

3 Sheets—Sheet 1.

No. 483,527.

Patented Oct. 4, 1892.

FIG. 1.

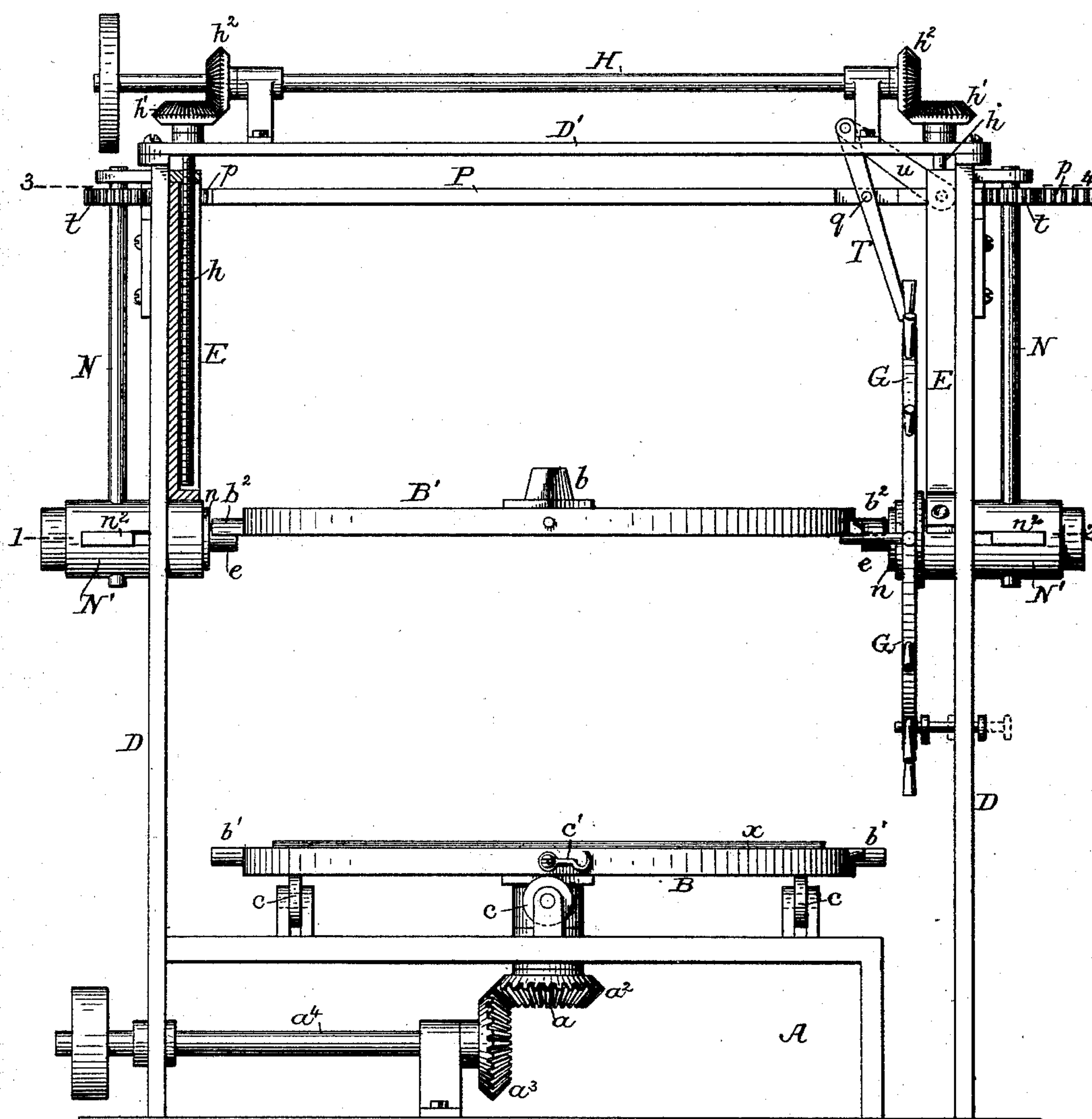
