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(54) Handle, particularly for industrial and/or commercial furniture

(57) The handle (10) for sheet-metal furniture (11) has a recessed seat (12) obtained by blanking and folding a flap (13) on the sheet-metal of the furniture (11). The seat (12) has a first recessed step (17) formed on a transverse free edge (16) of the flap (13), an opposite edge (14) defined by the sheet-metal of the furniture (11), and edge portions defined by the flap (13). A shaped element (15) made of plastics defines a grip section (19) and an anchoring section (20) and has formed thereon a transverse hollow (21) engaging the first recessed step (17), a second recessed step (18) formed in the grip section (19) and accommodating the opposite edge (14), and tabs (23) defined by anchoring section (20) and delimiting seats (24) for accommodating the edge portions of the flap (13).

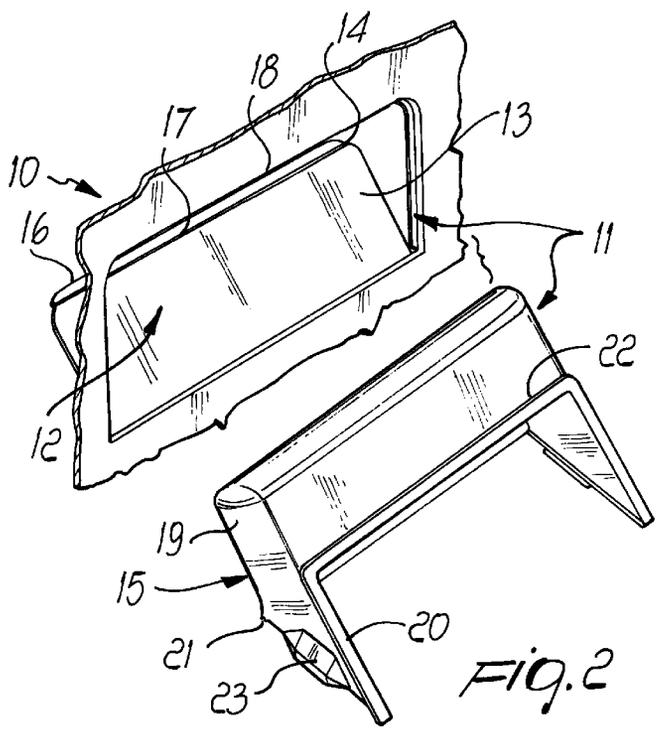

Fig. 2

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Description

The present invention relates to a handle that is particularly but not exclusively for industrial and/or commercial furniture.

It is known that doors, drawers, swing-out leaves, etcetera, made of sheet-metal are in widespread use in the field of industrial and commercial furniture.

These doors or drawers, in addition to providing great strength and practicality in use, are also easy to clean and have a good overall aesthetic effect if required.

The process used to shape said doors or drawers consists substantially of drawing and bending, during which the sheet-metal assumes the intended shape during successive plastic deformations.

In order to be moved, doors (the same applies also for drawers and other furniture access parts) must be associated with handles that are either assembled, since they are initially separate parts, or are also formed directly on the sheet-metal by drawing.

In the case of applied handles, said handles do not provide good resistance under repeated use and produce, as observed from practical experience, play in the joints that in the course of time lead to functional loss of the door.

Handles obtained by drawing directly from the sheet-metal, despite obviating the functional resistance and durability problems, impose technological limitations that are mentioned hereafter.

A first technological and constructive limitation is due to the fact that some handles, due to aesthetic requirements but also due to functional requirements, are formed with a more or less large camber.

The drawing of the handle causes uncontrolled stretching of the material affected by said camber along multiple directions; however, said camber cannot be produced before forming said handle due to obvious formal reasons.

It is therefore evident that for the manufacture of cambered doors it is highly unlikely to produce handles by simple plastic deformation.

A second drawback is due to the fact that deep drawing operations, especially if associated locally with blankings of the sheet-metal, can lead to failures of the part, since they constitute sites where micro-cracks form; with repeated and cyclic use, these micro-cracks spread, as is known from the mechanics of fatigue failure.

An aim of the present invention is to provide a handle that solves the above-described drawbacks of conventional types and has optimum functional resistance and durability even under heavy loads, at the same time allowing the manufacturer considerable flexibility and freedom in terms of technology and construction and in terms of styling and aesthetic research.

In relation to this aim, an object of the present invention is to provide a handle that is constructively simple and does not require operations that are particularly time-consuming and expensive.

Another object of the present invention is to provide a handle that has a pleasant aesthetic appearance, especially in the neatness of its lines, and in which functionality is not compromised in any way.

