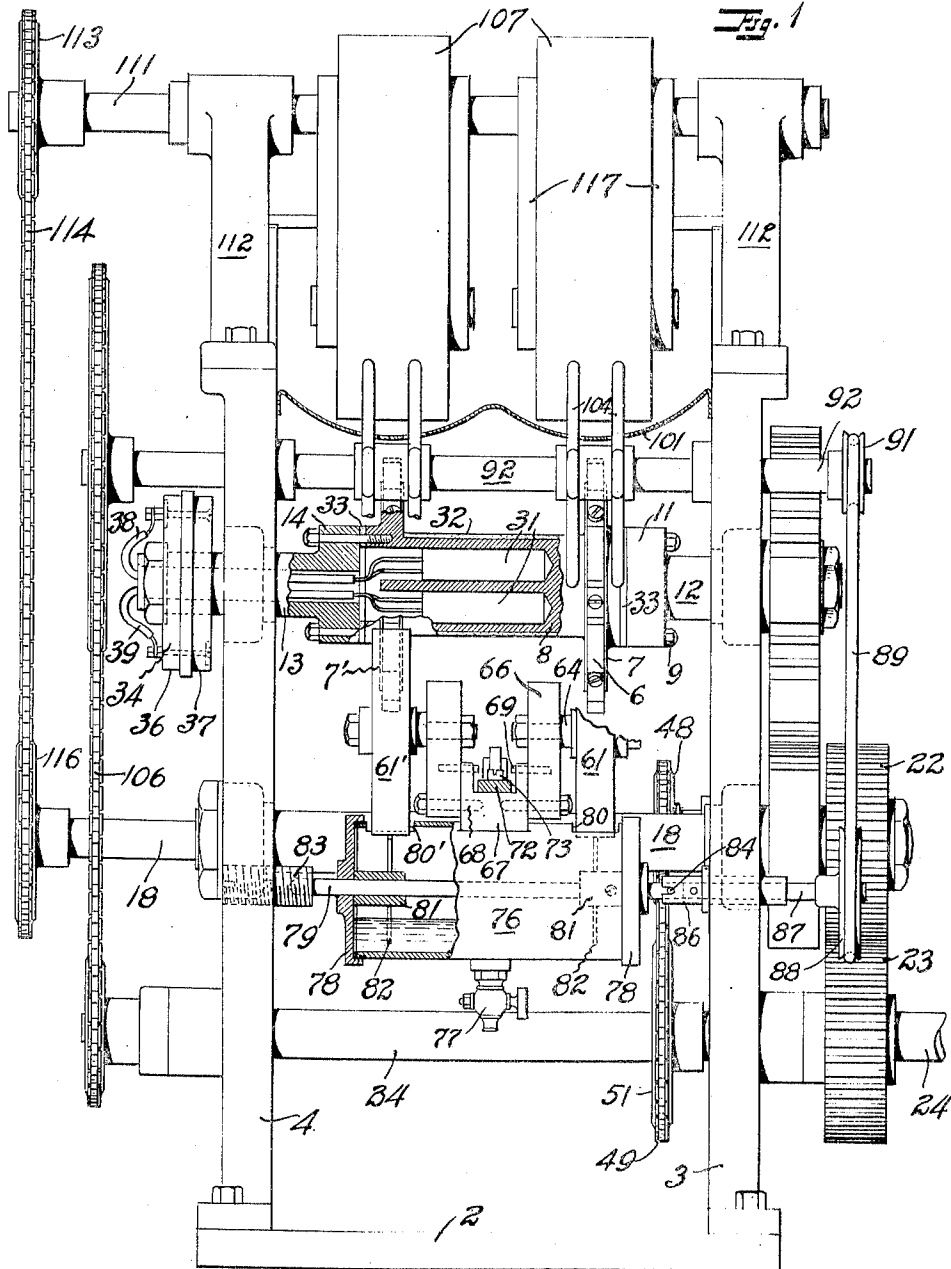


L. NEUENSCHWANDER.
ELECTRIC FRUIT MARKING MACHINE.
APPLICATION FILED MAR. 20, 1918.

1,367,077.

Patented Feb. 1, 1921.

