





Dec. 21, 1954

R. C. SNEED ET AL  
COUNTING MECHANISM

2,697,550

Original Filed June 16, 1945

5 Sheets-Sheet 3

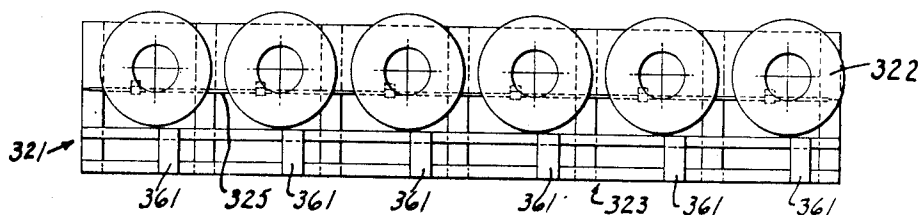


**FIG. 7.**

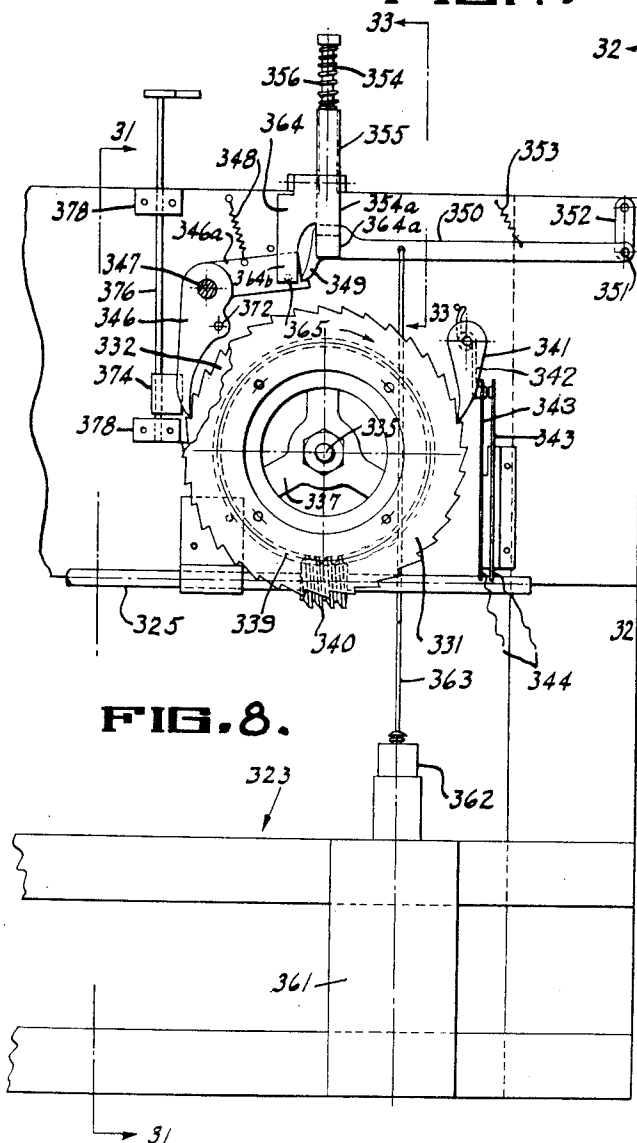


**FIG. 8.**

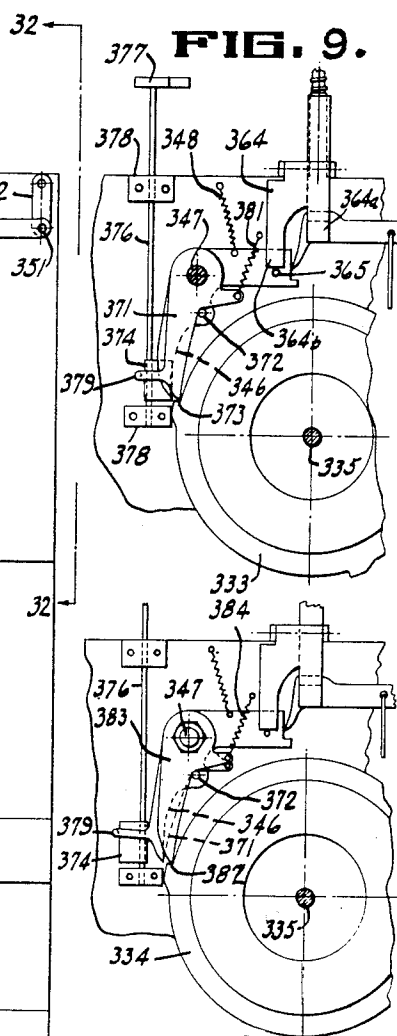


**FIG. 9.**

**FIG. 10.**

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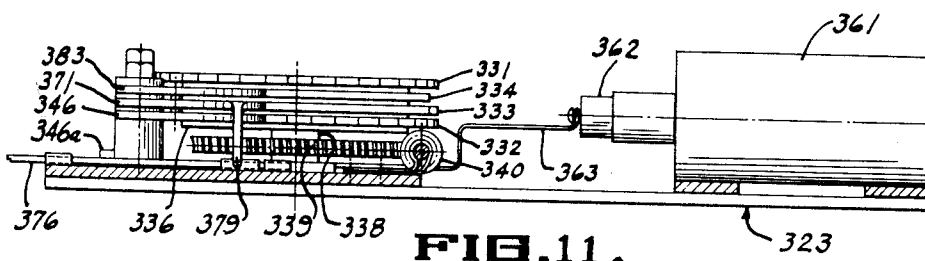


FIG. 11.

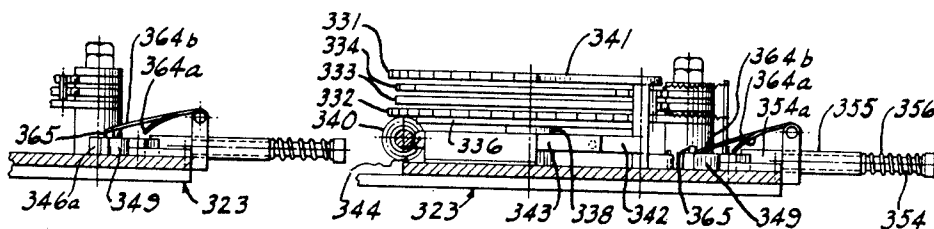


FIG. 12.

FIG. 13.

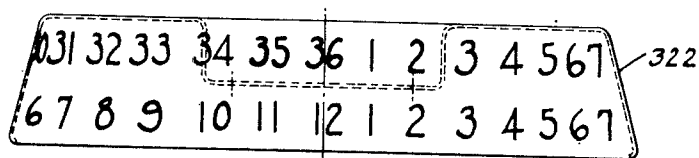


FIG. 14.

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2,697,550

## COUNTING MECHANISM

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Original application June 16, 1945, Serial No. 599,910. Divided and this application January 30, 1951, Serial No. 209,405

13 Claims. (Cl. 235—92)

This invention relates to counting mechanisms and more particularly to counting mechanism for use with egg-handling machines concerned more particularly with machines of this character which operate to grade the eggs by weight and to facilitate subsequent candling and packaging of the eggs by quality.

In the marketing of eggs it is customary to grade the eggs by weight into a plurality of sizes and then within the sizes to perform a quality-grading operation, as by candling, and to package the eggs by grades in appropriate numbers in carton containers, for example, by the dozen or the three dozen. In performing this operation it is desirable to count the number of eggs going into each grade from a certain batch of eggs in order to determine what prices are to be paid to the seller for the eggs. In the past eggs have been counted manually which took a great deal of time and which increased the possibility of error minimized breakage and to so control the flow of eggs through the machine that a minimum of effort is required on the part of the operator or operators in performing the various grading and packing operations.

It is a general object of the invention to provide a counting mechanism which decreases probability of error and facilitates counting of eggs graded according to size and quality and packed into containers holding a dozen eggs each or three dozen eggs each.

Another object of the invention is to provide means for counting standard quantities of eggs.

Another object of the invention is to provide manually operated means for counting out quantities of eggs less than predetermined standard numbers.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawings, in which:

Figure 1 is an elevational view of a carton holding rack and a counting mechanism at a packaging station.

Figure 2 is a sectional view of the mechanism shown in Figure 1 as indicated by the line 2—2 therein and in addition a three dozen egg carton is shown in the rack.

Figure 3 is a view similar to Figure 1 but showing a modified arrangement of the carton holder for use in automatically counting the eggs placed in the carton.

Figure 4 is a sectional view of Figure 3 taken as indicated by the line 4—4 in Figure 3 and in addition a three dozen egg carton is shown in the carton holder.

Figure 5 is an elevational view of a holder for a dozen carton at the packaging station of the machine.

