United States Patent [19]

Nes

[11] 3,728,751

[45] Apr. 24, 1973

[54] METHOD FOR MOUNTING BUNDLES OF PERFORATED PAPER SHEETS BETWEEN TWO PERFORATED FILE COVERS, AND A DEVICE FOR CARRYING OUT THE METHOD

[76] Inventor: **Per Sigurd Nes,** Akerbyvagen 308, 183 35 Taby, Sweden

[22] Filed: **May 27, 1971**

[21] Appl. No.: **147,406**

[52] **U.S. Cl.** ..... **11/1 R**

[51] **Int. Cl.** **B42c 19/00**

[58] **Field of Search** 281/21–28; 11/1; 402/8, 52

[56] **References Cited**

UNITED STATES PATENTS

3,507,601	4/1970	Smith	11/1 R
3,596,929	8/1971	Abildgaard	281/21 R
1,184,099	5/1916	Jenkins	402/8 X

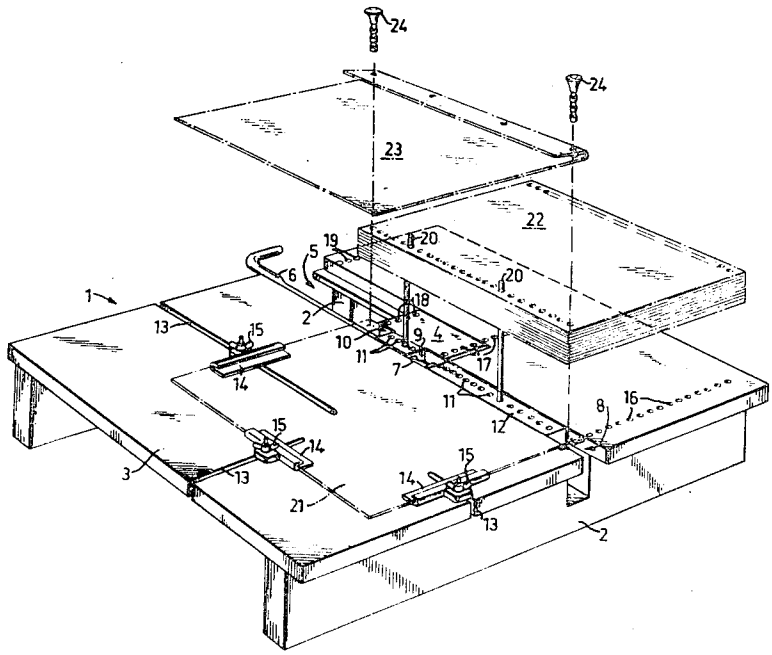
Primary Examiner—Lawrence Charles

Attorney—Cushman, Darby & Cushman

[57] ABSTRACT

The present invention relates to a method for mounting bundles of perforated paper sheets between two perforated file covers, and a device for carrying out said method. The method is characterized by first fixing one cover panel of the file in position between guide means and then fixing the bundle of papers by at least two guide pins in positions such that one side, having at least two free holes, overlaps the perforated back portion of the file cover panel with said free holes coinciding with corresponding holes in the file cover panel. The other file cover panel is then placed on top of the sheet bundles in a position corresponding with the first file cover panel. Finally, retaining means are inserted into the free holes and the guide pins are removed. The device is chiefly characterized by a mounting plate having guide structures for fixing a perforated file cover panel in such a position that at least each outermost hole in the spine portion of the cover is located opposite its respective recess in the plate, at least one row of holes spaced raltive to the holes in the bundle of paper sheets being so arranged in the plate relative to the recesses that the bundle of sheets can be fixed by means of two guide pins capable of being passed through the holes in the sheets and holes in the plate so that at least two free holes in one side of the bundle of paper sheets coincides with the holes of the fil cover panel located opposite the recesses.

