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G. L. JAEGER.

Machine for Making Paper-Box Partitions.

No. 219,949. Patented Sept. 23, 1879.

Fig. 2.

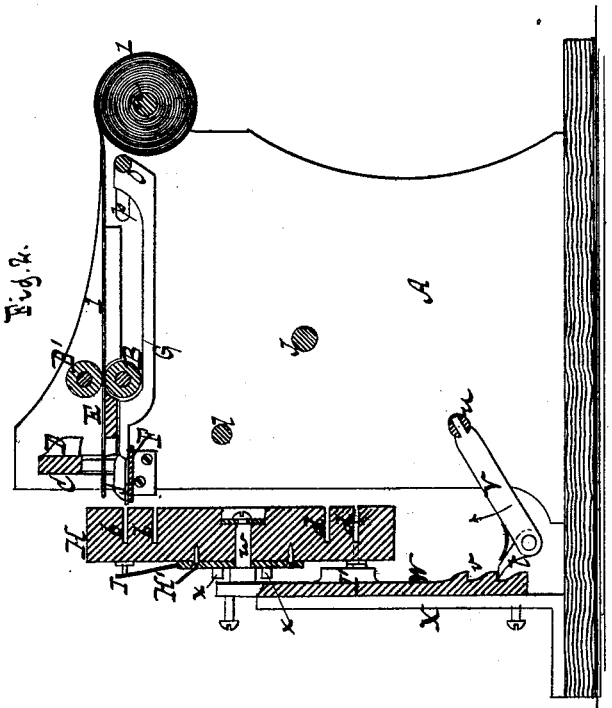
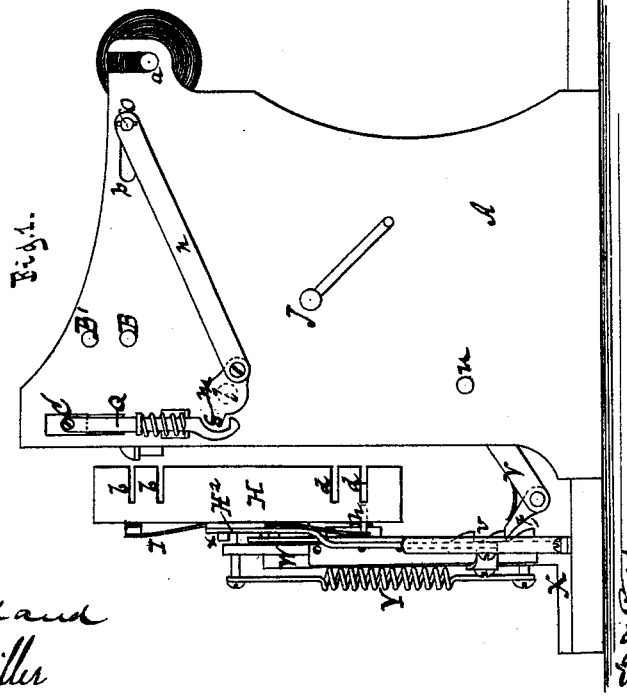


Fig. 1.



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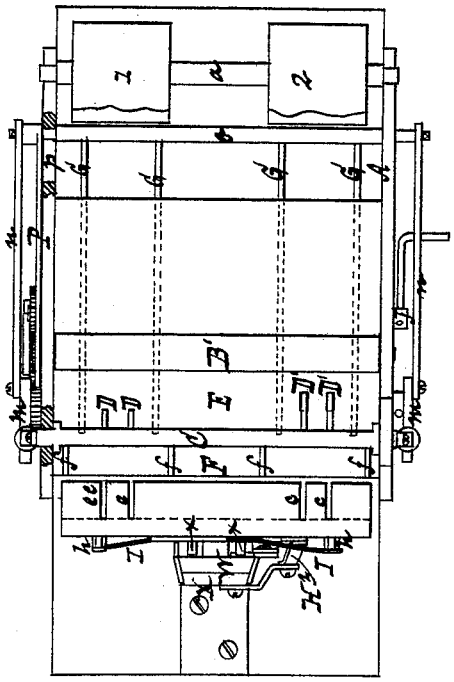

Fig. 4.

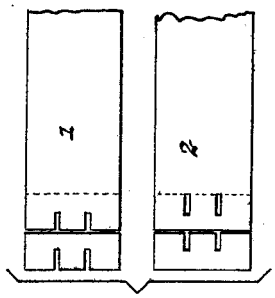

Fig. 5.

