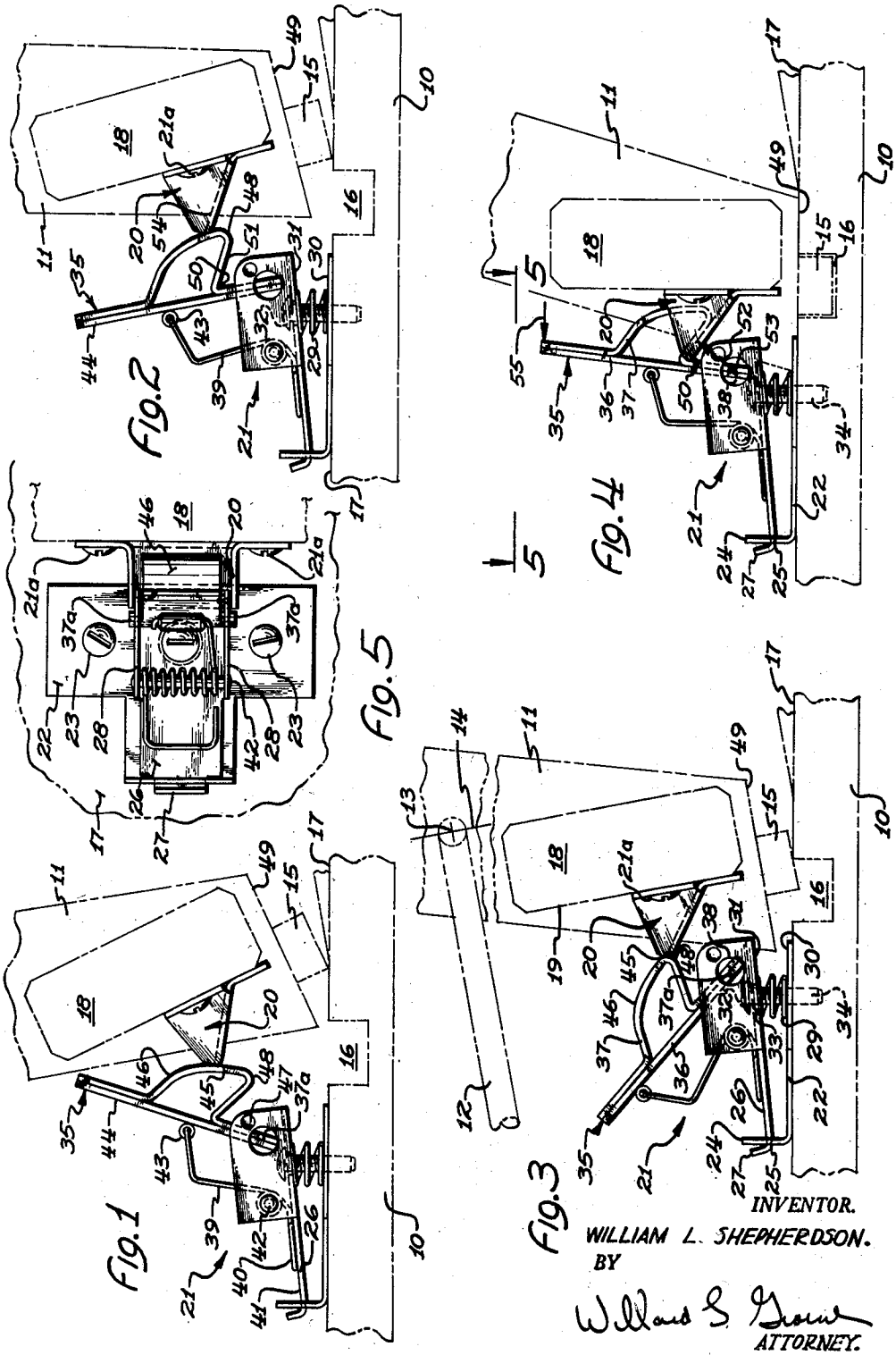
April 30, 1957 W. L. SHEPHERDSON 2,790,688

LATCH DEVICE

Filed Oct. 8, 1956



INVENTOR.
WILLIAM L. SHEPHERDSON.
BY
Willard S. Grove
ATTORNEY.

United States Patent Office 2,790,688 Patented Apr. 30, 1957

2,790,688

LATCH DEVICE

William L. Shepherdson, Phoenix, Ariz., assignor of sixty-six and two-thirds percent to J. E. Meacham, Phoenix, Ariz.

Application October 8, 1956, Serial No. 614,697

4 Claims. (Cl. 311—104)

This invention pertains to an improved latch device particularly adapted to use in conjunction with folding and knock-down furniture and the like.

One of the objects of this invention is to provide a latch device which is simple to manufacture and is highly efficient in operation and maintains its adjustment indefinitely under long and hard use.

Another object is to provide a latch device capable of preloaded locking of the latch in part to maintain a rigid interconnection of the respective parts when latched together by the device.

A further object is to provide a latch device having critically positioned interengaging surfaces on the latch and keeper.

And a further object is to have in the latch device an adjusting means for accurately and securely positioning the interengaging parts of the device.

Further features and advantages of this invention will appear from a detailed description of the drawings in which:

Fig. 1 is an enlarged view partly in section showing the latch device at the initial stage of latching engagement.

Fig. 2 is a view similar to Fig. 1 showing the latch device at an intermediate stage of engagement.

Fig. 3 is a view similar to Fig. 1 but showing the device just at the point of latching in.