7 Claims, 2 Drawing Figures



Patented April 24, 1973 3,728,751

2 Sheets-Sheet 1

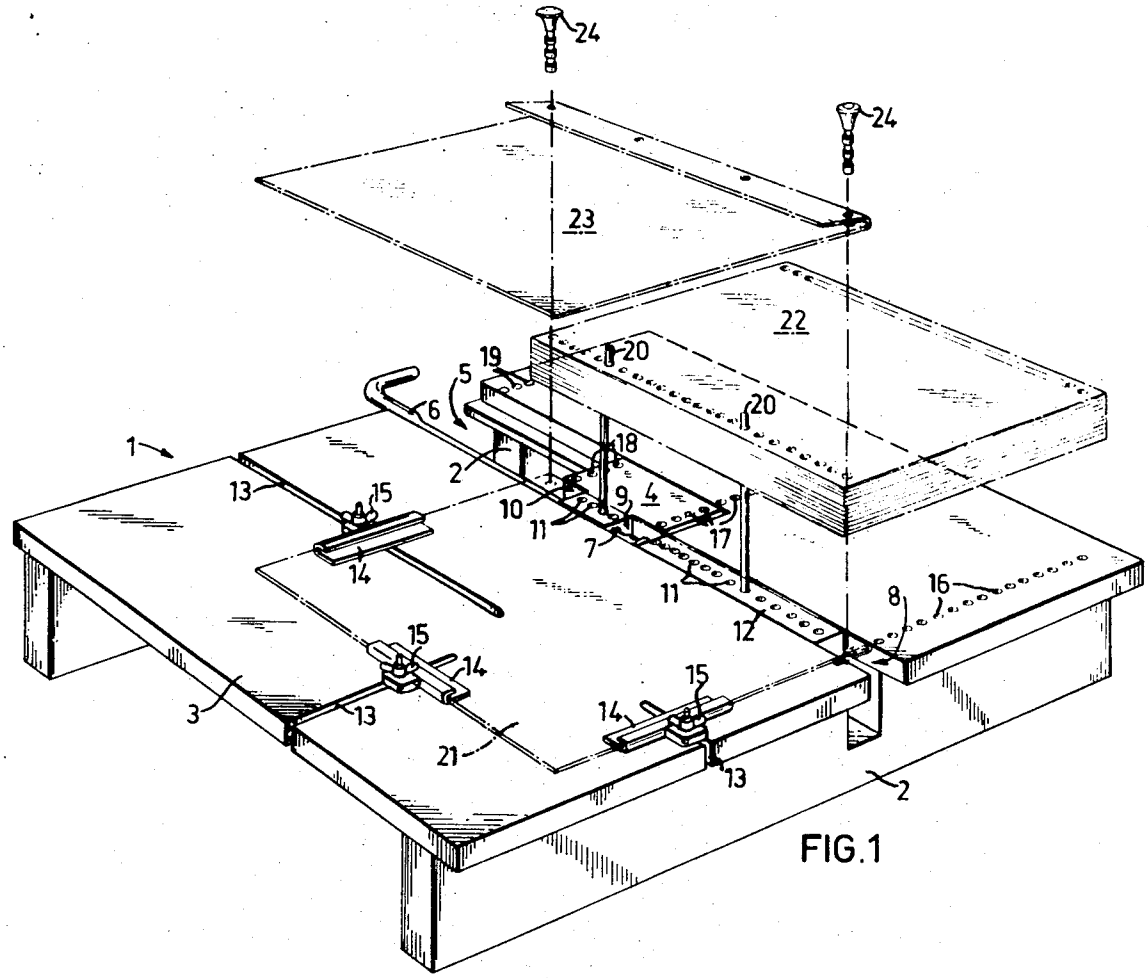


FIG.1

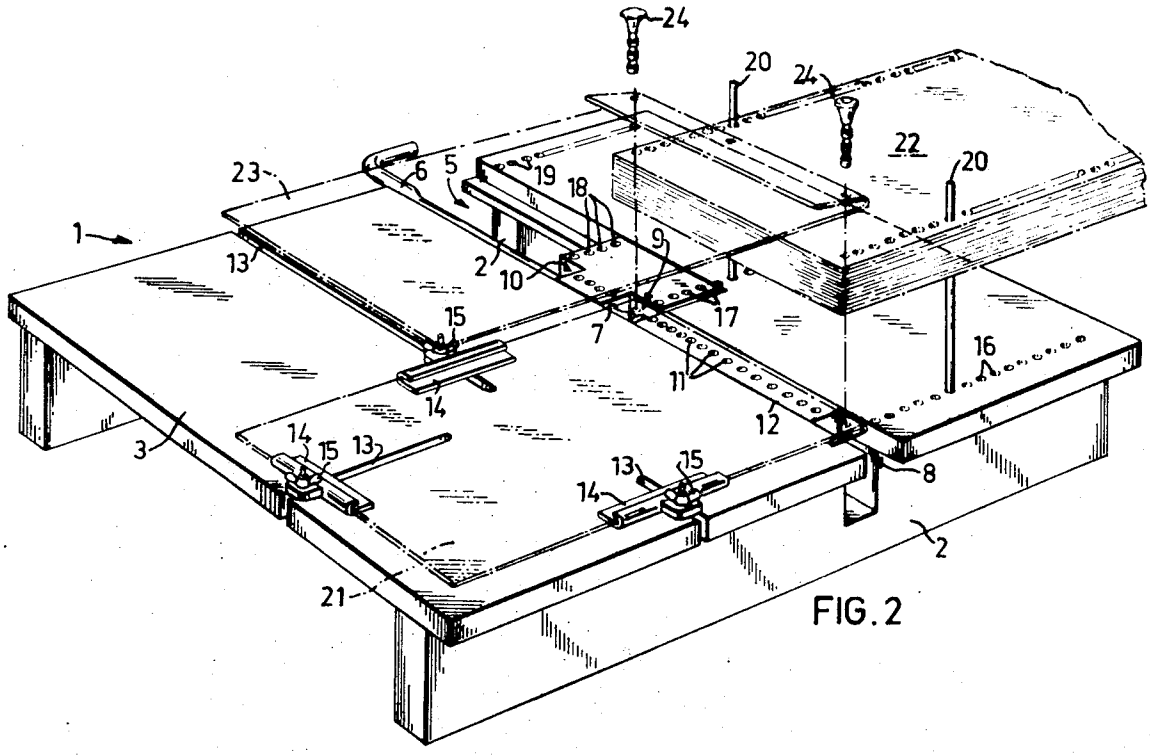

24
20
24
22
20
23
6
5
19
18
1
13
2
10
9
15
7
17
16
11
14
12
3
14
15
13
13
15
14
8
2
21

FIG. 2

METHOD FOR MOUNTING BUNDLES OF PERFORATED PAPER SHEETS BETWEEN TWO PERFORATED FILE COVERS, AND A DEVICE FOR CARRYING OUT THE METHOD

The present invention relates to a method for mounting bundles of perforated paper sheets between two perforated file covers, and a device for carrying out the method.

Present day methods for inserting bundles of paper sheets between the covers of a file or folder mainly involve mutually aligning the holes in the individual sheets in the bundle with the holes in the covers without the help of auxiliary devices, and inserting a paper retaining stud or the like through the algined holes to secure the paper sheets and the covers relative to each other. Since it is normally difficult to align the holes of individual sheets in thick bundles of perforated sheets, it is necessary to divide such bundles into smaller piles or sheaves. The problem of aligning the holes of perforated paper sheets is very acute in the case of paper sheets used with data machines and the like and which are provided with rows of very small holes. The smallness of these holes excludes any appreciable clearance between the securing stud and the hole, and consequently, any slight relative movement between the sheets and the cover panels of the file or folder will prevent the stud from passing clearly through the holes.

The object of the invention is to provide a method by which the aforementioned task can be simplified and carried out in a much shorter time than is possible at present.

This is achieved in accordance with the invention by first fixing one cover panel of the file in position between guide structures, whereafter the bundle of papers are fixed by means of at least two guide pins, each of which is inserted in its respective hole, in positions such that one side having at least two free holes overlaps the perforated back portion of the file cover panel with the free holes coninciding with corresponding holes disposed in the file cover panel, and then placing the other file cover panel on top of the bundle of sheets in a position corresponding to the first file cover panel, and inserting retaining means such as locking studs into the free holes and removing the guide pins.

