United States Patent

Wilson

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[54] **METHOD AND APPARATUS FOR HANDLING FOWL**

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[51] **Int. Cl.** **A01k 45/00**

[58] **Field of Search**.....119/1, 21, 22, 48, 82; 209/125; 128/253

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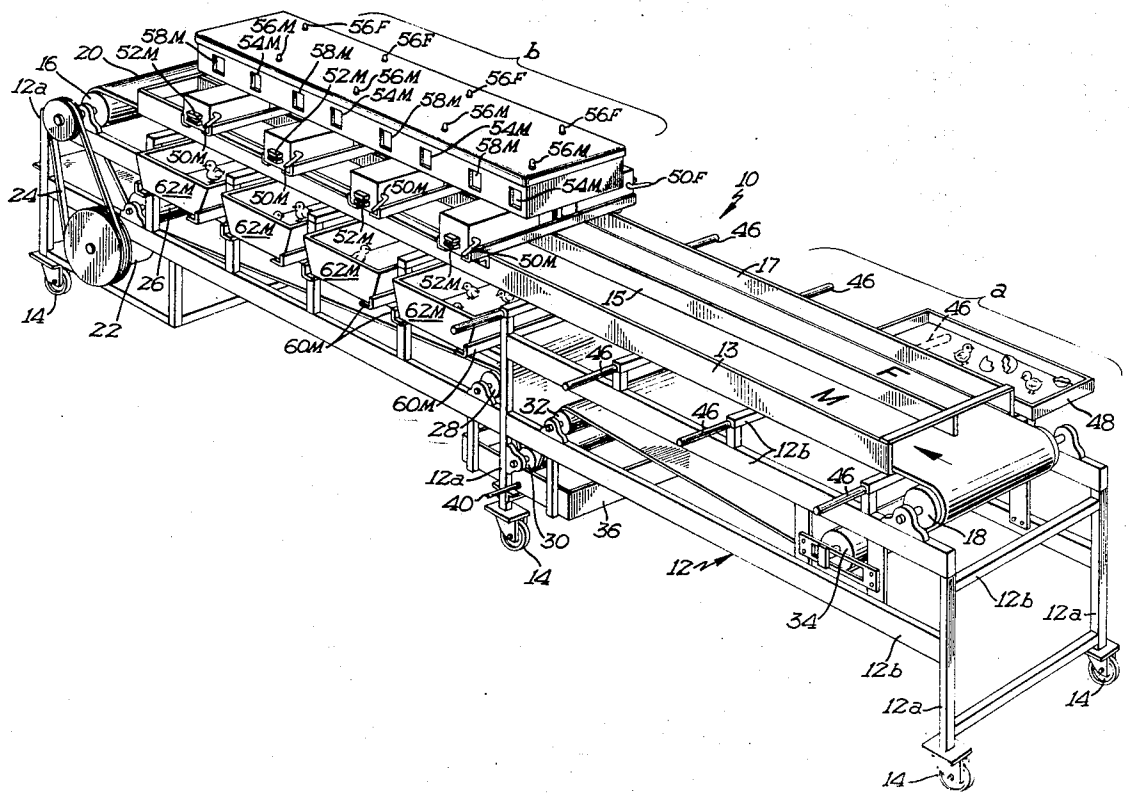
[57] **ABSTRACT**

Newly hatched baby chicks are sexed and simultaneously transferred from a hatchery tray at a first station to either the male or the female channel of a conveyor which transfers them to counting and debeaking devices located at a second station. The baby chicks are picked up at the second station, debeaked and simultaneously counted, e.g., by touching a counter with the hand as the chicks are being debeaked. They are then placed in boxes.

