F. R. MAGUIRE.

SELF FEEDING APPARATUS.

APPLICATION FILED MAY 27, 1919.

1,333,208.

Patented Mar. 9, 1920.

3 SHEETS—SHEET 1.

FIG. 2.

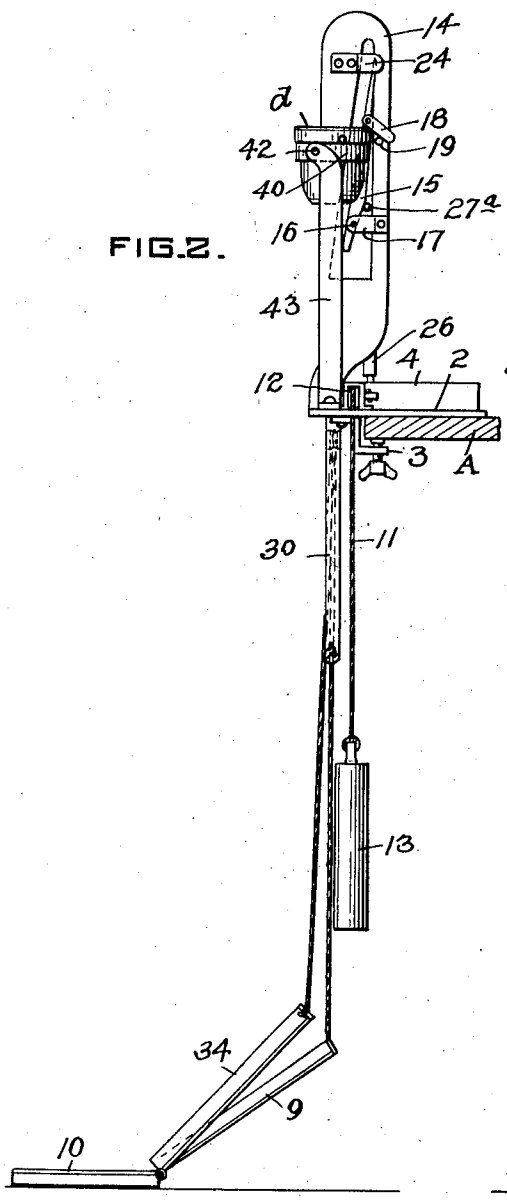
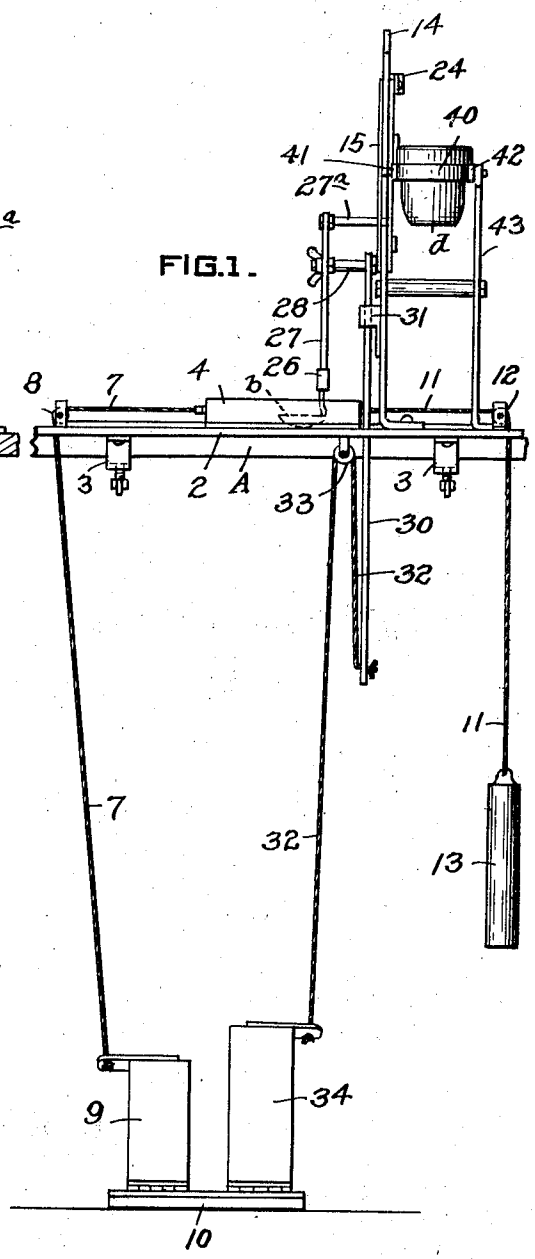


FIG. 1.



