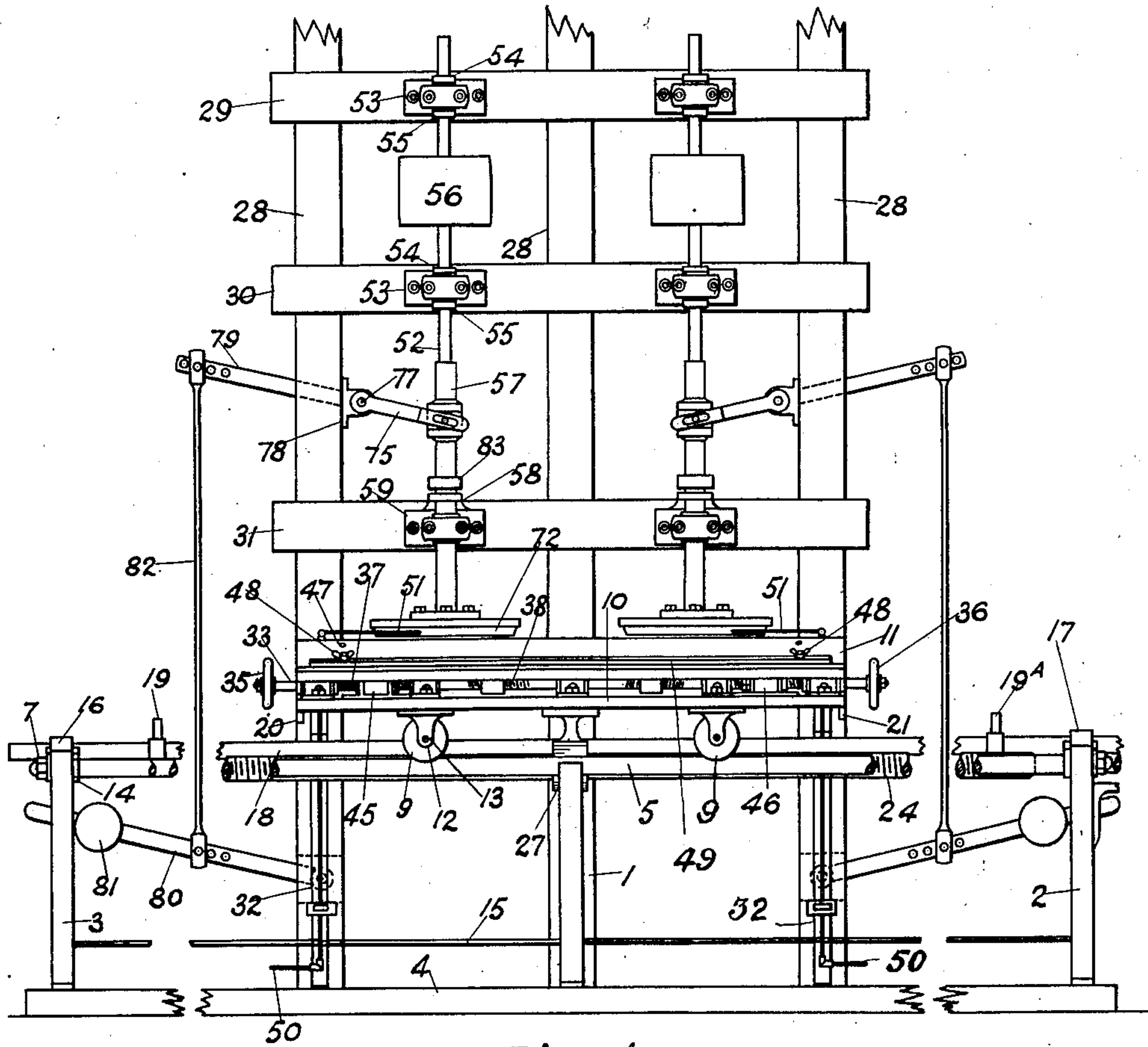


F. COTTERELL.  
GLASS BEVELING MACHINE.  
APPLICATION FILED OCT. 1, 1908.

922,087.

