March 25, 1941. J. H. MONTGOMERY 2,235,941

STORE SERVICE EQUIPMENT

Filed Aug. 25, 1938

Fig. 1.

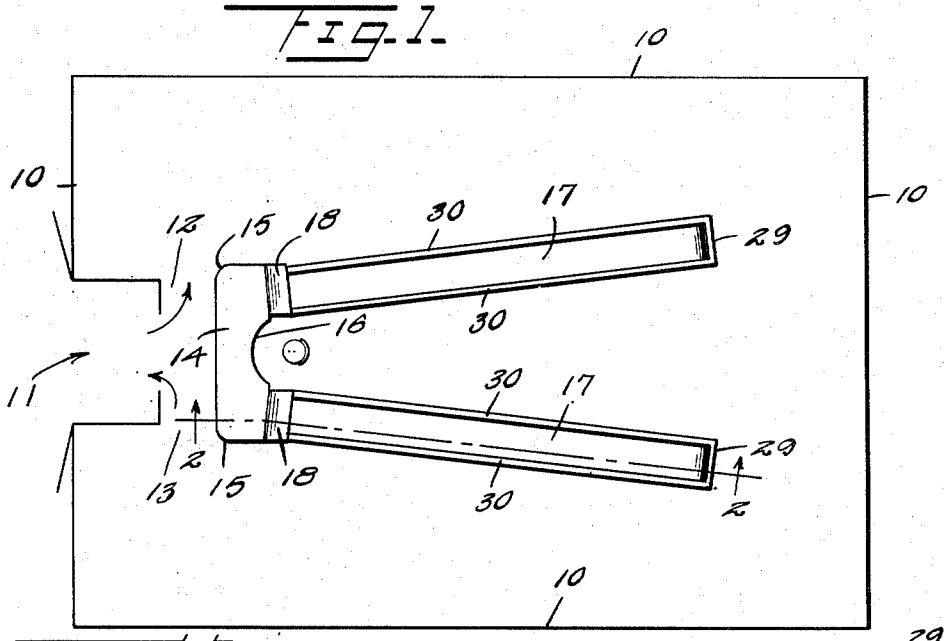


Fig. 2.

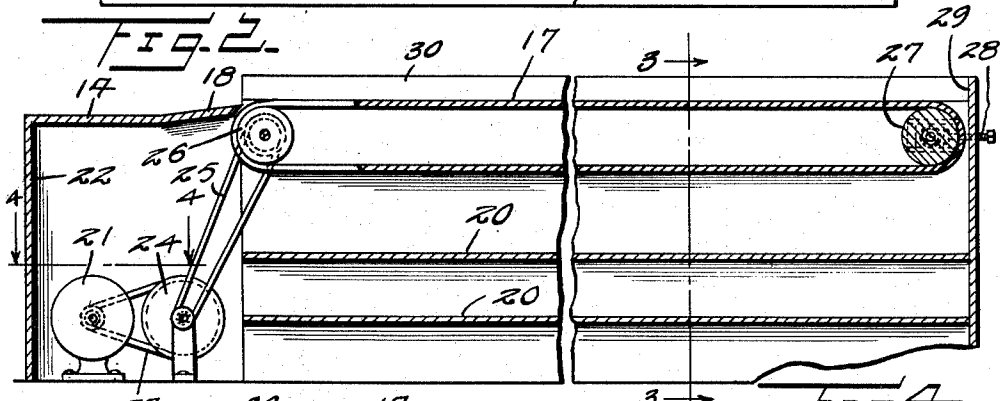


Fig. 3.

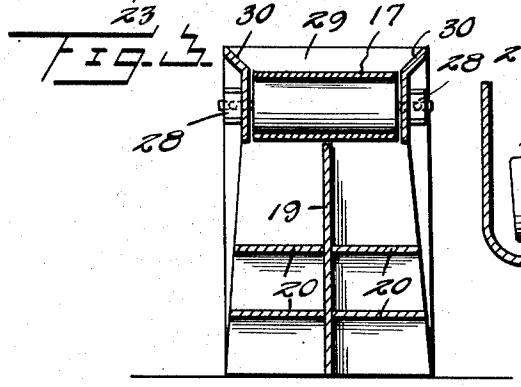
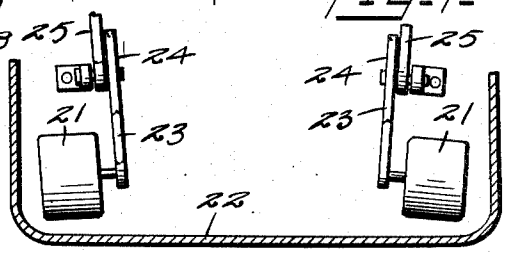


Fig. 4.



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STORE SERVICE EQUIPMENT

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Application August 25, 1938, Serial No. 226,794

1 Claim. (Cl. 186—1)

This invention relates to self-service store equipment and has for its prime object to simplify the system and provide a more practical arrangement of equipment in the way of conveying and delivering means in connection with the stock supply shelving and fixtures whereby to expedite the selection of the articles by the customer and at the same time obviating the necessity for the purchaser to carry the selected articles from place to place about the store.

A further object is to provide for the concurrent conveyance of the articles selected by different customers to a common delivery station and the ready sorting of the articles, price tabulation, and preparation for delivery to the respective customers without confusion.