WITNESSES

J. Hebal Bradley.

Lois Unieman.

INVENTOR

Forrest R. Maguire

by C. M. Clarke

his attorney

F. R. MAGUIRE.

SELF FEEDING APPARATUS.

APPLICATION FILED MAY 27, 1919.

1,333,208.

Patented Mar. 9, 1920.

3 SHEETS—SHEET 2.

FIG. 3.

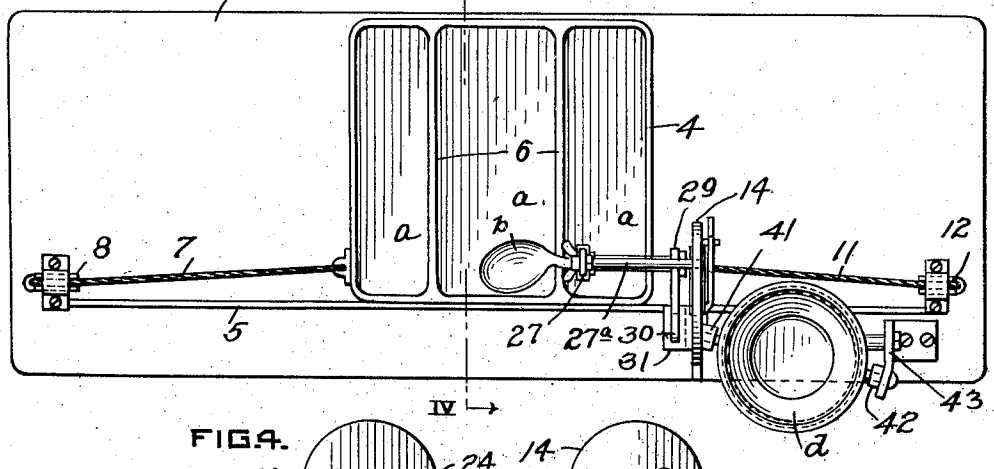


FIG. 4.

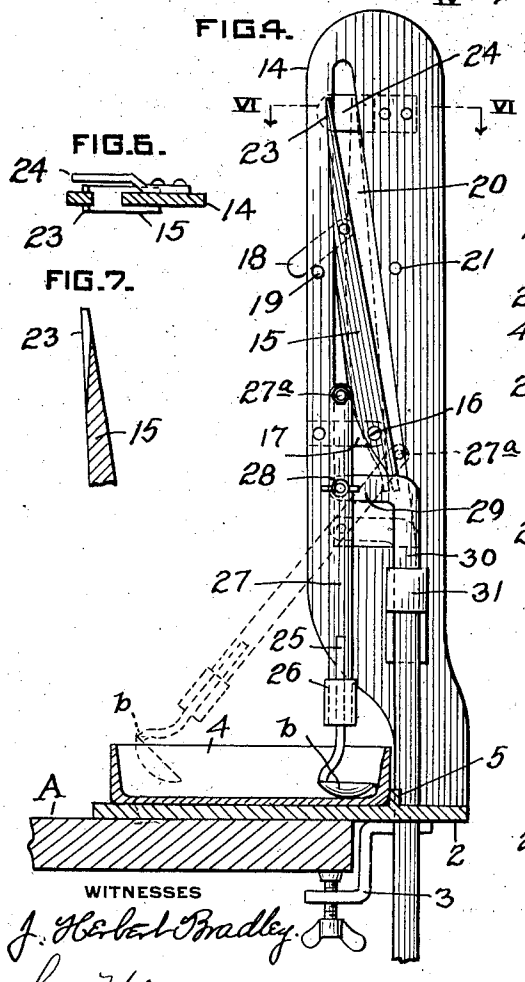
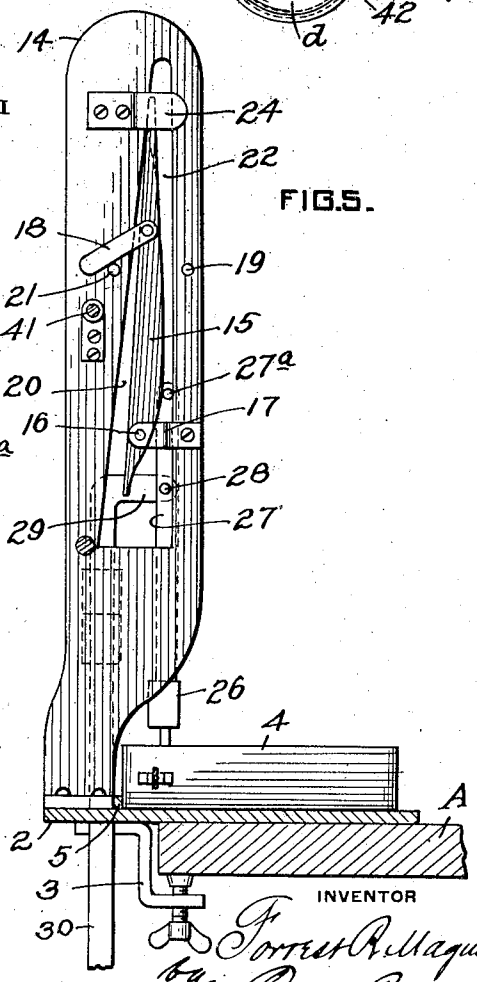


