(No Model.)

C. S. FOWLER & L. A. ROCKWELL.

CRACKER MACHINE.

No. 288,989. Patented Nov. 27, 1883.

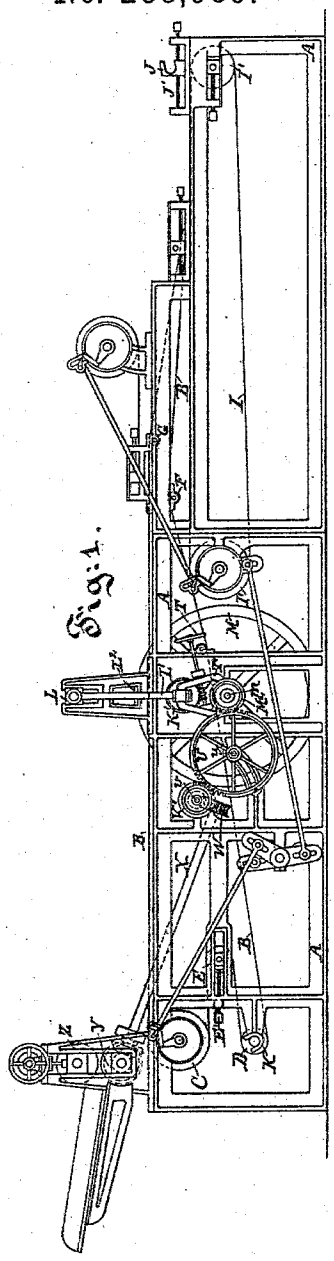


Fig. 1.

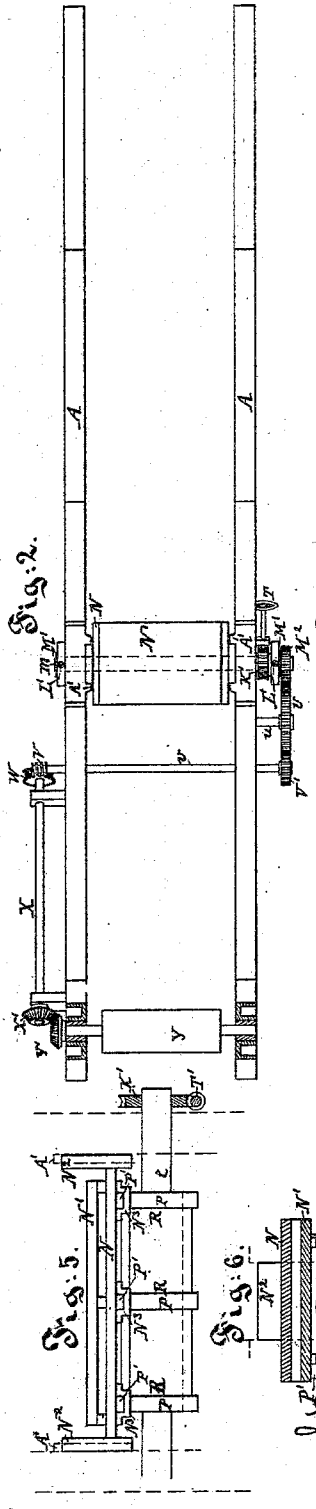


Fig. 2.

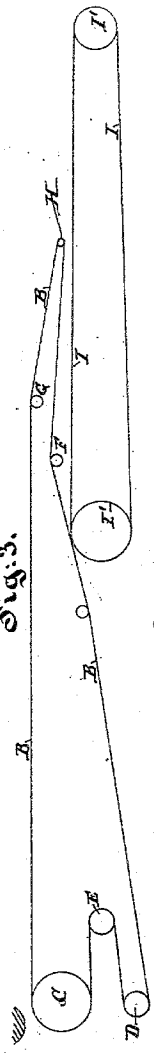


Fig. 3.