Figure 6 is a sectional view through the holder shown in Figure 5 as indicated by the line 6—6 therein.

Figure 7 is a schematic plan view showing the arrangement of the various counting devices at the packaging station.

Figure 8 is a plan view of one of the counting devices and related parts.

Figure 9 is a fragmentary detail view similar to Figure 8 showing the position of the parts for counting eggs in dozen lots.

Figure 10 is a view similar to Figure 8 showing the position of the parts for counting eggs in three dozen lots.

Figure 11 is an elevational view, partly in section, of the counting device shown in Figure 8 as indicated by the line 11—11 therein.

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Figure 12 is another view of the counting mechanism shown as indicated by the line 12—12 in Figure 8 with the parts positioned for automatic counting.

Figure 13 is an elevational view, partly in section, of the counting device as indicated by the line 13—13 in Figure 8 with the parts positioned for manual counting of individual eggs.

Figure 14 is a detailed view of the counting drum.

Figures 15 to 17 are views of a counter operating mechanism for counting the total number of eggs before they are graded by weight.

Figure 15 is a fragmentary plan view showing the arrangement of the counter operating mechanism above the weighing conveyor.

Figure 16 is a sectional view of the mechanism shown in Figure 15 taken as indicated by the line 16—16 therein.

Figure 17 is a view similar to Figure 16 but showing the parts in a different operative position thereof.

The counting mechanism of this invention is particularly adapted to be used in conjunction with egg handling machines especially of the type disclosed in our Patent No. 2,629,479 issued February 24, 1953 of which this case and Patent No. 2,639,801 issued May 26, 1953 are divisions. The counting mechanism disclosed herein will be described in conjunction with certain associated apparatus in order that the invention may be fully understood.

At each of the egg packing stations where the eggs are to be counted, certain of the carton holding chambers 236 are employed for holding the desired supply of 36 egg cartons. The carton holders in the row 238 are the type for receiving 36 egg cartons, as illustrated at 271 in Figures 1 and 2 and comprises an L-shaped frame 272 hinged at 273 on the front wall 274 of the shelf 239 to be normally supported in inclined position above the belt 246. The frame 272 includes supporting strap 272a and a pair of spaced apart carton supporting arms including angle arm 272b and strip arm 272c. After the carton 271 is full, if the frame 272 is urged clockwise as viewed in Figure 2 against the tension of spring 276, the bottom of the carton 271 will be engaged with the conveyor belt 246 so that the carton will be automatically removed from the holder frame 272. The eggs in these cartons normally are not counted because they are culls.

Other packing stations 241 may be adapted for use either with a 36 egg carton or with a 12 egg carton to perform automatically counting operations in a manner hereinafter described. The shelf 242 of this row (Figures 3 and 4) may be equipped with a depending frame angle 277 having a supporting bracket 279 extending downwardly therefrom. An L-shaped supporting bell crank 280 is pivoted at 278 on the bracket 279 to provide a support for a removable carton bracket 281 generally similar to the bracket or holder 272 and having a support arm 281d releasably engaged with pins 282 on the bell crank 280. The bell crank 280 is urged counter-clockwise by the spring 283 to maintain the carton holder 281 and the carton 271 in the inclined position shown. In this position the contact operating pin 284 on the bell crank 280 is spaced from the contact assembly 286 secured on the angle bracket 277 and adapted to be operated by the bell crank 280 upon clockwise movement thereof to close a counting circuit through the leads 287 in a manner later described.

For use with the dozen egg cartons (Figures 5 and 6) the shelf 242 carries a pair of supporting ledges 291 adapted to receive an associated pair of supporting bars 292 of an auxiliary carton plate 293 adapted for abutting engagement with the edge of the shelf 242 with supporting bars 292 extending beneath the shelf 242 in engagement with the ledges 291. Also a pair of similar insulated and contact strips 294 are provided on the carton plate 293 to engage between corresponding pairs of insulated contact strips 295 on the shelf 242. Contact strips 294 are electrically connected to a switch 297 having a trip arm 296 projecting upwardly through the plate 293. Suitable leads extend from the pairs of strips 295 to a counter. A dozen egg carton 262 can

be supported as shown in Figure 6 while the eggs are being inserted therein with the contact trip arm 296 disposed for operation by the carton when it is slid rearwardly after filling onto the discharge conveyor 247.