2 SHEETS—SHEET 1.



WITNESSES

C. S. Evans

J. B. Gardner

INVENTOR.

L. NEUENSCHWANDER

BY *White & Probst*

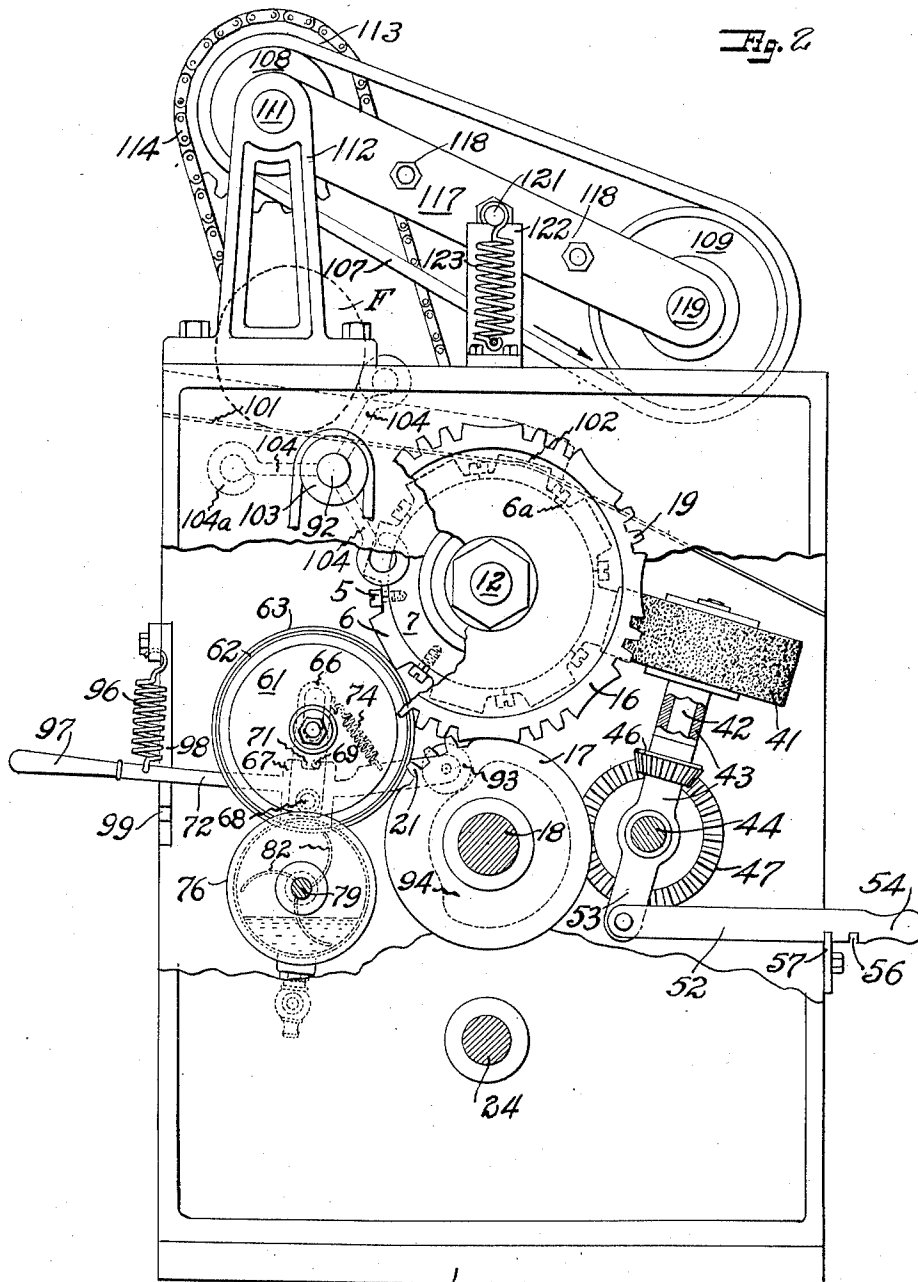
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UNITED STATES PATENT OFFICE.

