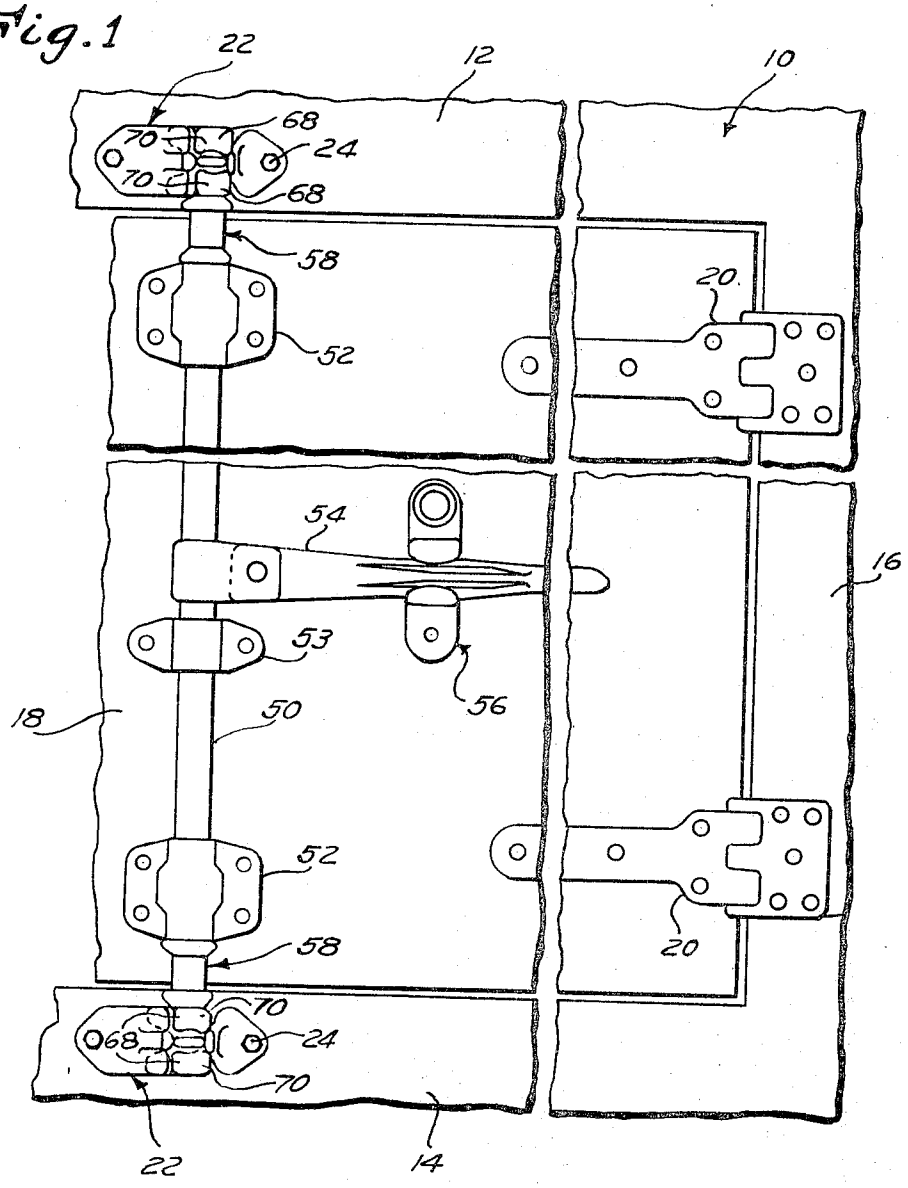
Oct. 17, 1967 J. E. HALLBERG 3,347,583

DOOR FASTENING MEANS

Filed Sept. 23, 1965 3 Sheets-Sheet 1

Fig. 1



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Oct. 17, 1967 J. E. HALLBERG 3,347,583