This method ensures that the holes in the bundle of paper sheets are aligned with each other by means of the guide pins which also firmly hold the bundle of papers in such a position relative to the cover panels of the file that the retaining means can be readily inserted through the holes without danger of the holes being mis-aligned.

In the case of paper sheets of the type used with data machines and having a row of evenly spaced holes disposed along the two parallel long sides of the sheets, one guide pin may be inserted in at least one hole in each row of holes. This is particularly suitable when the retaining means are to be inserted in an end hole in each row of holes, such as is the case when the bundle of paper sheets is placed with the rows of holes perpendicular to the back portion of the cover.

When one of the rows of holes in the bundle of papers is placed so as to coincide with rows of holes in the back portion of the file cover panel, the guide pins and the retaining means are conveniently inserted through holes in the same row, the retaining holes being inserted through the outermost holes. By placing the guide pins in the aforementioned manner, a guide pin can always be placed in the vicinity of the hole in which the retaining means is to be inserted, which is to advantage with respect to centering the holes, since in the event of play between the guide pins and the holes, lateral movement of the individual sheets in the bundle will result in larger deflection at greater distances from the guide pins.

In the case of file cover panels which are intended to be folded at the spine portion, the covers of the file and the bundle of paper sheets are placed to extend in opposite directions in a manner whereby they overlap each other only in the region of the common holes, i.e., those holes in the covers and sheets which are to be through-passed by the securing means, whereafter subsequent to inserting the retaining or securing means, the file covers are folded at the spine portion thereof to cover the whole bundle of papers.

A device for putting the method of the invention into effect comprises a mounting plate having guide structures for fixing a perforated file cover in a position such that at least each outermost hole in the spine portion of the cover is located opposite its respective recess in the plate, wherein at least one row of holes spaced in corresponding relationship to the holes in the bundle of paper sheets is so arranged in the plate in relation to the recesses that the bundle of sheets can be fixed by means of two guide pins capable of being passed through the holes in the sheets and the holes in the plate in a manner whereby at least two free holes in one side of the bundle of paper sheets coincides with the holes of the file cover located opposite the recesses. By means of the present invention, the file covers and the bundle of paper sheets can be rapidly and reliably secured in relation to each other, the recesses permitting the retaining means, i.e., the pins, to protrude slightly below the lower file cover. This protruding portion of the retaining means acts as a mounting means for retaining washers or the like which are applied thereto to hold the file covers and the bundle of paper sheets together subsequent to their removal from the device. The recesses also serve to make room for the fingers of the user, to enable the file covers and the papers to be easily held together when removed from the device and prior to mounting the retaining washers.

With a preferred embodiment of the device, a first row of holes extends between the recesses, the plate being arranged to accommodate the bundle of paper sheets on one side of the row of holes and guide means for the file cover are adjustably arranged on the opposite side. The adjustability of the guide means enables file covers of different sizes to be aligned between the recesses with their holes coinciding with the row of holes in the plate.

Additional rows of holes are suitably arranged in spaced relationship in the plate at right angles to and on the side of the first row of holes opposite the guide means. These rows of holes are intended to be used, for example, when the bundles of paper sheets are provided with holes along their long sides and the file covers have holes in a spine portion which forms a short side, only the outermost hole in the two rows of

holes of the bundle being caused to coincide with the holes of the file cover.

Preferably, an end portion of the first row of holes and a portion of at least one of the rows of holes extending perpendicularly thereto is arranged in a portion of the plate which is capable of being displaced in the direction of the first row of holes relative to the remainder of the plate, and which is also lockable. To this end, a recess is arranged in the movable portion of the plate, at each end of the end portion of the first row of holes. In this way, it is possible to handle widely differing paper sizes and hole patterns since the first row of holes can be extended and the distance between the rows of holes extending perpendicularly thereto can be increased or decreased.

The device can be made even more versatile by arranging the portion of the first row of holes disposed on the stationary portion of the plate on an exchangeable slide. Thus, in this way a number of slides can be supplied with different hole patterns adapted to existing hole patterns in paper sheets, loose-leaf pages, etc.