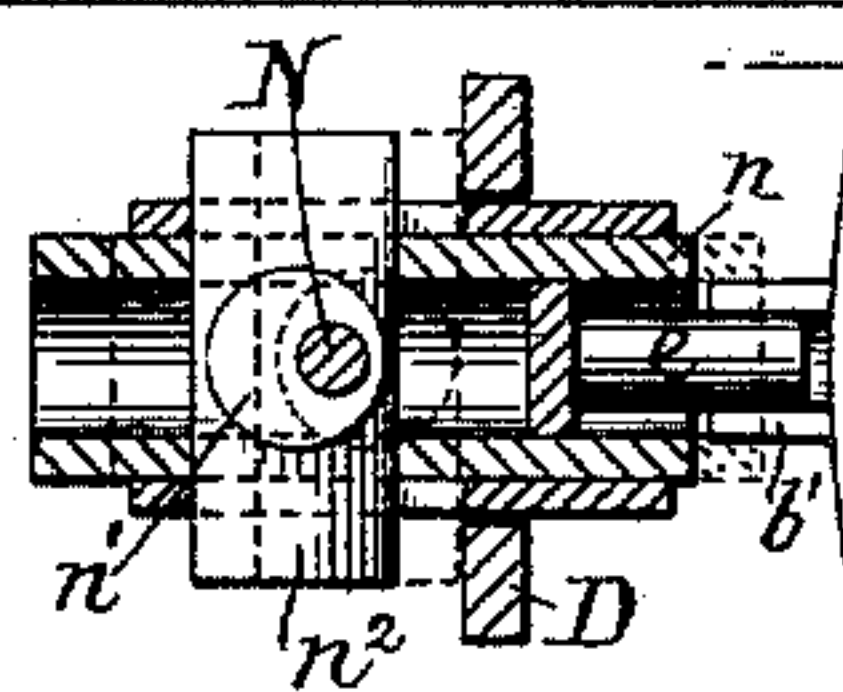
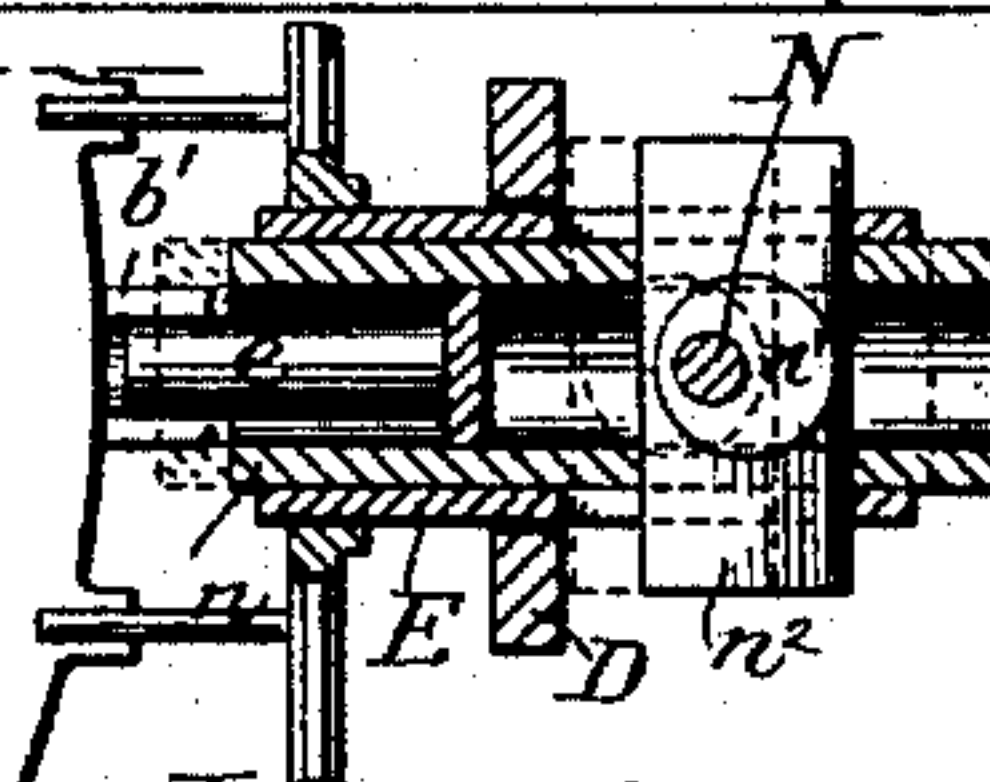


FIG. 3.



