United States Patent [19]

Perez

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[54] **POSTER BOARD FOR ACCOUNTING FORMS**

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[52] **U.S. Cl.**.....**282/29 B,** 402/60, 402/69, 402/70, 402/80 R

[51] **Int. Cl.**.....**B41l 3/04,** B41l 3/06

[58] **Field of Search**....282/29 R, 29 A, 29 B; 281/29, 281/45; 402/69, 68, 74, 71, 80; 40/104.13

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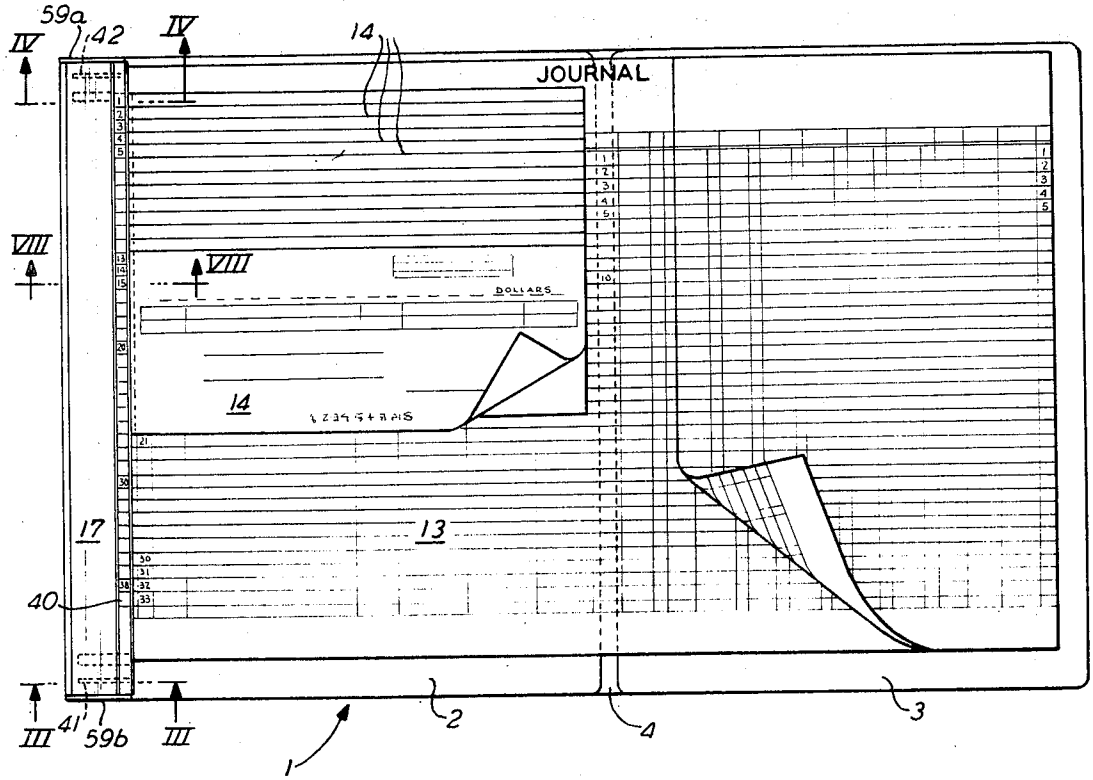
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[57] **ABSTRACT**

A folding poster board on which accounting forms are mounted, including a clamping means for clamping the forms to the board and a stripper plate for stripping forms from the board. A separate operating plate is provided for operating the stripper plate. The clamping member is mounted for rotation about a first axis, and the stripping plate and operating plate are mounted for rotation about a second axis parallel to and spaced from the first axis. Toggle spring means holds the clamping member resiliently in its open and closed positions. The operating plate for the stripper plate is resiliently biased away from the latter towards a relative position where further movement of the operating member will operate the stripper member. The board comprises first and second board members hinged together. When the second board member is folded over to cover the first board member, the clamping member, when moved to closed position, will engage the second board member and thereby prevent the poster board from inadvertently coming open.

