

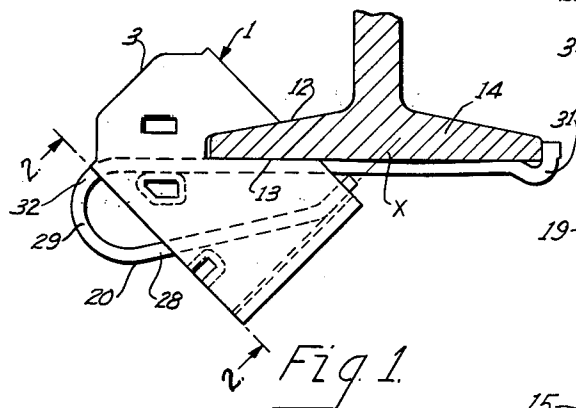
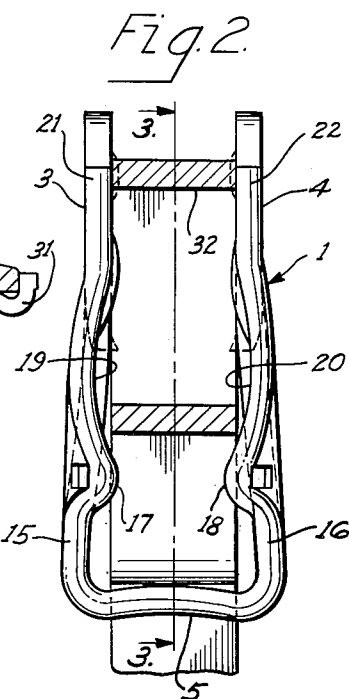
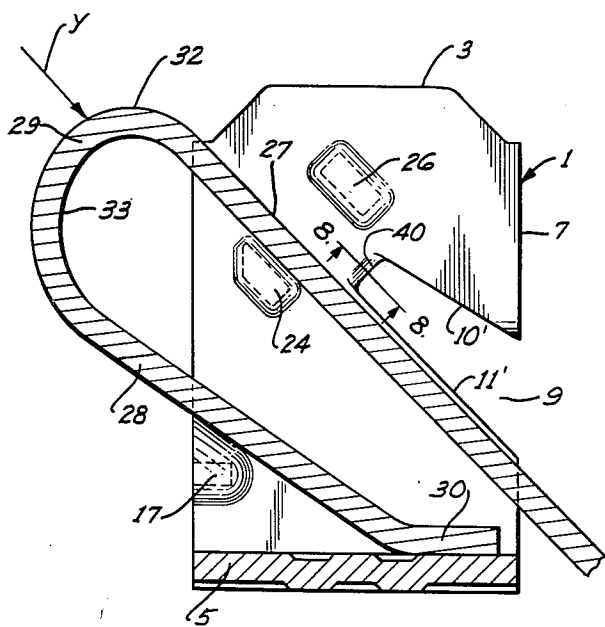
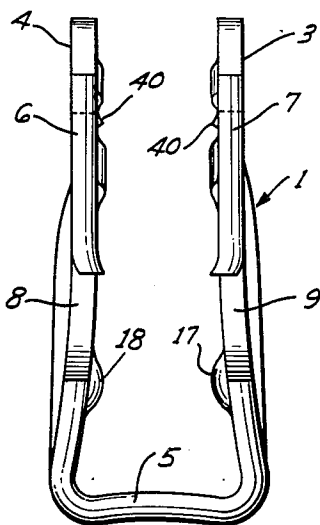
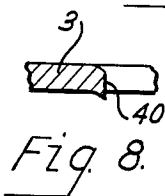
Feb. 13, 1962

C. A. FINCH
RAIL ANCHORS

3,021,076

Filed Dec. 19, 1957

3 Sheets-Sheet 1



INVENTOR.
Charles A. Finch
BY Frank M. Slough
and J. H. Slough
His ATTORNEYS.

