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CHECK OUT COUNTER

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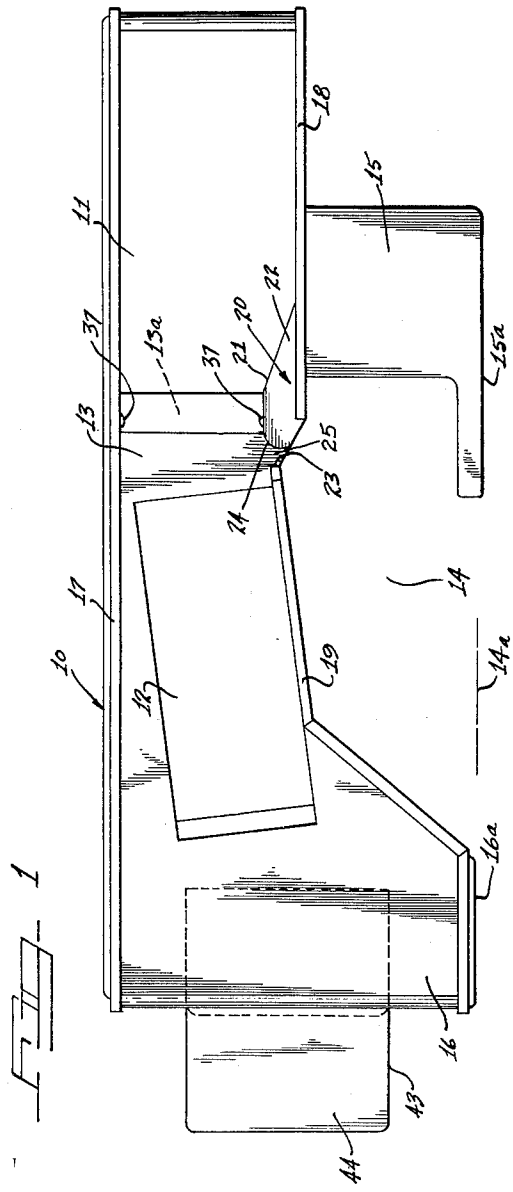


Fig. 1

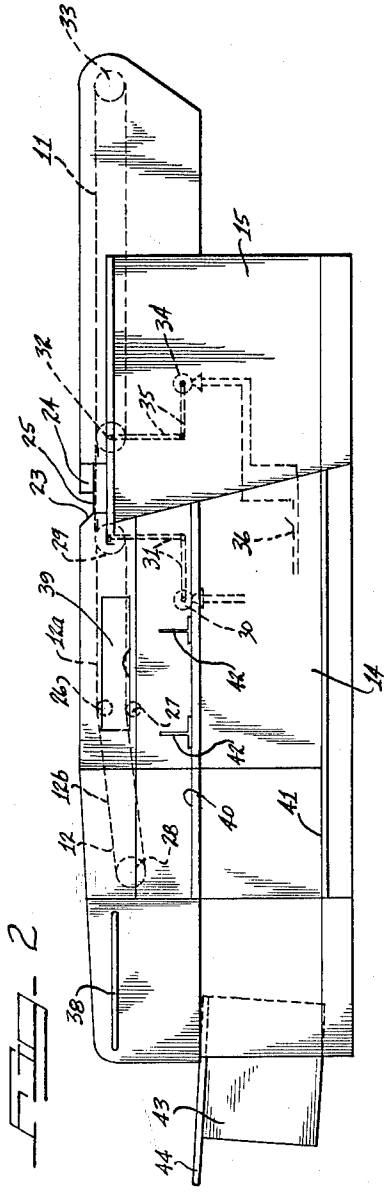


Fig. 2

Inventor
Edwin F. Schild

by Hill, Sherman, Meroni, Gross & Simpson Attys.

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CHECK OUT COUNTER

Edwin F. Schild, 1644 77th Court, Elmwood Park, Ill.

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The present invention relates to improvements in check out counters for self service stores.

In a check out counter of the type embodying the principles of the present invention, front and rear conveyor belts are mounted on a check out stand. Beside the stand between the belts is a check out station where a checker will stand and ring up the articles on a cash register mounted on a register stand positioned beside the front belt and extending to the edge of the check out station. Between the belts is a flat plate and the checker will slide the items across the plate as they are checked, and the front belt will be selectively operated to bring the items up to the check out station. The rear check out belt delivers to a bagging platform which extends laterally behind the check out station to the edge of the station. The width of the unit is defined on one side by the edge of the check out stand, and on the other side by the edge of the bagging platform which is the edge of the check out station. In accordance with the principles of my invention I provide a front belt which is wider than the rear belt so that a large quantity of articles can be stacked on the front belt. With self service stores carrying increasing numbers of commodities, the size of purchases by each customer is increasing requiring increased space for stacking articles on a check out counter. If the customer can unload an entire cartload of items while the checker is handling the preceding customer, the capacity of the check out counter will be increased and the speed and efficiency of the checker will be increased. This will require less check out counters per store reducing the floor space requirements. Widening of the belt in the direction of the check out station merely shifts the cash register stands laterally until it is at the edge of the check out station and in alignment with the bagging platform, and this space normally would not be utilized. If the front belt were lengthened it would encroach upon usable floor space area of the store. Thus increased efficiency has been achieved without taking up any additional useful space.