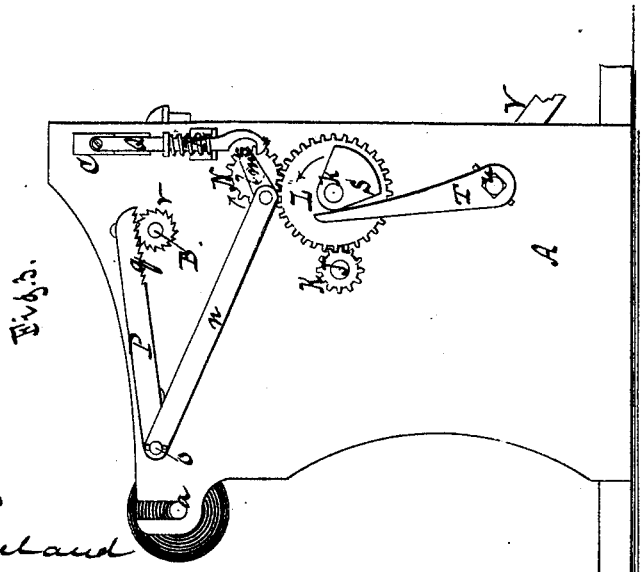

Fig. 3.

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Machine for Making Paper-Box Partitions.

No. 219,949. Patented Sept. 23, 1879.

Fig. 6.

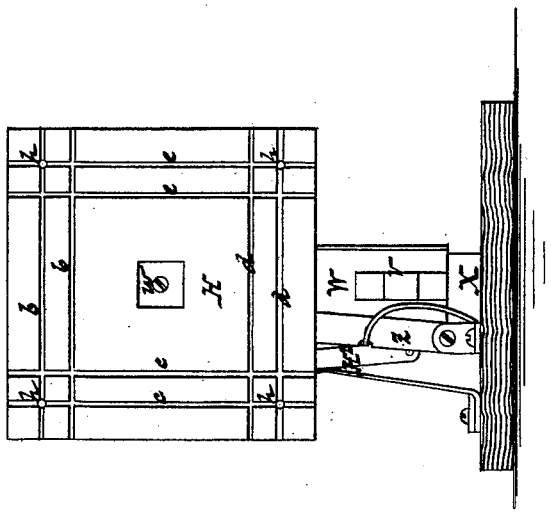
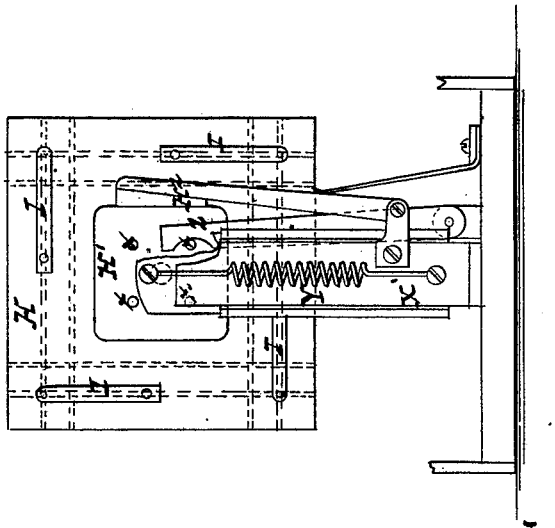


Fig. 5.



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UNITED STATES PATENT OFFICE.

GUSTAV L. JAEGER, OF NEW YORK, N. Y.

IMPROVEMENT IN MACHINES FOR MAKING PAPER-BOX PARTITIONS.

Specification forming part of Letters Patent No. **219,949**, dated September 23, 1879; application filed August 14, 1879.

To all whom it may concern:

Be it known that I, GUSTAV L. JAEGER, of the city, county, and State of New York, have invented a new and useful Improvement in Machines for Making Partitions for Boxes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of my machine. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a side view of the same, looking in an opposite direction to Fig. 1. Fig. 4 is a plan or top view thereof, partly in section. Figs. 5 and 6 are detail views of parts. Fig. 7 illustrates the method of cutting out and slotting the partitions.

Similar letters indicate corresponding parts.

The object of my invention is to furnish a machine for cutting out partitions from pasteboard or other like materials and slotting the same, and then interlocking them by means of their slots, this class of partitions being described in an application for Letters Patent filed by me on or about July 25, 1879.

My invention consists in certain novel combinations of parts, hereinafter fully described, and pointed out in the claims, a preliminary description thereof being therefore deemed unnecessary.

In the drawings, the letter A designates the machine-frame, in the upper part of which are feed-rollers B B′, to which the material to be made into partitions—say, pasteboard—is presented. Two strips of pasteboard (marked 1 and 2) are fed to the machine simultaneously, and in this example they are taken from rolls mounted on a spindle, *a*. As the two pasteboard strips leave the feed-rollers B B′ they pass under a cutting-die, C, for cutting out the partitions therefrom, and under slotting-dies, D D′, for cutting slots into the edges of the partitions. The cutting-die C has a vertically-reciprocating motion, and is common to both pasteboard strips, while the slotting-dies D D′ are secured to the cutting-die, so as to partake of its motion, and are arranged in sets of two or more, one set to each strip. The cutting-die C cuts against the edge of a bed or table, E, while the dies D D′ cut against the edges of openings in such table.

