Oct. 10, 1961 J. ZALKIND 3,003,502

DEVICE FOR HOLDING PAPER SHEETS

Filed Feb. 20, 1956

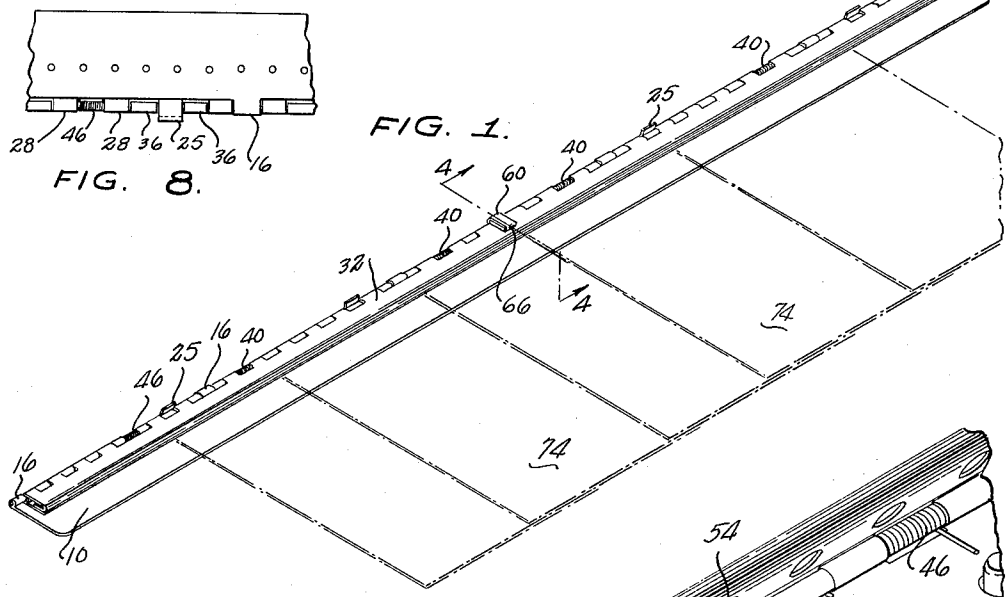


FIG. 1.

FIG. 8.

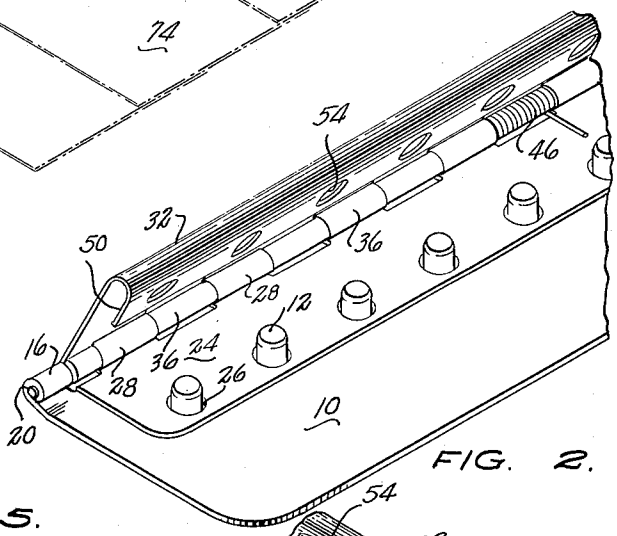


FIG. 2.

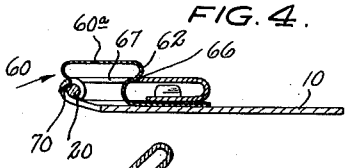


FIG. 4.

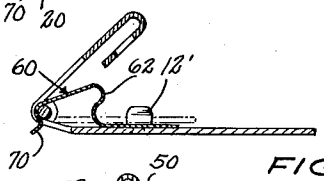


FIG. 5.

