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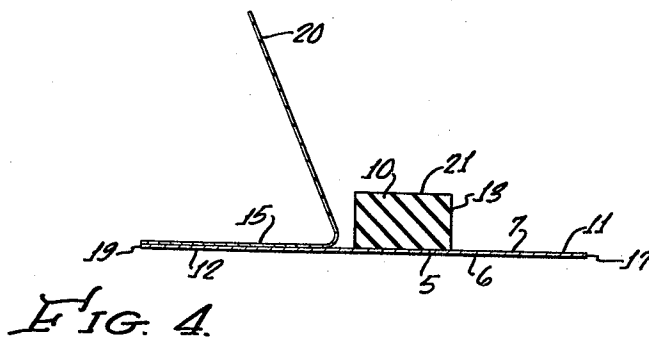
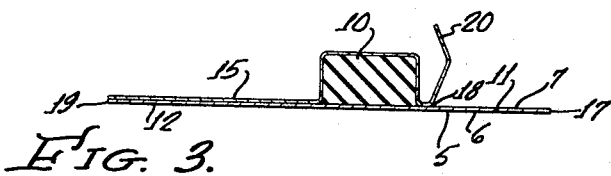
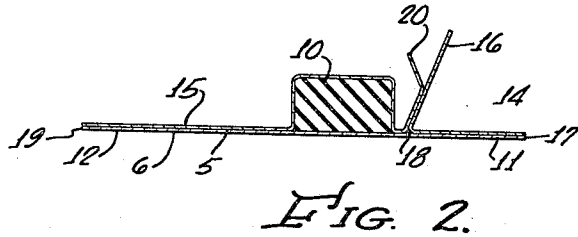
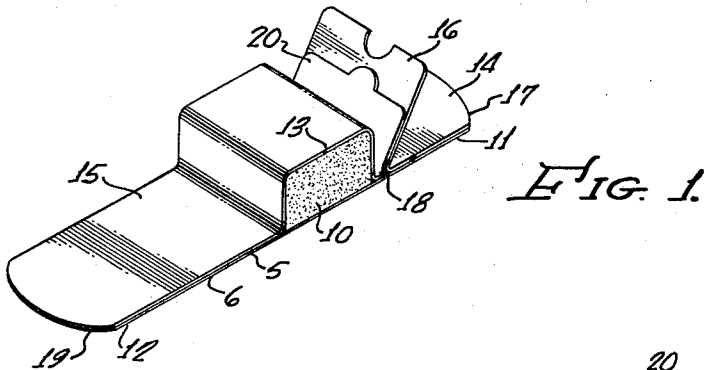
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3,490,448

ADHESIVE PRESSURE PAD

Filed July 31, 1967

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

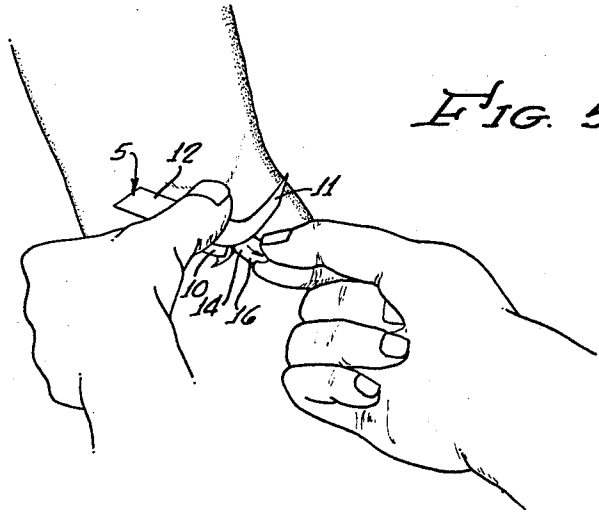


FIG. 5.

