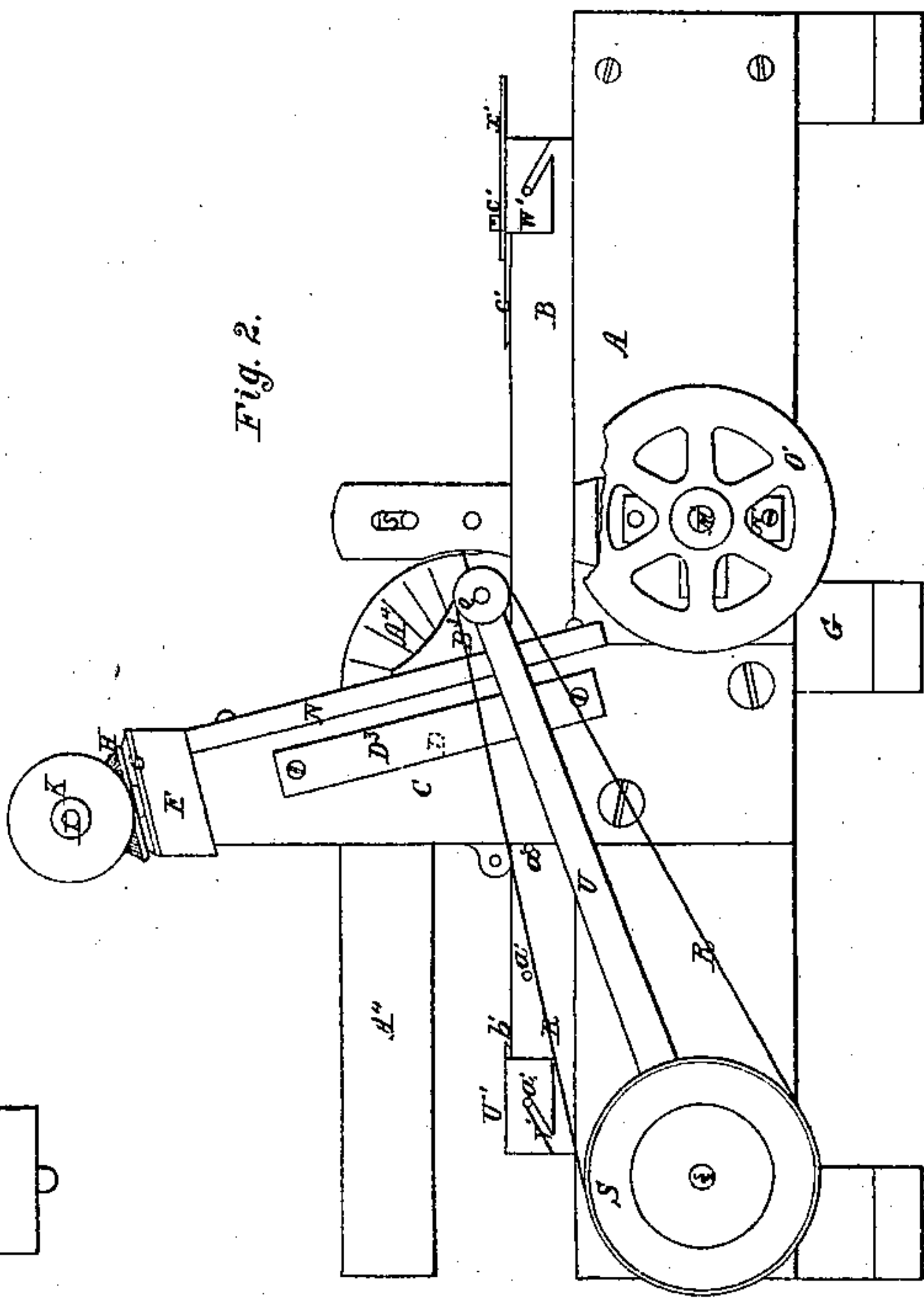
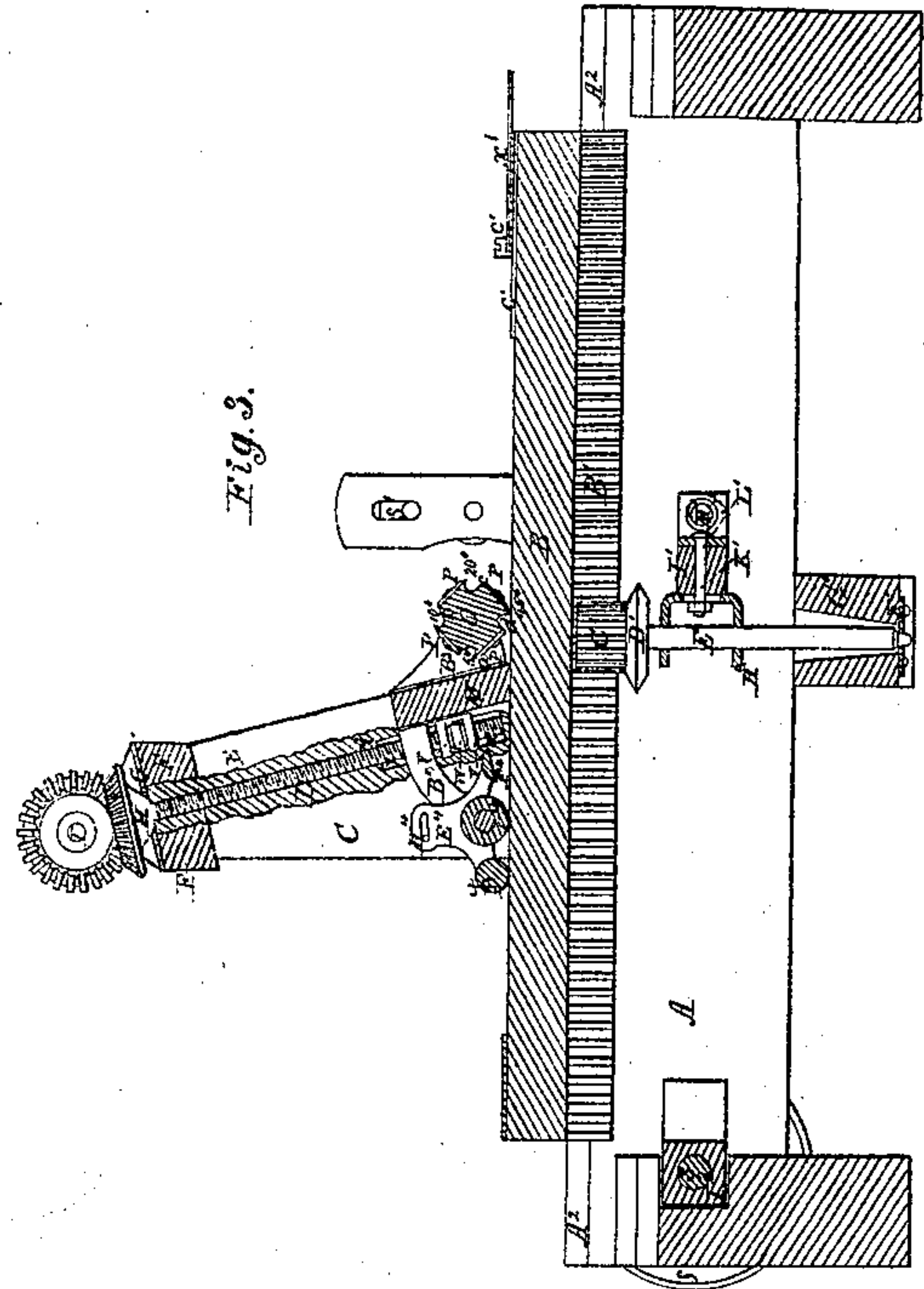