DOOR FASTENING MEANS

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Fig. 2

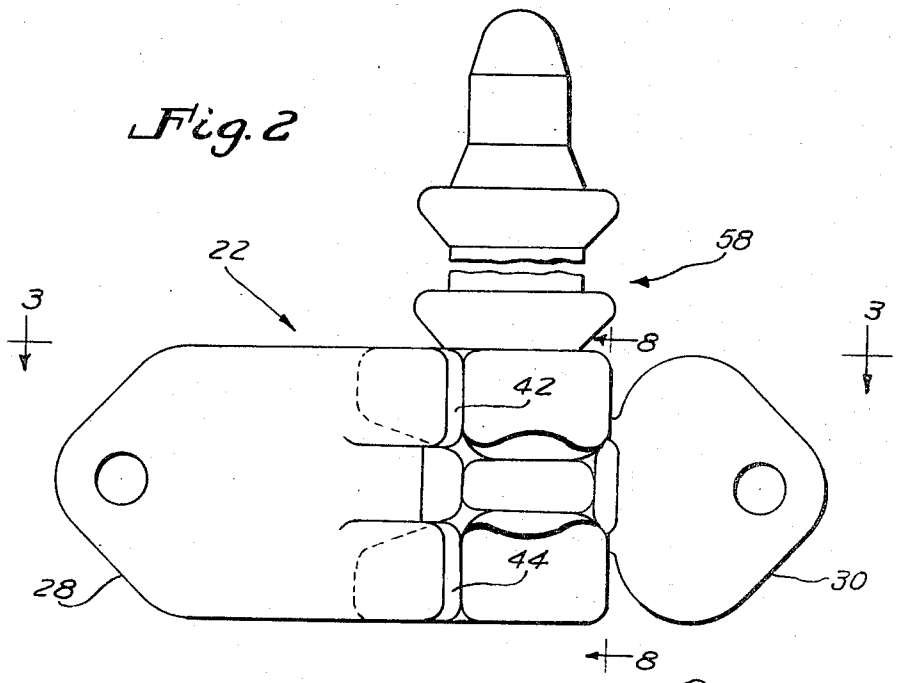


Fig. 4

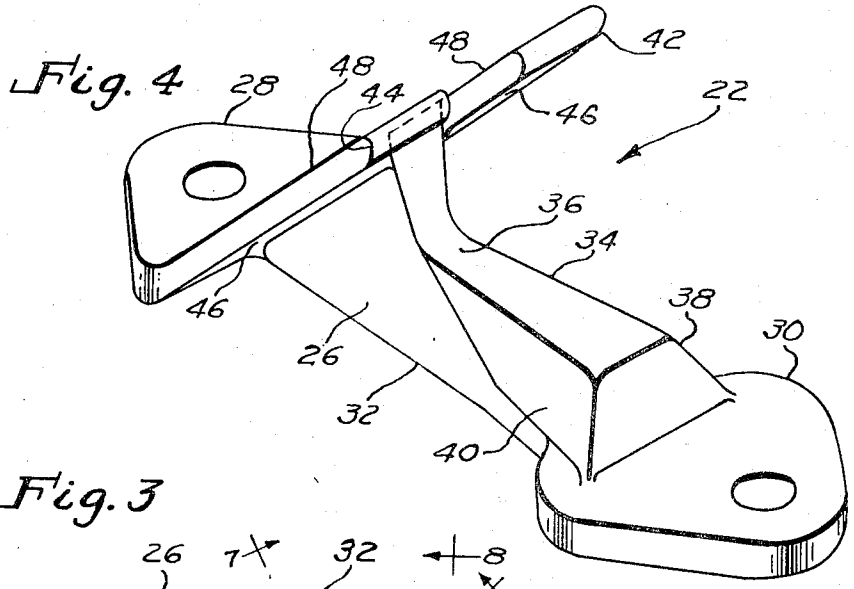
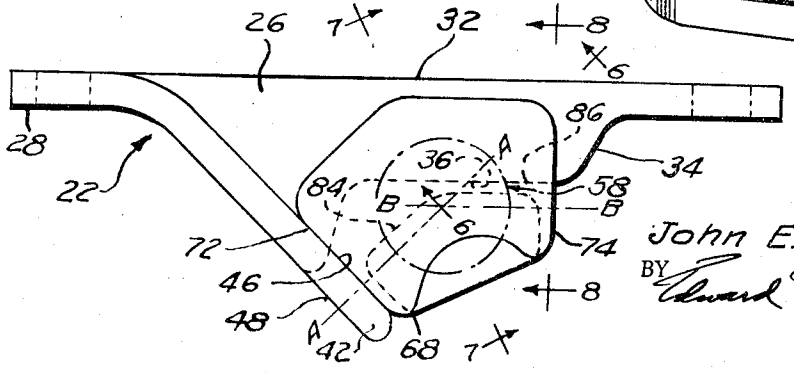


