Sept. 27, 1966 C. R. CHAMBERLIN 3,275,003

MULTI-PURPOSE RETENTION CLIP

Filed Jan. 30, 1964 2 Sheets-Sheet 1

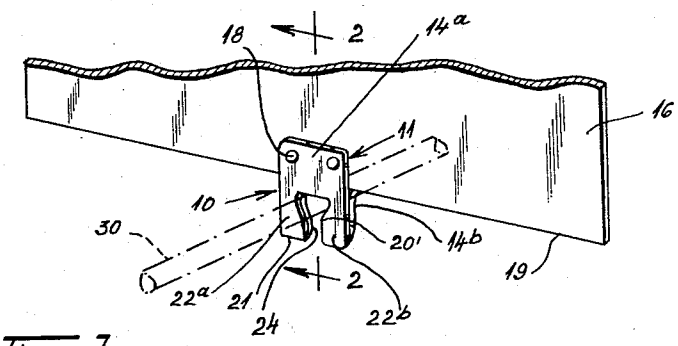

Fig. 1.

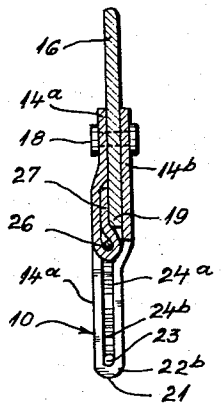

Fig. 2.

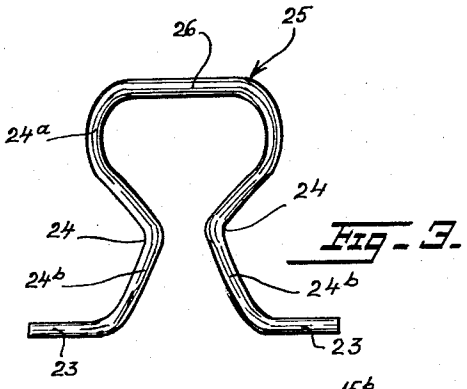

Fig. 3.

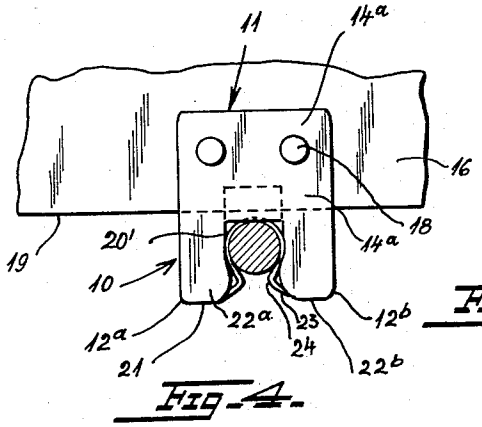

Fig. 4.

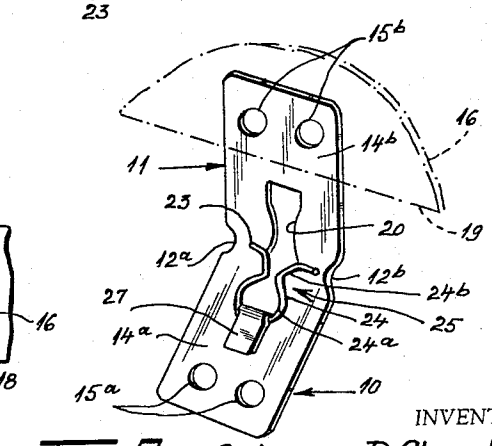

Fig. 5.

INVENTOR.
Coleman R. Chamberlin
BY
Polachek & Saulsbury
ATTORNEYS.

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MULTI-PURPOSE RETENTION CLIP

Filed Jan. 30, 1964 2 Sheets-Sheet 2

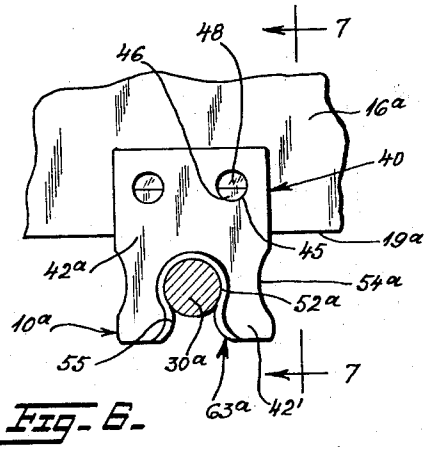

Fig. 6.

