(No Model.)

M. M. SMITH & F. ARMBRUST.

MACHINE FOR CUTTING GLASS.

No. 351,219. Patented Oct. 19, 1886.

Fig. 1.

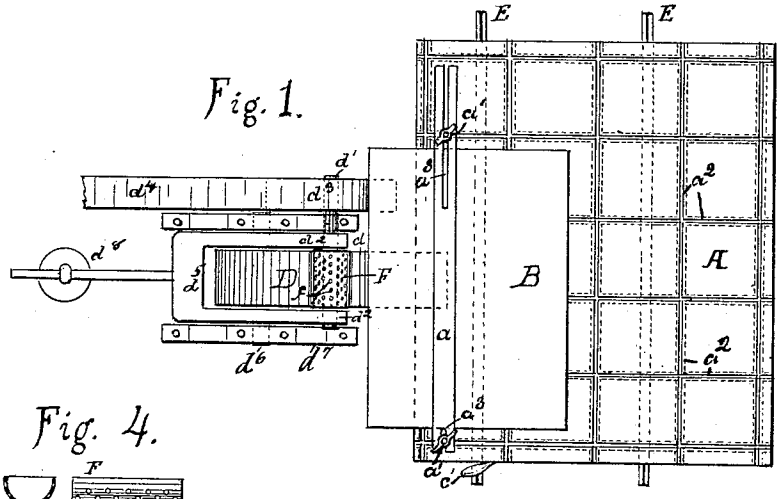


Fig. 4.

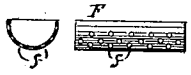


Fig. 2.

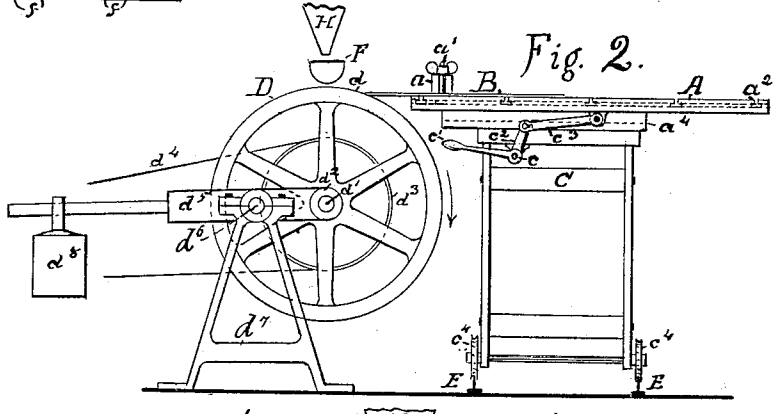
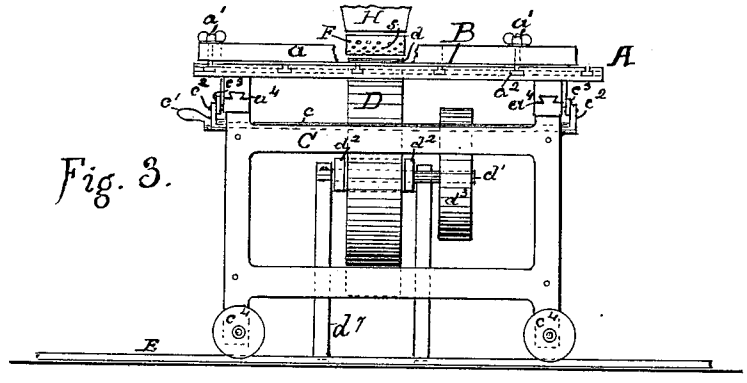


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

MINARD M. SMITH AND FERDINAND ARMBRUST, OF NEW YORK, N. Y.

MACHINE FOR CUTTING GLASS.

SPECIFICATION forming part of Letters Patent No. 351,219, dated October 19, 1886.

Application filed March 2, 1886. Serial No. 193,791. (No model.)

To all whom it may concern:

Be it known that we, MINARD M. SMITH and FERDINAND ARMBRUST, citizens of the United States, and residents of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Machines for Cutting Glass, of which the following is a specification.