The feed-rollers B B′ have an intermittent motion and act on the pasteboard strips after every action of the dies; and the distance to which the strips are thereby moved forward determines the width of the partitions cut off by the cutting-die C.

The set D of slotting-dies cut the pasteboard strip 1 on the edge thereof, while the set D′ cut the other strip, 2, within the edge. The feed-motion of the rollers B B′, moreover, is so regulated that the distance to which the strip 2 advances after every action of the dies brings the inner ends of its slots in the line of the cutting-die C, so that the strip is cut along that line, as indicated in Fig. 7; hence, both the partitions have slots cut on one of their edges, but oppositely to each other. If desired, the slots of the strip 1 may also be formed within the edge thereof, but at a distance equal to twice that of the slots in the other strip, the result being the same as when such slots are cut on the edge of the strip 1.

The cut and slotted partitions fall flatly on a ledge or offset, F, and are thence thrust or inserted by the action of pushers G into a groove belonging to one of four (more or less) sets of grooves, *b c d e*, formed in the face of a frame, H, (best seen in Fig. 6,) this frame being situated opposite to said ledge and in a vertical position. The pushers G consist of arms or frames, extending under the table E and resting on the ledge F at one end, the same having a horizontally-reciprocating motion and being advanced after every action of the dies.

The grooves *b c d e* intersect each other—that is to say, those of one set intersect those of another set, and in this example there are two grooves to each set. The number of grooves to each set, however, corresponds to the number of dies to each set of the slotting-dies D D′, and the distance between the grooves is equal to that between such dies, while the frame H is so arranged that those grooves running in a vertical direction in any position of the frame are coincident with the slotting-dies.

The frame H has an intermittingly-revolving motion, and also a rising-and-falling motion.

In the first position of the frame the outer or upper groove of one set—say, the set *b*—is opposite the ledge F, as shown in Fig. 2, so

that two partitions may be inserted into that groove by the pushers G. As the partitions are inserted into said outer groove, *b*, their slots are made to coincide with the grooves *c* and *e* intersecting the groove *b*, owing to the relative arrangement of the grooves and slotting-dies, guides *f* being also fastened upon the ledge F for this purpose. The frame H next rises till the inner groove of the set *b* is opposite the ledge F, when two partitions are inserted into that groove in like manner to the outer groove. The frame H then makes a quarter-revolution, and simultaneously therewith falls, so that the next set of grooves—namely, the grooves *c*—take the place of and the position first occupied by the grooves *b*. Partitions are then inserted into each of the grooves *c* in like manner to the two grooves *b*, when the frame again revolves and falls as before, to present the next set of grooves, and so on.

It will be seen that the partitions contained in the grooves are at an angle, which, in this example, is a right angle, to the partitions that are in the process of being inserted. Hence the partitions cut from one of the strips 1 2 are thrust crosswise upon those cut from the other strip; and since their slots are on opposite edges, and since by the described relative arrangement of parts the slots are brought over or upon each other, the partitions are interlocked or stuck together by means of their slots. Any desired number of partitions may be cut and interlocked by using an appropriate number of slotting-dies, and providing a corresponding number of grooves and moving the frame accordingly. The interlocked partitions are thrown out of the grooves *b c d e* by means of ejectors I, (best seen in Fig. 5,) consisting of springs, which are fastened to the back of the frame H, and which carry push-pins *h*, projecting through the frame and into the grooves, as seen in Fig. 6. The ejectors I are brought into action when, in the revolution of the frame, they reach a lower position, so that those partitions which have been interlocked are thereby ejected from the grooves.

If desired, springs may be combined with the grooves *b c d e*, for the purpose of clamping the partitions therein; or the grooves may be formed by a suitable arrangement of springs on the face of the frame.

Instead of revolving, in order to bring the inserted partitions at an angle to those undergoing insertion, the frame H may have a lateral motion; but in that case the dies must be duplicated, and the second dies and concomitants so arranged that the partitions are held at the required angle to each other as they are inserted in the grooves.

