

No. 725,288.

PATENTED APR. 14, 1903.

L. ROUAULT.
MACHINE FOR CUTTING GLASS.

APPLICATION FILED DEC. 20, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

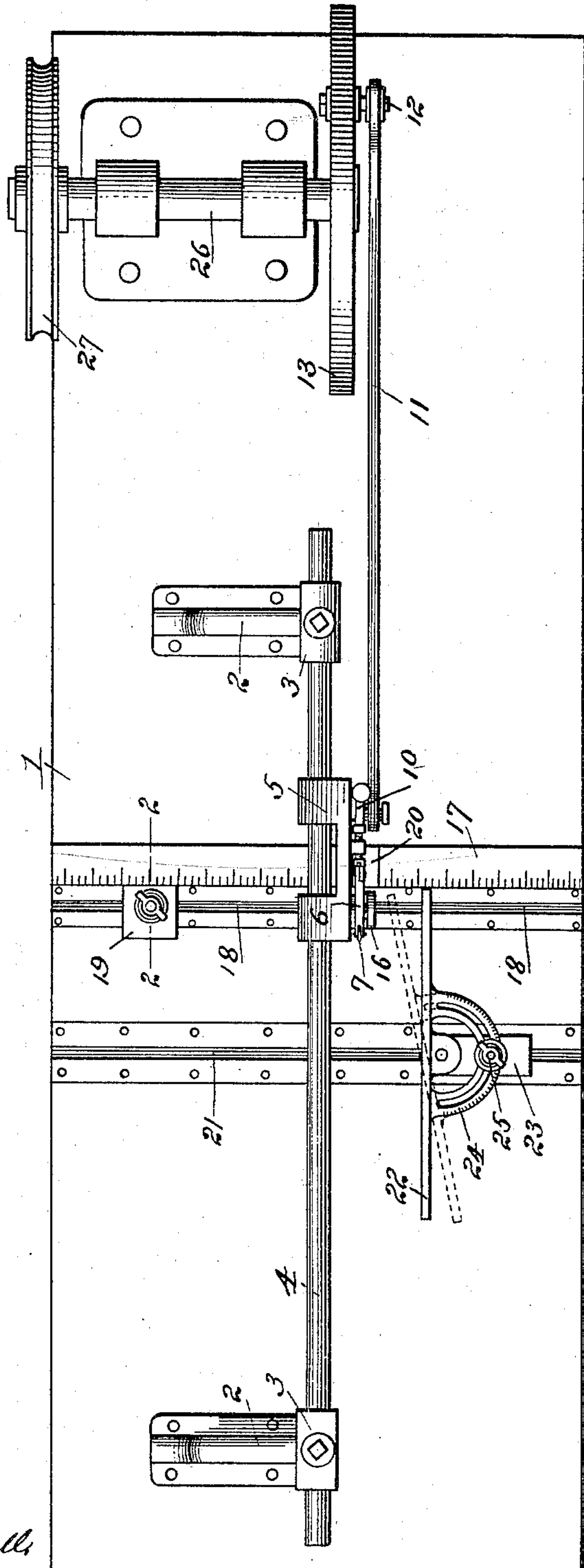
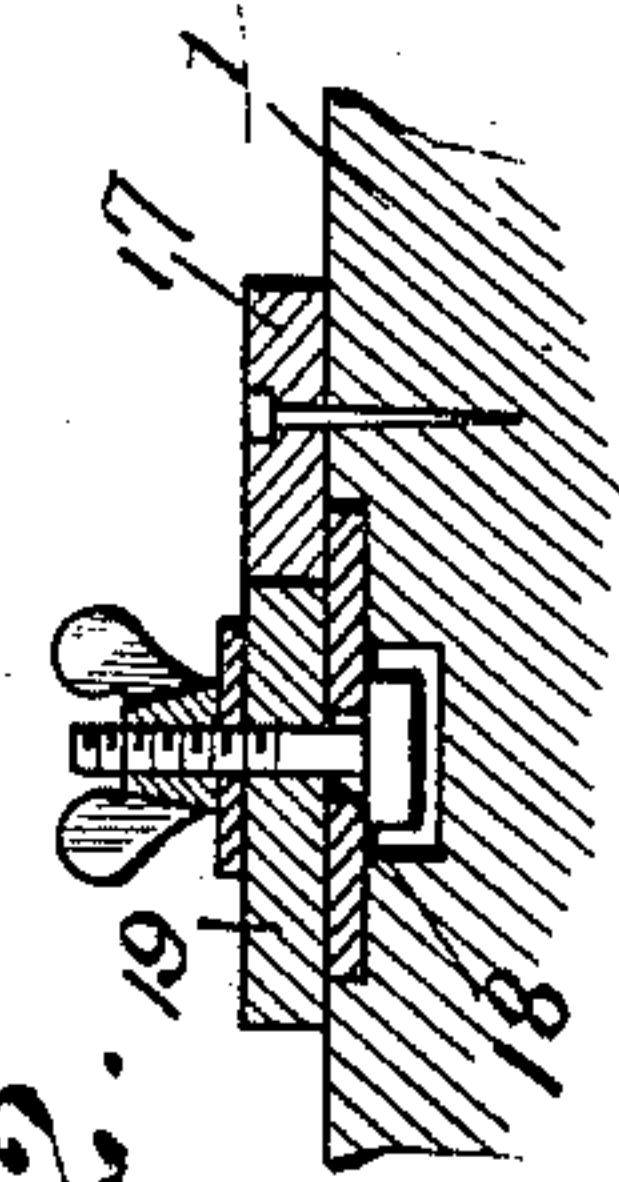