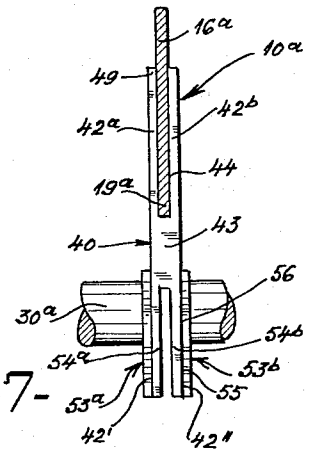

Fig. 7.

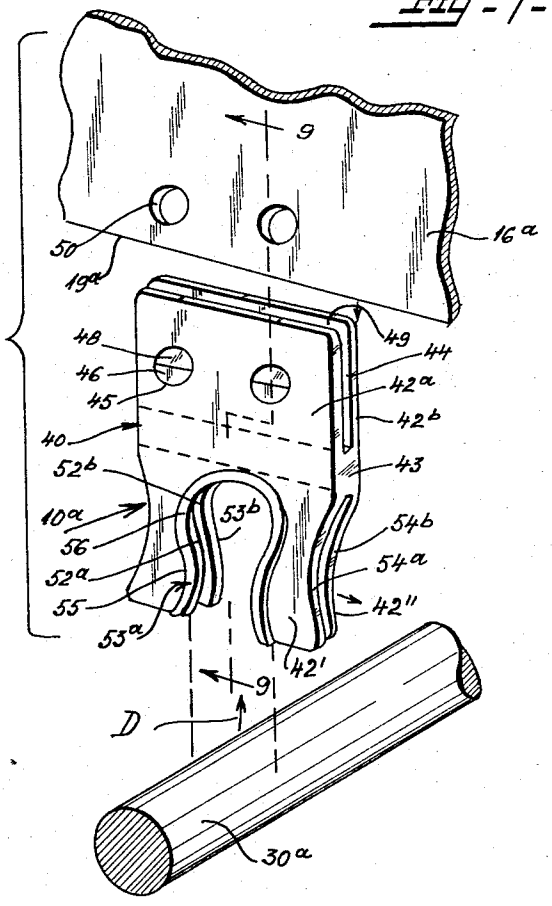

Fig. 8.

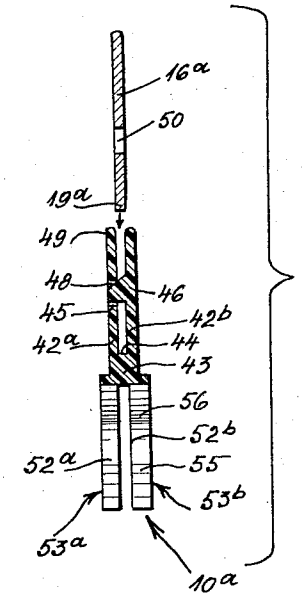

Fig. 9.

INVENTOR.
Coleman R. Chamberlin
BY
Polachek & Saulsbury
ATTORNEYS.

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MULTI-PURPOSE RETENTION CLIP

Coleman R. Chamberlin, Thompson Ridge, N.Y.
(P.O. Box 122, Newburgh, New Windsor, N.Y.)

Filed Jan. 30, 1964, Ser. No. 341,201
1 Claim. (Cl. 129—16.7)

This invention relates to improved fasteners and more particularly concerns utility retention clip assemblies useful in conjunction with various articles as article hangers, as index card anchoring means and the like. This invention is an improvement over that described in my prior Patent 2,097,018.

According to one embodiment of the invention there is provided a generally U-shaped spring clip which is enclosed in a metal tab. The tab is engageable by rivets upon one edge of a card or other flat article. The tab has a keyhole-shaped notch in which are exposed leg portions of the clip. The clip has laterally extending feet portions slidably engaged in loops of the tab. The clip has a straight bight portion engaged by a tongue formed in the tab. When a card or the like carrying the clip and tab is to be engaged on a guide rod or other support, the leg portions of the clip expand laterally and cam over the rod as the feet portions of the clip slide outwardly in the loops of the tab. As the rod is seated securely in the loop of the clip, the leg portions retract under the rod to hold the same in the keyhole notch of the tab.