As referred to above, a counting mechanism is provided for counting the various eggs packed in the cartons at the packing stations and for this purpose a series of counting devices 321 are shown in Figure 7, being mounted below the shelf 239 and including numeral drums 322 mounted on respective supporting brackets 323 and adapted for viewing through the windows 324 (Figure 1). A common drive shaft 325 (Figure 7) is provided for the various counting devices.

As each counting device is similar, only one will be described. Each counting device is adapted for manual operation to count eggs individually and for automatic operation, to count the eggs in units of dozens or in units of a selected number of dozens, in the present instance, in units of three dozens.

The counter unit includes a ratchet wheel assembly including a 36 tooth contact operating ratchet 331, a 36 tooth ratchet 332 for manual counting (Figure 8), a three tooth ratchet 333 for counting in dozen units (Figure 9), and a one tooth ratchet 334 for counting in three dozen units (Figure 10). The ratchets are secured together in spaced relation and rotate in unison about stationary shaft 335, and are urged by a friction drive to turn clockwise, as viewed in Figure 8. The friction drive mechanism includes a friction disc 336 which engages the lower face of the ratchet 332, the parts being urged together by a three pronged spring member 337 (Figure 4) secured on shaft 335 and engaging the upper face of the ratchet 332. The friction disc 336 is connected by a collar 338 to a worm wheel 339 having a drive worm 340 associated therewith.

Of the above ratchet wheels, ratchet 331 is an impulse transmitting ratchet wheel having a spring urged pawl 341 cooperating therewith and also carrying a contact closing arm 342 associated with the spring contact members 343, having leads 344 extending to a suitable counter.

The ratchets 332, 333 and 334 are escapement ratchets and are adapted for operation to cause escapement of the ratchet assembly for a given number of steps in accordance with a given number of eggs counted. The 36 tooth ratchet 332 is adapted for manual operation by means including an escapement pawl 346 (Figure 8) pivoted at 347 and urged in a counterclockwise direction by a spring 348. The tail 346a of the pawl 346 is engaged by the nose 349 of a lever 350 pivoted at 351 to a pivotal link 352 to provide a translational movement of the lever 350. A spring 353 is connected to the lever 350 to urge it to the left as viewed in Figure 8 and into engagement with the tail 346a of the release pawl 346. A manual operating plunger 354 is slidably mounted in a square tube 355 and is held inactive by a compression spring 356 which maintains the enlarged end 354a of the plunger 354 against the tube 355. The pawl 346 is provided with a vertically extending pin 372, which, as indicated in Figures 9 and 10, is adapted to engage the pawls 371 and 383 to swing them about the pivot 347 out of engagement with their respective ratchet wheels 333 and 334.

When the manual operating plunger 354 is depressed, it will strike the lever 350 and move pawl 346 to a disengaged position with respect to ratchet wheel 332. The pin 372, provided on pawl 346, will engage pawls 371 and 383 to also disengage them from their respective ratchet wheels 333 and 334. Thus upon depression of the manual operating plunger 354, the pawls 346, 371 and 383 are disengaged from their respective ratchet wheels and ratchet wheel 331 is allowed to rotate causing pawl 341 to open and close contact members 343 to send pulses to a counter which may be of any conventional type. However, it is desirable that the counting device be of the type that for each pulse transmitted, one egg is registered on the counter. Rotation of ratchet wheel 331 is caused by the action of friction disc 336 as hereinbefore described.

Thus it can be seen that as long as the plunger 354 is held in a depressed position, the pawls 346, 371 and 383 are kept disengaged from their respective ratchet wheels. In this position, the nose 349 of the lever 350 is kept in continuous contact with the tail 346a of the pawl 346 because of the action of the springs 353 and 348 and the pressure of the plunger 354.

It is apparent that ratchet wheel 331 will continue to

rotate and send pulses until the plunger 354 is released to the position shown in Figure 8 whereupon lever 350 will also return to allow pawl 346 to engage its ratchet wheel 332 to stop the rotation of ratchet wheel 331. It is also apparent that by using plunger 354 the operator can register any number of eggs desired by merely keeping the plunger 354 depressed until the desired number of pulses have been transmitted and then releasing the plunger. For example, if the operator wishes to register five eggs, he merely need keep plunger 354 depressed until five pulses have been transmitted and then release the plunger. Also the numeral drum 322 will give the operator a visual check on the number of impulses he has sent to the counter. This type of manual counting is desirable for counting quantities of eggs less than the standard quantities which cannot be registered by the multiple counting mechanism hereinafter to be described.