Fig. 2.



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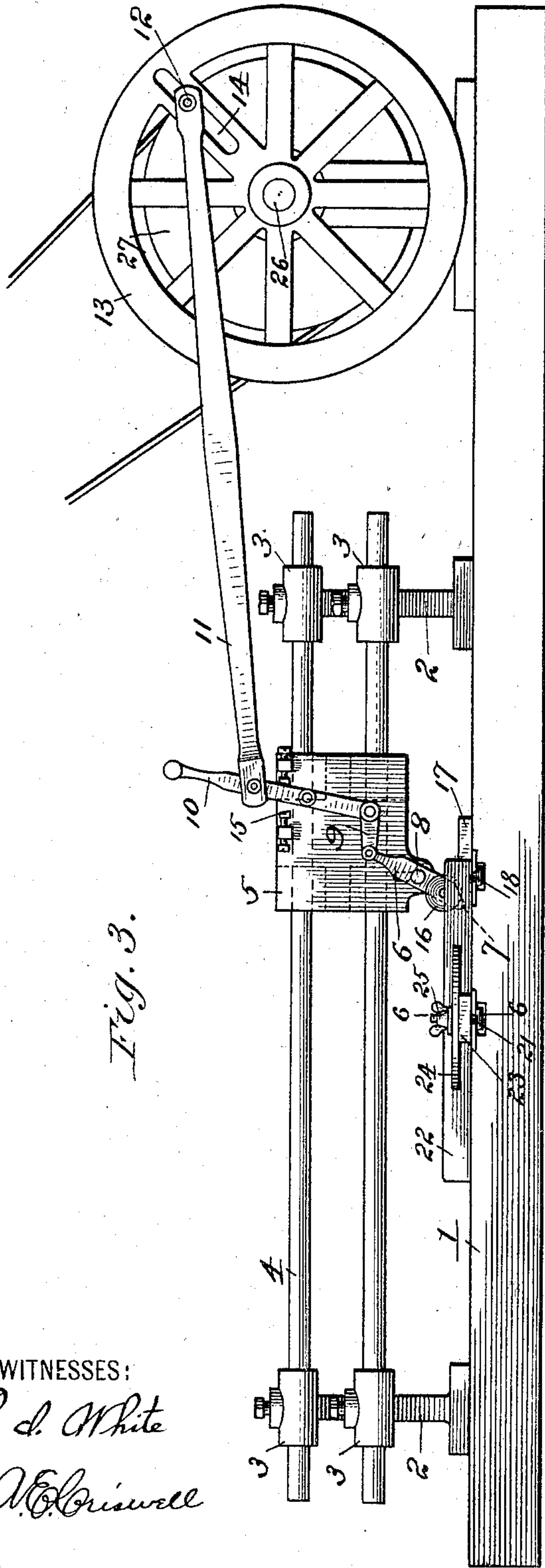
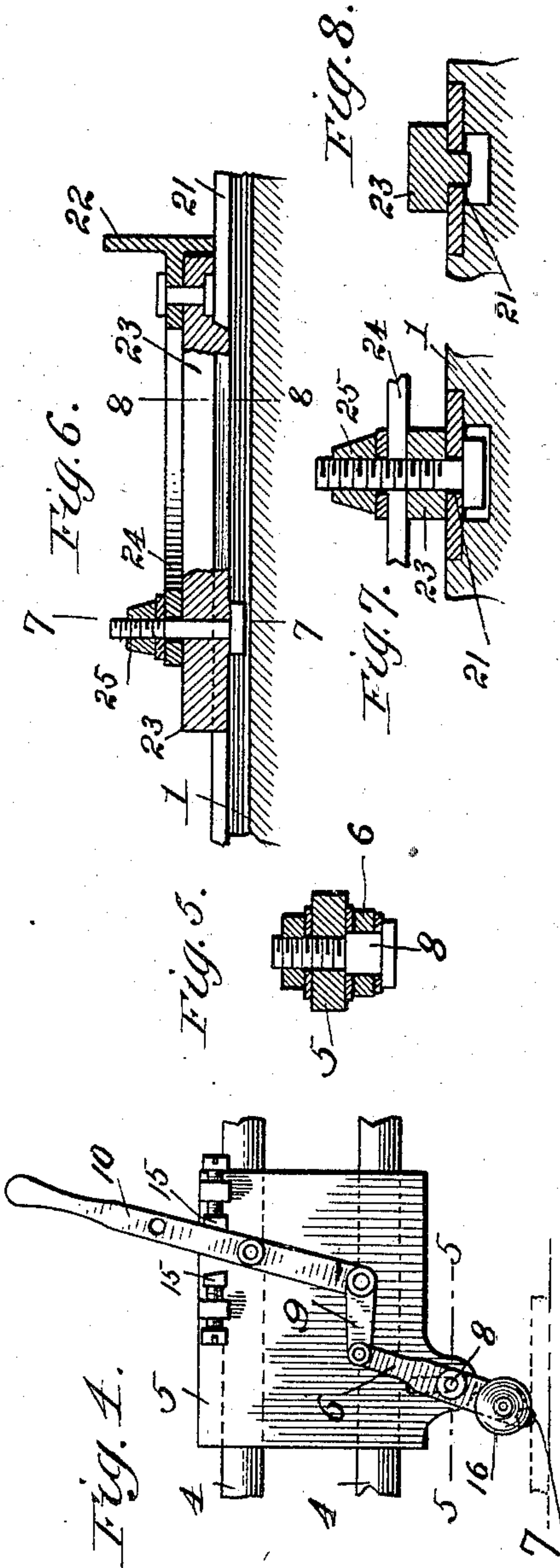


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING GLASS.

SPECIFICATION forming part of Letters Patent No. 725,288, dated April 14, 1903.

Application filed December 20, 1902. Serial No. 136,003. (No model.)

To all whom it may concern:

Be it known that I, LOUIS ROUAULT, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Machines for Cutting Glass, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

Figure 1 is a plan view; Fig. 2, a detail sectional view on the line 2 2 of Fig. 1 through one of the adjustable stops or gages; Fig. 3, a side elevation; Fig. 4, a detail side elevation of the carriage on which the cutter is mounted; Fig. 5, a detail horizontal section on the line 5 5 of Fig. 4, showing the manner of mounting the cutter-carrying device on the carriage; Fig. 6, a detail sectional view taken on the line 6 6 of Fig. 3, showing the manner of mounting the pivoted gage on the table; Fig. 7, a detail sectional view on the line 7 7 of Fig. 6, and Fig. 8 a similar sectional view on the line 8 8 of Fig. 6.

