This invention relates generally to check stands commonly used to facilitate the checking of articles purchased in grocery, drug and other self-service stores, and particularly to a check stand embodying an improved end guard means.

Check stands currently in use consist generally of a rectangular cabinet consisting of, or within the confines of which, a checker assumes a position to check items purchased by the customers who deliver the articles to the stand in carts having baskets for holding the selected items. Such a check stand has a top or platform upon which the articles are placed, the platform, or sections thereof, serving as supports for a cash register, weighing scale, etc. A recently designed check stand is provided with a motor-driven conveyor belt which extends around pulleys and longitudinally of the stand with the upper portion of the belt movable substantially in the plane of the cabinet top or platform.

The conveyor belt functions to feed the items, placed on the belt at the loading end of the stand, past the checker's station where their selling prices are recorded and tallied on the cash register. The articles then travel to the other end of the check stand where they are placed in bags, cartons or other containers for delivery to the customer.

It is an object of our invention to obviate the difficulties referred to above by providing a check stand having an end guard assembly which is so constructed and arranged that the guard rail may flex when struck by an article so as to prevent denting of the guard or loosening of the same. This object is attained by fastening the ends only of the guard rail to the check stand frame, the rail thus being adapted to bow or flex substantially its full length and thus absorb the shock load imposed by the articles contacting the rail.

Another object of the invention is to provide a guard rail assembly in which the rail is formed from a metal alloy possessing resiliency, the rail being, however, of structural shape, for example of substantially channel-shaped cross section, capable of withstanding considerable force without permanent deformation.

Another object of the invention is to provide a guard rail assembly including mounting blocks secured to the cabinet at the sides thereof, said blocks having contours corresponding to the inner contour of the channel-like rail to adapt the ends of the latter to be placed over the blocks. A related object is to provide a guard-rail assembly in which the rail has an inwardly directed lip or bead along one longitudinal edge thereof, said bead underlying the bottom surfaces of the blocks at one side thereof to retain this edge of the rail in place, the opposite edge portion of the rail being secured as by screws, against the other side of the blocks to secure the rail firmly to the mounting blocks. By this specific mounting means, the rail may be quickly and easily installed on and removed from the check stand cabinet.

Further objects of the invention are to provide an end guard assembly which is simple in construction and economical to produce, one which is strong and durable in use, and one which, due to the curved contour of the rail, enhances the appearance of the check stand.

Further objects of the invention will appear from the following description and from the drawings which is intended for the purpose of illustration only, and in which:

Figure 1 is a plan view of a check stand embodying the present improved end guard assembly.

Fig. 2 is an enlarged cross sectional view, taken on line 2-2 of Fig. 1;

Fig. 3 is a vertical sectional view, taken on line 3-3 of Fig. 2;

Fig. 4 is a perspective view of the guard rail or bumper;

Fig. 5 is a fragmentary plan view of the delivery end of the check stand, illustrating the manner in which the bumper bows or flexes when struck by an object.

Referring first to Fig. 1 of the drawings, the check stand illustrated therein is similar to the check stand disclosed in a pending application, Serial No. 356,961, filed May 25, 1953, and entitled "Improved Check Stand," reference being made thereto for a complete description. Suffice it to state herein that the check stand embodies a rectangular cabinet 5 having a table-top or platform composed of sections 6, 7, 8, 9 and 18. The various sections are so located in spaced relation as to provide a longitudinal opening 12 which extends diagonally from the loading end 13 of the check stand to a point adjacent the delivery end 14 thereof.

Adapted to travel within the opening 12 is the upper stretch of a conveyor belt 15 which extends around pulleys located beneath the table top, one of said pulleys being driven by an electric motor (not shown) also located beneath the top of the cabinet. By this means, the belt 15 is driven in the direction of the arrow so as to feed the articles from the end 13 to the end 14 where they may be placed in suitable containers by an attendant stationed at this delivery end.