6 Claims, 3 Drawing Figures



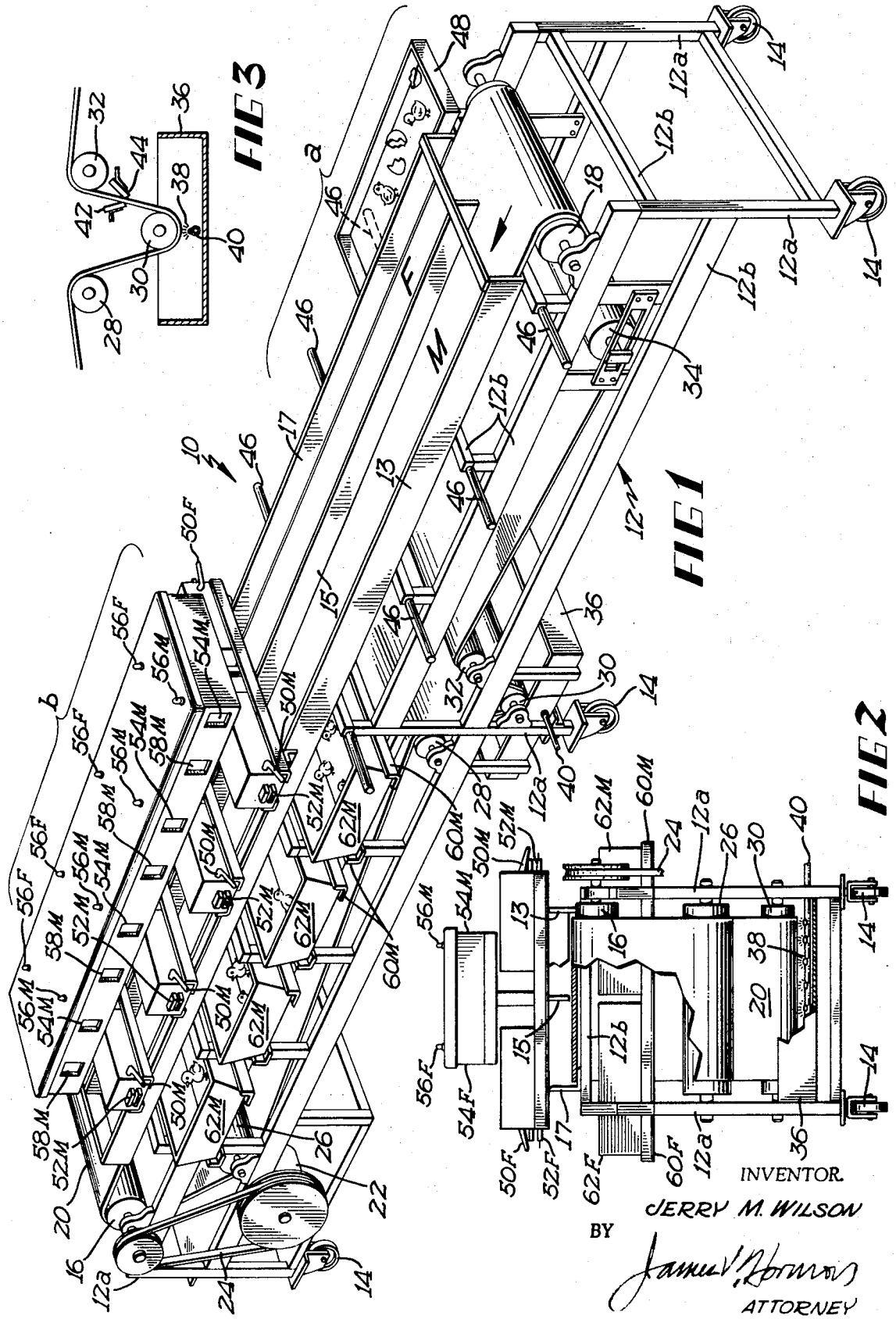


FIG 3
FIG 1
FIG 2
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METHOD AND APPARATUS FOR HANDLING FOWL

The present invention relates to the handling of fowl in a high speed, high volume commercial processing plant and more particularly to the counting and sexing of chicks.

In prior equipment used for debeaking, counting and sexing poultry, each chick had to be handled several times. One prior system consisted of sexing the chicks in one location, debeaking the chickens in another location and counting them in a third location.

