Sept. 6, 1949. M. GERSH ET AL 2,480,849

SURGICAL CAST

Filed June 28, 1946

2 Sheets-Sheet 1

Fig. 1

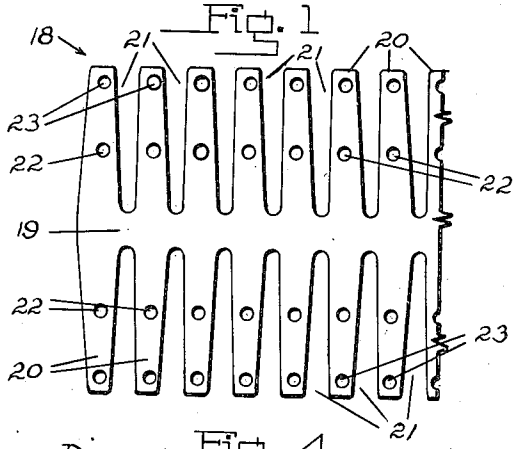


Fig. 2

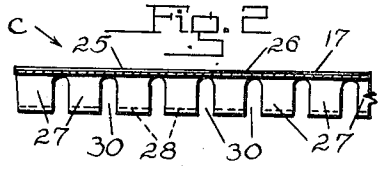


Fig. 3

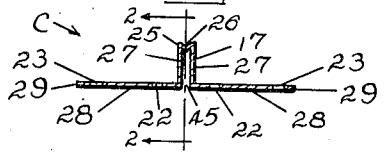


Fig. 4

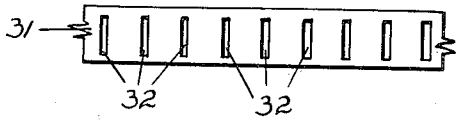


Fig. 5

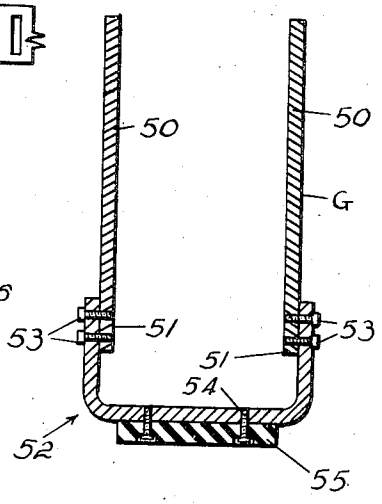


Fig. 6

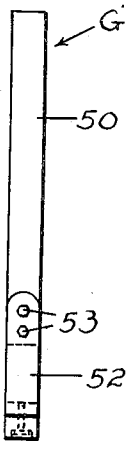
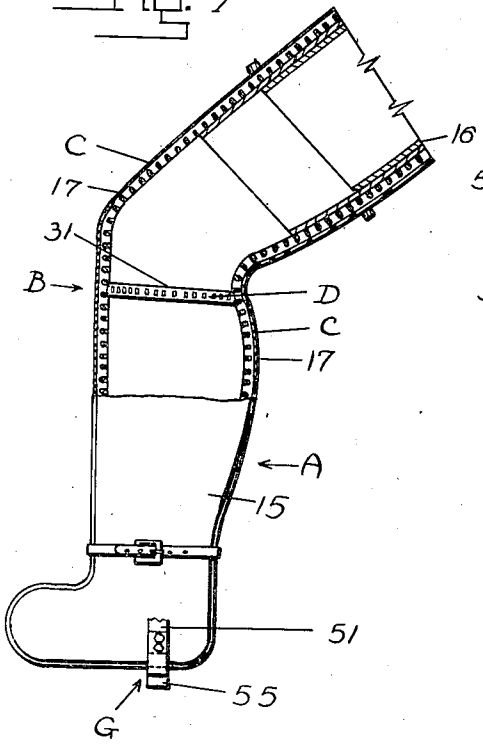


