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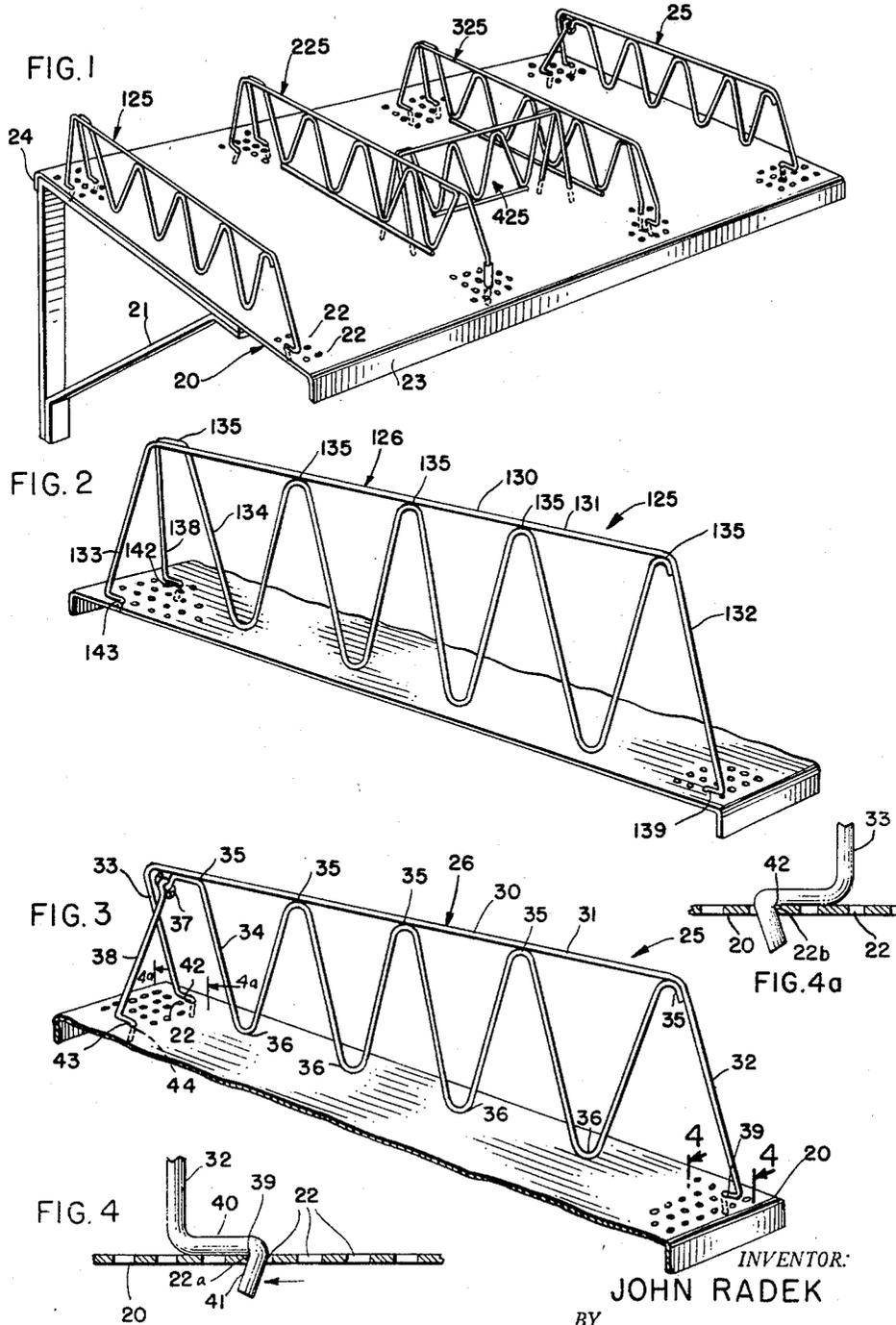
J. RADEK