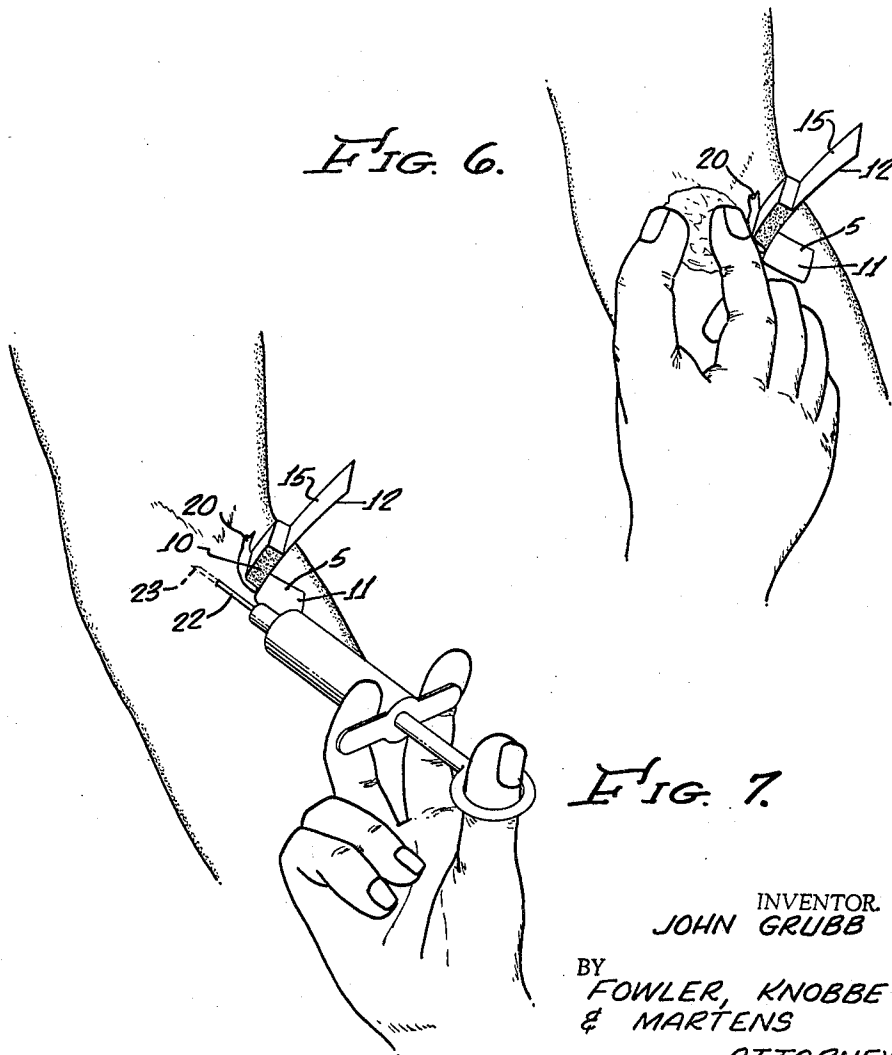


FIG. 6.

FIG. 7.

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3 Sheets-Sheet 3

FIG. 8.

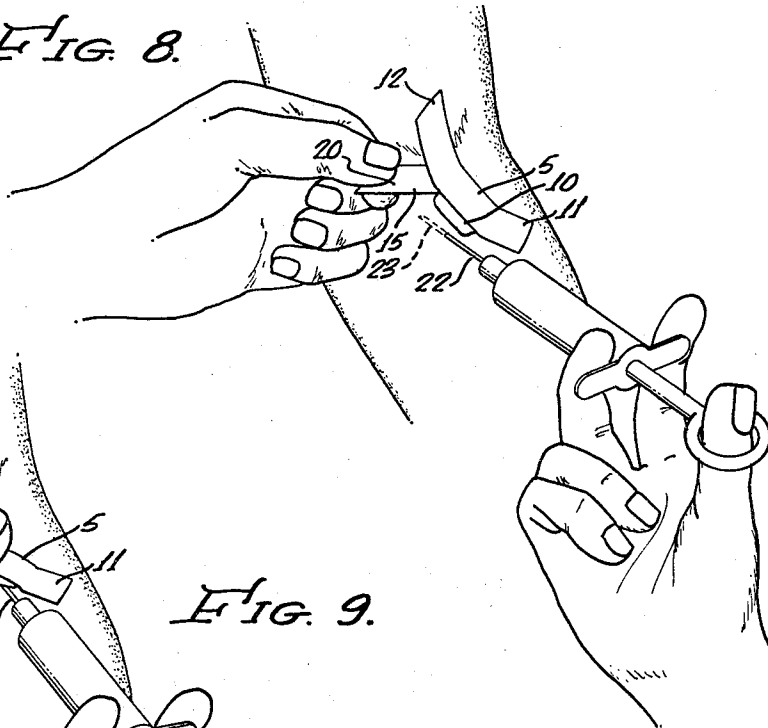


FIG. 9.

