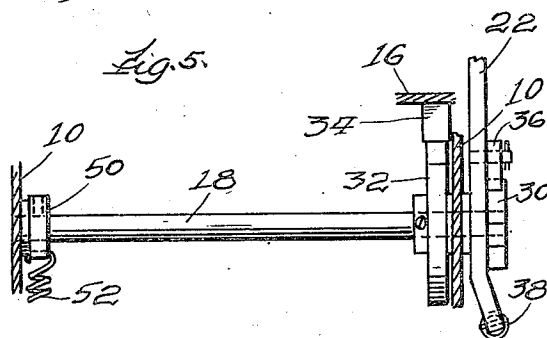
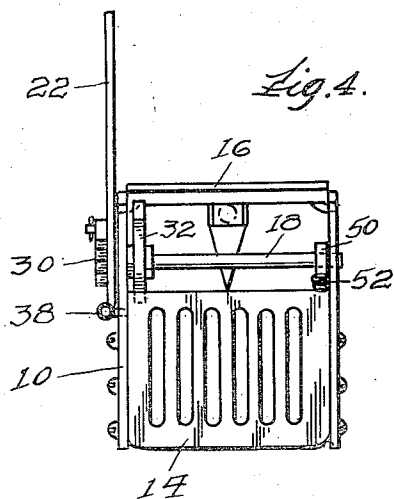
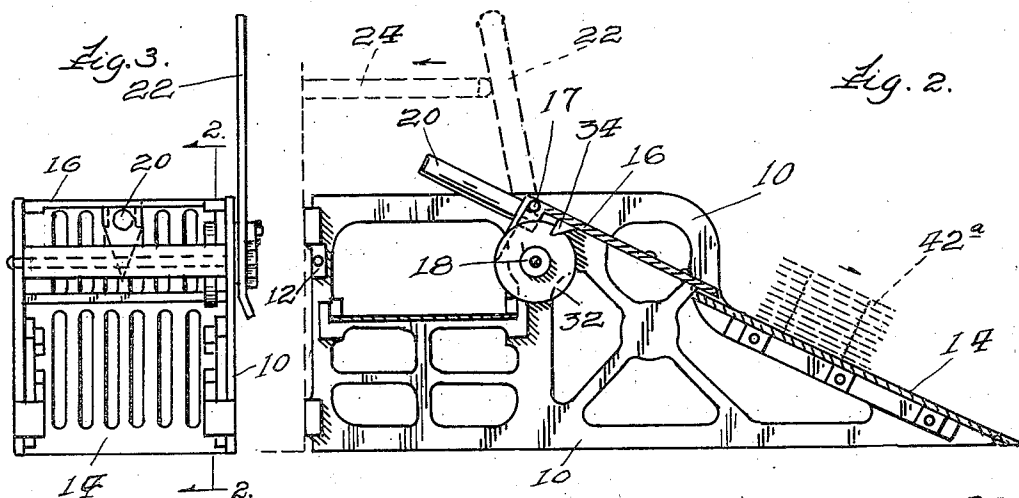
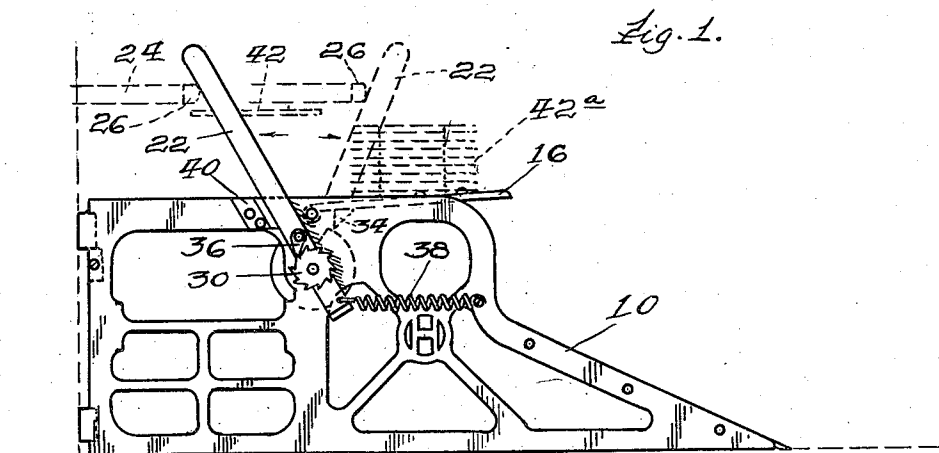


May 22, 1951

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 STACKER AND COUNTER
 Filed June 19, 1947

2,553,823



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UNITED STATES PATENT OFFICE

2,553,823

STACKER AND COUNTER

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Application June 19, 1947, Serial No. 755,601

5 Claims. (Cl. 214-6)

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This invention relates to a stacking and counting mechanism, and comprises essentially a means for stacking and counting hamburger patties, particularly when molded in a machine such as described in my Patent No. 2,413,046, granted December 24, 1946.