2 Claims, 8 Drawing Figures



2 Sheets-Sheet 1

FIG. 1

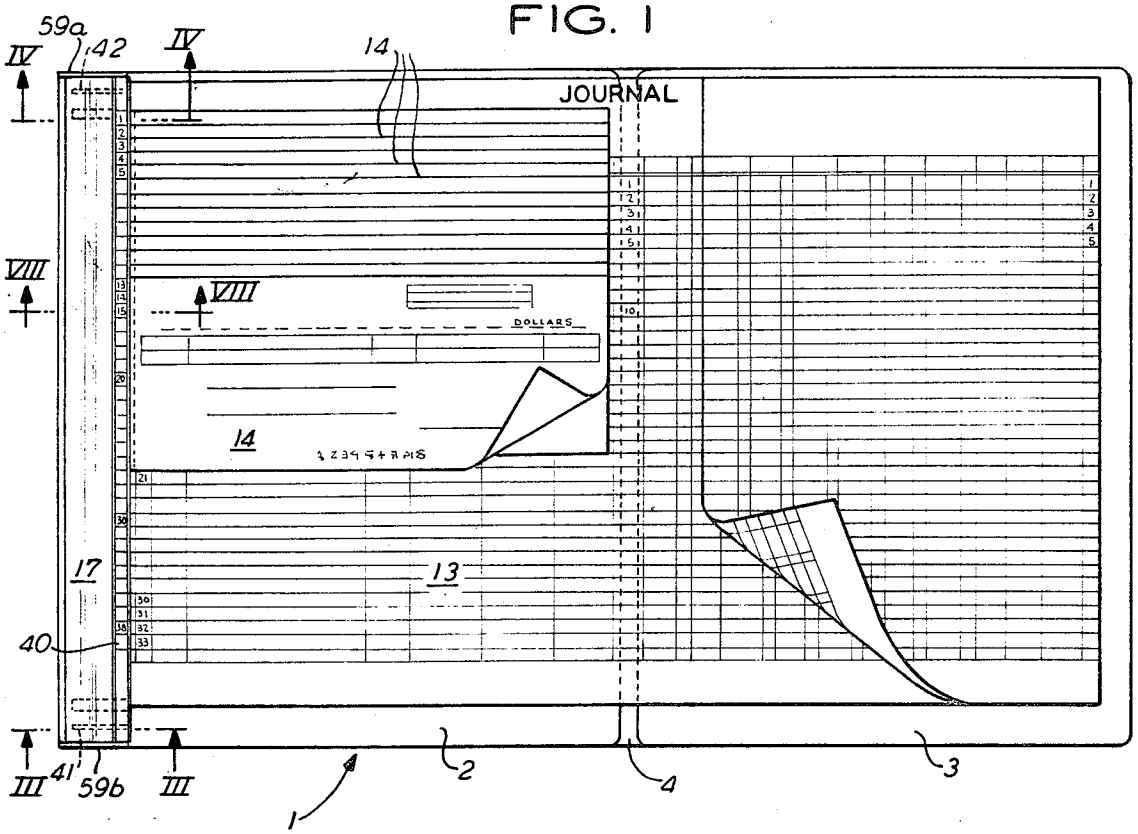
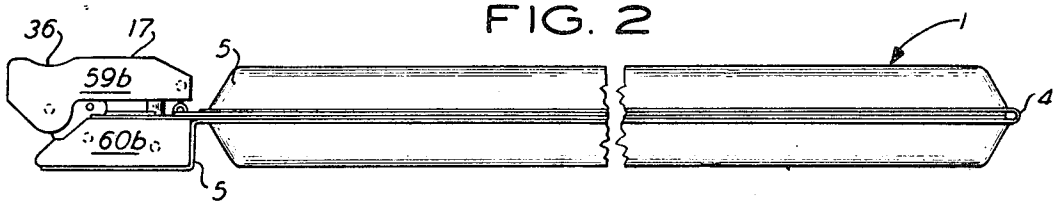