For automatic operation of the ratchet wheels a solenoid 361 (Figures 8 and 11) is provided which is operated by one of the sets of contact members 286 and 297 (Figures 4 and 6), so that its armature 362 will be drawn within the solenoid and will operate the lever 350 through a link 363. Operation of the lever 350 by the solenoid 361 serves to disengage the release pawl 346 for the single counting ratchet 332 to allow multiple counting. For this purpose, a two arm gravity latch 364 is provided having one arm 364a operable by the plunger end 354a and a second arm 364b positioned for cooperation with a pin 365 on the tail 346a of the pawl 346. As illustrated, particularly in Figures 12 and 13, the gravity latch 364 is held in an elevated or an inoperative position when the arm 364b rests on top of the pin 365. However, when the pin 365 is moved to the left from the position illustrated in Figure 13 by actuation of arm 350 by solenoid 362, the arm 364b falls into the position illustrated in Figure 12 and holds the pin 365 in this advanced position. In this situation, the plunger 354 is in a released position and hence the portion 354a cannot engage the tongue 364a on the latch 364 to keep the arm 364b from engaging pin 365. This engagement of arm 364b with pin 365 serves to keep pawl 346 in a disengaged position with respect to its ratchet wheel 332 as shown in Figures 9 and 10. However, pawls 371 and 383 are allowed to return to engaging positions because pawl 346 is returned far enough so that pin 372 does not retain pawls 371 and 383 in disengaged positions with respect to their ratchet wheels. With the pawls in these positions, a multiple count is possible as hereinafter described.

When it is desired to return to a single count from a multiple count, the plunger 354 is depressed and the portion 354a of plunger 354 engages the tongue 364a on latch 364 and swings the entire latch 364 including arm 364b upwardly as viewed in Figure 12 to disengage the pin 365. When the plunger 354 is in this fully depressed position, arm 364b cannot engage pin 365 and all of the pawls remain disengaged. Pulses are transmitted until plunger 354 is released whereupon all of the pawls return to engage their respective ratchet wheels, as shown in Figure 8, to stop the transmission of pulses. It is thus apparent that whenever the plunger 354 is actuated and subsequently released that all of the pawls will return to engage their respective ratchet wheels.

To provide for operation in counting the eggs in dozen lots with the three tooth ratchet 333 a second pawl 371 (Figure 9) is pivoted on the shaft 347 and adapted for abutting relation with a pin 372 on the pawl 346, the pawl 346 also serving as the operating means to release the pawl 371 from engagement with the associated teeth 373 of the ratchet 333 as hereinbefore described. The pawl 371 as shown in Figure 9 is in operative relation with the ratchet 333, this condition being provided for by the positioning of a manually settable control including an eccentric 374 on a rod 376 having a pointer shaped handle 377 and journaled in spaced bearings 378. The eccentric 374 is adapted to engage a laterally extending and depending finger 379 (Figure 11) of the pawl 371 to retain pawl 371 in a disengaged position as shown in Figure 10 when it is desired to count in three dozen units. Thus when the handle 377 is turned from the position shown in Figure 1 clockwise to alignment with the indicia 36, the eccentric 374 is turned from the position shown in Figure 9 to that shown in Figure 10. When the handle 377 is returned to the position shown in Figure 1, the eccentric 374 is in the position shown in Figure 9 where it fails to

disengage pawl 371. Thus in the position shown in Figure 9, eccentric 374 has no effect upon the operation of the pawls.

To enable counting in units of 36 eggs, the ratchet 334 is provided with a single tooth 382 cooperating with a pawl 383 also pivoted on the shaft 347 and having an associated spring 384 which serves to engage the pawl with the ratchet 334. The pin 372 on the pawl 346 also underlies the pawl 383 to operate this pawl upon energization of the solenoid 361 or upon depression of the plunger 354 as hereinbefore described.

From the above description it will be apparent that the ratchet assembly can be conditioned for automatic counting under control of the solenoid 361 in either units of one dozen or three dozen by appropriate setting of the control handle 377 so that when the lever 350 is operated by the solenoid 361 its nose 349 will engage the tail 346a of the pawl 346 and through the pawl 346 and its pin 372 disengage the pawls 371 and 383 from their respective ratchets 333 and 334 for counting by the dozen at a time or the pawl 383 from its ratchet 334 for counting by the three dozen at a time as hereinafter described. It will be noted that whenever the solenoid 361 is operated to initiate a multiple count, the pawl 346 becomes latched in inactive position after the initial operation by the lever 350 until it is again released by virtue of another manual count by operation of the manual counting plunger 354.