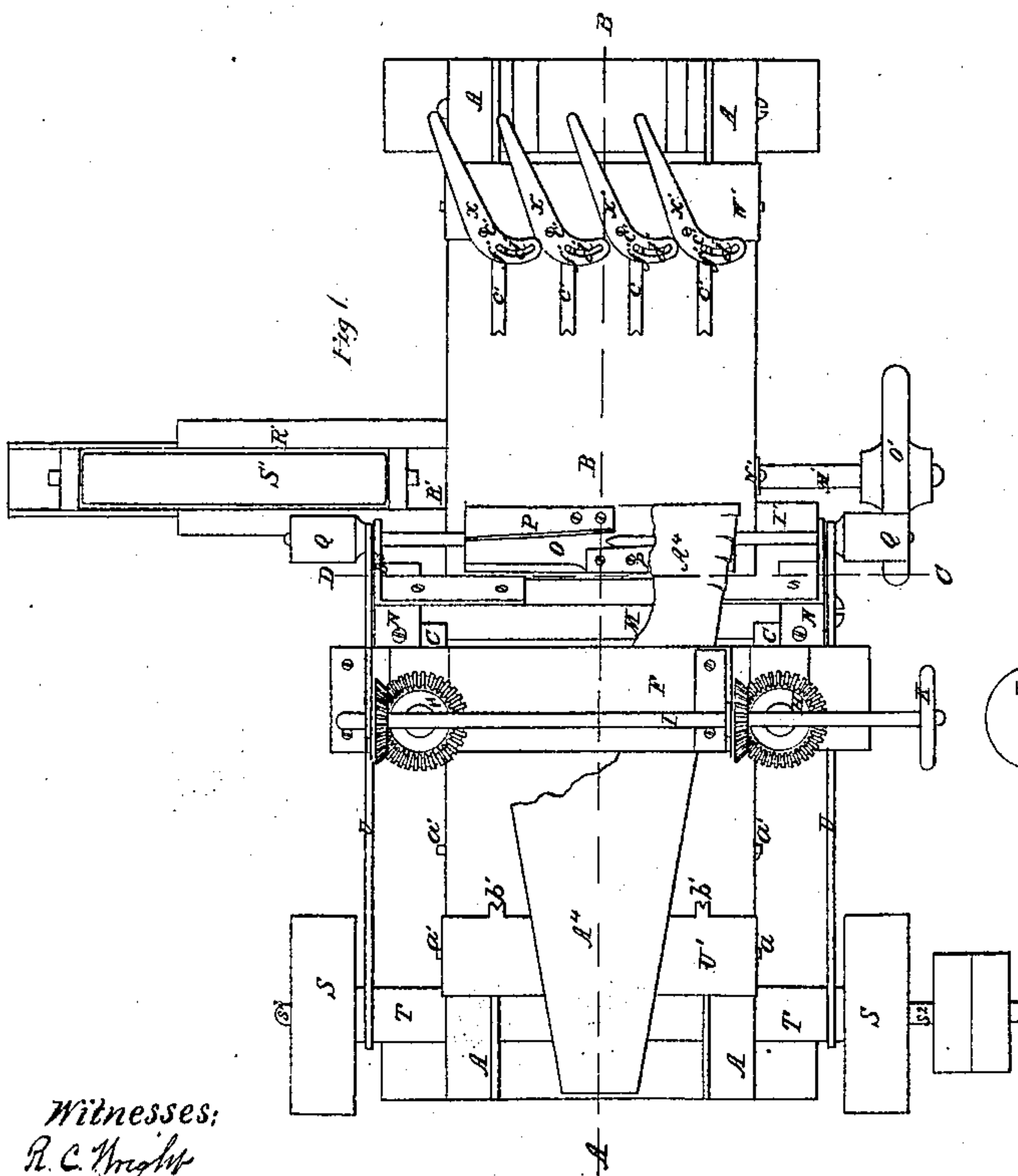


