

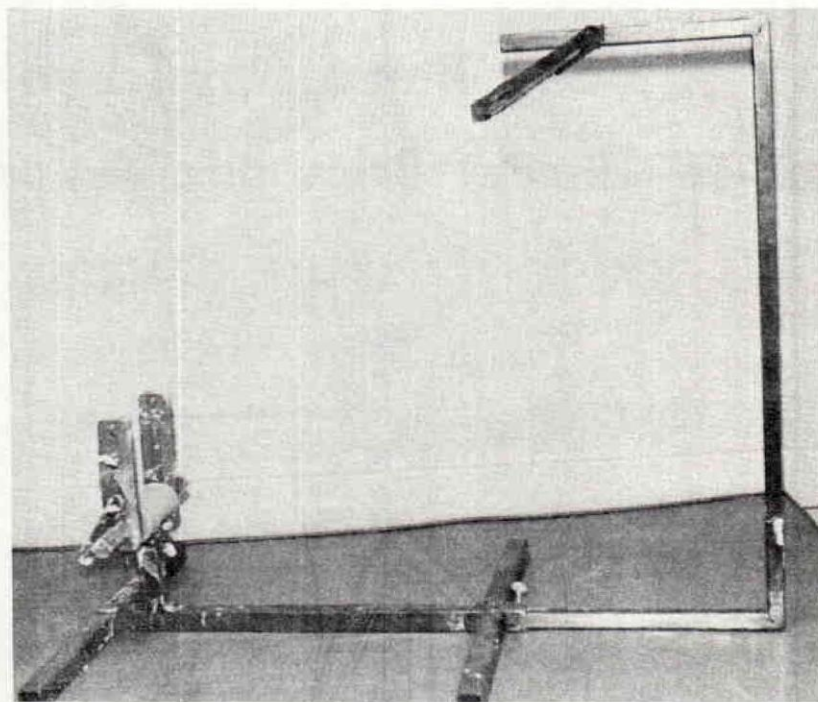
# Use of a Cast-Brace Application Device, Plaster Brim, and Ankle Support for Fracture Bracing

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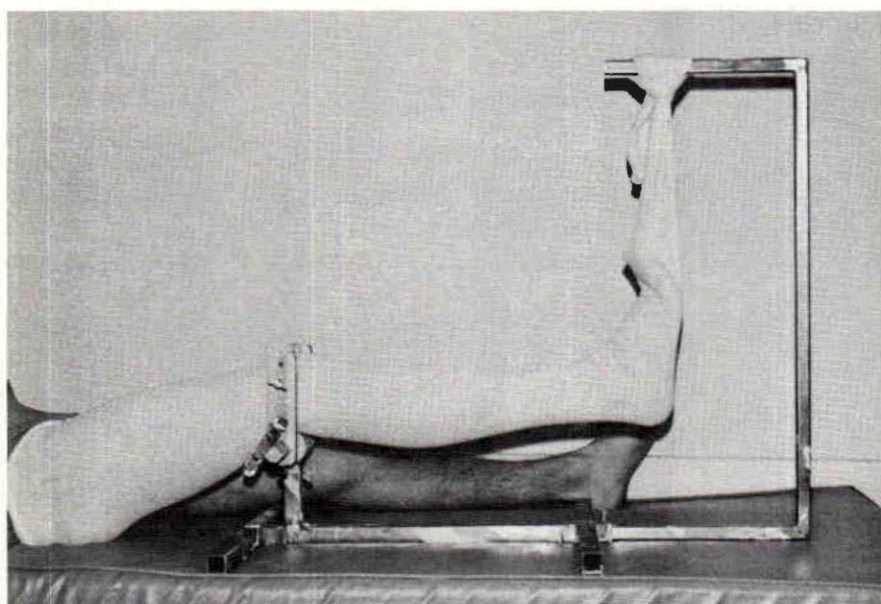
A device has been designed to permit one man to apply cast braces for lower-limb fractures (1, 2) in a faster time and with more accuracy than is the case with present procedures.

