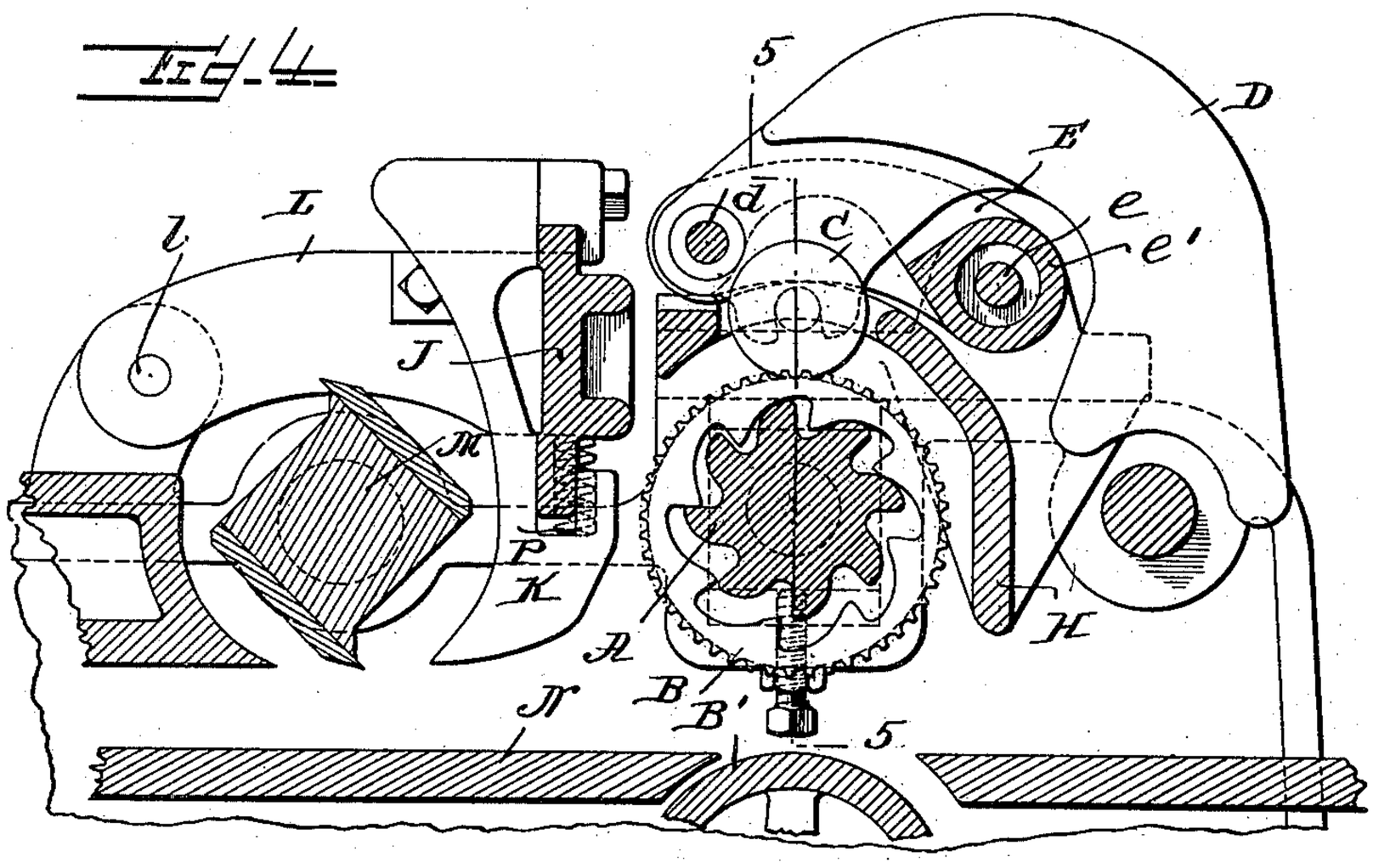

Fig. 3.