Witnesses:  
Murray C. Boyer  
A.V. Group.



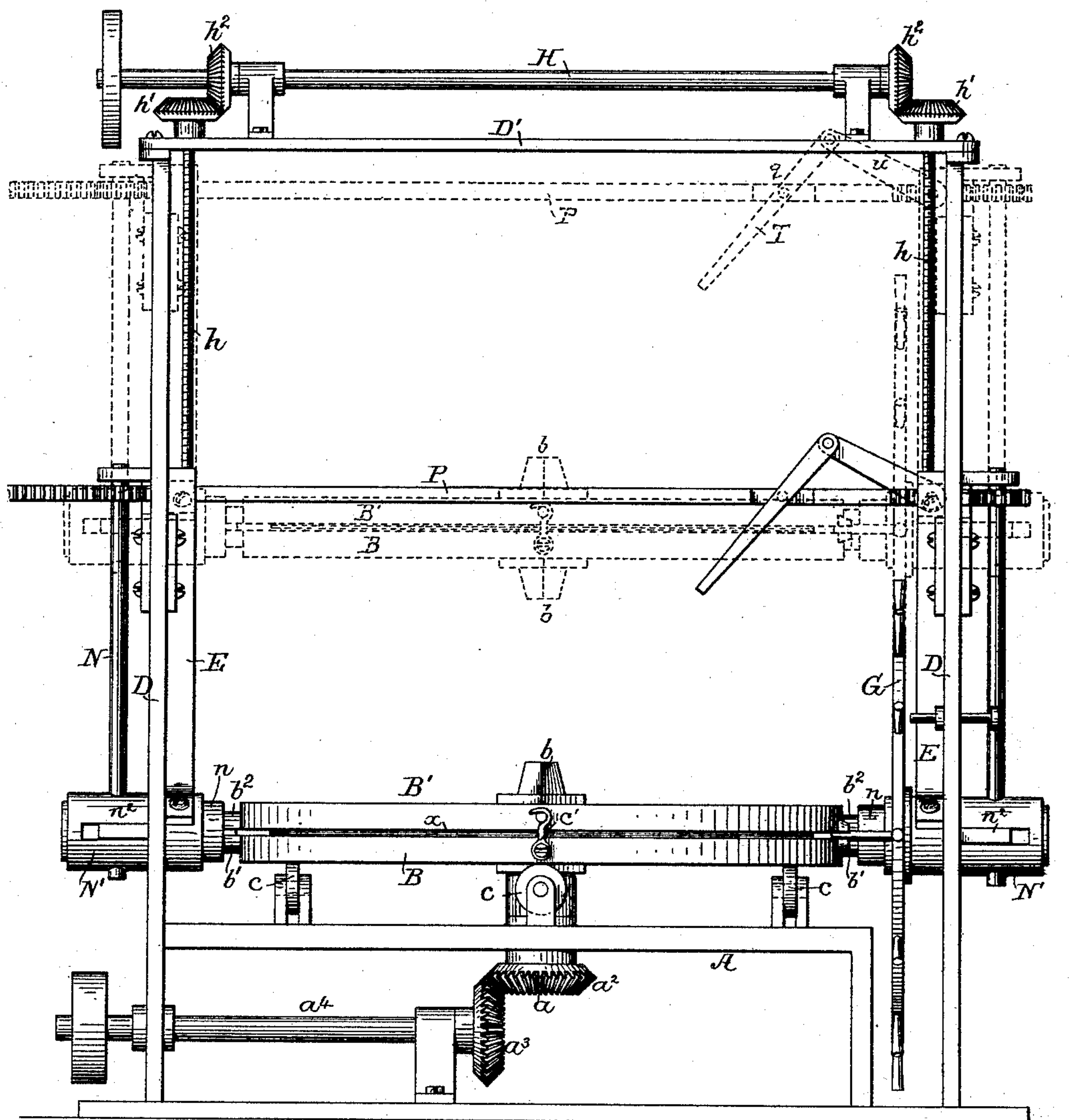
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J. W. BONTA.  
MACHINE FOR GRINDING GLASS.