H. D. Stover,
Planing Machine,

No 30,993.

Sheet 1-2, Sheets.

Patented Dec. 18, 1860.



Witnesses:
R. C. Wright
Geo. W. Lord

Inventor:
H. D. Stover

H. D. Stover,
Planing Machine,

No. 30,993.

Sheet 2-2 Sheets.

Patented Dec. 18, 1860.

Fig. 6.

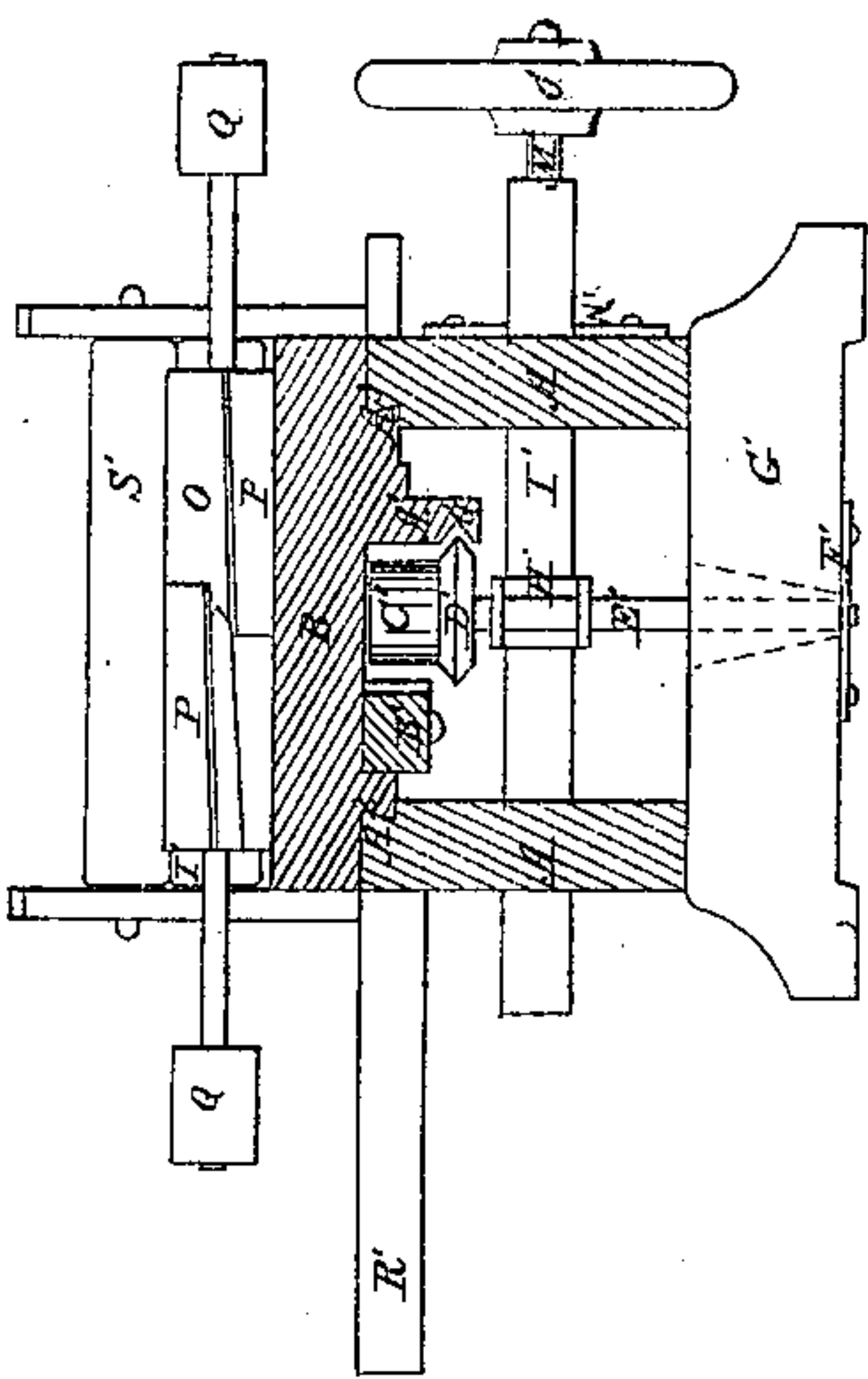


Fig. 5.

