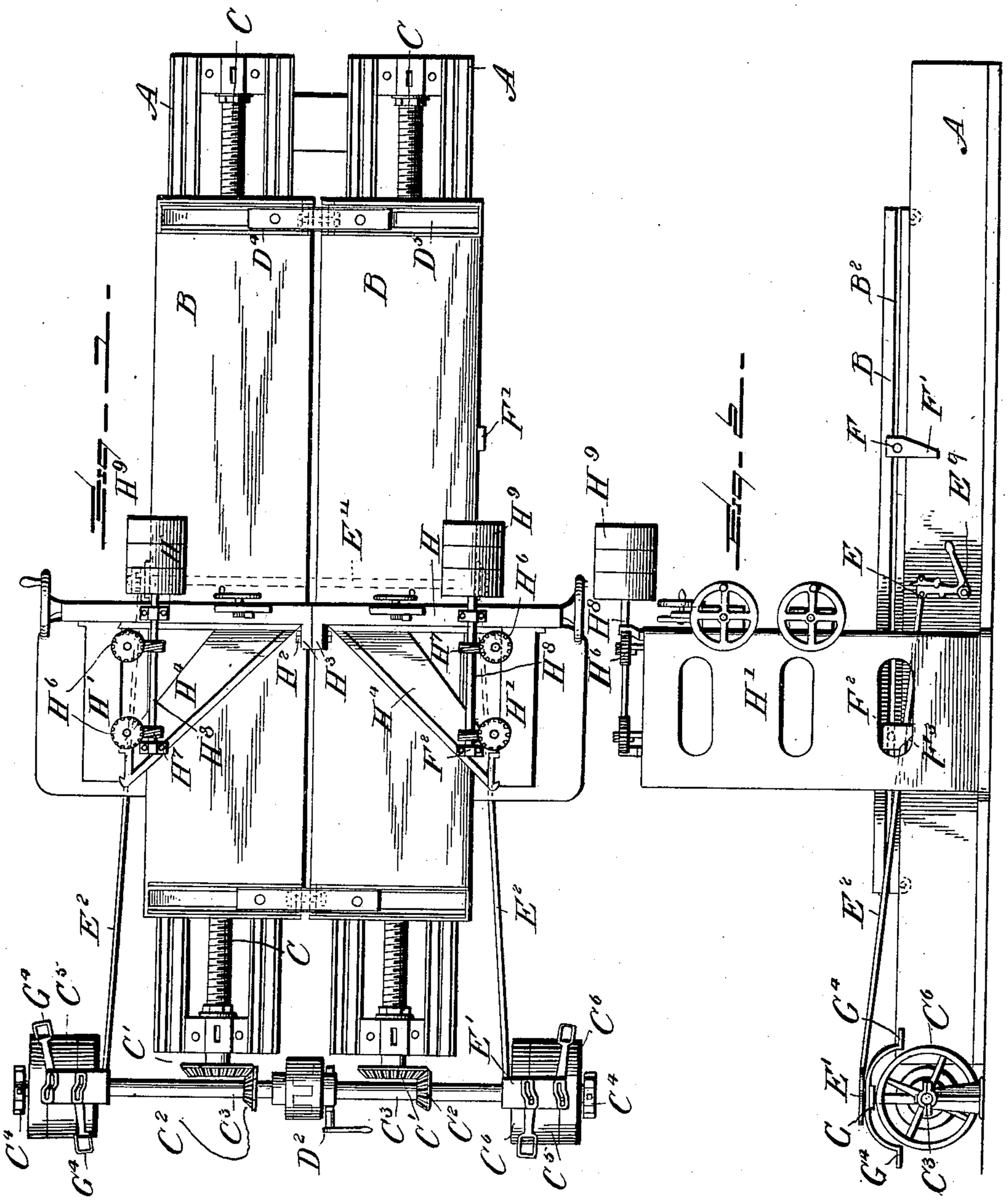
No. 681,926. Patented Sept. 3, 1901.

F. R. PATCH.

DOUBLE PLATEN PLANER.

(Application filed Mar. 19, 1901.)

(No Model.) 3 Sheets—Sheet 1.