Another object is to provide a handle that no longer constitutes a restriction that limits the constructive and styling possibilities of the entire part of the piece of furniture with which it is associated.

Another object of the present invention is to provide a handle that is absolutely safe for the operator and does not have sharp edges or other sources of danger.

Another object of the present invention is to provide a handle that can be manufactured with conventional technologies and can be easily adapted to the various specific requirements, both in the industrial field and in the commercial field.

With this aim, these and other objects in view, there is provided a handle, particularly for industrial and/or commercial furniture, at least partially made of sheet-metal, characterized in that it is composite and constituted by a first recessed seat that is obtained by blanking and folding the part of the piece of furniture on which it is formed, said first seat accommodating a hollow shaped element that is made of plastics and is retained in said seat by locking means.

Further characteristics and advantages of the present invention will become apparent from the description of an embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a perspective view of a handle according to the invention;
figure 2 is an exploded view of the handle of figure 1;
figure 3 is a perspective view of a detail related to the handle of figure 1;
figure 4 is a sectional side view of the handle of figure 1;
figure 5 is a sectional view, taken along the plane V-V of figure 4;
figure 6 is a lateral view of another detail of the handle according to the invention.

With particular reference to figures 1 to 6, a handle particularly for industrial and/or commercial furniture according to the invention is generally designated by the reference numeral 10.

The handle 10 is provided in a door of the type made of sheet-metal, which is partially shown in the figures and generally designated by the reference numeral 11; the handle 10 can in any case be advantageously and easily produced also for drawers or other commercial or industrial pieces of furniture obtained from sheet-metal.

The handle 10 is composite and is constituted by a first recessed seat 12 that is obtained by blanking and

simply folding or bending the sheet-metal that constitutes said door 11.

The blanking is conveniently radiused at its ends and in the corner regions to avoid the formation of localized tensions, which might become failure-initiating regions with repeated use.

The first seat 12 is constituted by a flap 13 that is obtained by blanking and folding; folding is performed in the opposite direction with respect to the front of the door 11.

The first seat 12 is also formed by the metal plate edge, designated by the reference numeral 14, formed by the blanking of the flap 13.

A shaped element 15 is accommodated in the first seat 12 and is made of injection-molded plastics; said element is retained in said first seat 12 by locking means described hereinafter.

The flap 13 has a transverse free edge 16 that is shaped so as to form a first recessed step 17; the free edge 14 is also shaped so as to form a second recessed step 18 that is spaced further backwards with respect to the front plane of the door 11.

The shaped element 15 comprises a grip section, designated by the reference numeral 19, for opening the door 11, and a section, generally designated by the reference numeral 20, for anchoring to the flap 13.

The grip section 19 in this case is thicker than the anchoring section 20.

Furthermore, the grip section 19 is shaped so as to transversely form a transverse hollow 21 that rests, upon assembly, on the first step 17.

A second seat 22 is also formed in said grip section 19, again transversely and in a region that lies substantially opposite the hollow 21; again upon assembly, the end portion of the metal plate edge 14 is inserted in said second seat 22 so that said edge does not entail the danger of injury or cuts for the operator when he moves the door 11.

It should also be noted that at the front, the region for coupling the shaped element 15 and the sheet-metal of the edge 14, due to the recess constituted by the step 18, is continuous and free from protrusions.

This is particularly important also from an aesthetic point of view.

The anchoring section 20, upon assembly, instead rests substantially on the flap 13 and the above-mentioned locking means are fixed thereto.

Said locking means are constituted, in this case, by two identical tabs 23, each of which cantilevers out monolithically from one edge of the anchoring section 20.

Each one of the tabs 23 is shaped so as to form a third seat 24 in which a corresponding edge portion of the flap 13 is inserted upon assembly.

More precisely, the two tabs 23 extend from regions of the anchoring section 20 that are substantially mutually opposite.

In practice, it has been observed that the present invention has achieved the intended aim and objects.

It should in fact be noted that the handle according to the invention provides considerable production simplicity and flexibility, at the same time ensuring safety, easy use, and full freedom in design, both in terms of technology and manufacture and in terms of aesthetic research.

During operation, the handle according to the invention also shows considerable durability even in the presence of high work loads.

It should also be noted that, since the handle manufactured according to the invention does not substantially entail plastic deformation operations (with consequent uncontrolled stretching of the material), except for a simple folding along a straight line, it allows to provide the seat of the piece of furniture on which it is formed before providing the handle.

Furthermore, since there are no deep drawing operations, the problems of crack initiation and therefore of possible fatigue failures of the door are fully eliminated.

The initiation of failures is also avoided by the production of radiused blankings.

