Sept. 22, 1970 H. L. MOORE 3,529,371

LATCHING MECHANISM FOR PLASTIC DESK CALENDAR STAND

Filed Oct. 13, 1969

FIG.1

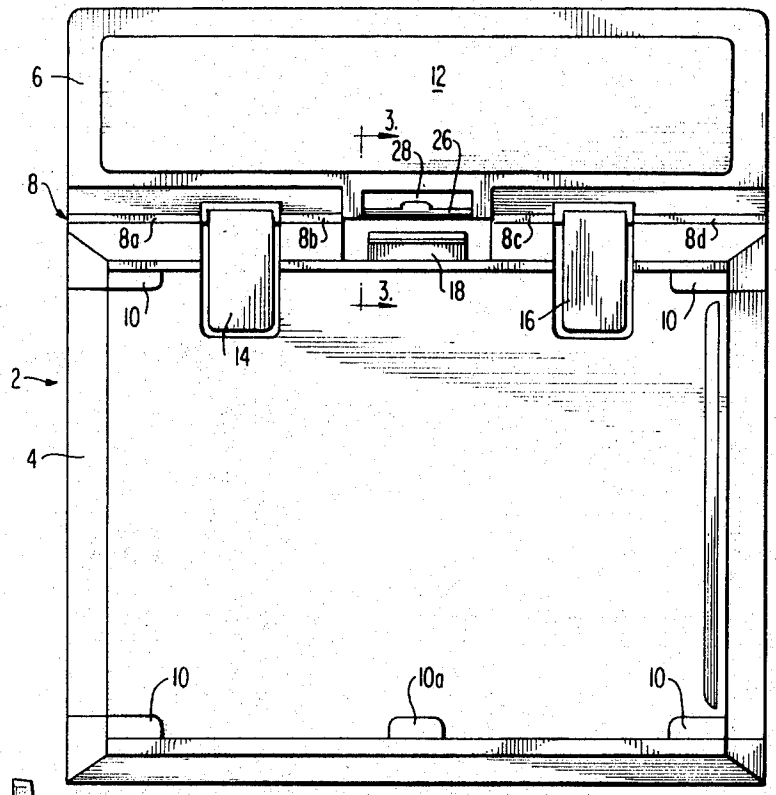


FIG.2

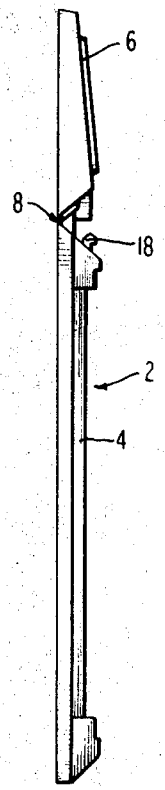


FIG.4

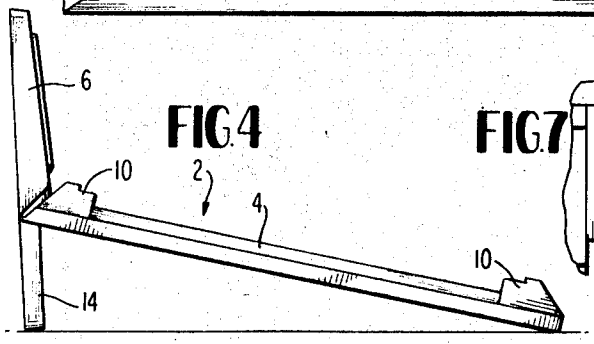


FIG.7

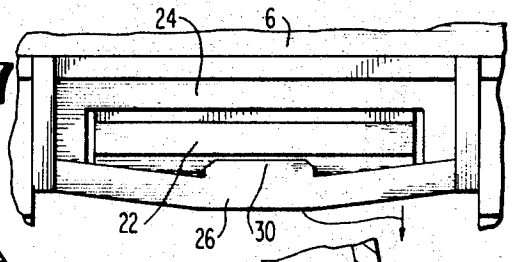


FIG.3

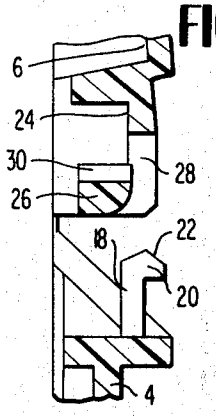


FIG.8

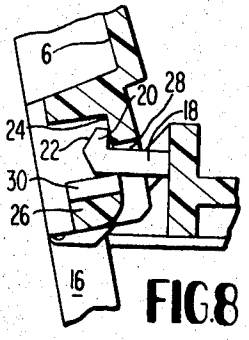


FIG.6

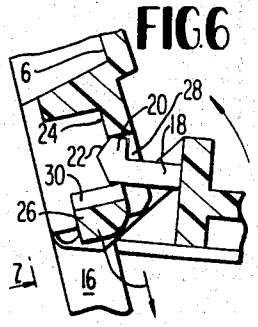
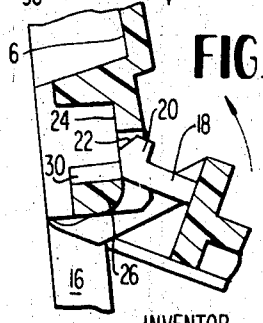


FIG.5



INVENTOR
HOWARD L. MOORE

BY James H. Littlepage
ATTORNEY

3,529,371

LATCHING MECHANISM FOR PLASTIC DESK CALENDAR STAND

Howard L. Moore, Cochranton, Pa. 16314

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Int. Cl. G09d
U.S. Cl. 40—120 4 Claims

ABSTRACT OF THE DISCLOSURE

A desk calendar stand of molded plastic is formed of a base plate and a back plate hinged together and pivotable between a flat condition wherein the plates are generally co-planar to an erected position wherein the plates are disposed at an angle to one another. Latching mechanism snaps into engagement when the back plate is erected.

FIELD OF INVENTION

Card, pictures and sign exhibiting stands.

PRIOR ART

Davidson 3,186,574 and desk calendar stands discussed hereinafter.

OBJECTS

With the advent of plastics, such as the polypropylene which are easily molded, and in which a "living hinge" can be readily formed by thinning out the plastic along a hinge line, several desk calendars formed of this material have appeared. Usually, such calendars are shipped in a flattened condition in which a base portion and a back portion are co-planar. In use, the back portion is pivoted up along a hinge line, and some sort of latch is used to hold the back erect. The problem solved by this invention relates to the latch. Since the plastic elements which constitute these devices are usually thin and springy, most latches are infirm, so that if the calendar stand is accidently bumped or brushed aside, the latch disengages; alternatively, if they rely upon less flexible elements, they