May 20, 1947. A. T. MINER 2,420,898

FOLDABLE SHELTER TENT

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Fig. 1.

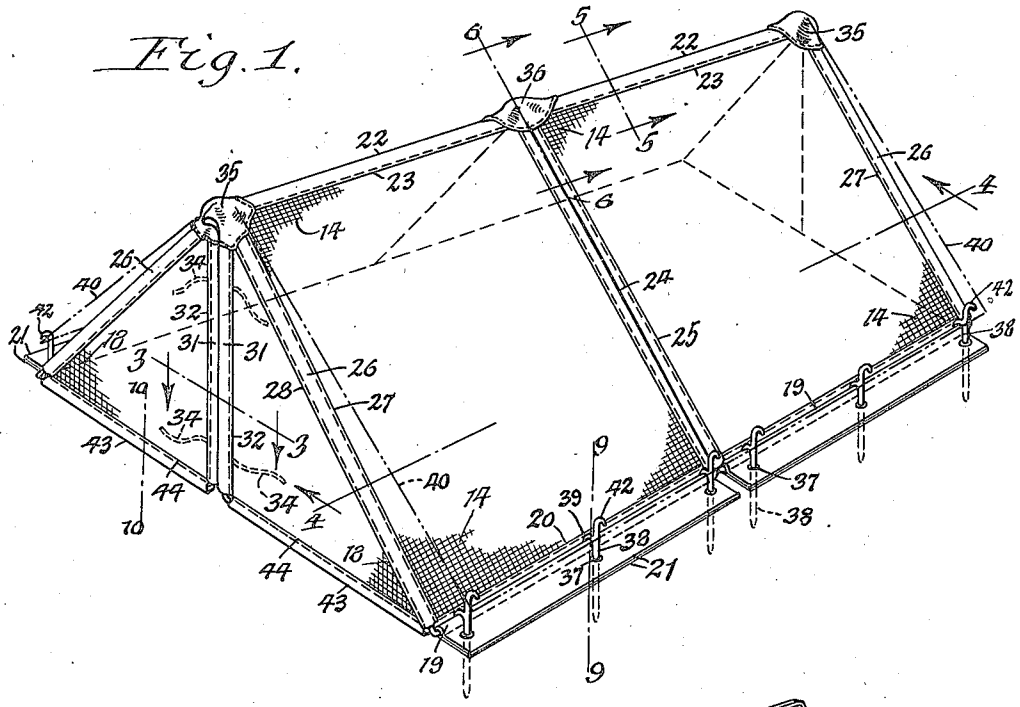


Fig. 2.

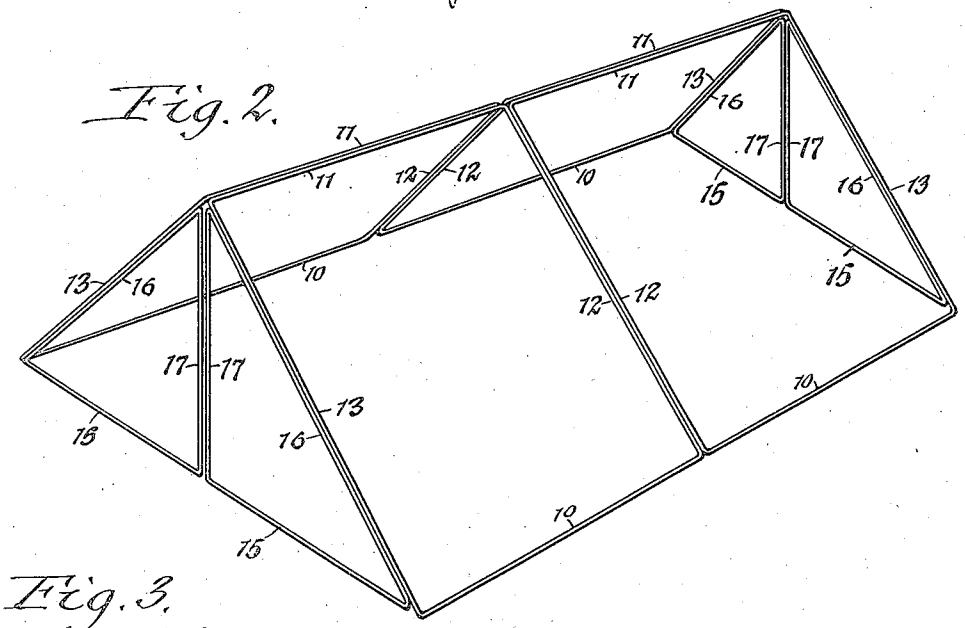
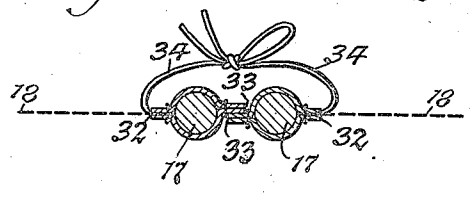


Fig. 3.