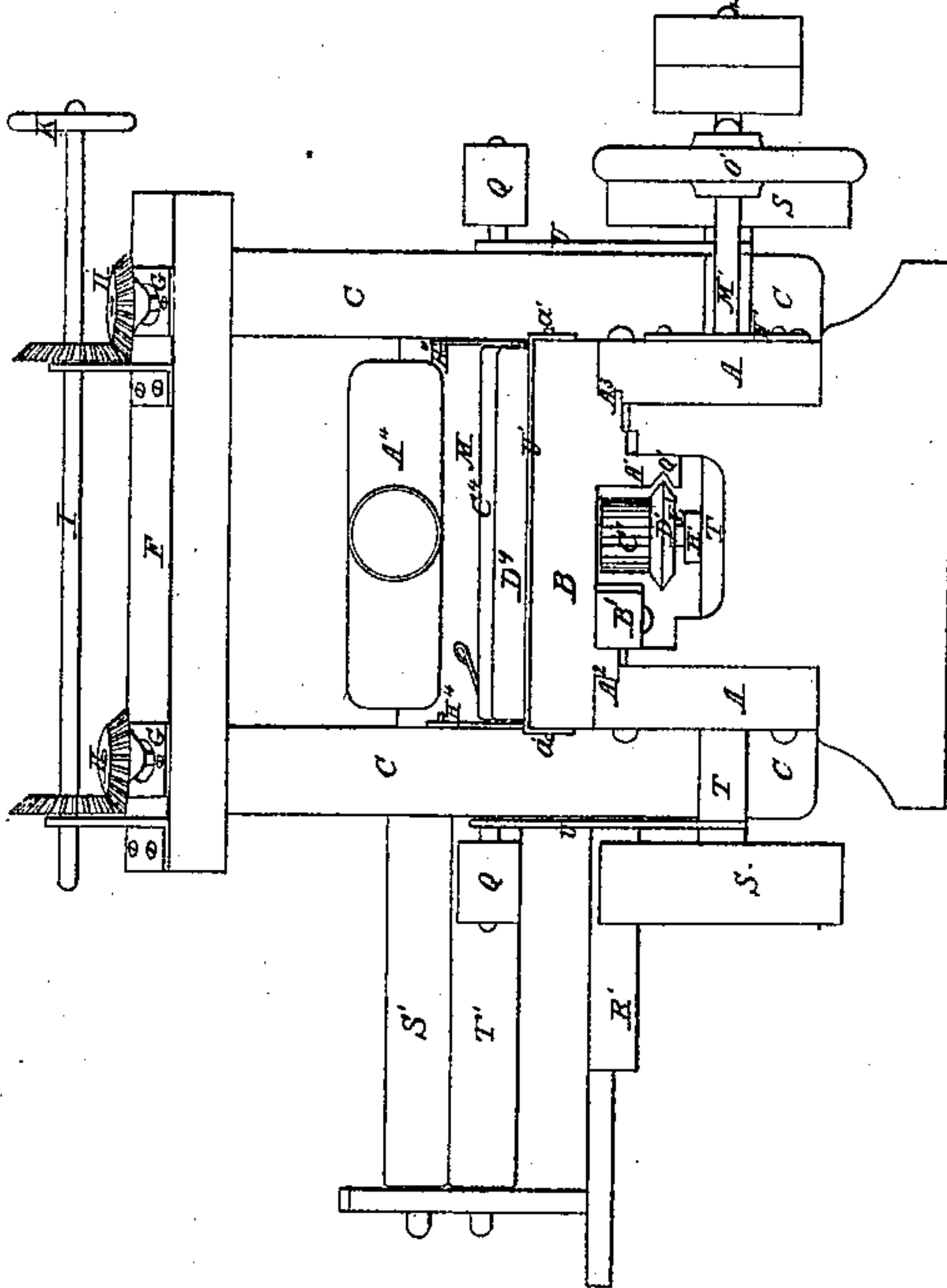