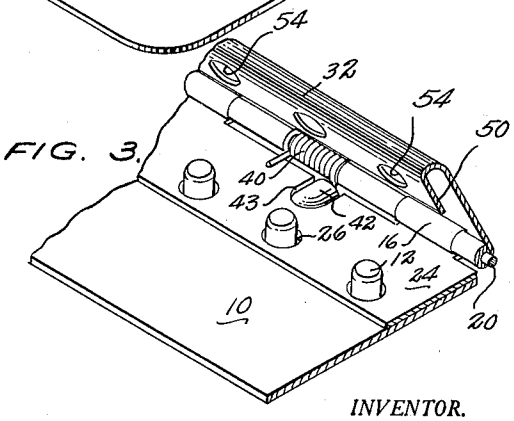


FIG. 3.

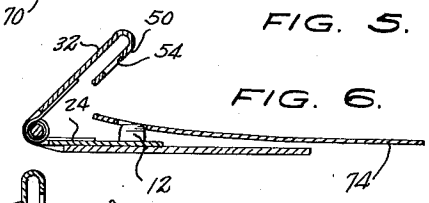


FIG. 6.

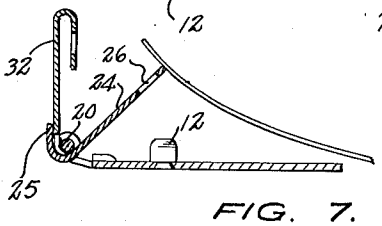


FIG. 7.

INVENTOR.
JOSEPH ZALKIND,

BY

Albert M. Zalkind

ATTORNEY.

United States Patent Office 3,003,502 Patented Oct. 10, 1961

3,003,502

DEVICE FOR HOLDING PAPER SHEETS

Joseph Zalkind, 22 W. 22, New York, N.Y.

Filed Feb. 20, 1956, Ser. No. 566,456
15 Claims. (Cl. 129—23)

This invention relates to manifolding devices and more particularly to a device for holding a series of sheets in staggered array.

A particular object of my invention is to provide a structure which may readily grip a series of paper sheets overlaying a continuous record form, there being a carbon sheet intermediate the plurality of sheets and the record form. This basic arrangement has many uses in the business world in conjunction with billing systems, payroll systems, and the like.

Another object of my invention is to provide a simple, mechanical arrangement of elements which precludes the necessity for thrusting each paper of a series down over a plurality of aligning pins. Thus, my invention has means wherein perforated sheets may be merely placed over pegs provided in the device and wherein operation of the device forces the sheets into a clamped condition, the pegs of the device then automatically coming through the perforations in the sheets.

A further object of my invention is to provide a device having an element which will automatically strip the paper sheets from the pegs when it is desired to unclamp the sheets.

A still further object of my invention is to provide a device having a simple and inexpensive mode of locking the elements thereof against motion when all the sheets of a series have been clamped therein.

An even further object of my invention is to provide a simple, mechanical construction which will be rigid and durable despite an unusually long length and will hold a long series of sheets.

Briefly, my invention comprises an elongated base element to which is hingedly secured a stripper element and a clamp element. The base element is provided with a series of aligned pegs or pins which protrude through registering apertures of the stripper element, the stripper element being normally in contiguity with the base element. The clamping element co-acts with the pegs in such a manner that the sheets to be clamped need only be placed with respect to the pegs so that the perforations in the sheets are in registry with the tops of the pegs. The sheets need not be finger pressed by the operator; when the clamping element is swung toward the sheets, thus arranged, the pegs are forced through perforations of the clamping element.

A further important object of my invention is obtained by so constructing the clamping element that the pegs are concealed when the device is in closed condition.

The three elements generally described above form, in effect, a three-piece piano hinge all pivoted about a common pintle. Normally the stripper plate is biased against the base so that when sheets are disposed thereon the stripper element is below the sheets. However, the construction and arrangement is such that when the clamp bar is swung to unclamping position it is capable of lifting the stripper plate, thus lifting all of the sheets simultaneously off the pegs. The clamping element is biased away from the base and stripper elements, but when swung thereto can be locked in clamping position.

