(No Model.)

J. McCLURG & S. C. McMASTER.

MACHINE FOR ARRANGING CRACKERS.

No. 371,611. Patented Oct. 18, 1887.

Fig. 1.

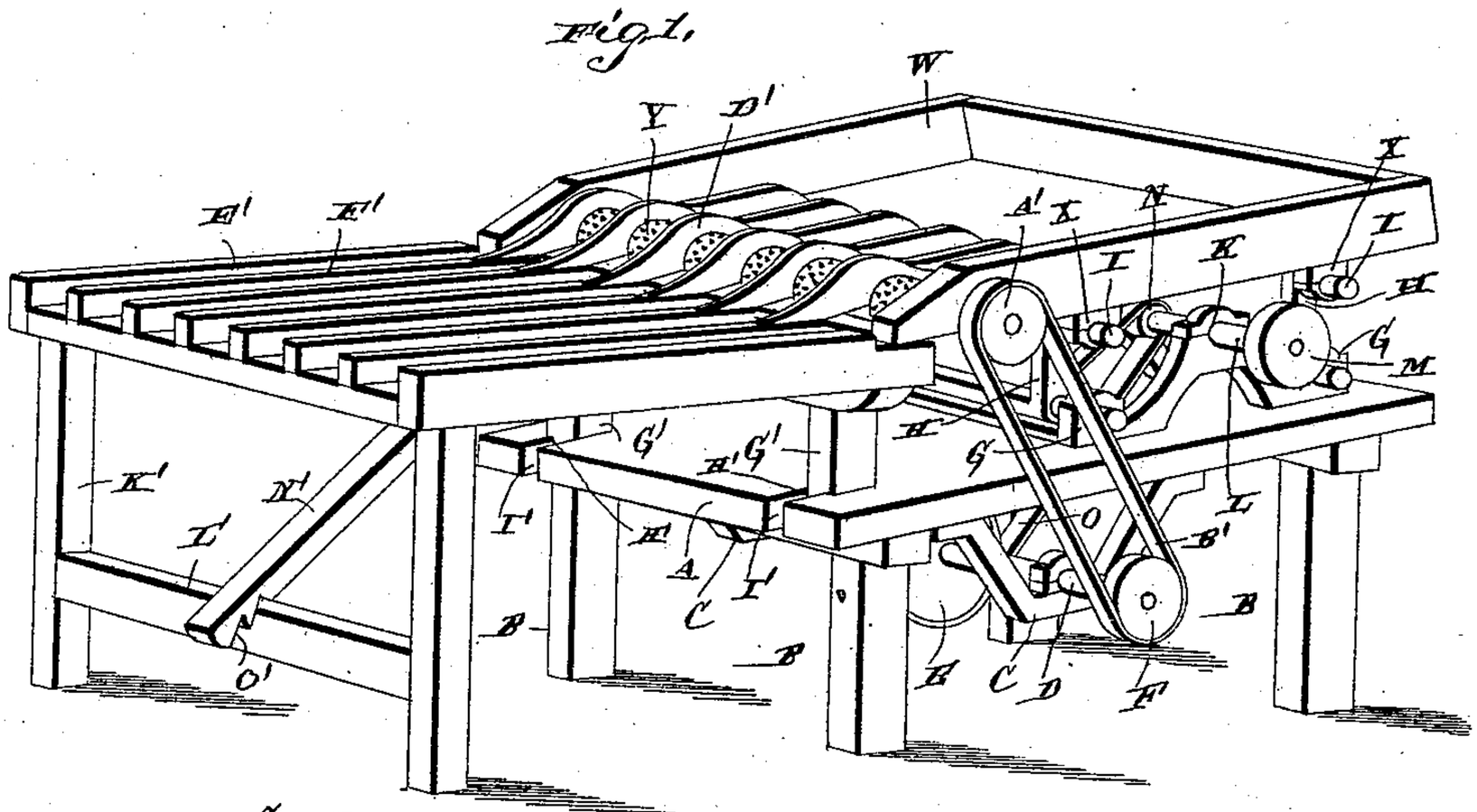
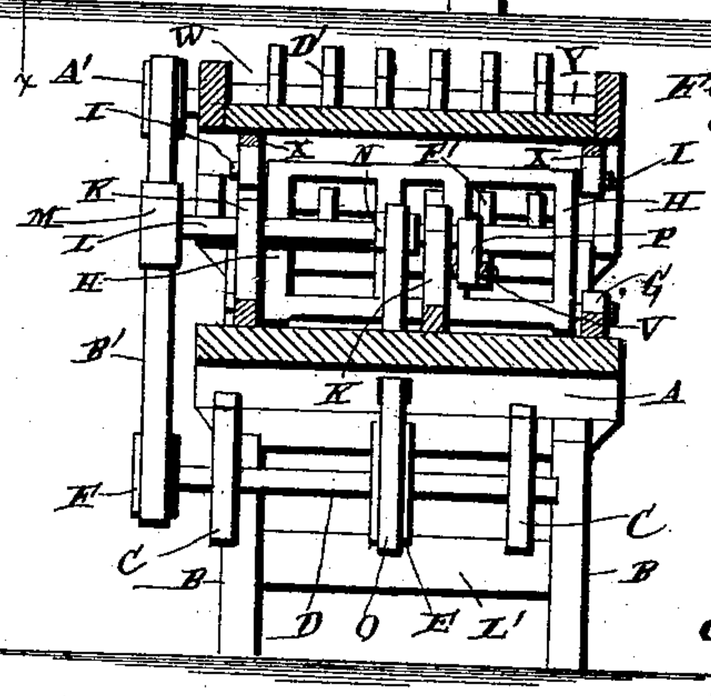