In summary, when a count of less than a standard quantity is desired, plunger 354 is held depressed to allow rotation of ratchet wheel 331 until the desired number of pulses have been transmitted and then the plunger 354 is released.

In a multiple count of one dozen units, the control handle 377 is set at 12 as shown in Figure 1 and when the operator pushes the carton 262 containing a dozen eggs onto a discharge conveyor 247, the arm 296 (Figure 6) is tripped energizing the solenoid 361 to cause the nose 349 of the lever 350 to engage the tail 346a of pawl 346. Then pawl 346 through pin 372 disengages pawls 371 and 383 to thereby allow ratchet wheel 331 to rotate. As soon as the carton 262 is on the conveyor 247, the arm 296 is released deenergizing the solenoid 362 which allows the spring 353 to pull the lever 350 upwardly to thereby release the tail 346a. However, in this case the pawl 346a cannot return to its normal position because the pin 365 engages the arm 364b and therefore the pawl 346 remains disengaged. But pawls 371 and 383 are allowed to return to an engaging position and pawl 371 thus will engage the next of the teeth 373 on the ratchet wheel 333. Since the tooth 382 on ratchet wheel 334 is at the same position as one of the teeth 373 on the ratchet wheel 333, it makes no difference that the pawl 383 is returned to the engaging position when a count is being made in one dozen units. Since the three teeth 373 on the ratchet wheel 333 are evenly spaced about the periphery of the wheel 333, it can be seen that upon each operation of the solenoid 361, twelve pulses will be transmitted by the ratchet wheel 331 when the control handle 377 is in the position shown in Figure 9.

In a multiple count of three dozen units, the control handle is turned to the number 36 and when the operator has filled a carton 271 with three dozen eggs, the carton bracket 281 is moved clockwise as shown in Figure 4 until the carton 271 is engaged and carried away by the conveyor 247. The clockwise operation of the carton bracket 281 closes a switch 286 (Figure 3) which energizes the solenoid 361 causing the lever 350 to engage the tail 346a in the same manner as described in counting one dozen units.

As soon as the carton bracket 281 is released, switch 286 will be opened deenergizing solenoid 361 which allows spring 353 to return lever 350 to the position shown in Figure 8. However, tail 346a cannot return to its normal position because the pin 365 engages arm 364b. In this instance, pawl 371 cannot return to a ratchet wheel engaging position as it could in counting one dozen units because it is held in this position by eccentric 374 as shown in Figure 10. Thus it can be seen that pawls 346 and 371 are both held in a disengaged position and that ratchet wheel 331 can rotate until pawl 383 engages the single tooth 382 on ratchet wheel 334. In this situation thirty-six pulses are transmitted to the counter. Hence, every time the solenoid 361 is energized when the control handle 377 is on the number 36, thirty-six pulses will be transmitted.

The device can be returned to counting one dozen units by merely turning the handle 377 so that the eccentric 374 will no longer retain the pawl 371 in a disengaged position. It is also evident that manual operation of the device may be accomplished at any time desired by merely depressing plunger 354.

Figures 15 and 17 illustrate a counter actuating device for use in connection with a weighing conveyor to count the number of eggs before grading, and to provide a check on the number of eggs counted in the ratchet type counting device previously described. The counter actuating device includes a pair of spring contact arms 391 and 392 spaced apart by an insulating block 393 and having an insulated mounting 394 upon a supporting rod 395. The contact arm 391 carries an insulating strip 396 to support an offset control arm 397 which is used to control the raising and lowering of the contact arms 391 and 392 between the positions shown in Figures 16 and 17 under control of an offset end 179a of the shaft 179. The shaft 179, being operated once for each step of movement of the weighing conveyor 16, will lower the contact arms 391, 392 once for each step of movement so that the extended end 392a of the arm 392 will be lowered to engage an egg in the aligned cup 103 and close the contacts 398 if an egg is engaged. The spring 399 serves to move the arms 391, 392 downward as the shaft 179 is operated. If no egg is in the aligned cup 103 the contacts 398 will not be closed and no count will be made. The electric leads 400 extend from the contact arms 391 and 392 to the associated counting device of conventional construction.

If the eggs are being packed in dozen cartons, the filled carton is slid past the count tripping arm 296 for the "dozen" counting ratchet of the counting mechanism, and into the conveyor 247 for disposal in the usual manner.

