W. F. Barnes,

Cutting Wax.

No. 105627. Patented July 26. 1870.

Fig. 1

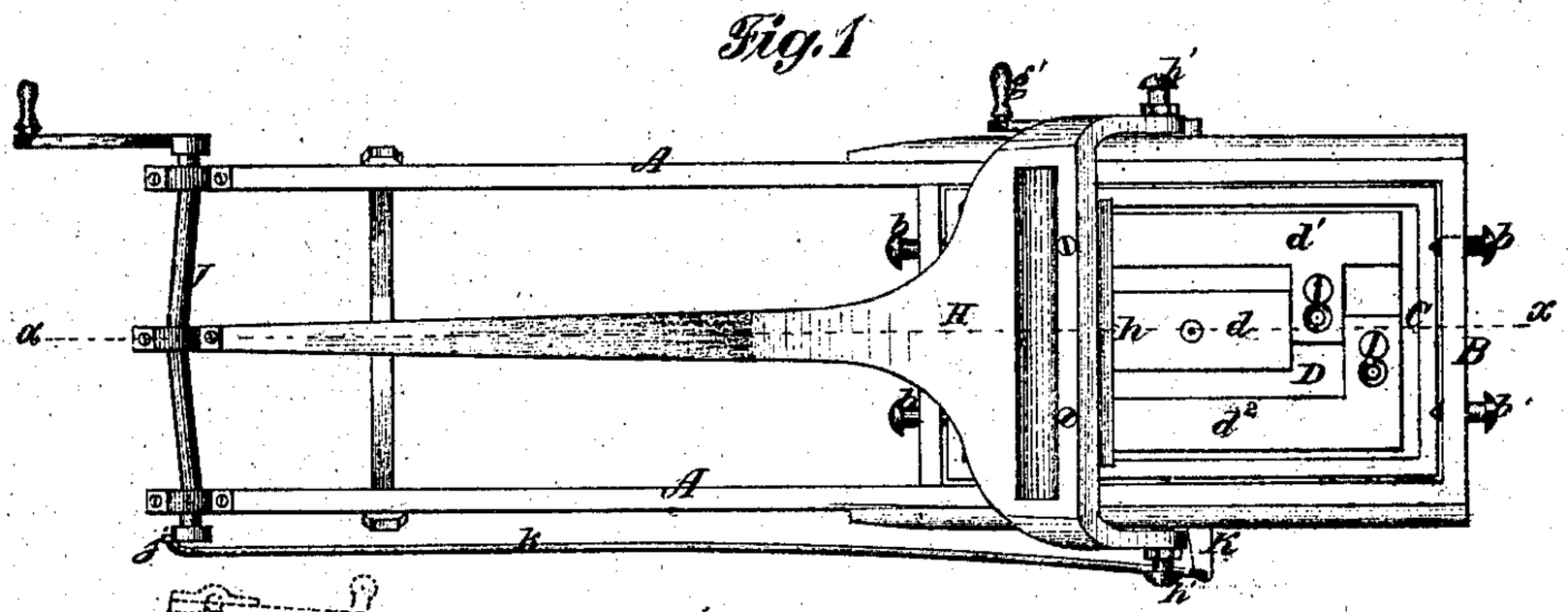


Fig. 2

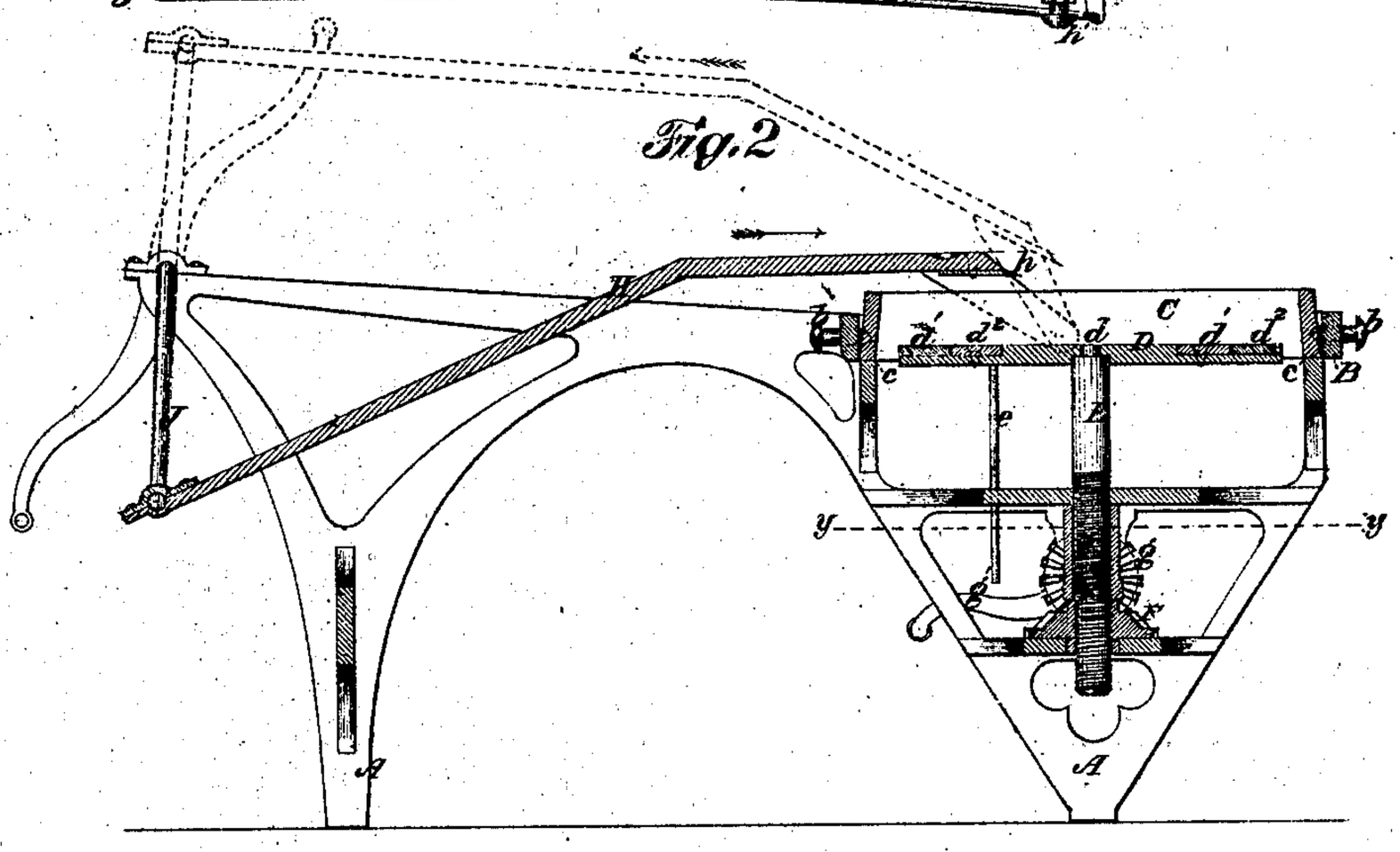


Fig. 3

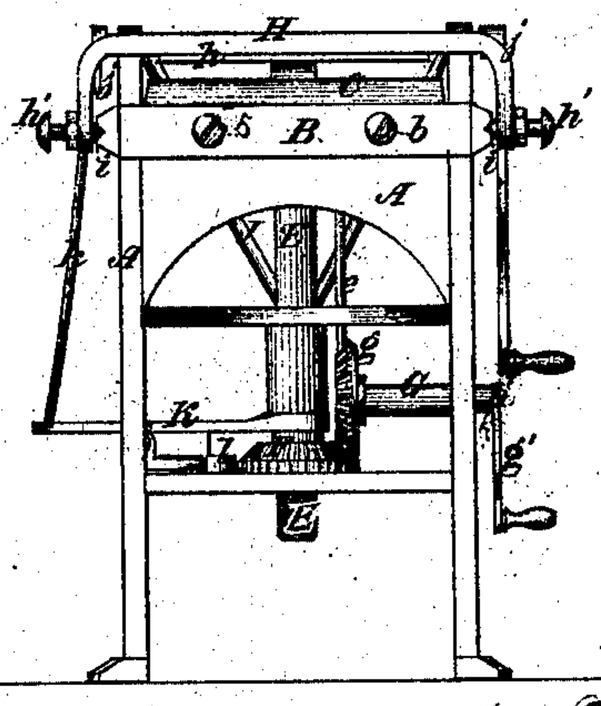
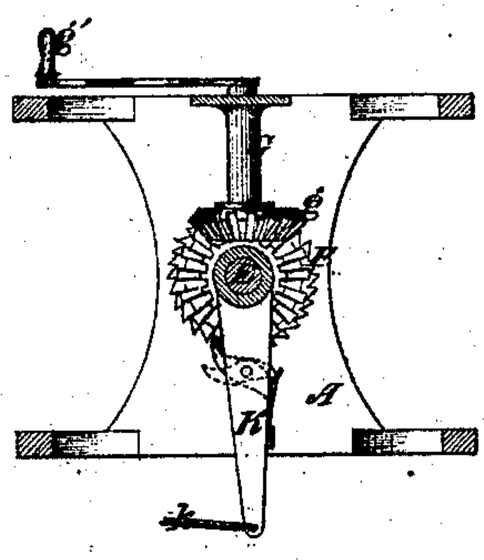


Fig. 4



Witnesses:- Wm. H. Rowe,
Joel L. Keyton

Wm. F. Barnes
by his Atty
Wm. D. Baldwin

United States Patent Office.

WILLIAM F. BARNES, OF ROCKFORD, ILLINOIS, ASSIGNOR TO HIMSELF AND SUSAN H. CLARK, OF SAME PLACE.

Letters Patent No. 105,627, *dated July* 26, 1870.

IMPROVEMENT IN MACHINERY FOR CUTTING WAX INTO SHEETS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, WILLIAM F. BARNES, of Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Machinery for Cutting Wax into sheets, of which the following is a specification.

My invention relates to a machine for cutting wax into sheets by means of a knife traversing over a table, and is principally adapted to the manufacture of artificial flowers.