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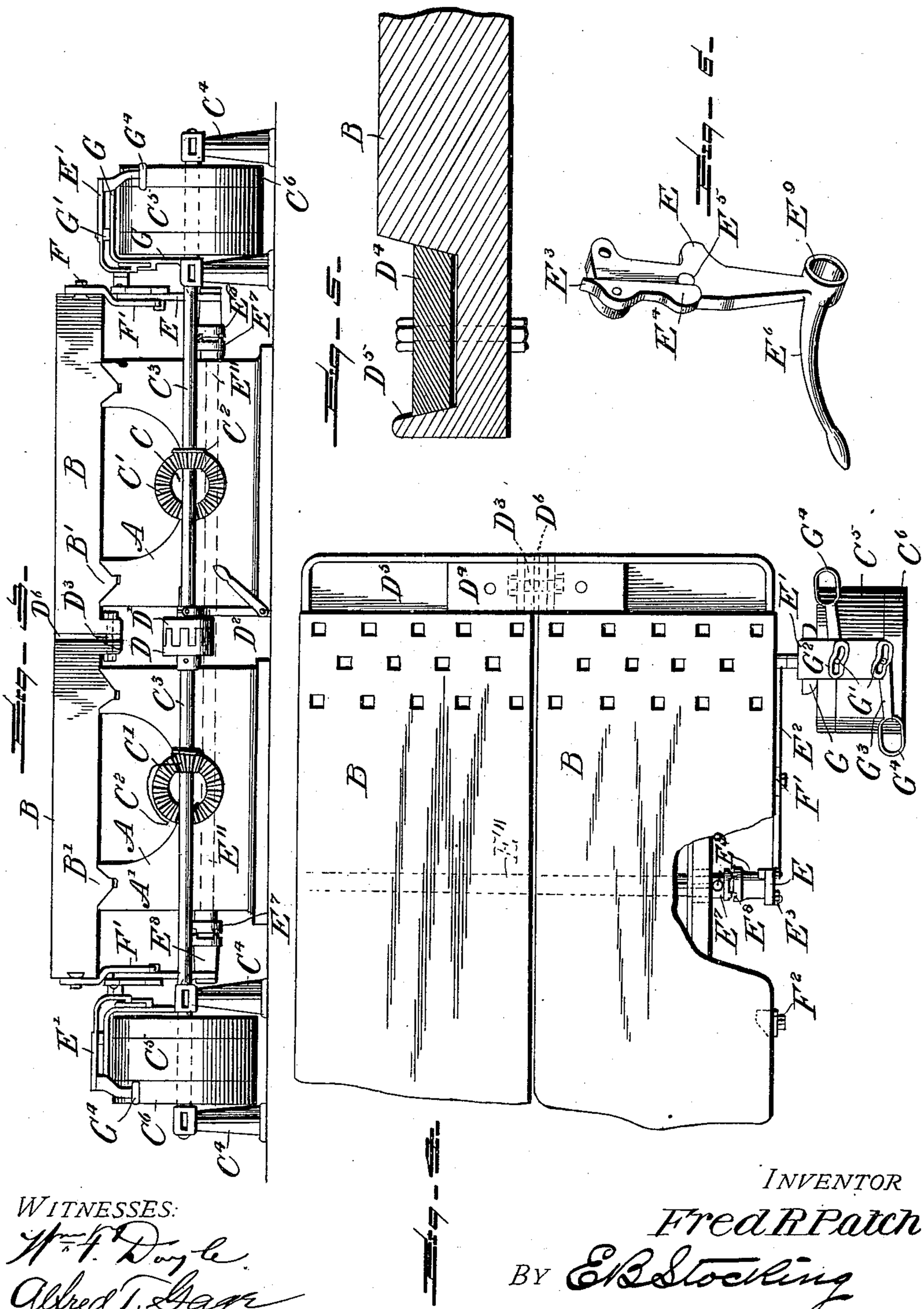