One of the important objects of this invention is to provide a stacking and counting means for hamburger patties or the like, which will receive such patties or other objects from a machine or other device which makes the same, and which will automatically stack such patties or other molded objects, particularly with their attached supporting sheets of paper in the case of hamburger patties; and when a certain desired number have been so stacked, the stack is automatically removed and another stack started.

Another important object of the invention is to provide, in a stacker and counter, means for automatically stacking a desired number of objects, particularly flat articles, such as meat patties or the like, and when a desired number is stacked, the said stack of a certain designated amount of objects is slid off the stacking platform by a tilting movement, whereupon the platform is immediately returned to its stack supporting position for further operation.

Another and still further important object of the invention is to provide, in a stacking and counting mechanism, means for automatically stacking and counting a plurality of objects, the count varying from five to fifteen in the preferred mechanism, but with adaptation this count may be changed throughout a considerably wider range.

Other and further important objects will be apparent from the disclosures in the accompanying drawings and following specification.

The invention, in a preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a side elevation of the improved stacker and counter of this invention, showing a stack of meat patties or the like on the supporting platform and also indicating some of the means by which the device is operated.

Figure 2 is a vertical longitudinal section through the apparatus, showing the supporting platform in tilted relationship whereby a counted stack of patties or other objects is being automatically removed from the platform.

Figure 3 is an end view of the device with the sectional view of Figure 2 indicated on this figure by the section line 2-2.

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Figure 4 is a front view of the apparatus, looking at the same from the right of Figure 1.

Figure 5 is an enlarged detail view of the main operating shaft of the device illustrating particularly its connections with the other portions of the mechanism.

As shown in the drawings:

The reference numerals 10 indicate generally the side frames of the improved stacker and counter of this invention, there being one of these on each side, as indicated. These frames are substantially alike and the entire device is preferably composed of cast aluminum or other suitable material. Some of the operating parts are of steel for better wearing qualities.

The two side frames 10 are connected by cross pieces 12, and also by a fixed top portion 14, which is inclined at an angle of approximately twenty-five degrees, but which angle can be varied to meet requirements.

Mounted at the top of the device is a supporting platform 16 which is adapted for pivotal movement about a shaft 17, and which is provided with a counter-weight 20. The shaft 17 extends completely through the mechanism from one of the side pieces to the other, and is mounted in suitable bearings in the side elements or frames 10.

A lever 22 is fixed on another shaft 18 which also extends through the device, and this lever is adapted to be moved back and forth through an angle of approximately forty degrees, as best shown in Figure 1, by means of a part of the automatic hamburger patty forming mechanism described in my prior Patent No. 2,413,046, and which is identified in that patent as a slide plate. This slide plate is indicated in the present drawings by reference numeral 24 and is provided with an extension 26 which contacts the lever 22.

A ratchet 30 is mounted on the outer end of the shaft 18, and this is provided with a desired number of teeth corresponding to the number of patties or other objects which it is desired to count and stack on the platform 16, with the aid of this mechanism. The drawing shows the number of teeth on this ratchet 30 as ten but any number from five to fifteen can be readily employed without materially changing the mechanism in any manner.

Also fixed on the shaft 18 is a cam 32, as best shown in Figures 2 and 5, and this cam has a notch therein, shaped to receive a projection 34 which is mounted on the under face of the platform 16 and in contact relationship with the cam 32 as best shown in Figure 5.

A pawl 36 is mounted on the outer face of the lever 22 for cooperation with the ratchet 30 and a spring 38 is provided, attached to the lower end of the lever 22, which automatically returns same to its initial position when the slide plate 24 is being retracted. A stop 40 is mounted on one of the side frames 10 to limit the motion of the lever 22, and its forward motion is of course governed by the extent of forward movement of the slide plate 24.