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SHELVES AND ADJUSTABLE PARTITIONS THEREFOR

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2 Sheets-Sheet 1



INVENTOR:
JOHN RADEK

BY

Schweder, Hofgren, Brady & Klemmer
ATT'YS

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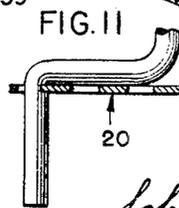
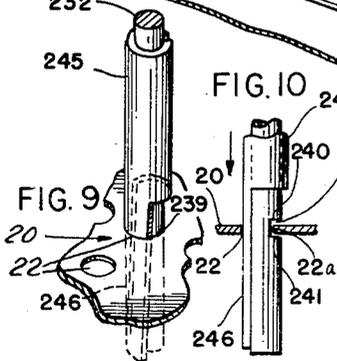
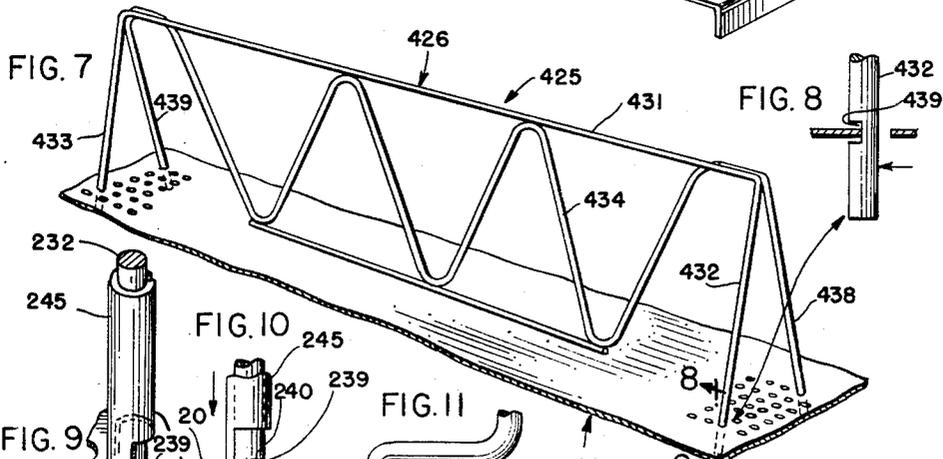
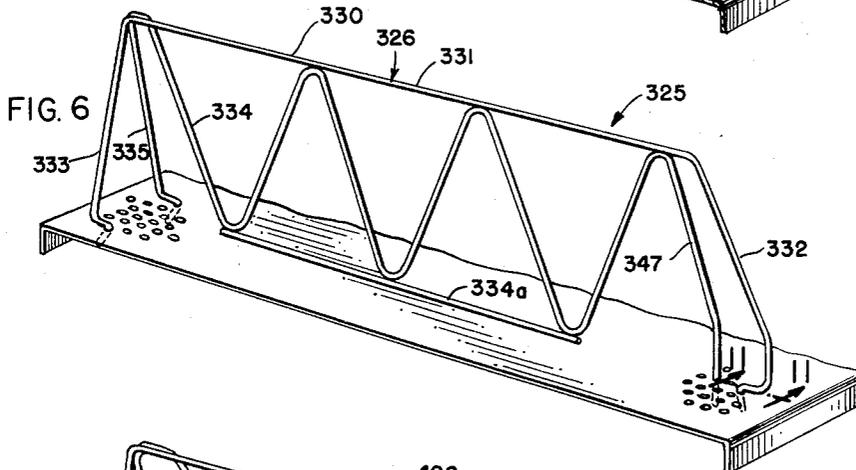
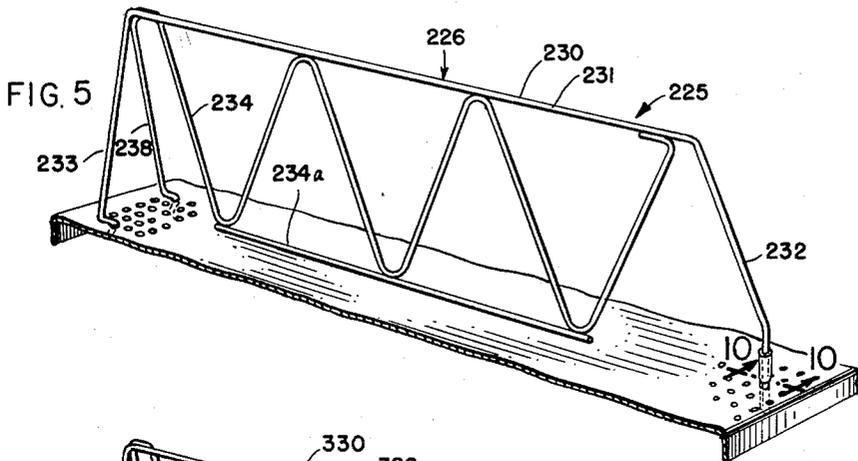
J. RADEK

