Jan. 11, 1944. M. GERENDAS 2,338,927

CLOSING AND CLAMPING DEVICE

Filed May 16, 1941 2 Sheets-Sheet 1

Fig. 1.

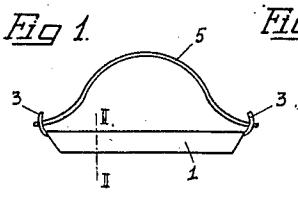


Fig. 2.

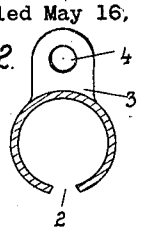


Fig. 3.

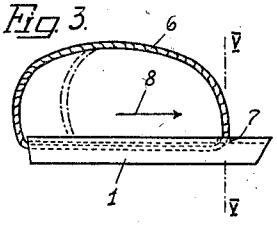


Fig. 4.

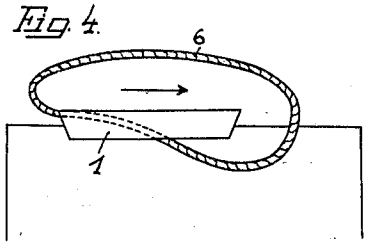


Fig. 5.

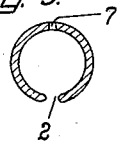


Fig. 7.

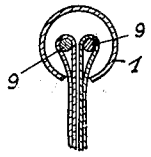


Fig. 6.

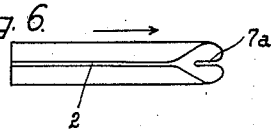


Fig. 8.

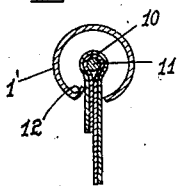


Fig. 9.

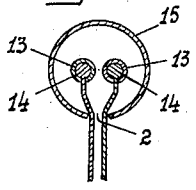


Fig. 10.

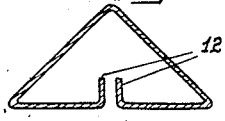


Fig. 11.

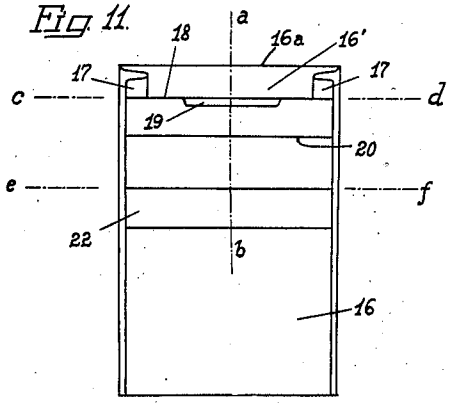
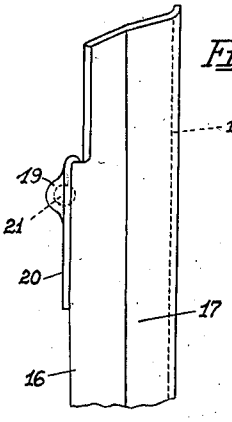


Fig. 12.



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Fig. 13.

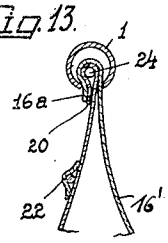


Fig. 17.

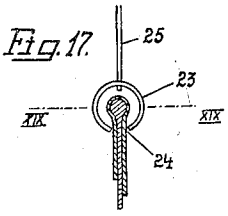


Fig. 18.

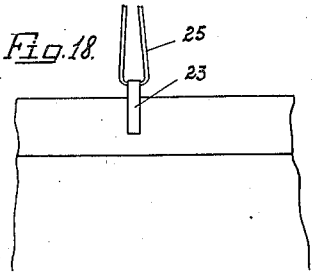


Fig. 19.

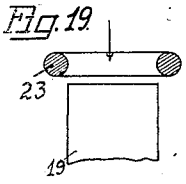


Fig. 15.

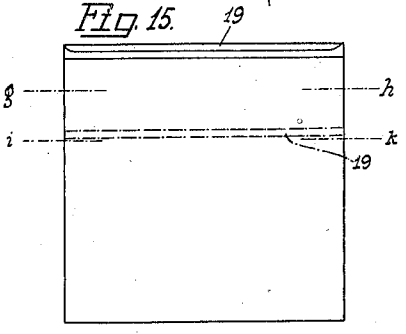


Fig. 16.

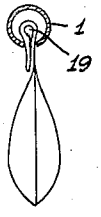


Fig. 14.

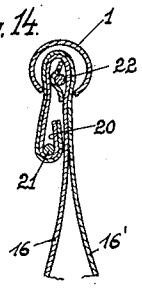


Fig. 20.