FIG. 2



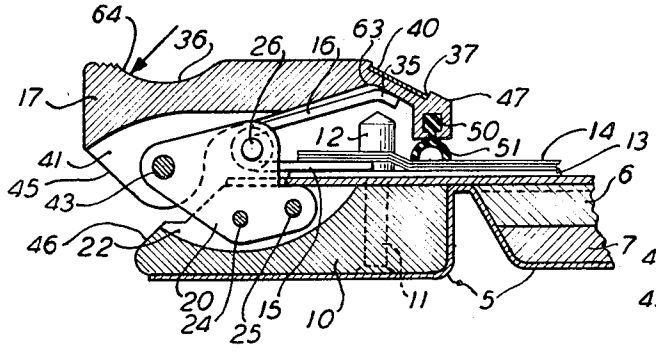
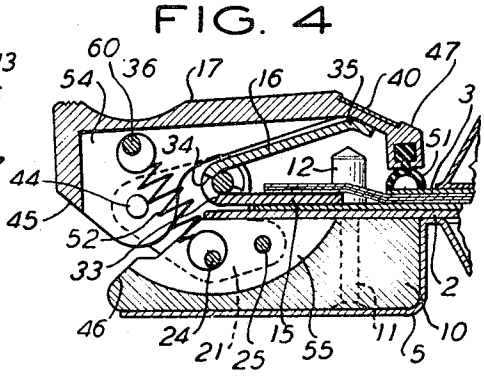