The object of the first part of my invention is to cut the wax into sheets, having a smooth surface, and to avoid clogging the knife; and this I do by causing the knife to move forward parallel with the table in cutting the sheet, and then to rise and move backward over the table in an elevated position clear of the uncut wax.

The object of the next part of my invention is to cut the successive sheets of uniform thickness, and this I accomplish by combining, with the cutter, mechanism automatically operated to feed the wax to the cutter.

The next part of my invention relates to the means of raising and lowering the table on which the wax rests; and this I do by combining adjusting mechanism with the automatic feed mechanism.

The next part of my invention relates to the devices for varying the size of the sheet to be cut; and this I do by combining with a rigid frame removable frames of different sizes, as hereinafter set forth.

My improvement further consists in constructing the bed-plate or table on which the wax rests with a fixed central portion, surrounded by interlocking sliding sections, to adjust the table to the size of the removable frame.

The accompanying drawing represents a machine, embodying all the improvements herein claimed. Some of said improvements obviously may be used without others, and adapted to machines differing in construction from the one herein shown.

Figure 1 represents a plan or top view of my improved machine.

Figure 2, a vertical longitudinal central section through the same, at the line $x\ x$ of fig. 1.

Figure 3, an elevation of the same, as seen from the table end.

Figure 4, a horizontal section through the same, on the line $y\ y$, fig. 2.

A suitable frame, A, of wood or metal, is firmly secured upon a proper base. An open-box frame, B, is mounted upon this frame, of which, in fact, I prefer that it should form a part.

To vary the size of the sheets, I employ a series of removable open frames, C, which fit into the box-frames and rest upon ledges, *c*, on the inside thereof.