Fig. 7



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Fig. 8

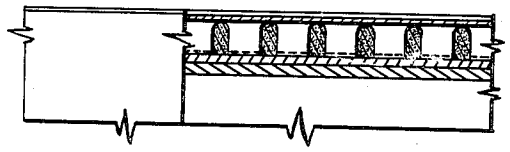


Fig. 9

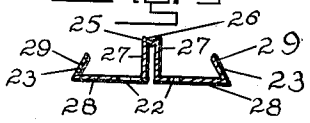


Fig. 11

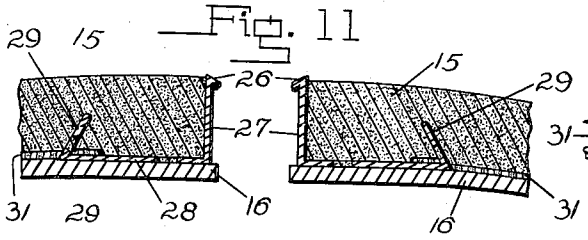


Fig. 10

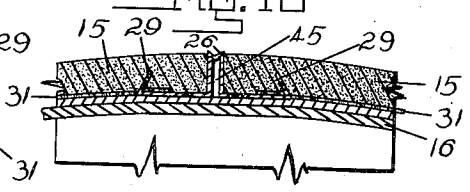


Fig. 12

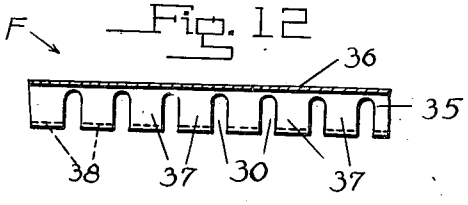


Fig. 13

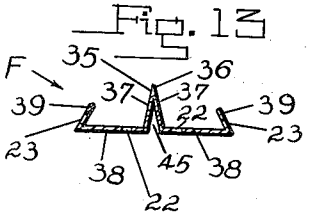
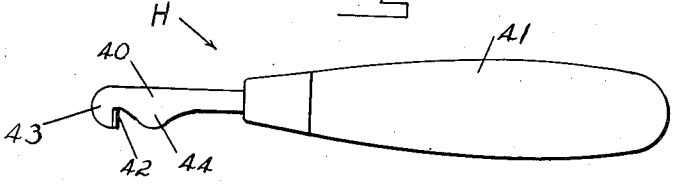


Fig. 14



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SURGICAL CAST

Morris Gersh and Alex Gersh, Highland, N. Y.

Application June 28, 1946, Serial No. 680,302

3 Claims. (Cl. 128—91)

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This invention relates to surgery and more particularly to devices for association with surgical casts.

The removal of surgical casts, such as of plaster-of-Paris, is generally laborious to the operator and painful to the patient and, after removal, the cast cannot be reapplied.

An important object of this invention is to provide a detachable or separable connection for a surgical cast which may be incorporated in the cast when first applied, readily separated, without pain or discomfort to the patient, when the cast is to be removed and which permits the cast to be again applied, if desired.

Another important object is to provide such a detachable or separable connection which, while strong, is so constructed that it is flexible, whereby it will conform readily to the contours of the body, even when it is necessary to place a cast over parts disposed at sharp angles, such as at the elbow of the arm.

Still another important object is to provide a connection as described which will provide a continuous groove, constructed and arranged to receive a suitable cutting instrument, which may be manipulated by a leverage action, the construction of the parts of the connection being such that, despite this leverage action, the patient will not be injured nor discomforted during detachment or separation of the connection, and the cast will not be damaged, as by breaking away of the connection, at the same time.

Since the line of separation of the connection is relatively far removed from the vicinity of the patient's skin, when it is desired to reapply the cast, there will be no injury to the patient, due to rough or jagged edges which may be formed during the separation of the connection.

Other objects and advantages of the invention will be apparent during the following detailed description of the invention, taken in connection with the accompanying drawings, forming a part thereof, and in which drawings:

Figure 1 is a fragmentary plan of a blank forming the major portion of the novel connection.

Figure 2 is a side elevation of this major portion, formed into the shape shown in vertical transverse cross section in Figure 3.

Figure 3 is a vertical transverse section of the major portion of the connector.

Figure 4 is a fragmentary plan of the minor or second portion of the novel connector.

Figure 5 is a vertical section of and Figure 6 is an end elevation of a novel support for association with a cast employing the connector.

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Figure 7 illustrates application of the devices of Figure 1 to 6 to a cast about a limb.

Figure 8 is an enlarged view, partly in vertical longitudinal section, of the showing in Figure 7.

Figure 9 is a vertical transverse section through a preferred form of the novel major portion of the connector.

Figure 10 is a vertical sectional view of the two connector portions imbedded within a cast, which latter is shown, only as a fragment thereof.