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FIG. 2.



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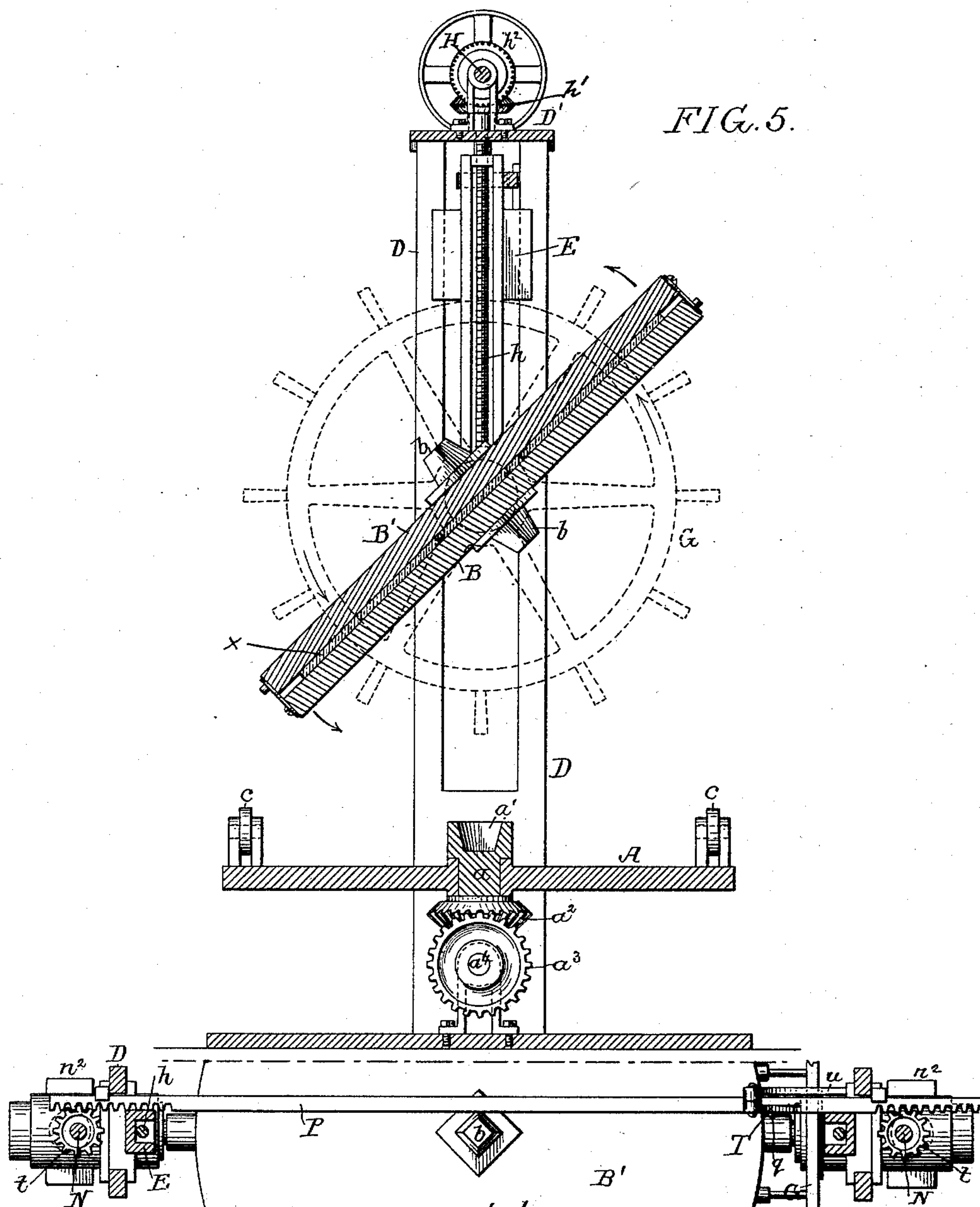
(No Model.)

