July 15, 1930. C. H. OSLUND 1,770,530

TIMING DEVICE

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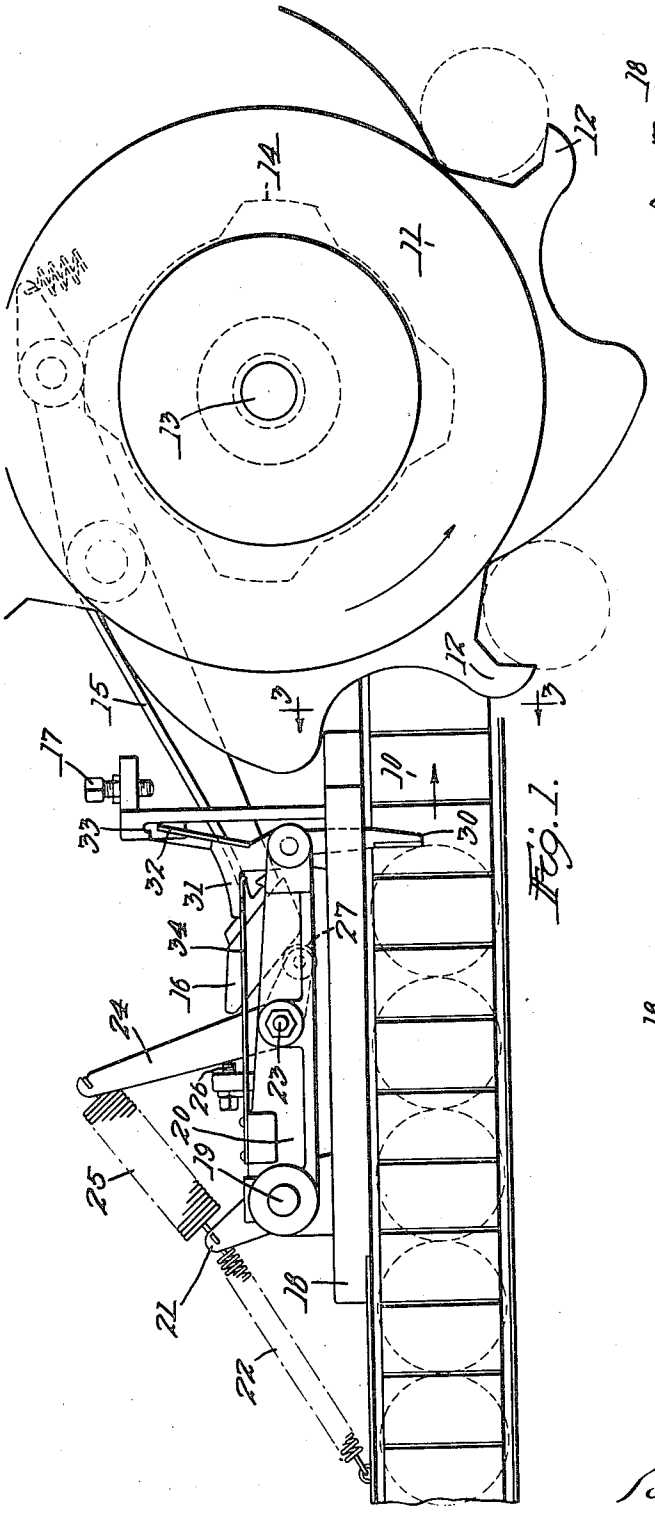


Fig. 1.

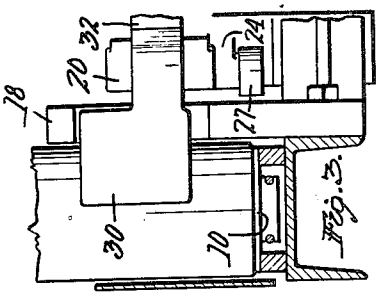


Fig. 3.