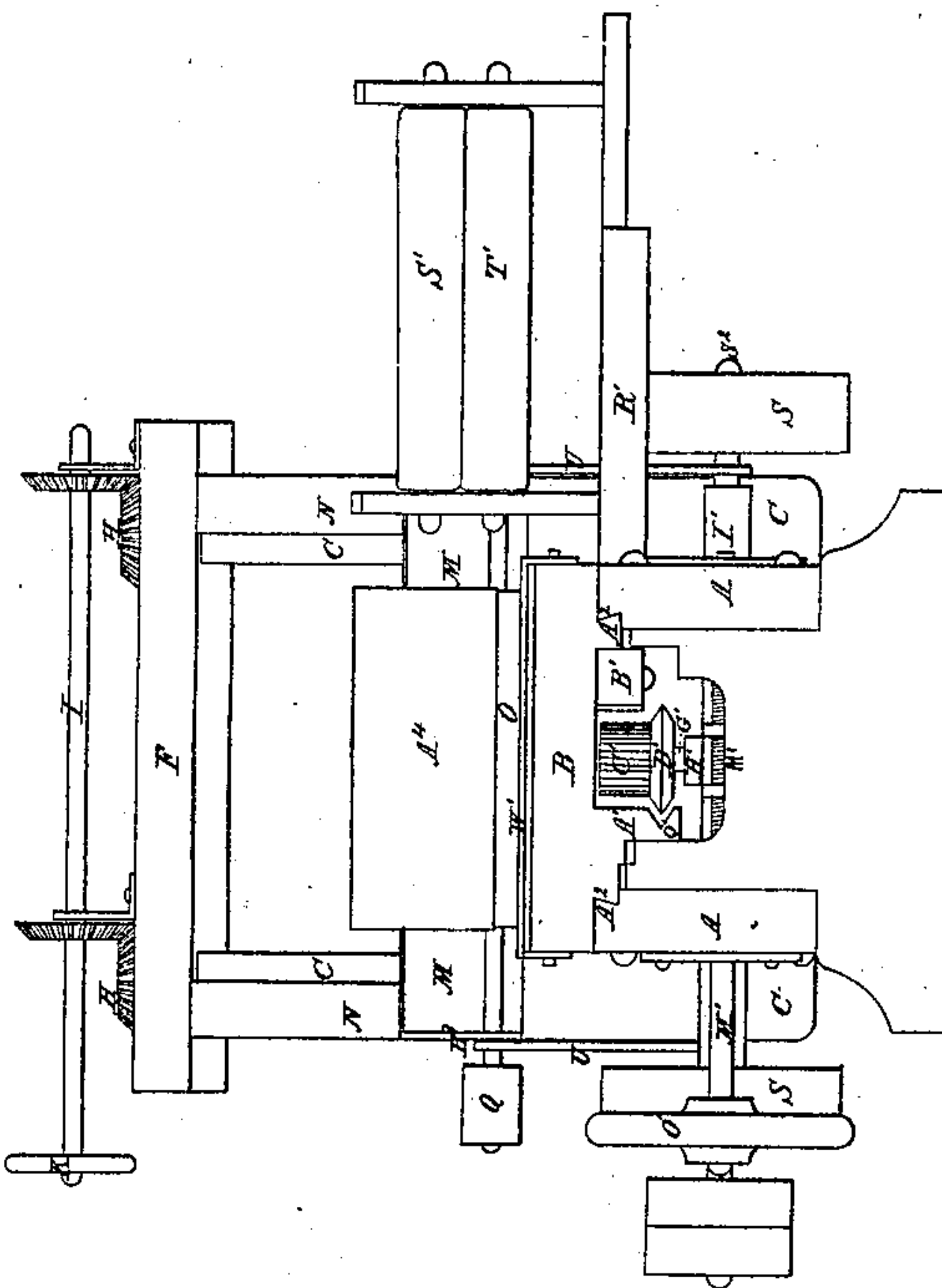