Fig. 3



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DOOR FASTENING MEANS

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Fig. 5

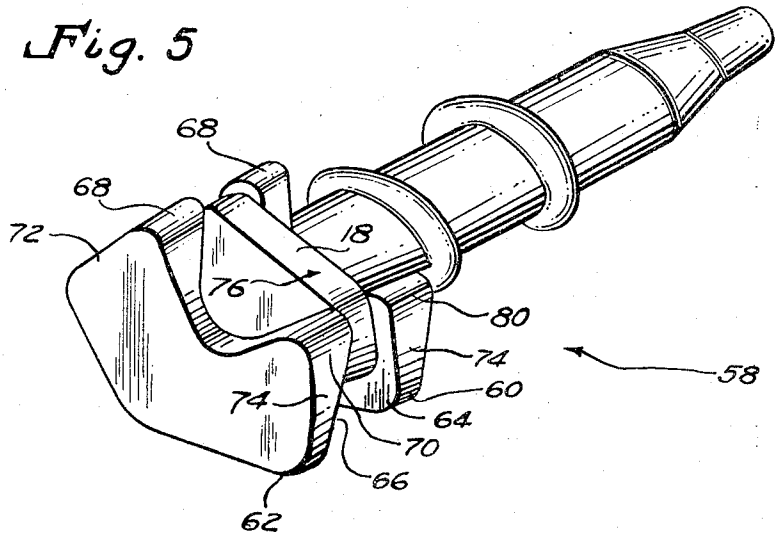


Fig. 6

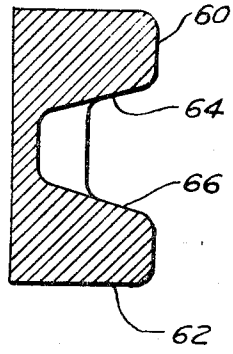


Fig. 7

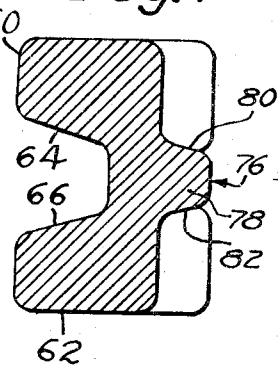


Fig. 8

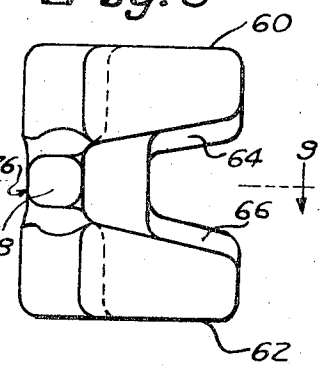
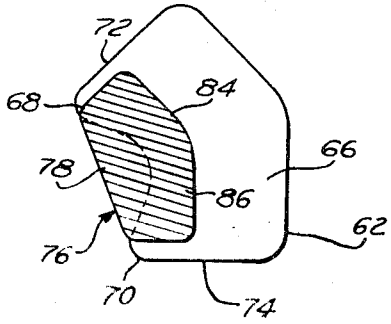


Fig. 9



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3,347,583

DOOR FASTENING MEANS

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Filed Sept. 23, 1965, Ser. No. 489,683
13 Claims. (Cl. 292—194)

ABSTRACT OF THE DISCLOSURE

A cargo container door fastening apparatus having frame-mounted universal keepers and locking bar-mounted universal carriers rotatably engageable therewith without regard to right or left handedness with the interengageable parts having complementary cam surfaces to provide leverage locking and vertical aligning and stabilizing features.

My present invention relates generally to door fastening means and more particularly to an improved cam latching arrangement for the doors of railway cars, trailers, containers and the like.

It is common practice to use a cam and keeper arrangement in connection with the door of a transport vehicle or freight container to tightly latch the door. Generally, carrier members having cam portions are attached to the top and bottom of an operating bar, with the cam portions being adapted to engage keeper members mounted on the door frame above and below the door. In existing arrangements, the upper and lower keeper members are reversely arranged, that is, the upper keeper member is inverted in respect to the lower keeper member, and the upper keeper member is open at the bottom while the lower keeper member is open at the top. In such arrangements, the cam portions of the carrier members must also be reversely arranged in order that they may be properly interengaged with their respective keeper members. As a result, the upper and lower keeper members cannot be interchanged, and the upper and lower carrier members cannot be interchanged. Hence, time and money are unnecessarily expended in producing, storing, shipping and mounting two different forms of keeper members and two different forms of carrier members.