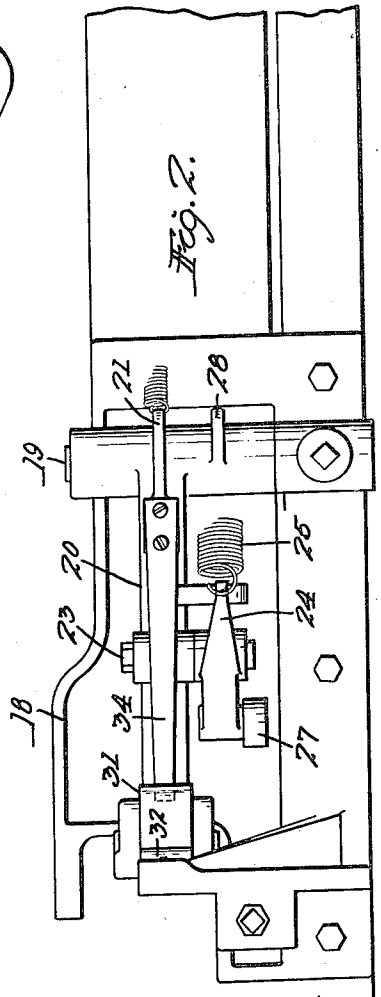


Fig. 2.

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Fig. 4.

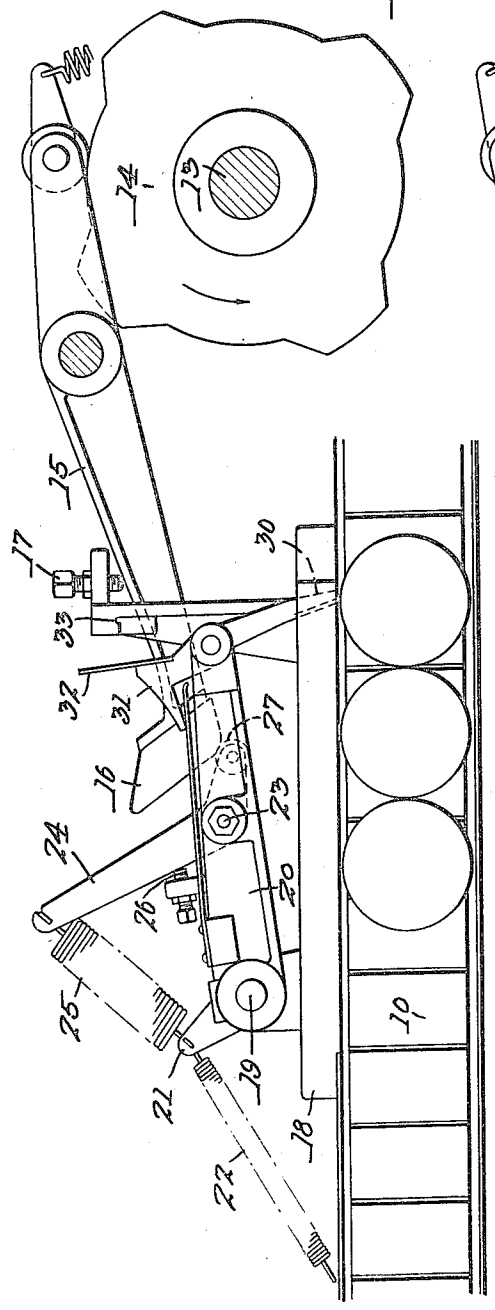
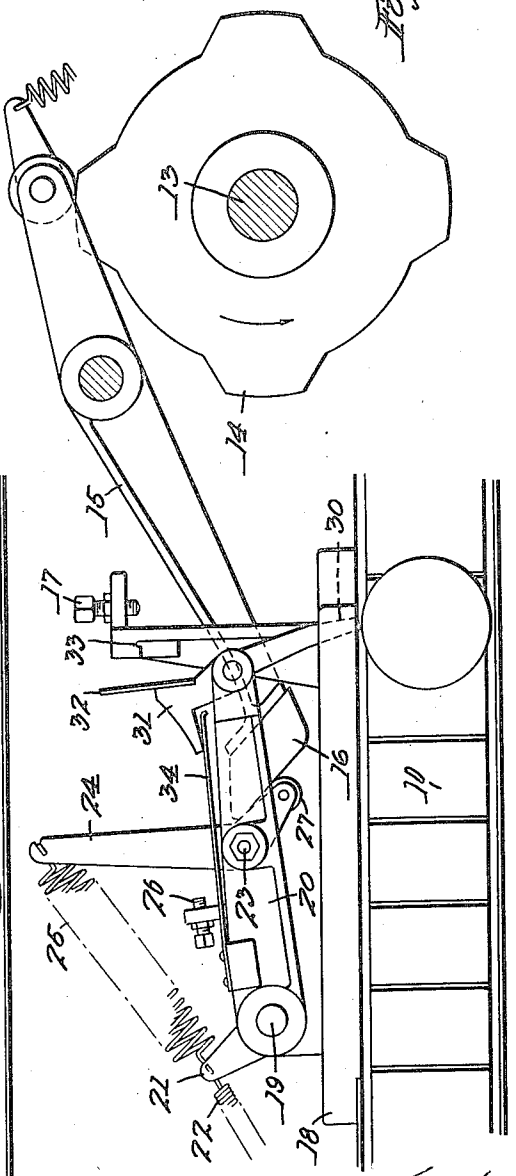


