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INSOLE CONSTRUCTION FOR A SHOE

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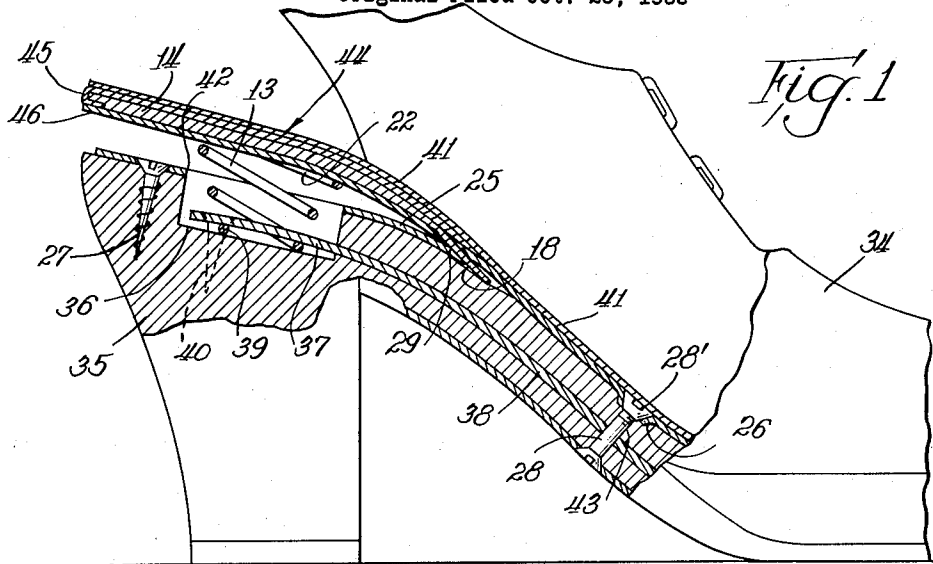


Fig. 1

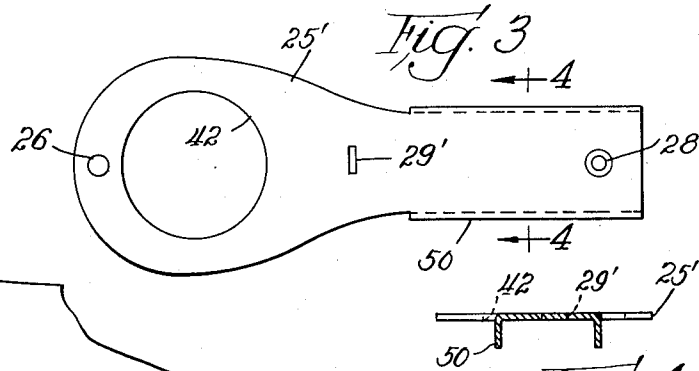


Fig. 3

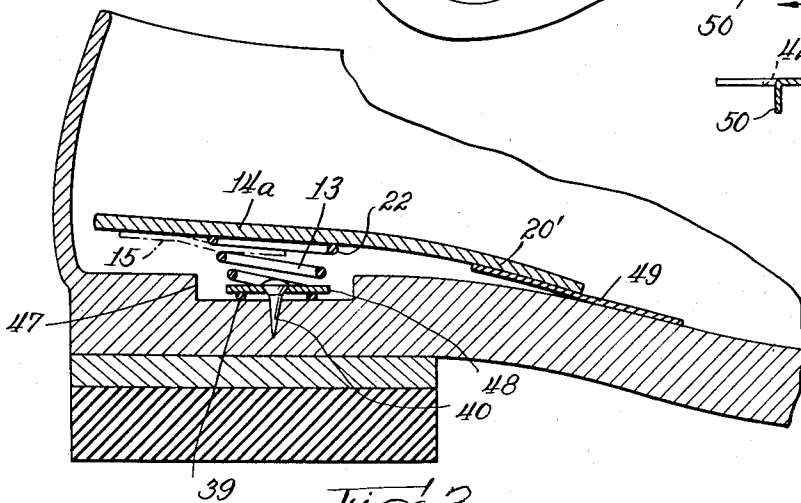


Fig. 4

Fig. 2

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INSOLE CONSTRUCTION FOR A SHOE