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3 Sheets-Sheet 2

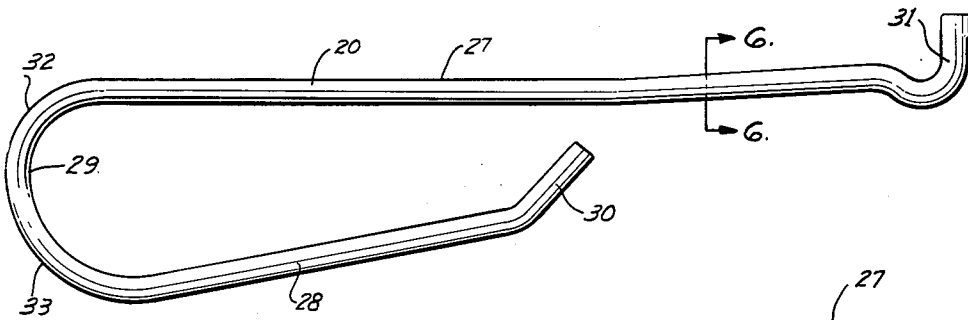


Fig. 5

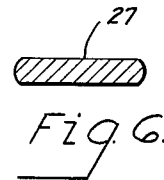


Fig. 6

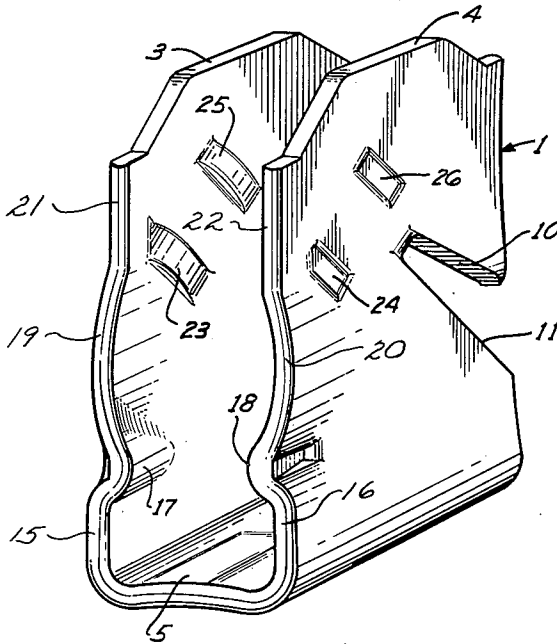


Fig. 7

INVENTOR.
Charles A. Finch
BY *Frank M. Slough*
and *J. H. Slough*
His ATTORNEYS.

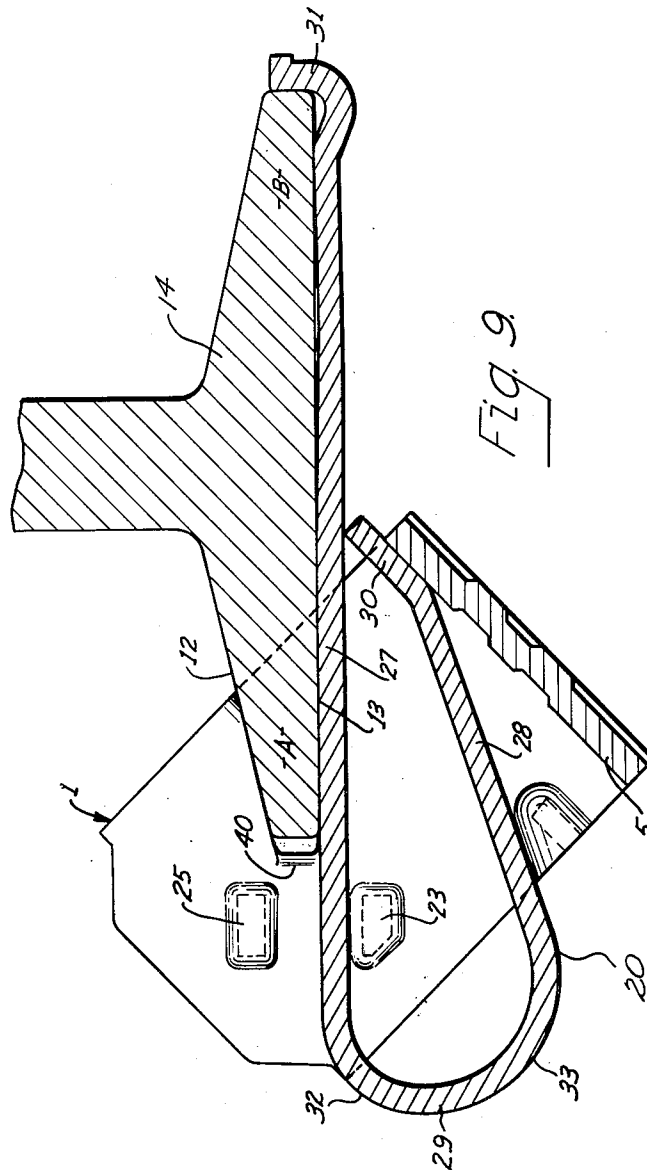
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C. A. FINCH
RAIL ANCHORS

