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Patented Aug. 1, 1899.

W. S. FOSTER.
MACHINE FOR CUTTING CARAMELS, &c.

(Application filed Oct. 3, 1898.)

(No Model.)

3 Sheets—Sheet 1.

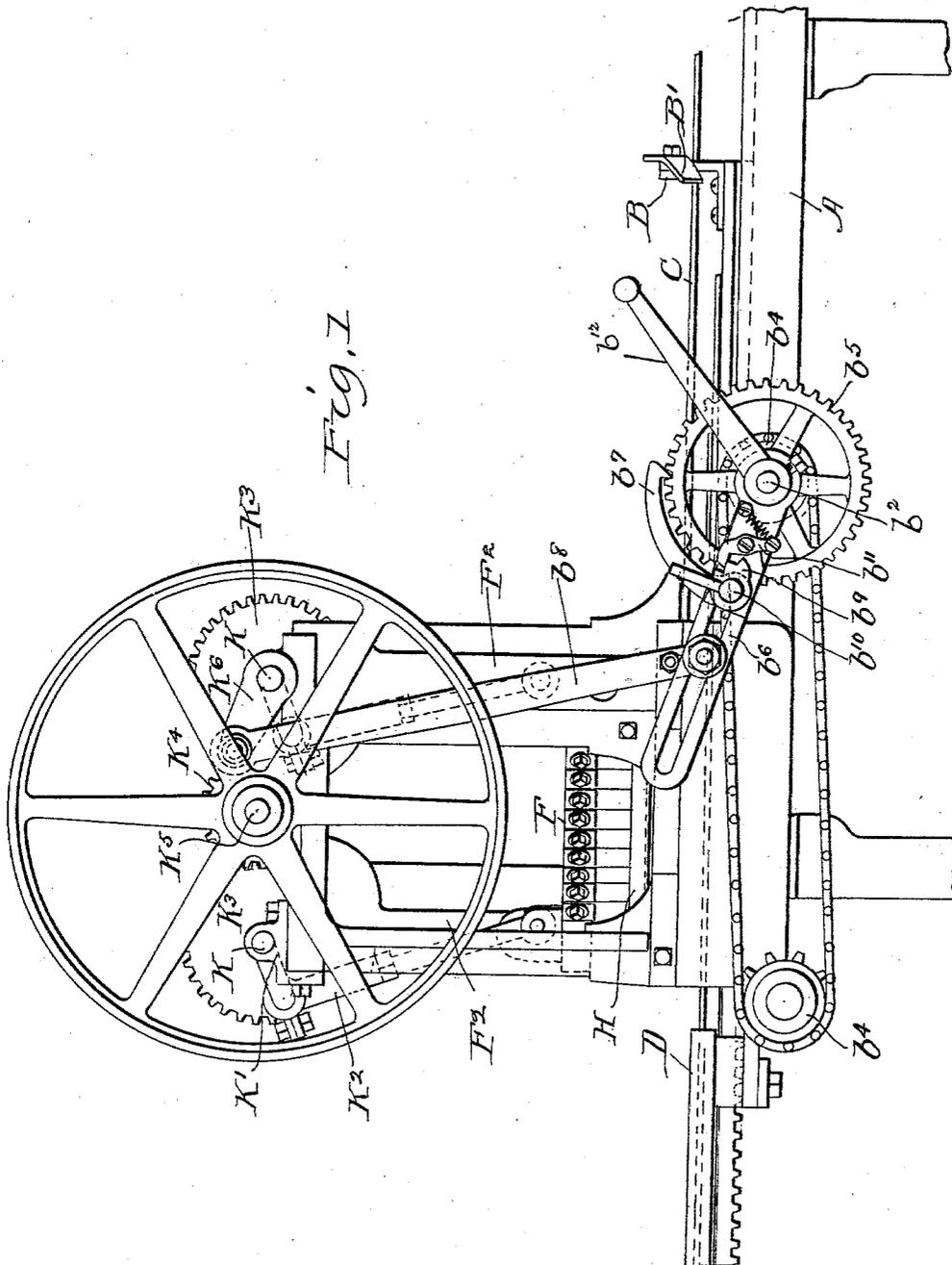


Fig. 1

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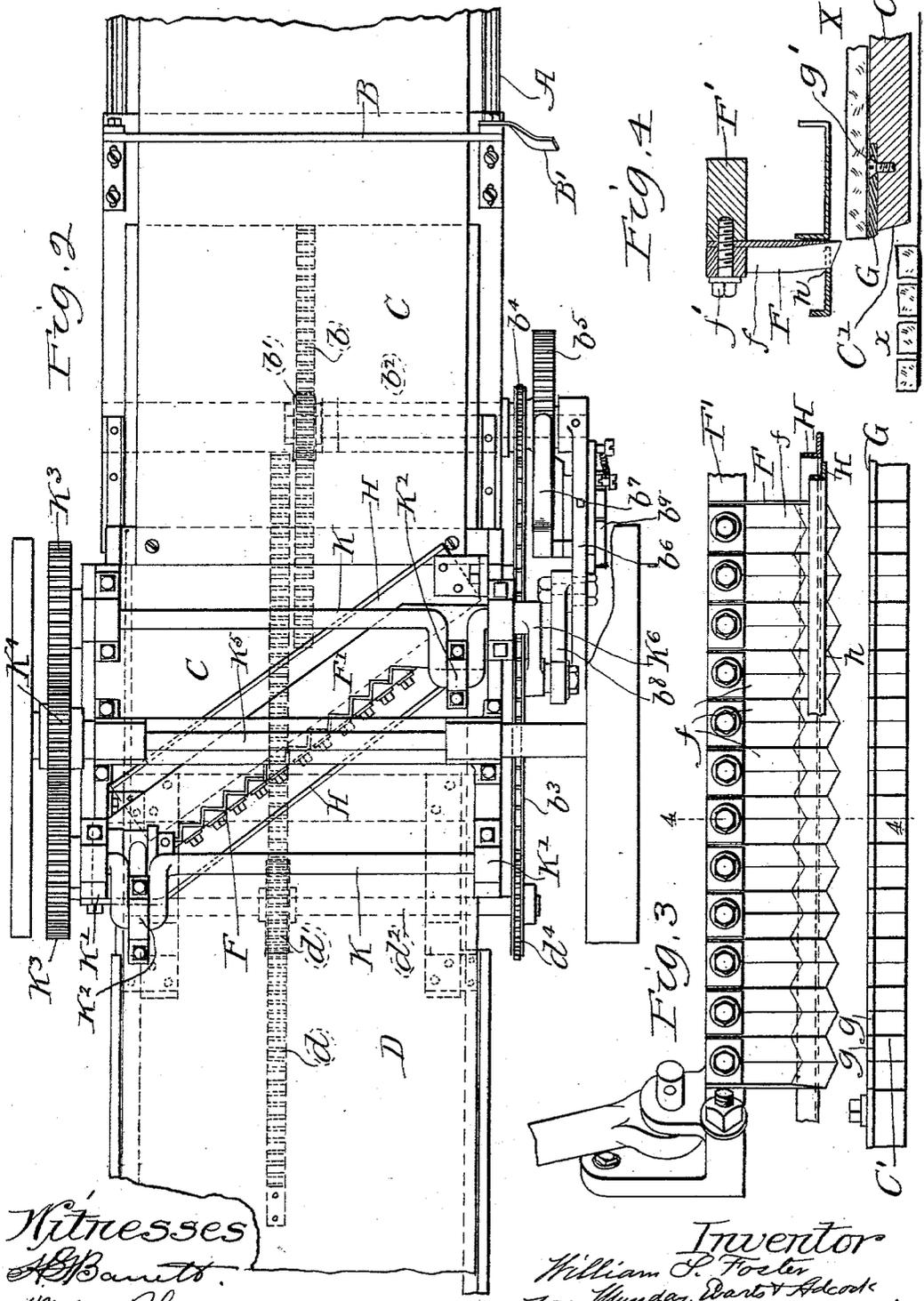
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3 Sheets—Sheet 2.



