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DOMESTIC APPLIANCE LATCH

Filed Dec. 26, 1963

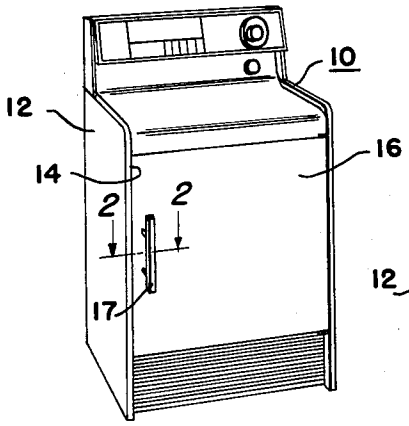


Fig. 1

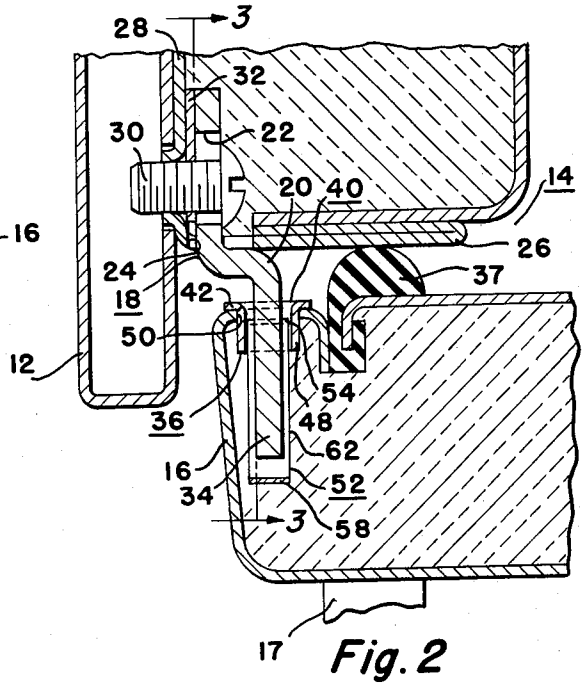


Fig. 2

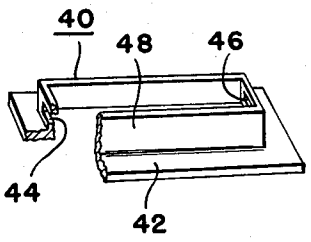


Fig. 4

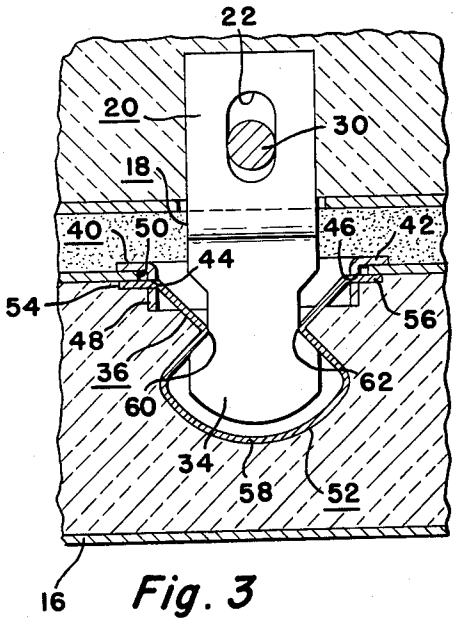


Fig. 3

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DOMESTIC APPLIANCE LATCH

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This invention relates to door latches and more particularly to friction-type door latches.

An object of the present invention is to improve friction-type door latches by making the catch portions thereof fastenable to door members or the like without the need for welds, screws, or other like fastening elements.

A further object of the invention is to provide a self-contained fastenerless door latch assembly that is comprised of an extremely small number of economical individual parts that lend themselves to mass production and quick assembly in a domestic appliance or the like for releasably holding a door thereon in a closed position.

A still further object of the present invention is to improve friction-type door latches by the provision therein of a spring catch element that cooperates with a ferrule for securing the spring within a door or the like against removal therefrom and wherein the ferrule and spring catch are constructed and arranged to permit adjustable movement of the spring element with respect to a strike element on a fixed supporting element such as a cabinet to thereby compensate for slight variations in strike locations with respect to the door element or the like.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein a preferred embodiment of the present invention is clearly shown.

