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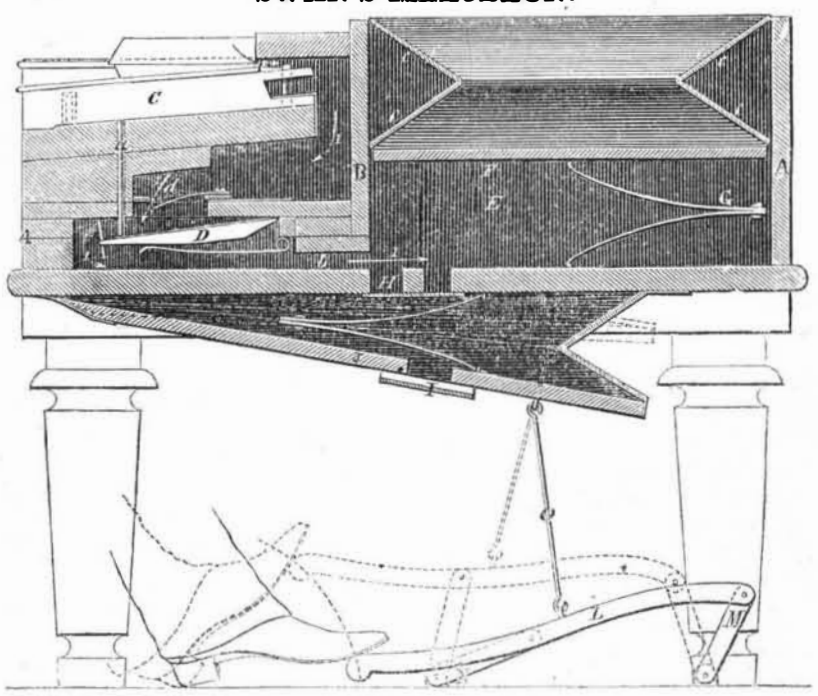
Improved Melodeon.

The annexed engraving is a transverse vertical section of a complete melodeon, showing the improvements, for which a patent was granted to the inventor, A. L. Swan, of Cherry Valley, N. Y, on the 9th of last March.—One improvement relates to the exhausting bellows, which causes a draught of air through the reed and consists of a new mode of constructing the air receiving box which is in connection with the exhausting bellows. Another improvement relates to a simple and convenient mode of working the bellows, by which the player can perform with more ease. By the first improvement, three desirable results are obtained, viz., the apparatus exhausts nearly double the quantity of air to that of the common exhausting apparatus, and occupies no more space; it also produces a peculiar strong bell tone; and it exhausts with equal pressure at all times, and sustains the power of a note as the apparatus remains exhausting.

A-A represents the case of the melodeon, in the front part of which, partitioned off by the board, B, running the length of the melodeon; the parts are arranged in the ordinary manner; C is one of the finger keys; it is shown pressed down upon the moveable vertical pin *a*, this acts upon the valve, D, which is shown open; *d* is one of the reeds; E is a back case or air receiving box of the instrument. Under the partition, B, there is a passage, *b*, leading to the valves and reeds; F is the top of this box, and is connected by wings, *c c*, to its upper edges all around. These wings all fold inwards towards the middle of the box, and are of such depth as to allow the top, F, to descend nearly to the bottom of the box; G is the spring for forcing up the top, F, and opening or expanding the inside of the box; H is the valve leading to the exhausting bellows which is the same as in other instruments, having a valve, I, in the lower section. The air is exhausted from the box, E, by the bellows, J, and when the valves, D, are opened, the external air rushing into the box in the direction of the arrows, 1 1, causes the vibration of the reeds, and produces the sounds. In the engraving the box is shown about half exhausted. The force of the spring is strongest when the box is nearly exhausted, and weakest when the top is raised and the box full of air. When the spring is strongest the top would rise quickest and cause the current of air to be the strongest, but this effect is counteracted by the pressure of the atmosphere upon the wings, *c c*, their tendency to close the box increases with the tendency of the spring to open it, and this tendency is greatest when the top, F, is lowered, and the box exhausted, and it decreases as the top rises and the box fills with air until when the box is full and the spring exhausted the pressure on the wings ceases. By this means the tendency of the top, F, to rise is always uniform, and the draft or current of air is always the same until the box is filled. It is this uniformity of draft which is so great a desideratum in instruments of this kind, and which is wanting in the ordinary exhausting apparatus of melodeons.

We will now describe the other improvement for working the bellows with more ease to the operator. L is a treddle jointed at the back end by a pin to a vibrating rod, M, attached to the floor below the instrument; it is also attached at about the middle of its length to a similar vibrating rod, N, which may be of the same length as M. A rod, O, connects the treddle to the lower section of the bellows. The spring inside of the bellows always raises the treddle to the position indicated by the dotted lines, until it is

SWAN'S MELODEON.