It is accordingly an object of the invention to provide a check out counter of increased capacity and increased efficiency for more rapid handling of articles and for handling a greater number of articles for each customer. Another object of the invention is to provide an improved check out counter by providing a front belt which is wider than the rear belt and by offsetting the wider portion in the direction of the check out station, providing a shunt bar for deflecting the articles into alignment with the rear conveyor belt and providing additional stationary space for small articles.

Another object of the invention is to provide an improved check out counter arrangement wherein small articles or coins can be placed on the stationary plate between conveyor belts and easily raked into the checker's hands.

Other objects and advantages will become more apparent with the teaching of the principles of the invention in connection with the disclosure of the preferred embodiment thereof in the specification, claims and drawings, in which:

FIGURE 1 is a top plan view of a check out counter constructed in accordance with the principles of the present invention; and

FIGURE 2 is a side elevational view of the check out counter of FIGURE 1.

As shown on the drawings:

The check out counter shown in FIGURES 1 and 2

incorporates a stand **10** which is located near the store exit and a customer normally will load a basket with articles such as groceries and bring it to the counter and a plurality of counters will be arranged forming aisles therebetween.

On the stand is a front conveyor belt **11** and a rear conveyor belt **12**. The articles are stacked on the front conveyor belt **11** which is selectively driven, and carried back to a stationary plate **13** between the belts where they are accessible to a checker at a check out station **14** which is laterally of the stand beside the space between the belts. The articles are rung up on a cash register on a register stand **15** just forwardly of the check out station **14** and are then pushed onto the rear belt **12** which carries them back to a bagging platform **16**.

On the stand and at the edges thereof, along one side is a rail or ledge **17** and on the other side are additional rails or ledges **18** and **19** for preventing articles from falling off the stand as they are conveyed.

The mechanism is constructed so that the cash register stand **15** is built sufficiently large to accommodate a cash register and with its outer edge **15***a* in alignment with the outer edge **16***a* of the bagging station. This edge of the counter is controlled by the required size of the check out station which has an outer limit shown by the broken line **14***a* and the outer edge **16***a* of the bagging station is in alignment with the edge of the check out station. The front belt **11** is wider than the rear belt without taking up any space that would be useful for other purposes. The front belt is offset in the direction of the check out stand so that the extra width is taken up in the direction of the cash register stand **15**. Hence the cash register stand **15** still has sufficient width to accommodate a cash register and is brought out no further than the edge **14***a* of the check out station. The space provided by the wide front belt **11** heretofore has been wasted by either making the cash register stand **15** larger than necessary or by positioning it inwardly of the outer edge **14***a* of the check out station.

As an example of the advantages afforded by increasing the width of the front belt **11**, in a counter having a rear belt with a width of 18 inches, and a front belt having a length of 48 inches, by increasing the width of the front belt so that it is four inches wider than the rear belt, a 22% increase in space is afforded as compared with a front belt having a width of 18 inches, the same as the rear belt. This provides adequate space for the customer to unload a large load of store articles and stack them on the front belt.

A shunt bar **20** is provided at the rear end of the front belt for deflecting the articles laterally into alignment with the rear belt, as the front belt carries them back. The shunt bar **20** has a slanting shunt edge **21** which gently deflects the articles inwardly and slides them over on the belt **11**. In the normal stacking of articles on the front belt there will be sufficient spaces between them so that they will easily be slid together by the action of the shunt bar. The shunt bar **20** is relatively thick in a vertical dimension, and extends substantially to the top of the side ledge **18**, as illustrated in FIGURE 2. Therefore the slanting shunt edge **21** actually presents a vertical surface to the articles which are shunted inwardly onto the plate **13**. The term "bar" is adopted for the member **20** as a convenient term, and one by which it has become known, although this member could also be termed a block or a shunt element, or other convenient nomenclature may be used.

The shunt bar is rigidly mounted on the stand so as to have clearance space above the belt **11** and is provided with a planar horizontal upper surface **22** which provides a convenient stationary area for stacking small items. For example, gum packages, candy bars and other

similar items which might become misplaced among other large articles can be conveniently located on the surface 22 by the checker. The horizontal surface 22, in other words, provides a small horizontal platform which is used as a temporary storage area for small items.