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SHELVES AND ADJUSTABLE PARTITIONS THEREFOR

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2 Sheets-Sheet 2



INVENTOR:
JOHN RADEK

BY
Schroeder, Hofgren, Brady, Wegner
ATT'Y

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2,933,195

SHELVES AND ADJUSTABLE PARTITIONS
THEREFOR

John Radek, Chicago, Ill.

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19 Claims. (Cl. 211—153)

This invention relates to improved storage or display shelving, and in particular it relates to a shelf structure which is provided with very easily adjustable partition members which occupy a minimum of shelf space.

Storage and display shelf facilities for wholesale and retail distributors of merchandise are most advantageous to the owner if each shelf can be very readily divided into storage compartments of different sizes to accommodate merchandise of different dimensions or varying quantities of merchandise. At the same time, if a store is to install large numbers of shelf units the cost of the individual shelf structures must be kept as low as possible. The premium on space in most commercial establishments also makes it very desirable that the shelf partition members occupy a minimum of space.

The present invention provides an extremely inexpensive shelf structure in which the partitions are only a fraction of an inch wide; and the partitions are so constructed as to make a resilient snap engagement with perforations in the shelf panel so that they may be very readily located to divide a shelf into storage areas of any desired size. Furthermore, a standard partition member may be used not only for intermediate shelf partitioning, but also to afford end members, and may be located within a fraction of an inch of the end of the shelf panel so as to afford a maximum of usable storage space.

The shelf panel is a perforated metal sheet, and the shelf partition members may be fabricated from stiffly resilient wire.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which:

Fig. 1 is a perspective view of a shelf structure constructed in accordance with the present invention, the shelf structure for purposes of illustration being provided with four different types of partitions which extend from front to rear of the shelf, and one type of longitudinal partition;

Fig. 2 is a fragmentary perspective view on an enlarged scale of the partition unit seen at the left-hand end of Fig. 1;

Fig. 3 is a view similar to Fig. 2 illustrating the partition member at the right-hand end of Fig. 1;

Fig. 4 is a fragmentary section on an enlarged scale taken as indicated along the line 4—4 of Fig. 3;

Fig. 4a is a fragmentary section on an enlarged scale taken as indicated along the line 4a—4a of Fig. 3;

Fig. 5 is a fragmentary elevational view on an enlarged scale of the left center partition member of Fig. 1;

Fig. 6 is a view similar to Fig. 5 of the right center partition member of Fig. 1;

Fig. 7 is a view similar to Fig. 6 of the longitudinal partition member of Fig. 1;

Fig. 8 is a fragmentary section on an enlarged scale taken as indicated along the line 8—8 of Fig. 7;

Fig. 9 is a fragmentary elevational view on an enlarged scale of the sliding wedge shown in the right-hand end of Fig. 5;

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Fig. 10 is a fragmentary section on an enlarged scale taken as indicated along the line 10—10 of Fig. 5; and Fig. 11 is a fragmentary section on an enlarged scale taken as indicated along the line 11—11 of Fig. 6.