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY D. STOVER, OF NEW YORK, N. Y.

WOOD-PLANING MACHINE.

Specification forming part of Letters Patent No. 30,993, dated December 18, 1860; Reissued May 21, 1861, No. 1,190.

To all whom it may concern:

Be it known that I, HENRY D. STOVER, of New York, in the county of New York and State of New York, have invented certain
5 new and useful Improvements in Planing-Machines for Accurately and Nicely Dressing Dimension Lumber and Boards; and I hereby declare that the following specification, in connection with the accompanying drawings and letters of reference
10 marked thereon, constitute a clear, lucid, and exact description of the construction and use of the same.

In referring to the said drawings, Figure
15 1 denotes a plan or top view; Fig. 2 a side elevation; Fig. 3 a central and vertical section on line A, B, of Fig. 1; Fig. 4 a front end elevation; Fig. 5 a back end elevation; Fig. 6 a transverse and vertical section on line C, D, of Fig. 1, showing parts
20 beyond, toward front end of machine.

Invention.—The nature of my invention consists in combining the cutting cylinder, and the crosshead in which it revolves, with
25 two or more screws for raising and lowering the cutting cylinder evenly, and parallel to the face of the platen. Also in so pocketing, or incasing the raising and lowering screws in the uprights that dust and
30 shavings will be effectually excluded, whether the machine is operated or not. Also, in so constructing the cutting cylinder as to receive four or more cutters, each imparting a shearing or drawing stroke or cut,
35 at the same time, for convenience in construction and ease in sharpening and securing to the head. Also in giving that portion of the cutter head, immediately back of the edges of the cutting blades an angle varying from 5° to 45° from the face of the cutting blades to constitute a solid, variable,
40 and efficient cap to the cutting blades. Also in so connecting the journal boxes of the driving shaft with the crosshead carrying the cutting cylinder, that when it is raised
45 or lowered the journal boxes will move so as to always retain precisely the same distance between the drive pulleys, and the driven pulleys on the cutter head, to always
50 allow a permanent and uniform tension of belt. Also in feeding the platen forward with rack and pinion and back at an increased speed, with friction wheel and friction slide and vice versa. Also in reversing
55 the feed or movement of platen by means of

screw and having a wheel for turning the same conveniently to either engage the friction wheel with friction slide or pinion with rack. Also in sliding or moving and attaching the cross head for cutting cylinder to the uprights with adjustable gib slides. Also
60 in pivoting the journal box for the friction feed, and giving it a vertical adjustment, to both swing and raise or fall with the feed shaft it carries, to allow this shaft a free
65 swinging and transverse movement, to feed the platen either way as may be desired. Also in so constructing and applying several dogs to the platen that either and all may be operated independent of the others, for
70 dogging several narrow pieces at the same time on the platen. Also in connecting the feed rolls to the bed piece by gib slides for operation therewith or removal therefrom. Also in suspending and moving crosshead,
75 for cutting cylinder by screws which are suspended in universal bearings, and by universal nuts, to allow of a free untrammelled movement in working, as well as convenience for adjustment in construction.
80 Also in so constructing a conducting spout or trough with crosshead to carry and conduct away from the machine the shavings made by the cutting cylinder, and to any desired point by the force or current of air
85 created by the great velocity of the cutting cylinder. Also in placing an elastic pressure roll back of cutting cylinder, which may be made a stationary wiper to clean the finished surface, in combination with a rigid
90 revolving roll, or a scraper so that either the rigid revolving roll, or scraper may be used with flexible pressure roll to plane straight and out of wind. Also in constructing and combining the hollow cast iron uprights
95 with the wood planing machine.