The checker rings up the articles on the cash register and they are slid across the flat plate 13 onto the rear belt 12 which usually runs continuously. Frequently flat articles or coins are placed on the plate 13 and are somewhat inconvenient to pick up. To facilitate handling of these items by the checker and to increase the speed of handling, a gap or slot 23 is providde between the side ledge or rail 19 and the shunt bar 20. The plate 13 is provided with an extension 25 extending through the gap so that the checker can rake the coins or small articles through the gap into her hand. The rear tip 24 of the shunt bar is rounded to further facilitate this operation.

The rear belt is preferably supported so as to have a horizontal planar portion 12*a* at its head end and a downwardly inclined portion 12*b* at the rear end and this change in angle of the belt is afforded by supporting idler rolls 26 and 27. The belt is supported at its ends by rolls 28 and 29 with at least one of the rolls being driven such as by a motor 30 connected thereto by a drive arrangement 31 such as drive chains or belts. The motor 30 is electrically operated and continually driven.

The front belt 11 is supported on rolls 32 and 33 with roll 32 being driven by a motor 34 through a drive arrangement 35 such as belts or chains. The motor 34 is electrically operated and is controlled by a switch 36 which is selectively closed. The switch may be operated by the foot of the checker or it may be automatically operated such as by providing a trip plate 13*a* as a portion of the flat plate 13 so that when articles ride on the plate 13*a* the switch is opened to stop the front belt. As an alternative control, the switch may be operated by an electric eye control including members 37 which include a light source and a light sensitive member.

The stand conveniently incorporates a pull out ledge 38 and a drawer 39. Shelves 40 and 41 are provided for bag storage areas and may support adjustable dividers 42. At the rear of the stand beneath the bagging platform 16 is a bag support slide out drawer 43 with an upper extended shelf 44.

In operation, the customer will move a cart to the head end of the stand and begin unloading the cart and stacking articles on the head end of the belt 11 while the checker is checking a previous customer and sliding articles across the plate 13 to the rear belt 12. By the time the last of the articles of the previous customer are checked, the checker will have moved the conveyor belt 11 so that its entire top surface will have been available to the customer who is unloading. The large surface area permits stacking a large quantity of articles. As the front belt 11 conveys the articles toward the rear belt 12 the shunt bar shifts the articles into alignment with the rear belt. Small articles are temporarily placed on the upper surface 22 of the shunt bar and change and similar articles are raked out through the open slot 23. The articles, after being checked, are conveyed to the bagging platform 16.

Thus it will be seen that I have provided an improved check out counter which meets the objectives and advantages hereinbefore set forth and provides advantages over counters heretofore used.

The drawings and specification present a detailed disclosure of the preferred embodiments of the invention, and it is to be understood that the invention is not limited to the specific forms disclosed, but covers all modifications, changes and alternative constructions and methods falling within the scope of the principles taught by the invention.

I claim as my invention:

1. A check out counter for a self service store comprising a check out counter stand, a rear conveyor belt on the stand, means for driving said rear conveyor belt, a front conveyor belt for delivering articles back to said rear conveyor belt, means defining a check out station beside the stand and between said belts, a planar check out plate between said belts for manually sliding articles from the front belt to the rear belt, side ledges on the stand at the sides of said belts, and means defining a slot in one of said side ledges opening to the check out station and providing a continuation of said check out plate so that coins and small articles may be slid off the plate while between said conveyor belts.

2. A check out counter for a self service store comprising a check out stand having an upper platform including a rear conveyor belt for conveying articles back from a check out station and also including a front conveyor belt for conveying articles back to said check out station, a bagging platform position to receive articles from the rear belt, a drive for said rear belt, a cash register stand on the inner side of said platform directly in front of said check out station, a planar check out plate forming part of said platform between said belts beside said check out station for manually sliding articles from the front belt to the rear belt, a motor for driving said front belt, a control switch for selectively operating said front belt to deliver articles rearwardly to said check out station for conveying to the rear belt, a straight continuous outer ledge on the check stand at the outer edge of said platform, first and second inner side ledges on the check stand extending along the inner sides of said front and rear belts respectively, said platform being wider between said outer and first ledge than between said outer and second ledge, a shunt bar having a horizontal planar upper surface for supporting small articles and having a slanting side shunt surface leading in an outward direction from a rear end of said first ledge to a position of alignment with said second ledge, said shunt bar mounted on said first side ledge and projecting over said front belt, and an opening between said first and second ledges behind said shunt bar with a check out plate extension in said opening for manually sliding articles or coins toward said check out station.

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