Fig. 5.



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UNITED STATES PATENT OFFICE

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TIMING DEVICE

Application filed February 23, 1929. Serial No. 342,018.

This invention relates to a device for timing bottles or other articles, but particularly adapted for controlling their entrance to a labeling machine.

The principal object of the invention is to provide such a timing device in a comparatively simple form which will be so arranged that it will, of necessity, always work so as to allow an article to be labeled to pass through to the feeding-in turret of a labeling machine, in time to be received thereby in the proper position and to hold the articles back until it is the proper time for them to enter the machine and also to cause the timing device to work without releasing the advance article until the proper time to allow it to travel and to work without accomplishing any object when an article has been released but is still in position to be engaged by the timer as it vibrates.

The invention also involves mechanism by which the parts are yieldingly connected so that in the cases mentioned above there is no tendency to break any of the parts or put any undue strain upon them and to provide a device which will be simple and effective and comprise comparatively few parts.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which

Fig. 1 is a plan of a part of a labeling machine and conveyor with a preferred embodiment of this invention applied thereto;

Fig. 2 is an elevation of the back side of the device as shown in Fig. 1, that is, the outer side;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1 looking away from the labeling machine, and

Figs. 4 and 5 are views similar to Fig. 1 but showing the parts in two different positions.

The invention is shown as applied to an ordinary conveyor 10 which moves in the direction of the arrow in Fig. 1 toward a turret 11 which is provided with arms 12 which take the bottles, or other articles to be labeled, from the surface of the conveyor on which they rest and swing them around in the direction of the arrow on the table of the labeling machine. This turret is shown as having four of these arms 12 or four stations at 90° apart. The shaft 13 on which this turret is fixed is also provided with a cam 14 having four projections corresponding to these four stations so that just before the arms 12 get to the conveyor one of the cam projections 14 will operate a lever 15 under spring pressure to move it inwardly at its free end. This lever is provided with an operating end 16 and its movement in one direction is limited by an adjustable stop 17.

On the frame of the machine, or the conveyor, is a projection or bracket 18 having a pivot stud 19 on which is pivotally mounted a plate 20 having an integral arm 21. This arm is connected by a spring 22 with a stationary part of the frame and consequently this spring tends to pull the plate 20 outwardly about the pivot 19. The plate 20 is oscillated by the end 16 vibrating a roll 27 on an arm 24 pivoted on the plate 20. This arm is held by a spring 25 strong enough to vibrate the plate 20.