Fig. 4 is a view similar to Fig. 1 but showing the latching device in fully latch in condition.

Fig. 5 is a plan view of the latching device indicated by the line 5—5 in Fig. 4.

As an example of one embodiment of this invention, there is shown a furniture unit such as a folding chair or table having a top piece **10** and legs **11** suitably carried on supports **12** for rocking about the axis **13** and swing in the arcuate path **14** in a manner such as set forth in my copending patent application Serial No. 591,896 filed June 18, 1956.

The legs **11** are provided with dowel plugs **15** adapted to engage into mating sockets **16** formed in the underside surface **17** of the top piece **10** when the legs are in fully extended position. A stretcher bar **18** is rigidly fixed to the legs and has a surface **19** to which is rigidly fixed the keeper member **20** by suitable screws **21***a*.

The latch member **21** comprises a base plate **22** rigidly fixed to the underside surface **17** of the top piece **10** by suitable screws **23** and has an upturned end portion **24** in which is formed a slot **25**. An adjustable member **26** has a reduced upturned outer end portion **27** extending through the slot **25**. At the other end of the member **26** are the upturned side portions **28**. A compression spring **29** is located between the surface **30** of the base plate **22** and the surface **31** of the member **26**. An adjusting screw **32** passes through a hole **33** in the member **26**, through the spring **29** and adjustably threaded at **34** in the top piece **10** so that adjustment of the screw **32** may accurately position the member **26** relative to the keeper member **20** for accurate and positive locking action for the device.

The latch piece **35** is formed of a flat strip **36** and a lug piece **37** suitably secured together and having trunnion portions **37***a* pivotally mounted in holes **38** formed in the upturned side portions **28** of the adjustable member **26**. A spring **39** having one end **40** in contact with the top surface **41** of the adjustable member **26** is supported on a transverse pin **42** fixed in the upturned side portions **28**, the other end of the spring **39** having an anti-friction roller **43** journaled thereon adapted to rollingly engage the surface **44** of the latch piece **35**.

As the legs **11** and stretcher bar **18** move to the left, Fig. 1, in opening out the leg assembly of the furniture piece, the outer edge **45** of the keeper member **20** abuttingly engages the arcuate surface **46** of the latch piece **35** swinging the latch piece counter-clockwise, Fig. 2, in opposition to the force exerted by the spring **39** moving the latch piece **35** away from the transverse stop indentations **47** fixed in the upturned side portions **28** of the adjustable member **26**. This action continues as the leg member folds outwardly finally bringing the edge **45** of the keeper member **20** to the apex **48** of the arcuate portion **46** of the latch piece **35**. Further movement of the leg member, Fig. 4, causes the dowel plugs **15** of the legs **11** to enter the sockets **16** and to bring abutment surface **49** on top of leg **11** into abutting contact with the underside surface **17** of the top piece **10**. At this moment the latch piece **35** is snapped by the spring **39** into latch position shown in Fig. 4, with the edge **45** of the keeper member **20** engaging finally in the crotch **50** in the member **35**. It is to be noted that the surface **51** radially positioned as indicated by the arrow **52** with regard to the axis **53** of the trunnions **37***a* for free snapping home of the latch piece as described. Further, the surface **54** of the keeper member **20** is positioned so as to avoid interfering contact with the apex portion of the latch piece when in latch position, Fig. 4, and to permit positive engagement of the keeper and latch at the crotch **50** to rigidly hold said stretcher bar and legs **11** with their abutment surface **49** firmly against the underside surface **17** of the top piece **10**. Pressure may be exerted manually in the direction of the arrow **55** to swing both the latch piece to release the leg member to be folded up.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangement and commercial adaptation as fall within the scope of the appendent claims are intended to be included herein.

Having thus fully set forth and described this invention what is claimed and desired to be obtained by United States Letters Patent is:

1. A latch device for two relatively movable members to be disconnectably fastened together comprising a latch piece fixed to one of said relatively movable members having a crotch portion thereon, a keeper member fixed to the other of said relatively movable members having an outer edge adapted to engage in said crotch portion, and a yielding means to normally swing said latch piece toward latching position with said keeper piece to secure said relatively movable members in a predetermined latched position.

2. In a latch device as set forth in claim 1 wherein said latch piece is adjustably positionable relative to said one of said relatively movable members.

3. In a latch device for folding furniture and the like having a top piece and legs interconnected by a stretcher bar, a keeper member fixed on said stretcher bar, a latch member comprising a base plate fixed to said top piece, an adjustable member pivotally mounted by slot and tongue means on said base plate, means for yieldingly urging said adjustable member away from said base plate,

and adjusting screw means opposing said last mentioned means to position said adjustable member relative to said base plate, a lug piece pivotally mounted on said adjustable member adapted to engage said keeper member, and yielding means carried on said adjustable member interacting between said adjustable member and said lug piece to normally urge said lug piece toward latching position with said keeper member.

4. In a latch device as set forth in claim 3 wherein said latch piece has a crotch portion adapted to be engaged with an outer edge on said keeper member when in fully latched position.

References Cited in the file of this patent

UNITED STATES PATENTS

995,942	Bain	June 20, 1911
1,917,916	Bales et al.	July 11, 1933
1,964,556	Bittorf	June 26, 1934
2,214,301	Hendricks	Sept. 10, 1940
2,318,945	Johannsen	May 11, 1943
2,621,992	Anderson et al.	Dec. 16, 1952
2,723,890	Erickson	Nov. 15, 1955