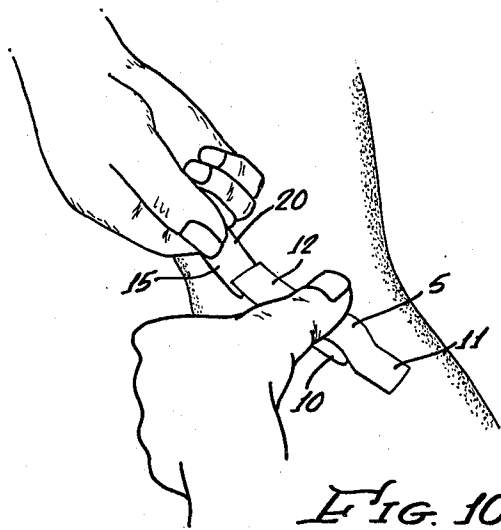
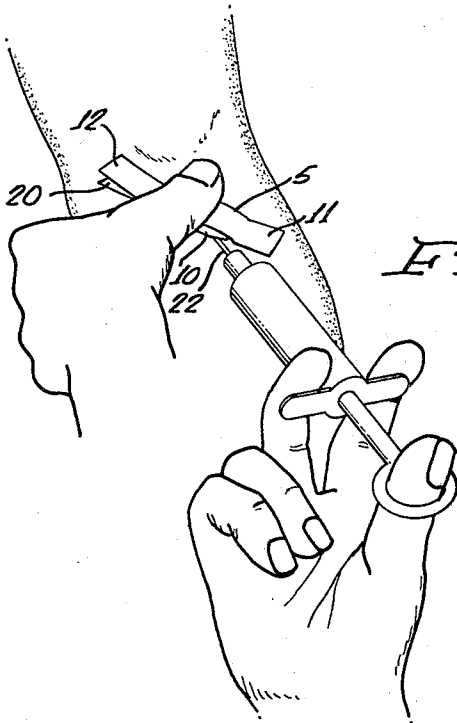
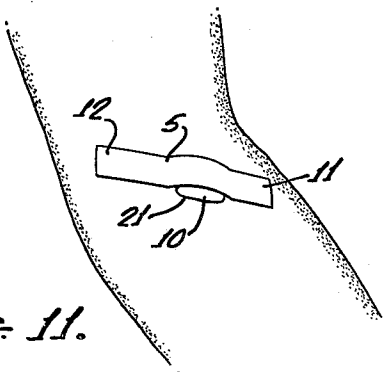


FIG. 10.

FIG. 11.



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1

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**ADHESIVE PRESSURE PAD**

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11 Claims

**ABSTRACT OF THE DISCLOSURE**

A removable protective strip covers only a portion of one flap of an adhesive bandage while another longer strip contacts the opposite flap, extends across a sterile pad and releasably adheres to the remainder of the first flap. The strips terminate in pull tab portions at their junction. A procedure for inserting and removing a needle from the body includes the steps of adhering one flap of the bandage transverse to the line of insertion of the needle, while maintaining the other flap and the pad covered with the longer protection strip, inserting the needle, exposing the second flap and pad, removing the needle while pressing the pad over the puncture, and adhering the second flap to the skin with sufficient pressure to minimize bleeding.

**BACKGROUND OF THE INVENTION**

The present invention relates to an adhesive pressure pad and to a related method of dressing skin punctures.

After the removal of blood samples or during other procedures involving the puncture of body tissue, it is necessary to both stop the flow of fluid and to dress the tissue puncture. The usual practice is to apply thumb pressure to the puncture with a sterile gauze pad until the bleeding stops and then to use the pad or other dressing to cover the puncture. This must be done, however, at a moment when the technician is involved with the sterile preparation of the fluid for testing or storage. Thus, in those instances where the known physical condition of the patient or the location of the puncture make it impossible for the patient to assist, a second technician or nurse must be available to assist.