By causing the length of the guide pins which enters the holes of the plate to decrease in cross section, the advantage is obtained whereby it is easier to cause the holes of individual sheets in the bundle to coincide with each other owing to the larger amount of play existing between the ends of the guide pins and the holes during passage of the tapered portion of the pins into the holes, while when the pins are completely inserted only an insignificant amount of play is obtained so that even holes remote from the guide pins are accurately aligned with each other.

The invention will now be described with reference to embodiments of the mounting device illustrated in the accompanying drawings, in which FIG. 1 is a diagrammatic view in perspective of the device with the file covers and the bundle of paper sheets shown by broken lines, and FIG. 2 illustrates the device with the bundle of papers turned through 90° in relation to FIG. 1 for inserting the papers between the covers of a different type of folder or file than that illustrated in FIG. 1.

The device includes a mounting plate **1** provided with support members **2** for supporting the device on a support surface such as a table or the like. The plate **1** comprises a stationary portion **3** and a portion **4** which is movable relative to the stationary portion and which can be displaced in a longitudinally extending opening **5** in the portion **3**. The movable portion **4** can be locked in different positions by means of an eccentric means in the form of a rod **6** having an eccentrically displaced centre portion which engages in a groove **7** in the movable portion **6**. Arranged in the plate **1** are recesses **8, 9** and **10** of which one, **8**, is located in the stationary portion **3** of the plate and two, **9, 10**, are disposed in the movable portion. Disposed between the recesses is a row of holes **11**, the larger portion of which row is located on an exchangeable slide **12** on the stationary plate portion **3** and an end portion of which is located on the movable plate portion **4**. Arranged on one side of the row of holes **11** are guide means for the bottom file cover. The guide means comprises rails **14** which are movable in grooves **13** in the plate and which can be locked in different positions by wing nuts **15**. Located on the opposite side of the row of holes **11** are further rows of holes **16, 17, 18** and **19** which extend at right angles to the row **11**. Guide pins **20** are intended to be inserted in the holes of respective rows of holes, the pins being shown in FIG. **1** inserted in the row of holes **11** and in FIG. **2** in the rows **16** and **17**. The bottom end of the guide pins **20** has a decreasing cross section, the holes having a depth such that with the pins fully inserted only the portion of the pins having a uniform, constant cross section is located above the surface of the plate.

The bundle of paper sheets is placed between the two cover panels of the file in the following manner. One of the cover panels **21** is first placed between the guide means **14** with its back portion turned towards the row of holes **11**. It is assumed that prior to positioning the file cover panel **21**, the position of guide means has been adjusted to the size of the file or folder being used in a manner such that each outermost hole in the back portion of the cover panel lies over a recess **8, 9, 10**. In the embodiment of FIG. **1**, the outermost holes lie over the recesses **8** and **10**, while in the embodiment of FIG. **2** the end holes lie over the recesses **8** and **9** since in this case the short sides of the file cover panels form the perforated spine portion of the folder. The holes in the spine portion should coincide with the holes in the row **11** which is achieved by inserting a slide **12** possessing the correct hole pattern before placing the file cover panel in position. When necessary, the row of holes **11** can be extended or shortened by moving longitudinally the movable portion **4** of the plate in a manner such that a satisfactory number of holes in the row **11** coincides with the holes in the file cover panel. In this way, the device can be adjusted to accommodate a wide variety of paper sizes. Naturally, the setting of the row of holes **11** and the guide means **14** is permanent until it is necessary to re-set the device for another paper size.