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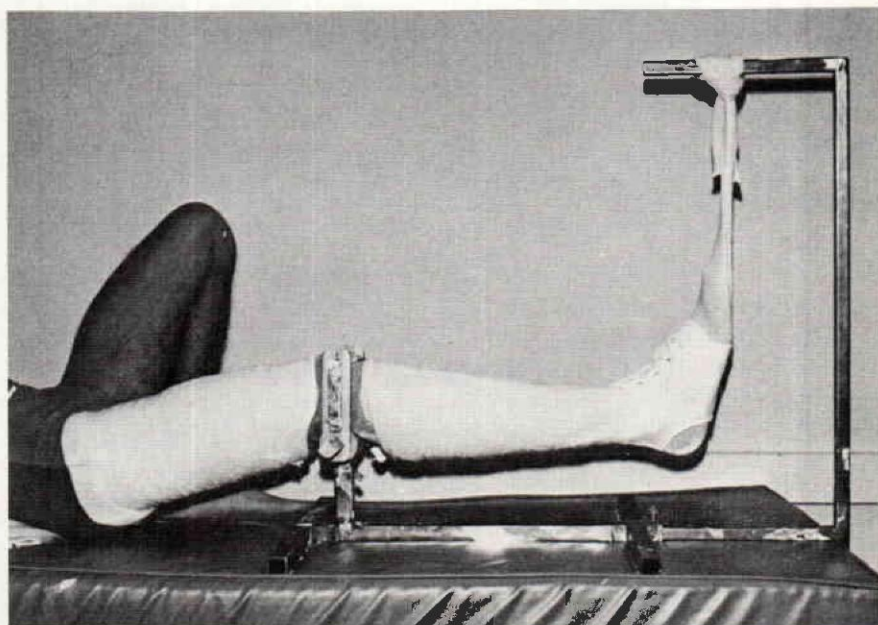
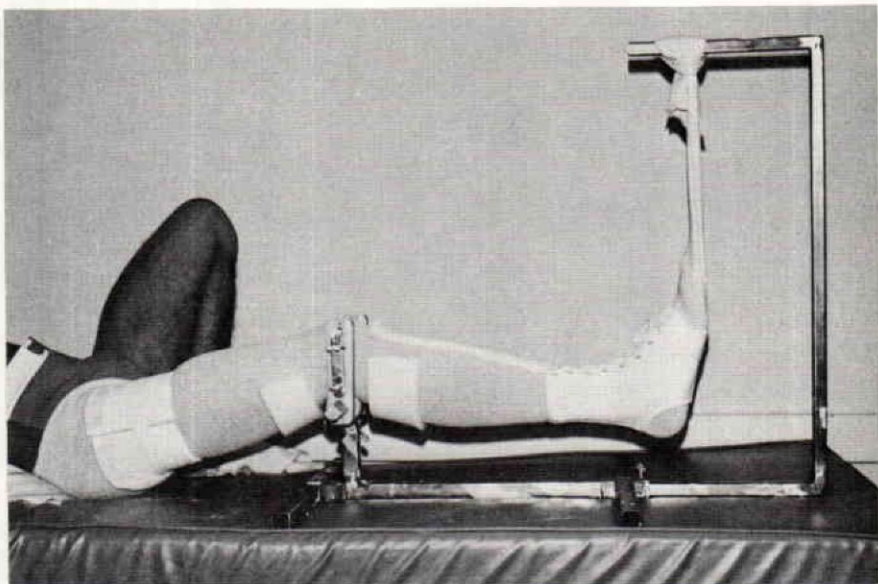


The present joint-alignment fixture is used as the basic knee support. When the joint alignment fixture is reversed it can hold the knee as in a vise. It can be raised or lowered to accommodate some knee flexion. A tilt adjustment feature makes it possible to accommodate for knee or tibial rotation. An ordinary crutch handgrip serves as padding under the popliteal area.