The present invention is susceptible of numerous modifications and variations, all of which are within the scope of the inventive concept.

All the details may furthermore be replaced with other technically equivalent elements.

The materials and the dimensions may be any according to the requirements.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. Handle, particularly for industrial and/or commercial furniture at least partially made of sheet-metal, characterized in that it is composite and constituted by a first recessed seat that is obtained by blanking and folding the part of the piece of furniture on which it is formed, said first seat accommodating a hollow shaped element that is made of plastics and is retained in said seat by locking means.

2. Handle according to claim 1, characterized in that said blanking that forms said first seat is radiused in the corner and end regions.

3. Handle according to claim 1, characterized in that said first seat is constituted by a flap of a piece of furniture, obtained by blanking and folding in the opposite direction with respect to the front part, and by the sheet-metal edge formed by the blanking of said flap.

4. Handle according to claims 1, 2, and 3, characterized in that the free edge of said flap is shaped so as to form a first recessed step, said metal plate edge formed by the blanking of said flap being also shaped so as to form a second recessed step that is spaced further back with respect to the front plane of said piece of furniture.

5. Handle according to claim 1, characterized in that said hollow shaped element comprises a grip section for opening it and a section for anchoring to said flap.

6. Handle according to claim 5, characterized in that said grip section is shaped so as to transversely form a hollow that rests, upon assembly, on said first step, and so as to form, transversely, in a region that is substantially opposite to said hollow, a fold that forms a second seat in which, again upon assembly, the end portion of the sheet-metal edge formed by the blanking of said flap is inserted.

7. Handle according to claim 1, characterized in that said locking means are fixed to said anchoring section.

8. Handle according to claim 7, characterized in that said locking means comprise two tabs, each tab cantilevering out monolithically from a respective edge of said anchoring section, each one of said tabs being shaped so as to form a third seat inside which, upon assembly, a corresponding edge portion of said flap is inserted.

9. Handle according to claim 8, characterized in that said tabs extend from mutually substantially opposite regions of said anchoring section.

10. Handle according to one or more of the preceding claims, characterized in that the thickness of said grip section is greater than the thickness of said anchoring section.