FIG. 3

FIG. 4



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2 Sheets-Sheet 2

FIG. 5

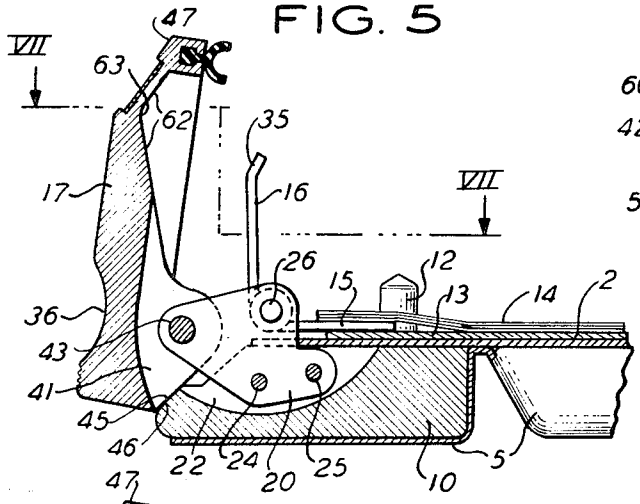


FIG. 6

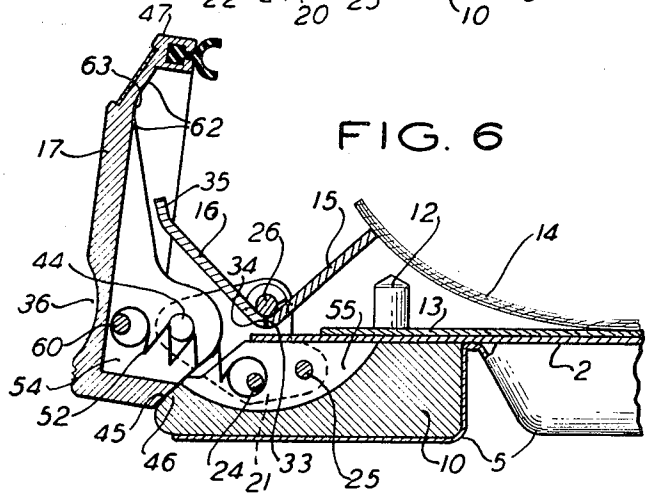


FIG. 7

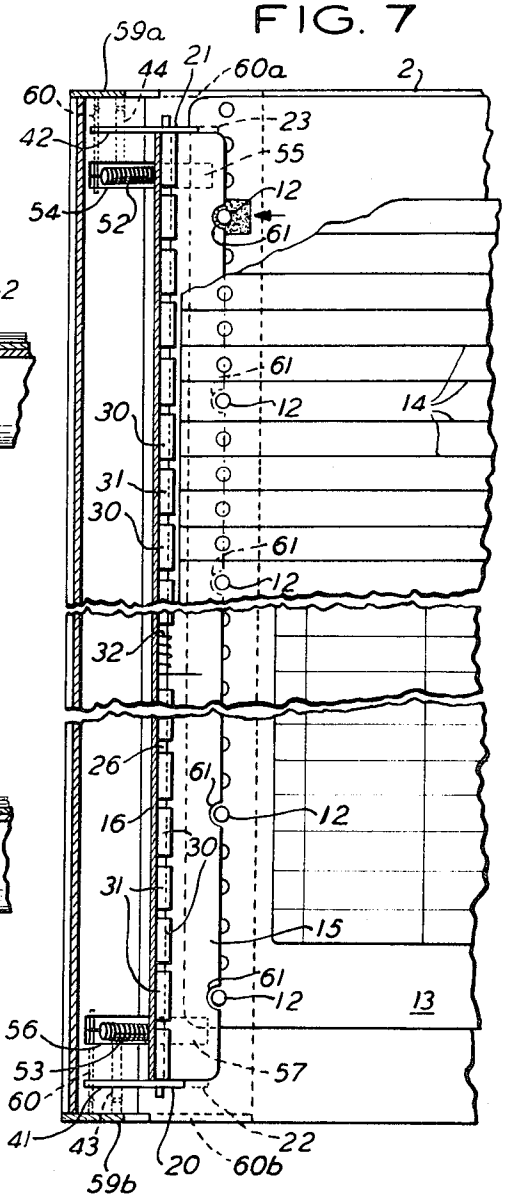
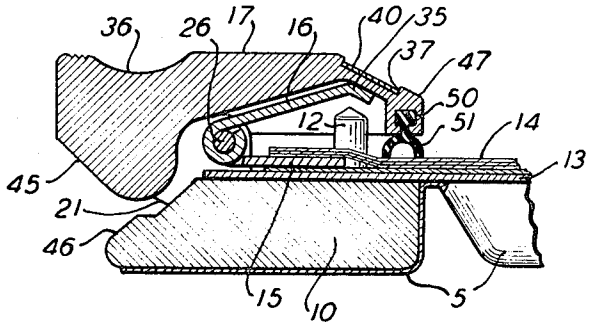


FIG. 8



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POSTER BOARD FOR ACCOUNTING FORMS

BACKGROUND OF THE INVENTION

This invention pertains to poster boards of the type used in manual posting operations.

Boards of this type are well known in the prior art. In one form of such board, there is provided a stripper member for lifting forms from the mounting posts on which the forms are held on the board; and a clamping member for holding the forms securely on the board. The clamping member and the stripper member are journaled for rotation about the same axis. When the clamping member is swung open to a predetermined angular position relative to the stripper member, it engages portions of the stripper member whereby further outward movement of the clamping member causes the stripper member to operate. Such an arrangement, where the clamping member and the stripper member rotate about the same axis, and where the stripper member is operated by the opening movement of the clamping member, has certain disadvantages.

For one thing, after the clamping member has been opened beyond a given position, invariably any further opening movement of the clamping member will cause the stripping member to be operated, whether this is desired or not. Thus, the operator may inadvertently strip forms from the poster board even though this was not intended.

The foregoing and other disadvantages of prior art devices are avoided by the present invention.

SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a poster board having a clamping member for clamping the forms to the board, a stripper member for stripping the forms from the board and a separate operating member for operating the stripper member. The operating member operates the stripping member to perform its stripping function entirely independently of the opening movement of the clamping member. The clamping member is mounted for movement about a first axis of rotation, and the stripper and operating members are mounted for rotation about a second axis of rotation separate from the first axis of rotation.

In the preferred form of the invention disclosed herein, toggle spring means are provided to resiliently maintain the clamping member in its open and closed positions. A spring biases the stripper operating member to move to a position where it stands at a maximum angle relative to the stripper member. In this relative position of these two members, any further movement of the operating member away from the stripper member will cause the stripper member to move with it and thereby perform its stripping function.

In the closed position of the clamping member, its undersurface holds the stripper operating member downwardly against the bias of the last-mentioned spring. When the clamping member is opened, that spring raises the stripper operating member to substantially vertical position, where it is readily accessible to be manually engaged to cause the stripper member to operate.

As an additional feature of the invention, when the folding poster board is folded over on itself to closed position, the clamping member when swung downwardly to its closed position will engage the folded-over board member and thereby hold the poster board in closed position.

As a further feature, the exterior of the clamping plate is so configured as to facilitate manual opening of the plate with the pressure of one finger.

It is a major object of this invention to provide a novel poster board.

It is a further object to provide a poster board having a stripper means and clamping plate, wherein the stripper means is operated independently of the opening of the clamping plate.