3 Sheets—Sheet 3.

J. W. BONTA.  
MACHINE FOR GRINDING GLASS.

No. 483,527.

Patented Oct. 4, 1892.



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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR GRINDING GLASS.

SPECIFICATION forming part of Letters Patent No. 483,527, dated October 4, 1892.

Application filed August 27, 1891. Serial No. 403,846. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES W. BONTA, a citizen of the United States, and a resident of Wayne, Delaware county, Pennsylvania, have  
5 invented certain Improvements in Machines for Grinding Glass, of which the following is a specification.

The object of my invention is to provide means for reversing plate and sheet glass in  
10 a grinding-machine, so as to grind both surfaces of the glass, as fully described herein-after.

In the accompanying drawings, Figure 1 is a side view showing the grinding-bed of a  
15 grinding-machine with the mechanism for reversing the plate of glass, the grinding mechanism being omitted to avoid complication. Fig. 2 is a side view similar to that shown in Fig. 1, but showing the plate clamped be-  
20 tween the two platens ready to be lifted and reversed. Fig. 3 is a sectional plan on the line 1 2, Fig. 1. Fig. 4 is a sectional plan on the line 3 4, Fig. 1; and Fig. 5 is a transverse sectional view showing the glass clamped be-  
25 tween the two platens and in the act of being reversed.

Heretofore in the manufacture of glass, especially plate-glass, the glass is usually in very large sheets, and when placed on the  
30 bed or platen of the grinding-machine has to be handled very carefully in order to prevent it from cracking or breaking, and when turned so as to expose the opposite face after one face is ground it has to be handled with the  
35 greatest care by a number of men to prevent it from sagging and breaking, and a great percentage of the glass broken is broken during the grinding and during the adjusting of the plate to the grinding platen or bed.  
40 Therefore the main object of my invention is to handle the glass in a perfectly-safe manner and to dispense with the extra help heretofore needed, as by my invention one man can readily manipulate the glass.

45 Referring to the drawings, A is the base of the machine having a central shaft  $a$ , provided with a pocket  $a'$ , to receive the post  $b$  of the platen B, upon which the glass  $x$  rests. The platen is in the present instance also supported  
50 by antifriction-rollers  $c$ , arranged in suitable bearings on the base of the machine. The

shaft  $a$  has a bevel gear-wheel  $a^2$ , meshing with the bevel-wheel  $a^3$  on a shaft  $a^4$ , mounted in bearings in the base of the machine and provided with a belt-pulley. This shaft is the  
55 driving-shaft for turning the platen under the grinders, which are omitted to avoid confusion, as any suitable grinders may be used without departing from my invention.

D D are two standards connected together  
60 at their upper ends by the cross-bar D'. These standards are slotted, and adapted to slide in these slots are frames E E, carrying the pivots  $e e$ , upon which the platens are turned, as fully described hereinafter.

At each side of the platen B are bearings  
65  $b' b'$  for the pivot-pins  $e e$ , and resting upon the pins, as shown in Fig. 1, is a second platen B', having bearings  $b^2$ , and a post  $b$  similar to the post of the platen B.

The sliding frames E E are raised and  
70 lowered by mechanism which I will describe hereinafter.

On one of the pivot-pin carriers is a turn-  
75 ing-wheel G, by which the two platens are turned to reverse the plate of glass. The wheel has in the present instance two pins which pass between the platens, so that any rotary motion given to the wheel will be im-  
80 parted to the platens.

Before describing the mechanism by which  
80 the pivots are raised and lowered I will describe the operation of as much of the machine as I have noted above, as it will be understood that any suitable mechanism may be  
85 used for raising and lowering the platens.