Every time the slide plate 24 is reciprocated, a meat patty or the like is molded and ejected from the patty forming machine, one of these patties being shown just after the molding operation at 42 in Figure 1, and a stack of these patties is illustrated at 42(a) in this figure:

When the number of patties has reached ten or any other amount corresponding to the number of teeth on the ratchet 30, the projection 34 of the platform 16 drops into the corresponding notch in the cam 32 and the platform then assumes the tilted position shown in Figure 2. The stacked patties 42(a) immediately slide off the platform 16 and down the ramp or incline 14 onto a table or other support upon which the entire mechanism is mounted. The next movement of the lever 22 lifts the projection 34 out of the notch in cam 32 and the platform 16 is again in horizontal position, ready to receive the first patty of the succeeding stack.

The surface of the platform may be slightly roughened in order to keep the sheets of waxed paper upon which the patties are automatically molded by the molding machine from sliding around on the platform, but this roughening is not sufficient to prevent a stack of five or more patties from sliding off the platform when the same is tilted.

A brake element in the form of an annulus 50 is mounted on the shaft 18 to prevent overthrow, this being held in operative position by a spring 52, the tension of which is sufficient to produce the desired friction.

It will be seen that herein is provided a stacker and counter which, while particularly adaptable for use with molded hamburger patties, can be employed in other environments to considerable advantage.

Whenever a number of uniform objects is to be stacked and counted, the apparatus will perform, possibly with slight adaptations, but it is most suited for meat patties, particularly when the same are molded upon individual sheets of waxed paper as is the case here.

I am aware that many changes may be made and numerous details of construction varied throughout a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. A stacker and counter comprising a frame, a supporting platform pivotally mounted in the frame, means for maintaining the supporting platform in horizontal position while at the same time allowing momentary tilting of the same to an inclined position at desired intervals, said means comprising an operating shaft in the frame, a cam on the shaft, a projection on the platform adapted to fit into a notch in the cam, means for intermittently rotating the cam in accordance with objects deposited on the platform, said means comprising a lever mounted on the shaft, a pawl and ratchet associated with the

lever, and a brake on the shaft for preventing overthrow.

2. A stacker and counter comprising a frame, a supporting platform pivotally mounted in the frame, means for maintaining the supporting platform in horizontal position while at the same time allowing momentary tilting of the same to an inclined position at desired intervals, said means comprising an operating shaft in the frame, a cam on the shaft, a projection on the platform adapted to fit into a notch in the cam, means for rotating the cam in accordance with objects deposited on the platform, said means comprising a lever mounted on the shaft, a pawl and ratchet associated with the lever, a brake on the shaft for preventing over-throw of the lever, and a counter-weight for the platform.

3. A stacker and counter comprising a frame, a supporting platform pivotally mounted in the frame, means for maintaining the supporting platform in horizontal position while at the same time allowing momentary tilting of the same to an inclined position at desired intervals, said means comprising an operating shaft in the frame, a cam on the shaft, a projection on the platform adapted to fit into a notch in the cam, means for rotating the cam in accordance with objects deposited on the platform, said means comprising a lever mounted on the shaft, a pawl and ratchet associated with the lever, a brake means on the shaft for preventing over-throw, a counter-weight for the platform, and a ramp mounted in the frame cooperating with the platform when the platform is in tilted position.

4. A stacker and counter comprising a frame, a supporting platform pivotally mounted in the frame, means for maintaining the supporting platform in horizontal position while at the same time allowing momentary tilting of the same to an inclined position at desired intervals, said means comprising an operating shaft in the frame, a cam on the shaft, a projection on the platform adapted to fit into a notch in the cam, means for rotating the cam in accordance with objects deposited on the platform, said means comprising a lever mounted on the shaft, a pawl and ratchet associated with the lever, a brake means on the shaft for preventing over-throw, a ramp mounted in the frame cooperating with the platform when the platform is in a tilted position, and a spring for returning the operating lever to normal position.

5. A stacker and counter comprising a frame, a supporting platform pivotally mounted in the frame, means for maintaining the supporting platform in horizontal position while at the same time allowing momentary tilting of the same to an inclined position at desired intervals, said means comprising an operating shaft in the frame, a cam on the shaft, a projection on the platform adapted to fit into a notch in the cam, means for rotating the cam in accordance with objects deposited on the platform, said means comprising a lever mounted on the shaft, a pawl and ratchet associated with the lever, brake means on the shaft for preventing over-throw, a counter-weight for the platform, a ramp mounted in the frame cooperating with the platform when the platform is in tilted position, a spring for returning the operating lever to normal position, and a stop limiting the movement of the lever by the pull of said spring.

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