FIG. 6.

FIG. 7.

FIG. 5.



WITNESSES

J. Herbert Bradley.

Lois Wineman.

INVENTOR

Forrest R. Maguire

by C. M. Clarke

his attorney

F. R. MAGUIRE.

SELF FEEDING APPARATUS.

APPLICATION FILED MAY 27, 1919.

1,333,208.

Patented Mar. 9, 1920.

3 SHEETS—SHEET 3.

FIG. 8.

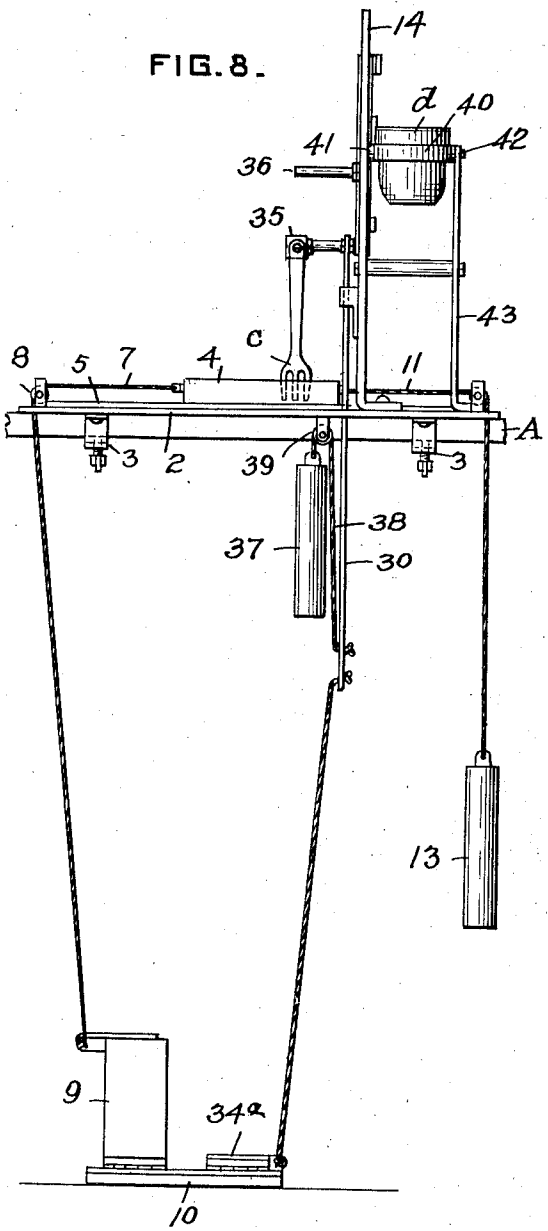
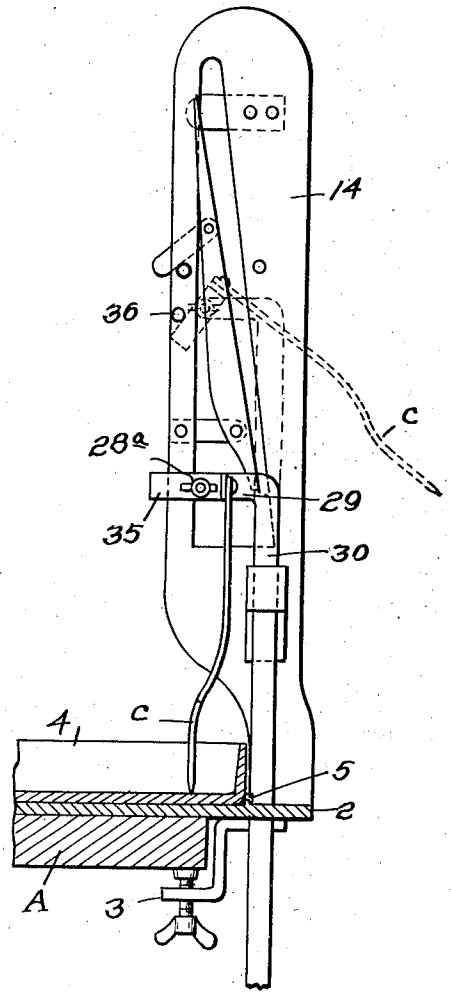