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Original application Oct. 29, 1953, Ser. No. 389,003, now Patent No. 2,814,132, dated Nov. 26, 1957. Divided and this application Aug. 15, 1957, Ser. No. 678,342

10 Claims. (Cl. 36—37)

This invention relates to shoe structures for men's, women's, and children's shoes, and more particularly relates to an improvement in insole and shank constructions to make it possible for a person to walk straight without overrunning the heels, and particularly in women's high-heeled shoes to prevent the heel from becoming misaligned because of the slight support provided by the usual shoe constructions; and this invention is a division of my co-pending application Serial No. 389,003, filed October 29, 1953, now United States Patent 2,814,132, granted November 26, 1957.

The invention has among its objects the production of a shoe construction for men's, women's, and children's shoes in combination with the conventional heel and sole which may be incorporated in shoes as they are originally manufactured or shoes already in use, and in which a custom shoe operation by a shoe repairman, the improvement may be applied to the original shoe construction.

Another object of the invention is to provide an improved insole construction for men's, women's, and children's shoes which may be applied to existing shoes by the wearer without requiring the services of a skilled shoe repairman.

Another object of the invention is to provide an insole construction for new and used shoes for relieving the shocks to the human system incident to walking on the sidewalks, and particularly to insole constructions for boots and shoes for use in diminishing such shocks either in walking or standing over long periods of time at one's occupation.

Still another object of the invention is the production of an insole construction and shoe constructions for minimizing and relieving the shocks to the heels, feet, and other parts of the human body.

Still another object of the invention is the production of an insole for boot and shoe constructions which may be readily applied to the boots and shoes for the purpose of minimizing any shocks or fatigue in walking or standing, which is long-lasting, and wherein the resiliency may be adjusted to conform to the weight of the person wearing the shoes or the particular needs of the persons.

Still another object of the invention is to provide an improved shoe construction, particularly for certain types of women's shoes, which will assist in maintaining the shoe in place on the wearer's foot in walking and will also prevent ankles from becoming turned over.

Still another object of the invention, particularly with respect to women's high-heeled shoes, is to prevent chafing across the back of the heel by the straps.

A further object of the invention is the production of a shoe construction for incorporation with footwear in which the device is unaffected by the elements.

Still another object of the invention is the production of an insole construction and footwear incorporating the device which is durable, efficient, economical, requiring a minimum of parts, and wherein the serviceability is not decreased over a period of usage.

Many other objects and advantages of the construction

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herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

Applicant is aware that there have been many inventions in the past and also that there are devices on the market for the purpose of relieving shocks to the foot and particularly to the heel. Although applicant's device is incorporated for use with shoes having leather, composition, or rubber heels in which the composition or rubber heel is primarily for decreasing the shock to the wearer, nevertheless, because of its wear, this utility of the composition or rubber heel decreases with wear until the heel becomes run over or worn out. With applicant's device, resiliency is maintained throughout the use of the shoe regardless of the amount of wear; and, because of an improved construction for women's shoes, particularly in the arch and heel construction, the tendency for the heels to turn over is prevented, and there is improvement in the wearer's ability to walk properly. Although resilient members, in the past, have been provided between the portions of the heel pad and the heel construction, the present device is not unsightly and, in normal use, is unseen. The type of spring used is such that, when collapsed, the thickness thereof is substantially one coil and the conical spiral spring selected corresponds to the amount of resiliency required for the walking characteristics of the wearer, and permits the shoe to be normally positioned with each step taken. Applicant's construction may be readily applied to any style of boot or shoe whether men's, women's, or children's without altering substantially the outside appearance thereof, and is equally adaptable for either fancy, dress, or work boots and shoes.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a view in side elevation, partly in section, illustrating a woman's shoe incorporating the insole construction of the invention;

Fig. 2 illustrates the heel construction of the invention applied to a man's shoe;

Fig. 3 is a plan view illustrating a modified form of a heel plate for a shoe for incorporating the device of the invention; and,

Fig. 4 is a view in cross section taken along the line 4—4 of Fig. 3 and looking in the direction of the arrows.