The glass  $x$  is placed on the lower platen B in any suitable manner. The platen being removable, it can be detached from the grind-  
90 ing-machine, if necessary, and receive the glass at the most convenient point, and then be placed upon the machine. After one side of the glass has been ground the slides carrying the pivot-pin, on which is mounted the  
95 platen B', are lowered from the position shown in Fig. 1 to the position shown in Fig. 2, and when the second platen B' rests upon the glass the two platens B B' are secured to-  
100 gether in any suitable manner. In the present instance I have shown hooks  $c'$ ; but it may be necessary to use clamping-bolts, which will accommodate the different thick-



nesses of the glass. After the two platens are secured together, with the glass between them, they are raised to the position shown by dotted lines in Fig. 2 and then turned by the hand-wheel G, as shown in Fig. 5, so as to reverse the sheet of glass and the platens, the platen B' becoming the under platen. The two platens are then lowered to the position shown by full lines in Fig. 2 and uncoupled. The slides E are then raised to the position shown in Fig. 1, exposing the unground surface of the glass to the grinders. Thus the sheet of glass is reversed without the liability of its being broken, the whole operation being done very quickly and by the single attendant who has charge of the grinding-machine.

In place of the hand-wheel shown I may turn the platens from one of the power-driven shafts of the machine through intervening gearing and clutching mechanism.

I will now describe the mechanism by which the platens are raised and lowered. Adapted to each slide E is a vertical screw-rod  $h$ , having at its upper end a bevel-wheel  $h'$ , meshing with a bevel-wheel  $h^2$  on the shaft H. This shaft is provided with a belt-pulley and is driven from any power-shaft, so that on turning the shaft H the slides E E will be raised or lowered, according to the direction in which the shaft H is turned.

The shaft H is mounted in suitable bearings on the cross-bar D', and the screw-rods are also adapted to bearings in said cross-rod. In order to securely lock the two platens B B' to the pivot-pins, I provide laterally-adjustable sleeves  $n$ , (shown clearly in Fig. 3,) which can be forced out over the bearing  $b'$   $b^2$ , as clearly shown in Fig. 2, thus forming a lock in addition to the hooks. These sleeves are forced out by mechanism which I will now describe.

On the slides E E are two vertical shafts N N, one on each slide. On the lower end of each shaft is a cam  $n'$ , adapted to a cam-plate  $n^2$ , which extends through and is guided by the bearing N'. This cam-plate  $n^2$  snugly fits the sleeve N, so that any transverse motion given to the cam-plate by the cam will move the sleeve in or out, as shown by dotted lines in Fig. 3. At the upper end of each shaft is a gear-wheel  $t$ , meshing with the teeth  $p p$  of a rack-bar P. This rack-bar is moved by a lever T, pivoted to the rack-bar at  $q$  and to a link  $u$ , which in turn is pivoted to one of the

slides E, so that by moving the lever T from the position shown in Fig. 1 to the position shown in Fig. 2 the cams are turned and the sleeves forced out over the bearings of the two platens, firmly locking the platens together.

I claim as my invention—

1. The combination, in a grinding-machine, of the mechanism for rotating the glass under the grinders, a platen adapted to said mechanism and on which the glass to be ground is mounted, a second platen, also adapted to the rotating mechanism, means for securing the two platens together, and means for reversing the platens with the glass between them, substantially as described.

2. The combination of the two platens adapted to clamp the glass between them, mechanism for rotating the platen carrying the glass beneath the grinders, bearings on each of said platens, pivots adapted to said bearings, and vertically-adjustable frames carrying said pivots, substantially as described.

3. The combination of the two platens, mechanism for rotating the lower platen when in position, bearings on each of said platens, vertically-movable slides carrying pivot-pins adapted to the bearings, sleeves extending over said bearings, and mechanism for advancing and withdrawing said sleeves, substantially as described.

4. The combination of the two platens, the slides E E, pivot-pins on said slides, to which the platens are adapted, vertical screw-rods adapted to said slides, and a driving-shaft geared to both of said screw-rods, substantially as described.

5. The combination of the two platens, two slides, pivot-pins on said slides, adapted to bearings on the platens, mechanism for raising and lowering the said slides, sleeves on each slide capable of being moved over the bearings of the platens, vertical cam-shafts carried by the slides, cams on said shafts, adapted to move the sleeves, pinions on said shafts, with a rack-bar engaging said pinions, and mechanism for moving said rack-bar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES W. BONTA.

Witnesses:

WILLIAM M. STEWART, Jr.,  
HENRY HOWSON.