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3 Sheets-Sheet 3



INVENTOR.
Charles A. Finch
BY Frank M. Slough
and J. H. Slough,
His ATTORNEYS.

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3,021,076

RAIL ANCHORS

Charles A. Finch, Girard, Pa., assignor to True Temper Corporation, Cleveland, Ohio, a corporation of Ohio
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6 Claims. (Cl. 238—321)

My invention relates to rail anchors and relates more particularly to rail anchors of the type referred to as "two-piece" rail anchors, one element being a relatively rigid channel shaped clamp member and the other element being a spring retaining member.

Previous rail anchors of the aforesaid type with which I am familiar have been subject to overdriving of the retaining element or underdriving thereof, wherefor the anchor is not reliably secured in its normal desired position of application.

It is an object of my invention to provide an improved rail anchor of the referred to type wherein the rail anchor may be easily driven onto a rail base with relatively light blows.

It is a further object of my invention to provide an improved rail anchor of the type referred to wherein the rail anchor spring element may have good resistance to overdrive and torsion.

It is a further object of my invention to provide an improved rail anchor of the type referred to wherein the rail anchor spring element may have good resistance to rebound.

Another object of my invention is to provide additional spring support for the retaining member of my invention, wherein improper application will not bend the spring to any appreciable extent and wherein the greater effect of the driving force will be delivered to the arm of the spring adapted to be clamped over the opposite flange of the rail base to that upon which the clamp member is driven.

A still further object of my invention is to maintain a two-piece anchor in assembly as a unit throughout shipping, delivery, and driving operations.

A further object of my invention is to provide a rail anchor of the type referred to wherein the clamp member will guide and center the spring retaining member during driving operations.

A still further object of my invention is to provide an improved rail anchor of the type referred to wherein the rail anchor when assembled with the rail base has an improved holding power.

Another object of my invention is to provide a rail anchor of the type referred to wherein an improved back pressure is exerted upon the hook end of the spring retaining member when the same is assembled with the rail base.

Another object of my invention is to provide an improved rail anchor in which the bearing surface between the spring and clamp is increased over devices of the prior art, with which I am familiar.

Other objects of my invention and the invention itself will be more readily apparent by reference to the accompanying drawings, and the appended description, in which drawings:

FIG. 1 is a side elevational view of an embodiment of my invention as applied to a rail base, the rail being shown in transverse sectional view and dotted lines indicating portions of the retaining element lying beneath one of the arms of the rail clamping member;

FIG. 2 is a rear view taken on the lines 2—2 of FIG. 1;

FIG. 3 is a view taken along the line 3—3 of FIG. 2;

FIG. 4 is a front elevational view of the clamping member;

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FIG. 5 is a side plan view of the retaining element; FIG. 6 is a view taken from the line 6—6 of FIG. 5; FIG. 7 is a perspective view of the clamp element taken from the rear thereof;

FIG. 8 is a view taken along the line 8—8 of FIG. 3; FIG. 9 is a transverse sectional view of the rail anchor as shown in FIG. 1.

Referring now to the drawings illustrating the embodiment of my invention, in all of which like parts are designated by like reference characters, the rail anchor thereof may generally be characterized as being of the two-piece type, and comprises two parts which are adapted to be cooperatively interlocked on a rail base, and to be cooperatively interlocked for shipment prior to application on the rail base. The rail anchor comprises a rail gripping member 1 and a retaining bar or spring retainer member 20.