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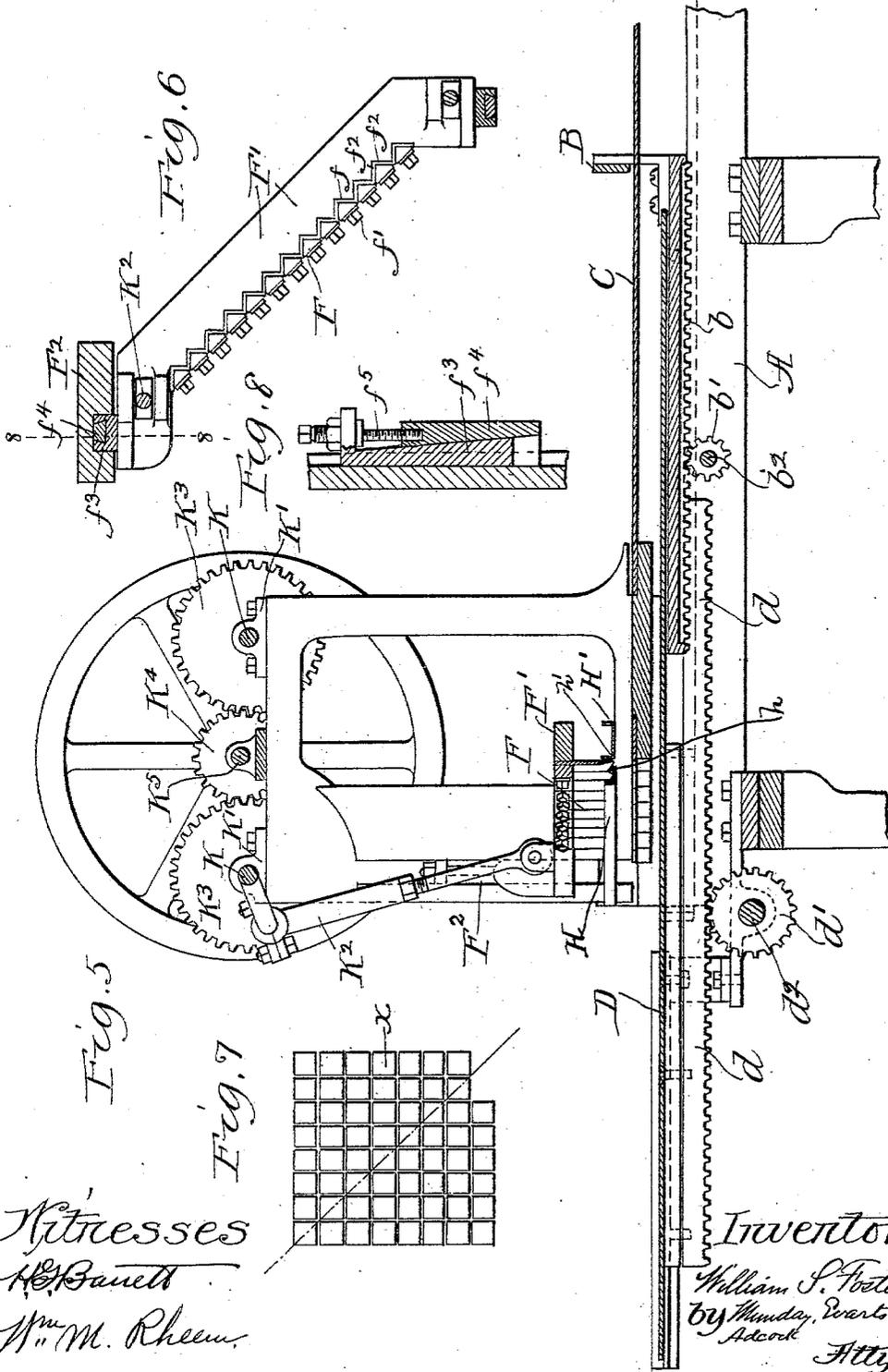
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(Application filed Oct. 3, 1898.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR CUTTING CARAMELS, &c.

SPECIFICATION forming part of Letters Patent No. 629,785, dated August 1, 1899.

Application filed October 3, 1898. Serial No. 692,471. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. FOSTER, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Machines for Cutting Caramels and other Soft Materials, of which the following is a specification.

My invention relates to machines for cutting candies or other soft materials into blocks or small pieces.

The object of my invention is to provide a machine of a simple, efficient, and durable construction by means of which caramels or other candies or materials may be perfectly, rapidly, and cheaply cut from a sheet of the soft and more or less sticky and pasty material into regular and uniform shapes, blocks, or pieces and without danger of the severed caramels, blocks, or pieces sticking together or becoming marred or distorted out of shape, and thus injuring their appearance and interfering with their sale.