Referring to the drawings in greater detail, and referring first to Fig. 1, the shelving of the invention includes a shelf panel 20 which may be mounted on any suitable brackets such as the bracket 21. Preferably the shelving is of standard length such, for example, as four feet. The shelf panel is constructed of foraminous sheet metal so that its entire storage surface is provided with closely spaced rows of closely spaced perforations 22. In an actual commercial embodiment the shelf panel 20 is provided with .15" holes which are on .225" centers, so that the shelf panel surface is very open and the shelf weight is greatly reduced by comparison with that of a solid shelf of the same thickness. Preferably the margins of the shelf panel are turned down to form a front stiffening skirt 23 and a rear stiffening skirt 24. Mounted on the shelf panel 20 is a plurality of shelf partition members indicated generally at 25, 125, 225 and 325 which extend from front to rear of a shelf panel, and for purposes of illustration the device is shown with a longitudinal shelf partition member 425 which extends between the partitions 225 and 325. Each of the partitions numbered 25 to 325 is illustrative of a possible way of constructing the front-to-rear partitions; and the preferred form of partition is that designated by the numeral 25.

As best seen in Fig. 3, the partition 25 has a body portion 26 which is fabricated entirely from two pieces of wire, indicated generally at 30 and 34. The wire 30 is a longitudinal top rod and leg member and includes a top rod 31, a forwardly inclined front leg 32 and a rearwardly inclined rear leg 33 which are all in the same vertical plane. The wire 34 is bent to zigzag shape so that the angles 35 at one of its ends may be spot welded to the top rod while the angles 36 at the lower end are very close to the shelf panel 20 when the partition member 25 is mounted on the shelf panel. The zigzag wire member 34 terminates adjacent the upper end of the rear leg 33 of the partition in a depending eye 37 which has swivelly secured to it a stabilizing leg 38.

As best seen in Fig. 4 the front leg 32 of the partition member 25 is provided with a forwardly open fixed jaw 39 having an upper jaw portion 40 which lies substantially in contact with the shelf panel 20, and the lower end portion of leg 32 is disposed at an acute angle with respect to the upper jaw portion 40 to form a lower jaw portion 41. The rear leg 33 has a rearwardly open fixed jaw 42 similar to jaw 39 and the stabilizing leg 38 also has a rearwardly open fixed jaw 43.

The shelf partition 25 is very readily secured to the shelf panel 20 in any desired position by engaging the fixed jaw 42 of the rear leg 33 with a suitably located perforation 22 toward the rear skirt 24 of the shelf panel, and the fixed jaw 39 of the front leg 32 may then be engaged with an aperture 22 toward the front of the shelf panel which is aligned with the perforation engaged by the rear leg 33. The resilience of the top rod and leg member 30 permits the front leg 32 to be fitted into a perforation 22 which is so located between the front and the rear of the shelf panel 20 as to provide a strong jaw engaging thrust which tends to lock both the legs firmly in engagement with the perforations in the panel. The swivelly mounted stabilizing leg 38 may then have its jaw 43 engaged with a perforation 22 which is spaced longitudinally along the shelf panel from the perforation in which the rear leg 33 is engaged so as to prevent lateral tipping of the partition.

It is apparent from the foregoing description of the interengagement between the partition legs 32, 33 and

38 and the perforations 22 that the forward margin 22a (see Fig. 4) of a perforation near the front of the shelf panel acts as a rearwardly facing shoulder which is engaged by the fixed jaw 39. Similarly, the rear margin 22b of a perforation 22 which is near the rear of the shelf panel 20 provides a forwardly facing shoulder for engagement by the fixed jaw 42 or 43.

The reason that the form of partition indicated by the reference numeral 25 is preferred to the others is that it permits a single partition construction to be used either as a left-hand end member or as a right-hand end member on a shelf panel, and the partition legs 32 and 33 may be placed as close as possible to the end of the shelf panel with the stabilizing leg 38 positioned farther from the shelf margin.

Referring now to Fig. 2, which illustrates the type of partition member indicated by the reference numeral 125 in Fig. 1, it is seen that the partition member 125 is substantially identical with the partition member 25 except that the eye 37 and swivelly mounted stabilizing leg 38 are omitted. Thus, there is a partition body 126 including top bar and leg member 130 having a forwardly inclined resilient front leg 132 and a rearwardly inclined resilient rear leg 133, and a zigzag wire member 134 has its forward end turned downwardly and inclined laterally to provide a fixed stabilizing leg 138 which is positioned longitudinally of the shelf panel with respect to the rear leg 133. The three legs 132, 133 and 138 are provided, respectively, with fixed jaws 139, 140 and 141.