The main object of this invention is to produce a machine by which sheets of glass may be readily and quickly cut into small angular pieces, suitable stops and adjustable gages being provided whereby the sheets may be cut to the proper size.

Another object of the invention is to provide means by which the sheets may be cut into small pieces whose sides will be inclined with respect to each other in order that pieces of practically any angular shape may be produced.

Other and equally important objects will appear hereinafter.

Referring to the various parts by numerals, 1 designates the table or bed on which the glass is manipulated. On this table at a suitable distance from each other are two upright standards 2, each of said standards having two bearings 3, said bearings being located in the same vertical plane one above the other. Rigidly secured in these standards are two parallel rods 4, which form ways on which are mounted a reciprocating carriage 5. These ways are shown as cylindrical rods; but it is obvious that they may be angular in cross-section. It is also obvious that they may be arranged in the same

horizontal plane, if desired. Pivotally mounted on the carriage, near the lower edge thereof, is an upright lever 6, which carries at its lower end the glass-cutting wheel 7. It is obvious that this cutting device may be a diamond or other suitable glass-cutting means. This cutter-carrying lever is mounted on a bolt 8, which passes through a vertical slot in the carriage, said bolt being vertically adjustable in the slot in order that the cutting device may be vertically adjusted to adapt it to sheets of glass of various thicknesses. The upper end of the cutter-carrying lever is pivotally connected to one end of a link 9, the other end of this link being pivotally connected to the lower end of an operating-lever 10. This operating-lever is pivoted to the carriage near the upper edge thereof, the distance between the center of its pivot and the center of its connection to the link being substantially equal to the distance between the center of the pivot of the cutter-carrying lever and the center of its connection to the link in order that the leverage exerted on the cutter-carrying lever will not be too great.

To the operating-lever, above its pivot, is connected one end of a pitman 11, whose other end is pivotally connected to a crank-pin 12 of the wheel 13. The crank-pin is readily adjustable in the slot 14 of the wheel in order to vary the movement of the carriage. On the carriage, above the pivot of the operating-lever and on each side of said lever, are adjustable stops 15, against which said lever is forced by the pitman as the carriage is reciprocated. When the carriage is moved inward toward the crank-disk, the operating-lever is drawn inward against the inner stop and the cutting device is forced down on the glass to be cut, and when the carriage is moved outward the operating-lever is shifted against the outer stop, thereby raising the cutting device from the sheet of glass and holding it in that position during the outward movement of the carriage, thus permitting the glass to be shifted under the cutter and into position to be cut as the carriage is again moved inward. To adapt the cutting device to sheets of glass of various thicknesses, the cutter-carrying lever may be raised or lowered in the slot in the carriage, or, if desired, the

stops for the operating-lever may be adjusted inward or outward to vary the movement of said lever and in that way vary the swing of the cutter-carrying lever, thus bringing the cutting device in the lower end of the said lever nearer to or farther from the surface of the table.

It frequently happens that a sheet of glass varies in thickness and it is desirable to provide means to prevent the cutting device being forced too far into the glass at the point of greatest thickness. To accomplish this, the pressure-wheel 16 is mounted on the cutter-carrying lever in such a position that the lowermost point of said wheel will be very slightly above the lower cutting edge of the cutting device and slightly forward of the cutting device. The object of this is to permit the pressure-wheel to bear on the glass slightly forward of the cutting device, and to thereby regulate the depth of the cut made by the cutting-wheel. It is obvious that this pressure-wheel will ride over any inequalities in the surface of the glass and will cause the cutting device to move correspondingly over said inequalities. As the cutter-carrying lever is in an inclined position during the cutting operation, the pivot of the pressure-wheel is out of the vertical line of the center of the pivot of said lever, and upward pressure on said pressure-wheel will cause the cutter-carrying lever to move slightly on its pivot. As the glass sheet during the cutting operation is lying perfectly flat on the bed and the pressure-wheel is forward of the cutting device, there will be no danger of said pressure-wheel fracturing the glass. The pitman is detachably connected to the operating-lever, and said lever is extended above the pitman connection. The purpose of this is that whenever it is desired the pitman may be disconnected and the carriage reciprocated by hand. In cutting large sheets of glass considerable time is required in which to shift them and properly place the sheet with respect to the cutter, and it is desirable that the carriage be moved out of the way to permit of the free manipulation of the sheet. In these cases it is desirable that the pitman be disconnected and the carriage reciprocated by hand. It will be noted that by providing the operating-lever and connecting the lower end thereof, by means of a link, with the upper end of the cutter-carrying lever the upper end of the operating-lever and the carriage are moved in the same direction to force the cutting device down on the glass and to move the cutter over the sheet of glass and that the reverse movement of the lever and the carriage raises the cutting device from the glass and moves the carriage into position for the next cutting operation.