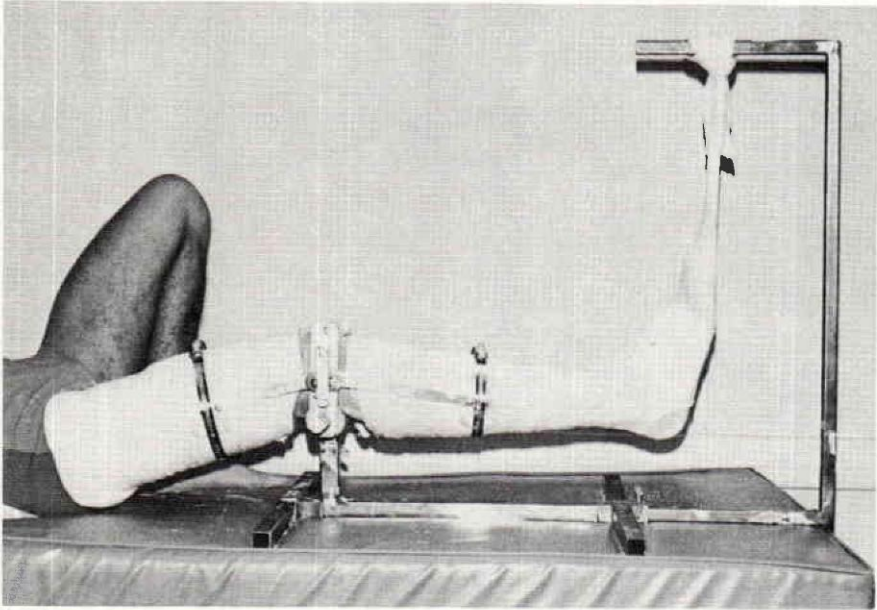
Stockinette is applied over the usual interface material, and the foot is suspended by tying the stockinette to the suspension bar. When the heel is centered with the device the knee hinges will always be horizontal. When valgus or varus knee stress is required, the stockinette may be attached to an outrigger, which can be reversed so as to serve on each side.

A plaster brim (see below), a Truform No. 782 cloth ankle support lined with  $\frac{1}{4}$  foam rubber, and relief padding are applied.



The proximal and distal casts are applied.





Knee hinges are applied outside the device. A clamp with screws above and below holds the hinges firmly in place. The hinges are set slightly posterior to midline. The use of hose clamps is recommended. The thickness of the knee jig uprights provides the proper clearance between the knee hinges and the knee.

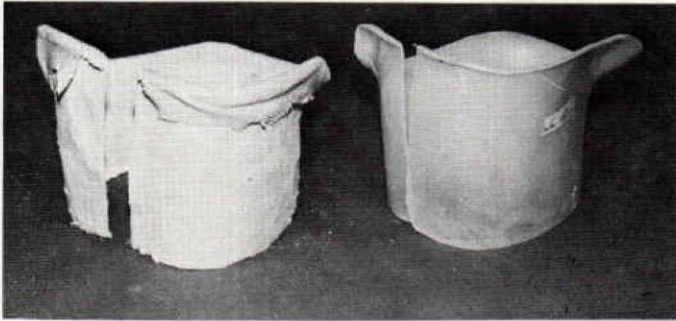


The hinges are secured with plaster in the usual manner.

I find that the cast-brace alignment device helps us to make the brace better fitting and more comfortable. It also saves time by making a difficult job easier.

The development of the cast-brace application device would not have been possible without the cooperation of Dr. J. P. Harvey of the Los Angeles County Medical Center, University of Southern California and Dr. Vert Mooney of Rancho Los Amigos Hospital, under whose auspices and guidance cast braces are applied.

U.S. Manufacturing Company, Glendale, California will soon distribute this new cast-brace application device.



### **THE PLASTER BRIM**

The plaster brim is made out of one roll of 4 inch or 6 inch plaster over stockinette using a plastic brim for the quadrilateral shape. The opening is on the lateral side. Use of plaster has reduced skin problems because of its breathing properties, and made trimming and relieving easier.



### ANKLE SUPPORT

When the ankle support is used problems of ankle-joint alignment are avoided because slight motion in pronation and supination, plantar and dorsiflexion are allowed. The foot is in normal contact with the floor while weight-bearing and an ordinary slipper can be worn. Heel pressure sores have been eliminated. The brace weighs about three pounds less. The use of the ankle brace is limited to femoral, knee and tibial plateau fractures. It is not indicated in the case of fractures located more distally.\*

### LITERATURE CITED

1. Committee on Prosthetics Research and Development, Cast-bracing of fractures National Academy of Sciences, Washington, D.C. 1971.
2. Mooney, V., V. L. Nickel, J. P. Harvey, Jr., and R. Snelson, Cast-brace treatment for fractures of the distal part of the femur. *J. Bone Joint Surg.*, 52-A:8:1563-1578, December 1970.

\* It should be used in selected cases only, and is by no means a substitute for the rigid plaster. I lace the ankle proximal to distal so that the patient can adjust the laces when he is reclining.