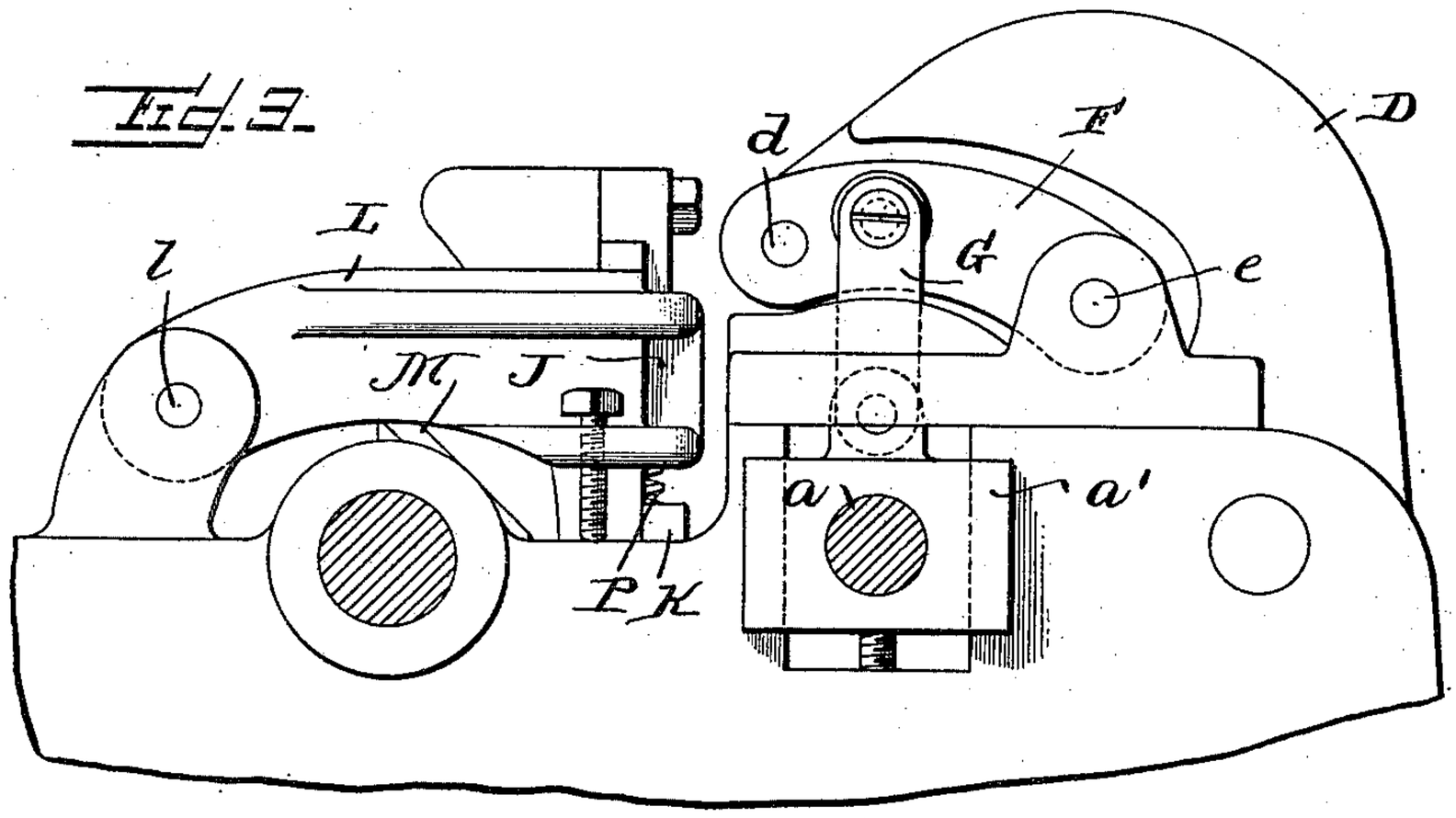

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Fig. 6.