It is an object of my present invention to provide door fastening means comprised of upper and lower keeper members which are of universal or identical construction so that they may be used interchangeably.

It is another object of my present invention to provide door fastening means comprised of upper and lower carrier members, having cam portions, which are of universal or identical construction so that they may be used interchangeably.

It is another object of my present invention to provide door fastening means, as described, wherein reaction points are provided for affording leverage to force the door within the plane of the frame as the door is being closed.

It is a further object of my present invention to provide door fastening means, as described, which is operative to force the frame and door relatively in a vertical direction to align the same as the door is swung within the plane of the frame, and which is operative to thereafter maintain proper vertical alignment.

It is a further object of my present invention to provide door fastening means, as described, which will not accidentally become unlocked when outward forces are imposed on the door, for example, as a result of shifting loads within the vehicle or container.

It is a still further object of my present invention to provide door fastening means, as described, wherein reaction points are provided for affording leverage to force the door out of the plane of the frame as the door is being opened.

Now in order to acquaint those skilled in the art with the manner of constructing and using door fastening means in accordance with the principles of my present invention, I shall describe in connection with the accompanying drawings a preferred embodiment of my invention.

In the drawings:

FIGURE 1 is a fragmentary and foreshortened elevational view of a door frame and a door, with which the door fastening means of my present invention has been incorporated;

FIGURE 2 is an elevational view, on an enlarged scale, of the lower carrier and keeper members of FIGURE 1;

FIGURE 3 is a horizontal view, partly in section and partly in elevation, taken substantially along the line 3—3 in FIGURE 2, looking in the direction indicated by the arrows;

FIGURE 4 is a perspective view of the universal keeper member of my present invention;

FIGURE 5 is a perspective view of the universal carrier member of my present invention;

FIGURE 6 is a vertical sectional view of the lower portion of the carrier member, taken substantially along the line 6—6 in FIGURE 3, looking in the direction indicated by the arrows;

FIGURE 7 is a vertical sectional view of the lower portion of the carrier member, taken substantially along the line 7—7 in FIGURE 3, looking in the direction indicated by the arrows;

FIGURE 8 is an elevational view of the lower portion of the carrier member, taken substantially along the line 8—8 in FIGURE 3, looking in the direction indicated by the arrows; and

FIGURE 9 is a horizontal sectional view, taken substantially along the line 9—9 in FIGURE 8, looking in the direction indicated by the arrows.

Referring now to FIGURE 1, there is indicated generally by the reference numeral **10** a conventional door frame which may, for example, be located in the side or end of an enclosed transport vehicle or freight conveyance. The door frame **10** comprises horizontal upper and lower structural elements **12** and **14** and a vertical side structural element **16**. Disposed within the door frame **10** for closing the same is a door **18** which is pivotally mounted along its one vertical edge to the side door frame element **16** by means of hinges **20**. The door frame **10** may be closed by a single door **18**, or by a pair of such doors, as those skilled in the art will readily understand.

The door fastening means of my present invention, which is adapted to secure the door **18** within the door frame **10**, comprises a pair of keeper members **22** mounted, as by bolts **24**, to the upper and lower door frame elements **12** and **14**. The keeper members **22**, which are of identical construction, each comprise, as shown in FIGURES 2, 3 and 4, a central web portion **26**, and a pair of mounting flange portions **28** and **30** at the opposite ends thereof, which together define a rear planar mounting surface **32**. Projecting forwardly from the web portion **26** is a horizontal rib portion **34** having a forward face **36** parallel to the planar mounting surface **32** and having upper and lower surfaces **38** and **40** which taper toward each other both in a forward direction and in a lateral direction toward one end of the keeper member adjacent the mounting flange portion **28**. The keeper member **22** further includes arm means in the form of vertically spaced arm portions **42** and **44** which project forwardly therefrom at the one end of the keeper member adjacent the mounting flange portion **28**. The arm portions **42** and **44** are arranged at an acute angle relative to the forward face **36** of the rib portion **34**, and have vertical inner and outer parallel faces **46** and **48**. It is to be understood that the keeper member **22** is symmetrical about its

longitudinal axis and hence may be used interchangeably at the top and bottom of the door frame.