With the foregoing and other objects and advantages to be obtained, the invention consists in the general assembly and particular parts and combinations and arrangements of parts thereof as hereinafter described and defined in the appended claim, reference being had to the accompanying drawing illustrating a practical adaptation of the invention, and in which:

Figure 1 is a top plan view more or less in diagram and schematic in character; illustrating general arrangement and equipment;

Figure 2 is a fragmentary section taken on about the line 2—2 of Figure 1;

Figure 3 is a cross section on the line 3—3 of Figure 2; and

Figure 4 is a fragmentary view on an enlarged scale, in section taken on or about line 4—4 of Figure 2.

Referring now to the drawing, the numeral 10 designates a store area defined by the rectangular wall or guard rail, said store having a main entrance or vestibule 11 leading to a branched inner entrance 12 and an oppositely branched exit 13 in front of a sorting and delivery stand 14. Preferably, the two opposite forward corner portions of the stand are rounded off, as at 15, to afford ample clearance for a person to pass by without striking against the stand, while the middle inner portion of the stand is recessed to a considerable depth, as at 16, to afford ample space in which the attendant may work in handling articles delivered to the stand as will presently more fully appear.

Extending rearwardly from the stand 14 throughout the substantial length of the store space are a plurality of endless conveyors 17, the top flights of which travel toward stand 14 in a plane substantially the same as that of the top of the stand and preferably slightly higher, but in any event at a convenient height from the floor so that a customer of average stature can conveniently place purchased articles thereon to be conveyed to the delivery stand. As the top of the conveyor 17 is in a plane above the main working area of the top of the stand 14, a ramp or inclined surface 18 is provided between the adjacent end of the conveyor and the top of the stand to facilitate the transfer of the articles from the conveyor to the stand.

In accordance with the inventive idea in the service system the respective conveyors 17 are mounted in the upper portions of supply shelving units for the several articles or commodities stocked for sale. This close relation of the conveyor to the shelving unit greatly facilitates and speeds up the shopping operation on the part of the customer, not only because of the elimination of the necessity for carrying the selected articles in the arms or in a cumbersome basket or other container during the progress of the customer through the store, but by providing a plurality of shelving units in spaced relation to each other and the conveyor of each being convergent or otherwise arranged to communicate with a common sorting and delivery stand, several customers may make their purchases at the same time without interference. In this connection it is preferable to divide each shelving unit by a longitudinal vertical partition 19, and provide shelves 20 in any desired number and vertical spacing on opposite sides of said partition whereby to accommodate the articles or commodities of various sizes and proportions to be stocked, and by which provision also the customer can readily make the purchases from either side of the unit and quickly place them upon the conveyor at the top of the unit while quickly following a zig-zag course between and around the plurality of spaced units during his or her progress through the store.

Preferably, each conveyor 17 is individually driven, the respective motors 21 and the intermediate gearing being mounted conveniently beneath the table portion of the sorting and delivery stand 14, the under portion of said stand being in the form of a casing or housing 22. As shown, each motor is belted, as at 23, to a pair of reducing gears 24, which are in turn belted, as at 25, to the forward roller means 26 which carries the endless conveyor 17, the rear roller means 27 of the conveyor having provision for adjustment, as conventionally shown at 28, for the purpose of taking up such slack that may occur in the conveyor.

In accordance with the invention, each customer on entering the store is furnished some distinctive means for marking or labeling each article purchased so as to distinguish the same from articles purchased by other customers concurrently with his or her purchases so as to enable the attendant at the sorting and delivery stand to separate, segregate and tabulate the prices of the respective articles of the different customers, there being a characteristic indication in the marking or labeling of the last article purchased by each customer so that when the article so marked reaches the sorting and delivery stand, the attendant knows that the purchasing has ended and accordingly proceeds to bundle and finally tabulate the purchased articles so as to have the same ready by the time the customer reaches the stand.

The particular devices for marking or labeling the purchased articles may be of any desired character that will distinguish the purchases of the several customers in the store and any suitable guard means may be provided to prevent displacement of the articles from the endless conveyors 17 during the travel thereon, which guard means, as more or less conventionally shown in Figures 2 and 3, may include an upright end rail 29 and inclined side rails 30 extending slightly above the plane of the conveyor. The structural arrangement in general as well as in particular parts thereof admits of considerable modification within the spirit of the invention as defined by the appended claim. The invention therefore is not limited to the specific construction and arrangement shown in the accompanying drawing.

What is claimed is:

The herein described self-service store system of the kind comprising an enclosure having restricted entrance and exit ways, and comprising further appurtenances in combination, including an elongated transverse article sorting, segregating and sales delivery counter located between the entrance and exit ways, said counter having provision at its inner side and medially between the ends thereof as a working station for an attendant, a plurality of elongated tiers of shelving arranged separately and spaced laterally apart to provide aisles therebetween whereby customers may pass tortuously thereabout, the rows of shelving being located respectively at opposite sides of the attendant's station at the article sorting, segregating and sales delivery counter and extending convergently towards said counter, and a separate conveyor superimposed above each row of shelving and being of a width approximately that of the shelving and with its article-carrying flight at an elevation from the floor within reach of a person of average stature for the placing thereon of selected articles taken from the shelving beneath, the article-carrying flights of the respective conveyors traveling toward the common article sorting, segregating and sales delivery counter and having their discharge ends in cooperative delivering relation to the counter.

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