The cabinet 5 has a cut-out opening providing a compartment 18 in which the checker stations to check the items being fed by the conveyor belt 15. Alongside the compartment 18 is a shelf 19 for supporting a cash register 20. The area of the top section 6 directly opposite the checker's station provides a support for a weighing scale 21. A pivoted switching arm 22 is provided adjacent the delivery end 14 for diverting the articles to either of the sections 9 or 10 as desired. Guards or bumpers 24 are employed for preventing marring of the sides and end of the cabinet, these bumpers being disposed below the top of the cabinet.

The check stand cabinet 5 includes side members 28 (Fig. 3) and end members 29, one of which is shown in Fig. 2. The check stand also has upstanding bars 30 which define compartments located at the delivery end of the stand and adapted to receive the articles diverted thereinto by the pivoted arm 22 as they leave the delivery end of the conveyor belt 15, the arm being pivoted to a small platform 31 extending between the sections 9 and 10.

Extending lengthwise of the sides 28 within the cabinet structure are side bars 35 and secured to these bars by screws 36 are mounting brackets 37 which project upwardly therefrom. Secured to the upper ends of the brackets 37 by screws 38 are mounting blocks 40. As shown in Fig. 4, each block 40 has a sloping bottom edge 41, a substantially vertical inner edge 42 and a curved edge 43 providing the top and front portions thereof.

Adapted to extend across the check stand between the mounting means 37 and 40 is a bumper element or guard rail 50. This rail, which is shown in detail in Fig. 4, is of inverted trough or channel shape having a straight, vertical side flange portion 51, a curved side flange por-
tion 52 and a curved web 53 connecting the side flange portions. As shown, the curves of the side flange portion 52 are extensive to provide a continuous curved surface extending from the upper portion of the straight flange to the lower edge of the curved flange. The lower edge of the side flange 52 extends to a considerably lower level than the flange 51 and has an external bead 54 extending therealong. The lower edge of the straight flange 51 is provided with an inwardly directed lip 55 having an upper inclined surface corresponding to the slope of the lower edges 41 of the mounting blocks 40. The end guard 50, which has mounting holes 56 at its ends, is mounted for use in the manner to be next explained.

The outline of the portion of the guard rail formed by the curved flange portion 52 and the curved web 53 is of substantially elliptical or oval shape, the lower edge being tangential with the rear surface of the inwardly inclined end member 29 and the upper edge being tangential with the straight flange portion 51. The major axis of the ellipse, it will be noticed, is inclined at its center toward the straight flange portion 51.

To install the end guard in place to extend transversely across the delivery end of the check stand, the guard is first placed as shown by the dot and dash outline in Fig. 2. When in this position, the lip 55 of the guard is located beneath the inner end of the bottom surfaces 41 of the mounting blocks 40. With the lip 55 thus hooked under the mounting blocks 40, the end guard is pivoted in counterclockwise direction, as viewed in Fig. 2, to the position shown by full lines in this view. Since the sides of the end guard is of the same size and contour as the mounting blocks 40, it is seen that the end guard fits snugly around these blocks. Upon mounting of the end guard in this manner, its ends are held firmly to cause the guard to extend transversely across the delivery end of the check stand, that is, normal to the longitudinal sides of the stand. After the end guard has been placed in its operative position as outlined above, screws 58 are passed through holes 56 and screwed into the side of the mounting blocks 40, as shown in Fig. 2. It is thus seen that the end guard is anchored firmly to the mounting blocks 40 to extend therebetween and to provide, in effect, a curved molding extending transversely across the delivery end of the check stand.

With the end guard thus assembled on the check stand, it provides a stop or bumper against which articles delivered by the conveyor belt 15 onto the platforms 9 and 10 may engage. To illustrate this point, attention is directed to Fig. 2 which illustrates several articles a, b, and c as having been fed to the delivery end of the check stand and against the end guard 50.