Arranged for operative association with the keeper members **22**, as shown in FIGURE 1, is a vertically extending hollow operating shaft or rod **50** rotatably journalled in bracket members **52** and **53** suitably secured, as by bolts, to the outer face of the door **18**. Means for rotating the shaft **50** is provided in the form of a horizontal hand lever **54** normally retained in a conventional seal assembly indicated generally by the reference numeral **56**.

Secured within the upper and lower ends of the hollow shaft **50** are shaft extensions or carrier members **58** which may be rotatably guided, along with the hollow shaft **50**, in the bracket members **52**. Both carrier members **58** are of identical construction, and each comprise, as shown in FIGURES 5–9, vertically spaced wing portions **60** and **62** having facing cam surfaces **64** and **66** principally on one side of the carrier member. The cam surfaces **64** and **66** taper toward each other transversely of the carrier member and taper away from each other in a direction away from the center of the carrier member. Each of the wing portions **60** and **62** is also formed with laterally spaced nose sections **68** and **70** on the other side of the carrier member generally opposite the cam surfaces **64** and **66**. In addition, each wing portion **60** and **62** is formed with vertical end surfaces **72** and **74** extending angularly toward each other in the direction of the nose sections **68** and **70**. The end surfaces **72** and **74** respectively extend to either side of and are perpendicular to planes (indicated by the broken lines A—A and B—B in FIGURE 3) passing through the axis of rotation of the carrier member **58** and shaft **50**. Still further, the carrier member **58** is provided with a transversely extending center guide portion **76** intermediate of the wing portions **60** and **62**. The center guide portion **76** has an outer cam section **78** extending between the nose sections **68** and **70** with upper and lower surfaces **80** and **82** tapering toward each other in an outward direction. The center guide portion **76** is also formed with inner cam surfaces **84** and **86** which extend angularly away from each other in the direction of the outer cam section **78**. The inner cam surfaces **84** and **86** preferably lie in planes perpendicular to the vertical end surfaces **72** and **74** of the wing portions **60** and **62**. Since the carrier members **58** are symmetrical about the line **7—7** in FIGURE 3, they may be used interchangeably at the top and bottom of shaft **50**. The carrier members **58** are rotatable in one direction relative to the keeper members **22** to effect interengagement of these members, and are rotatable in the other direction to effect disengagement of the members.

The elements of the door fastener of my present invention are shown in a locked or closed position in FIGURES 1, 2 and 3. In this position, the end surfaces **72** of the lower carrier and the end surfaces **74** of the upper carrier fully engage the adjacent inner faces **46** of the upper and lower keepers **22**. To unlock the door fastening means, the hand lever **54** is released from the seal assembly **56** and swung in a horizontal plane toward a forwardly extending position so that the shaft **50** and shaft extensions or carriers **58** are caused to rotate clockwise, as viewed in FIGURE 3, on their common axis. As the carrier members **58** are thus rotated, the door **18** is first urged slightly inwardly of the door frame **10** until the nose sections **68** of the lower carrier and the nose sections **70** of the upper carrier are rotated past the planes perpendicular to the inner faces **46** and passing through the axis of rotation of the carrier members. Simultaneously, the inner cam surfaces **84** and **86** of the center guide portions **76** engage the forward faces **36** of the rib portions **34** of the lower and upper carriers to provide reaction points for initial opening leverage. Next, the outer cam sections **78** of the center guide portions **76** move between and through the arm portions **42** and **44** of the keeper members **22** while the nose sections **70** of the lower carrier and the nose sections **68** of the upper carrier engage the outer faces

48 of the arm portions **42** and **44** of the lower and upper carriers to provide reaction points for additional opening leverage. As a result, carrier members **58** are moved arcuately away from the keeper members **22**, and the door **18** may be swung outwardly of the plane of the door frame **10** to a fully opened position.