On the table-top or bed of the machine is secured a rigid stop-bar 17, which extends at right angles to the axial line of the carriage-ways and the line of movement of the cutter. This stop-bar is located at a point near the inner end of the movement of the carriage.

Extending across the bed adjacent to and parallel with this stop-bar is a groove 18, in which is adjustably mounted a stop-block 19, against which the edge of the glass is to be placed. The stop-bar 17 is provided with gage-marks by which the stop-block 19 may be adjusted. A slot 20 is formed through the stop-bar 17 to permit the cutter to pass through said stop at the inner end of its movement.

In the bed 1 and parallel with the groove 18 therein is formed a groove 21, in which is adjustably mounted a pivoted gage 22. This gage is pivotally mounted on a block 23 and is provided with the slotted circle-bar 24, a binding-screw 25 passing through the said slot of said bar and through the bar 23 and clamping the gage at any desired point in said slot. The circle-bar is graduated with degree-marks, and by loosening the binding-nut 25 the gage-bar 22 may be set at any desired inclination with respect to the line of movement of the cutter. It is apparent that by setting this gage-bar at the proper inclination glass pieces having the desired angular formation may be cut. The groove 21 extends on both sides of the carriage in order that the gage 22 may be located either on one side or the other, as desired.

The crank-disk is mounted on a short shaft 26, which carries a driving-wheel 27. This driving-wheel may be a belt-wheel, as shown in the drawings, or of any other suitable form.

One of the main objects or purposes of this invention is to provide a machine by which scraps of glass known to the trade as "breakage" may be squared up so that it may be put to some commercial use. In squaring this breakage, which of course is in very irregular forms, it is first necessary to so cut the pieces as to form one straight edge, and with this as a guide the other three straight edges may be secured to form the rectangular piece. With the present invention this squaring up of irregular pieces is a very simple matter, it being necessary to simply place the sheet of glass under the cutter in any desired position and the first straight edge is secured. Then by turning the sheet of glass to bring this straight edge against the stop-bar 17 the second straight edge may be formed, and so on until the piece is rectangular. The breakage is usually cut up into very small rectangular pieces, and another object of this invention is to permit these pieces to be cut very rapidly and very accurately. It will be readily seen that if the workman merely has to shift the piece of glass under the cutter and against the stops this may be done very rapidly, whereas by the hand method he must not only shift the glass to the proper position, but must hold his straight-edge and manipulate the cutter.

From the foregoing it will be seen that I provide a machine by which large sheets may be readily and quickly cut into small pieces of practically any angular formation, that glass of various thicknesses may be manipulated in

the machine, and that irregular-shaped sheets may be squared rapidly and accurately.

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

1. In a glass-cutting machine, the combination of a suitable bed or table, horizontal ways supported above said table, a carriage mounted to reciprocate on said ways, a vertically-movable cutter mounted on said carriage, an operating-lever pivoted on said carriage, and means connecting said lever to the cutter whereby said cutter may be lowered when the carriage is moved in one direction and raised when the carriage is moved in the reverse direction, and means connected to the operating-lever for reciprocating the carriage.

2. In a glass-cutting machine, the combination of a suitable bed or table, horizontal ways supported above said table, a carriage mounted on said ways, a vertically-movable cutter, and means for reciprocating said carriage, said means being connected to the cutter whereby as the carriage is moved in one direction, the cutter will be raised, and as the carriage is moved in the reverse direction, the cutter will be lowered.