The clamp member 1 is of generally U-shaped channel form and comprises upstanding arms 3 and 4, and a substantially planar web 5, each arm being inwardly notched at its forwardly disposed edges 6 and 7, said notches being indicated at 8 and 9, to provide divergent rail gripping upper and lower jaws 10, 11, 10' and 11', respectively adapted to flatwise engage the upper and lower border surfaces 12 and 13 of a rail base flange 14.

The web of the clamp channel member 1 preferably extends for the greater part of its extent in a direction which is generally at right angles to the side arm 3 and 4, and the plane of the lower jaws 11, 11' is disposed substantially at an angle of 45° to the plane of the greater part of the upper surface of the web 5. When the clamp member 1 is operatively secured to a rail base flange with the jaws 10, 11, 10' and 11' embracing the top and bottom surfaces to said flange, the web 5 will be disposed at an angle of substantially 45° to the plane of the rail base bottom which coincides with the plane of the lower jaws 11, 11' in engagement therewith.

The clamp member 1, when in operative position on the rail base as shown in FIG. 9, will cause the the plane of the upper surface of the web to be forwardly and upwardly inclined, as best shown in FIG. 1, with respect to the said rail base bottom, and a projection of said plane will preferably intersect the rail base bottom near its middle at a point X, which is directly below the rail web 14.

The lowermost portions of the rearwardly disposed edges 15 and 16 of the arms 3 and 4 of the clamp member 1 are inwardly crimped as by a forming tool to provide inwardly extending, upwardly and forwardly tapered, drive protuberances 17 and 18, as best illustrated in FIGS. 2 and 7. The medial portion of the rearmost edges of the arms 3 and 4 located above the lowermost disposed protuberances 17 and 18 are bowed outwardly as at 19 and 20, and the uppermost portions of the rear edges of the arms 3 and 4, indicated at 21 and 22, are generally substantially parallel to each other.

The same arms 3 and 4 are further provided with inwardly projecting longitudinally tapered protuberances 23 and 24 (FIG. 7) at portions spaced inwardly of the rear edges of the said arms, and said protuberances 23 and 24 are disposed rearwardly of and just below the plane of the lowermost jaw 11, 11' of the said arms as seen in FIG. 9.

Referring again to said FIG. 9, it is further to be noted that the said arms 3 and 4 are also provided with inwardly extending protuberances 25 and 26 at portions spaced above said protuberances 23—24 inwardly of the rear edges of the arms and rearwardly of the upper jaws 10, 10' of the said arms.

It is to be noted that the protuberances 17, 18, 23, 24, 25, 26 are preferably provided at the time of making the notches 8 and 9.

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The retaining element or spring loop 20, preferably formed of a blank of flat resilient spring steel, is bent flatwise intermediate its ends to provide a pair of slightly forwardly convergent, respectively upper and lower arms 27 and 28 and a loop connector portion 29, the upper arm 27 being relatively longer, and the lower arm 28 being relatively shorter. The shorter, lower arm 28 terminates in a relatively short end portion 30 bent at an oblique angle to the relatively longer arm 27. The upper relatively longer arm 27 terminates in an upturned re- 5 tainer hook 31.

The free end 30 of the relatively shorter arm of the retainer element 20 is so angularly bent and disposed as to have flatwise abutment with the web of the clamp portion during driving operation.

It is to be noted that the loop connector portion 29 is so formed as to provide a raised, upper driving surface portion 32, which portion has a generally involute form wherefor when the spring retaining element 20 is assembled with the clamp member and the clamp pre-set 20 on the rail, the greater part of the sledge blow or driving force will be delivered at "y" and transmitted by the relatively longer arm 27 to the hook end 31 causing it to extend beyond the end of the opposite rail base flange wherefor the clamp and spring retainer element is easily 25 applied to the rail.

The arms 27 and 28 of the element 20, as best illustrated in FIG. 9, during driving, compress and become relatively more convergent; they also move forwardly under the force of the blow and when the clamp is firmly seated on the rail base flange A and the hook end 31 of the relatively longer arm 27 snaps over the flange B of the same rail, the end 30 of the relatively shorter arm 28 protrudes slightly beyond the forward edges of the clamp to exert compressive force under the relatively longer 30 arm at a medial portion of the rail.