In closing the door opening defined by the door frame **10**, the door **18** is swung toward the plane of the frame **10** with the carrier members **58** being positioned closely adjacent the keeper members **22**. Then, the hand lever **54** is pivoted toward the position shown in FIGURE 1 whereupon the shaft **50** is rotated for causing interengagement of the carrier and keeper members. In this connection, the outer cam sections **78** of the center guide portions **76** are moved between and through the arm portions **42** and **44** of the keeper members whereby to initially vertically align the carrier and keeper members to compensate for any mis-alignment of the door and frame. At this time, the nose sections **68** of the lower carrier and the nose sections **70** of the upper carrier engage the inner faces **46** of the arm portions **42** and **44** of the lower and upper carriers to provide reaction points for closing leverage. Engagement of the cam surfaces **64** and **66** of the wing portions **60** and **62** with the upper and lower surfaces **38** and **40** of the rib portions **34** produces a wedging action in both vertical directions. Thus, the carriers and keeper members are further vertically aligned and are thereafter held against relative vertical movement or displacement. In approaching the fully closed position, the door **18** is urged slightly inwardly of the position shown in FIGURE 1 to permit the nose sections **68** of the lower carrier and the nose sections **70** of the upper carrier to be rotated "over-center" so that the end surfaces **72** of the lower carrier and the end surfaces **74** of the upper carrier may fully engage the inner faces **46** of the arm portions **42** and **44** whereupon the carrier members **58** are restrained from rotating relative to the keeper members **58**. Furthermore, the projection of the nose sections beyond the plane A—A prevents unlocking rotation of the carrier members until the door is first urged sufficiently inwardly to permit the nose sections to be rotated past the "over-center" positions. Thus, outward forces imposed on the door will not cause unlocking of the door fastening means of my present invention but rather will tend to urge the carrier members further into the keeper members whereby to prevent accidental springing open of the door.

While I have shown and described what I believe to be a preferred embodiment of my present invention, it will be understood by those skilled in the art that various rearrangements and modifications may be made therein without departing from the spirit and scope of my invention.

I claim:

1. For use with a door frame having upper and lower elements and a door having a vertical edge hinged to the door frame, the combination of a vertically extending shaft rotatably mounted on the outer face of the door, identical keeper members mounted on the upper and lower elements of the frame, and identical carrier members mounted at the upper and lower ends of said shaft; each of said keeper members having a horizontal forwardly projecting rib portion and having vertically spaced arm means projecting forwardly from said rib portion at one end thereof; each of said carrier members having a pair of vertically spaced wing portions each of which portions is characterized by a cam surface on one side of said carrier member, by a nose section on the other side of said carrier member and by a vertical end surface; said shaft being rotatable in one direction to rotate said carrier members relative to said keeper members to effect interengagement of said members, said nose sections of said wing portions being engageable with said arm means to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with

said rib portions serving to align said carrier and keeper members, and said vertical end surfaces of said wing portions when in full engagement with said arm means serving to restrain said carrier members from rotation relative to said keeper members.

2. For use with a door frame having upper and lower elements and a door having a vertical edge hinged to the frame, the combination of a vertically extending shaft rotatably mounted on the outer face of the door, identical keeper members mounted on the upper and lower elements of the frame, and identical carrier members mounted at the upper and lower ends of said shaft; each of said keeper members having a planar mounting surface and a horizontal forwardly projecting rib portion with a forward face parallel to said planar mounting surface, said rib portion having upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof at an acute angle relative to said forward face of said rib portion, and said arm portions having vertical inner and outer parallel faces; each of said carrier members having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carrier member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having laterally spaced nose sections on the other side of said carrier member, each of said wing portions having opposed vertical end surfaces extending angularly toward each other in the direction of said nose sections, said end surfaces each extending to either side of and being perpendicular to a plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section extending between said nose sections with upper and lower surfaces tapering toward each other in an outward direction, said center guide portion having inner cam surfaces extending angularly away from each other in the direction of said outer cam section, and each of said inner cam surfaces lying in a plane perpendicular to the adjacent vertical end surfaces of said wing portions; said shaft being rotatable in one direction to rotate said carrier members relative to said keeper members to effect interengagement of said members, said outer cam sections of said center guide portions upon movement between and through said arm portions of said keeper members serving to initially vertically align said carrier and keeper members, one of said nose sections of each of said wing portions being engageable with said inner faces of said arm portions to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said upper and lower surfaces of said rib portions also serving to align said carrier and keeper members and to hold the same against relative vertical movement, one of said end surfaces of each of said wing portions when in full engagement with said inner faces of said arm portions serving to restrain said carrier members from rotation relative to said keeper members, said shaft being rotatable in the other direction to rotate said carrier members relative to said keeper members to effect disengagement of said members, one of said inner cam surfaces of said center guide portions being engageable with said forward faces of said rib portions to provide a reaction point for initial opening leverage, said outer cam sections of said center guide portions being movable between and through said arm portions of said keeper members, and the other of said nose sections of each of said wing portions being engageable with said outer faces of said arm portions to provide a reaction point for additional opening leverage.