My invention consists in the means I employ to accomplish this important object or result—that is to say, it consists in the combination, with a feed-table and feed-slide, of an angle knife and die arranged diagonally to the direction of the feed, the angle-knife conforming to and cutting two sides of each caramel at each stroke.

It further consists, in connection with these parts, of a discharge or receiving table moving at a greater speed than the feed and preferably at double the speed of the feed-slide, so that as the caramels are successively formed by the diagonally-arranged angle-knife they will be deposited upon the discharging or receiving table corner to corner like the alternate blocks of a checker-board and so that the sides of the severed caramels or blocks can have no contact with each other, and thus have no opportunity to stick together and become marred or injured in appearance.

It further consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described, and specified in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side

elevation of a machine embodying my invention. Fig. 2 is a plan view. Fig. 3 is a front elevation of the angle knife, die, and stripper-plates. Fig. 4 is a detail section on line 4 4 of Fig. 3. Fig. 5 is a longitudinal vertical section. Fig. 6 is a horizontal section showing the vertically-moving diagonally-arranged cross-head to which the angle-knife is secured and by which it is operated. Fig. 7 is a diagram or plan view illustrating the checker-board arrangement of the cut caramels or other blocks on the receiving-table by reason of the diagonal arrangement of the angle-knife and the double-speed movement of the receiving-table in respect to that of the feeder, and Fig. 8 is a section on line 8 8 of Fig. 6.

Like letters of reference indicate like parts in all the figures.

In said drawings, A represents the frame of the machine, the same being of any suitable form or construction to give support to the other parts of the machine.

B is the feeder or feed-slide, and C the feed-table along which the sheet X of the caramel material or other material from which caramels or other blanks are to be cut is pushed or fed at intervals by the longitudinally-reciprocating movement of the feeder B.

D is the receiving or discharge table upon which the caramels or blocks *x* are deposited or discharged as they are cut from the sheet X by the diagonally-arranged angle-knife F in conjunction with the similarly-arranged angle-die G and stripper-plates H H'. The diagonally-arranged angle-knife F is secured to and operated or reciprocated up and down by a diagonally-arranged vertically-moving cross-head F', which works up and down on suitable guides F² F² on the frame of the machine. The diagonal angle-knife F instead of being made all in one piece may be composed, as illustrated in the drawings, of a number or series of separate angle-sections *f*, individually secured by screws or bolts *f'* to the cross-head F', this, however, being simply a detail or convenience in the construction of the angle-knife, the operation being the same whether the angle-sections *f* are all integral with each other and in one piece or in separate pieces.

The diagonal angle-knife F may be composed of any number of angle-sections f , according to the number of blocks or caramels desired to be cut at a stroke and to the width of the sheet X being operated upon. The angle-knife may be made of any particular form desired according to the shape of the caramels, blocks, or pieces designed to be cut from the sheet X, and the sides $f^2 f^2$ of each angle-section may be curved or straight and the angle or junction between the two sides or limbs, as will be understood by those skilled in the art, may be either an angle, acute, right, or obtuse, or a curve, dependent upon the particular shape of blocks or pieces desired to be cut from the sheet, and by the use of the term or phrase "angle-knife" I wish to be understood as meaning all such variations.

The diagonally-arranged angle-die G corresponds in shape to the knife to which it cooperates. It is preferably formed of a single plate of metal, its angle-sections $g g$ being all made integral with each other. The diagonal angle-die G is secured to the diagonal front edge C' of the feed-table C by screws g' .

The diagonal stripper-plates H and H' are arranged just above the feed-table C and fit one in front of and the other back of the diagonal angle-knife. These stripper-plates have angle-sections $h h'$ corresponding to the front face and back face of the angle-knife. They serve to prevent the severed blocks or caramels x from sticking to the knife and cause them to be properly stripped therefrom and deposited upon the receiving-table D below. The stripper-plates also serve to clean the knife.

The necessary reciprocatory movement may be imparted to the diagonal angle-knife and the necessary intermittent forward movement to the feeder B and receiving-table D by any suitable means or mechanism. That which I, however, prefer to employ I have illustrated in the drawings.