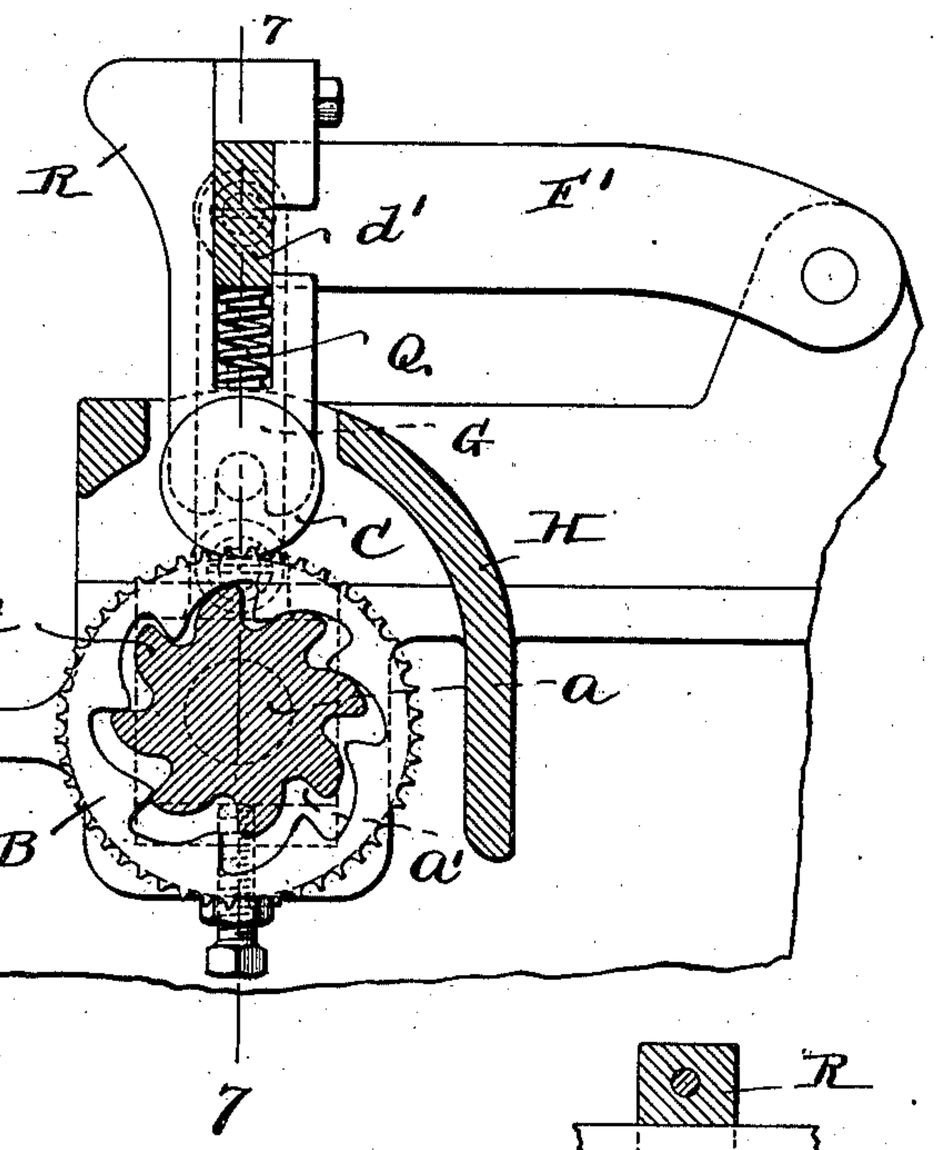


Fig. 5.

