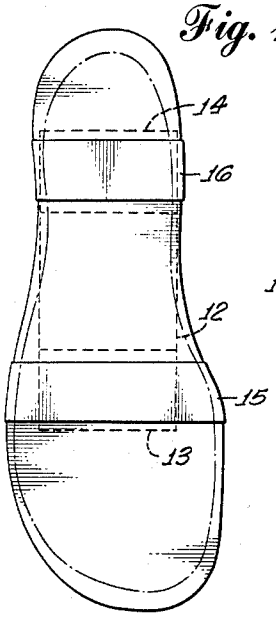
Aug. 3, 1965 H. T. O'BRIEN 3,198,192

SLIPPER CAST

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Fig. 1.



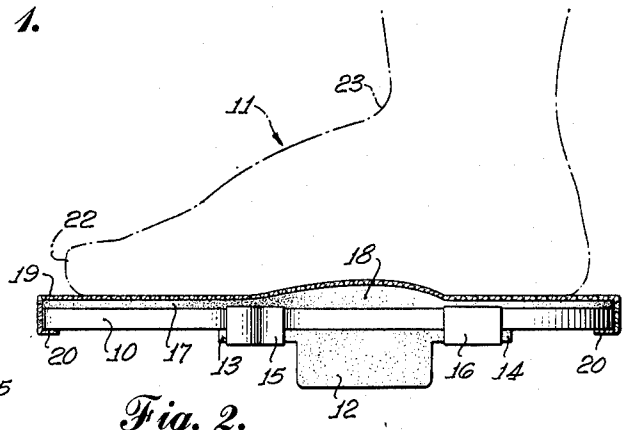


Fig. 2.

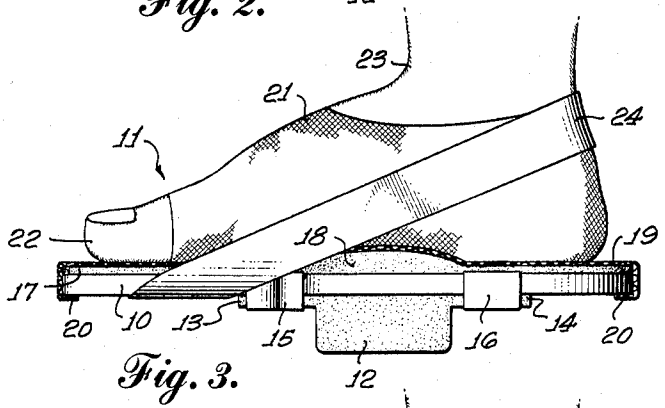


Fig. 3.

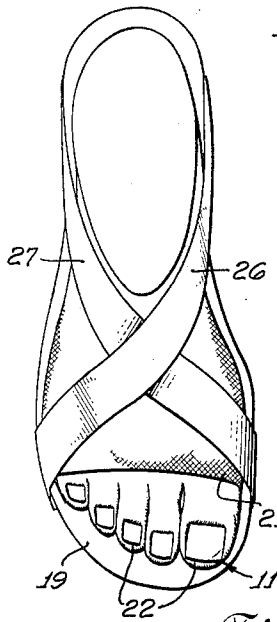


Fig. 5.

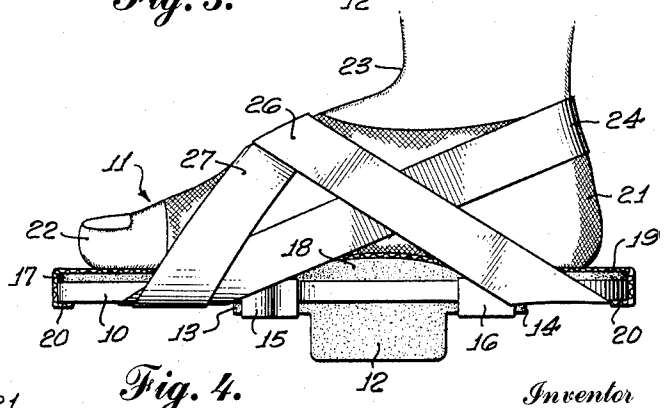


Fig. 4.