If eggs are being packed in three-dozen cartons, the cartons may be positioned as shown for example in Figures 1 and 2. If automatic counting is desired, the holder as illustrated in Figure 4 may be employed, so that as the carton is transferred to the conveyor 247 by a downward tipping of the carton holder 241, the "three-dozen" count ratchet of the counting mechanism is released.

As the counting operation is performed, each particular quality and size of egg may be counted on a series of counting drums 322 of the type shown in Figure 1, with the operation being controlled for "dozen" or "three-dozen" counts as indicated by the setting of the pointer 377 in Figure 1. It will be understood that where odd numbers of eggs are to be counted, the manually operable control key or button 354 is utilized for the counting operation. For example, if only five eggs remain from a lot of eggs to fill a 12 egg carton 262, the operator merely depresses the plunger 354 and keeps it depressed until five pulses are transmitted as hereinbefore described. When another lot of eggs has arrived, the remainder of the carton 262 may be filled and pushed on to the conveyor 247 thereby tripping the switch 297. However, this time only seven pulses will be sent because the ratchet wheel 331 will have been advanced five positions by the previous operation of plunger 354. Thus it can be seen that this device makes it possible to count the number of eggs in lots of eggs because odd numbers of eggs over and above the standard quantities can be counted, and at the same time it is still possible to keep an accurate total count of the eggs packed.

While we have described our invention as illustrated in the preferred embodiment thereof, it will be apparent that the invention is capable of both variation and modification from the form shown, and its scope therefore should be limited only by the scope of the claims appended hereto.

We claim:

1. In a totalizer for totalizing eggs as they are being packed so as to count all of the individual eggs in a given grade packed in a given lot, the combination of: a counter for counting said eggs; means responsive to a single actuation thereof by the movement of a packed carton away from its packing location to actuate said counter a number of times equal to once for each of the eggs in said packed carton; means selectively operable at the end of said lot to indicate the number of eggs in a carton only partially filled from said lot; and means responsive to the aforesaid selective operation of said means to effect the actuation of said counter a number of times equal to the number of eggs in said partially filled carton, said

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carton responsive means being responsive to the next subsequent actuation thereof by a carton to cause said counter to be actuated a number of times equal to the number of additional eggs necessary to fill said partially packed carton.

2. In a totalizer for totalizing eggs as they are being packed, so as to count all of the individual eggs in a given grade packed from a given lot, the combination of: a counter for counting said eggs; primary means responsive to a single actuation thereof by the movement of a completely filled carton away from its packing location to actuate said counter a number of times equal to once for each of the eggs in said packed carton and then automatically stop itself; and secondary means selectively operable at the end of said lot to indicate the number of eggs in a carton only partially filled from said lot and to set said primary means in motion to actuate said counter said indicated number of times, said secondary means including means to then automatically halt said primary means, said primary means when next set in motion by a packed carton, as aforesaid, actuating said counter a number of times equal to the number of additional eggs required to fill said partially filled carton, and then automatically stopping itself.

3. In combination: a counter; a counter actuating device adapted to repeatedly actuate said counter; a standard control, adapted, when actuated to set said device in operation and, in a normal cycle, and after said device has actuated said counter a standard number of times, to automatically halt said device; an auxiliary control associated with said standard control and adapted to be actuated selectively to indicate any desired whole number less than said standard number, said auxiliary control, when so actuated, setting said device in motion to actuate said counter said lesser number of times, and then automatically halting said device, said auxiliary control thereby modifying the status of said standard control whereby when the latter is next again actuated it will set said device in operation and automatically halt said device when the latter has actuated said counter a number of times equal to the difference between said standard number and said lesser number.

4. In combination: a counter; a power driven device adapted to repeatedly actuate said counter; primary control means adapted, when actuated, to start said device, to keep said device running after the latter has been started and, in a normal cycle, to halt said device when it has actuated said counter a standard number of times; and a secondary control means adapted to be selectively actuated to start said device, to keep the latter running to actuate said counter a selected lesser number of times than said standard number, and to then halt said device, said primary control means being operative, when next again actuated, to cause said device to actuate said counter a number of times which, when added to said lesser number, equals said standard number, and then to halt said device.