LEWIS NEUENSCHWANDER, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO ELECTRIC FRUIT MARKING CO., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

ELECTRIC FRUIT-MARKING MACHINE.

1,367,077.

Specification of Letters Patent.

Patented Feb. 1, 1921.

Application filed March 20, 1918. Serial No. 223,651.

To all whom it may concern:

Be it known that I, LEWIS NEUENSCHWANDER, a citizen of the United States, and a resident of the city of Los Angeles, county of Los Angeles, and State of California, have invented a new and useful Electric Fruit-Marking Machine, of which the following is a specification.

My invention relates to apparatus for marking names, designs or other delineations on fruit.

An object of the invention is to provide an apparatus for marking fruit.

Another object of my invention is to provide an apparatus for marking fruit in which there are improved means for bringing the fruit into contact with the marking dies.

Another object of my invention is to provide a machine of the class described in which improved means are provided for inking and for heating the marking dies.

Another object of my invention is to provide a machine of the class described which will operate with equal facility on fruit of the same size or a fruit of varying sizes.

The invention possesses other features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming a part of the specifications. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Figure 1— is a front elevation of the machine;

Fig. 2— is a side elevation of the machine, portions being broken away to disclose the construction.

Broadly, my marking machine comprises a housing or frame in which are mounted a plurality of dies for marking the fruit, means for moving the dies successively into operative position, means for feeding a succession of fruit to the dies, means for heating the dies and means for cleaning and means for inking each die before it again contacts with the fruit. Under these several topic headings, I will explain the

construction and operation of my marking machine in detail.

Housing.—The mechanism of my marking machine is arranged within a frame comprising a base or foundation plate upon which are suitably secured vertical side walls or frames 3 and 4 in which the main bearings for various rotating parts are secured. In the drawings, a twin or double machine is shown, that is, there are two sets of dies and of certain other parts, so that two pieces of fruit are marked simultaneously. It is of course understood that the machine may be built with but one set of dies or with any desired number. The spacing of the side frame 3 and 4 is varied in accordance with the number of sets of dies. Since the operation of the duplicated parts is identical, the explanation will be directed chiefly to but one set of dies and correlated mechanism, and the duplicated parts will be referred to but briefly.

Dies.—Cap screws 5 secure the marking dies 6 at regular intervals upon the periphery of the wheel or flange 7. The dies are formed with short lugs 6^a at each end and in the edges of the lugs are semicircular notches, each notch of two contiguous lugs engaging one-half of the cap screw body passing therethrough. The cap screws engage in suitably tapped and spaced holes in the wheel 7, and they not only secure the dies to the face of the wheel, but accurately position them thereon. The wheel 7 is preferably a flange formed upon the rotatable drum 8, which is made of copper or other heat conducting material. In the twin or double acting machine shown in the drawings, there are two such flanges 7 and 7' arranged on the drum, and each is equipped with a set of dies. Secured upon one end of the drum 8 by the cap screws 9 through the flange 11, is an extension shaft 12 rotatably arranged in suitable bearings in the frame 3. A similar shaft 13 carrying the flange 14 is secured to the opposite end of the drum 8, and is journaled in a bearing in the frame 4. Means are provided for intermittently rotating the shaft 12 and attached drum 8, so that the dies 6 are successively presented at a predetermined operating point where they remain fixed or at rest for a moment while the fruit passes over them.

On the outer end of the shaft 12 is secured a Geneva gear 16 which is driven by the gear 17 secured to the shaft 18 journaled on bearings arranged in the frames 3 and 4. The gear 16 is provided with the same number of tooth-groups 19 as there are dies 6 mounted on the flange 7, and the gear 17 is provided with but one tooth-group 21; hence with each revolution of the gear 17 a fresh die is moved to and momentarily held in operating or marking position. On the outer end of the shaft 18, an ordinary spur gear 22 is fixed, and meshing therewith is the driving gear 23 carried on the main drive shaft 24 which is rotated by any suitable source of power.