A detailed description of my invention will now be given in conjunction with the appended drawing in which:

FIG. 1 is a perspective illustrating the general appearance of my device.

FIG. 2 is a magnified perspective of one end of the device in open condition.

FIG. 3 is a magnified perspective of a portion of the device showing certain details.

FIG. 4 is a section through 4—4 of FIG. 1.

FIGS. 5, 6, and 7 show various positions of the elements of the device as they would occur in use.

FIG. 8 is a bottom plan of a portion of the device.

Referring now to the drawing, the invention comprises a base plate **10** of elongated and narrow form which carries a series of aligned pegs **12** which may be affixed thereto as by peening or other suitable method. The base **10** has straps **16** formed at the ends thereof and at other places to accommodate an elongated pintle **20** which extends the length of the base.

Pivoted in hinge arrangement about the pintle **20** is a stripper plate **24** having fingers **25** at spaced points along a longitudinal edge and comprising a flat plate with perforations **26** which register with the pins **12** so that as the stripper element moves clockwise, as viewed on FIG. 7, the pins **12** will protrude through the perforations **26**, as clearly seen on FIG. 2. The same longitudinal edge of the stripper element **24** is formed with a series of loops or straps **28** through which the pintle **20** passes so that the stripper plate can pivot about the axis of the pintle. A clamping element **32** is in a similar manner provided with straps **36** which curl about the pintle so that the clamping element may swing toward or away from the base **10**, and engage fingers **25** (FIG. 7) for a purpose to be hereinafter described.

From the description thus far it will be apparent that the elements **10**, **24**, and **32** are all relatively pivotal with respect to each other about the pintle **20**, the base **10** being intended to rest flat on a writing board or table.

A plurality of torsion springs **40** (FIG. 3) are carried on a pintle. One end of each spring bears against the stripper plate **24** while the other end is secured in an open-ended dimple **42** struck from the material of the base **10**. Cut-outs **43** in stripper plate **24** accommodate dimples **42**. Thus, the dimples **42** form recesses in the plane of the base to a degree sufficient to accommodate the diameter of the spring wire so that the smooth undersurface of the base has nothing protruding therefrom. By virtue of the springs **40** the stripper plate **24** is maintained biased down against the base. Certain other springs such as **46** as shown on FIG. 2 are also carried on the pintle, being so disposed that one end of each of the springs **46** bears downwardly on the stripper plate **24** while the other end bears against the clamp bar **32** so as to bias it in a counterclockwise direction as viewed on FIG. 2 to a limiting position against fingers **25** (FIG. 7) which are integrally carried by plate **24**.

As seen on the drawing, the straps of the stripper and clamp elements are suitably spaced so as to provide room for insertion of the various springs **40** and **46**. It will be apparent that any number of such springs may be utilized, preferably symmetrically spaced. The arrangement may be such as shown in FIG. 1 that the springs **46** occur as the outermost springs, the interior springs all being springs **40**. However, it is apparent that various other arrangements are useable.

From the description thus far given it will be apparent that the normal unlatched condition of the device is as shown in FIGS. 2 and 3, the stripper plate **24** being pressed against the base and the clamp bar **32** being biased away therefrom and abutting fingers **25** which serve as stop members.

The clamp element **32** is formed with an inturned flange **50** which has a series of aligned perforations **54** registerable with respective pegs **12**. Thus, when the clamp element is pressed toward the base, the pegs **12** can protrude through perforations **53**.