3. In a glass-cutting machine, the combination of a suitable table, horizontal ways supported above said table a carriage mounted on said ways, a cutter-carrying lever pivoted on said carriage, a cutter carried in the lower end of said lever, a link connected to the upper end of said lever, an operating-lever pivoted on the carriage its lower end being connected to one end of the link, and stops on the carriage above the pivot of the operating-lever and with which said lever is adapted to contact.

4. In a glass-cutting machine, the combination of a table, a reciprocable carriage supported above said table, a cutter-carrying lever pivoted on said carriage, a cutter carried on the lower end of said lever, an operating-lever connected to the cutter-carrying lever, and means for varying the movement of the cutter-carrying lever, whereby the cutter may be adapted to cut glass of varying thicknesses.

5. In a glass-cutting machine, the combination of a suitable table or support, a reciprocable carriage above said table, a cutter-carrying lever pivoted on said carriage, an operating-lever pivoted on said carriage, a link connecting the lower end of the operating-lever to the upper end of the cutter-carrying lever, a pitman connected to the operating-lever above its pivot, means for reciprocating the pitman, and means for limiting the movement of the operating-lever.

6. In a glass-cutting machine, the combination of a suitable table, a reciprocable carriage above said table, horizontal ways for said carriage, a vertically-movable cutter-carrying device secured to said carriage, an operating device secured to the carriage and by which it may be moved in either direction,

means connecting said operating device to the cutter-carrying device whereby this latter device will be forced down on the glass to be cut when the carriage is moved in one direction by the operating device, and will be raised from the glass when the strain on the operating device is reversed to reverse the movement of the carriage.

7. In a glass-cutting machine, the combination of a suitable bed, horizontal ways above said bed, a carriage mounted to reciprocate on said ways, a vertically-movable cutter-carrying device mounted on said carriage, an operating-lever on said carriage, and means connecting said lever to the cutter-carrying device whereby the said device will be lowered when the carriage is moved in one direction through the operating-lever, and raised when the carriage is moved in the reverse direction by reversing the strain on the operating-lever.

8. In a glass-cutting machine, the combination of a suitable bed, horizontal ways above said bed, a carriage mounted to reciprocate on said ways, a vertically-movable cutter-carrying device mounted on said carriage, an operating-lever on said carriage, means connecting said lever to the cutter-carrying device whereby the said device will be lowered when the carriage is moved in one direction through the operating-lever, and raised when the carriage is moved in the reverse direction by reversing the strain on the operating-lever, a gage on the bed at right angles to the line of movement of the cutter, and a movable stop adjustable along said gage and having a face parallel with the line of movement of the cutter and perpendicular to the gage.

9. In a glass-cutting machine, the combination of a suitable bed, horizontal ways above said bed, a carriage mounted to reciprocate on said ways, a vertically-movable cutter-carrying device mounted on said carriage, an operating-lever on said carriage, means connecting said lever to the cutter-carrying device whereby the said device will be lowered when the carriage is moved in one direction through the operating-lever, and raised when the carriage is moved in the reverse direction by reversing the strain on the operating-lever, a groove being formed in the bed perpendicular to the line of movement of the cutter, a block adjustable in said groove, a gage-bar pivoted to said block, and means for adjusting said gage-bar on its pivot to any desired angle with respect to the line of movement of the cutter.

10. In a glass-cutting machine, the combination of a suitable bed, horizontal ways above said bed, a carriage mounted to reciprocate on said ways, a vertically-movable cutter-carrying device mounted on said carriage, an operating-lever on said carriage, means connecting said lever to the cutter-carrying device whereby said device will be lowered when the carriage is moved in one direction

through the operating-lever, and raised when the carriage is moved in the reverse direction by reversing the strain on the operating-lever, and a pressure-wheel carried by said cutter-carrying device and adapted to bear on the glass to limit the depth of the cut made by the cutting device.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 19th day of December, 1902.

LOUIS ROUAULT.

Witnesses:

SAMUEL HIRSCHBERG,
JOE DREYFUSS.