These removable frames are prevented from rising by set screws, *b*, passing through the sides of the box-frame into recesses into the removable frame. The latter frames are also made to converge slightly on their inner sides from bottom to top, to compress the wax as it rises, and deliver it to the cutter in a smooth compact condition.

The table D is mounted on an adjusting-screw, E, and may be steadied by one or more guides, *e*, secured to the under side of the table, and moving endwise through slots in the frame. The table is constructed, by preference, with an expansible top, consisting of a fixed central portion, *d*, and interlocking sliding sections, $d^1\ d^2$, which may be adjusted relatively to each other, and to the central section by means of holes and screws, as shown in fig. 1, or by slots and set-screws, the latter passing up through the table. By this means the table is adjusted to suit the size of the loose frame.

The screw E works in proper bearings in the frame. A bevel-gear, F, is provided with a female screw, through which the adjusting-screw E passes. The gear F turns freely on the screw, a corresponding pinion, *g*, on a shaft, G, meshes with the gear F, and is rotated by a crank, g^1. The table D is raised or lowered by turning this crank.

The wax is cut or shaved into sheets by means of a knife, *h*, mounted in a stock, H, hinged at its front end by pivots h' to guide-blocks *i*, reciprocating in grooves in the frame.

The rear end of the stock H is pivoted to a crank, J, rotated by a winch or other proper means.

Owing to the relative arrangement of the driving-crank J and stock to the table, the knife, on its forward cut, moves close to the upper edge of the open frame above which the wax projects, while, in moving backward, the knife is elevated and moves clear of the wax, as shown in fig. 1, where the arrows represent the direction of the movement, and the dotted lines the elevated position of the stock.

An arm, *j*, on the crank J, is provided with a series of holes at different distances from its center, to vary the stroke of a link-rod, *k*, connected with an arm, K, turning freely around the screw E, (see fig. 4.)

This arm carries a spring-pawl, *l*, which takes into ratchet-teeth on the gear F. As this gear adjusts the table D, the latter is moved a given distance at every stroke of the knife, and as this movement equals the thickness of a sheet the uniformity of the latter is automatically secured.

It will be observed that the relations of the cranks J *j* are such that the feed takes place while the knife is elevated and moving backward.

The operation of the machine will be readily understood from the following description:

The table D is run down to its lowest position by

turning the crank *g'*; the wax is placed on the table, and the loose frame C put on. The crank J being now turned, the knife moves forward, making its cut. At the same time the arm K carries the spring-pawl *l* backward over the ratchet-teeth on the gear F, and the table remains stationary. As the knife raises and moves backward the arm K is also retracted, the pawl turns the gear F, and the table is raised the thickness of the sheet, to be cut at the next stroke of the knife.

This thickness may be varied by setting the link *k* closer to or further from the axis of the crank J, and thus varying the traverse of the arm K and pawl *l*.

I claim as my invention—

1. The combination of the open box frame, to contain the wax, the stock carrying the knife, and pivoted to said frame, and the driving-crank, which both reciprocates and oscillates the knife, substantially as hereinbefore set forth.

2. The combination of the frame, the knife, the crank which works the knife, the link-rod, driven by said crank, the arm and pawl vibrated by the link-rod, the elevating-gear, the feed-screw and the table, substantially as hereinbefore set forth.

3. The combination of the table, the feed screw, the gear F, the gear *g*, for setting the table higher or lower prior to the commencement of the automatic feed; and the automatically vibrated arm and pawl, whereby the gear F serves both to adjust the table and to feed the wax to the cutter, substantially as hereinbefore set forth.

4. The combination of the knife, the automatically-moving feed-table, the fixed open frame, and the removable frame, substantially as hereinbefore set forth.

5. The combination of the fixed central portion of the table, with the adjustable interlocking sections, constructed as set forth.

In testimony whereof I have hereunto subcribed my name.

WILLIAM F. BARNES.

Witnesses:

F. C. WHITE,

GEO. P. BROWN.