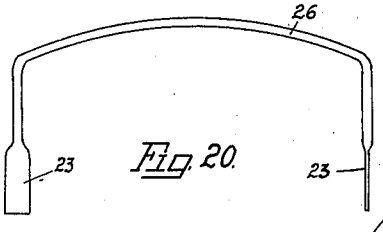
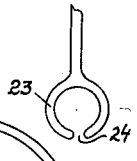


Fig. 21.



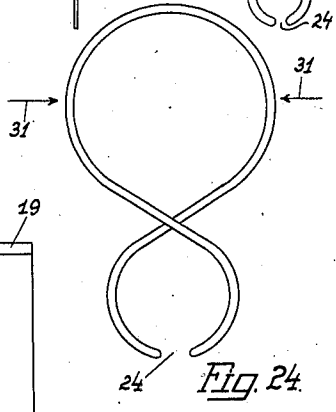


Fig. 24.

Fig. 22.

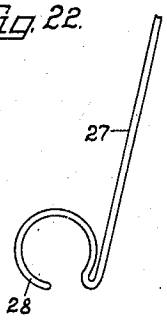
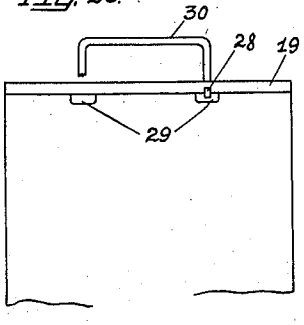


Fig. 23.



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Patented Jan. 11, 1944 2,338,927

UNITED STATES PATENT OFFICE

2,338,927

CLOSING AND CLAMPING DEVICE

Miksa Gerendas, Budapest, Hungary; vested in the Alien Property Custodian

Application May 16, 1940, Serial No. 335,634
In Hungary March 23, 1940

2 Claims. (Cl. 229—65)

The present invention relates to a clamping or fastening means for holding together flexible sheets, particularly paper sheets. In my co-pending application Serial Number 322,241 filed March 4, 1940, now Patent No. 2,319,316, granted May 18, 1943, such a device is described. Several variations thereof are disclosed in the present application. The present invention relates to further modifications and perfections of the clamp.

In the enclosed drawings these new forms of the clamp are shown, but it is understood that the drawings only illustrate embodiments shown by way of example.

Fig. 1 is a side elevational view of one form of the clamping sleeve.

Figure 2 is a transverse cross section on a larger scale taken on line II—II.

Fig. 3 is the side elevational view of another form.

Fig. 4 is a view similar to Figure 3 but showing the clamp applied to sheets.

Figure 5 is an enlarged cross section taken on line V—V of Fig. 3.

Fig. 6 shows a somewhat modified form of the closing sleeve viewed from below.

Figs. 7 and 8 are transverse cross sections taken through two further embodiments of the invention.

Figs. 9 and 10 are cross sections taken through two other forms of the invention.

Fig. 11 is a front view and Fig. 12 a side view on an enlarged scale of a paper bag fitted with a closure according to the invention.

Figs. 13 and 14 are transverse cross sections taken on line *a—b* of Fig. 11 and showing the bag in two different closed positions.

Fig. 15 is a side elevational view of another paper bag.

Figure 16 is a transverse cross section taken through a portion of Figure 15.

Fig. 17 is a view, partly in section, of a further embodiment of the closure according to the invention.

Figure 18 is a side elevation thereof.

Figure 19 is an enlarged sectional view of the clamp thereof.

Figs. 20 and 21 are side and end elevations, respectively of another form.

Fig. 22 illustrates a still further form of clamp.

Fig. 23 is a side elevational view of this clamp shown applied to a bag.

Fig. 24 is a side elevation of a still further form of clamp.

In the said co-pending application it is set forth that the elastic clamping sleeve having a fissure with a divergence at the ends and serving to press together the sheets to be united, may be provided with a handle for carrying of the parcel closed by the clamping sleeve. It is also disclosed herein that this handle may have the shape of a frame and that it may be put into the inside of the sleeve. As shown in Figs. 1 and 2 of the present application the handle is not inserted in the sleeve, but the clamping sleeve **1** is provided on its upper part opposite the fissure **2** with two ears or elongations **3** each having a hole **4** and the ends of the handle **5** made of metal, Celluloid, or the like are inserted in these holes. With this arrangement less metal is needed for the production of the device than if a frame-like handle is used and this fact may be important if the clamping devices are to be produced in quantity.

Because of the elasticity of the handle **5** it is very easy to insert it into the holes **4** of the lips **3** and after the insertion the handle stays firmly in place.