In the more usual case, the patient is requested to apply the pressure until the bleeding stops. Often the patient is psychologically and emotionally distraught from the pain resulting from, and the involvement in, the recent puncturing procedure, and he does not apply sufficient pressure at the right point. Many times there is blood seepage that stains or saturates the pad further disturbing the patient who, at that point, reacts to the sight of his own blood and becomes nauseous or faints. The technician must then disrupt his handling of the blood sample to attend to the subject and the sample may be ruined in the interim. For example, with blood samples, anticoagulant must be added to the sample within a few minutes.

**SUMMARY OF THE INVENTION**

The bandage of the invention and the related method of removing body fluid samples substantially simplifies the activity of the technician and eliminates the need for any assistance. Moreover, it is more comfortable and comforting to the subject.

The surgical pressure bandage of the invention includes a flexible backing member having an adhesive lower surface, and a relatively thick sterile absorbent cellular pad adhered to the lower surface forming a puncture contacting area and spaced tissue attachment flaps. Preferably the adhesive flaps and the face of the pad are covered with a set of removable protection strips, one of the strips being longer and extending across the pad and adhering to the adhesive on the other side.

2

The bandage finds particular use in a method of dressing surgical punctures by adhering a flap of the bandage to the skin of the subject adjacent the puncture area, puncturing the skin, placing the pad over the puncture and applying pressure while removing the surgical instrument, and adhering the other flap to the skin with sufficient tension to press the pad tightly against the puncture. The procedure is further improved if the longer protection strip is left covering the pad until just before the pad is placed over the puncture to maintain the pad sterile and to avoid interference with the sticky flap.

These and other advantages will become readily apparent by reference to the following detailed description when read in connection with the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of a preferred embodiment of the surgical bandage of the invention;

FIG. 2 is a longitudinal section through the bandage of FIG. 1;

FIG. 3 is a section similar to FIG. 2 illustrating the bandage with the short protective strip removed;

FIG. 4 is a section similar to FIGS. 2 and 3 illustrating the bandage with the short protective strip removed and the long protective strip partially removed to uncover the pressure pad;

FIGS. 5-11 are somewhat schematic perspective views of various steps in a preferred method of using the bandage.

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIGS. 1 and 2, the adhesive pressure bandage of the invention includes an elongate, rectangular flexible backing 5 having a nontacky outer surface 6 and a pressure sensitive adhesive 7 provided on the inside surface. Ventilation apertures (not shown) may be provided along the length of the backing. A resilient, thick sterile cellular pad 10 is adhered to the inner surface of the pad and the backing on either side of the pad forms a pair of skin adhering flaps 11 and 12. Preferably the flap 12 is longer than the flap 11.

The flaps 11, 12 and the outer face 13 of the pad are protected from contamination by means of a pair of removable protection strips 14 and 15. The first strip 14 includes a pull tab portion 16 and is releasably adhered to the pressure sensitive adhesive flap 11 from the edge 17 of the backing 5 to a point 18 short of the pad 10, the tab 16 extending sufficiently to permit it to be manually grasped. The second strip 15 extends from the opposite edge 19 of the backing, is adhered completely to flap 12 and extends across the face 13 of the pad and adheres to the adhesive layer 7 on the opposite flap 12 and then extends upwardly and back partially across the pad to form a pull tab section 20.

As shown in FIG. 3, the shorter strip 14 can be removed to expose the major portion of the adhesive on the flap 11 while leaving the longer strip 15 covering the second flap 12 and adhered to the flap 11 to cover the contact surface 21 of the pad. Referring to FIG. 4, the longer strip 15 can be pulled from its relatively weak adhesion to the flap 11 to expose the pad without removing the strip 15 from the longer flap 12.

The surgical bandage of the invention finds effective utilization in laboratory procedures, for example, for the removal of a sample or portion of body fluid. The description of the method of use will be made with reference to the suggested procedure for a right-handed technician, it being apparent that various procedures can be done opposite handed.