The form of partition shown in Fig. 2 is adjustably mounted on the shelf panel member 20 in exactly the same way as the partition member 25. However, the partition member 125 has the disadvantage that it must be made in right and left-hand types so as to permit it to be used immediately adjacent either end of the shelf panel.

The partition members 225 and 325 are constructed to engage more firmly with the shelf panel than do partition members 25 and 125, so that they may be made considerably larger.

The partition member 225 is illustrated in detail in Figs. 5, 9 and 10. It has a partition body 226 having a combined top bar and leg member 230 which has a top bar 231 and integral oppositely inclined front and back legs numbered 232 and 233, respectively. Like the form of the device shown in Fig. 2, it has a zigzag wire 234 which has its end portion adjacent the rear leg 233 turned down and laterally inclined to form a fixed stabilizing leg 238 which engages the shelf panel in a perforation 22 spaced longitudinally of the shelf from the rear leg 233. A reinforcing rod 234a is secured to the lower convolutions of the zigzag wire 234.

The difference between the partition of Fig. 5 and that of Fig. 2 is principally in the construction of the inclined front 232. As best seen in Figs. 9 and 10, the lower portion of front leg 232 extends straight down to provide a shelf engaging portion in the forward face of which is a notch which provides a fixed jaw 239, with the upper face of the notch serving as an upper jaw member 240 and the lower face serving as a lower jaw member 241. As seen in Fig. 10, the fixed jaw engages the shoulder provided by the forward margin 22b of one of the perforations 22 in the shelf panel. In order to assure that the front leg 232 will remain engaged with the shelf panel 20 it is provided with a slidable wedging sleeve member 245 which has a downwardly extending tapered wedging finger 246 extending along the back of the leg 232 so that it is opposite the fixed jaw 239. Thus, when the fixed jaw has been engaged with the margin of a perforation 22 in the shelf panel the wedging member 245 may be slid downwardly on the leg 232 to bring the wedging finger 246 into the perforation 22 and firmly wedge the fixed jaw 239 into engagement with the forward marginal

portion 22a of the perforation 22 as seen in Figs. 9 and 10.

Referring now to Fig. 6, which shows the partition member 325 in detail, this partition member again has a structure basically like that of Fig. 2. Thus, there is a partition body 326 including a top bar and leg member 330 having a top bar 331 with a forwardly inclined integral front leg 332 and a rearwardly inclined integral back leg 333. A zigzag wire 334 provides a laterally extending inclined stabilizing leg 338, and is secured at its lower convolutions to a reinforcing wire 334a. In this form of partition the zigzag wire 334 at its forward end is extended downwardly to form a resilient front tensioning leg 347 the lower end of which is spaced a short distance rearwardly of the front leg 332 and in the same plane with said leg. The tensioning leg 347 requires no notch, or jaw to engage a perforation 22 in the panel, because it is so close to the jaw of the front leg 332 that it is held in engagement with a perforation in the panel by the thrust of the adjacent front leg. The principal purpose of the tensioning leg 347 is to add to the strength of the engagement between the partition member 325 and the shelf panel 20; and this form of attachment is particularly advantageous if the partition is to be of extra height.

Referring to Fig. 7, the longitudinal partition member 425 is of somewhat different construction than the front-to-rear partition members previously discussed in that it has a pair of opposed inclined legs at each end. The principal reason for using only a single leg at the forward end of each of the fore and aft partition members is to eliminate any laterally extending elements which would interfere with full utilization of the shelf space, and since the longitudinal partition member 425 extends between two of the front-to-rear partition members its legs are substantially abutting the bases of the partition members which flank it so that the use of two legs at each end does not interfere with the full utilization of the shelf space between the flanking partition members.

Referring particularly now to Fig. 7, the partition member 425 has a body 426 including a top bar 431 which has at its ends integral legs 432 and 433 which are nearly perpendicular to the top bar 431 and are inclined in the same direction out of a vertical plane through the top bar. A zigzag wire 434 is joined to the top bar 431 and has at its ends legs 438 and 439 each of which is in the same perpendicular plane with one of the legs 432 or 433, and which are inclined outwardly from a vertical plane through the zigzag wire. Each of the legs 432, 433, 438 and 439 is provided with a notch such as the notch 445 shown in Fig. 8, and said notches serve as fixed jaws for the legs. Thus, when the partition member 425 is engaged with the shelf panel 20 the thrust of the oppositely inclined legs 432 and 438 engages the fixed jaws on said legs firmly with the margins of the perforations 22 in which the legs are positioned; and similarly the thrust between the legs 433 and 439 engages the jaws on those legs with the margins of the apertures in which the legs are positioned.