Figure 11 is a vertical sectional view, somewhat enlarged over that of Figure 10, showing the connection separated and the cast of Figure 10 removed from the part which it enclosed.

Figure 12 is a vertical longitudinal section through a modified form of the major portion of the connection.

Figure 13 is a vertical transverse section thereof.

Figure 14 is a plan view of a cutting instrument which may be employed to separate the connection portions of Figures 2, 3, 8, 9, 10, 12 and 13.

In the drawings, wherein for the purpose of illustration are shown a preferred and a modified form of the invention, the letter A may designate the cast as a whole; the letter B, the preferred form of the invention comprising, preferably, the portions C and D; while a modified form thereof comprises, preferably, the portions D and F; G designates a support for association with the cast A; and H a suitable cutting instrument employed to separate the major portion of the novel connector.

The cast A which embodies the invention may include a suitable hardened plastic 15, such as plaster-of-Paris, laid down or applied upon the outer face of a suitable material 16, disposed between the cast material and the part to be enclosed by the cast. This material 16 may be wrappings of paper and is applied to the part to be enclosed by the cast prior to the application of the connection B or E. As is well-known in the art fabric or like material may be incorporated with the plastic 15, as will be subsequently explained.

The detachable connection B for the cast A includes the detachable portions C and D.

The detachable connection portion C comprises a strip 17 of severable material such as tin, steel, hardened plastic or the like. The qualities of the material are such as permit it to be fashioned into the form shown in Figure 3, to retain this form while in use but, preferably, such that

the form may be readily altered, as in Figure 7, to retain that form.

As may be seen in Figure 1 the blank 18 from which this strip 17 may be formed, includes a central, longitudinally extending section 19 and a plurality of spaced-apart, like, sections 20 extending transversely thereof so that there are spaces 21 between each section 20. The sections 20 may be provided with openings 22 and 23.

This blank 18, when bent or otherwise formed, as shown in Figures 2 and 3, provides a continuous, longitudinally extending ridge portion 25, made up of the section 19 of the blank. The walls of the ridge portion 25 form a substantially V-shaped depression 26 and, extending downwardly, in substantial parallelism from opposite sides of the ridge portion 25, are a plurality of leg portions 27, whereby the ridge portion 25 with its walls, forming the V-shaped depression, and opposite leg portions 27 form substantially an M, as may be seen in Figure 3.

Extending outwardly from the lower ends of the leg portions 27 are feet portions 28 which, as may be seen in Figure 3, form substantially right angles with the adjacent leg portion 27. The leg and feet portions are formed from the sections 20 of the blank, with the openings 22 and 23 disposed in the feet portions.

By fashioning the strip 17, whereby the leg and feet portions on each side of the ridge portion are spaced one from the other, providing the plurality of spaces 30, corresponding with the spaces 21 of the blank 18, and making the ridge portion 25 quite narrow, the strip 17 may be readily manipulated to curve either longitudinally or transversely.

As may be seen in Figure 9, the free ends 29 of some of the feet portions 28 may be upturned, to form acute angles with the associated feet portions 28, for a purpose to be subsequently detailed.

Referring to the connection portion D, this comprises a strip 31 of suitable flexible material, which may be similar to that of the connection portion C, provided with a plurality of transversely extending slots 32 preferably of a length slightly greater than the width of a leg or foot portion 27 or 28.

The portion D may be associated with the connection portion C by extending the former almost half way, or almost wholly, around the part to be enclosed by the cast and outwardly of the material 16, until the portion C is fairly taut and inserting the upturned free end 29 of a foot portion in the nearest slot 32 as in Figures 10 and 11.

The modified form E is much like the form B, the only material difference being a change in the form of the connection portion F over the portion C.

This connection portion F, shown particularly in Figures 12 and 13, comprises a strip 35 which has a slightly different ridge portion 36 as compared with the ridge portion of the connection portion C of Figures 2 and 3. The ridge portion 36 is still V-shaped, but comprises an inverted V in transverse cross section, and the leg portions 37 diverge downwardly, joining feet portions 38 which are, preferably, just like the feet portions 28 and the free ends thereof may be bent upwardly, as at 39, as are the free ends 29 of form C. As is apparent, the blank 18 of Figure 1 may be employed to fashion the connection of form F. Form F, in conjunction with the connection D may be employed exactly as are forms C and D.