In the drawings, Figure 1 is a plan view of our invention as in operation. Fig. 2 is an end view of Fig. 1. Fig. 3 is a side view of Fig. 1. Fig. 4 is an enlarged view of a detail. The same letters refer to the same parts throughout.

The object of our invention is to enable the operating glass-beveler to produce more and better results with the same labor than has been done heretofore, and also to at the same time lessen the risk of breaking the glass plates, which causes much loss in following the old method.

For this purpose we employ a table, A, upon which the glass plate B is secured by means of the clamping-bar *a*, provided with bolts or screws a', for fastening it to the table. The table A is provided with a system of T-shaped slots, a^2, in which the heads of the bolts a' are free to move, so that the clamping-bar may be held anywhere upon A, or several such clamping-bars may be used, and more than one plate may be secured to the table A at one time, if desired. The clamping-bar *a* is slotted, as shown at a^3, to permit the bolt a' to be changed in position to suit different sizes of glass. The table A is fitted with dovetailed slides a^4, and travels on the frame C, upon which it rests, in a direction to and from the mill or grinder D, but is not raised or tipped up out of its normal plane. This movement of the table A is governed by a rock-shaft, *c*, which turns in journals that are secured to the frame C, and is provided with a lever or handle, c', for the purpose of actuating it, and also with levers c^2 c^2 and connections c^3 c^3, which are also secured to the table A, by means of which arrangement the operator can move the glass B to or from the grinder D at will. The arrangement described is preferred.

The frame C is fitted with wheels c^4, which run upon rails E laid for that purpose either upon the floor or any suitable foundation. These rails E are laid in such direction that when moving upon them the frame C and with it the table A shall be carried in a line parallel to the face of the grinder D, as shown. The frame C may be made to travel upon the rails E either by hand or by power, in a manner analogous to the movement of an ordinary iron planer.

The grinder or mill D is made in the form of a pulley or fly wheel having a broad face, *d*. This grinder is mounted upon a shaft, d', in journal-boxes d^2, and given the requisite rotary motion by means of the pulley d^3 and belt d^4, or otherwise. The journal-boxes d^2 are connected together by a yoke, d^5, which has trunnions d^6, upon which it swings in a vertical plane, the whole being supported by journals and brackets d^7, as shown. The trunnions d^6 and boxes d^2 are so placed in relation to each other that by swinging the yoke d^5 the mill D may be raised or lowered at will. A balance-weight, d^8, keeps the mill D in proper position.

The grinder D is so located in relation to the table A that by swinging the yoke d^5 upon its trunnions the plane of the glass B may be made tangential to the face of the mill, or any cylinder smaller or larger concentric therewith. By this means the edge of the glass B may be brought to the face of the mill D at any desired angle of cut, while the wide face *d* of the mill D giving great grinding-surface does its work very rapidly without the necessity of heavy pressure, which endangers the glass, and the face of the mill being parallel to the rails E, the glass B is always cut fair and without irregularity.

The grinder D is provided with a sand sieve or trough, F, which extends across its face and causes the cutting material from the hopper H to spread and trickle through the holes *f*, so as to make a uniform grinding-coat over the whole surface of the mill D, insuring equality and uniformity of action.

It is to be noted in regard to the method of raising and lowering the grinder D, by swinging the yoke d^5, that this causes it to traverse through an arc of a circle. This is compensated for by the movement of the table A upon the frame C, as described, and any other motion—as, for instance, a straight sliding one—which would carry the mill D across the edge of the glass would produce the same results thereon and be virtually the same thing.

Having thus described the nature and uses of our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a glass-cutting machine, the grinder D, adjustable in an arc of a circle lying in a vertical plane, in combination with the level table A, moved in a horizontal plane by means of the handle c, lever c^2, and connection c^3 upon the slides a^4, the frame C, and rails E, substantially as and for the purposes shown and set forth.

2. In a glass-cutting machine, the combination of the adjustable grinder D, mounted on a horizontal shaft in the yoke d^5, the horizontally-adjustable table A, and the sieve F, which distributes the cutting medium uniformly over the grinding-surface of D, substantially as and for the purposes herein shown and described.

Signed at New York, in the county of New York and State of New York, this 20th day of February, A. D. 1886.

MINARD M. SMITH.
FERDINAND ARMBRUST.

Witnesses:
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