Referring to FIG. 5, the covered bandage is laid on the skin with the pressure pad 10 centered over the puncture.

3

ture spot and held in place by the technician's left hand. Since the pad is covered, it is not contaminated by the skin. Note that the shorter flap 11 is positioned to the technician's right side. The adhesive flap 11 is adhered to the skin transverse the intended line of puncture and adjacent the puncture area by peeling the shorter protective strip with the fingers of the right hand while pressing the pad 10 with the thumb of the left hand. The longer protective strip 15 is retained in its initial position (as in FIG. 3) on the bandage to maintain the pad in sterile condition and to prevent the adhesive from interfering with the procedure.

As shown in FIG. 6, the bandage is folded aside and the exposed puncture area is swabbed with alcohol, ether or acetone, care being taken that the liquid does not contact the skin in the area that the second flap is to be adhered to. This problem is alleviated to some extent in the illustrated embodiment since the second flap 12 is quite long so that adhesion outside of the immediate puncture area is assured. The use of one long flap has the further advantage that the shorter side is immediately identifiable permitting quick identification and orientation of the bandage into proper position.

Referring to FIG. 7, the surgical instrument such as the tip 23 of a cannula or needle 22 is then inserted with the right hand into the skin puncture area and into the blood vessel and the desired quantity of fluid removed. As is shown in FIGS. 8 and 9, with the needle 22 still in position, the longer protective strip 15 is removed partially to the position shown in FIG. 4 to expose the pad surface. For this reason, the pull tab 20 must be of a length greater than the thickness of the pad to allow it to be grasped easily once the needle is in position. The exposed pad then is pressed by the thumb of the technician tightly against the puncture while the needle is removed. While continuing the thumb pressure, the needle is set down. Referring now to FIGS. 10 and 11, the remainder of the strip 15 is peeled with a downward pulling motion to tautly adhere the flap 12 to the skin so that the pressure pad presses sufficiently tightly against the puncture area to avoid bleeding.

It should be noted that the puncture contacting surface 21 of the pad was covered to protect it from contamination until the pad was ready to be finally pressed over the puncture wound. There is little or no bleeding at the puncture site and more important there is no view of any blood that is emitted and immediately absorbed by the pressure pad. Furthermore, the continued pressure minimizes hematoma, a purple discoloration caused by internal bleeding. This condition is unsightly and more importantly can mask the vein and make a further entering to the same vein area very difficult until the condition is alleviated.

The above procedure is efficient, sterile and convenient. The participation of the subject is eliminated since the action of the pressure pad replaces the thumb pressure of the subject on the puncture area. The technician's manipulations are substantially simplified since the sterile bandage is already prepared and in position on the subject's limb, and the technician can proceed with the blood removal without fear of contaminating the bandage. As soon as the needle is withdrawn, the subject is bandaged and the technician can continue with the preparation of the sample for testing or for blood bank storage. The possibility of the subject fainting from the sight of their own blood is substantially reduced. Moreover, the technician need not return after preparing the sample to dress the puncture wound.

The bandage backing and protective cover strips are formed from materials commonly used in the adhesive dressing art. The backing preferably is made out of a flexible fabric which is slightly elastic in nature such as a vinyl material. The pressure sensitive adhesive has more self cohesion and adhesion to the backing than to

4

either the protective strips or to the skin so that it peels easily from the latter without depositing any adhesive.

The pressure pad of the bandage may be formed from numerous cellular materials and may be provided in various shapes. The pad is suitably a rectangular block of a compressible sponge material that is capable of sterilization and is absorbent, resilient, non-allergenic and non-irritating. The pad should have a thickness of at least one-quarter inch in order to provide sufficient pressure to curtail bleeding from the puncture. Pads over one inch thick would not appear necessary for most of the usual surgical situations under consideration.

