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S. SOSS

2,608,713

FRICTION-CATCH HINGE

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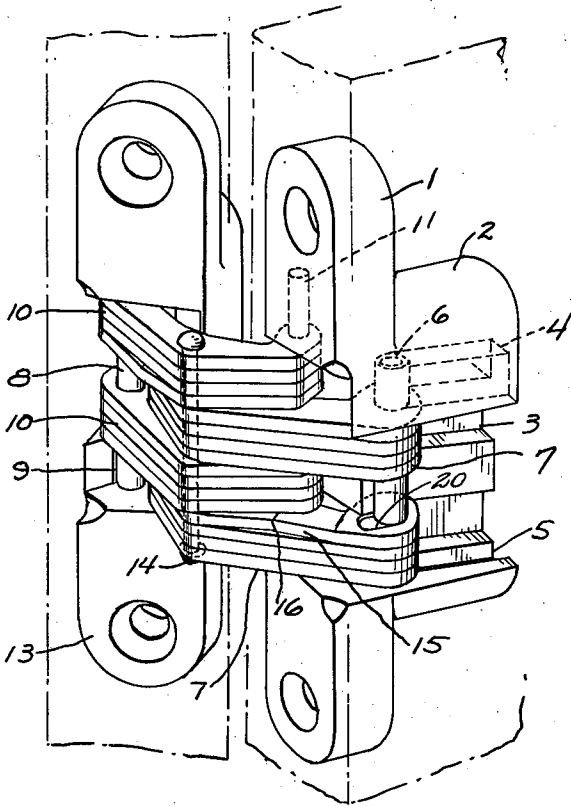


Fig. 1.

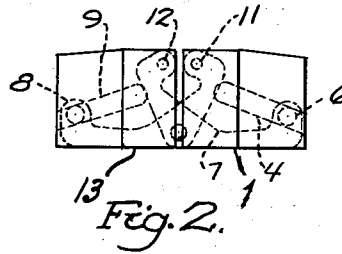


Fig. 2.

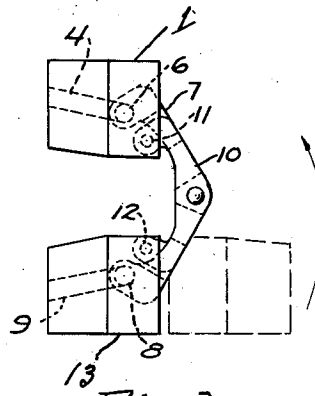


Fig. 3.

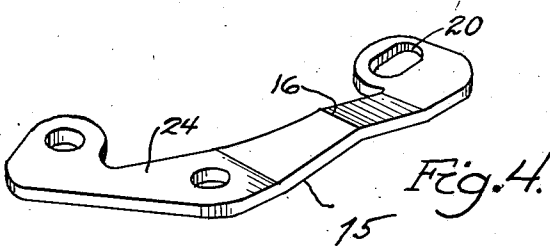


Fig. 4.

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UNITED STATES PATENT OFFICE

2,608,713

FRICTION-CATCH HINGE

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1 Claim. (Cl. 16-140)

1

This invention relates to a combined hinge and hold-open. It is the object of the invention to provide a concealed hinge which, by a very simple but effective arrangement of the hinge elements alone will hold the door open at all points after the door has first been swung open through a small arc. To this end there is provided one or more spring leaves or friction links which are part or parts of the construction itself and are not appliances added to the hinge structure to perform the hold-open action.

This hinge is adapted for use in connection with doors and door frames, automobile doors, covers of pianos, wardrobes, closets, cabinets and various other boxes and receptacles.

Referring to the drawings:

Fig. 1 is a perspective of the "Soss" hinge of the Soss Patent No. 2,178,271, embodying my hold-open improvement.

Fig. 2 is a diagrammatic view of the hinge showing the hinge in closed position.

Fig. 3 is a similar view showing the hinge in open position.

Fig. 4 is a detail of one of the bowed spring leaves.