In another form of the invention, the clip and tab are integrally formed from a single piece of plastic molded to required form. The plastic tab has camming studs which are cammed outwardly as the edge of the card enters a transverse slot formed in the tab. The studs then engage in preformed holes in the card as the edge of the card is seated in the transverse slot. The clip has bowed camming leg portions which yield as a rod is moved laterally passed the leg portions into the loop of the clip. The tab may have a pair of clips on opposite sides to double the gripping force on the rod.

It is therefore one object of the invention to provide an improved clip assembly for detachably engaging a flat article such as a card upon a linear member such as a rod.

A further object is to provide a generally U-shaped clip secured at its bight in a keyhole opening in a tab, with leg portions of the clip free to cam over a rod and with feet portions guided in loops of the tab.

Another object is to provide a clip assembly including a tab for engaging on an edge of a card and a clip structure integral with the tab for engaging a rod in a position axially perpendicular to the card.

A further object is to provide a clip assembly as described wherein the clip structure includes two inverted U-shaped clip members for cooperatively gripping the rod.

Still another object is to provide a clip assembly having a tab with camming studs for quickly mounting and retaining the tab on the card.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claim in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a perspective view of a clip assembly embodying one form of the invention, shown mounted on the bottom edge of an index card, a mounting rod being shown in dot-dash lines.

FIG. 2 is an enlarged sectional view taken on line 2—2 of FIG. 1.

FIG. 3 is an enlarged plan view of a spring clip.

FIG. 4 is a front elevational view of the clip assembly shown mounted on the bottom edge of a card and engaging a rod.

FIG. 5 is a perspective view of the clip assembly in open position, in position on the bottom of a phantom card.

FIG. 6 is a front elevational view similar to FIG. 4 of a modified form of clip assembly on a card and engaging a rod.

FIG. 7 is an enlarged vertical sectional view taken on line 7—7 of FIG. 6.

FIG. 8 is an exploded perspective view of the parts shown in FIG. 6.

FIG. 9 is a sectional view taken on line 9—9 of FIG. 8.

Referring first to FIGS. 1–5, a clip assembly **10** is shown including a tab **11** preferably formed from a thin sheet of pliable metal which is generally rectangular in shape. The tab has lateral opposed notches **12***a*, **12***b* which facilitate bending the tab in half to define two rectangular plates or panels **14***a* and **14***b*. Holes **15***a* and **15***b* are formed in the respective plates **14***a*, **14***b* near outer free edges thereof. These holes register with each other and with similar holes in a card **16** to receive rivets **18** which secure the clip assembly to the card, with the tab in folded condition.

The tab has an elongated cutout **20** which defines a keyhole-shaped notch **20'** when the tab is folded in half. The notch extends inwardly from the folded edge **21** of the tab. On opposite lateral sides of the notch **20'**, as viewed in FIG. 1, there are two loops **22***a*, **22***b*. These loops receive slidably two feet **23** extending in opposite directions in alignment with each other outwardly of legs **24** of a spring clip **25**. The spring clip has a generally inverted U-shaped configuration with a straight bight **26**, straight or outwardly bowed upper leg portions **24***a* at the bight **26** and inwardly bowed lower leg portions **24***b*. The feet **23** constitute the free ends of the spring clip.

The straight bight **26** of the clip is enveloped in an integral tongue **27** formed at one end of cutout **20** and folded inwardly over the bight **16** on tab plate **14***a*. This tongue abuts the lower edge **19** of the card **16** as clearly shown in FIG. 2 so that the clip is locked in place and is prevented from displacement in its plane. However, the legs **24** are free to flex so that the inwardly bowed leg portions **24***b* and feet **23** spread outwardly when the cylindrical rod **30** is moved laterally of the clip and tab in a direction parallel to the plane of the card **16** as the rod enters the keyhole notch **20'**. After the rod enters the upper loop of the clip defined by upper leg portions **24***a* and the folded bottom of tongue **27**, the leg portions engage underneath the rod as abutments to hold the rod in the clip assembly. During outward and inward movements of the legs **24**, the feet **23** move axially in the loops **22***a*, **22***b* of the tab so that twisting and displacement of the clip is prevented. The rod **30** can be moved axially in the upper loop of the clip and keyhole notch.