Pads of hygroscopic sheeting of rubber foam shreds bound in a polyurethane adhesive material have been found to perform most satisfactorily in the bandage of the invention. Such materials have been used in direct contact to the skin for extended periods such as shoe cushioning pads without any irritation or inflammation and with excellent quick-action absorbing of body sweat. It is preferred that the material be of medium firmness requiring about 0.20 to 0.35 pound to compress it 25 percent so that the material transmits pressure to the wound and vein from thumb pressure but yet compresses sufficiently to maintain force on the puncture after it is allowed to expand by releasing the thumb from the pad. Other natural or synthetic sponge materials may also be utilized such as open cell foamed polystyrene or polyurethane pads. Such pads do not adhere to skin, nor allow congealed blood to form a bond between the pad and the skin puncture, but yet the pad rides on the skin and with pressure, the resilient materials tend to close the open puncture. These materials are readily adaptable to include medicaments such as an antiseptic, a bacteriostatic or a hemostatic agent which can be added by dip treatment.

It is to be understood that the foregoing only relates to preferred embodiments of the invention and that numerous substitutions, modifications and alterations are permissible without departing from the scope of the invention as defined in the following claims.

What is claimed is:

1. A method of puncturing the skin and dressing the puncture wound comprising the steps of:
  - adhering to the skin of the subject adjacent the puncture area one flap of a double flap surgical bandage including a thick, sterile pressure pad between the flaps;
  - puncturing the skin with a surgical instrument;
  - pressing the pad against the puncture while removing the instrument; and
  - tightly adhering the opposite flap to the skin so as to apply pressure from the pad to the puncture, a protective strip covering the adhesive of the second flap and the puncture contacting surface of the pressure pad until the skin has been punctured with the surgical instrument.
2. A method according to claim 1 in which the pad is a sterile cellular material having a thickness of at least one-quarter of an inch.
3. A method according to claim 2 in which the pad is a block of hygroscopic polyurethane bound shredded rubber foam having a thickness of from about one-quarter to one inch.
4. A method according to claim 1 in which the bandage is positioned transverse to the line of insertion of the surgical instrument.
5. A method according to claim 1 in which the second flap is longer than the first.
6. In a method of inserting a surgical instrument in the body of a subject, the steps of:
  - adhering to the skin of the subject adjacent the puncture area and transverse to the line of puncture one adhesive flap of a surgical bandage containing a further adhesive flap and a thick, sterile pressure pad, the

5

6

second flap and the pad being covered with a removable protective strip;  
 cleansing the puncture area;  
 puncturing the skin with a surgical instrument;  
 partially removing the protective strip to expose the pad;  
 pressing the pad against the puncture while removing the instrument; and  
 tightly adhering the other flap to the skin so as to apply hemorrhage preventing pressure from the pad to the puncture by pulling the strip with a downward pulling motion.

7. In a method of inserting a surgical instrument in the body of a subject in accordance with claim 6 wherein the step of adhering the first flap to the skin includes:  
 holding the bandage with the pad on the puncture area, the pad being covered by said protective strip and the first flap covered by another removable protective strip; and  
 removing said other protective strip to adhere the first flap to the skin while still holding the covered pad on the puncture area.

8. A surgical bandage comprising:  
 an adhesive backing;  
 a thick, sterile pressure pad attached to the backing forming a wound contacting area and dividing the adhesive backing into two skin attachment flaps; and  
 a pair of removable protective strips covering the pad and the attachment flaps, one of the strips having a longer contact area than the other strip extending in releasable attachment from one flap across the pad to the other flap, the other strip extending in

releasable attachment to the other flap up to the point of its junction with said one strip.

9. A bandage according to claim 8 in which one of the flaps is longer than the other flap.

10. An adhesive bandage comprising:  
 a flexible adhesive backing;  
 a resilient sterile pad of a cellular absorbent material having a thickness of at least one-quarter inch attached to the backing so as to form spaced side skin attaching flaps; and  
 a set of removable protection strips covering the pad and attaching flaps, one of the strips extending from an end of the backing across the pad, adhering to the adhesive on the opposite side of the pad and terminating in a pull tab, the other strip extending from the opposite end of the backing to the junction with the other strip and terminating in a pull tab.

11. An adhesive bandage according to claim 10 in which the cellular material is shredded foamed rubber bound in a polyurethane matrix having a medium compression resistance of from about 0.20 to 0.35 pound.

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U.S. Cl. X.R.

128—157, 213, 268