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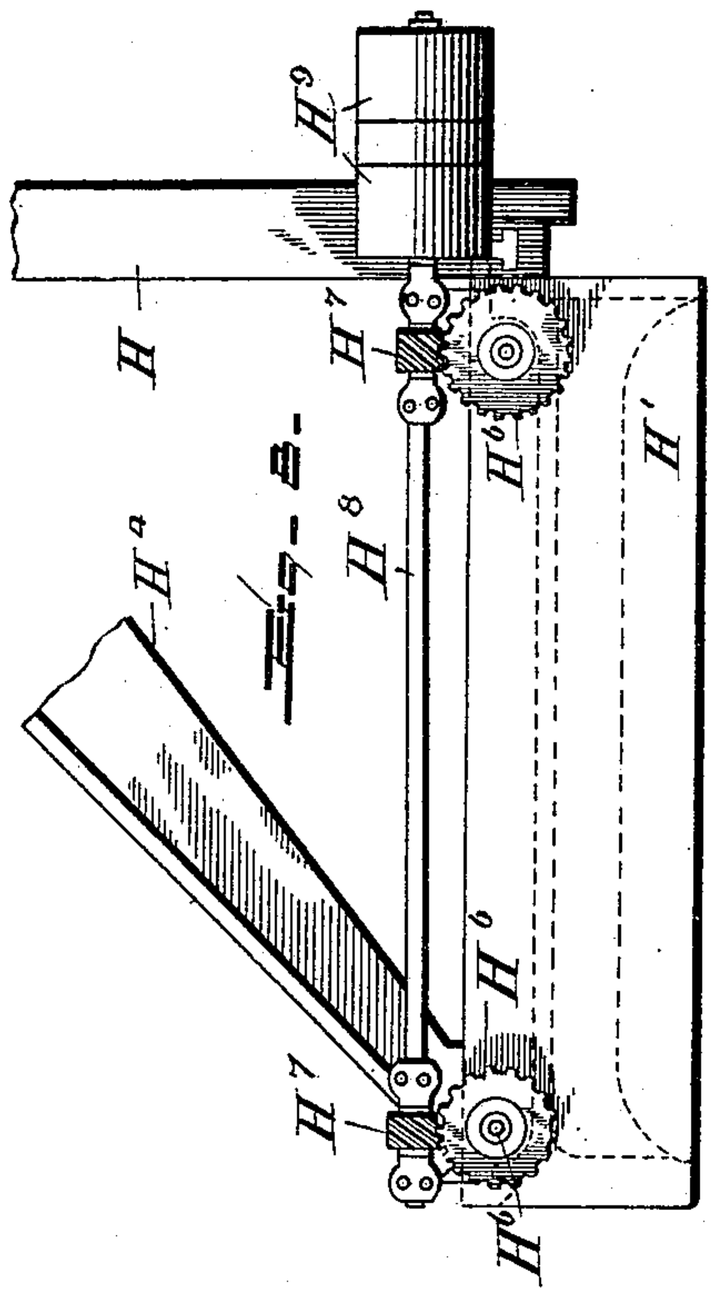