Fig. 2.

Fig. 3.



WITNESSES

E. L. Taylor

J. W. Garner

James McClurg
Samuel C. McMaster
INVENTORS

by C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

JAMES McCLURG AND SAMUEL CUMMINGS McMASTER, OF ALLEGHENY, PENNSYLVANIA; SAID McMASTER ASSIGNOR TO SAID McCLURG.

MACHINE FOR ARRANGING CRACKERS.

SPECIFICATION forming part of Letters Patent No. 371,611, dated October 18, 1887.

Application filed August 10, 1887. Serial No. 246,597. (No model.)

To all whom it may concern:

Be it known that we, JAMES McCLURG and SAMUEL CUMMINGS McMASTER, citizens of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machines for Arranging Crackers, of which the following is a specification.

Our invention relates to an improvement in machines for arranging crackers, ginger-snaps, and similar articles for packing; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of a cracker-arranging machine embodying our improvements. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a vertical transverse sectional view of the same, taken on the line *x x* of Fig. 2.

A represents an inclined table-top, which is supported upon suitable legs, B. From the under side of this table-top, near the lower end thereof, depends a pair of hangers, C, in which is journaled a transverse shaft, D. To the center of this shaft is attached a band-pulley, E, and to one end thereof is attached a similar but smaller pulley, F.

On the upper side of the table-top, near the upper end thereof, are secured two pairs of bearing-boxes, G, in which are journaled the lower projecting trunnions of a pair of vibrating links, H, which are provided at their upper corners with similar trunnions, I.

K represents a pair of bearing-blocks or standards, which are secured on the upper side of the table-top and are arranged between the links. In these blocks or standards is journaled an operating-shaft, L, to one end of which is attached a driving-pulley, M, adapted to be connected by a belt to a pulley on a counter-shaft (not shown) from which power is conveyed to the cracker-arranging machine. To the shaft L, near its inner end, is secured a small pulley, N.

O represents an endless belt, which connects the pulleys N and E and runs through a longitudinal opening with which the table-top is provided. On the extreme inner end of the shaft L is a crank, P.

The outer link H is provided at its center with a vertical transverse slot, R.

S represents a clevis, which fits in the said slot, is vertically adjustable therein, and is provided with a clamping-screw, T, and a clamping washer or plate, U, by means of which it may be secured at any desired adjustment in the slot.

V represents a pitman, which connects the crank P with the clevis S, and is adapted to vibrate the link when the shaft L is rotated, as will be readily understood.

W represents a hopper, which is preferably rectangular in form, as here shown, and has its lower side open. The said hopper is provided on its under side with boxes X, in which are journaled the trunnions I, on the upper corners of the links. As the table-top is inclined, and as the links are both of the same height, the hopper attached to the upper ends of the said links is thereby arranged in an inclined position, as shown, its open end being at its lowest point.

Y represents a drum, which fits in a transverse opening, Z, made in the bottom of the hopper, near the lower edge thereof. The upper side of the said drum extends above the bottom of the hopper, and the said drum has a corrugated or suitably-roughened surface. The spindles of the drum are journaled in the sides of the hopper, and to one of the said spindles is attached a pulley, A′, which is connected to the pulley F by means of a cross-belt, B′. The lower portion of the hopper, below the drum or roller, is beveled downward, as at C′.