In the drawings:

FIGURE 1 is a view in perspective of a domestic cabinet structure including the friction latch of the present invention.

FIGURE 2 is an enlarged view in horizontal section taken along the line 2—2 of FIGURE 1;

FIGURE 3 is a view in vertical section taken along the line 3—3 of FIGURE 2;

FIGURE 4 is a perspective view partially broken away of a supporting ferrule used in the catch portion of the invention.

Referring now to the drawing, a domestic appliance **10** is illustrated in FIGURE 1 as comprising an outer cabinet **12** having an access opening **14** therein closed by a door **16** having one side edge thereof hingedly connected to the front wall of the outer cabinet **12**. On the opposite side of door **16** is a handle **17** for moving the door into opened and closed positions. While the domestic appliance is illustrated as being a clothes dryer structure, it will be appreciated that the present invention will be equally suited for use in other arrangements where it is desired to releasably hold a first element with respect to a second element.

More specifically with reference to the illustrated domestic appliance **10**, the door **16** is releasably held with respect to the cabinet **12** for closing the access opening **14** therein by an improved friction-type door latch assembly **18** best illustrated in FIGURES 2 and 3 as including a strike element **20** having one end thereof including an opening **22** therethrough inserted into an opening **24** formed by a bent sheet metal portion **26** of the outer cabinet **12**. The inserted end of the strike element **20** is secured to a sheet metal portion **28** of one of the side walls of the outer cabinet **12** by suitable fastening means representatively illustrated as including a screw element **30**. In order to assure a desired lateral location of the

strike element **20** with respect to the side walls of outer cabinet **12**, suitable spacers **32** may be inserted as desired between portion **28** and strike **20**.

The strike element **20** further includes an offset end portion **34** directed outwardly of the cabinet into engagement with a catch assembly **36** in door **16** when the door is closed. In the illustrated embodiment of the invention, the door **16** has a seal **37** supported thereon that engages the sheet metal portion **26** of cabinet **12** when the door is closed to prevent the escape of heated air from the drying cavity. The seal **37**, more particularly, is held in tight sealing engagement with the sheet metal portion **26** by an improved interlocking relationship between the strike element **20** with the catch assembly **36**.

The catch assembly **36** in accordance with certain principles of the present invention includes component parts that eliminate the need for fastening means for holding the assembly **36** within the door **16** and which are further characterized as extremely economical to manufacture and quickly insertable in place in a door or the like. More particularly, the catch assembly **36** includes a generally rectangularly shaped tubular ferrule element **40** best illustrated in FIGURE 4 as including an outwardly directed peripheral flange **42** and slots **44, 46** in opposite end wall portions of an insertable end portion **48**. The ferrule **40** is inserted into an opening **50** through the outer wall of door **16** so that the flange **42** thereon engages the door around opening **50** as best illustrated in FIGURES 2 and 3. The catch **36** further includes a spring clip element **52** having end portions **54** and **56** that are joined by a bent spring segment **58** including inwardly turned portions **60, 62** that are spring biased toward one another. The spring clip **52** is inserted into the opening **50** and through the ferrule **40** to extend into the door **16** an appreciable distance corresponding substantially to the length of the outwardly directed end **34** of strike element **20** and has the ends **54, 56** thereof directed through slots **44, 46** in ferrule **40** for supporting the clip **52** within the door **16**. The ends **54, 56** on clip **52** in conjunction with the flange **42** on ferrule **40** further serve to interlockingly connect the catch assembly **36** on the outer wall of door **16** around the opening **50** therein to prevent removal of the catch **36** therefrom once the clip **52** is in place.

By virtue of the aforementioned strike and catch assemblies **20, 36**, when the door **16** is moved to its closed position the end **34** of strike **20** will enter through the ferrule **40** into the clip **52** where the inwardly directed portion **60, 62** thereon will be first deflected outwardly of the strike **20** and then will be biased into the notches on either side thereof to releasably hold the door against the cabinet so as to cause the seal element **37** to be pressed therebetween in sealing engagement with the sheet metal portion **26**. The spring **52** is constructed and arranged to draw door **16** longitudinally of strike **20** and toward cabinet **12** even though seal **37** becomes permanently set or deformed into a flatter configuration following a period of high temperature operation or the like.