The means which I prefer to employ for reciprocating the angle-knife up and down consists, essentially, in a pair of crank-shafts K K, journaled in suitable bearings K' on the frame of the machine and connected by pitmen K², one with one end of the cross-head F' and the other with the other, the shafts K K each having a gear K³, meshing with a gear K⁴ on the driving-shaft K⁵.

The means or mechanism which I prefer to employ for intermittently moving forward the feed-slide or feeder B and the receiving-table D, the latter at a double or increased speed to the former, so as to properly separate the caramels as they are cut, consists of racks $b d$, meshing with gears $b' d'$ on the shafts $b^2 d^2$, the gear d' being preferably double the size of the gear b' and the shafts $b^2 d^2$ being geared together by the sprocket-chain b^3 , engaging the sprocket-wheels $b^4 d^4$ on shafts $b^2 d^2$. The shaft b^2 is provided with a ratchet-wheel b^5 , and it is intermittently

turned by a vibrating arm b^6 , carrying a pawl b^7 , engaging said ratchet, said arm b^6 being vibrated by a crank K⁶ on the shaft K, to which it is connected by a link b^8 . The pivoted pawl b^7 is provided with a notched block or stop b^9 on its pivot or shaft b^{10} , which is engaged by a spring stop or trigger b^{11} to hold the pawl out of engagement with the ratchet when the feed-slide B is being returned by the crank or lever b^{12} into position to receive a new sheet of material X on the feed-table C. The feed-slide or feeder B is provided with a projection or arm B', which engages the pawl b^7 when the feed-slide reaches the forward limit of its movement, and thus automatically lifts the pawl from the ratchet, the trigger or stop b^{11} then serving to hold the pawl in this disengaged position.

The guide bar or part f^3 of the cross-head is provided with an adjustable wedge or block f^4 , dovetailed to the part f^3 and adjusted and held in position by an adjusting-screw f^5 in order to take up the wear or slack and cause the cross-head to properly fit in its guides F².

I claim—

1. In a machine for cutting caramels or other soft materials, the combination with a feed-table and movable feed-slide or feeder, of an angle-knife arranged diagonally to the direction of the feed, substantially as specified.
2. The combination with a feed-table, of a movable feed-slide or feeder, a diagonally-arranged angle-knife and a receiving-table moving at a greater speed than that of the feeder, substantially as specified.
3. The combination with a feed-table, of a feed-slide, a cross-head extending across the feed-table at an angle thereto, an angle-knife secured to said cross-head, a receiving-table and mechanism for intermittently moving the feed-slide and receiving-table, the latter at double the speed of the former, substantially as specified.
4. The combination with a feed-table, of a feed-slide, a cross-head extending across the feed-table at an angle thereto, an angle-knife secured to said cross-head, a receiving-table and mechanism for intermittently moving the feed-slide and receiving-table, the latter at double the speed of the former, and mechanism for reciprocating the cross-head up and down, substantially as specified.
5. The combination with a feed-table, of a diagonal angle-knife and a diagonal angle-die cooperating therewith, substantially as specified.
6. The combination with a feed-table, of a diagonal angle-knife, a diagonal angle-die cooperating therewith, and diagonal stripper-plates, substantially as specified.
7. The combination with a feed-table, of a diagonal cross-head and angle-knife secured thereto, of a pair of crank-shafts and pitmen for reciprocating the cross-head, substantially as specified.
8. In a machine for cutting soft materials,

the combination with a reciprocating knife, of a feed-table, a feed-slide and a receiving-table, each of the latter provided with a rack, and a pair of shafts having gears of different diameters for reciprocating said feed-slide and receiving-table, the latter at a greater speed than the former, substantially as specified.

9. The combination with a reciprocating knife and a feed-slide, of a pawl and ratchet for intermittently moving the feed-slide forward, and an arm or projection on the feed-slide to automatically disengage the pawl from the ratchet when the feed-slide reaches the limit of its forward movement, substantially as specified.

10. The combination with a reciprocating knife and a feed-slide, of a pawl and ratchet for intermittently moving the feed-slide forward, and an arm or projection on the feed-slide to automatically disengage the pawl from the ratchet when the feed-slide reaches the limit of its forward movement, a notched block or stop on the pawl and a spring trigger or arm to hold the pawl disengaged from the ratchet, substantially as specified.

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Witnesses:

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