As may be seen in Figures 10 and 11, the cast material 15 is applied until the feet portions are imbedded therein and the outer faces of the leg portions are also in adhesion therewith, with the material 15 filling the openings 22 and 23, whereby the connections C or F are firmly anchored to the material 15.

It should be noted that the slots 32 in the connection portion D have dual functions. They accommodate the upstanding free ends 29 or 39 and those not so employed accommodate some of the material 15.

Preferably, there are two separate strips 17 or 35 employed in an average cast, as may be seen in Figure 7. However, more than two may be employed. They are, preferably, spaced apart an equal distance and so disposed that when the connections are separated, as will be described, the cast sections may be easily removed.

As may be seen in Figures 10 and 11, the material 15 preferably extends outwardly nearly to the ridge but does not cover the ridge, whereby the latter is in sight and provides a guide for subsequent severance of the connection. Obviously the ends of the strips 17 or 35 extend to the ends of the casts.

The cutting instrument H may be any suitable one. In Figure 14 is shown one having a narrow blade portion 40 and handle portion 41. The blade portion has a short cutting edge 42 extending transversely of the blade portion and inwardly of its outer edge section 43 and, facing this edge, is a lug 44. The section 43 is adapted to extend partly into the slot or continuous opening 45 in the connections C or F with the cutting edge 42 in engagement with the ridge portion 25 or 35, as the case may be so that the instrument H may be drawn longitudinally of the connection C or F and thus sever the connection at its ridge portion. In Figure 11 is shown a ridge portion 25 so severed. When severing such a ridge portion, the lug 44 is drawn along the depression 26.

It is now clear that, when so severed, the cast A may be readily removed, without breaking it up. It may be reapplied if desired, adhesive tape, or the like, being employed to temporarily bind the sections of the cast together with the severed sections of the ridge portions in contact.

The cast herein described and illustrated is so practical that if conditions are otherwise satisfactory and the injury, resulting in the application of the cast, was to a leg, the patient may walk about while the cast is still in place. For convenience the support G shown in Figures 5, 6 and 7 may be employed. This includes a pair of straps 50 of metal or other rigid material having screw threaded sockets or openings at their lower ends 51. The upper ends of the straps may be imbedded in the cast A, so that the lower ends 51 extend outwardly thereof, as in Figure 7, and a substantially U-shaped portion 52 attached to these ends, as by screws 53 with the bight section 54 of the portion 52 extending below the cast A and this bight section 54 may carry, on its lower face, a resilient pad 55 as of rubber, to contact a walking surface.

Various changes may be made to the form of the invention herein shown and described without departing from the spirit of the invention or scope of the claims.

What is claimed is:

1. In a detachable connection for a surgical cast, a strip provided with a continuous ridge portion of severable material, a plurality of spaced-apart leg portions extending downwardly from opposite sides of said ridge portion, and a

foot portion extending outwardly from the lower ends of at least some of said leg portions, the feet portions being constructed and arranged to be imbedded in said cast with said ridge portion extending to the outer surface of said cast.

2. In a detachable connection for a surgical cast, a strip provided with a continuous ridge portion of severable material, a plurality of leg portions extending downwardly from opposite upper ends of said ridge portion, and a foot portion extending outwardly from the lower ends of at least some of said leg portions, said ridge portion and leg portions together being substantially M-shaped in transverse cross section, the feet portions being constructed and arranged to be imbedded in said cast with said ridge portion extending to the outer surface of said cast.

3. In combination, a detachable connection for a surgical cast, a strip provided with a continuous ridge portion of severable material, a plurality of leg portions extending downwardly from opposite sides of said ridge portion, and a foot portion extending outwardly from the lower ends of at least some of said leg portions, the free ends of at least some of said feet portions being upturned, the feet portions being constructed and arranged to be imbedded in said

cast with said ridge portion extending to the outer surface of said cast, and a flexible strip of material provided with a plurality of spaced-apart slots, the length of each slot being larger than the width of any of said upturned ends, all of said slots being constructed and arranged to receive any of said upturned ends, with said flexible strip disposed transversely of said first-named strip and the slots free of said upturned ends being constructed and arranged to receive a portion of the material forming said cast.

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ALEX GERSH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
817,946	Williams	Apr. 17, 1906
2,206,339	Ulman	July 2, 1940

FOREIGN PATENTS

Number	Country	Date
463,068	Great Britain	Mar. 22, 1937
587,069	Germany	Oct. 28, 1933