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SLIPPER CAST

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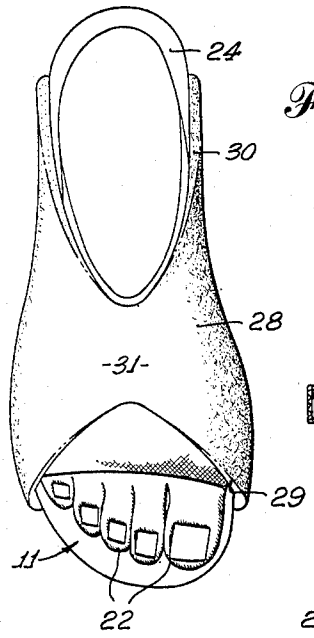
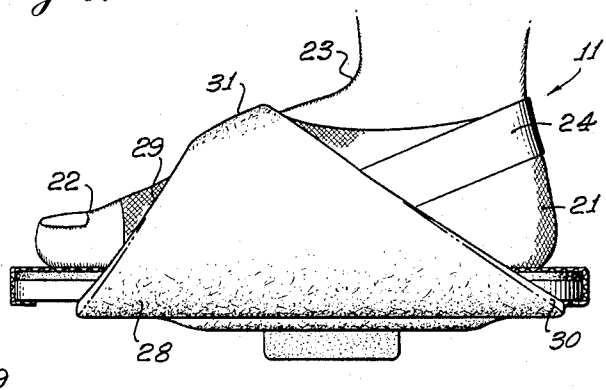


Fig. 7.

Fig. 6.



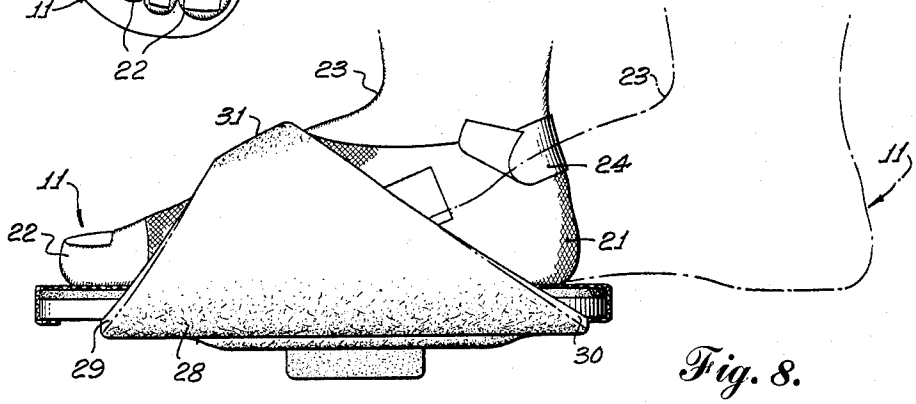


Fig. 8.

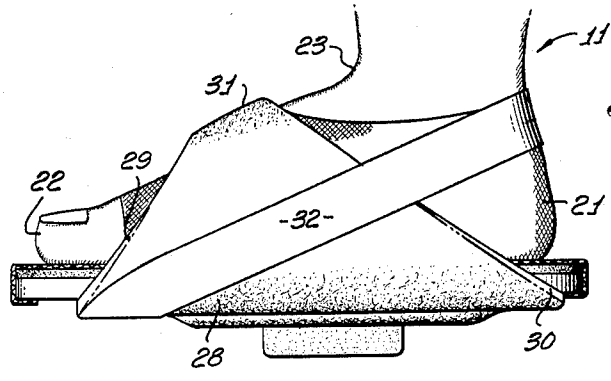


Fig. 9.

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SLIPPER CAST

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Filed Mar. 7, 1963, Ser. No. 263,543
7 Claims. (Cl. 128—83.5)

This invention pertains to a cast, and in particular to a cast for protecting a foot in case of toe injuries.

In the past there has been no suitable cast for broken or injured phalange bones or sprained toes. The person suffering such an injury virtually has been immobilized or forced to hobble about with difficulty until healed. Makeshift arrangements, such as a shoe that has been cut up, frequently have been resorted to, but still it has been necessary for the patient to use crutches as the bone mends.