Means for heating the dies.—Electric heating elements 31 are arranged within the copper drum 8 so that its temperature may be raised to heat the integral flanges 7 and the dies thereon. In order to prevent undue loss of heat through radiation, the exposed portions of the drum and flanges are preferably covered with a layer 32 of heat insulating material and a disk 33 of similar material is interposed between the ends of the drum and the flanges 11 and 14 respectively, to prevent convection losses. On the outer end of the shaft 13 is a disk 34 provided with the insulated collector rings 36 and 37 in which respectively terminate the conductors 38 and 39 forming the circuit through the heating elements. Brushes, not shown, provide the means for connecting the collector rings with a suitable source of current for operating the heating elements.

Means for cleaning the dies.—After contact with the fruit, it is desirable to clean the die of all adhering particles to prevent clogging and consequent blurring of the impression. A rotary brush 41 is mounted on the shaft 42 which is journaled in a frame 43, pivoted upon the fixed shaft 44, supported in the frame of the machine. The brush shaft 42 is driven by a bevel pinion 46 fixed thereon and in mesh with the bevel gear 47 rotatably carried by the shaft 44. A sprocket 48 secured to the gear 47 is driven by chain 49 from a sprocket 51 on the main drive shaft 24, so that during the operation of the machine the brush revolves against each die in turn as the die wheel or flange revolves. Means are provided for moving the brush out of engagement with the dies, so that when the machine is stopped, the brush will not be injured by prolonged contact with a hot die. A link 52 is pivotally connected to an arm 53 projecting from the frame 43. The link terminates in a handle 54 and is provided with notches 56 adapted to engage a lip 57 arranged on the frame of the machine. The brush is engaged or disengaged from the

dies by shifting the link 52 to engage the lip in one or the other of the notches 56.

Means for inking the dies.—With some fruits, the hot die alone, is sufficient to secure a satisfactory marking, but in others I prefer to coat the hot die with ink. An inking wheel 61 is arranged preferably below and to the side of each die wheel. The inking wheel is formed of a suitable center or core faced with a rubber layer 62 to give the wheel a resilient surface, and a cloth or felt layer 63 is disposed on the rubber to carry the ink. The wheel 61 is revolvably carried by the stud 64, adjustable in the slotted end of the arm 66, which is pivotally mounted on the yoke 67 by the screw 68. A pin 69 fixed in the arm engages in a short recess 71 at the top of the yoke, so that the arm and hence the inking wheel is capable of only limited swinging motion about the pivot screw 68. The yoke is fixed upon the arm 72 by screws 73, and a spring 74 connecting the arm 66 and the arm 72 tends to retain the arm 66 on the extreme position on one side. This spring-held mounting of the inking wheel is to permit small compensating movements thereof as the dies pass over the wheel.

The yoke 67 is rigidly fixed upon and supported by the cylindrical casing 76 which also forms the ink reservoir. The casing is provided with a drain cock 77 and is closed on the ends by the caps 78, each provided with a centrally placed bearing in which the shaft 79 is journaled. Adjacent the ends the upper portion of the casing is provided with apertures 80 and 80' and the inking wheels 61 and 61' are arranged so that they extend into these apertures respectively. Below each aperture 80 is a sleeve 81 secured to the shaft 79 and provided with curved arms 82. These arms carry drops of ink upwardly from the supply in the bottom of the casing and deposit them on the cloth covering of the inking wheel which thereby becomes saturated with ink. The arms 82 are preferably curved to give them resiliency and extend in a direction contrary to the direction of rotation of the shaft 79, so that they wipe over the cloth surface of the inking wheel as the shaft revolves.

The shaft 79 is seated at one end (left of Fig. 1) in a threaded bearing cup 83, and the other end is provided with a pin 84 and seated in a slotted socket 86 fixed on the shaft 87. The shaft 87 is provided with a grooved pulley 88 connected by the belt 89 to the pulley 91 on shaft 92. From the above, it will be noted that the shaft 79 performs two distinct functions. First, it provides a pivotal mounting for the casing 76 and the inking wheel structure carried thereby. Second, by the rotation, the

wipers 82 convey ink from the reservoir to the inking wheel. It will also be noted that the casing and attached structure can be readily removed for cleaning or other purpose, by backing out the threaded cup 83 and withdrawing the opposite end of the shaft 79 from the socket 86. The sleeves 81 also serve two functions; they form a mounting for the wiper arms 82 and also act as collars for positioning the casing on the shaft.