In this type of shelf partition which extends longitudinally, the leg 432 is inclined toward the front of the panel, so that the notch 445 engages the forward margin of a perforation 22 in the panel, while the leg 438 is inclined toward the rear of the panel and engages the rear margin of the perforation in which the leg is positioned. The legs 433 and 439 are spaced longitudinally on the shelf panel from the legs 432 and 438, and are similarly engaged with the shelf panel perforations. Thus, in this form of the device the leg 432 or the leg 433 may be regarded as a forwardly inclined leg and the leg 438 or the leg 439 may be regarded as a rearwardly inclined leg. Then, regarding the leg 432 as a forwardly inclined leg and the leg 438 as a rearwardly inclined leg, either of the legs 433 or 439 acts as a stabilizing leg

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which is positioned longitudinally of the panel with respect to said two inclined legs.

The foregoing detailed description is given for clearness of understanding only and no unnecessary limitations are to be understood therefrom, as some modifications will be obvious to those skilled in the art.

I claim:

1. An adjustable partition member for a shelf panel which has a plurality of perforations in its surface, said member comprising: a thin partition body; a first leg on said body which has a notch adjacent its free end forming an outwardly open fixed jaw adapted to engage a first perforation in said shelf panel; a sliding, wedging member on said first leg which has a portion adapted to extend into said first perforation to wedge the notch firmly into engagement with the edge of the perforation; a second leg on said body which is aligned with said first leg and has a fixed jaw opening oppositely from the fixed jaw in said first leg to engage the edge of a second perforation in the shelf panel, at least one of said legs being resilient so that the opposed thrust of said legs may retain their jaws in engagement with the edges of said perforations; and a laterally extending stabilizing leg adjacent one of said legs which has a fixed jaw adapted to engage a perforation in the shelf panel spaced longitudinally of the panel from said one of said legs to maintain the partition in an upright position.

2. The partition member of claim 1 in which the wedging member is a sleeve having a downwardly extending finger to extend into the perforation.

3. An adjustable partition member for a shelf panel which has a plurality of perforations in its surface, said member comprising: a thin partition body; a first leg on said body which has an outwardly open fixed jaw adapted to engage a first perforation in said shelf panel; a second leg at the opposite end of said body which is aligned with said first leg and has a fixed jaw opening oppositely from the fixed jaw in said first leg to engage a second perforation in the shelf panel; a laterally extending stabilizing leg adjacent one of said legs which has a fixed jaw adapted to engage a perforation in the shelf panel spaced longitudinally of the panel from said one of said legs to maintain the partition in an upright position; and a resilient thrust leg in the plane of the other of said two legs, said thrust leg being spaced from said other leg and biased to urge the jaw on said other leg into engagement with the perforation.

4. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface provided with a plurality of closely spaced perforations arranged in closely spaced rows which extend from end to end of the panel, there being a plurality of rows adjacent the front of the storage surface and also adjacent its rear; and a plurality of shelf partition members removably assembled with said shelf panel, each partition member having a resilient front leg which extends through a first perforation near the front of the storage surface and has a forwardly open fixed jaw engaged with the front edge of said first perforation, a rear leg which extends through a second perforation near the rear of the storage surface and has a rearwardly open fixed jaw engaged with the rear edge of said second perforation, the resilience of the front leg thrusting said jaws firmly into engagement with said edges, and a laterally extending stabilizing leg at the rear of said member, said stabilizing leg having a fixed jaw engaged with the edge of a third perforation which is positioned longitudinally of the shelf panel from said rear leg, each of said legs being otherwise free of contact with the shelf panel.

5. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface provided with closely spaced perforations which are arranged in a pattern extending from front to rear and end to end of said surface; and a

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plurality of shelf partition members removably assembled with said shelf panel, each partition member having a resilient front leg which extends through a first perforation near the front of the storage surface and has a forwardly open fixed jaw engaged with the front edge of said first perforation, a rear leg which extends through a second perforation near the rear of the storage surface and has a rearwardly open fixed jaw engaged with the rear edge of said second perforation, the resilience of the front leg thrusting said jaws firmly into engagement with said edges, and a laterally extending stabilizing leg at the rear of said member, said stabilizing leg having a fixed jaw engaged with the edge of a third perforation which is positioned longitudinally of the shelf panel from said rear leg, each of said legs being otherwise free of contact with the shelf panel.

6. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface provided with a series of front perforations arranged in closely spaced relationship from end to end of the front of said surface and a series of rear perforations arranged in closely spaced relationship from end to end of the rear of the surface; and a plurality of shelf partition members removably assembled with said shelf panel, each partition member having a resilient front leg which extends through a front perforation and has a forwardly open fixed jaw engaged with the front edge of said perforation, a rear leg which extends through a rear perforation and has a rearwardly open fixed jaw engaged with the rear edge of the rear perforation, the resilience of the front leg thrusting said jaws firmly into engagement with said edges, and a laterally extending stabilizing leg at the rear of said member, said stabilizing leg having a fixed jaw engaged with the edge of a rear perforation which is positioned longitudinally of the shelf panel from said rear leg, each of said legs being otherwise free of contact with the shelf panel.

7. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface; means providing a series of integral rearwardly facing front shoulders arranged in closely spaced relationship from end to end of the front of the storage surface; means providing a series of integral forwardly facing rear shoulders arranged in closely spaced relationship from end to end of the rear of the storage surface; and a plurality of shelf partition members removably assembled with said shelf panel, each partition member having a resilient front leg which has a forwardly open fixed jaw engaged with one of said front shoulders, a rear leg which has a rearwardly open fixed jaw engaged with one of said rear shoulders, the resilience of the front leg thrusting said jaws firmly into engagement with said shoulders, and a laterally extending stabilizing leg which has a fixed jaw engaged with a rear shoulder which is spaced longitudinally of the shelf panel from said rear leg, each of said legs being otherwise free of contact with the shelf panel.

8. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface; means providing a series of integral rearwardly facing front shoulders arranged in closely spaced relationship from end to end of the front of the storage surface; means providing a series of integral forwardly facing rear shoulders arranged in closely spaced relationship from end to end of the rear of the storage surface; a shelf partition member close to each end of the shelf to act as an end member, each of said partition members having a thin partition body, resilient front and rear legs on said body having oppositely open fixed jaws engaged, respectively with front and rear shoulders on said shelf panel, so that the opposed thrust of said legs may retain the jaws in engagement with the shoulders, and a laterally extending stabilizing leg which has a fixed jaw engaging a rear shoulder longitudinally aligned

with the rear leg and farther from the end of the shelf, each of said legs being otherwise free of contact with the shelf panel; and at least one intermediate partition similar to either of said end partitions.

9. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface provided with closely spaced perforations which are arranged in a pattern extending from front to rear and end to end of said surface; a shelf partition member close to each end of the shelf to act as an end member, each of said partition members having a thin partition body, resilient front and rear legs on said body having oppositely open fixed jaws engaged, respectively, with front and rear edges of perforations adjacent the front and rear of said storage surface, so that the opposed thrust of said legs may retain the jaws in engagement with said edges, and a laterally extending stabilizing leg which has a fixed jaw engaging a perforation longitudinally aligned with the rear leg and farther from the end of the shelf; at least one intermediate partition similar to either of said end partitions; and a longitudinal partition member extending between two adjacent partition members, said longitudinal partition member having a thin partition body and resilient legs which form a V at each end of the body and are provided with oppositely open fixed jaws engaged with perforations substantially in the planes of the two adjacent partition members, the legs on all of said partition members being otherwise free of contact with the shelf panel.