It will be noted that the striking portion 32 of the spring loop 29 contiguous the relatively longer arm 27 is raised with respect to the remainder of the loop connecting portion 33 and the said remaining portion 33 is downwardly and inwardly curved into the plane of the relatively shorter arm 28. The loop 33 hence when struck by a sledge or other driving tool does not bulge but is rather inclined by its formation to uncoil during driving thereby effecting a back pressure on the spring hook end 40 portion 31. By reason of the additional back pressure the hook is more firmly seated on the flange b and the retaining element more easily driven since the entire force of the blow is substantially transmitted to the hook carrying arm 27.

The protuberances 17 and 18 act as a guide and a support for the arm 28 during driving and the tapered surfaces thereof assist in such guiding and further center the arm during such operation.

The protuberances 23 and 24, 25 and 26, during shipment, retain the spring retainer element 20 in assembled relationship with the clamp member and maintain the arm in position for later driving.

The arms 3 and 4 are further each provided with inwardly projecting or inwardly struck surfaces 40, as best illustrated in FIGS. 3, 8 and 9, adjacent the innermost ends of the slots and these surfaces 40 prevent the retainer element or spring 20 from upward movement during shipment and application upon the rail base.

While I have described my invention in connection with an improved embodiment thereof, I am aware that numerous and extensive departures may be made therein, such as changes in size and material without, however, departing from the spirit of my invention or the scope of the appended claims.

What I claim is:

1. A two-piece rail anchor of the type comprising a channel-shaped clamp having a pair of laterally interspaced upstanding arms rearwardly and upwardly notched from their forward edges to afford corresponding pairs of 75

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upper and lower rail base flange engaging jaws and an intermediate web interconnecting the lower ends of the arms, and a spring retainer which is intermediately bent to afford superposed relatively longer, upper, and shorter lower spring arms, the upper of said arms terminating in an upturned hook, the lower of said arms terminating in a free end bent at an oblique angle in the direction of said upper arm, said retainer having a relatively rearwardly disposed substantial portion of the length of its said upper arm, and the forward portion of the length of its lower arm which constitutes a greater portion of its entire length being disposable between said clamp arm, said upper arm disposed parallel to and adjacent said lower jaws, the free end of the lower arm being parallel to and in abutting engagement with a relatively forwardly disposed portion of the upper surface of said clamp web, and with the relatively forward portion of the long spring arm extending forwardly beyond those portions of the clamp arm which extend between said web and the foremost portion of the said clamp jaws, said clamp and retainer members adapted for simultaneous application to a rail base from one side thereof with the proximate base flange embraced by said upper and lower jaws and the upturned hook of the upper retainer arm in retaining engagement with the remote side edge of said base, said free end of the lower arm being driven forwardly along said web during application whereby it contacts the lower surface of said upper arm, said web exerting pressure tending to flatten said free end.

2. A two-piece rail anchor of the type comprising a channel-shaped clamp having a pair of laterally interspaced upstanding arms rearwardly and upwardly notched from their forward edges to afford corresponding pairs of upper and lower rail base flange engaging jaws and an intermediate web interconnecting the lower end of the arms, and a spring retainer formed of bar steel, which is intermediately bent to afford superposed relatively longer upper and shorter lower spring arms, the uppermost of said arms terminating in an upturned hook, the lowermost of said arms terminating in a free end bent in the direction of said uppermost arm, said retainer having a relatively rearwardly disposed substantial portion of the length of its said upper arm, and the forward portion of the length of its lower arm which constitutes a greater portion of its entire length being disposable between said clamp arms with the bottom surface of the end of the lower arm being parallel with and in abutting relation with a relatively forwardly disposed portion of the upper surface of said clamp web, and with the relatively forward portion of the long spring arm extending forwardly beyond those portions of the clamp arms which extend between said web and the foremost portions of the said clamp jaws, said clamp and retainer members adapted for simultaneous application to a rail base from one side thereof with the proximate base flange embraced by said upper and lower jaws and the upturned hook of the upper retainer arm in retaining engagement with the remote side edge of said base, aligned opposed protuberances provided in the opposite arms of said clamp member, said protuberances being tapered forwardly and downwardly of the rear surfaces of said clamp member and providing centering and guiding means for the relatively short and relatively long arms of the spring retainer during application of the clamp and retainer to the rail base.