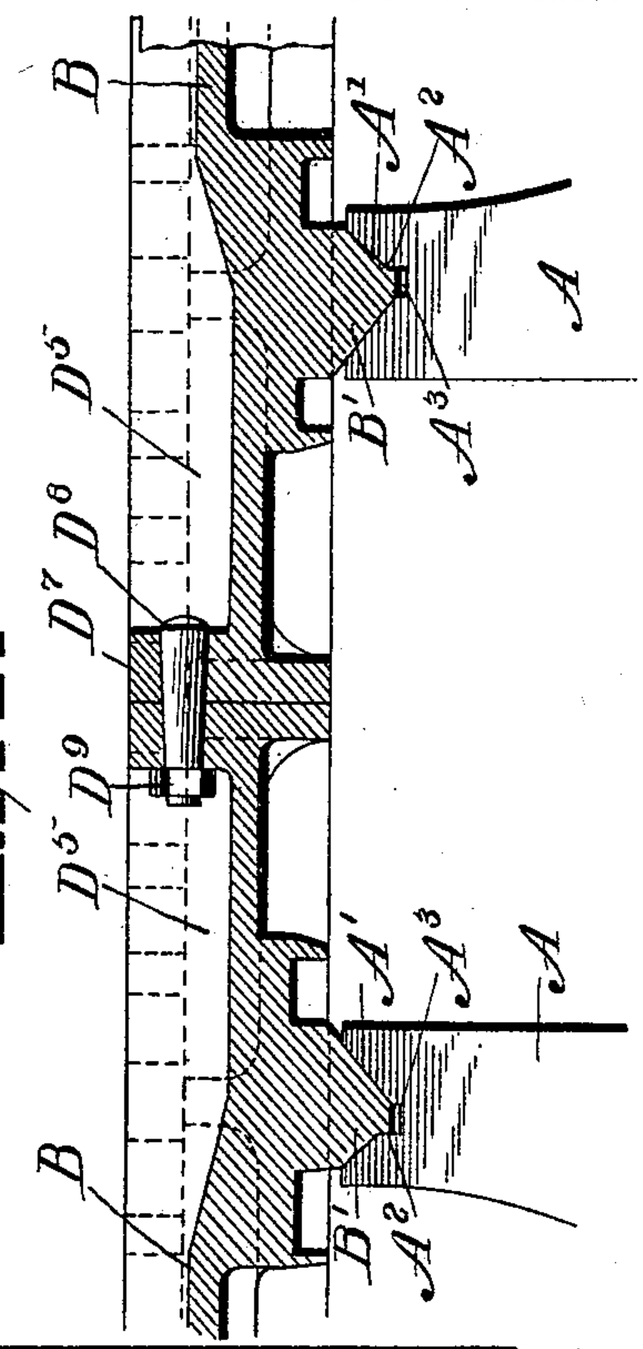

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UNITED STATES PATENT OFFICE.

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DOUBLE-PLATEN PLANER.

SPECIFICATION forming part of Letters Patent No. 681,926, dated September 3, 1901.

Application filed March 19, 1901. Serial No. 51,938. (No model.)

To all whom it may concern:

Be it known that I, FRED R. PATCH, a citizen of the United States, residing at Rutland, in the county of Rutland, State of Vermont, have invented certain new and useful Improvements in Double-Platen Planers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to double-platen planers, and particularly to that character of apparatus used for planing stone and similar material wherein the platens may be operated in unison or independently.

The invention has for its object to provide means for effecting a movement of the parallel platens in unison, so that a single piece of material extending over both platens may be operated upon, or independently operating these platens for use with smaller pieces of material.

A further object of the invention is to provide means for automatically shipping the driving-belts in the movement of the platen, whereby the belts for the driving-shafts of both platens may be shifted independently or at the same time, as found desirable, and, further, to couple these independent driving-shafts so that they shall operate as a single shaft to feed both platens as a single unitary part.

A further object of the invention is to provide independent adjustable rails for supporting the cutting-tools, whereby said tools may be supported at the same elevation or the tool over each platen supported at a different elevation from its associated opposite member.

Other objects and advantages of the invention will hereinafter appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 represents a plan of a double-platen planer with my invention applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is an end elevation thereof. Fig. 4 is an enlarged detail plan with part of one platen broken away to show parts beneath the same. Fig. 5 is a detail vertical section of one end of a platen. Fig. 6 is a detail perspective of the shipper-arm. Fig. 7 is a section of elevation of one standard. Fig. 8 is a plan of the same, and Fig. 9 is a vertical section of a modified method of securing the platens together.

Like letters of reference indicate like parts throughout the several figures of the drawings.

The present invention is capable of application to numerous forms of planers of this character, but for the purpose of illustrating the application of the same I have shown an ordinary form of planer, comprising the base A, provided with grooved tracks or ways A′, upon which the platen B rests and into which grooves a suitable projection B′ from the platen enters to hold the same against lateral movement. In a double-platen planer these parts are duplicated and located side by side. Each platen is driven by means of a threaded shaft C, engaging a suitable fixed nut carried by a part of the platen, which shaft is rotatably mounted in the base A and supplied at one end with a driving-gear C', adapted to mesh with a corresponding gear C^2—for instance, a bevel, as shown—carried upon a driving-shaft C^3, which is supported at its outer end in suitable standards C^4 and carries thereon a central fixed pulley C^5 and loose pulleys C^6 at opposite sides of said fixed pulley. These parts are duplicated for the opposite platens and are independently driven by means of suitable driving-belts. At the meeting ends of the shaft C^3 a clutch member D is secured to one shaft, and a cooperating member D′ is slidably splined or secured against rotation upon the adjoining shaft, so that when these clutch members are in engagement the two sections of the driving-shaft will be driven in unison and as a single shaft. The movement of the clutch member D′ can be effected by any desired shifting device—for instance, the lever D^2, as shown in Fig. 3. The driving-shafts when connected as just described will drive the platens in unison and obviate the absolute necessity for a rigid connection between the platens. It is desirable, however, under some conditions to release strain upon the other parts by connecting the platens when they are to be continuously used together. One well-known method of securing this result is by cross-bolts D^3, extending between

the flanges of the adjoining platens, at the opposite ends thereof, or at any desired point, while the same result can be effected by means of the bar D^4, placed in the trough D^5 at the ends of the platens and bolted therein to the opposite platens to form a connecting means. In order that the platens when used independently shall not strike or rub each other, a space may be left between them, and it is found desirable to insert a filler D^6 between the adjoining faces of the platens, so that the tension upon the connecting devices shall not draw the same from their proper seats upon the foundation.