The following is the best means which I have hitherto devised for obtaining the required motions of the parts: In the machine-frame is mounted a driving-shaft, J, on which is secured a cog-wheel, K, gearing with a cog-wheel, L, which in turn gears with a cog-wheel, N, the wheels L N being secured, respectively, on stud *k* and shaft *e*. The shaft *l* carries two cranks, *m*, one at each end, to which are pivoted rods *n*, connecting with a bar, O, which is fitted in horizontal slots *p* in the machine-frame. The bar O carries the pushers G, and also carries an arm, P, which is provided with serrations *q* near its free end, whereby it engages with a ratchet-wheel, *r*, secured to the shaft of the lower feed-roller, B. The serrations *q* engage the wheel *r* when the arm P moves forward, but ride over the same when said arm returns. Motion is given to the cranks *m* by revolving the driving-shaft J, and through the connecting-rods *n* a reciprocating motion is imparted to the bar O, as well as the arm P, so that the pushers G receive a like motion, while the lower feed-roller, B, is intermittingly revolved through the wheel *r*, and communicates its motion to the other feed-roller.

The cranks *m* are extended, as shown, to form tappets *s*, which act on the lower hooked ends of vertical rods Q, so as to draw these rods downward at regular intervals. The rods Q are connected to the cutting-die C at their upper ends, and are subjected to the action of springs R, having a tendency to draw the same upward, so that by the combined action of the tappets *s* and these springs a vertically-reciprocating motion is given to the rods, and thence to the cutting and slotting dies.

On the shaft *k*, carrying the gear-wheel L, is secured a cam, S, which acts on an arm, T, projecting from a rock-shaft, *u*. From this shaft projects a secondary arm, V, (see Fig. 2,) carrying a dog, *t*, which engages with teeth *v* formed on a vertical slide, W. This slide is guided by means of a standard, X, and is subjected to the action of a spring, Y, having a tendency to draw the same downward, while it carries a pivot, *w*, which constitutes the axis and support of the frame H. On the back of the frame H are studs *x*, (best seen in Fig. 5,) which are arranged in corresponding planes to the grooves in the face of the frame, and adjacent to which is situated the upper part or end of a spring-arm, Z.

By the action of the cam S on the arm T the shaft *u* is turned and the arm V is swung in an upper direction, thereby raising the slide W and the frame H against the action of the spring Y.

When the frame H has risen to the required height the cam S ceases its action, and after a short interval frees the rock-shaft *u*, so that the slide W may follow the action of the spring Y, and the frame H is lowered.

When the frame H is in its upper position the free end of the spring-arm Z takes its place directly beneath one of the lower studs, *x*, so that as the frame is lowered said stud strikes against said free end of the arm. The frame H continues to fall after the pin referred to strikes the end of the arm Z, and since this arm does not yield the pin is displaced. By this means the frame H is caused to revolve on

its axis while it moves to a lower position. In the lower position of the frame H the spring-arm Z assumes the position shown in Fig. 5.

For the purpose of checking the frame H in the required positions as it revolves, I make use of a polygonal plate, H^1, and a detent, H^2, engaging such plate, as shown in Fig. 5.

To the standard X is secured a projection or cam, I′, against which the ejectors I strike successively as they reach a lower position, and by this means the ejectors are forced inward, so that their pins *h* project into the grooves *b c d e*, thereby freeing the same of partitions.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a machine for making pasteboard or other partitions for boxes, of mechanism, substantially as described, for cutting the blanks and slotting the same, and mechanism, substantially such as herein shown, for interlocking said blanks by means of their slots.

2. The combination, in a machine for making pasteboard or other partitions for boxes, of dies adapted to cut out the partitions and to slot the same on opposite edges, a movable frame having intersecting grooves for the reception of the partitions, and pushers for inserting the partitions into such grooves, so that by a proper motion of the frame the partitions are caused to interlock with each other, substantially as shown and described.

3. The combination, in a machine for making pasteboard or other partitions for boxes, of dies adapted to cut out the partitions and to slot the same on opposite edges, a frame having intersecting grooves for the reception of the partitions, pushers for inserting the partitions into such grooves, and mechanism, substantially as described, for imparting to the frame an intermittingly-revolving motion, whereby the partitions are brought into proper relation to interlock with each other, substantially as shown and described.

4. The combination, in a machine for making pasteboard or other partitions for boxes, of an intermittingly-revolving frame, having intersecting grooves arranged in sets, pushers for inserting the partitions into such grooves, and mechanism, substantially as described, for raising and lowering the frame, so that the grooves of each set are presented to the pushers in proper order, substantially as shown and described.

5. The combination, with the frame H, having intersecting grooves for the reception of partitions, of ejectors for throwing the partitions from such grooves, substantially as shown and described, and a standard, X, provided with a cam, I′, for operating said ejectors.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 11th day of August, 1879.

GUSTAV L. JAEGER. [L. S.]

Witnesses:

CHAS. WAHLERS,

J. VAN SANTVOORD.