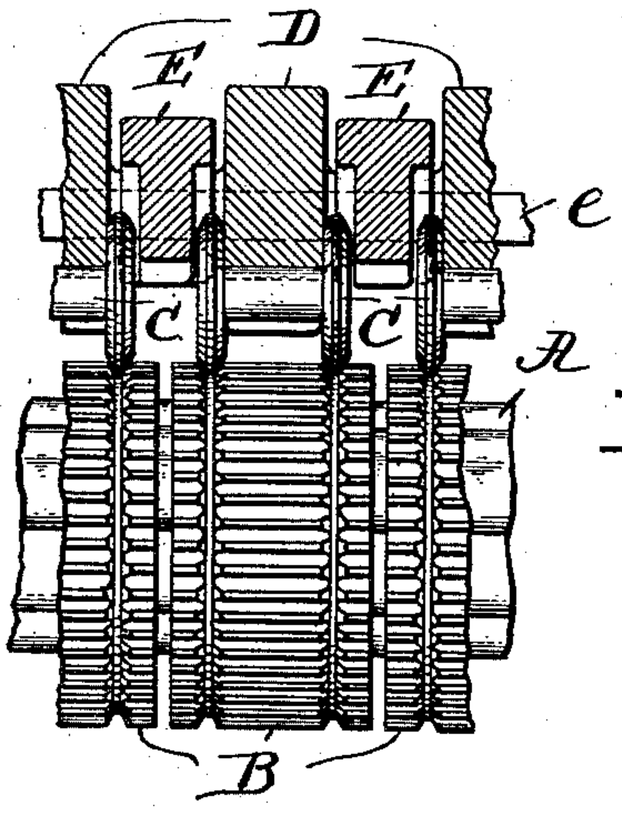
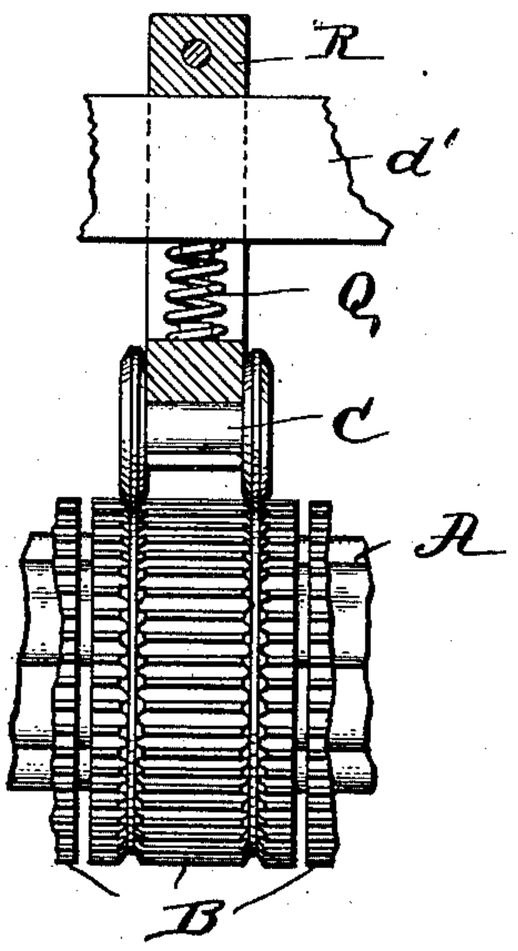


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM O. VIVARTTAS, OF WEEHAWKEN, NEW JERSEY, ASSIGNOR TO H. B. SMITH MACHINE COMPANY, OF SMITHVILLE, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PLANING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 693,576, dated February 18, 1902.

Application filed June 8, 1901. Serial No. 63,699. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM O. VIVARTTAS, a citizen of the United States, residing at Weehawken, county of Hudson, and State of New Jersey, have invented a new and useful Improvement in Planing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to planers or surfacers of that type adapted to work upon different thicknesses of stock at the same time.

The object of the invention is to devise new means whereby the capacity of working upon different thicknesses of stock may be attained with more success than heretofore.

The invention also has for its object to enable widely different thicknesses of stock to be worked upon at different times without any preliminary adjustment of the machine.

The invention consists of an arrangement of yielding and weighted sectional rolls and sectional chip-breakers having the characteristics hereinafter described, and particularly defined in the claims.