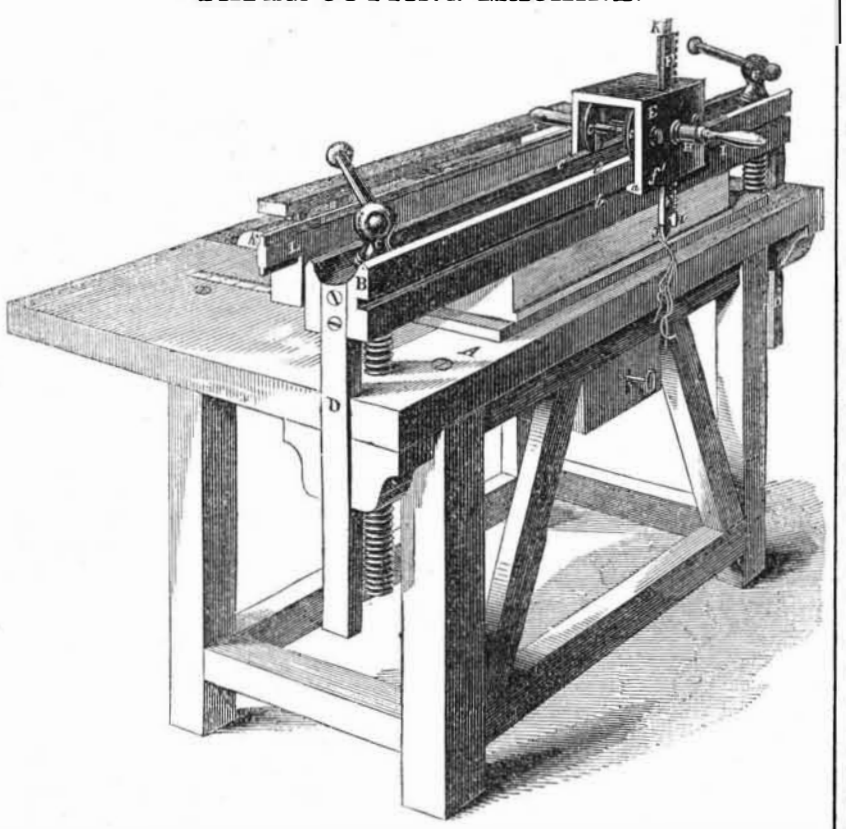


depressed by the foot. If the player places his heel on the floor at a suitable distance from the end of the treddle, and keeps up a gentle vibratory motion with his foot, the vibrating bars will be thrown back by the pressure and the treddle depressed so as to draw down the moveable section, J, of the bellows, the spring raising it every time the treddle is relieved of the foot pressure. In working a treddle hung in the ordinary way, the curve described by the end of the treddle and by the foot are in opposite directions, and the foot must slide along part of the treddle. A roller has been applied to the treddle to ease this motion and reduce the friction, but this is not considered a good plan. This improved mode of hanging the treddle causes the part upon which the foot rests to move in a curve in the same direction as the foot, and the foot remains nearly stationary upon it, the sliding of the foot being entirely obviated, and the necessity for the roller removed.

There are two claims in the patent, covering the improvements we have specified, viz., the uniform regulation of the draft of the bellows, and the mode of hanging the treddle.

More information may be obtained by letter addressed to the patentee at Cherry Valley.

PAPER CUTTING MACHINE.



The annexed engraving is a perspective view of a machine for cutting paper, pasteboard, &c., for which a patent was granted on the 19th of last July (1853) to H. J. Oerter, of Bethlehem, Pa. The nature of the improvement consists in having an adjustable knife or cutter placed within a sliding stock, and so arranged that the knife or cutter may be regulated to cut the required depth, by merely turning the handles by which the sliding stock is moved upon the bed.

A is a table, and B is a bed-piece placed on the top of it; C C are screws passing through the platform and the bed-piece. By adjusting these set screws, the bed-piece may be placed the requisite distance above the table. D D are guides attached to the ends of the bed piece working in recesses at the ends of the table. These guides steady the bed piece when it is raised or lowered; E is the sliding stock which works on the bed piece. On the side *f*, of the stock, inside, there is a projection, *a*, which fits in a recess, *b*, in the bed piece. The stock is also provided with four rollers, *c c* (two not seen) hung on two small shafts, *d d*, (one not shown.) These rollers run on two thin projecting rails, *e e*; F is a vertical rack bar which works between cleats inside of the box. This rack-bar meshes into a pinion inside of the sliding stock, and hung on shaft, H, to the ends of which shaft the two handles, I I, are attached; J is the cutter which is attached at the lower end of the rack bar, F, to the foot of the bar, K, which fits in a groove in the rack bar by a set screw, *i*. By this arrangement the cutter can be raised or lowered while working in a very simple manner, by simply turning the handles, I, which makes the pinion on shaft, H, elevate the cutter rack bar, F; L is a gauge placed on the top of the table. This gauge has set screws which pass through projections, K K. The said screws pass through the slots, *l l*, in the table, so that this gauge can be set parallel with the ped piece, B, or obliquely to it by the set screws.

OPERATION.—The paper to be cut is placed on the top of the table, A, against the gauge, L, underneath the bed piece, B. The gauge is set in such a manner that the paper may be cut the desired width, and parallel or obliquely with the bed piece. The operator then works the sliding cutter stock by the handles, and cuts the paper by moving the stock back and forth. The cutter is lowered as the pile is cut down by the operator turning the handles, so as to depress the rack bar, in which the cutter is secured.

The inventor of this simple improvement on paper and pasteboard cutting machines, is Frederick Hesse, who assigned all his right, title, and interest to Mr. Oerter, to whom the patent was issued. This machine is principally used in bookbinderies, and may be used for other purposes than trimming books and cutting paper.

More information may be obtained by letter addressed to Mr. Oerter.

Transparent Soap.

A concentrated solution of soap in water becomes partially opaque on cooling, by the formation of crystals; this, however, is not the case with a similarly concentrated alcoholic solution. This fact is applied to the manufacture of transparent soaps, the preparation of which was formerly kept a profound secret. In preparing soap of this description, ordinary soap is thoroughly dried in a stove, and dissolved in hot alcohol. All foreign matters not consisting of soap will remain undissolved, and must be removed in this case, with so much the more care, because they cannot remain concealed by an opaque mass as in ordinary soap. They are removed by deposition, or by a filter supported by a funnel, surrounded on the outside with hot water. The alcohol is then separated from the solution by distillation, until the residue is capable of forming a solid mass, when cooled in the metallic moulds. Transparent soap of this kind is generally too hard, and affords a lather with great difficulty.