In view of the deficiencies of the prior art, it is an object of the invention to reduce the amount of handling required in sexing, debeaking and counting baby chicks and, more specifically, to provide a system that requires each chick to be handled only twice.

Another object of the invention is to make possible more accurate counting while reducing the amount of time required in sexing, counting and debreaking operations.

A further object of the invention is to provide a method and apparatus of the type described which places persons performing the operation in a single work area to reduce managerial requirements.

A further object is to provide for continuously sanitizing the surface upon which the chicks stand.

Yet another object is to provide a system which encourages operators to work at the same pace and permits the quality of the work done by each person employed in the operation to be individually checked.

These and other more detailed and specific objects will become apparent from the following description of the invention and drawings wherein;

FIG. 1 is a perspective view of an apparatus embodying the invention.

FIG. 2 is a left end elevational view of the apparatus in FIG. 1, and

FIG. 3 is a partial side elevational view of the belt washer.

Briefly, in accordance with the present invention, baby chicks that have just hatched are sexed, debeaked, and counted by performing two of the aforesaid operations simultaneously in one station and the remaining operation or operations either before or after the other operations at a remote station. In a preferred form of the invention, sexing is done in a first work station and the remaining two operations are thus performed simultaneously in a second station. The chicks are transported automatically from the first station to the second station. In the preferred form of the invention, male and female chickens are conveyed in separate channels from the first station to the second station. Mechanical counters are provided for maintaining a running total of the chicks handled. Separate counters are preferably provided for male and female chicks. Specifically, a first set of counters register the total number of male chicks processed and the second set of counters register the total number of female chicks processed. The counters include a sensing element positioned immediately adjacent to the debeaking unit in position to be activated automatically when the debeaking device is used.

Three operations are to be carried out with the invention: sexing, debreaking, and counting. They can be carried out in various orders provided, however, two of them are carried out in one work station at one end of the apparatus and the remaining operation is carried out in a second work station at the other end of the apparatus and that the birds are transferred automatically from the first to the second station. Two of the operations are always carried out substantially simultaneously. By employing this method, it is necessary to handle the chicks only twice. For example, the chicks can be debreaked in the first station and sexed and counted in the second station. This will, however, have the disadvantage of requiring that the operator use different counters depending upon the sex and would therefore require extra time. If debeaking is performed after sexing and counting, different counters will again have to be actuated depending upon the sex. If the birds are sexed and debeaked simultaneously at one station, counting is performed at the other station. This, however, requires each operator to be proficient in both sexing and debeaking, which, although practical, can be a disadvantage. If counting and debeaking is done simultaneously as described hereinbelow, the male and female bird count will be separate if sexing is performed first. This is a preferred operating sequence in accordance with the invention.

In the accomplishment of the foregoing and related ends, the invention then comprises the features hereinafter fully described and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principles of the invention may be employed.

The apparatus shown in the figures includes a framework **12** composed of columns **12***a* and beams **12***b* provided and with casters **14** to permit the unit to be quickly moved from one area to another.

Suitably supported from some of the cross members **12B** above the belt and extending longitudinally of the apparatus are three vertically disposed guide plates **13**, **15** and **17** defining a channel M for male birds and a channel F for female birds extending between handling stations A and B. Horizontally disposed laterally extending and longitudinally spaced rotatable conveyor support rolls **16** and **18** support an endless rubber conveyor belt **20** which transports the chicks as seen in FIG. 2 from the first handling zone A to a second handling zone B. The conveyor **20** is driven by a motor **22** connected through a belt and sheave assembly **24** to the roll **16**. The belt **20** is also engaged by five idlers **26**, **28**, **30**, **32** and **34** of which rolls **28**, **30** and **32** are positioned appropriately to carry a portion of the belt into washing box **36** wherein a sanitizing solution **38** is sprayed onto the belt from supply pipe **40**. The solution is removed from the belt by means of laterally extending doctor blades **42** and **44** (FIG. 3). In this way the proper sanitation of the belt is maintained at all times.