It is a further object to provide a poster board having a stripper means, a clamping plate, and a separate means for operating the stripper means independently of the opening of the clamping plate.

It is a further object to provide a poster board having a stripper means and clamping plate mounted for rotation about separate and independent axes.

It is a further object to provide a poster board having a clamping plate configured so as to facilitate manual opening of the plate.

It is a further object to provide a folding poster board having a clamping plate which is effective to hold the poster board in closed, folded condition.

The above and other objects, advantages, and features of the invention will become apparent to those of ordinary skill in the art from a reading of the following detailed description of a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a top plan view of a folding poster board constructed in accordance with the invention, the board being shown in open position and with the accounting forms mounted thereon.

FIG. 2 is a front elevational view of the poster board in closed position.

FIG. 3 is a fragmentary enlarged detail sectional view taken on line III—III of FIG. 1.

FIG. 4 is a view similar to FIG. 3, but taken on line IV—IV of FIG. 1, the poster board being shown in folded-over, closed condition.

FIG. 5 is a view similar to FIG. 3, but with the clamping plate in open position.

FIG. 6 is a view similar to FIG. 4, the stripper plate having been operated to remove forms from the mounting posts.

FIG. 7 is a fragmentary top plan view of the poster board partially in section, taken on line VII—VII of FIG. 5.

FIG. 8 is a view similar to FIG. 3 taken on line VIII—VIII of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, the overall folding poster board 1 is best seen in FIGS. 1 and 2. FIG. 1 shows the board open; FIG. 2 shows it closed. Board 1 includes two flat board members 2 and 3 on which accounting forms are adapted to be supported for conventional manual posting operations. Board member 3 is adapted to be pivoted inwardly along a hinge line 4 between the two board members, so as to overlie board member 1 when the poster board is not being used.

A thin cover sheet 5, which may be a leather-simulating vinyl plastic film of any suitable color, is provided on the outer (lower in FIG. 1) sides of the board members. Interposed between the board members and sheet 5 are relatively thick stuffer sheets 6, 7 of any desired material such as cardboard. Sheet 5 is bonded to the faces of board members 2 and 3 adjacent the entire peripheral top and bottom edges and both side edges of both board members.

The portion of sheet 5 which bridges the adjacent confronting edge portions of the two spaced board members provides the hinge line 4 about which board member 3 is rotated between the open position of FIG. 1 and the closed position of FIG. 2.

Disposed beneath and lying along the entire lower left side edge portion of board member 2 is an elongated bar 10, the two being secured together by a fore and aft extending row of pins 11. The upper portions of pins 11 are enlarged in diameter and terminate in uppermost conical portions, to form a row of mounting posts 12 upon which accounting forms having correspondingly spaced mounting perforations are mounted. Such forms typically comprise a lowermost journal sheet 13 and a set of shingled overlying item sheets 14, e.g. checks, to be posted to the journal sheet. It will of course be understood that many different types of accounting forms can be used with the present poster board.

The aforementioned cover sheet 5 extends to the left to cover the right side edge and underside of bar 10, to which it is bonded.

The poster board 1 includes a rotatable stripper plate 15 which underlies the left side edge portion of the item sheets or forms 14 mounted on posts 12. A rotatably manual operating member 16 is provided for the stripper plate. When the operating member 16 is operated, it causes the stripper plate to rotate upwardly to strip the sheets off the posts 12. There is also provided a clamping plate 17, which is rotatable between an effective closed position where it engages the forms to hold them securely on the poster board (FIG. 3) and an open ineffective position (FIG. 5). The details of construction of the foregoing parts will now be described.