Means are provided for moving the inking wheel into the path of rotation of the dies just before the die wheel begins to rotate, and moving it out of said path after the die wheel has come to rest. This permits the inking wheel to roll over the hot dies during the movement of the latter, but avoids prolonged and unnecessary heating of the inking wheel and drying out of the ink.

The arm 72 is extended rearwardly (to the right of Fig. 2) and provided on its end with a roller 93 adapted to bear upon a cam 94 arranged on the shaft 18. The opposite or outer end of the arm 72 is attached by a spring 96 to a portion of the frame of the machine. The spring acts to keep the roller in contact with the cam surface at all times. Rotation of the cam thus effects a rocking of the entire structure, comprised of the arm 72, yoke 67, inking wheel 61 and reservoir 76 about the axis of the shaft 79, and the position and shape of the cam is such that the inking wheel is rocked into contact with the adjacent die just prior to the rotational movement of the die wheel and permitted to roll over the die surface during such movement, and then when the rotation has ceased, the inking wheel is rocked in the other direction out of contact with the die.

When the machine has been shut down, the inking wheel may or may not be in contact with a heated die, according to the position of the cam when rotation ceased. Means are therefore provided whereby the inking wheel may be manually moved out of engagement with the dies irrespective of the position of the cam. A handle 97 is affixed to the end of the arm 72, so that the arm may be depressed to swing the inking wheel away from the die wheel, in which position it is held by a pendant latch 98 pivotally attached to a portion of the frame of the machine. A notch 99 is provided in the latch a short distance below the normal throw of the arm 72 when actuated by the cam, in which the edge of the arm engages when it is depressed.

Means for feeding fruit to the dies.—A shallow trough or trackway 101 is arranged across the top of each die wheel. The bottom of the trough is cut away over the dies, so that when the die wheel rotates, each die successively moves upwardly into the trough

and comes to rest with its face 102 projecting a small amount above the bottom, so that each piece of fruit rolling through the trough contacts with the die and is marked. Preferably the trough is given a small incline toward the dies in that portion carrying the incoming fruit, but that portion carrying the marked fruit is sloped sharply away from the dies so that the fruit discharges rapidly. Means are provided for timing the arrival of each piece of fruit to the die to coincide with its rest period. Fixed on the shaft 92 below each trough is a sleeve 103 provided with arms 104 mounted thereon in pairs. Preferably three such pairs of arms are equally spaced about the sleeve. The shaft 92 is rotated by the chain 106, driven from a sprocket on the shaft 24; and the position of the shaft 92 and the length of the arms is such, that when the shaft is rotated, the arms move upwardly through slots cut in the bottom of the trough, catching the piece of fruit F lying thereon, in the pocket formed between two successive pairs of arms and moving it forward so that it is caught by the feed belt 107. The feed belt rolls it along the trough and over the die face 102, then releases it so that it rolls down the sharply sloping trough and out of the machine. Any suitable means may be provided for feeding a succession of fruit into the receiving end of the trough 101, so that as the feeding arms 104 rotate, a piece of fruit will always be in position to be caught thereby. The ends of the arms 104 are formed so as to avoid bruising the fruit, and this may be conveniently done by curving the ends to form an eye 104^a on each arm.

The feed belt 107 is formed preferably of soft rubber with a roughened or non-skid surface, and is carried upon pulleys 108 and 109. Pulley 108 is fixed upon the shaft 111, journaled in bearings arranged in the brackets 112 fixed to the frame of the machine. The shaft 111 is driven by a sprocket 113 connected by chain 114 to the sprocket 116 fixed on the end of shaft 18, and the belt 107 is therefore moving constantly in the direction of the arrow while the machine is in operation. Pivotally arranged on the shaft 111 on each side of the pulley 108 is an arm 117. The two arms 117 are connected together by suitable cross pieces 118 so that they form a frame, movable about the axis of the shaft 111. In the outer end of this pivotally mounted frame, the pulley 109 is rotatably mounted on the shaft 119. The pivotal mounting of the frame 117 permits it to accommodate itself to fruit of varying sizes, and as pieces of fruit are moved inwardly, by the feed arms 104, each piece, irrespective of size, is caught by the yielding belt and rolled across the die with substantially the same pressure against the die and substantially the same time of exposure to

the die for every piece. Such exposure is of course determined by the speed at which the fruit rolls across the die, and this in turn depends on the velocity of the belt 107. The rotation of the arms 104 is continuous while the machine is in operation and the timing is such that fruit is fed to the resiliently yielding belt, caught by it and rolled over the die while the latter is stationary. In the intervals between the feeding of successive pieces of fruit to the feed belt, the die wheel turns to bring a fresh die into the operating position.