Subsequent to placing the file cover panel **21** in position in the manner described, the bundle of papers **22** is positioned as shown in the drawing. This is accomplished by first inserting the guide pins **20** through two holes in the bundle. The task of placing the individual paper sheets onto the guide pins for centering the holes in greatly facilitated by the fact that the ends of the pins taper outwardly, while the portion of the pins of constant cross section ensures that the holes are accurately aligned when the pin is fully inserted. The guide pins **20** with the bundle of paper sheets **22** are then inserted in their respective holes in the row of holes **11** (FIG. **1**), the holes being selected so that the outermost holes in the bundle coincide with the holes of the file cover panel located opposite the recesses **8** and **10**. When the outermost holes of the bundle of paper sheets constitute the outermost hole of two parallel rows of holes (FIG. **2**), a guide pin **20** is placed in a hole in each row of holes in the bundle of paper sheets, the rows of holes **16** and **17** in the plate **1** being utilized. This latter procedure is applicable in the case when the bundle of paper sheets has a row of holes along each long side thereof and file cover panels having a row of holes along a short side are used. To allow for adjustment so that paper of different widths can be accommodated, a portion of the row of holes **17** is arranged on the moavable portion **4** of the plate. In order to increase the number of combinations possible, a further row of holes **18** is arranged in the plate portion **4** and a row of holes **19** in the plate portion **3**.

The next step in mounting the bundle of paper sheets entails placing the second file cover panel **23** in position so that its outermost holes coincide with the mutually registering holes of the bundle of paper sheets and the first file cover panel **21**. The retaining means, e.g., locking studs **24** which are preferably of plastic, are then inserted in the mutually registering outermost holes in the file cover panels **21**, **23** and the bundle of paper sheets **22**, whereafter the guide pins can be removed. The importance of the recesses **8**, **9**, **10** will now be evident. The recesses are intended to provide space for the portion of the studs **24** which protrudes beneath the lower file cover panel **21** and to permit the file cover panels **21**, **23**, the bundle of paper sheets **22** and the studs **24** to be gripped between the fingers when removing the cover panels, etc., from the plate **1** and turning the cover panels, bundle of sheets and studs to place retaining washers (not shown) onto the ends of the studs opposite the stud heads. The studs **24** may be of standard length and adjusted to the thickness of the bundle of paper sheets after the retaining washers having been placed in position.

The above embodiments have been described with respect to file cover panels of the type intended to be folded at the spine portion thereof when the bunch of papers has been mounted therein so that the panels completely cover the papers. It will be readily perceived, however, that the method of mounting a bundle of papers described with reference to FIG. **1** can also be applied with file cover panels which are not intended to be folded in the aforementioned manner, the bundle of papers sheets in this instance being placed on the same side of the row of holes **11** as the bottom file cover panel **21** and thus cover a larger portion thereof.

By applying the method of the invention while using the described and illustrated mounting device, it is possible to reduce the time taken with conventional paper bundle mounting methods using no auxiliary devices when mounting a bundle of paper sheets between the cover panels of a file by about half.

What I claim is:

1. A device for mounting bundles of perforated paper sheets between two perforated file cover panels, characterized by a mounting plate having guide structures for fixing a perforated file cover panel in a position such that at least each outermost hole in the spine portion of the cover is located opposite its respective recess in the plate, wherein at least one row of holes spaced in corresponding relationship to the holes in the bundle of paper sheets is so arranged in the plate in relation to the recesses that the bundle of sheets can be fixed by means of two guide pins capable of being passed through the holes in the sheets and holes in the plate in a manner whereby at least two free holes in one side of the bundle of paper sheets coincides with the holes of the file cover panel located opposite the recesses.

2. A device according to claim **1**, characterized in that a first row of holes in the plate extends between the recesses, the plate being arranged to accommodate that bundle of paper sheets on one side of the row of holes, and wherein the guide means for the file cover panel can be adjustably arranged on the opposite side.

3. A device according to claim **2**, characterized in that further rows of holes are arranged at a distance from each other perpendicular to and on the side of the first row of holes opposite the guide means.

4. A device according to claim **3**, characterized in that an end portion of the first row of holes and a portion of at least one of the further row of holes extending perpendicular to said first row of holes is arranged in a portion of the plate which can be moved in the longitudinal direction of the first row of holes relative to the remaining portion of the plate, and which movable portion of the plate can be locked in selected positions.

5. A device according to claim **4**, characterized in that the movable portion of the plate is provided with a recess at each end of the end portion of the first row of holes.

6. A device according to claim **4**, characterized in that the portion of the first row of holes located on the stationary plate portion is located on an exchangeable slide.

7. A device according to claim **1**, characterized in that the portion of the guide pins intended to be inserted in the holes of the plate have an outwardly tapering cross section.

* * * * *