Two longitudinally spaced identical mounting brackets 20, 21 are respectively rigidly secured to bar 10 at the upper and lower end portions of the latter. As best seen in FIGS. 3, 5, and 6, the lower end portions of the brackets are disposed in related transverse slots 22, 23 of bar 10, and are rigidly secured to the bar by short longitudinal pins 24 and 25. The portions of brackets 20, 21 that extend laterally outwardly and upwardly out of the slots 22, 23 mount rotational axis-defining means for the aforementioned stripper plate 15 and clamping plate 17. The hinge axis for the stripper plate 15 is provided or defined by an elongated longitudinally extending shaft 26 supported at its opposite ends in brackets 20 and 21. Stripper plate 15, and its operating plate 16, are of pianohinge type of construction wherein the stripper plate is one leaf of the hinge and the operating plate is the other leaf. Both plates or leaves are provided respectively with a series of alternately disposed turned-over loop portions 30 and 31 (FIG. 7) through which the hinge shaft 26 extends. As seen in FIG. 7, the stripper assembly, comprising stripper plate 15 and operating plate 16, extends substantially the full fore and aft length of the poster board, and just fits between the top and bottom mounting brackets 21 and 20. As seen in this same FIGURE, the hinge shaft 26 is slightly longer than the stripper and operating plate elements, and is supported at its free outer end portions in said brackets.

What would have been the approximately central or nearly so one of the shaft encircling turned-over loop portions 31 of stripper plate 15 is omitted. In its place, there is provided a light coiled torsion spring 32 encircling shaft 26. Of course, spring 32 can be provided wherever desired along the longitudinal extent of the stripper plate assembly. The opposite ends of spring 32 respectively engage the stripper and operating plates 15 and 16 to lightly bias these members away from each other. The maximum angular distance that these two elements can rotate apart from each other is approximately 95° (FIGS. 5,6) as limited by mutually cooperable shoulders 33, 34 (FIGS. 4, 6) of the respective loop portions 30 and 31 coming into abutting contact with each other.

The outer free edge portion 35 of operating plate 16 is offset by being bent slightly inwardly as shown. As will be described in greater detail subsequently, the stripper plate 15 is operated by pushing to the left on the inside of the operating plate 16. The just-described offset 35 makes it easier for the operator to grasp the operating plate and also makes it less likely that her fingers will slip off the plate. As will also be described, the outer surface of this inwardly offset portion 35 cooperates with the inside concave face of the clamping plate 17 in the nature of a cam surface so that as the latter is swung shut from its FIG. 5 position, when it engages this offset the closing of the clamping plate will be effective to push the operating plate 16 down.

The clamping plate 17 will now be described in detail. It is of the cross-section shown in FIG. 8 throughout its entire length, except as described subsequently. It includes on its outer side a shallow arcuate longitudinal groove or recess 36 and a very shallow square cut longitudinal recess or groove 37. The arcuate groove 36 is adapted to receive the finger or fingers of an operator for manual opening and closing of the clamp plate. A lined index strip 40 is pasted in recess 37. Strip 40 contains line-identifying sequential numbering corresponding in spacing to the lines of the accounting forms which will be mounted on the posts 12. This is best seen in FIG. 1.

The upwardly and outwardly extending portions of each previously described mounting bracket 20, 21 extends into related narrow slots 41, 42 (FIGS. 1, 7) provided in the clamping plate 17. Two aligned short pins 43, 44 are press-fitted in passages extending longitudinally inwardly from the fore and aft ends of the clamping plate (FIG. 7). Each of these pins extends through a corresponding aperture of the respective adjacent mounting brackets 20 and 21 with a sliding fit, whereby the pins and therefore the clamping plate are rotatably supported on the mounting brackets.

The pins 43, 44 rotatably supported in brackets 20, 21 thus define an axis of rotation for the clamping plate which is separate and spaced from the axis of rotation defined by shaft 26 for stripper plate 15 and stripper operating plate 16. These two longitudinally extending axes are substantially parallel.

The clamping plate is rotatable between the maximum open counterclockwise position of FIGS. 5 and 6, as limited by the lower rear edge 45 of the plate abutting the adjacent portion 46 of bar 10; and the effective closed clockwise clamping position of FIGS. 3 and 4. To provide better clamping contact between clamping plate 17 and the forms clamped thereby, the plate is provided along its depending righthand free end portion 47 with a downwardly opening slot 50 in which is mounted the upper side edge portion of a downwardly opening channel-shaped clamping strip 51 of rubber or other elastomeric material.

The clamping plate is resiliently held in its open and closed positions by upper and lower toggle or off-center coil springs 52 and 53 respectively disposed in pairs of aligned transverse slots 54, 55 and 56, 57 of bar 10 and clamping plate 17 (FIGS. 4, 6, and 7). The right-hand ends of the toggle springs are hooked over the aforedescribed longitudinal pins 24 which respectively extend through slots 55 and 57 of the bar. It will be recalled that pins 24 together with pins 25, serve to mount brackets 20 and 21 to the bar 10. The left hand ends of the toggle springs 52, 53 are hooked over short longitudinal pins 60 which are press-fitted into clamping plate 17 from both ends thereof and extend through the slots 54 and 56 of this plate (FIG. 7).