In zone A at the right end of the machine as seen in FIG. 1, are provided a plurality of laterally extending brackets **46** upon which hatch trays **48** holding eggs and chicks are placed at the beginning of the handling operation. In zone B above the belt and supported upon the upper edges of guides **13** and **17** are four counter sensing arms **50M** which can be touched with the hand when the beak of the bird is placed in contact with debeakers **52M** thereby actuating counters **54M** that actuate signal lights **56M** and buzzers (not shown) when a

count of 100 is reached and counters **58M** that must be reset manually to provide an all day count. The designation M stands for male. On the right-hand side of the machine are provided counters, counter levers **50F**, debeakers **52F**, counters **54F** and lights **56F** with the same numbers referring to corresponding parts on the other side of the machine. The designation F indicates female birds. Positioned below each of the counters and debeakers are shelves **60F** and **60M** upon which chick boxes **62M** and **62F** are placed.

During operation, the hatchery trays **48** are placed on the brackets **46** and the chicks are removed from the trays, sexed by spreading the feathers on the wings to determine which are male and which are female. The chicks are then placed in the appropriate channel F or M of the belt **20** with the culls being removed. When all of the chicks are removed from the tray **48**, the shells are dumped into a barrel and the empty trays removed. The chicks are then lifted by operators standing on each side of the apparatus of FIG. **1**, debeaked by placing the beak in contact with the debeaking heads **52M** or **52F** as the case may be with the operators hand contacting counter sensing arms **50M** or **50F**. The chicks are then placed in the boxes **62M** or **62F** immediately below the corresponding counters. When 100 chicks have been dropped into a box, the counter **54M** or **54F** will register 100 and the light **56M** or **56F** as the case may be will be actuated by the counter and the buzzer will sound. The counter will automatically reset to 100. The filled box is then removed from the shelf **60M** or **60F**. The counters **58M** or **58F** will register the total count for each debeaker until manually reset.

The invention has been successfully used in a high capacity commercial operation. Ten people do the work done by 18 previously. The pace of the workers is kept uniform and individual quality control is possible.

I claim:

1. An apparatus by which operators conduct the functions of debeaking, counting and sexing chickens, said apparatus comprising a supporting framework, a transfer conveyor means having inlet and outlet end and two segregated channels mounted on and extending from one end of the framework to the other for transferring selected male chicks in one channel and selected female chicks in the other channel from one end of the apparatus to the other between a first work station defined at the inlet end and a second work station defined at the outlet end, debeaking means located at one of the stations, counting means located at one of the stations, said counting means and debeaking means being mounted on the supporting framework adjacent to the transfer means and in sufficiently close proximity with the transfer means whereby the chicks thereon are within reach of an operator to perform said functions.

2. The apparatus according to claim **1** wherein the transfer means extending between the first station and the second station comprises an endless belt conveyor having a means for removing foreign material therefrom in operative association therewith whereby the material dropped on the belt will be continuously removed;

3. The apparatus according to claim **2** wherein the means for removing foreign material comprises a washing box including an enclosure and a means for applying a washing liquid to the surface of the belt.

4. The apparatus of claim **3** wherein means are provided for thereafter removing excess liquid from the belt.

5. The apparatus of claim **2** wherein at least one counter and debeaker is provided in the second station, said counters include counter sensing elements operatively positioned with relation to the debeakers such that the sensing elements and the counters are operated when the debeakers are used.

6. The apparatus of claim **2** wherein the transfer means comprises an endless belt entrained over laterally extending longitudinally spaced rolls, a drive motor is connected to advance the belt between the first station and the second station and a partition is provided above the belt defining male and female channels for maintaining the males and females separate from one another, and where at least one counter and debeaker is provided in the second station, said counters including counter sensing elements operatively positioned with relation to the debeakers such that the sensing elements and the counters are operated when the debeakers are used.

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