Patented May 18, 1909.

3 SHEETS—SHEET 1.



— Fig:1 —

WITNESSES:

Edw. D. Spring.

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922,087.

3 SHEETS—SHEET 2.



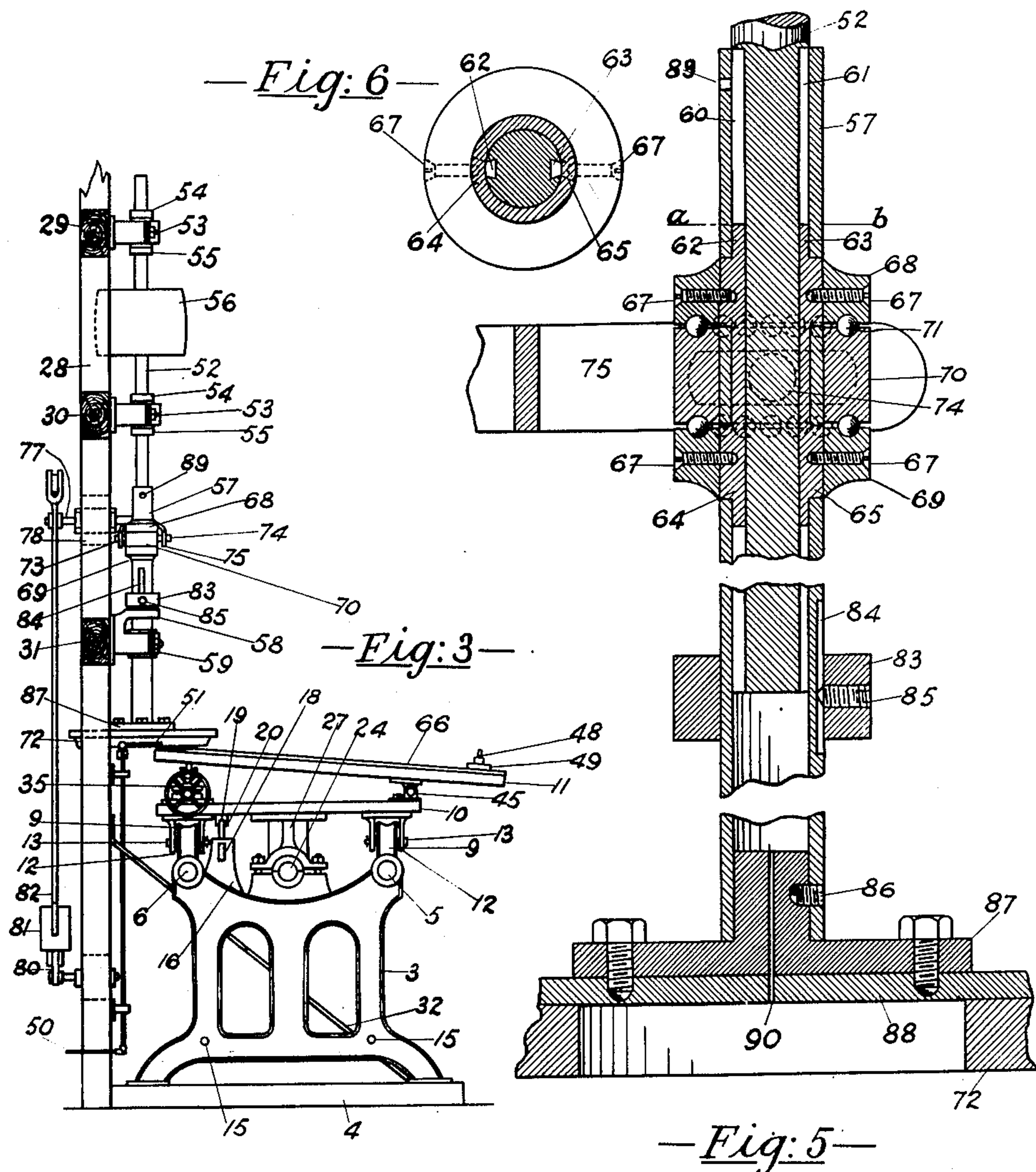
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

FREDERICK COTTERELL, OF MELBOURNE, VICTORIA, AUSTRALIA.