D′ represents a series of longitudinal partition plates or boards, which are arranged parallel on the lower portion of the bottom of the hopper, at suitable distances apart, and extend over the drum or roller, the lower ends of these partitions being extended beyond the lower edge of the hopper, as shown. The width of the spaces or channels formed between the partitions D′ corresponds to the diameter of the crackers or ginger-snaps which are to be arranged by the machine.

E′ represents a receiving-table, which has

one end arranged under the lower end of the hopper, and is provided with longitudinal channels F′, which coincide with the channels in the bottom of the hopper and are arranged in line therewith. From the inner end of the table E′ depend supporting-legs G′, which have their lower ends reduced to form tenons H′, that fit in mortises or slots I′, made in the lower end of the table-top A. Under the outer end of the table E′ are hinged a pair of supporting-legs, K′, which are connected together by a cross-bar, L′, having a central notch, M′, in its upper side.

N′ represents a brace bar, the upper end of which is hinged under the inner end of the table-top, and the lower end of which is provided at its under side with a series of ratchet-teeth, O′, adapted to engage the notch M′ and thereby brace the supporting-legs K′.

The operation of our invention is as follows: The crackers or ginger-snaps to be arranged for packing are heaped upon the upper portion of the hopper, and the driving-shaft L is set in motion. This causes the pitman to oscillate the links and vibrate the hopper in a longitudinal direction. The endless belt O communicates the motion of the shaft L to the shaft D, and the belt B′ communicates the motion of the shaft B to the drum or roller, thereby causing the latter to rotate in the direction indicated by the arrow in Fig. 2. The vibratory motion of the hopper causes the crackers or ginger-snaps to be shaken down into the longitudinal channels between the partitions D′, down which they slide one after another until they reach the roughened rotating roller or drum. As the latter rotates, it engages the crackers or ginger-snaps, one after another in succession, and slips them over the same and deposits them upon the inclined portion C′ of the hopper, down which they slide into the channels F of the receiving-table. The lower edge of the hopper is a distance of several inches above the top of the receiving-table, and as the crackers or ginger-snaps slide over the inclined portion C of the hopper they fall vertically into the channels of the receiving-table, and are thereby arranged therein in regular series, ready to be removed and placed in the barrels or boxes, as will be readily understood.

We attach especial importance to the rotating roughened drum G, as the same causes the crackers or ginger-snaps to be dropped one at a time into the channels in the receiving-tables in a vertical position, thus preventing the crackers from being fed so rapidly from the vibrating table to the receiving-table as to cause them to be disarranged on the latter.

Having thus described our invention, we claim—

1. The combination, in a machine for arranging crackers and similar articles, of the vibrating hopper and the rotating drum arranged transversely in the bottom of the hopper and having the roughened surface, substantially as described.

2. In a machine for arranging crackers and similar articles, the combination of the vibrating hopper having the series of channels in its lower side and the rotating roller or drum arranged transversely across the said channels and having the roughened surface, substantially as described.

3. The combination, in a machine for assorting crackers and similar articles, of the receiving-table E′, having the series of channels F′ on its upper side, the vibrating hopper having the series of partitions D′, extending longitudinally on its bottom and projecting beyond the lower edge thereof and arranged in line with the partitions between the channels of the receiving-table, and the rotating drum or roller arranged transversely in the bottom of the hopper and having the roughened surface, substantially as described.

4. The combination, in a machine for arranging crackers and similar articles, of the receiving-table, the vibrating hopper arranged above the receiving-table and having the lower beveled portion, C′, and the rotating drum or roller arranged transversely in the bottom of the hopper above the beveled portion C′, substantially as described.

5. The combination of the table A, the shaft D, arranged under the same and having pulleys E and F, the shaft L, arranged above the table and having the pulley N and the crank, the vibrating hopper arranged above the table, the links connecting the said hopper to the table, the pitman connecting one of the said links to the crank, the drum or roller journaled transversely in the bottom of the hopper and having the pulley A′, the belt B′, connecting the said pulley to the pulley D, and the belt O, connecting the pulleys E and N, substantially as described.

6. In a machine for arranging crackers and similar articles, the vibrating hopper, combined with the rotating drum or roller arranged transversely in the bottom of the hopper, as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

JAMES McCLURG.
SAMUEL CUMMINGS McMASTER.

Witnesses:
M. F. HERRON,
THOMAS WILSON.