3. Door fastening means comprising a keeper member having a horizontal forwardly projecting rib portion, said keeper member having a pair of vertically spaced arm means projecting forwardly from said rib portion at one end thereof, a carrier member having a pair of vertically spaced wing portions, each of which wing portions is characterized by a generally horizontally disposed cam surface on one side of said carrier member, by a nose section on the other side of said carrier member and by a vertical end surface, said carrier member being rotatable in one direction relative to said keeper member to effect interengagement of said members, said vertically spaced nose sections of said wing portions being engageable with said pair of vertically spaced arm means of said keeper member to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said rib portion serving to align said carrier and keeper members, and said end surfaces of said wing portions when in full engagement with said pair of spaced arm means serving to restrain said carrier member from rotation relative to said keeper member.

4. Door fastening means comprising a keeper member having a horizontal forwardly projecting rib portion, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof, a carrier member having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, each of said wing portions having a nose section on the other side of said carrier member, each of said wing portions having a vertical end surface, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section laterally of said nose sections, said carrier member being rotatable in one direction relative to said keeper member to effect interengagement of said members, said outer cam section of said center guide portion upon movement between and through said arm portions of said keeper member serving to initially vertically align said carrier and keeper members, said nose sections of said wing portions being engageable with said arm portions to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said rib portion also serving to align said carrier and keeper members and to hold the same against relative vertical movement, and said end surfaces of said wing portions when in full engagment with said arm portions serving to restrain said carrier member from rotation relative to said keeper member.

5. Door fastening means comprising a keeper member having a horizontal forwarding projecting rib portion with upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof, said arm portions having vertical inner and outer faces, a carrier member having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carrier member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having a nose section on the other side of said carrier member, each of said wing portions having a vertical end surface, said end surfaces extending to either side of and being perpendicular to a plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section laterally of said nose sections, said carrier member being rotatable in one direction relative to said keeper member to effect interengagement of said members, said outer cam section of said center guide portion upon movement between and through said arm portions of said keeper member serving to initially vertically align said

carrier and keeper members, said nose sections of said wing portions being engageable with said inner faces of said arm portions to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said upper and lower surfaces of said rib portion also serving to align said carrier and keeper members and to hold the same against relative vertical movement, and said end surfaces of said wing portions when in full engagement with said inner faces of said arm portions serving to restrain said carrier member from rotation relative to said keeper member.

6. Door fastening means comprising a keeper member having a horizontal forwardly projecting rib portion with upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof, said arm portions having vertical inner and outer faces, a carrier member having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carried member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having laterally spaced nose sections on the other side of said carrier member, each of said wing portions having a vertical end surface, said end surfaces extending to either side of and being perpendicular to a plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section extending between said nose sections, said center guide portion having an inner cam surface, said carrier member being rotatable in one direction relative to said keeper member to effect interengagement of said members, said outer cam section of said center guide portion upon movement between and through said arm portions of said keeper member serving to initially vertically align said carrier and keeper members, one of said nose sections of each of said wing portions being engageable with said inner faces of said arm portions to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said upper and lower surfaces of said rib portion also serving to align said carrier and keeper members and to hold the same against relative vertical movement, said end surfaces of said wing portions when in full engagement with said inner faces of said arm portions serving to restrain said carrier member from rotation relative to said keeper member, said carrier member being rotatable in the other direction relative to said keeper member to effect disengagement of said members, said inner cam surface of said center guide portion being engageable with said rib portion to provide a reaction point for initial opening leverage, said outer cam section of said center guide portion being movable between and through said arm portions of said keeper member, and the other of said nose sections of each of said wing portions being engageable with said outer faces of said arm portions to provide a reaction point for additional opening leverage.