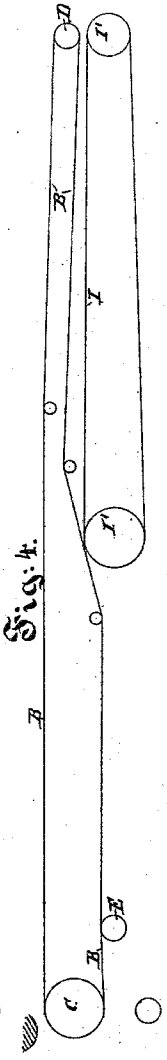


Fig. 4.

Fig. 5.

Fig. 6.

Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES S. FOWLER, OF BROOKLYN, AND LUCIUS A. ROCKWELL, OF NEW YORK, N. Y.

CRACKER-MACHINE.

SPECIFICATION forming part of Letters Patent No. 288,989, dated November 27, 1883.

Application filed March 13, 1883. (No model.)

To all whom it may concern:

Be it known that we, CHARLES S. FOWLER, of Brooklyn, Kings county, in the State of New York, and LUCIUS A. ROCKWELL, of New York city, in the county and State of New York, have invented certain new and useful Improvements in Cracker-Machines, of which the following is a specification.

We have devised improved means of operating and adjusting certain important parts. Our machine is capable of ready and easy change from delivering the crackers into pans to delivering them in the ordinary manner on a long apron, from which they may be taken by a shovel or otherwise. We drive the dough-rollers through the intervention of worm-gearing and secure a strong and reliable motion at the proper speed with unusually simple mechanism. We adjust the cutting-table by eccentrics turned by a worm-wheel, so as to be adjusted over its whole surface with great facility and uniformity.

The following is a description of what we consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification, and represent the novel parts, with so much of the ordinary parts as is necessary to indicate their relations thereto.

Figure 1 is a side elevation of the entire machine. Fig. 2 is a plan of certain parts. Figs. 3 and 4 are diagrams showing the two arrangements of the belt or apron. Fig. 5 is a detail of the table or bed-plate upon which the cutting is effected, and of the adjusting parts thereof. Fig. 6 is a section taken at right angles through Fig. 5.

Similar letters of reference indicate corresponding parts in all the figures.

A is the fixed frame-work of the machine, certain portions being designated, when necessary, by additional marks, as A′.

B is an endless apron traversed over a series of rollers, C D E F G H. One of the rollers, D, is changeable from bearings at the delivery end of the machine to bearings at the receiving end. There are provisions for adjusting the positions of certain bearing-boxes, and consequently of certain rollers, by screws, so that after the roller is put in position, with the belt in a slackened or only slightly-tightened condition, a roller may be shifted bodily, so as to tighten the apron. When the roller D is placed in its bearings J at the delivery end of the machine, with the apron B extended around it, as shown in Fig. 4, the rollers E and H are idle. In this condition of the machine, the sheets of dough, properly cut, are delivered, in the ordinary manner, on the extended upper stretch of the apron, and, the scraps being removed by any ordinary or suitable means, the crackers may be taken off by hand or in quantities by peels or analogous devices. When, on the contrary, the roller D is removed from its position at the delivery end of the machine and placed in the required position at the receiving end of the machine, as shown in Fig. 1, the apron B is gradually contracted at the delivery end, extending only to and around the small roller H. This is the condition required for delivering the crackers onto pans. The pans are introduced inward on the belt I, which extends around the roller I′ I′, and may be removed and placed in the oven by hand, or by any suitable means, as will be understood.

The main shaft *m*, receiving motion through a large pulley, M, from a belt, (not represented,) gives the required reciprocating motion through two eccentrics, M′, and connections L′, to the cross-bar L, which gives the required amount of strong and rapid vertical motion to the dies or cutters, and to the die-carrier L², which carries the cutting-dies. The thin sheet of dough delivered from the dough-rollers is carried forward intermittently on the apron B, and during the periods of rest under the die-carrier is subjected to the proper action thereof. This action is all of the ordinary character, and the table or bed-plate N supports the apron B firmly in the correct position at the proper level below the cutters; but we provide simple and efficient means for adjusting the table up and down over its entire length with ease and promptness.