The present invention provides a readily prepared slipper-like cast that will permit the victim of toe injuries to walk almost normally. The cast is comfortable, allowing the patient to walk without pain while providing precisely the type of support that the injured foot needs. Moreover, the cast is removable so that it need not be worn during times of rest.

Accordingly, it is an object of this invention to provide a cast suitable for foot injuries, especially those to the toes.

Another object of this invention is to provide a cast that will restore mobility to patients with broken or sprained toes.

A further object of this invention is to provide a foot cast that is removable.

Yet another object of this invention is to provide a foot cast that is constructed easily and economically to an exactly correct configuration.

These and other objects will become apparent from the following detailed description taken in connection with the accompanying drawing in which:

FIGURE 1 is a top plan view of the cast during an initial phase of construction,

FIGURE 2 is a side elevational view of the arrangement of FIGURE 1,

FIGURE 3 is a side elevational view similar to FIGURE 2 illustrating additional steps of construction of the cast,

FIGURE 4 is a side elevational view showing further construction of the cast,

FIGURE 5 is a top plan view of the arrangement of FIGURE 4,

FIGURE 6 is a side elevational view of the completed cast,

FIGURE 7 is a top plan view of the arrangement of FIGURE 6,

FIGURE 8 is a side elevational view illustrating the manner in which the cast can be removed, and

FIGURE 9 is a side elevational view showing the reattachment of the cast subsequent to removal.

With reference to the drawing the cast of this invention includes a rigid sheet element 10 which forms a platform for supporting the weight of the foot 11 of the patient. The member 10 is formed to the approximate shape of a foot, its side edges defining generally the contour of the sole of the foot. The platform 10 advantageously is constructed of ⅜-inch waterproof plywood.

Beneath the board 10 is secured a rubber heel 12. This may be of the type used for other types of casts, hence, including outwardly extending flange portions 13 and 14. Normally the heel 12 is located below the arch portion of the cast, and is held to the platform 10 in the initial stages of construction of the unit by means of strips 15 and 16 of adhesive tape.

A pad 17 is applied to the upper surface of the platform 10, being of resilient material to cushion the foot. A ⅛-inch foam rubber adhesive inner sole having an appropriately positioned slight arch support 18 is particularly suitable. Over the pad 17 is placed a fabric cover 19.

This may be of terrycloth having elastic stitched into its marginal portion 20, permitting it to be slipped over the pad and platform and to be removed if necessary.

The patient's foot 11 then is covered with a loose mesh stocking 21 of the type customarily used in the construction of casts. At the area of the toes 22 the stocking 21 normally will be cut away so that the injured areas will be open and visible. The stocking 22 does not extend above the patient's ankle 23.

Then, with the foot 11 resting on the platform 10, the sole being positioned over the pad 17 and its cover, a loop of adhesive tape 24 is extended from the heel area forwardly and downwardly to a location beneath the ball of the foot. The tape 24 may be a strip one inch wide and approximately twice the length of the foot. It is secured so that its ends extend beneath the board 10 where it is fastened securely. The tape should be drawn firmly around the heel during this step in the construction of the cast. Generally it is advantageous to use around three or four strips of tape 24 positioned one on top of the other, the exact number depending upon the weight of the person.

After this an additional length 26 of the one inch adhesive tape is fastened under the board 10 in back of the heel 16, and brought forwardly and upwardly so as to cross over the top of the foot to the opposite side and then downwardly to terminate under the board beneath the ball of the foot. A similar length of tape 27 is brought up and over the foot from the other side of the heel toward the front of the foot. The tape sections 26 and 27 then overlap, and extend over the forward portion of the foot above the arch. Again the ankle 23 and the toes 22 are not covered. The pieces of tape 26 and 27, of course, may be an integral element and applied as a loop.