Referring to my United States Patent 2,814,132, there is illustrated an insole construction, the features of which are applicable to the constructions disclosed in this divisional application, or also may be applied to new and used shoes to improve the walking characteristics of the person by preventing turning over of the heels, especially in women's high-heeled shoes, and the running over of the lifts of the heel whether leather, composition, or rubber. The insole 41 includes a heel portion 25 provided with a hole 42 to receive a conical spiral spring 13. The number of coils and the compression may be varied, depending upon the characteristics of the wearer, though, for normal use, a spring which may be readily compressed by one's hand is sufficient. The front end of the heel pad 44 is formed with two tapered tabs 18, which are complementally formed to be inserted within the slots 29 of the insole. The slots 29 are formed as illustrated in my United States Patent 2,814,132 to receive these tapered tabs 18, and the forward bottom edge of the heel pad is also suitably skived to reduce the thickness so that, when assembled, the heel pad appears as a continuation of an insole. The size of the spring is such that, when compressed, the spring is retained within the hole 42 since the coils of the spring nest.

Although a preferred construction of this form of insole is preferably formed from leather, it is to be understood that it may be suitably formed from plastic material or combinations of thin sheets of leather and foam rubber, or felt constructions to provide a soft inner-sole construction to absorb the shocks encountered in walking.

Referring to my United States Patent 2,814,132, there is illustrated another embodiment of the insole construction and one which is particularly adapted for custom repair of women's shoes to particularly prevent the heel of high-heeled shoes from turning in or out because of the improper stride of the wearer in walking. An insole 41 is similarly provided with a heel portion 25 as the embodiment of my United States Patent 2,814,132 with a hole 42 for the reception of a conical spring 13. In this embodiment, it is preferred that the spring shall be as shown.

Referring to my United States Patent 2,814,132, a heel plate 25 formed of suitable ferrous metal, preferably a high carbon steel, although other suitable non-ferrous material such as brass may be used, the type of material depending upon the weight placed on the shoe. It is preferred, however, to use a heat-treated, thin steel heel plate. The heel plate 25 is complementally formed to the shape of the heel portion and shank portion of the insole, and is provided with countersunk holes 26 for the application of suitable securing means 27 and 28. The securing means 27 may be in the form of a wood screw whereas the securing means 28 is a countersunk machine screw and special nut 28'. The heel plate 25 is provided with slots 29 conforming to the similar slots of my United States Patent 2,814,132. It is within the scope of my invention that the slots 29 may receive the metal tabs according to the disclosure, which extend through slots in the heel pad, Fig. 3, as disclosed in my aforementioned patent, and the ends of the tabs are turned over and crimped to affix the tabs to the heel pad. The heel pad is also skived at the bottom front edge to permit the heel pad, when assembled, to be substantially a continuation of the insole. The metal tabs perform the same function as the tapered tabs 18 but the metal permits of greater flexing and longer wear than the integrally formed tabs of leather. The inner ends of the metal tabs are also more firmly latched than the inner ends of the tabs of one of the embodiments of my aforementioned patent, since the heel plate 25 is firmly affixed to the insole when the insole is assembled in a shoe construction, as illustrated in Fig. 1. Although this construction is primarily adapted for custom remodeling, it is equally adaptable as a replaceable insole without being affixed and placed within the shoe by the securing means 27 and 28. The heel pad and insole of this embodiment, likewise, may be fabricated from other material than leather, such as plastic or combinations of plastic and leather with sponge rubber or felt inserts for both the innersole and the heel pad.

Referring to Fig. 1, there is illustrated a sling-back type woman's shoe 34 in which the invention has been applied by rebuilding in order to prevent the usual off-setting of the heel because of the improper stride of the wearer. The insole construction of my United States Patent 2,814,132 of which this application is a division has been applied in part, certain modifications being incorporated because of the construction of the shank stiffener. The heel 35 of the shoe 34 has been recessed or bored at 36 to substantially the depth of a rearwardly extending portion 37 of a shank stiffener or shank-piece 38 of the shoe. A lower coil 39 of the conical spiral spring 13 is inserted beneath the rearwardly extending portion 37 of the shank stiffener instead of being affixed to the heel pad as described with reference to the above mentioned patent. It is preferred to construct the shoe in this manner for custom rebuilding or in the original shoe since the spring may be better retained in position. If necessary, a suitable securing means 40, such as a

wood screw may be affixed through the shank stiffener, as illustrated in the dotted lines.