A false bed-plate, N′, is mounted, through the intervention of strips of rubber or analogous elastic supports, upon the true table or

bed-plate N, which latter is provided with vertical arms N^2 at each end, guided between fixed vertical ways A′, so as to be capable of only a vertical motion.

On the under face of the bed-plate N are keepers N^3, in which are received horizontal slides P′, attached to eccentric-straps P. These latter inclose eccentrics R, which are fixed on a shaft, *r*, supported in permanently-fixed bearings in the frame-work. By turning this eccentric-shaft *r* the three eccentrics P simultaneously and equally change their positions and raise and lower the bed-plate to any desired small amount. In effecting this vertical movement there is necessarily a considerable amount of horizontal movement of the eccentrics accommodated by the shifting of the slides P′ within the keepers N^3.

The turning of the shaft *r* to any required small amount is effected by the endless screw or worm-wheel T′, mounted in fixed bearings on the frame-work and turned by the hand-wheel T. The worm T′ engages in a worm-wheel, K′, fixed on the shaft *r*.

The required strong and slow motion of the dough-rollers Y Z is effected through a beveled gear, X′ Y′, from an inclined shaft, X, mounted in fixed bearings, and receiving motion through a worm-wheel, W, fixed thereon. This receives motion from a worm, V, which is mounted on a shaft, *v*, mounted in fixed bearings and driven by a spur-gear wheel, V′. This receives motion from a large idle gear-wheel, U, which is mounted on a pivot, *u*, fixed in adjustable positions in a curved slot in the framing A, so that it may receive motion from a gear-wheel, M^2, on the main shaft *m*. This wheel M^2 may be removed and another of larger or smaller diameter substituted, so as to vary the relative speed of the dough-rollers as required. The pivot *u*, and consequently the position of the wheel U, may be shifted to correspond with these changes, so that the wheel U will properly communicate the motion of M′ to V.

It will be understood that all the ordinary provisions for giving a reciprocating motion to the belt B, and for adjusting the space between the dough-rollers Y Z, and for properly clearing the crackers from the scrap, may be used as in other machines. Our invention does not prevent the use of nearly or quite all the modifications known in the cracker trade.

When the machine is used with the apron B extended, the roller D being at the delivery end of the machine, the bearings of this roller are those which are adjusted to tighten and slacken the apron. These bearings are marked J, and their adjusting-screws are marked J′. When, on the contrary, the machine is used with the apron B extending no farther toward the delivery end than the small roller H, the roller D is mounted in fixed bearings K at the receiving end of the machine. In this condition of the machine the bearings of the roller E are adjusted by turning the screws E′.

We claim as our invention—

1. In a cracker-machine, the shaft *r*, the series of eccentrics R, mounted on the shaft *r*, the worm T′, and worm-wheel K′, in combination with the adjustable bed-plate N, having guides n^2, the intermediate eccentric-straps, P, having slides P′, the die-carrier L and its operating means, and apron B and its operating means, whereby the vertical position of said table may be adjusted at will, substantially as herein specified.

2. In a cracker-machine, the combination of the main frame provided with bearings K and J, as described, with endless apron B, tightening-rollers E D, and rollers G H, the said apron being of the length described, whereby it may be made to pass around the roller H at one end, or around a roller located in the bearing J, as and for the purposes set forth.

In testimony whereof we have hereunto set our hands, at New York city, New York, this 12th day of February, 1883, in the presence of two subscribing witnesses.

CHARLES S. FOWLER.
LUCIUS A. ROCKWELL.

Witnesses:
CHARLES R. SEARLE,
M. F. BOYLE.