Pivotally mounted on the plate 20 on the stud 23 is a lever 24 which is connected with an arm 28 on the plate 20 by a spring 25 shown in Fig. 1 as being in closed position, that is, with its coils in contact, and the lever bearing against an adjustable stop 26 carried by the plate 20. The other end of this lever has a roll 27 adapted to be engaged by the operating end 16 of the lever 15 and to be moved inwardly toward the conveyor as shown in Fig. 5 and to carry the plate 20 with it whenever possible.

Pivoted on the end of the plate 20 is a gate 30 which has a transverse arm 31 and a projection 32 which, under certain circumstances, is adapted to engage periodically in a stationary notch 33 as will appear. On the plate 20 is a flat spring 34 engaging under the arm 31, as shown in Fig. 1, for holding the gate 30 in transverse position but it does not have enough resistance to prevent the feed of a bottle unless the gate is held positively. When one of the cams 14 passes around far enough to release the lever 15, the spring 22 will move the plate 20 backwardly unless the

projection 32 is in the position shown in Fig. 1. In that case the projection will back into the notch and the gate will be positively held against the bottle and will prevent its feed.

If no bottle is in contact with the gate 30 the projection 32 will stay in line with the notch 33 and the plate 20 will vibrate the short distance allowed thereby until a bottle does contact with the gate 30. This bottle, when the plate moves in toward the conveyor, as shown in Fig. 1, will swing the gate on its pivot, there being no resistance except the slight friction on the spring 34, and swing the projection 32 out to the left of the notch 33 and behind it. Then the moving back of the plate 20 by the spring 22 will force the parts to the position shown in Fig. 4 while the roller on the lever 15 is in a low part of the cam. This releases the bottle.

Now when the next high part 14 of the cam moves in the left hand end of the lever 15 the end 16 will push in on the roller 27 and swing the arm 24 in opposition to the spring 25 and stretch the spring or force the plate in if possible to do so. However, if there is a bottle in the way, the gate engages it as shown in Fig. 5 and the arm 15 will merely vibrate the arm 24 without moving the plate 20. As soon as the bottle has passed, which it does by the action of the conveyor, then in the next operation of the high part 14 of the cam, the plate 20 will swing in and the next can or bottle will be stopped.

It will be seen therefore that this constitutes a simple means, operating yieldingly, for stopping the bottles, cans, packages or other articles which are fed along the conveyor, until the turret has rotated to the desired point. There it will take up an article released by the gate and carry it into the labeling machine and thereafter the gate is located in the position shown in Fig. 1 and will be caused to vibrate every time one of the cams 14 comes into action. If no article comes into contact with it, in the meantime, the vibration is restricted and controlled by the notch 33.

It will also be seen that when an article does come along and the cam 14 forces the projection 32 out of the notch 33 into the exact position shown in Fig. 1 the bottle can still move with the conveyor and take with it the gate so as to move the projection 32 away from the notch and then, on the next retraction of the plate 20, the gate will be free to move because the notch 33 will no longer affect it or control it. After that the gate will come in every time the cam 14 operates the lever 15 and if in coming in it engages a bottle, as shown in Fig. 5, the lever 15 can operate on account of the spring 25 without any tendency to break anything. These results are secured in a simple and practical manner.

Although I have illustrated and described only one form of the invention I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims.

Therefore I do not wish to be limited in this respect but what I do claim is:—

1. The combination with a conveyor for articles and a turret for feeding the articles from the conveyor, of a cam rotatable with the turret, a lever operated by the cam, a pivoted plate, a gate pivoted on the end of said plate and adapted to move into a position over the conveyor to retain the articles thereon, and a lever yieldingly pivoted on said plate to be operated by the first named lever to swing the plate thereby and capable of being moved by the first named lever without moving the plate when the gate encounters an obstruction.