3. A two-piece rail anchor of the type claimed in claim 2, in which portions of the clamp member adjacent the bottom of the notches provided in the arm of said clamp members project inwardly and restrain upward movement of said relatively longer arm of said retainer.

4. A two-piece rail anchor of the type comprising a channel-shaped clamp having a pair of laterally interspaced upstanding arms joined by a web and rearwardly and upwardly notched from their forward edges to afford corresponding pairs of upper and lower rail base

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flange engaging jaws and a spring retainer which is intermediately bent to afford superposed relatively longer upper and lower shorter spring arms with the rear portions of said arms integrally joined by a loop portion, the loop portion being placed between the clamp arms with the upper portion of the loop being relatively more sharply curved than the remaining portions of the loop proceeding in the direction of the lower spring arm, said anchor clamp and retainer concurrently being applied to a rail base by the effect of driving force directed against the upper relatively more sharply curved portion of said retainer loop portion after said clamp jaws are placed in embracing relation to a rail base flange, said driving force tending to uncoil said more curved portion whereby said upper arm is biased in an upward direction, the more forwardly disposed portion of the short spring arm bent parallel with and abutting said web and adapted to engage the bottom surfaces of said relatively longer spring arm at an intermediate portion thereof during application of the rail anchor to the rail, said web exerting pressure tending to flatten said forwardly disposed portion of said short spring arm.

5. A retainer bar for a two-piece rail anchor of the type comprising a channel-shaped clamp having a pair of laterally interspaced upstanding arms rearwardly and upwardly notched from their forward edges to afford corresponding pairs of upper and lower rail base flange engaging jaws and an intermediate web interconnecting the lower portions of said arms, said retainer bar having superposed relatively longer upper and shorter lower spring arms, the said arms being joined by an intermediate curved connector portion, said connector portion being more sharply curved adjacent said upper arm and progressively flattened in the direction of the relatively shorter lower spring arm, the more sharply curved portion of said connector portion affording a striking area for driving said rail anchor, said striking portion adapted to uncoil when struck to more nearly approximate the curve of said progressively flattened portion, the lower arm throughout the greater part of its length being disposable between said clamp arms, said lower arm having an outer free end parallel to and in abutting relationship with a portion of the upper surface of said web, said free end adapted to engage the bottom surface of said longer,

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upper spring arm, the upper arm having a substantial portion of its length extending forwardly beyond the forward portion of the clamp arms and having a hook end adapted to be driven onto the rail base flange opposite the flange on which the clamp member is seated.

6. A retainer bar for a two-piece rail anchor of the type comprising a channel-shaped clamp having a pair of laterally interspaced upstanding arms rearwardly and upwardly notched from their forward edges to afford corresponding pairs of upper and lower rail base flange engaging jaws and an intermediate web interconnecting the lower portions of said arms, said retainer bar having superposed relatively longer upper and shorter lower spring arms, the said arms being joined by an intermediate curved connector portion, said connector being more sharply curved adjacent said upper arm and progressively flattened in the direction of the relatively shorter lower spring arm, the more sharply curved portion of said connector portion affording a striking area for driving said rail anchor, said striking portion adapted to uncoil when struck to more nearly approximate the curve of said progressively flattened portion, the lower arm throughout the greater part of its length being disposable between said clamp arms, said lower arm having an outer free end which engages the upper surface of said web, said free end being adapted when driven to engage the bottom surface of said longer upper spring arm at an acute angle, said free end being disposed in a direction substantially toward the end of said longer, upper spring arm whereby said free end exerts a compressive force on the bottom of said longer, upper spring arm, the upper arm having a substantial portion of its length extending forwardly beyond the forward portion of the clamp arms and having a hook end adapted to be driven onto the rail base flange opposite the flange on which the clamp member is seated.

References Cited in the file of this patent

UNITED STATES PATENTS

40	1,866,897	McConkey et al.	July 12, 1932
	2,081,621	Fifield	May 25, 1937
	2,217,040	Blair	Oct. 8, 1940
	2,493,686	Moore et al.	Jan. 3, 1950
	2,792,182	Finch	May 14, 1957