FIG. 9.



WITNESSES

J. Hobart Bradley.

Lois Vuieman.

INVENTOR

Forrest R. Maguire

by C. M. Clarke

his attorney

UNITED STATES PATENT OFFICE.

FORREST R. MAGUIRE, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO W. C. DAVIS, OF LARIMER, S. A. ACKERSON, OF TRAFFORD, AND W. L. KINSEY, OF PITTSBURGH, PENNSYLVANIA.

SELF-FEEDING APPARATUS.

1,333,208. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed May 27, 1919. Serial No. 300,190.

To all whom it may concern:

Be it known that I, FORREST R. MAGUIRE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Self-Feeding Apparatus, of which the following is a specification.

My invention consists of an apparatus for feeding one's self by means of a spoon or fork or other similar device adapted to remove portions of food from a holding dish or plate, by means of actuating mechanism operated by the foot or feet of the user. It has in view to provide such a device capable of use by a person having lost his arms, or their use, and to enable him to transfer food from a vessel, which is itself preferably adjustable, to a position where it may be easily taken into the mouth.

Preferred embodiments of the invention are shown in the accompanying drawings, in which:

Figure 1 is a view of the apparatus in front elevation;

Fig. 2 is a side elevation of the apparatus;

Fig. 3 is a plan view;

Fig. 4 is an enlarged sectional view of the actuating mechanism on the line IV, IV of Fig. 3;

Fig. 5 is a similar view from the other side;

Fig. 6 is a cross section on the line VI, VI of Fig. 4;

Fig. 7 is a vertical sectional detail view of the upper end of the controlling cam;

Fig. 8 is a view similar to Fig. 1 showing a modified construction for using a fork, showing the fork lowered; and

Fig. 9 is a view similar to Fig. 4 illustrating the fork actuating mechanism.

The main base 2 of the apparatus is adapted to be clamped to a table or shelf A by clamps 3 and the base is adapted to support a dish 4 which is capable of sliding along its front guiding edge 5.

The dish is preferably provided with one or more partitions 6 providing a plurality of compartments *a* extending lengthwise toward the user, to facilitate the gathering of the food therefrom, as hereafter described.

At one side, dish 4 is connected by cord 7 running over guiding sheave 8 down to a treadle 9 hinged to a shoe 10 adapted to lie on the floor, and the other side of the dish is similarly connected by cord 11 leading over sheave 12 and connected to counterweight 13. By this means the dish may be easily shifted laterally to any desired position, and there held during the manipulation of the spoon or fork.

At one side of the normal position of the dish an upright plate 14 extends upwardly from the base 2 to which it is rigidly secured, and this plate is cut out at its middle portion to provide the necessary triangular clearance for a swinging cam plate 15, pivoted at 16 to a bracket 17. The cam plate 15 is provided with a pivoted counterweight 18 adapted to be thrown over upon pin 19 to open a continuous inclined slot 20 to deflect the spoon *b* on downward movement as in dotted lines, Fig. 4, or over on pin 21 at the other side to open a continuous vertical slot 22 for vertical upward movement of the spoon, as in Fig. 5. These movements are necessary in feeding fluid or semi-fluid foods, as soup, or the like.