The clip assembly described is an improvement over the clip assembly described in my patent mentioned above, in the improved anchoring of the tab on the card by rivets, in the improved straight bight structure of the spring clip, in the tongue anchor provided for the bight of the clip, and in the locking of the tongue and bight of the clip by the abutment of the bottom edge of the card.

FIGS. 6–9 show a modified clip assembly **10***a* in which tab **40** is molded from flexible plastic material. The tab has a generally rectangular body with two plates or panels **42***a*, **42***b* joined by a central transverse bridge

portion **43**. A slot **44** is defined between upper portions of the plates into which the lower edge **19***a* of a card **16***a* can be inserted. Two laterally spaced holes **45** are formed in plate **42***a*. Two studs **46** are integrally formed with the inner side of plate **42***b* and are disposed in axial alignment with holes **45**. The free ends **48** of the studs are beveled to define cams which extend obliquely across slot **44**. Upper edges **49** of the plates **42***a*, **42***b* are beveled to facilitate entry of the lower edge of the card **16***a* into slot **44**. When the lower edge of the card encounters slanted or beveled ends **48** of the studs, the plate **42***b* is flexed outwardly away from the card and plate **42***a*; then as the studs encounter holes **50** preformed in the card **16***a* near its lower edge, the studs entering holes **50** and then holes **45** to lock the clip assembly to to card.

Keyhole notches **52***a*, **52***b* are formed in the bottom portions of plates **42***a*, **42***b*. Around these notches are generally inverted U-shaped ridges **53***a*, **53***b* defining clips integral with the outer sides of the plates **42***a*, **42***b*. Notches **54***a*, **54***b* are formed on outer lateral edges of both plates **42***a*, **42***b* to facilitate flexing of strip-like plate portions **42'**, **42''** in their planes when rod **30***a* is moved laterally in direction D into the slots **52***a*, **52***b*. The two clips **53***a*, **53***b* cooperate to provide a double grip on the rod after the rod is cammed passed the inwardly bowed leg portions **55** of the clips into the outwardly bowed leg portions **56**.

FIGS. 6 and 7 show the rod **30***a* engaged in the double clip structure while the card **16***a* is engaged in the slot **44** and secured by studs **46**.

In both forms of the invention described, the clip assemblies **10** and **10***a* have spring clips locked to tabs at keyhole notches to prevent lateral displacement of the clips in their planes after the clips are engaged on rods or similar support members. The clip assemblies can be manufactured at low cost by mass production metal or plastic working machinery.

The clip assemblies described have general application for attaching filing cards and guides, for hanging up articles of merchandise for display, and for numerous other uses which will readily occur to users of the clip assemblies.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may

be made within the scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim as new, and desired to secure by United States Letters Patent is:

A clip assembly for a cylindrical object, comprising a flat article having a straight edge, a tab formed from a pliable rectangular sheet metal body folded in half along a transverse line to define two juxtaposed panels, said article having an end portion disposed between said panels with registering holes in the panels and said end portion, rivets engaged in the registering holes securing said panels and said end portion of the article together with a major portion of the tab extending outwardly of said edge of the article, said tab having a centrally located keyhole-shaped notch opening inwardly and longitudinally thereof from the line of said fold, said tab having two loops at the fold line spaced apart by said notch, a generally U-shaped spring clip interposed between said panels and bordering said notch, said clip having a straight bight, a pair of outwardly bowed leg portions adjoining opposite ends of the bight, a pair of inwardly bowed other leg portions adjoining the outwardly bowed leg portions, and a pair of feet extending in aligment in opposite directions outwardly of ends of the respective other leg portions, said feet being slidably engaged in said loops respectively, said tab having a tongue folded inwardly at an inner end of said notch on one panel and enclosing said bight of the clip to prevent lateral displacement of the clip, said outwardly bowed leg portions extending inwardly of the notch and defining a seat for said cylindrical object when inserted laterally into the notch, said inwardly bowed other leg portions extending inwardly of the notch to serve as camming elements spreading apart for admitting said object into the notch and then retracting to serve as abutments for holding said object in the notch, said tongue disposed between said panels and overlapping the edge of said end portion of the article between the panels.

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JEROME SCHNALL, *Primary Examiner.*