are too stiff for easy working. The object now is to provide a latch which will take advantage of the springiness of the plastic to ensure easy engagement of the latching parts, while nevertheless providing secure holding against unintentional disengagement. These and other objects will be apparent from the following specification and drawings, in which:

FIG. 1 is a plan view of the desk calendar support flat condition;

FIG. 2 is a side elevation of the desk calendar support as shown in FIG. 1;

FIG. 3 is a fragmentary cross-section along the line 3—3 of FIG. 1 showing the parts of the locking mechanism disengaged;

FIG. 4 is a side elevation of the desk calendar in erected condition;

FIG. 5 is a fragmentary cross section similar to FIG. 1, but showing the parts of the locking mechanism at the start of engagement, as the back plate is being erected;

FIG. 6 is a fragmentary cross section similar to FIG. 5, but showing the parts of the locking mechanism during an intermediate phase of engagement;

FIG. 7 is a fragmentary bottom plan view of the locking mechanism as seen in the phase of engagement shown in FIG. 6; and,

FIG. 8 is a fragmentary cross section similar to FIGS. 5 and 6, but showing the locking mechanism in fully engaged position, wherein the back plate is erected as in FIG. 4.

Referring now to the drawings, in which like reference

numerals denote similar elements, the calendar stand **2** is formed of one piece of molded plastic, preferably polypropylene, and comprises a base **4** and a back **6** connected by a "living hinge" **8**, i.e., thinned-out portions **8***a*, **8***b*, **8***c*, **8***d* along a hinge axis. The base is provided with ledges **10**, **10***a* for holding down a calendar (not shown), and the back has a panel **12** upon which a suitable advertising message may be placed or imprinted. Tongues **14**, which are struck from base **4** and which are integral with back **6** and which extend across the hinge axis, are provided for propping the base in inclined position (FIG. 4) when back **6** is erected.