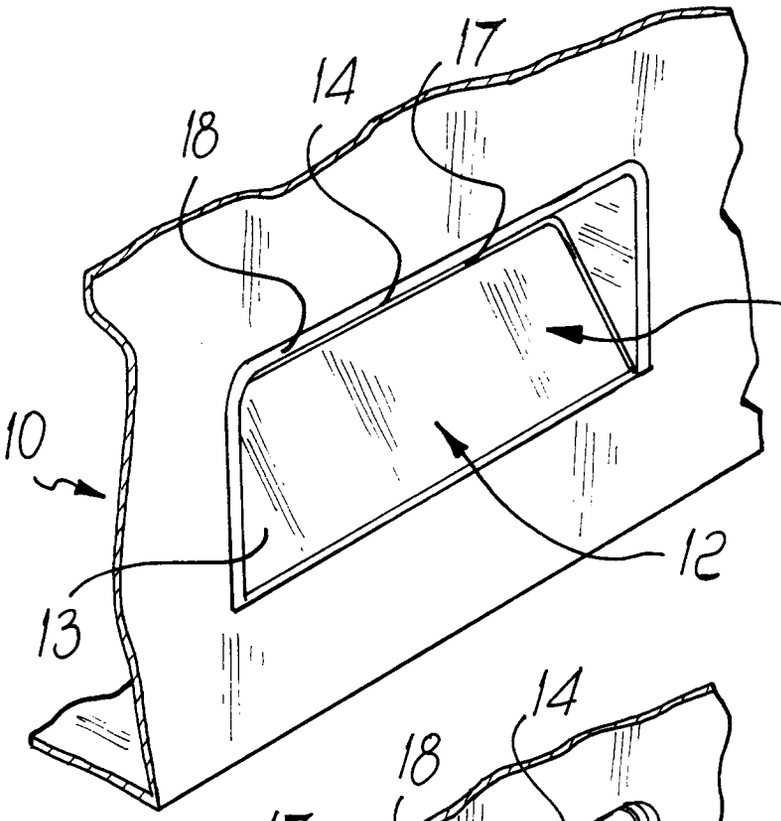

Fig. 1

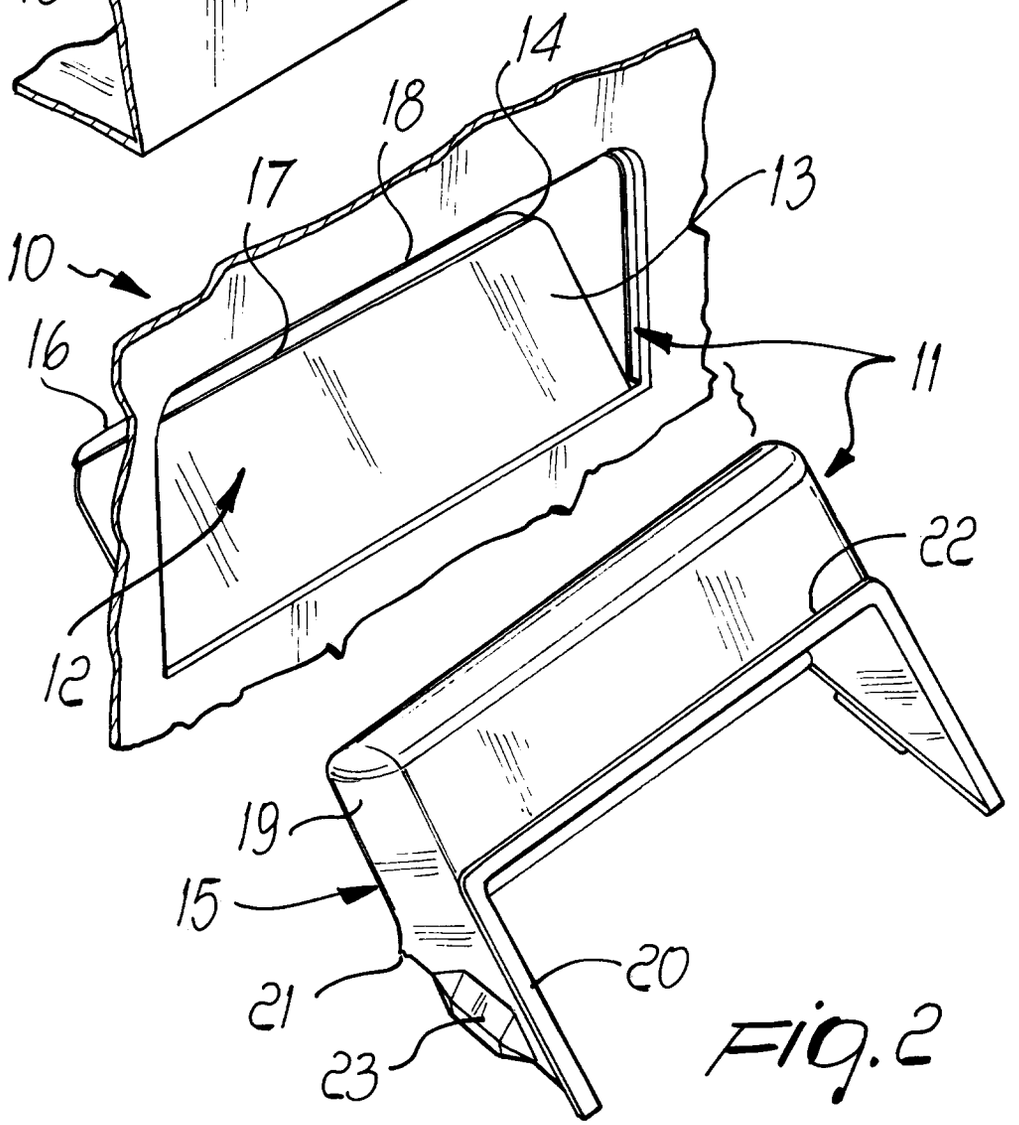

Fig. 2

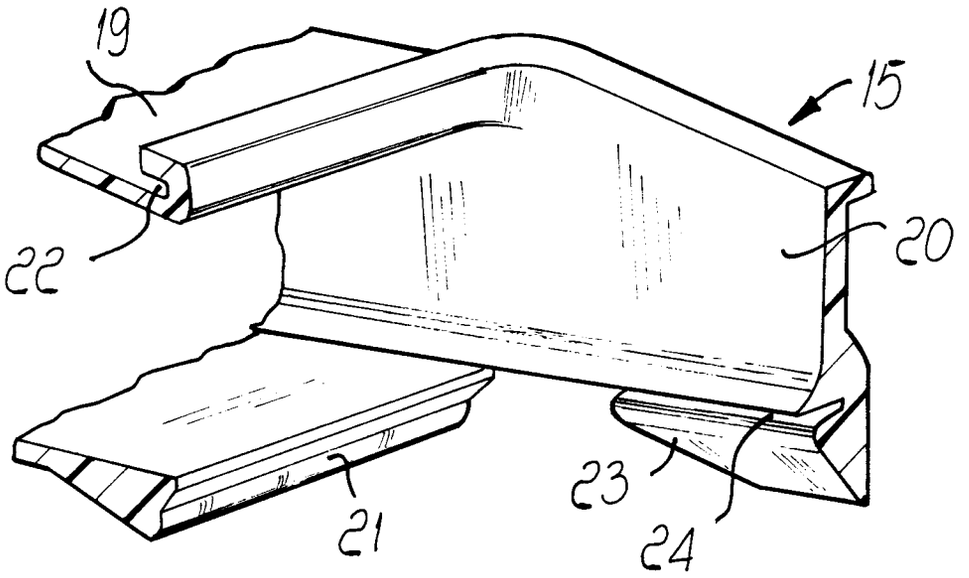

Fig. 3

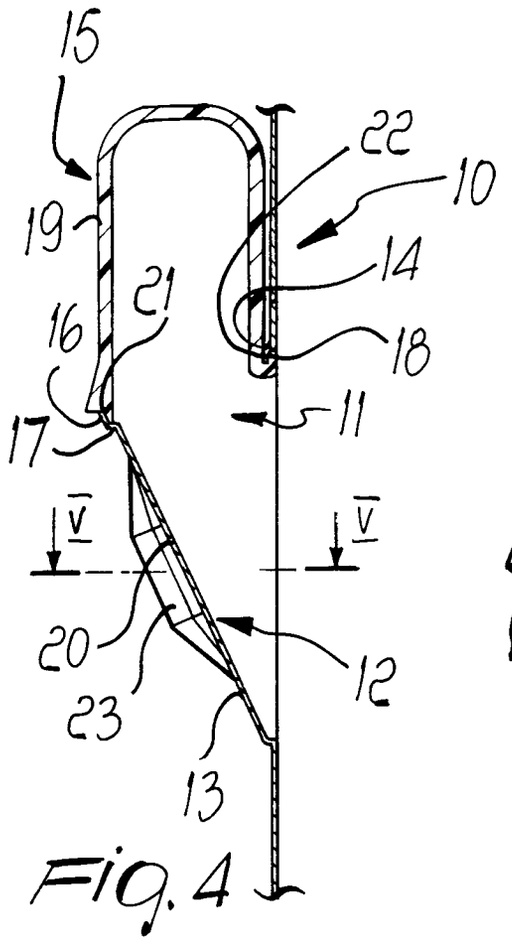

Fig. 4

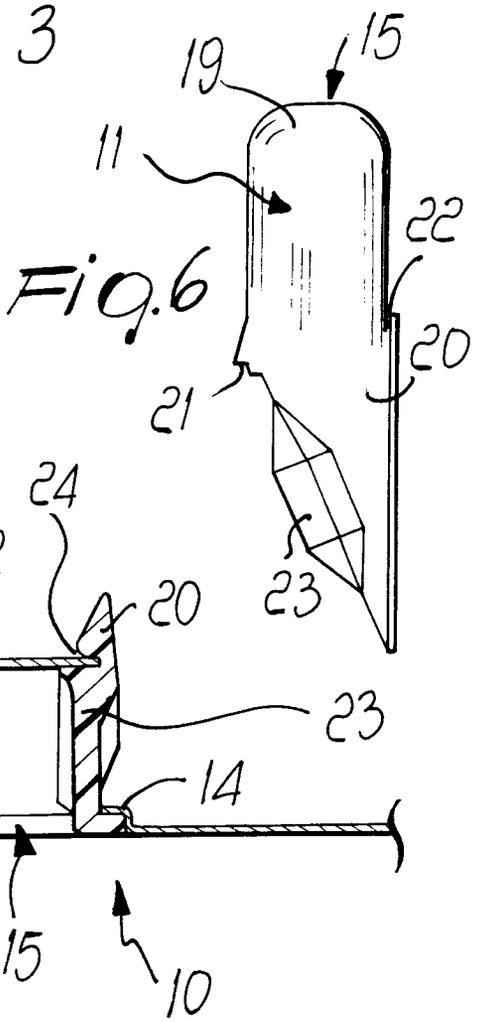

Fig. 6

Fig. 5

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 10 7482

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X A	US-A-3 969 009 (READY METAL MANUFACTURING) * the whole document * ---	1,3,5,7 4	A47B95/02
X	GB-A-1 049 459 (PRECISION ENGINEERING COMPANY LIMITED) * the whole document * ---	1,3,5,6	
A	CA-A-1 184 965 (L'HOMME) * page 2, line 24 - page 3, line 16; figures 1,2 * -----	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A47B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	16 September 1996	Noesen, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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E : earlier patent document, but published on, or after the filing date
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