It is to be noted that this point that the end guard 50 is constructed from a metal alloy possessing resilient characteristics. By this provision, when the article engages the end guard, the guard is flexed or bowed transversely of its axis to a slight degree. To illustrate this point, attention is directed to Fig. 5 of the drawing wherein an article a is shown as having engaged the end guard with sufficient impact to cause the guard to bow outwardly as indicated by the dot and dash outline in this view. Such flexing of the end guard is made possible by the fact that the end guard is of a resilient nature and because only the ends of the guard are held stationary but leaving the intermediate portion of the guard free to flex as explained above. Consequently, the end guard absorbs the shock of impact of the article a so that damage to the end guard, which may result when conventional end guards are employed, is effectively avoided. Due to the resiliency of the end guard, the latter is adapted to return to its normal operative condition as shown by full lines in Fig. 5 after cushioning the shock load imposed thereupon. This is an important improvement over check stand structures of previous types wherein an end guard or stop is fixedly secured to the check stand at spaced intervals along the length of the guard and is thus subject to denting or other damage due to the force of impact of articles forced thereagainst due to the nature of the load imposed from above. That is to say, if a heavy package is momentarily placed upon the end guard, the latter may flex downwardly to a slight extent but upon removal of the package or other load, the end guard will spring back to its original shape. Thus, the end guard, in addition to providing a resilient stop or buffer, also provides a strong and durable corner at the delivery end of the check stand. In addition, the rounded contour of the end guard provides a curved molding which greatly enhances the appearance of the delivery end of the check stand.

Due to the specific cross sectional shape of the end guard, the latter may be easily and quickly installed or removed from the check stand as required. To be more specific, the end guard 50 is held in place by the lip 55 at its inner side and by the screws 58 at its outer side. Thus, to remove the end guard it is only necessary to remove the mounting screws 58, after which the guard is simply pivoted upwardly and inwardly to disengage its lip 55 from beneath the mounting blocks 40. With the guard thus disengaged from the end mounting means, it may be lifted from the check stand when such disassembly is desired.

In accordance with the provisions of the patent statutes, there is shown and described herein what is now considered to represent the best embodiment of the end guard assembly for check stands. It is to be understood, however, that the end guard and its mounting means are susceptible of various modifications which fall within the scope of the invention, as defined in the appended claims.

We claim as our invention:

1. In a check stand having a cabinet provided with a top platform: an elongate flexible end guard of inverted channel shape extending transversely of said cabinet at an end thereof, said guard having a portion of concavo-convex cross-section disposed above said platform in position to be engaged by articles placed on said platform at said end of the check stand, and block means engaging the end surfaces of said inverted channel shape, said means cooperating with said supporting said guard on said cabinet only at the ends of said channel guard, said guard being adapted to bow transversely of its length with respect to said cabinet.

2. In a check stand having a cabinet provided with a top platform: an elongate flexible end guard of inverted channel shape having a curved contour throughout the greater portion of its cross-sectional shape extending transversely of said cabinet at an end thereof, said guard having a concavo-convex portion disposed above said platform in position to be engaged by articles placed on said platform at said end of the check stand, and means engaging the inner surface of said inverted channel guard adjacent the ends of said guard for firmly supporting said guard only at its ends on said cabinet, said guard being adapted to bow transversely of its length with respect to said cabinet.

3. In a check stand having a cabinet provided with a top platform: a pair of transversely spaced mounting blocks carried by the cabinet; an elongate flexible end guard of inverted trough shape having end portions embraceing said blocks whereby said guard is supported in said cabinet by means of the flanges at its ends by said blocks; and securing means operative to secure said end portions to said blocks, the end guard extending transversely of said cabinet at an end thereof with its length intermediate said end portions being un-
supported and free to bow transversely with respect to said cabinet.

4. In a check stand having a cabinet provided with a top platform: a pair of transversely spaced mounting blocks carried by the cabinet; an elongate flexible end guard of inverted trough shape having end portions embracing said blocks, said end guard having an inturned, longitudinally extending lip at one side engageable beneath said blocks at one side thereof; and connecting screws operative to releasably secure the other side of said guard to said blocks with the length of the guard intermediate said end portions unsupported and free to bow transversely, said blocks having sides and top portions conforming to the corresponding inner portions of said end guard and providing a snug fit therebetween.

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