The upper end of the cam plate 15 is tapered to a point and is provided at each side with projecting edges or guides 23 adapted to embrace the inner slotted edge of the plate, while a keeper or cross bracket 24 is secured to the plate 14 and extends across the upper part of the slot opening, to prevent backward swinging of the upper end of the cam plate.

Spoon *b* is provided with a right angle stem 25 adjustably held in socket 26 of a depending arm 27 pivoted at 28 to the terminal 29 of a vertically movable operating arm 30. Said arm is mounted in guide 31 and extends down through the base 2, its weight and that of the attached parts tending to normal downward movement. A lifting cord 32 is secured to the lower end of arm 30 and passes up around sheave 33 and then downwardly to treadle 34, also hinged to shoe 10.

Arm 27 extends upwardly beyond pivoted joint 28 sufficiently far to provide leverage and is provided at its terminal with a pin 27^a, adapted to ride downwardly in inclined slot 20 to tilt the spoon backwardly and upwardly in vertical slot 22 to raise the spoon when full. Pin 27^a, it will be understood, may be located at any suitable position on arm 27 to effect the desired tilting of the spoon. When actuated by arm 30 in rising,

pin 27^a will ride against the outer vertical edge of the slotted plate, tipping the upper end of cam plate 15 outwardly until the pin rises beyond its top, when the cam plate will then fall back as in Fig. 4. Arm 30 is then lowered by slowly releasing the treadle 34, arm 27 coming down with it, and with pin 27^a riding down along the inclined outer edge of the cam plate, tilting the spoon back, as indicated in dotted lines, Fig. 4.

The full downward movement allows pin 27^a to ride underneath the lower terminal of cam 15, the weight of the spoon depressing the lower cam terminal backwardly so that when pin 27^a is lowered below the cam, the weight of the spoon will cause pin 27^a to rise upwardly behind the cam, with the edge of the spoon resting on the farther bottom portion of dish 4. Upward movement of arm 30 may then be effected by operation of treadle 34 until the spoon is about at the right level to be taken into the mouth of the user.

In Figs. 8 and 9 I show a modified construction for using a fork *c*, which is secured to the front of an arm 35 similarly pivoted at 28^a to the upper terminal 29 of arm 30. Arm 35 is adapted to come into contact with a tilting abutment pin 36 extending from plate 14 into range of pivoted arm 35 so as to throw fork *c* forwardly to convenient position for the user, as indicated in dotted lines, Fig. 9. With this arrangement, it is desirable to thrust the fork downwardly into the dish with considerable force, to pierce through a piece of meat, bread, or the like, and the treadle 34^a is therefore connected directly with the bottom of operating arm 30, as in Fig. 8, a counterweight 37 being also connected with the arm by cord 38 over a sheave 39, for lifting the arm and fork *c*.

A drinking cup *d* is pivotally mounted by a socket ring 40 pivoted in bearing 41 of plate 14 and at 42 to the top of an upright support 43 extending upwardly from base 2. The cup and ring are mounted for pivotal tipping at a convenient angle as to the pivoting center, for easy reach by the user, as shown in Fig. 3.

The construction and operation of the invention will be readily understood and appreciated from the foregoing description. The apparatus is suitably proportioned as to height and its various dimensions to accommodate itself to the user when seated in front of it. By manipulating treadle 9, the dish 4 may be moved to right or left to enable all parts of it, or of its compartments, to be placed within range of the particular utensil being used. Treadle 34 or 34^a enables the user to move the utensil at any desired speed or to stop it at will, so that aside from the cutting of such food as may be eaten by a fork, all that is necessary for an attendant to do is to fill the dish with the preferred food and the cup with liquid, as coffee, tea, etc.

The device has been found to be entirely practicable in operation and of great convenience and usefulness to those who are crippled in the manner indicated. It enables them to practically feed themselves, relieving the user of a sense of helplessness and avoiding the necessity of an attendant to a great extent.

The invention may be changed or varied in different details or features by the skilled mechanic, but all such changes are to be understood as within the scope of the following claims.

What I claim is:

1. Self-feeding apparatus consisting of a food holding utensil, means controlled by the feet for lowering and raising the utensil and mechanism for deflecting the utensil from its normal vertical path of movement.

2. Self-feeding apparatus consisting of a food holding utensil and means embodying cam mechanism and controlled by the feet for lowering, tilting and raising the utensil.