## GLASS-BEVELING MACHINE.

No. 922,087.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed October 1, 1908. Serial No. 455,692.

### *To all whom it may concern:*

Be it known that I, FREDERICK COTTERELL, a subject of the King of Great Britain and Ireland, residing at 41 Lonsdale street, Melbourne, in the State of Victoria, Commonwealth of Australia, have invented certain new and useful Improvements in Glass-Beveling Machines, of which the following is a specification.

10 The invention has for its object, first, to provide a simple and efficient means, comprising undergear for giving rigidity and support beneath the grinding edge of the machine table while the glass is being beveled by means of grinding disks and at the  
15 same time to allow of any angle of bevel to be ground perfectly straight, smooth, and uniform on the sides or edges of plate or sheet glass.

20 The invention has also for its object to provide means, comprising overhead gear carried by a suitable framing and provided with weighted balance levers so that the grinding pressure can be controlled and  
25 regulated on the sides or edges of the glass while being beveled, and, further, means for adjusting certain parts of the overhead gear so that the grinding disks may make any required width or size of bevel on the sides or  
30 edges of the plate or sheet glass.

The invention will be better understood upon reference to the accompanying sheets of drawings in which like letters represent like parts in all the views.

35 Figure 1 is a front elevation of a beveling machine showing my improvements thereon. Fig. 2 is a plan of Fig. 1. Fig. 3 is an end elevation of Fig. 1. Fig. 4 is an enlarged elevation of one half part of my undergear.  
40 Fig. 5 is an enlarged sectional elevation of the adjustable and operating parts of my overhead gear which act in conjunction with the forked and weighted balance levers. Fig. 6 is a sectional plan of the vertical operating spindle and adjustable sleeve of said  
45 overhead gear taken upon the horizontal lines *a, b*, of Fig. 5.

In the drawings which are to be read with this specification (1) (2) and (3) represent  
50 the central and end cheeks of the machine frame suitably bolted to the wooden joists (4) to support the horizontal guide rails (5) and (6) the ends of which are screw threaded and passed through flanged receiving holes made in said end cheeks (2)  
55 and (3) fastened securely in position by

means of four nuts (7) while the central cheek (1) is made with semi-circular flanged recesses to also support said rails and allow of the four wheels (9) moving to and fro  
60 with the traveling carriage (10) and machine table (11). Said wheels are carried by the four brackets (12) provided with axle pins (13) and bolted to the underside of said traveling carriage. The rails (5) 65 and (6) are fixed parallel with each other the full length of the machine frame and have each two distance collars (14) which bear against the end cheeks (2) and (3). (15) are two horizontal stays suitably con- 70 nected with said cheeks and also the central one to further render them more secure in their respective positions upon said joists (4). Projected upwardly from the said end cheeks (2) and (3) are the lugs (16) 75 and (17) made each with an aperture to carry the horizontal sliding bar (18) provided with the two adjustable tappets (19) and (19<sup>A</sup>) against which the ear pieces (20) and (21) depending from each end of the 80 table (11) strike, for the purpose of reversing the action of the driving belt (not shown) working on the fast pulley (22) upon the end of the leading screw (24). This screw is provided with collars (25) 85 and (26) at its end portions and engages with the sleeve nut (27) which is suitably flanged and bolted to the center of the underside of the traveling carriage (10).

The various parts as previously described 90 are common to glass beveling machines and do not form any part of my present invention.