7. Door fastening means comprising a keeper member having a planar mounting surface and a horizontal forwardly projecting rib portion with a forward face parallel to said planar mounting surface, said rib portion having upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof at an acute angle relative to said forward face of said rib portion, said arm portions having vertical inner and outer parallel faces, a carrier member having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carrier member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having laterally spaced nose sections on the other side of said carrier member, each of said wing portions having opposed vertical end surfaces extending angularly toward each other in the direction of said nose sections, said end surfaces each extending to either side of and being perpendicular to a plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section extending between said nose sections with upper and lower surfaces tapering toward each other in an outward direction, said center guide portion having inner cam surfaces extending angularly away from each other in the direction of said outer cam section, each of said inner cam surfaces lying in a plane perpendicular to the adjacent vertical end surfaces of said wing portions, said carrier member being rotatable in one direction relative to said keeper member to effect interengagement of said members, said outer cam section of said center guide portion upon movement between and through said arm portions of said keeper member serving to initially vertically align said carrier and keeper members, one of said nose sections of each of said wing portions being engageable with said inner faces of said arm portions to provide a reaction point for closing leverage, said cam surfaces of said wing portions upon engagement with said upper and lower surfaces of said rib portion also serving to align said carrier and keeper members and to hold the same against relative vertical movement, one of said end surfaces of each of said wing portions when in full engagement with said inner faces of said arm portions serving to restrain said carrier member from rotation relative to said keeper member, said carrier member being rotatable in the other direction relative to said keeper member to effect disengagement of said members, one of said inner cam surfaces of said center guide portion being engageable with said forward face of said rib portion to provide a reaction point for initial opening leverage, said outer cam section of said center guide portion being movable between and through said arm portions of said keeper member, and the other of said nose sections of each of said wing portions being engageable with said outer faces of said arm portions to provide a reaction point for additional opening leverage.

8. For use in a door fastener, a keeper member having a horizontal forwarding projecting rib portion with upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forwardly therefrom at said one end thereof, and said arm portions having vertical inner and outer faces.

9. For use in a door fastener, a keeper member having a planar mounting surface and a horizontal forwardly projecting rib portion with a forward face parallel to said planar mounting surface, said rib portion having upper and lower surfaces which taper toward each other both in a forward direction and in a lateral direction toward one end of said keeper member, said keeper member having vertically spaced arm portions projecting forward therefrom at said one end thereof at an acute angle relative to said forward face of said rib portion, and said arm portions having vertical inner and outer parallel faces.

10. For use in a door fastener, a carrier member having vertically spaced wing portions with generally horizontally disposed facing cam surfaces on one side of said carrier member, each of said wing portions having a pair of laterally spaced nose sections on the other side of said carrier member, each of said wing portions having opposed vertical end surfaces extending angularly toward each other in the direction of said nose sections.

11. For use in a door fastener, a carrier member having vertically spaced wing portions with generally horizontally disposed facing cam surfaces on one side of said carrier member, each of said wing portions having a pair of laterally spaced nose sections on the other side of said carrier member, each of said wing portions having a vertical end surface, said carrier member having a transversely extending center guide portion intermediate of said wing portions, and said center guide portion having an outer cam section extending between said nose sections.

12. For use in a door fastener, a carrier member having vertically spaced wing portions with generally horizontally disposed facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carrier member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having a pair of laterally spaced nose sections on the other side of said carrier member, each of said wing portions having a vertical end surface, said end surfaces extending to either side of and being perpendicular to plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section extending between said nose sections, and said center guide portion having an inner cam surface.

13. For use in a door fastener, a carrier member having vertically spaced wing portions with facing cam surfaces on one side of said carrier member, said cam surfaces tapering toward each other transversely of said carrier member and tapering away from each other in a direction away from the center of said carrier member, each of said wing portions having laterally spaced nose sections on the other side of said carrier member, each of said wing portions having opposed vertical end surfaces extending angularly toward each other in the direction of said noes sections, said end surfaces each extending to either side of and being perpendicular to a plane passing through the axis of rotation of said carrier member, said carrier member having a transversely extending center guide portion intermediate of said wing portions, said center guide portion having an outer cam section extending between said nose sections with upper and lower surfaces tapering toward each other in an outward direction, said center guide portion having inner cam surfaces extending angularly away from each other in the direction of said outer cam section, and each of said inner cam surfaces lying in a plane perpendicular to the adjacent vertical end surfaces of said wing portions.

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