After this has been done, the rigid upper portion 28 of the cast may be applied. Normally this will consist of plaster of Paris bandage material. The plaster of Paris bandage will be wrapped over the foot in a criss-cross manner similar to that followed in applying the tapes 26 and 27. Hence the plaster bandage has substantially the same lateral limits as tapes 26 and 27, and also fills in intermediate the tapes. Additional lengths of the plaster of Paris bandage are wrapped around the board and the foot at the area of the ball of the foot. The wrapping is applied so that the plaster extends over the flanges 13 and 14 of the heel 12, thereby forming a permanent attachment to the heel.

In applying the plaster bandage in this manner care should be taken not to extend the cast upwardly further than the top of the arch. This is necessary in order that the ankle will be free to flex when the patient is walking. Also it may be noted that the plaster 28 does not extend around the heel of the foot but is brought beneath the board 10 at the rear portion of the cast.

The cast then is complete although, of course, it is necessary to allow the plaster of Paris to set up to a hardened condition. Generally this takes approximately twenty-four hours. When this occurs the plaster bandage becomes a unitary rigid member defining a receptacle to receive the foot. It has a rearwardly inclined forward edge 29 and a rearward edge 30 that inclines forwardly at a shallower angle. This results in a relatively narrow segment 31 across the foot, inclined downwardly and forwardly to follow the contour of the foot.

With the cast in place it will be found that the patient can walk in a virtually normal manner despite the injury to the foot. The particular wrapping of the tape and the plaster bandage as described above locates the cast so that the ankle may move as the patient walks. Nevertheless, the toes are positioned over the rigid platform 10 which holds them straight so they cannot curl or bend appreciably. The foot is kept flat when walking by the platform and the plaster which is necessary for correct

healing of the toe. Comfort from the construction of the cast arises also from the inclusion of the resilient pad 17, as well as the configuration of the rigid plaster portion 28 which leaves a great deal of the foot open and unobstructed. Hence, the patient can walk about without the feeling of pressure or pain while the cast is in place.

One of the advantages of the arrangement of this invention is that the cast is easily removed and replaced. It is taken off in the manner illustrated in FIGURE 8. This is accomplished merely by cutting the tape 24 and allowing the foot to be slipped out of the plaster portion 28 and the stocking 22. Therefore, the patient need not wear the cast at times when it is not necessary for the foot to be held in it, which further enhances the comfort of the patient. When retiring at night, or at other times when the patient is resting, the cast may be slipped off to free the foot. Each individual patient in this manner can adopt the periods of use of the cast to suit his particular needs. If he is required to be on his feet a great deal, naturally the cast will be worn at such times, while those who are more sedentary need not wear the cast as long.

After removal the cast is reapplied in the manner show in FIGURE 9. The foot simply is slipped back into the stocking 22 and the plaster 28 to assume its original position. Then an additional length of adhesive tape 32 is applied over the tape 24 that was severed previously. The piece of tape 32 may extend forwardly outside of the plaster 28 to be secured firmly beneath the board 10. Thus, reapplication of the cast requires merely the pressing on of the short piece of tape to secure the heel area so that the cast will stay on the foot.

The foregoing detailed description is to be clearly understood as given by way of illustration and example only. The spirit and scope of this invention being limited solely by the appended claims.

I claim:

1. A foot cast comprising
a rigid sheet member,
a rigid receptacle connected to and extending upwardly of said sheet,
said rigid receptacle extending upwardly on either side of said sheet and over the top of said sheet,
said rigid receptacle having a forwardly inclined rear edge
and a rearwardly inclined front edge thereby defining a relatively narrow central portion over said sheet,
said central portion being inclined downwardly and forwardly,
a heel affixed to the bottom of said sheet intermediate the ends thereof,
and a flexible member connected to said sheet member and extending rearwardly of said rigid receptacle,
said flexible member defining a loop for engaging heel portions of a foot for retaining the foot in said rigid receptacle and on said sheet.

2. A device as recited in claim 1 in which
said rigid receptacle is formed of hardened plaster bandage material,
portions of said bandage material being extended from the side of said sheet at the rearward end of said sheet forwardly and upwardly,
across said sheet in a spaced relationship therewith,
and downwardly on the opposite side of said sheet to the edge of said sheet adjacent the front end of said sheet,
said bandage material being so extended from either side of said sheet so as to define overlapping portions at said portions of said bandage material disposed across said sheet.