In the ordinary use of the tables independently it will be understood that each has its own driving belts and shaft, so that to perfect the joint use of the platens it is necessary to control and ship these belts in unison to effect the proper driving relation. This is accomplished by means of shipper-arms E, loosely mounted upon the ends of a cross-shaft E′, journaled in the foundation A, and at its upper end connected with the shipping mechanisms E′ by means of rods E^2, extending longitudinally of the planer. At the upper portion of each arm E a latch E^3 is pivotally mounted and provided with a weight E^4 to restore the same to a vertical position by gravity, which weight contacts with a pin E^5 to limit its movement in one direction. The outer edge or side of each platen B is provided with a longitudinal groove B^2, which may be undercut or dovetailed, as desired, and in which a suitably-headed bolt F is adapted to slide, which bolt carries at its free end a shipping-dog F′. Two of these dogs are provided for shipping the belt at the opposite extremes of movement, the long one being used to effect the reversal. One face of the short dog F^2 is suitably beveled or inclined, as shown at F^3, so as to depress the pivoted latch and pass the same in one direction without operating the shipping-arm, while the longer dog F′ engages the body of the arm or a projection therefrom and is so positioned as to move the arm at each operation. This arm E is also provided with a handle E^6, by which it may be operated by hand at any time desired to reverse or stop the feed of the platens.

Suitably supported from each standard C^4 is a fixed plate G, having vertical pins G′ rising therefrom and adapted to ride in the slots G^2, formed in the shipping-plate E′. From this plate the arms G^3 extend and are provided at their free ends with belt-loops G^4. Any desired form of shipping mechanism may be used, however, and that shown is merely for the purpose of illustration. With the parts in the position shown in Figs. 3 and 4 the loops carry the belts over the loose pulleys C^6, and one of the belts is suitably crossed so as to effect a reverse driving movement. The shipper-plate when shifted longitudinally of the platen is also given a lateral movement by the connection with the pins G′, which causes one of the belts to travel from the loose to the central tight pulley C^5, and in the reverse movement of the shipper this belt is restored to the loose pulley and the opposite belt drawn upon the tight pulley, as is customary in shipping mechanisms. Under the conditions thus far described when it is desird to ship the belts in unison the dogs must be adjusted parallel with each other; but to obviate the necessity of this delicate adjustment and render the shipping possible by a single dog upon either platen I have provided upon the cross-shaft E^{11} a sliding clutch member E^7, suitably feathered upon the shaft and adapted to engage a clutch E^8, carried by the hub E^9 of the shipping-arm, so that the rotation of this arm rotates the shaft E^{11} and operates the shipping mechanism upon the opposite side of the platens, if it be connected to the shaft in a like manner. The sliding clutch E^7 may be secured in position by desired means—for instance, a set-screw—and only when so connected does the cross-shaft E^{11} perform any further function than for supporting the rotatably-mounted arms E on the opposite ends thereof.

For the purpose of supporting the cutting-tools above each of the platens I have provided independent tool-holders, comprising cross-rails H, mounted to reciprocate in any desired form of standard H′ and to be secured at their vertical adjustment in any usual manner—for instance, by screws H^5, as shown in Figs. 7 and 8, which are supported at the top of the standards H′ and depend toward the platen. The upper ends of these screws are provided with gears H^6, adapted to mesh with worm-gears H^7, disposed upon driving-shaft H^8, which shaft is also provided with the usual driving-pulleys H^9, adapted to receive the ordinary form of crossed belts for effecting a rotation of the adjusting-screws H^5 in either direction as said belts are shifted from the loose to the fast pulley. Standards H′ are connected together at their base by a cross-frame H^{10}, extending beneath the platens, as shown in Fig. 7, and independent shafts for operating the tool-holding cross-rails H are provided so that either may be adjusted independently of the other. If these tool-holders H are desired to be used together, they may be positively connected by a bolt H^2, passing through the meeting flanges H^3 of the holders, and each of the latter is provided with the usual and ordinary adjusting means for shifting the tools above the work and other operations which constitute no part of the present invention. It will be obvious that this arrangement will permit the use of tool-holders at different elevations, so that even if the platens be moved in unison the cutting may be performed upon different horizontal planes or the holders bolted together to operate in a single horizontal plane. Each of the holders is provided with a brace