In the drawings, Figure 1 is a plan view of a machine embodying my invention. Fig. 2 is a front view of the same. Fig. 3 is a side view of the same. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a partial section on the line 5 5 of Fig. 4. Fig. 6 is a section similar to Fig. 4, showing a modification. Fig. 7 is a partial section on the line 7 7 of Fig. 6.

A is a spur-driver on the shaft *a* and extends through and drives the sectional feed-roll.

B B, &c., represent the sectional roll, consisting of a series of rolls or roll-shells. Each roll-shell consists of an annular ring having a series of inward projections corresponding in number to the teeth of the spur-driver, there being a substantial clearance between the spur-driver and the sectional-roll shells to permit the latter to be raised and still be driven by the former.

B′ is a feed-roll beneath the sectional roll. Between the roll-shells B and roll B′ the stock is fed.

C C, &c., are weighted rolls corresponding in number to and resting respectively on roll-shells B B, &c.

D D, &c., are weighted arms fulcrumed on shaft *d* and saddling, respectively, rolls C C, &c. This saddling is effected by providing each weighted arm D with a fork or saddle, which engages the reduced central part of its corresponding roll C.

E E, &c., are equalizing rock-bars having a common bearing *e′* on shaft *e*, on which they are fulcrumed. These rock-bars also have bearings on the shaft *d*, between the weighted levers D D, &c. The equalizing rock-bars F F at opposite sides of the machine are similarly fulcrumed on shaft *e* and have similar bearings on shaft *d*.

H is a yoke-cover over the sectional roll. The yoke-cover is integral with the frame of the machine and contains bearings for shaft *e*.

G G are links connecting rock-bars F F with the journal-boxes *a′* of shaft *a*. The rock-bars E E, &c., and F F thus support the shaft *a* and the weighted arms D D, &c.

J is a slide-bar having arms L fulcrumed on shaft *l*.

K K, &c., are nosepieces having grooves adapted to slide vertically over projections on slide-bar J to the same extent that rolls B are adapted to move up and down relatively to spur-driver A. The nosepieces correspond in number to the roll-shells B. The parts K L J constitute the chip-breaker.

P represents springs between slide-bar J and nosepieces K.

M is the rotating cutter.

N is the bed over which the stock moves.

Normally the lowest part of the periphery of the sectional roll is on the same horizontal plane as the lower end of the sectional chip-breaker.

The operation is as follows: The stock that is fed forward is always of a thickness exceeding the distance between roll C and bed N and sectional roll B when the latter is in its normal position. Each piece of lumber will raise the roll-shell B with which it contacts a distance corresponding to the said excess of thickness. If the extreme clearance between each roll-shell and the spur-driver is

assumed to be three-eighths of an inch and the said excess of thickness of any piece of lumber is less than three-eighths of an inch, the operation is as follows: The roll shell or shells engaged by said piece are raised, which raises the corresponding roller C, which raises the corresponding weighted arm D on its fulcrum *d*. If the said excess of thickness of any piece of lumber is more than three-eighths of an inch, the operation is as follows: The roll-shell engaged by such piece is raised, raising the corresponding roller C and weighted arm D until the spur-driver bottoms on the roll-shell. Then the spur-driver is raised bodily, which, through links G G, raises the rock-bars F F and all the rock-bars E on their fulcrum *e*. If the extreme distance that the nosepieces K can slide upon slide-bar J is assumed to be three-eighths of an inch and the said excess of thickness of any piece of lumber is less than three-eighths of an inch, the operation of the chip-breaker is as follows: The nose piece or pieces engaged by said piece of lumber are raised against the action of their spring P on the slide-bar J a distance equal to the distance that the corresponding roll-shell B has been raised. The nosepiece holds the stock absolutely to the bed while being worked. If the said excess of thickness of any piece of lumber is more than three-eighths of an inch, the operation is as follows: The nosepiece engaged by such piece of lumber is raised against the action of its spring P until the lower end of slide-bar J is engaged by the bottom of the groove in the nosepiece. Then the slide-bar J and both arms L are raised on their fulcrum *l*. Thus the machine is capable of feeding and planing or surfacing at different times stock of widely-varying thicknesses and is capable of feeding and planing or surfacing stock of different thicknesses simultaneously, provided the variation between the thickest and thinnest piece is not over the assumed three-eighths of an inch.