The relationship between the clip and the ferrule permits relatively free movement of the clip **52** with respect to the strike **20** to allow the inwardly directed portion **60, 62** thereon to uniformly bias against opposite sides of the strike when it is fully inserted into the catch assembly **36**. Furthermore, the adjustable movement of the clip **52** with respect to the fixed ferrule **40** compensates for misalignment of the strike element that might occur during mass production assembly thereof.

It will be appreciated from the above-described embodiment that the inventive friction-type door latch is unusually economical, quickly assembled and suitable for association with domestic appliances or any other ar-

rangements requiring a yieldable, positive, but releasable, interlocking latch assembly.

While the embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. A latch construction for holding a first member with respect to a second member comprising a strike element, means for securing said strike element to one of the members, a tubular element adapted to be inserted into the other of said members having side openings therein, said tubular element having a peripheral flange portion on one end thereof formed continuously about said tubular element for reinforcing said element and to guide said strike element with respect to the interior of said tubular element, said continuously formed flange overlying a first surface on the other member and being located in juxtaposition therewith, a separate spring clip element including spaced apart leg portions compressible for insertion into said tubular element, tab portions on the ends of said spaced apart legs directed through said tubular element side openings to engage another surface of the other member and in conjunction with said peripheral flange portion serving to secure said tubular element and clip element on the other of the members, said tab portions being relatively movable within said tubular element side openings, said clip element having inwardly turned portions spring biased toward one another for releasably engaging said strike element for holding the members together.

2. In the combination of claim **1**, said tab portions and said tubular element flange portion coacting to serve as the sole means for securing said tubular element against separation from the other member.

3. In the combination of claim **1**, said tab serving as the sole means for fastening of said clip element to said tubular element.

4. In the combination of claim **1**, said tab portions being freely shiftable in at least one direction within said tubular member to compensate for variations in alignment between said clip and said strike element, said inwardly turned portions on said clip adjusting to uniformly bear against opposite sides of said strike element when in releasable engagement therewith.

5. A latch construction for holding a first member with respect to a second member comprising first and second co-acting means frictionally engaging one another, one of said co-acting means including a tubular supporting element adapted to be mounted on one of the members, said tubular support element including a continuous reinforcing flange around one end thereof adapted to be located in juxtaposition with a surface on one of the members, means forming openings in said tubular supporting member, spring means supported by said tubular supporting member including spaced apart leg members having tab portions thereon directed through said tubular supporting member openings for engagement with said tubular supporting member and adapted to engage another surface of said one of the members, said flange on said tubular supporting element cooperating with said tab portions for securing said supporting element to said one of the members, said spring means including inwardly turned portions spring biased toward one another for engaging the other of said co-acting means to hold the first and second members together.

6. In the combination of claim **5**, said co-acting tab portions and tubular supporting member flange means serving as the sole means for securing said one of said co-acting means on the one member.

7. In the combination of claim **5**, said openings in said tubular element and said tab portions having sufficient clearance therebetween to allow relatively free movement therebetween for compensating for variations in the location of said other co-acting means with respect to said tubular supporting member.

8. A latch assembly comprising a tubular supporting element adapted to be inserted into a first member, said tubular supporting element having a length substantially greater than its width and including a peripheral flange portion on one end thereof for limiting insertion thereof into the first member, means forming openings in said tubular supporting element spaced from said peripheral flanged portion, a spring clip having a pair of spaced tab portions thereon joined by a curved spring segment, said spring clip being compressible for insertion into said tubular supporting element, said tab portions being insertible into said openings in said tubular supporting member for supporting said spring clip thereon, said tab portions and peripheral flange portions in conjunction serving as the sole means for fastening said tubular supporting element to the first member, a strike element adapted to be connected to another member, said strike element having notches in the opposite sides thereof, said clip having inwardly turned portions spring biased toward one another adapted to be received in said strike element notches for releasably holding said strike element within said clip for holding the first and other member together.

9. In the combination of claim **8**, said spring clip being laterally shiftable with respect to said tubular element for compensating for misalignment of said strike element.

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