As shown in FIG. 4, it will be noted that in the closed position of the poster board, i.e., when right hand board member 3 is folded inwardly to lie on the left hand board member 2, the clamping plate 17 is of sufficient width so that when it is closed, the clamping strip 51 thereof bears against board member 3. Hence, in this position of the parts, the clamping plate is effective to hold the poster board in closed, folded condition, and will prevent the board from inadvertently flying open and possible loss of the forms which may be mounted on the board at that time.

The opposite longitudinal ends of the clamping plate 17 are covered by suitable plastic end caps 59*a* and 59*b* secured to the clamping plate in any suitable fashion. The opposite longitudinal ends of bar 10 are provided with similar end caps 60*a* and 60*b*.

The poster board of the present invention is used as follows. Assuming that there are no forms mounted on the board, the clamping plate 17 is manually swung to open position, where it is resiliently held by the toggle springs 52, 53 (FIG. 5). The stripper operating plate 16 is pushed to the left to swing, through the abutting shoulders 33, 34, the stripper plate 15 upwardly to the position shown in FIG. 6. The journal sheet 13 is then mounted over posts 12 and is pressed downwardly to lie flat against the upper surface of board members 2 and 3. The stripper plate 15 is then pushed downwardly to its horizontal position of FIG. 5 abutting the upper face of journal sheet 13, rotating the operating plate 16 with it through cooperable shoulders 33, 34. As described earlier, the stripper operating plate 16 is at all times under the counterclockwise bias of light spring 32 and therefore in both the FIG. 5 and 6 positions will stand at its maximum possible angular displacement from the stripper plate which, as stated before, is about 95°.

It should be noted at this juncture that, as best seen in FIG. 7, the right hand side edge of stripper plate 15 extends a short distance to the right beyond the leftmost sides of the forms 13, 14 and mounting posts 12. Therefore, to permit the stripper plate to swing downwardly past posts 12, it is provided along its right side edge with arcuate clearance cut-outs 61 for said posts 12. Now, the item forms 14 (e.g., checks to be posted to journal sheet 13) are mounted on posts 12 over the stripper plate 15. The position of the various components is now as shown in FIG. 5. After the item forms 14 have been mounted on the posts 12, the clamping plate 17 — which is still in its counterclockwise open position — is manually pushed downwardly to the right. In the course of this movement, toggle springs 52 and 53 will be moved through their center position and will snap to the other side thereof, in turn pulling the clamping plate down to its closed position of FIG. 3. In this position of the clamping plate, its clamping strip 51 firmly presses down on the forms mounted on the board, under the bias of the toggle springs.

In the course of the downward closing movement of the clamping plate 17, its concave under surface 62 will engage the laterally offset portion 35 of the stripper operating plate 16 and push the latter down to the position shown in FIG. 3. In the course of this downward movement, the clamping plate will first engage the operating plate 16 just before the vertex or base 63 of concave surface 62. Then, as the downward movement continues, because of the spaced axes of rotation of the two members the contact area between them will move towards vertex 63 and will ultimately terminate on the other side thereof as shown in FIG. 3. The offset 35 of operating plate 16 and the concave undersurface 62 of the clamping plate 17 are essentially so contoured as to provide cooperable camming surfaces. At all times during the downward closing movement of the clamping plate, these camming surfaces will cause a significant amount of the force transmitted to the operating plate 16 by the clamping plate 17 to be transmitted essentially tangentially to the current angular position of the operating plate 16 so as to apply a rotating torque thereto, with a minimum of the transmitted force being applied radially towards plate 16's axis of rotation, which might otherwise cause jamming of the parts. The final closed position of the parts is as shown in FIG. 3, with the clamping strip 51 of the clamping plate 17 firmly pressing the forms down on the board to prevent their inadvertent dislodgment from the mounting posts 12.