Now the framing for my overhead gear is comprised of the three vertical wooden posts 95 (28) into which are halved and fixed at suitable heights the cross bars (29) (30) and (31), while suitable braces or stays (32) are employed for securely holding said framing in position. It may be here explained 100 that as the machine is provided with duplex undergear as my first improvement, and also duplex overhead gear with weighted balance levers and grinding disks, I will only describe each form of gear, as the 105 various duplex parts are exactly alike, not only in construction, but also in combination and arrangement.

The undergear herein referred to as my first improvement is situated beneath the 110 grinding edge portion of the reciprocating table (11) and upon the traveling carriage



(10) and is comprised of the horizontal operating spindle (33) carried by the five plumber block bearings (34) shown as bolted to said traveling carriage, and provided with the hand operating wheels (35) and (36) near its outer ends. This spindle (33) has right and left hand screw threaded portions (37) and (38) which are made of larger diameter than the plain parts while the latter allow of the movable sleeve nuts (39) and (40) being placed thereon. These sleeve nuts (39) and (40) are provided with lugs (41) to which are suitably pivoted or jointed the angularly arranged forked arms (42) and (42<sup>A</sup>) which also connect with the projecting lugs (43) of the plate (44) which is securely bolted to the underside of said reciprocating table (11) at about its rear edge. This table (11) is pivoted near its front edge to the traveling carriage (10) by means of the two knuckle joint connections (45) and (46) so as to permit of adjustment to any desired angle. Adjacent to the ends of said table are made several screw threaded holes (47) in parallel line to receive the two thumb screws (48) which are used for holding down the adjustable wooden bar (49) upon the table (11) so that any width of glass say from 2½ inches wide and upward can be held down in position upon the table while the beveling takes place. Two feed pipes (50) with swinging arms (51) are provided for supplying water to said grinding disks while operating upon the glass (66).

The overhead gear constituting my second improvement consists of the vertical operating spindle (52) arranged to revolve in the two bearings (53) bolted to the cross bars (29) and (30) of the framing and having the two supporting collars (54) on the top side of the bearings (53) and two lower collars (55) so as to prevent any upward lift while revolved by the belt driven pulley (56). Upon the lower half portion of this spindle (52) the sliding sleeve (57) is neatly fitted and carried by the bracket (58) and the bearing (59) bolted to the framing hereinbefore described. Said spindle has two dovetail shaped longitudinal feather key channels (60) and (61) diametrically formed opposite each other to receive and allow for the vertical sliding of the two feather keys (62) and (63) secured to said sliding sleeve and having the same shape as said channels. These keys have each two shoulders (64) and (65) dovetail shaped as in the sectional plan Fig. 6 to fit into correspondingly shaped slots provided in said sliding sleeve. Said slots and shoulders are made of greater width than the sliding part of the keys in order to obtain a greater width of metal to receive the inner ends of the countersink set screws (67) which hold them securely in position together with the end caps (68) and (69), be-

tween which is situated a loose collar (70) upon the sliding sleeve (57). In the faces of this collar and caps are formed the circular grooves all of the same size and depth to contain anti-friction balls (71) and thereby constitute a ball bearing so that said sliding sleeve (57) carrying the grinding disks (72) aforesaid can revolve with the vertical operating spindle (52) or be easily raised or lowered thereon. (73) and (74) are two pins screwed into said collar and projected diametrically opposite each other for engagement with the slotted ends of the fork (75) having its arm extended from the horizontal axle (77) provided with two collars and carried by the bearing (78) fixed to one of the vertical posts (28). From said axle (77) is also projected the arm (79) and at a lower portion of said framing is pivoted the lever (80) having the adjustable balance weight (81), the rod (82) forming the connection between said arm (79) and lever (80).