In the embodiment shown in Figure 3, the handle is constituted by a loop of cord, twine, thread or the like member **6**, which has a portion inserted into and lying within the sleeve **1**. The loop may be closed like a ring, the upper part of the sleeve opposite the fissure **2** being provided with a bore **7** through which the cord or the like enters the interior of the sleeve. Or bores **7** may be provided at both ends of the sleeve, with the thread or the like entering the sleeve through one of these bores and leaving it through the other bore, as shown in dot-and-dash lines in Figure 3. Further, both bores may be dispensed with, as shown in Figure 4, and the thread may enter through one of the ends of the sleeve and leave by the other end. The arrangement of two bores **7** has the disadvantage that it is expensive because the operation of inserting the thread in the two small bores is time-consuming. The embodiment dispensing with bores is disadvantageous because of the difficulty of applying the sleeve onto sheets to be clamped which arises from the fact that in pushing this sleeve onto the edges to be clamped, the cord is apt to be pressed out of the sleeve through the fissure, as shown in Figure 4.

The clamping device shown in Fig. 3 is applied always in the direction of the arrow **8** and so that the cord cannot leave its place The cost of production of this device is relatively low.

Instead of the bore **7** a hole of different shape may be employed. Fig. 6 shows a sleeve having a notch **7***a* at one of its ends which the cord may

enter in the same way as it enters the bore 7. Since the sleeve shown in Fig. 6 is always pushed into place in the direction of the arrow, the divergence of the fissure 2 particularly described in my said co-pending application, is only applied at the end of the sleeve provided with the recess 7a.

The cord or thread handle can be employed in the embodiment shown in Figure 1 also, in such a way that the cord enters the holes 4 in the ears 3.

In the embodiment shown in Figure 7 the edges of the sheets to be fastened or clamped together are reinforced, for instance, by folding that the upper parts of the sheets placing a small rod 9 within the fold, the rod being made of hard paper, wood, wire, or any other strengthening or thickening may be employed, which is adapted to guide the clamping sleeve and to hold relatively great forces. It is advantageous if the thick edge is of such a diameter that it fills out the sleeve, but this is not necessary, as the small rods 9 are sufficient for preventing the clamping sleeve from being unintentionally disengaged. For this purpose it is only important that the edge be thicker than the width of the fissure 2.

The strengthened parts need not be employed on the edges of both sheets to be fastened together, it being sufficient if one of the sheets is provided with a thick, rod-like part. In this case the best way is to bend the unstrengthened sheet onto the other sheet, as shown in Fig. 8. In this arrangement the unstrengthened part 10 is folded around the thick edge 11 of the other sheet so that when the sleeve 1' is applied the closure is perfect. The sleeve in Figure 8 is provided with an inwardly bent flange 12 which may be advantageous for stiffening the sleeve. The manufacture of this sleeve is very easy and cheap, since this sleeve can be made by simply rolling a little metal sheet.

It is understood that the sleeve may have any other shape in cross section and in Fig. 10 a closing or clamping sleeve is shown having triangular cross section and provided with two inwardly bent flanges 12.

Fig. 9 shows an embodiment of the invention in which both edges of both sheets to be clamped together are fitted with strengthened edges and this strengthening involves use of a small sleeve 13 on each edge of the sheets, the resultant edges being somewhat thicker than the sheet itself, as shown at 14 in the drawings. This arrangement, used with a relatively large clamping sleeve 15, is well adapted for closing heavy bags or the like.

Figs. 11 to 14 show the application of the closure arrangement shown in Fig. 8 to a paper bag of the type adapted to be used in a grocer's shop, fancy-shop, or the like. This bag substantially consists of two large side sheets 16 and 16' united by two small side sheets 17 acting like a bellows and allowing collapsing of the bag to a flat form in a well known manner. Fig. 12 illustrates the bag in a state in which the side sheets are somewhat remote from one another.

The edge 18 of one of the side sheets 16 is provided with a strengthening 19 which may be made by bending the upper part 20 of the sheet 16 and securing a little rod 21 in the resultant fold, as mentioned in connection with the description of the embodiment shown in Fig. 8. The other, unstrengthened side sheet 16' is made somewhat longer than the sheet 16. When the bag has been filled with material, the upper part of the bag is pressed flat and the upper part 16a of sheet 16' is then folded along the line c—d of Figure 11 so as to bear upon the thick part 19', as shown in Figure 13, and then the sleeve 1 is applied to complete the closure of the bag. As shown in Fig. 11, it is enough if the thick part 19 is in the middle of the upper edge of the sheet only, but it can be employed on the whole width of the sheet.

On the sheet 16 there is another thick part 22 which is shown by way of example on the whole width of the sheet and is employed at a certain distance from the upper edge of the sheet. If the bag is not entirely full, it is advantageous to use this strengthening 22, utilizing the type of clamp shown in Figure 14, in an arrangement wherein the side walls of the bag are bent along line e—f of Figure 11 before applying the clamping sleeve.