Construction.—To enable persons skilled in the art to which my invention appertains to construct and carry out the same, I will describe it, as follows: I construct a bed
100 piece, seen at A, and to which a platen, B, is fitted to slide in adjustable gib rests, A², A³. By this means great durability and accuracy of movement is had for the platen, and at the same time it is effectually prevented from tipping up or trembling when
105 nearly on a balance, as is well known in other planing machines, and this important improvement allows of an essential shortening of the bed from any other known meth- 110

od, and also produces more perfect finish to the material, by the uniform steady movement when the cutting cylinder is working near the extreme end of the platen. On either side of the bed A, I erect uprights seen at C, firmly secured thereto, and at the upper ends by cross-bar F. These uprights have a pocket or cavity D, formed therein, and to be inclosed by covers D³, to exclude dust or shavings. In each of these cavities a screw E, is positioned to freely turn in universal boxes G, on bar F, into which are fitted a portion of bevel gears H, which are attached to upper end of each screw E, and these screws E, are so constructed as to both be turned by one shaft I, having a balance wheel K, and two bevel gears H, and screws E, the shaft I, revolving in stands or boxes G, as seen in the drawings.

A crosshead seen at M, is constructed and attached so as to slide freely yet snugly up and down on the face or front of upright C, by fitting the adjustable gibs N. The journal boxes B³, are secured to the front of crosshead M to receive and carry the cutting cylinder O, which is constructed with four or more cutter blades P, fitted to surfaces so formed on cylinder O, and not parallel to its axis of motion as to impart a shearing or drawing cut to the material. These blades P extend for a little more than half the length of the cutting cylinder—i. e., their inner ends overlap to make the finish, or cut by, these short cutters are a saving in construction, and are easy of adjustment, and also easily sharpened.

That portion of the cutting cylinder O, immediately back of the cutting blades P may be formed any angle, from 5° to 45°, seen at *a, b, c, d*, Fig. 3, to give a good finish to hard or soft wood, the number of degrees of angle to this cylinder being more than 25° for hard, and less than 25° for soft wood. On each end of cutting cylinder shaft is secured a suitable pulley seen at Q, to be driven by belts R, from drive pulleys S, fitted on shafts S², to revolve in sliding box T, which is connected by rods U, to crosshead M, and cutting cylinder O, that when the same is raised or lowered to dress thick or thin lumber that the centers of drive pulley S and driven pulley Q always remain at the same distance, to always retain the belt at the same uniform tension, the importance and great advantage of which will be readily seen.

The crosshead M is raised and lowered by suspension to screws E, universally, by means of stands V secured thereto and divided into two parts where they clasp the screw E, and between these divided parts a universal nut, seen at W, is fitted to freely turn, to impart any ease of motion or required adjustment to crosshead M and cutting cylinder O. Between the nuts W,

and inner surface of cavity D in uprights C, is fitted to stand V, a sliding shield X, which effectually covers the slots Y, through which the stands V move, and at whatever elevation the same is placed so as to effectually exclude dust and shavings under any circumstances. By this arrangement the crosshead M, and its cutting cylinder O, are easily, freely and evenly moved up and down by turning one shaft.

The feeding device is constructed as follows: To the under side of platen B, a friction slide A', is secured and also a toothed rack B'. Between these is positioned a toothed pinion C', which fits into rack B', and a friction wheel D' and pinion C' are secured to a perpendicular shaft E' which is moved or turned at the required speed by connecting belt with any turning shaft of my machine, and suspended in journal box F' secured to support G' at its lower or under side and near to its upper end by journal box H', secured to sliding bar I', by pivot K', so as to be both vertically adjustable and at the same time turn to freely allow the shaft E' to conform to all the required movements given it for the feed. On the opposite side of bar I' is secured the nut J' by pivot L', for vertical adjustment, and to freely turn. Through this nut J' passes a screw M' which is suspended to freely turn in bearings N', secured to bed A. At the end of screw arbor M' is secured a balance wheel O'. By turning this wheel O' and screw M' in one direction the pinion C' is geared with rack B', to feed the platen one way, and by turning the screw M' the other way the bar I' and the friction wheel D' are moved to force this wheel into and firmly against groove Q' of slide A', and when turning will move the platen in direction reverse to that of pinion C', which will be readily understood.