Means are provided for limiting the downward movement of the frame 117 and for placing a resiliently yielding restraint upon its upward movement when fruit is being rolled under the belt, in addition to that exerted by its own weight and the character of the belt. An outwardly projecting lug 121 is fixed upon one member of the frame 117, and a bracket or stop 122 is fixed on the frame of the machine in position to be engaged by the lug when the frame 117 has fallen to a point where the distance between the belt 107 and the die is a small amount less than the diameter of the smallest fruit which is to be marked. A coil spring 123 attached to the lug and to the base of the stop 122 tends to keep the frame 117 and belt 107 in their lowest positions. I may prefer to omit this spring in some cases and rely only on the weight or gravitational effect of the swinging frame and connected parts to enable the belt to exert the proper degree of yielding pressure upon the fruit as it rolls over the die, but in ordinary cases, the addition of the spring is preferable.

I claim:

1. In a machine for marking fruit, a die, and pivotally mounted means comprising an endless belt gravitally engaging said fruit for rolling it across said die, the weight of said means being entirely supported by said pivot and said fruit.

2. In a machine for marking fruit, a die, and pivotally mounted means comprising an endless belt gravitally and resiliently engaging said fruit for rolling it across said die, the weight of said means being entirely supported by said pivot and said fruit.

3. In a machine for marking fruit, a die, pivotally mounted means comprising an endless belt gravitally engaging said fruit for rolling it across said die, the weight of said means being entirely supported by said fruit, and means for feeding said fruit into engagement with said gravitally engaging means.

4. In a machine for marking fruit, a die, and unitary pivotally mounted means comprising an endless belt gravitally engaging said fruit for feeding said fruit toward said die and rolling said fruit over said die, the

weight of said means being entirely supported by said pivot and said fruit.

5. In a machine for marking fruit, a die, and an endless belt mounted for pivotal movement about an axis at right angles to the direction of motion of said belt for rolling said fruit across said die.

6. In a machine for marking fruit, a die, and an endless belt gravitally engaging said fruit for rolling it across said die, said belt being mounted for bodily pivotal movement on an axis transverse to the line of motion of said fruit while being rolled across said die.

7. In a machine of the character described, a plurality of dies successively movable to a fixed operative position, means for feeding a succession of fruit toward said operative position, a pivotally mounted belt gravitally engaging said fruit for rolling it across said dies, the weight of said belt being entirely supported by said pivot and said fruit, and means for moving a fresh die into position during an interval between the arrival of successive pieces of fruit at said position.

8. In a machine for marking fruit, a wheel, a plurality of dies arranged upon said wheel, means for intermittently turning said wheel to move said dies successively into operative position, and pivotally mounted means gravitally engaging said fruit, for feeding it toward said operative position and rolling it across said dies, the weight of said means being entirely supported by said pivot and said fruit.

9. In a machine for marking fruit, an apertured trough, a die wheel arranged adjacent the trough, dies on said wheel adapted to extend through said aperture into said trough, means for intermittently rotating said die wheel to move said dies successively into position in said trough, and means for rolling pieces of fruit along said trough, and over said dies.

10. In a machine for marking fruit, a pair of axially aligned flanged shafts, a drum adapted to be heated disposed between said flanges, a flange concentric with said shafts on said drum, a plurality of dies arranged on said flange, said dies being in thermal communication with said drum through said flange, means for intermittently rotating one of said shafts to move said dies successively into operating position, and means for rolling pieces of fruit over said dies while in said operating position.