2. The combination with a conveyor for articles, of a cam, a lever operated by the cam, a movable plate, a gate movably mounted on said plate and adapted to move into a position over the conveyor to retain the articles thereon, and a lever on said plate in position to be operated by the first named lever to swing the plate thereby and yielding so as to be moved by the first named lever without moving the plate when the gate encounters an obstruction.

3. The combination with a conveyor adapted to support articles thereon, a plate movable from one side toward and from the conveyor, yieldable means for periodically acting to move the plate toward the conveyor, and a gate movably mounted on the plate for projecting over the conveyor to stop the articles thereon, whereby, when the gate meets an obstruction, the plate moving means will vibrate and yield so as not to move the plate.

4. In a device of the character described, the combination with a conveyor, of a plate pivoted adjacent thereto, a gate pivoted on said plate and adapted, when the plate is in a certain position, to project over the conveyor to prevent the movement of articles therewith, a spring on the plate, an arm on the gate engaging over the spring to yieldingly hold the gate in active position, a stationary member having a notch, and a projection on the gate adapted to enter said notch as the gate oscillates to keep the gate moving in the path of an article on the conveyor, said spring holding the gate against swinging only by friction, whereby the gate can be swung out of the way of said notch.

5. In a device of the character described, the combination with a conveyor, of a plate pivoted adjacent thereto, a gate pivoted on said plate and adapted, when the plate is in a certain position, to project over the conveyor to prevent the movement of articles therewith, a spring on the plate, an arm on the gate engaging over the spring to yield-

ingly hold the gate in active position, a stationary member having a notch, a projection on the gate adapted to enter said notch as the gate oscillates to keep the gate moving in the path of an article on the conveyor, said spring holding the gate against swinging only by friction, whereby the gate can be swung out of the way of said notch, and means whereby, when an article moves along with the conveyor past the gate, at a time when the projection is out of the notch, the gate will swing to a position in which the projection is out of registration with the notch and the gate can then swing back out of the path of articles on the conveyor.

6. In a device of the character described, the combination with a conveyor, of a plate movable adjacent thereto, yielding means for moving the plate away from the conveyor, a lever pivoted on the plate and yieldingly pressed into active position, an operating lever operating on the first named lever for moving the plate toward the conveyor, whereby, in case of meeting an obstruction, the first lever will oscillate without moving the plate, a gate movable on the plate and adapted to stop the movement of the articles along the conveyor, a stationary member having a notch, and a projection on the gate adapted to move in said notch, when not forced out of the path thereof, and to be held positively against motion of the articles on the conveyor when in said notch.

7. In a device of the character described, the combination with a conveyor, of a plate pivoted adjacent thereto, yielding means for moving the plate away from the conveyor, a lever pivoted on the plate and yieldingly pressed into active position, an operating lever operating on the first named lever for moving the plate toward the conveyor, whereby in case of meeting an obstruction the first lever will operate without moving the plate, a gate pivoted on the end of the plate and adapted to stop the movement of the articles along the conveyor, a stationary member having a notch, a projection on the gate adapted to move in said notch, when not forced out of line therewith, and to be held positively against motion of the articles on the conveyor when in said notch, whereby when the projection is out of the notch an article on the conveyor can move the gate far enough to release the projection from the notch and a spring for yieldingly and frictionally holding the gate in a transverse position where it can project over the conveyor.

8. In a device of the character described, the combination with a conveyor, of a plate pivoted adjacent thereto, yielding means for moving the plate away from the conveyor, an operating lever for moving the plate toward the conveyor, a gate on the plate and adapted to stop the movement of the articles along the conveyor, a member having a notch, a projection on the gate adapted to move in said notch, when not forced out of line therewith, whereby when the projection is out of the notch an article on the conveyor can move the gate far enough to release the projection from the notch and a spring for yieldingly and frictionally holding the gate in a transverse position.

In testimony whereof I have hereunto affixed my signature.

CHARLES H. OSLUND.