When a shoe is custom-built in this manner, the insole 41 is first loosened from the shoe for a distance so that the auxiliary heel plate 25 may be secured in position after the hole has been bored with the hole 42 in alignment with the bore 36. It is also necessary, with the insole displaced, to drill a hole through the shank of the shoe and the sole as at 43 to receive the securing means 28 and a complementally formed nut 28'. An ornamental leather cushioned heel pad 44 is formed by providing an inturned edge member providing a receptacle 45 to receive a heel pad 14, constructed as described with reference to my United States Patent 2,814,132. The receptacle 45 includes a bottom finished member 46 so that the remodeled insole includes the usual insole and the heel pad 14 and the receptacle therefor, which provides an ornamental trim to the insole at the heel pad. The heel pad 14 comprises the tapered tabs 18 which extend through the slots 29 formed in the heel plate 25, as described with reference to my United States Patent 2,814,132. It is to be understood that it is within the scope of the invention that the modified form of heel pad of the above-mentioned patent may also be substituted for the heel pad 14 in the fabrication of the custom-rebuilt shoe or in the fabrication of a complete shoe.

When assembled, as described above, the spring 13 normally biases the heel plate in a slightly raised position. However, when worn, the weight of the wearer compresses the spring so that the face of the bottom finished strip 46, as it abuts the upper coil 22 of the spring 13, in turn abuts the upper face of the heel plate 25.

A shoe constructed, for example, as illustrated in Fig. 1 of the attached drawings and utilizing the construction of the aforementioned patent when worn, remains correctly positioned on the wearer's foot and does not tend to flop or clatter as the wearer walks, particularly women's shoes. The shoes are always correctly positioned so that there is no tendency for the wearer to walk incorrectly with the shoes to cause the heel to turn inwardly or outwardly, depending upon the walking characteristics of the person wearing the shoes. Therefore, the shoes, also utilizing the construction of my aforementioned patent, serve as corrective shoes to aid the wearer in walking and standing correctly. In this manner, the wearer is less fatigued and there is less damage to the shoes, especially those of the high-heeled type, so that it is necessary to discard them after a slight usage whereas normally shoes should last until it is necessary to have them resoled or become scuffed and badly worn. The improved construction permits the heel lifts to be worn off, preferably on the rear edge, than to have the improper wear on the right or left edges since the construction permits the wearer to walk properly.

Referring to Fig. 2, I have illustrated a construction for custom-rebuilding men's shoes or which may be used as the original construction. The sole is bored at 47 to receive a conical spiral spring 13 which is held in place in the bore by a metal clip 48 extending over the lower coil 39, and which is affixed to the heel by securing means 40. The depth of the bore 47, as also described with respect to the bore 36, is of sufficient depth to receive the spring 13 in a partially compressed position. The spring is preferably held in place in this manner although the spring may be held in place on the heel pad by a pad, as described with reference to the construction of my aforementioned patent. For commercial purposes, it is preferred to fabricate the heel pad so that the spring 13 may be affixed in either manner. In the original construction, it would also be possible to affix the spring, as described in the bore and also to have the upper coil 22 affixed in the pocket provided by the pad 15. In a construction of this type, it is preferred to form a hinge 49 from leather or other suitable plastic affixed at one end to the lower end 20' of the heel pad 14a which may

be skived as disclosed in my aforementioned patent. The lower end of the hinge is then suitably affixed by an adhesive to the insole of the shoe, if it is a custom-repair job, or it may be integrally formed with the insole as described with reference to the construction of the insole including the heel portion of my aforementioned patent, although it may also be formed from separate members suitably hinged together. The heel pad 14a is preferably formed from leather though it may incorporate the sponge-rubber constructions of certain forms of heel pads available to provide a softer form of pad for the heel of the wearer.