The means for adjusting the vertically sliding sleeve of my overhead gear consist of the adjusting collar (83) arranged upon said sleeve (57) in which is formed the longitudinal groove (84). Said collar (83) is provided with the set screw (85) which may be tightened or loosened so that it may be adjusted either upwardly or downwardly upon said sleeve and securely fixed at a part determined upon in order that the grinding disks may only come down to the required point to permit of the desired width of bevel being ground upon the glass. By means of the set screw (86) I secure in the lower end portion of said sliding sleeve (57) the shank of the disk (87) to which is bolted the circular plate (88) for carrying the grinding disk (72) suitably attached thereto.

The operation of the various parts of the machine is as follows:—As the traveling carriage (10) and machine table (11) move along with the wheels (9) upon the guide rails (5) and (6) said table is reciprocated to and fro beneath the grinding disks (72) by means of the leading screw (24) engaging the sleeve nut (27). This screw is operated by the employment of parallel and cross belting for alternately driving the pulley (22) as the ear pieces (20) and (21) strike the tappets (19) and (19<sup>A</sup>) and move the belt shifting bar (18). When it is required to adjust the table (11) by means of the undergear in order that a greater or lesser bevel may be given to the edge of the glass, the spindle (33) is operated by the hand wheels (35) and (36) so as to move the sleeve nuts (39) and (40) upon the right and left hand screw threaded portions. These nuts actuate the pivoted arms (42) and (42<sup>A</sup>) connected to the table and as these sleeve nuts and arms of each set spread apart the grinding edge of the reciprocating



table is lowered, or raised when they are brought toward each other, at the same time the required rigidity of table is maintained throughout the varying adjustments. In the overhead gear, the adjustment of the grinding pressure is effected by altering the position of the weight (81) upon the pivoted lever (80) so that the rod (82), arm (79) and the fork connection (75) made with the ball bearing will serve to balance the weight of the sliding sleeve (57) and grinding disk, or when desired, the latter may be raised by holding down said weighted lever (80) which when set free will allow of the sleeve (57) and grinding disk assuming the lowest working position which is determined upon or limited by first setting the adjusting collar (83) so that the beveling will be effected according to the adjustments made. The rotation of said sliding sleeve (57) with the vertical operating spindle (52) being effected by means of the feather keys (62) and (63) engaging the channels (60) and (61) which also serve to permit of their sliding up and down when said sleeve and grinding disk are to be either raised or lowered. As this sleeve (57) moves vertically on said spindle (52) any cushioned air that may be within it will escape through the outlets (89) and (90) made in said sleeve, shank of the disk (87), and plate (88) respectively.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a glass beveling machine, the combination with the table, means for reciprocating said table, a second table having its front end hinged to the front end of the reciprocating table, a rod carried by the rear end of the reciprocating table, said rod having

right and left hand screw threaded portions thereon, and a handle wheel for rotating the rod, nuts engaging said screw threaded portions, and inclined links connecting said nuts with the rear underside of the second table whereby said table may be inclined.

2. In a glass beveling machine, the combination of overhead gearing, comprising a vertical operating spindle, a sliding sleeve keyed on said spindle and having longitudinal movement thereon, a grinding disk carried by said sleeve, a collar loosely carried by said sleeve, ball bearings between the collar and the sleeve, a two arm lever having one end connected with the collar, and an adjustable weight connected with the other arm of said lever.

3. In a glass beveling machine, the combination with the vertical operating spindle, a sleeve keyed on said spindle and having longitudinal movement thereon, a collar loosely carried by the sleeve, a two-arm lever having one arm connected to the collar, an adjustable weight connected with the other arm of said lever, said sleeve having a longitudinally extending groove near its lower end, a collar 83 surrounding the sleeve adjacent the collar, and a screw passing through said collar and adapted to engage in said groove, said collar acting as an adjustable stop for limiting the downward movement of the sleeve.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FREDERICK COTTERELL.

Witnesses:

ALBERT E. S. SWANSON,  
CHARLES HARKETT.