3. Self-feeding apparatus consisting of a food holding utensil and a pivoted supporting arm therefor having a guiding projection, means for raising and lowering the pivoted arm, and a vertically arranged slotted guide for said projection.

4. Self-feeding apparatus consisting of a food holding utensil and a pivoted supporting arm therefor having a guiding projection, means for raising and lowering the pivoted arm, and a vertically arranged slotted guide for said projection provided with a pivoted deflecting cam.

5. Self-feeding apparatus consisting of a food holding utensil and a pivoted supporting arm therefor having a guiding projection, means for raising and lowering the pivoted arm, and a vertically arranged slotted guide for said projection provided with a pivoted deflecting cam having an adjustable counterweight.

6. In combination with a food holding utensil and means for actuating it, a laterally movable food receiver and means for shifting it.

7. In combination with a food holding utensil and means for actuating it, a laterally movable food receiver and foot actuated mechanism for shifting it.

8. In combination with a vertical standard provided with a guiding trackway, a vertically movable arm provided with treadle actuated operating mechanism and a counterweight, and a food holding utensil pivotally carried by said arm and provided with a projection engaging the trackway.

9. In combination with a vertical stand-

ard provided with a guiding trackway, a vertically movable arm provided with treadle actuated operating mechanism and a counterweight, a food holding utensil pivotally carried by said arm and provided with a projection engaging the trackway, and a pivoted cam located in said trackway for engagement with said projection.

10. Self-feeding apparatus consisting of a supporting base having attaching clamps, a food receiver movable along said base having foot actuated operating mechanism, a guiding standard, and a vertically movable support provided with a pivotally mounted food engaging utensil having operative connection with the guiding standard.

11. Self-feeding apparatus consisting of a supporting base having attaching clamps, a food receiver movable along said base having foot actuated operating mechanism, a guiding standard, having a clearance opening therein and a pivotally mounted deflecting cam, and a vertically movable support provided with a pivotally mounted food engaging utensil having a projection engaging the clearance opening and deflecting cam.

12. Self-feeding apparatus consisting of a supporting base having attaching clamps, a food receiver movable along said base having foot actuated operating mechanism, a guiding standard having a clearance opening therein and a pivotally mounted deflecting cam, a vertically movable support provided with a pivotally mounted food engaging utensil having a projection engaging the clearance opening and deflecting cam, and an operating treadle having a lifting connection with the vertically movable support.

13. In combination with a vertical standard, a vertically movable treadle-actuated carrier provided with a pivoted food holding utensil, and means carried by the standard for engaging an element movable with the food holding utensil for tilting the utensil.

14. In combination with a vertically movable supporting arm and a food holding utensil pivotally carried thereby, a vertical slotted standard, and a pivoted controlling cam therein having a position controlling counterweight.

15. In combination with a vertically movable supporting arm and a food holding utensil pivotally carried thereby, a vertical slotted standard, and a pivoted controlling cam therein having an upper tapered terminal engaging the inner edge of the slotted standard.

16. In an apparatus of the class described, in combination with the slotted standard and a food holding utensil operable therewith, a laterally spaced upright support, and a cup holding ring pivotally mounted between said standard and support and a cup seated therein for forward tilting closely adjacent the food holding standard.

17. In combination with a base having a flat upper surface and a guiding front edge, and a food holding utensil and means for actuating it above the base; a laterally movable food receiver slidably mounted on the base and against its front edge, and treadle and counterweight mechanism for shifting the food receiver laterally with relation to the utensil.

18. In combination with a base having a flat upper surface and a guiding front edge, and a food holding utensil and means for actuating it above the base in a direction toward and from the user; a laterally movable food receiver having one or more transverse partitions arranged in parallelism with the direction of movement of the utensil and slidably mounted on the base and against its front edge, and treadle and counterweight mechanism for shifting the food receiver laterally with relation to the utensil.

19. In combination with a base having a flat upper surface and a guiding front edge, and a food holding utensil and means for actuating it above the base; a laterally movable food receiver slidably mounted on the base and against its front edge, a treadle and a flexible connection therefrom secured to the food receiver, a guiding sheave therefor, and an oppositely acting counterweight flexibly connected to the other side of the food receiver, and a guiding sheave therefor.

In testimony whereof I hereunto affix my signature.

FORREST R. MAGUIRE.