Figs. 3 and 4 illustrate a modified form of shank member from that as used in shoes (not shown) described with reference to my aforementioned patent, and Fig. 1 of this disclosure for use in new shoe construction whether for women's, men's, or children's shoes. The heel plate 25' is integrally formed with the usual channel-shaped, heat-treated shank stiffener 50 of the conventional form of shank stiffener used in the fabrication of shoes. When used in this manner, it is also constructed with the countersunk holes 26 and 28 for affixing to the heel and innersole as described with reference to Fig. 1. However, when used in this manner, the shank stiffener construction of Figs. 3 and 4 may be applied as a substitute for the shank stiffener 38, as described with reference to the construction of Fig. 1. A single slot 29' may be used and the heel pad fabricated accordingly with a single tab. However, it is within the scope of the invention that the shank construction of Figs. 3 and 4 may be similarly formed with a plurality of slots 29, as described with reference to the construction of the slots in the heel plate and Fig. 1 of this disclosure.

It is thus evident that there has been described a simple insole construction and embodiments thereof for assembly in shoes as well as a construction for use in custom-rebuilt shoes or shoes as originally fabricated, which are simple in construction, economical to manufacture, and easy to assemble either by the wearer or a shoe repairman.

It is also evident that the devices and constructions of this invention may be worn with shoes having either leather or composition lifts or rubber heels. The use of rubber heels with this type of device would be optional with the wearer since they will not interfere with the correct operation of the construction. The device, although preferably made to overcome the running over of women's high heels, is equally applicable for men's or boys' shoes wherein excessive wear is caused by the improper walking habits of a person. It is also of particular value where a person must stand for long periods of time in one place, and where the workshoes or boots are heavy and may have steel plates or cleats applied to the heels or to under surfaces thereof. A construction has also been disclosed wherein the coil spring may be readily replaced when the resilience thereof has been destroyed or where it is desired to have a spring of different compression, depending upon the weight of the person. For ordinary usage, however, the spring need not be compressed to any greater extent than the usual rubber heel is deformed to obtain the same degree of resistance to shock when in use by the wearer.

A construction has also been disclosed wherein after the shoes have been worn out, the spring may be removed and replaced by detaching and attaching the securing means 40 of Fig. 1 and Fig. 2; and, if the resiliency of the spring has become impaired, a new one may be replaced or the old one deformed to restore its resiliency.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and com-

bination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. The combination in a high-heeled shoe construction of an insole construction comprising a heelplate affixed to the heel and shank portion of the shoe, the upper end of the heel formed with a bore and the contiguous portion of the heelplate formed with a hole in alignment with the bore, a conically coiled spring operatively mounted in the bore and affixed to the shoe, said heelplate formed with laterally spaced holes, a heel pad including laterally spaced tabs operatively mounted in said laterally spaced holes for hingedly connecting the heel pad to the heel plate, and the heel pad operatively supported upon the conical coiled spring, whereby upon the shoe being worn, the heel pad is adapted to abut the heel plate and the conically coiled spring being partially compressed.

2. The combination in a high-heeled shoe construction of an insole construction comprising a heelplate affixed to the heel and shank portion of the shoe, the upper end of the heel formed with a bore and the contiguous portion of the heelplate formed with a hole in alignment with the bore, a conically coiled spring operatively mounted in the bore and affixed to the shoe, said heelplate formed with laterally spaced holes, a heel pad including laterally spaced tabs operatively mounted in said laterally spaced holes for hingedly connecting the heel pad to the heelplate, the heel pad operatively supported upon the conical coiled spring whereby upon the shoe being worn the heel pad is adapted to abut the heelplate and the conically coiled spring being partially compressed, securing means for affixing the heelplate to the heel at one end, and additional securing means for affixing the opposite end of the heelplate to the shank portion of the shoe.

3. The combination in a high-heeled shoe construction of an insole construction comprising a heelplate affixed to the heel and shank portion of the shoe, the upper end of the heel formed with a bore and the contiguous portion of the heelplate formed with a hole in alignment with the bore, a conically coiled spring operatively mounted in the bore and affixed to the shoe, said heelplate formed with at least one slotted hole intermediate the ends of said heelplate, a heel pad including at least one tab operatively mounted in said slotted hole for hingedly connecting the heel pad to the heel plate, said heel pad operatively supported upon the conical coiled spring whereby upon the shoe being worn, the heel pad is adapted to abut the heelplate and the conically coiled spring being partially compressed, securing means for affixing the heelplate to the heel at one end, additional securing means for affixing the opposite end of the heelplate to the shank portion of the shoe, and a shank stiffener at one end operatively affixed to the conically coiled spring at the other end, the securing means for the heelplate extending through the shank stiffener at the shank portion of the shoe.