A latch element is provided in the form of a leaf

spring 60 which is fastened to the base as shown in FIG. 5, being clamped thereagainst by a pin 12' especially notched (not shown) to pass through a perforation at the inner end of the leaf spring 60. The leaf spring is given a compound curved shape so as to have a shoulder 62 engaging the inner edge 66 of a slot 67 which slot is formed in the clamp bar 32. Spring 60 protrudes through slot 67 when in latching position as shown in FIG. 4. Thus, as viewed on FIG. 4, the curved shoulder 62 is seen as abutting the edge 66. The outer ends of the leaf spring of the latch are formed with a curved tab 70 adapted to rest on the pintle 20 when the latch is in locking position. Thus, engagement of the curvature 70 with the pintle 20 maintains the latch 60 in the position shown in FIG. 4 so as to force the curved shoulder 62 against the edge 66 whence a portion of the shoulder 62 is above and in locking relation with the edge 66. If, however, downward finger pressure is brought to bear on the leaf spring at 60*a* the curved portion 70 will flex past the pintle 20, whence the shoulder 62 will rotate away from the edge of slot 66, releasing the clamping bar which will then spring upwardly because of the bias of springs 46. When it is desired to lock the clamping member in downward position it is simply pressed downwardly to that position and the curved portion 70 of the latch is pushed upwardly by finger pressure until it flexes past the pintle 20 and rests thereon. A certain amount of flexure of the top length 60*a* of the latch leaf is thus caused which effects pressure against the edge 66 and also against the pintle 20 so that the latch is maintained in the upper or locking position.

With particular reference now to FIG. 6 the mode of use will be apparent. Sheets of paper such as 74 suitably provided with perforations may be placed in staggered array so that the perforations rest atop the pegs 12. It is not necessary to finger press the sheet edges downwardly to cause pegs 12 to come through the respective perforations. Once the condition of FIG. 6 has been obtained, swinging the clamp member 32 clockwise will cause the perforations 54 to align with the perforations in the paper and also with the pegs. Accordingly, the inturned flange 50 will force all of the series of sheets downwardly into clamped condition. The tab 70 may then be lifted to lock the clamping element as hereinabove described. When it is desired to remove the series of sheets, pressure is brought to bear downwardly on the latch at 60*a* which will then release the clamping element as described above. The clamping element will then come to maximum open position by virtue of the spring bias. However, the paper sheets still are at rest on the pegs. If the clamping element now be manually forced counterclockwise to the position shown in FIG. 7 it will force the stripper plate 24 in a clockwise direction by virtue of force acting on fingers 25. The stripper plate thus forces all of the sheets of paper off of the pegs 12 and the papers may then be removed.

From the above description it will be apparent that my device is one which will render considerable convenience in assembling and holding a series of perforated sheets and which will lock said sheets in aligned position ready for writing. Obviously any arrangement of sheets may be used. For example, an elongated record sheet may first be placed on the base 10 and then pressed into position so that the pegs 12 come through the record sheet by moving the clamp 32 downwardly without, however, latching it. Thereafter, carbon sheets and writing sheets may be manifolded on the record sheet in precisely the same manner. This results in very rapid assembly or manifolding as compared with prior art constructions wherein all the individual sheets had to be manually impaled on the pegs. Further, a simple lifting of the tab 70 serves to lock all sheets ready for work. Finally, pressing the latch effects automatic springing up of the clamping plate. Thereafter the clamp bar may be manually rotated so as to rotate the stripping plate and thus force all sheets off the pegs. My device is thus simple and effective in operation and may readily be adapted for use in any type of business system wherein perforated sheets are to be manifolded or otherwise held in predetermined assembly.

Having thus described my invention I am aware that various changes may be made without departing from the sprit thereof and accordingly I do not seek to be limited to the precise illustration herein given except as set forth in the appended claims.

I claim:

1. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being engageable with said base element and provided with openings through which said peg means may protrude, said clamp element being movable between a sheet clamping position and an unclamped position, said stripper element having means carried thereby adjacent said pintle in the path of a portion of said clamp element and being engageable by said portion when said clamp element is moving in the direction of unclamping so as to lift said stripper element rotatively about said pintle to force sheets off said pegs.

2. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may substantially protrude to impale a plurality of sheets, said stripper element being rotatable to a position adjacent said base to underlie said plurality of sheets, including means for biasing said stripper element into engagement with said base element.

3. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may substantially protrude to impale a plurality of sheets, said stripper element being rotatable to a position adjacent said base to underlie said plurality of sheets, including means for biasing said clamp element away from said base element.

4. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may protrude, including means for biasing said stripper element into engagement with said base element, and means for biasing said clamp element away from said base element.

5. A device as set forth in claim 4, including means for locking said clamp element in clamping position.

6. A device as set forth in claim 4, including means intermediate said stripper element and said clamp element, whereby said stripper element may be rotated away from said base element by manual motion of said clamp element when rotating in the direction of unclamping.

7. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may protrude, including means for biasing said clamp element to unclamping position, and means for locking said clamp element in clamping position, said means comprising a leaf spring carried by said base, a slot in said clamp element,

a portion of said leaf spring protruding through said slot and having an area lockingly engaging an edge of said slot, an end of said leaf spring being abutable against said pintle to maintain said portion against the said slot edge.

8. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may protrude, said clamp element comprising an inturned flange facing said base and a plurality of perforations in said flange registering with said pegs.

9. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may protrude, said stripper element having finger means carried thereby and extending beyond said pintle in the path of unclamping motion of said clamp element and being engageable by said clamp element when moving in the direction of unclamping so as to lift said stripper element rotatively about said pintle to force sheets off said pegs.

10. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may protrude, each of said elements having strap members curling about said pintle, a plurality of springs carried on said pintle, at least one of said springs biasing said base and stripper member toward each other and at least one of said springs biasing said clamp element away from said base.

11. In a device as set forth in claim 10, including a locking member comprising a spring leaf of substantially S shape and having a portion fixed to said base and a free end engageable with said pintle, a slot in said clamp element through which said locking member protrudes, an edge of said slot being engageable by a portion of said locking member when said locking member is operative to hold said clamp member in clamping position, said free end of said locking member engaging said pintle to hold said locking member in locked position, a portion

of said locking member being manually depressible to force said free end to flex past said pintle so as to release said clamp element.

12. A device of the class described comprising a base element, a stripper element, and a clamp element, having a common pintle and relatively rotative with respect to each other, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may substantially protrude to impale a plurality of sheets, said stripper element being rotatable to a position adjacent said base to underlie said plurality of sheets, and a flexible element engaging said stripper element and biasing said stripper element toward said base element.

13. In a device of the class described, comprising a base element, a stripper element, and a clamp element, means whereby said elements are disposed for relative rotation with respect to each other around a common pintle and secured thereto, said pintle comprising an elongated rod and said elements having respective tongues curled around said rod, said base element being provided with peg means and said stripper element being provided with perforations through which said peg means may substantially protrude to impale a plurality of sheets, said stripper element being rotatable to a position adjacent said base to underlie said plurality of sheets, and a flexible element engaging said stripper element and biasing said stripper element toward said base element.

14. A device as set forth in claim 13, including means intermediate said stripper element and said clamp element whereby said stripper element may be rotated away from said base element by manual motion of said clamp element when rotating in the direction of unclamping.

15. A device as set forth in claim 14, including means for biasing said clamp element away from said base element.

References Cited in the file of this patent

UNITED STATES PATENTS

444,695	Dornbirer	Jan. 31, 1891
1,936,783	Chase	Nov. 28, 1933
2,051,551	Evans	Aug. 18, 1936
2,140,207	Martin	Dec. 3, 1938
2,316,209	Zalkind	Apr. 13, 1943
2,338,532	Page	Jan. 4, 1944
2,398,487	Zalkind	Apr. 16, 1946
2,711,911	Zalkind	June 28, 1955