10. A shelf structure comprising, in combination: a shelf panel of thin sheet material, said panel having a storage surface provided with closely spaced perforations which are arranged in a pattern extending from front to rear and end to end of said surface; and a shelf partition member associated with said shelf panel, said partition member having a first resilient leg which is inclined toward the front of the shelf panel and has a forwardly open fixed jaw engaged with the front edge of a first perforation in the panel, a second resilient leg which is inclined toward the rear of the shelf and has a rearwardly open fixed jaw engaged with the rear edge of a second perforation in the panel, and a stabilizing leg the lower end portion of which is spaced longitudinally of the shelf panel from one of said inclined legs and has a fixed jaw engaging the margin of a third perforation in the panel, each of said legs being otherwise free of contact with the shelf panel.

11. An adjustable partition member for a shelf panel which has a storage surface provided with a plurality of perforations; said member comprising: a thin, elongated partition body; a pair of coplanar legs at opposite ends of said body which are adapted to extend through a pair of spaced perforations in said storage surface, said legs having oppositely open fixed jaws and at least one of said legs being resilient so that the opposed thrust of said legs acting the length of said body may engage the jaws with the edges of said perforations; and a laterally extending stabilizing leg adjacent one of said pair of legs, said stabilizing leg having a fixed jaw adapted to engage the edge of a perforation in the storage surface which is spaced longitudinally of said surface from said one of said pair of legs to maintain the partition in an upright position.

12. The partition member of claim 11 in which the partition has an eye adjacent said one of said pair of legs, and the stabilizing leg is pivoted on said eye to extend laterally in either direction from the partition member.

13. The partition member of claim 11 which is adapted to extend from front to rear of a shelf panel, and has its two legs coplanar with its body.

14. The partition member of claim 11 which is adapted to extend longitudinally of a shelf panel and have its ends close adjacent a pair of spaced partition members which extend from front to rear of the shelf panel, and which has two legs at each end which form a V with respect to the partition body.

15. The partition member of claim 11 in which the jaw of a leg is formed by a horizontal portion of the leg which is adapted to lie flat on the panel and a second portion of the leg which extends downwardly at an acute angle from said horizontal portion to extend through the perforation.

16. An adjustable partition member for a shelf panel which has a storage surface provided with a plurality of perforations, said member comprising: a first wire member providing an elongated top rod and a pair of relatively short resilient, inclined integral legs at the ends of the rod which have oppositely open fixed jaws; a second wire member in the same vertical plane as said first wire member, said second wire member being zigzagged repeatedly between said first member and approximately the plane of said fixed jaws; and a laterally extending stabilizing leg secured to one of said wire members adjacent one of said integral legs, said stabilizing leg having a fixed jaw and said three fixed jaws being positionable in a single plane to engage three coplanar apertures in said storage surface.

17. The partition of claim 16 in which the stabilizing leg is integral with the second wire.

18. The partition of claim 16 in which the second wire member has an eye at one end, and the stabilizing leg is pivoted on said eye.

19. A shelf structure comprising, in combination; a shelf panel of thin sheet material, said panel having a storage surface provided with closely spaced perforations which are arranged in a pattern extending from front to rear and end to end of said surface; and a shelf partition member associated with said shelf panel, said partition member having a resilient front leg at the lower end of which is an integral fixed jaw, a rear leg at the lower end of which is an integral fixed jaw, said jaws being thrust into engagement with opposite edges of a pair of aligned perforations on said storage surface by the resilience of said front leg, and there being a stabilizing leg adjacent one of said legs which has a fixed jaw thrust into resilient engagement with a third perforation in the storage surface which is spaced longitudinally of the panel from one of said aligned perforations, each of said legs being otherwise free of contact with said shelf panel.

References Cited in the file of this patent

UNITED STATES PATENTS

386,674	Wells	July 24, 1888
423,647	Wells	Mar. 18, 1890
439,569	Ahrens	Oct. 28, 1890
593,758	Alden	Nov. 16, 1897
691,628	Hoffman et al.	Jan. 21, 1902
848,582	Wallace	Mar. 26, 1907
1,815,304	Krag	July 21, 1931
1,922,989	Terry	Aug. 15, 1933
2,108,950	Stober	Feb. 22, 1938
2,207,515	Hueglin	July 9, 1940