5. In combination: a counter; a power driven device adapted to repeatedly actuate said counter; primary starting means to start said device to cause the latter to repeatedly actuate said counter; primary stop means responsive, in a normal cycle, to said device completing the actuation of said counter for a standard number of times, to stop said device; and secondary start-stop means operable to start said device and indicate a selected whole number which is less than said standard number, said secondary start-stop means being responsive to said device completing the actuation of said counter said lesser number of times, to stop said device, said primary stop means then being responsive to said device, upon the latter being started by actuating said primary starting means, to halt said device when the latter has actuated said counter a number of times which, added to said lesser number, equals said standard number.

6. A combination as in claim 3 in which said standard control includes means for automatically halting the counter actuating device in a normal cycle after the latter has actuated the counter a number of times equal to either of two standard numbers; and manual means for optionally determining which of said two standard numbers of times the actuating device will actuate said counter, after being started in a normal cycle, before said standard control will automatically halt said device.

7. In a totalizer, the combination of a counter; a counter actuator; power means for rotating said actuator; primary control means, the operation of which

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allows said power means to rotate said actuator and in a normal cycle automatically stop said rotation after the latter has caused said actuator to actuate said counter a standard number of times; and a secondary control means, the operation of which allows said power means to rotate said actuator until it has actuated said counter a lesser number of times than said standard number; the next subsequent operation of said primary control means effecting the rotation of said actuator to actuate said counter a number of times which, when added to said lesser number, equals said standard number.

8. In a totalizer, the combination of a counter; a counter actuator; power means for rotating said actuator; primary electrical control means, the operation of which allows said power means to rotate said actuator and in a normal cycle, automatically stop said rotation after the latter has caused said actuator to actuate said counter a standard number of times; a secondary manual control means, the operation of which allows said power means to rotate said actuator until it has actuated said counter a lesser number of times than said standard number; the next subsequent operation of said primary control means effecting the rotation of said actuator to actuate said counter a number of times which, when added to said lesser number, equals said standard number.

9. In a totalizer, the combination of a counter; a counter actuator comprising a contact operating ratchet wheel, a pair of electrical contacts, a spring engaged pawl for engaging said ratchet wheel and actuating said contacts upon the rotation of said ratchet wheel; power means for rotating said actuator; primary electrical control means including a solenoid, the operation of which allows said power means to rotate said actuator and in a normal cycle automatically stop said rotation after the primary control means has caused said actuator to actuate said counter a standard number of times; a secondary manually controlled means including a manually operated plunger, the depression of which allows said power means to rotate said actuator to actuate said counter a lesser number of times than said standard number, said rotation being terminated upon release of said plunger, the next subsequent operation of said primary control means effecting the rotation of said actuator to actuate said counter a number of times which, when added to a lesser number, equals said standard number.

10. A combination as in claim 9 in which the primary control includes means for automatically halting said counter after it has been actuated a number of times equal to either of two predetermined standard numbers, and manual means for selecting either of the two standard numbers to determine the number of times said counter will be actuated before said actuator is halted by said primary control.

11. In a totalizer, the combination of a counter; a counter actuator; power means to rotate said actuator; control means adapted to start and stop said actuator after the counter has been actuated a predetermined number of times, said control means including two ratchet wheels, two pawls adapted to engage their respective ratchet wheels, means for disengaging all of said pawls simultaneously, means for holding one of its pawls out of engagement with said wheel and allowing the return of the other pawl into engagement with its wheel when it is desired to actuate said counter a number of times equal to a standard number, and means for allowing both of said pawls to return into engagement with their respective wheels when it is desired to actuate said counter a lesser number of times than said standard number.

12. In a totalizer, the combination of a counter; a counter actuator comprising a contact operating ratchet wheel, a pair of electrical contacts, a spring engaged pawl for engaging said ratchet wheel and actuating said contacts upon rotation of said wheel; power means for rotating said actuator; control means adapted to start and stop said actuator after the counter has been actuated in the predetermined number of times, said control means including three ratchet wheels, three pawls adapted to engage their respective ratchet wheels, means for disengaging all of said pawls simultaneously from their respective wheels, means for holding one of said pawls out of engagement with one of said wheels and allowing the other pawls to return into engagement with their respective wheels when it is desired to actuate said counter a number of times equal to a first standard number, additional means for holding another of said pawls out of engage-

ment with its wheel and allowing only one pawl to return into engagement with its wheel when it is desired to actuate said counter a number of times equal to the second standard number, said second standard number being a multiple of the first standard number, and means for allowing all three of said pawls to return into engagement with their respective wheels when it is desired to actuate said counter a lesser number of times than one of said standard numbers.

13. A combination as in claim 12 together with means to select either of the two standard numbers.

5  
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