The latch with which the invention is primarily concerned includes a generally flat tongue **18** which extends rearwardly from the central portion of base **4**, near the free end of which tongue is a hook-like ridge **20** and on the end of which is a wedge-shaped nose **22**. The free end of tongue **18** and ridge **20** are parallel to the hinge axis. On back **12** and generally opposite tongue **18** is a ledge **24** and a strap **26** defining therebetween a slot **28**. Ledge **24** is offset from and parallel to the hinge axis. A projection **30** along the central portion of strap **26** narrows the slot so that ordinarily its width is less than the thickness of the free end portion, including the ridge **20**, of tongue **18**.

When the calendar stand is shipped, it is normally flat as shown in FIGS. 1 and 2. When it is in normal use, the back is erected as shown in FIGS. 4 and 8. FIGS. 5–8 illustrate the latching as back **4** approaches erection. As shown in FIG. 5, the lower inclined surface of wedge-shaped nose **22** has engaged projection **30** on strap **26**, and the upper inclined surface of nose **22** is about to engage the edge of ledge **24** so that the free end of tongue **18** is about to spread strap **26** away from ledge **24**. As back **6** swings further upwardly, the lower surface of wedge-shaped nose **22** is forced against projection **30** so as to push the strap aside. FIG. 7 shows with some exaggeration the displacement of strap **26**. When the back has swung upwardly sufficiently, ridge **20** snaps in behind ledge **24**. In FIG. 8 it will be apparent that, what with strap **26** engaging the side of tongue **18** opposite ridge **20**, the latter is trapped behind ledge **24**, and it cannot become unhooked unless sufficient force is applied to bend tongue **18**, strap **26**, and the material at ledge **24**. Thus back **6** is securely latched in erected condition.

I claim:

1. A one-piece plastic desk calendar stand, comprising:

a base plate,

a back plate integrally joined to the base plate along a "living" hinge axis,

said base and back plates being pivotal relative to one another along said hinge axis between a flat condition in which said plates are substantially coplanar and an erected condition in which said plates are disposed at an angle to one another, and

latch means for holding said plates in erected condition, comprising,

a generally flat tongue on one of said plates,

said tongue having a free edge portion terminating in a free edge disposed towards the other of said plates and parallel to the hinge axis, and

a ridge extending parallel to the hinge axis across said free edge portion adjacent said free edge,

the other of said plates having a ledge having a free edge disposed towards and parallel to the hinge axis and offset therefrom away from said hinge axis and so disposed with respect to said tongue as to swing about an arc, the radius of which pivots around said hinge axis, which intersects the ridge on said tongue when said plates are pivoted from said flat condition to

said erected condition, whereby, as said plates are pivoted to erected condition, said ledge engages the ridge and flexes the tongue to permit said ridge to snap behind said ledge and thereby retain said plates in erected condition.

2. A one-piece desk calendar stand as claimed in claim 1, the free end portion of said tongue being wedge-shaped.

3. A one-piece desk calendar stand as claimed in claim 2,

said other plate having thereon a strap having opposite ends integral therewith, said strap being parallel to and spaced from said ledge so as to define therebetween a slot through which the free end portion of said tongue and the ridge thereon pass when said plates are pivoted to said erected condition, and

a projection on an intermediate portion of said strap, said projection extending into said slot and the distance between the projection and the ledge being less than the thickness of the tongue adjacent the free edge, including said ridge,

whereby, when the free edge of said tongue, including said ridge, enter said slot, said strap is displaced thereby as ridge snaps over said ledge, and

whereby, in order to pivot said plates from erected condition towards said flat condition, said strap must be similarly displaced.

4. A one-piece desk calendar as claimed in claim 1, said one plate being the base plate and said other plate being the back plate, said back plate having thereon a spaced pair of tongues extending across said hinge axis and being accommodated and recessed in said base plate when said plates are in flat condition, whereby when said plates are pivoted to erected condition, the last-named tongues swing downwardly to constitute props for supporting said base plate inclined relative to a supporting surface.

References Cited

UNITED STATES PATENTS

3,186,574	6/1965	Saxe	40—120
3,208,171	9/1965	Davidson.	

EUGENE R. CAPOZIO, Primary Examiner

J. H. WOLFF, Assistant Examiner

U.S. Cl. X.R.

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