Suitable ways or grooves are formed transversely through track as seen at R', to which a slide is fitted which carries the feed rolls S' and T' designed for surfacing boards when the platen B is moved back out of the way, and to form the bed under the cutting cylinder. A stand with gib slides is attached to bed, and on which to remove to feed rolls. Thus all the advantages of the dimension and surface planers are contained in one machine, and by simply sliding the feed rolls into position or out of position they are ready for use or securely placed out of the way.

The back dogging bar is fitted to top of platen B and drawn down to its top piece whenever the lumber is secured for dressing by the inclined slots V' and pins *a'*. This bar U' has several projecting claws *b'* to receive either several distinct strips for dressing at the same time, or one wide board, as may be desired. The front dogging bar W' is

is secured to platen similar to the bar U', between it and top face of platen are several sliding dogs, or claws C' corresponding to claws b', and moved by cam levers X', with eccentric slots d', pins f' and pivoted by screws c', to firmly secure the pieces of lumber between them for being dressed.

A spout or trough A⁴ is constructed and so connected to crosshead as to conduct the shavings away from the machine and cutting cylinder by the force or current of air created by the great velocity imparted to it and by means of the four and unequal shapes in the cutting cylinder.

A stand B⁴ is secured to the back side of crosshead M, to which an elastic pressure roll C⁴ is attached, to freely revolve therein, and yield to the surface of board or piece being planed. Back of roll C⁴ is a rigid revolving roll D⁴ suspended in adjustable swinging stands E⁴, which are attached to, and carried by stand B⁴. There is also a scraper or holder F⁴ fixed to the front end of adjustable stand E⁴, which presses the board or piece firmly to the platen, quite close to the cutting blades, by which the same is held to receive a beautiful finish. The arms of stands E⁴ may be swung and secured by screws H⁴ to bring either the scraper F⁴, or roll D⁴ upon the face of the finished piece as may be desired to plane straight and out of wind, all as herein set forth.

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

1. The combination of cutting cylinder O, and crosshead M, with two or more screws E, for raising and lowering the cutting cylinder evenly and parallel to the face of the platen.

2. So pocketing or encasing the raising and lowering screws E, in the uprights C, that dust and shavings will be effectually excluded, whether the machine be in operation or not.

3. So constructing the cutting cylinder O, as to receive four or more cutting blades P, each imparting a shearing or drawing stroke or cut, and at the same time for convenience in construction, and ease in sharpening and securing the blade to the head.

4. Forming the portion of the cutter head immediately back of the edges of the cutting blades, an angle varying from 5° to 45° from the face of the cutting blades, to constitute a solidly variable and efficient cap to the cutting blades.

5. So constructing, connecting and arranging the sliding journal boxes T, with crosshead M, which carries the cutting cylinder O, by means of rods U, that when the

cutter head is raised or lowered these journal boxes will move so as to always retain a precisely equal distance between the drive pulleys and the driven pulleys, on the cutter head, for equal tension of the belts.

6. Feeding the platen back and forth by friction slide A' and wheel D', and rack B' and pinion C', for the purposes set forth.

7. Reversing the movement of platen by means of screw M', and wheel O', for forcibly engaging the rack by its pinion, on the friction slide by its wheel.

8. Sliding, moving and attaching the crosshead M, carrying cutting cylinder O, on and to the uprights C, in and by adjustable gib slides N.

9. Pivoting the journal box H' for the friction feed shaft, and giving it a vertical adjustment, to both swing, and raise or fall with the feed shaft.

10. Several dogs, operated independently of each other to effectually hold several pieces firmly to the platen, for dressing at the same time, constructed substantially as described.

11. Sliding the feed rolls into position for use, and removing them from the machine by means of gib slides, so that these rolls are always secured for use and in position out of use by gib slides alone, and yet allow of a free movement, and to require no additional security.

12. Suspending, and moving crosshead for cutting cylinder by screws E, which are suspended in universal bearings and by universal nuts, to allow of a free untrammelled movement for adjustment and ease in operation, and to secure the cutter head parallel to platen at any elevation from its surface.

13. A conducting spout or trough A⁴, so connected with crosshead or other part as to receive and conduct the shavings from the cutting cylinder and the machine to any point desired by means of the current of air set in motion by the great velocity of the cutting cylinder.

14. An elastic pressure roll C⁴, so combined with a rigid revolving roll D⁴ and scraper F⁴ that either can be used at pleasure, with the elastic pressure roll to plane straight and out of wind.

15. The iron upright C, constructed with cavity or pocket for reception of elevating screws, when combined with bed piece of wood planing machine, all substantially in the manner or their mechanical equivalent, for the purposes fully set forth and described.

HENRY D. STOVER.

Witnesses:

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R. C. WRIGHT.