4. The combination with a shoe, of an insole construction comprising a heelplate, channel-shaped at one end and provided at the opposite end with a heel portion, the opposite ends of the heelplate adapted to be affixed to the heel and to the shank portion of the shoe, a hole provided in the heel portion in alignment with a bore in the heel, a conical spiral spring operatively mounted in the bore, a heel pad operatively abutting an outer coil of the conical spiral spring, and said heel pad including at least one tab and said heelplate complementally formed to said tab for hingedly connecting the heel pad to the heelplate.

5. As an article of manufacture, a shank member including a channel-shaped inverted U-shaped arch portion and a heel portion formed with a hole adapted to receive a spring, said opposite ends of the shank formed to re-

ceive securing means for affixing the shank to a shoe construction, and at least one slot transverse to the longitudinal axis of the shank for hingedly connecting a heelplate to the shank.

6. The combination with a shoe construction, of a heelplate construction comprising means for hinging the heel pad to the shank of the shoe, a conically coiled spring operatively mounted beneath the heel pad and operatively connected to the heel of the shoe, a bore formed at the heel of the shoe for receiving the conical spiral spring, means for affixing the lower coil of the spring within the bore, and said hinge means for the heel pad operatively affixed to the shank of the shoe.

7. The combination with a shoe construction including an insole, of a heel pad construction formed with a skived portion at one end and comprising means for hinging the heel pad to the shank portion of the shoe, a conically coiled spring operatively mounted beneath the heel pad and operatively connected at the heel of the shoe, a bore formed in the sole at the location of the heel of the shoe for receiving the conical spiral spring, means for affixing the lower coil of the spring within the bore, said hinge means for the heel pad operatively affixed to the shank portion of the shoe, and said hinge means comprising a flexible member affixed to the skived portion of the heel pad at one end and at the opposite end affixed to the shank portion of the shoe.

8. As an article of manufacture, a heelplate for an insole construction, said heelplate comprising a heel portion formed with a hole for the passage therethrough of a coiled spring, countersunk holes for affixing the heelplate at one end to the heel portion of the insole and at the other end to the shank portion of the inner-sole, and at least one slot transverse to the axis of the heelplate for receiving a complementally formed tab of a heel pad for affixing a heel pad to the insole.

9. The combination with a shoe construction including an internal cushion heel, of a heel pad construction formed with a skived portion at one end and comprising

hinge means for the heel pad, a conically coiled spring operatively mounted beneath the heel pad and operatively connected to the heel of the shoe, a bore formed at the heel of the shoe for receiving the conical spiral spring, means for affixing the lower coil of the spring within the bore, said hinge means for the heel pad operatively affixed to the shank portion of the shoe, and said hinge means comprising a flexible member affixed to the skived portion of the heel pad at one end and at the opposite end affixed to the shank portion of the shoe.

10. As an article of manufacture, an internal cushion heel construction for a shoe comprising a heel pad construction formed with a skived portion at one end and comprising hinge means for the heel pad, a conically coiled spring operatively mounted beneath the heel pad for operatively connecting to the heel of a shoe, said hinge means for the heel pad adapted for affixing to the shank portion of the shoe, and said hinge means comprising a flexible member adapted to be affixed to the skived portion of the heel pad at one end and at the opposite end adapted to be affixed to the shank portion of the shoe.

References Cited in the file of this patent

UNITED STATES PATENTS

621,384	Swenson	Mar. 21, 1899
683,054	Loderer	Sept. 24, 1901
897,032	Thompson	Aug. 25, 1908
900,920	Foster	Oct. 13, 1908
1,184,943	Geiger	May 30, 1916
1,269,385	Capata	June 11, 1918
1,471,042	Lewis	Oct. 16, 1923
1,484,785	Hiss	Feb. 26, 1924
1,746,069	Butzen	Feb. 4, 1930
1,759,379	Weinberg	May 20, 1930
2,157,912	Nabokin	May 9, 1939
2,482,333	Everston	Sept. 20, 1949
2,696,683	Ciaio	Dec. 14, 1954