In Figs. 6 and 7 I have shown a modification in which instead of the weighted arm D I employ a spring Q. The rock-bars E E, &c., are eliminated, and in place of the rock-bars F F are employed the rock-bars F′ F′, carrying at their free ends a transversely-extending bar *d′*. This bar is embraced by the yoke R, having forked or bifurcated ends embracing the reduced portion of the roller C. The spring is confined between the yoke R and the transverse bar *d′*, and the yoke is capable of sliding up upon the transverse bar *d′* against the action of spring Q, when the corresponding section of the sectional roll B is forced upwardly beyond its normal position.

The spur-driver A and cutter-head M are driven from any suitable source of power. I have not illustrated such driving means, as the same constitutes no part of my invention. Any other form of driving-gear may be substituted for the spur-driver A. When I use the term "driving-gear," I refer to any suitable driving means for the sectional roll.

I do not limit myself to details of construction except where particularly claimed, as these may be varied without departing from the essential invention.

Having now fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of independent limited vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, a tension device engaging each feed-roll section and normally holding it in its lowest position, and a vertically-movable support upholding said tension device and driving-gear, substantially as described.

2. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, and pivoted tension-arms sustained by said supporting-bars and acting upon said feed-roll sections to normally hold them in their lowest positions.

3. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, pivoted tension-arms sustained by the supporting-bars, and rollers engaged by said tension-arms, said rollers engaging the feed-roll sections, substantially as described.

4. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, a shaft connecting the free ends of said supporting-bars, tension-arms (corresponding in number to the feed-roll sections) pivoted on said shaft, rollers (corresponding in number to the tension-arms) engaged respectively by said tension-arms, said rollers en-

gaging the feed-roll sections respectively, and equalizing-bars pivoted on the same axis as the supporting-bars and having bearings on said shaft, said equalizing-bars extending in the same general direction as the tension-arms and arranged alternately with respect thereto, substantially as described.

5. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection, a roller engaging each roll-section, a tension-arm pivoted at one end and saddling each roller, pivoted supporting-bars sustained on the machine-frame and sustaining at their free ends the said tension-arms, and a connection between the supporting-bars and the driving-gear, whereby when the vertical movement of any of the roll-sections exceeds said limit, it will raise said supporting-bars on their fulcrums and consequently raise the driving-gear, substantially as described.

6. In a woodworking-machine, in combination, the spur-driver A, shaft *a*, roll-shells B, rollers C, weighted arms D, rock-bars F, rock-bars E, journal-boxes *a'* on shaft *a*, and links G, the roll-shells being driven by the spur-driver, the rollers resting respectively upon the top of the roll-shells, the tension-arms being pivoted and sustained by the rock-bars, and saddling and resting upon the rollers, the rock-bars being pivoted on the machine-frame, and the links connecting the rock-bars F and the journal-boxes, substantially as described.

7. In a woodworking-machine, in combination, a driving-shaft, a spur-driver thereon, a feed-roll composed of independent sections, each roll-section surrounding the spur-driver and having an annular shell provided with inward projections adapted to be engaged by the teeth of the spur-driver, there being a substantial clearance between the spur-driver and the roll-shells, whereby each roll-section is in driving engagement with the spur-driver and capable of limited independent vertical movement, and a vertically-movable support upholding the spur-driver, whereby when the movement of any roll-section exceeds said limit the spur-driver is lifted bodily.

In testimony of which invention I have hereunto set my hand, at Philadelphia, on this 21st day of May, 1901.

WILLIAM O. VIVARTTAS.

Witnesses:
M. F. ELLIS,
M. M. HAMILTON.