It will be understood that the upper edges of both of the side sheets 16 and 16' may be provided with thickened parts with respect to which clamping sleeves of the types shown in Figures 7 or 9 may be used. Of course, in this case the two sheets 16 and 16' are of the same length.

Figure 15 shows a paper bag, in which the thickened edge 19 is employed on the longer side sheet, and not on the shorter side sheet, as shown in Figure 11. In closing this bag the upper part of the bag is folded along the line g—h, so that the edge of the longer sheet 19 reaches as far as the dot-and-dash lines in Figure 15, whereat the upper part of the bag is bent downwardly along the line i—k, and the clamping sleeve is then applied to clamp the folded parts, as clearly shown in Figure 16. The line g—h is located at a higher or a lower level according to the amount of material to be put into the bag. If the bag is almost full, this line will be in a relatively high position.

The form of the invention shown in Figs. 17 to 19 comprises a clamping element in the form of an open ring 23 having the opening 24. The ring may be provided with a handle of any desired shape and material; in Figs. 17 and 18 a handle is shown which is constituted by a string 25. The closure is made by bending one of the sheets around the thickened edge of the other sheet as described above, and then pushing the ring into place in the direction of the arrow shown in Fig. 19. The ring is made of wire having circular cross section, which is advantageous if the ring is pushed onto an edge 19 almost as large in cross section, as the internal diameter of the ring. The rotundity of the ring in this case performs the functions of the divergence of the fissure described in my said co-pending application and shown in Fig. 6 of the drawings of the present application.

It is obvious that the open ring may be employed as well as the open sleeve on every type of closure described herein and in the said co-pending application, if the forces involved are not greater than the ring can withstand. If relatively great forces are involved, two or more rings may be employed. Fig. 20 shows an embodiment in which a handle 26 is provided at each end with a ring 23, which is to be seen also in Fig. 21. The width of the ring varies with the requirements and on the left side of Fig. 20 a ring is shown which is wider than the handle 26, while the other ring is narrower than the handle.

It is possible to employ at the end of the handle more than one ring if necessary.

Fig. 22 shows an embodiment made of a piece of wire and functioning like a hook. The straight part 27 is the handle and the lower part 28 is the hook which is adapted to clamp rods 9 or 11 such as shown in Figs. 7 and 8. For this purpose holes 29 are made in the bag adjacent to the rod, as shown in Fig. 23, just underneath this thickened edge 29. In each of these holes a hook 28 may be inserted, only one of these hooks being shown in Fig. 23. The two hooks are united by a handle part 30. In this arrangement the stiffening 19 must be strong enough so that the load can be suspended on the handle 30.

The form of clamping element shown in Fig. 24 is made of a piece of steel wire in the shape of a numeral 8. The lower part of this device, which is open at its lower extremity, is the equivalent of the open ring described in connection with Figs. 17 and 18, and the upper part is the handle. When this handle is compressed in the direction of the arrows 31, the opening 24 of the lower part becomes wider and the device can then be applied. When released, the device elastically returns to its initial shape.

I claim:

1. In a bag of paper or the like having two opposite side sheets terminating in free edges at the mouth of the bag, one of the sides being substantially longer than the other so that in the open position of the bag the free edge of the longer side is located a substantial distance outwardly from the free edge of the shorter side, thickening means formed on said shorter side substantially parallel with the free edge thereof including at least one enlargement formed substantially parallel to and near the free edge of the shorter side, the extended portion of the longer side being bent over said enlargement to a position along the outer side of said shorter side so as to close the mouth of the bag, and a clamping sleeve enclosing the resultant fold and formed with a longitudinal fissure receiving the sides and said extended portion, said enlargement together with the part of the extended portion folded thereover together having a cross section substantially larger than the width of the fissure of the clamping sleeve, the edges of the fissure bearing forcibly against the outer side of the longer side and the outer side of the extended portion at points inwardly from said enlargement whereby the mouth of the bag is clamped closed and the clamping sleeve is prevented from being separated from the bag in an outward direction.

2. A bag of paper or the like as recited by claim 1 wherein said thickening means further comprises a second enlargement formed on said shorter side in inwardly spaced substantially parallel relation to the mentioned enlargement, over which said extended portion and a portion of the shorter side are adopted to be bent to lie along the outer side of the shorter side inwardly from the second enlargement and close the bag at a point inwardly from the mouth thereof when the bag is only partly full, with the edges of the fissure of the clamping sleeve engaging the outer side of the longer side and the outer side of the extended portion at points inwardly from the second enlargement so as to clamp the bag closed.

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