1 is the face plate. 2 is the hinge box, here in the form of an arched upper and lower member connected by a heavy side wall 3. These members form one hinge butt. The arched top and arched floor of the hinge box have channels 4 and 5 which form grooves for the travelling pin 6 which fastens the ends of the leaves or laminations 7 together. The pin 8 travels in groove or slot 9 in the floor of the left hand hinge butt and a similar groove in the top of the hinge box. This travelling pin 8 connects together the leaves 10 of the two hinge arms. There are four leaves or laminations shown in connection with each hinge arm or link. The hinge arms 10 are pivoted to a fixed pin 11 fixed in the face plate 1 of the right hand hinge butt. The hinge leaves 7 are pivoted on a fixed hinge pin 12 permanently fixed in the face plate 13 of the left hand hinge butt. All the hinge arms and hinge leaves are united near their mid-portion by a knuckle pin 14. This is one type of "Soss" hinge shown and claimed in Soss Patents Nos. 880,697 and 2,178,271.

Two hinge arms or links are pivoted on a fixed pin of one hinge butt and slidably pivoted to the other hinge butt by means of a pin and slot arrangement. The other two arms or links are pivoted to a fixed pin on the hinge butt which has the slots or grooves for the set of hinge arms first above described. These last mentioned arms

2

have a slot and pin pivotal arrangement in the hinge box of the other hinge butt. As the door opens it not only pivots outwardly but by reason of these slot and pin arrangements it also throws out without the aid of the usual goose neck arm used in concealed hinges. The number of hinge links may be varied and also the number of laminations in one link.

The same hinge action and throw-out of the door is achieved in other patents "Soss" hinges (Soss Patents 1,984,092 and 2,021,702) by means of a parallelogram of links.

These several styles of overlapping and folding hinge arms, each with several leaves are appropriate to take my improvement. My improvement consists in substituting for the conventional hinge leaf of one arm, a distorted or bowed spring leaf or lamination which bows out and is in the path of the hinge leaf of the adjoining arm when the two hinge arms fold or unfold into or out of overlapping position. The type of hinge arm and hinge leaves shown in the drawings where the hinge leaves are all of one pattern is very well adapted to take my bowed spring hinge leaf which is designated 24. This leaf has a bowed portion 15 with a peak or ridge 16. It has a slot 20 in one end through which passes the pin 6. This slot allows the spring steel bowed leaf to be flattened and compressed. A slot is also provided in the spring leaf that is mounted on pin 8. After the door opens a slight space, the bowed portion of the hinge leaf comes in overlapping relation with the adjoining hinge leaf of the other arm and the spring hinge leaf is put under stress and friction develops and this tends to hold the door in any open position.

It will be seen that this bowed spring lamination may be used in any type of hinge which has two or more hinge links made up of two or more stamped metal laminations and in which the hinge links fold and lap one over the other in opening the door and unfold from the overlapping relation in the closing of the door, so I want it understood that my improvement is not limited to the style of hinge that is shown in the drawings.

What I claim is:

A concealed hinge having in combination a pair of hinge butts for securing one hinge butt to a swinging door pillar and the other hinge butt to a stationary pillar, each butt containing a hinge box, two or more links pivoted to each other intermediate their ends, one of said links having one end pivoted in one hinge box to slide and pivot in the one hinge box so that the one link

will swing in this hinge box but by reason of a pin and slot arrangement the link moves bodily inwardly and outwardly of said one hinge box, the opposite end of said one link being simply pivotally supported by a pin to the other hinge box, the second link having the same pivotal and sliding arrangement with the other hinge box and the same pivotal support in said one hinge box, the said links unfolding outwardly into near registry one with the other when the door is opened, one of the links having at least two laminations or leaves, one of the laminations or leaves being a bowed spring leaf which, when the links move outwardly into the overlapping and partly registering relation, is flattened to put stress on the two links and thereby resist the folding in of the links to close the door, the bowed spring leaf having a slotted end for engaging over the pivot

pin that moves inwardly and outwardly of the hinge box in which it is seated for such movement, said slot permitting the bowed spring leaf to be flattened when the links move into overlapping and registering position.

SAMUEL SOSS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
760,831	White et al. -----	May 24, 1904
380,697	Soss -----	Mar. 3, 1908
1,496,588	Nord -----	June 3, 1924
2,178,271	Soss -----	Oct. 31, 1939