H^4, extending from the end of the face-plate thereof to the standard H′ and slidably connected thereto.

In Fig. 9 the tracks or ways A′ upon the base within which the projections B′ from the platens B rest are shown as provided at one side with a straight wall A^2, which cooperates with a similar wall upon the projection B′, and thereby prevents any lateral movement of the platens in the ways. As shown in said figure, a long inclined bearing is provided upon one wall of the way and a short inclined bearing and a short straight bearing upon the opposite wall, while beneath the projection B′ a channel A^3 is formed for the reception of any excess oil or dust which may be carried with said oil into the lower portion of the way, thus removing the dust from the bearing-surfaces of the parts. In Fig. 9 an improved method of securing the platens together is also illustrated, wherein the platens are provided, in the troughs D^5 at their ends, with flanges D^7 at their adjoining faces. These flanges are provided with a tapering recess extending through the same into which a tapering bolt is introduced and secured by any desired means—for instance, a nut D^9. This bolt holds the two platens rigidly together without drawing upon the adjoining edges thereof, so as to effect the travel of the same upon their respective ways.

When the platens are to be used independently, the driving-shaft clutches D and D′ are disconnected, as well as the cross-rod of the shipping device and any auxiliary fastenings between the platens, so that each of the driving mechanisms may be independently operated and shifted in accordance with the requirements thereof. When it is desired to operate the platens in unison—for instance, when a stone is carried which covers the surface of both platens—the clutches D and D′ are engaged and the cross-rod between the shippers clutched into engagement, so that the platens operate as a single part and both of the driving mechanisms are correspondingly shipped. When used under these conditions, any desired auxiliary fastening devices between the platens may be used, as hereinbefore mentioned. By this structure it will be seen that the driving-shafts may be directly connected together without the interposition of additional gearing, so as to drive the two platens as from a single shaft, and by simply engaging the clutches E^7 and E^8 of the cross-rod between the shippers the belts of the independent driving-shafts are similarly controlled, so that all possibility of a difference in feed or action between the two driving-shafts is avoided. It will be appreciated that if one of these driving mechanisms were started or stopped before the other the platens and their driving mechanisms would be seriously damaged by the opposite strain placed upon the parallel platens. It will also be seen that the adjustment of the cross-rails carrying the tools is such that they may be used independently at different elevations or together at a single elevation, as found desirable.

It is obvious that changes may be made in the details of construction and configuration without departing from the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim is—

1. In a machine of the class described, bed-frames, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, independent shipping mechanism for each platen and driving-shaft, means for connecting said shipping mechanisms together, and means for simultaneously actuating both shipping mechanisms when the driving-shafts are connected together; substantially as specified.

2. In a machine of the class described, the combination with platens, driving-gears and feed-screws therefor, of a driving-shaft formed in two sections in line with each other each section having a gear meshing with a screw-gear and upon the same relative side thereof and united by means of a clutch, one member of which is fixedly mounted upon one section and the other member slidingly mounted on the other section, whereby motion is conveyed directly from the driving-shaft to both of the feed-screws; substantially as specified.

3. In a machine of the class described, a bed-frame, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, shipping mechanisms carried by each of said platens, and means for transmitting the motion of one of said shifting mechanisms to the other; substantially as specified.

4. In a machine of the class described, a bed-frame, independent platens mounted to reciprocate thereon, independent driving-shafts for each of said platens, means for connecting the adjoining ends of said shafts, shipping mechanisms carried by each of said platens, a cross-shaft on which said shipping mechanisms are loosely mounted, and clutches keyed to said shaft to engage said shipping mechanisms; substantially as specified.