It it is desired to temporarily discontinue using the board but leave the forms thereon, the clamping plate is opened to its FIG. 5 position and board member 3 swung inwardly to overlie board member 2, as shown in FIGS. 2 and 4. The clamping plate is then swung downwardly to its closed, clamping position. As mentioned earlier, the clamping plate extends sufficiently far to the right so that when it is in closed position, its clamping strip 51 will bear against the now-topmost surface of the folded-in board member 3, as shown in FIG. 4. Thus, the clamping plate is effective to keep the board in closed position and will prevent it from inadvertently flying open when the closed posterboard is being handled, either with or without forms mounted in it.

When it is desired to remove the checks or other forms 14 mounted on posts 12, the clamping plate 17 is swung to its open position. In the course of this movement, the stripper operating plate 16 will be rotated by

light coil spring **32** to the plate's upright position of FIG. **5**. It will be recalled that this relative angular positioning of the stripper plate **15** and the stripper operating plate **16** is determined by the abutting shoulders **33**, **34** of the respective looped over portions **30**, **31** of these two plates coming into abutting contact with each other. The stripper operating plate **16** is now manually pushed to the left, i.e., to rotate counterclockwise about shaft **26**. Through the aforementioned abutting shoulders **33**, **34** the leftward movement of the operating plate will cause corresponding rotary movement of the stripper plate **15**, as shown in FIG. **6**, about the same shaft **26**. As the stripper plate is moving upwardly from its substantially horizontal position of FIGS. **3** and **4**, it will lift the overlying forms **14** off the mounting posts **12**, whereby the forms can now easily be removed from the board.

The opening of the closed clamping plate **17** is facilitated by the plate's longitudinal arcuate groove **36**. The left thumb of the operator need merely be laid in this groove and lateral pressure applied by the thumb downwardly and to the left against the left hand side wall portion **64** of this groove, in the general direction of the arrow shown in FIG. **3**. The resulting counterclockwise torque on the clamping plate will be sufficient to open the plate against the bias of the toggle springs **52**, **53**.

While there has been shown and described a specific preferred embodiment of the invention, it will be understood that the invention and its principles and features can be practiced in numerous modified forms. Accordingly, it is intended that the preceding disclosure of a specific embodiment of the invention is intended to be illustrative only, and not in any way limitative of the following claims.

I claim:

1. A poster board comprising:

board means including at least a first horizontal board member for supporting at least one accounting form, said accounting form being provided with a row of preformed mounting holes;

mounting means on said board member for mounting said form thereto, said mounting means comprising a row of mounting pins rigidly secured to and fast with said board member, and adapted to extend through said holes in said form to hold said form on said board;

means mounted on said board member and defining first and second axes of rotation extending in generally the same direction as said row of pins and horizontally spaced from each other, said second axis being between said first axis and said row of pins;

clamping means for clamping said form to said board member, said clamping means being mounted for rotation about said first axis in one direction to an open, non-clamping position and in the opposite direction to a closed, clamping position;

a stripper member rotatably mounted for operating movement about said second axis from a given position abutting the surface of said board member and underlying said form when the latter is mounted on said board member, to another position and effective to strip said overlying form from said pins in the course of said movement from said given position to said another position;

a manually engageable and operable operating member for operating said stripper means independently of the movement of said clamping means when said clamping means is in its open position, said operating member being mounted for rotation about said second axis and being rotatable relative to said stripper member about said second axis;

means operable, upon rotation of said operating member to a given position away from said stripper member, to cause further movement of said operating member in the same direction to cause operation of said stripper member, said last-mentioned means comprising cooperable interengageable portions of said stripper member and said operating member;

spring means for resiliently urging said operating member to move to said given position relative to said stripper member;

said clamping means when in its closed position holding said operating member downward toward said stripping member against the resilient urging of said spring means in the opposite direction;

said clamping means when in closed position overlying and shielding said stripper and operating members.

2. The combination according to claim **1**, wherein:

said clamping means includes means defining an external elongated finger-receiving recess, said recess including a lateral wall portion at least a portion of which comprises an oblique upwardly and laterally inwardly facing surface disposed on the opposite side of said first axis of rotation from the second axis of rotation, the arrangement being such that when said oblique surface is manually pushed against, there will be provided a force component directed to cause movement of said clamping means about said first axis from closed to open position.

* * * * *