3. A cast for the foot comprising
a rigid platform member

a stocking over said platform adapted to receive a foot,
said stocking being open at the toe area thereof,
a heel means beneath said platform intermediate the ends thereof for providing a support therefor,
a first elongated flexible member
connected to said rigid platform member and extending from beneath rearward portions of said platform on one side thereof forwardly and upwardly crossing over said platform and extending downwardly to a position beneath said platform at the forward portion thereof, on the opposite side thereof,
a second elongated flexible member
extending similarly to said first elongated flexible member but from said opposite side to said one side,
whereby said elongated flexible members overlap above said rigid platform member,
a rigid material over said elongated flexible members,
said rigid material being connected to said rigid platform member and having substantially the same perimeter of that of said flexible members,
and an additional elongated flexible member connected to said rigid platform member and extending from said forward portions of said platform upwardly and rearwardly thereof defining a loop adapted to retain the foot of a person inside said stocking and said rigid material.

4. A foot cast comprising
a rigid sheet member,
a heel secured to one surface of said sheet member intermediate the ends thereof,
a pad on the opposite surface thereof,
a stocking on said sheet adapted to receive a foot, the toe portion of said stocking being open,
a loop of tape
attached to and extending from said one surface of said sheet adjacent and inwardly the forward end of said platform and upwardly toward the rear of said platform around the upward rearward portions of said stocking
for receiving and retaining heel portions of a foot,
a pair of lengths of tape
attached to said sheet and extending from opposite sides of said one surface of said sheet adjacent the rearward end thereof forwardly and upwardly
crossing over mid-portions of said stocking in an overlapping relationship
and downwardly on opposite sides of said sheet to said one surface of said sheet adjacent the attachment of said loop of tape,
and plaster bandage material attached to said sheet and extending over said pair of lengths of tape and between the same
for thereby cooperating with said platform to define a rigid retaining portion for a foot.

5. The method of forming a foot cast comprising the steps of
positioning the sole of a foot on a rigid sheet member,
attaching a flexible loop to said sheet so that said loop extends from opposite sides of said foot adjacent the ball of said foot around the heel of said foot,
attaching a first length of tape to said sheet
so as to extend from one side of the heel of said foot upwardly and forwardly crossing over forward top portions of said foot substantially above the arch of said foot and remote from the ankle,
and downwardly on the opposite side of said foot

to a location adjacent the ball of said foot on said opposite side,

attaching a second length of tape to said sheet

extending similarly to said first length of tape but from said opposite side adjacent said heel to said one side adjacent the ball of said foot,

then wrapping said foot with a plaster bandage intermediate the outer edges of said first and second lengths of tape

with at least some portions of said plaster bandage following substantially the same path as said first and second lengths of tape,

and then allowing said plaster bandage to harden so as to define a rigid receptacle for said foot.

6. The method as recited in claim 5 including in addition the step of

taping a heel to the undersurface of said sheet intermediate the ends thereof,

and extending portions of said plaster bandage around portions of said heel so as to form an attachment of said heel to said sheet.

7. The method of forming a foot cast comprising the steps of

preparing a rigid sheet member to define substantially the perimeter of a foot,

placing a loosely knit stocking on a foot,

placing said foot on said platform,

extending a loop of flexible material over said stocking

from the underside of said platform beneath the ball of said foot on either side thereof upwardly and rearwardly around the heel of said foot,

extending a first length of flexible material from beneath the rear portions of said platform adjacent the heel of said foot on one side thereof

forwardly and upwardly to extend above the arch portions of said foot

and downwardly therefrom on the opposite side to a position beneath said platform adjacent the ball of said foot,

applying a second length of flexible material in a manner similar that last mentioned

extending from the opposite side of said foot to said one side thereof,

then wrapping over said stocking and first and second flexible members a plaster of Paris bandage

by wrapping said bandage in substantially the same manner as said first and second flexible members,

and then allowing said plaster of Paris bandage to solidify thereby to define a rigid material.

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