11. In a machine for marking fruit, a pair of axially aligned flanged shafts, a drum adapted to be heated disposed between said flanges, a flange concentric with said shafts on said drum, a plurality of dies arranged on said flange, said dies being in thermal communication with said drum through said flange, means for intermittently rotating

one of said shafts to move said dies successively into operating position, an inking wheel, means for moving said inking wheel into the path of said dies during their movement, and out of said path during their period of rest, and means for rolling pieces of fruit over said dies during said rest period.

12. In a machine for marking fruit, a die, a shaft, a pulley on said shaft, a frame pivoted on said shaft, a second pulley arranged in said frame, a feed belt on said pulleys, and means for rotating said shaft to move said belt on said pulleys past said die.

13. In a machine for marking fruit, a shaft, a pulley on said shaft, a frame pivoted on said shaft, a second pulley arranged in said frame, a belt on said pulleys, means for rotating said shaft to move said belt on said pulleys, a trough arranged below said belt, a die arranged in said trough, and means for feeding pieces of fruit along said trough into position to be caught by said belt.

14. In a machine of the character described, a die, a frame arranged adjacent said die, an endless belt disposed upon said frame, means for conducting pieces of fruit toward said die whereby said pieces of fruit are caught by said belt and means for moving the belt to roll said pieces of fruit over said die, said frame being pivotally mounted whereby said belt gravitally engages said fruit, the entire weight of said belt and frame being supported by said pivot and said fruit.

15. In a machine for marking fruit, a drum adapted to be heated and provided with an integral flange, dies disposed upon said flange in thermal communication therewith, means for turning said drum to move said dies successively into operating position, and resiliently yielding means for rolling said fruit across said dies.

16. In a machine of the character described, a die wheel, a plurality of dies arranged on said die wheel, means for turning said die wheel to move said dies successively into operating position, a pivotally mounted spring-pressed rotatable inking wheel, and means operated by said die wheel turning means for moving said inking wheel into and out of the path of said moving dies.

17. In a machine of the character described, a die wheel, a plurality of dies arranged on said die wheel, means for turning said die wheel to move said dies successively into operating position, a pivotally mounted spring-pressed rotatable inking wheel, means operated automatically for moving said inking wheel into and out of the path

of said moving dies, and manually operated means for retaining said inking wheel out of said path.

18. In a machine of the character described, a rotatably mounted drum, a plurality of flanges on said drum, a plurality of dies on each flange, an ink reservoir pivotally arranged adjacent said drum, an inking wheel rotatably mounted on said reservoir adjacent each die-bearing flange, means for conveying ink from the reservoir to each inking wheel, and means for rocking said reservoir to move said inking wheels into contact with said dies during the movement of said drum.

19. In a machine of the character described, a rotatably mounted drum, a plurality of flanges on said drum, a plurality of dies on each flange, an ink reservoir pivotally arranged adjacent said drum, a rotatable inking wheel yieldingly mounted on said reservoir adjacent each die-bearing flange, means for conveying ink from the reservoir to each inking wheel, and means for rocking said reservoir to move said inking wheels into contact with said dies during the movement of said drum.

20. In a machine of the character described, a rotatably mounted drum, a plurality of flanges on said drum, a plurality of dies on each flange, a shaft arranged adjacent said drum, a casing forming an ink reservoir supported on said shaft, a rotatable inking wheel yieldingly mounted on said casing adjacent each die-bearing flange, means operated by said shaft for conveying ink from the reservoir to each inking wheel, and means for rocking said casing to move said inking wheels into contact with said dies during the movement of said drum.

21. In a machine of the character described, a die wheel, dies on said wheel, an apertured cylindrical casing adapted to contain a supply of ink, a shaft passing through said casing concentrically and providing a pivotal support therefor, an inking wheel mounted on said casing and projecting through said aperture therein, means on said shaft for carrying drops of ink from the supply in the casing to the face of the inking wheel, means for rocking the casing about said shaft to move said inking wheel into and out of contact with said dies, and means for rotating said shaft and said die wheel.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 12th day of March, 1918.

LEWIS NEUENSCHWANDER.

In presence of—

GEORGE L. FLINTOFT,
WILLIAM D. GIBSON.