5. In a machine of the class described, independent platens adapted to operate adjacently side by side, means for driving said platens independently or in unison, a trough or pocket extending laterally at one end of each of said platens below the upper face thereof, and a block carried by said pocket and adapted to be secured at its opposite ends to each of said platens within the pocket thereof; substantially as specified.

6. In a machine of the class described, independent platens, means for operating the same independently or in unison, standards at the opposite outer edges of the platens, cross-rails independently adjustable in said

standards and comprising tool-holders, and means for securing said rails together; substantially as specified.

7. In a machine of the class described, independent platens, means for operating the same independently or in unison, standards at the opposite outer edges of the platens, cross-rails independently adjustable in said standards and comprising tool-holders, means for securing said rails together, and diagonal braces extending from the adjacent ends of said rails and engaging a portion of said standards; substantially as specified.

8. In a machine of the class described, a platen having means for reciprocating the same, a shipping-dog carried by said platen, a shipping-arm pivoted at its lower end and provided at its upper portion with a stop-pin, a pivoted latch extending above the upper end of said dog and adapted to engage said pin, connections from the upper end of said arm to a belt-shipping mechanism, and an operating-handle extending from the pivot for the arm; substantially as specified.

9. In a machine of the class described, a platen having a longitudinal groove upon its edge, a shipping-dog adjustably secured in said groove, a pivotally-mounted shipping-arm adapted to be engaged by said dog, connections from said arm to a belt-shipping mechanism, a shaft extending to the opposite side of said platen upon which said arm is mounted, and a clutch member splined upon said shaft and adapted to engage a corresponding member rotatably carried by said arm to transmit motion to said shaft; substantially as specified.

10. In a machine of the class described, a platen having a longitudinal groove upon its edge, a shipping-dog adjustably secured in said groove, a pivotally-mounted shipping-arm adapted to be engaged by said dog, connections from said arm to a belt-shipping mechanism, a shaft extending to the opposite side of said platen upon which said arm is mounted, a clutch member splined upon said shaft and adapted to engage a corresponding member rotatably carried by said arm to transmit motion to said shaft, a pivoted latch carried by said arm, and a short dog carried by the platen upon the opposite side of said arm from said first-mentioned dog and adapted to engage said latch in the travel of the platen; substantially as specified.

11. In a machine of the class described, parallel independent platens, a driving device beneath each of the same, a beveled gear upon the end of said driving device, independent driving-shafts, each provided with a gear meshing with said beveled gear, a toothed clutch secured to the end of one driving-shaft, a corresponding clutch slidably splined upon the adjoining driving-shaft, and means controlled by the platens for automatically changing the direction of rotation of said shafts in unison; substantially as specified.

12. In a machine of the class described, parallel independent platens, a driving device beneath each of the same, a beveled gear upon one end of said driving device, independent driving-shafts, each provided with a gear meshing with a beveled gear, a toothed clutch secured to the end of one driving-shaft, a corresponding clutch slidably splined upon the adjoining driving-shaft, shipping mechanism operated in the movement of the platen to change the direction of rotation of each of said shafts, and means for connecting said mechanisms to operate the same in unison; substantially as specified.

13. In a machine of the class described, the combination with independent platens, of means for operating the same independently or in unison, standards at the opposite edges of said platens, cross-rails comprising tool-holders slidingly mounted upon said standards, and independent adjusting-screws supported from the upper portion of said standards and connected to said cross-rails for adjusting the same; substantially as specified.

14. In a machine of the class described, the combination with independent platens, of means for operating the same independently or in unison, standards at the opposite edges of said platens, cross-rails comprising tool-holders slidingly mounted upon said standards, independent adjusting-screws supported from the upper portion of said standards and connected to said cross-rails for adjusting the same, a driving-shaft mounted upon the upper portion of said standard and provided with gears meshing with gears upon the upper ends of said adjusting-screws, and means for reversing the direction of rotation of said shaft; substantially as specified.

15. In a machine of the class described, independent platens adapted to operate adjacently side by side, a filling-strip adapted to lie between the adjacent faces of the platens, means for driving said platens independently or in unison, a trough or pocket extending laterally at one end of each of said platens below the upper face thereof, and a block carried by said pockets and adapted to be secured at its opposite ends to each of the platens within the pocket thereof; substantially as specified.

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

FRED R. PATCH.

Witnesses:
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P. H. O'ROURKE.