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Fig. 4.

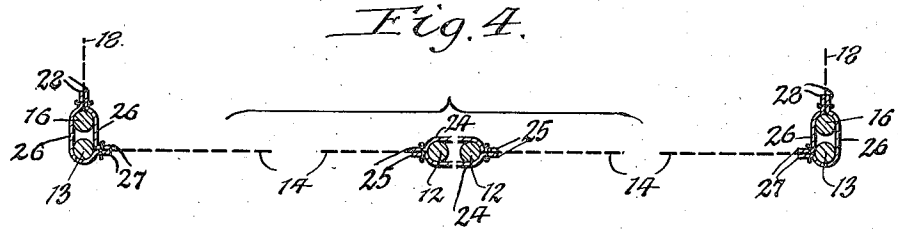


Fig. 5.

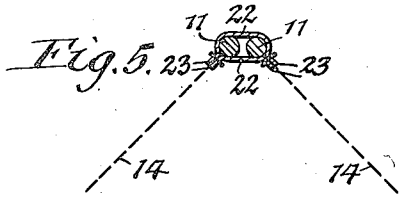


Fig. 6.

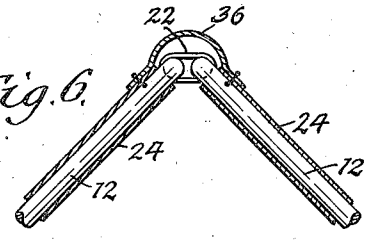


Fig. 10

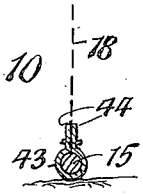


Fig. 8.

Fig. 9.

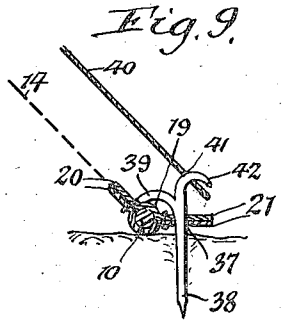
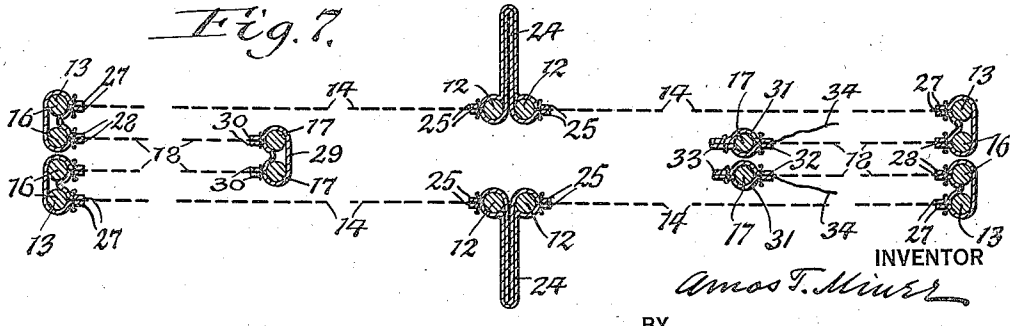


Fig. 7.



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FOLDABLE SHELTER TENT

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Application June 8, 1945, Serial No. 598,297

8 Claims. (Cl. 135—1)

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This invention relates to a foldable shelter or tent which is adapted to be erected on the ground and organized for protection against the weather and insects and adapted to be folded for convenience of transportation and storage.

It is the object of this invention to provide a shelter or tent for this purpose which is comparatively simple and low cost in construction, which will provide an effective protection against sunshine, rain, wind and insects and which can be easily erected for use and also compactly folded when required.

In the accompanying drawings:

Fig. 1 is a perspective view showing a shelter or tent embodying this invention.

Fig. 2 is a similar view of the frame elements of this shelter.

Fig. 3 is a horizontal section, on an enlarged scale, taken on line 3—3, Fig. 1.

Fig. 4 is a fragmentary horizontal longitudinal section taken on line 4—4, Fig. 1.

Figs. 5 and 6 are fragmentary vertical transverse sections taken on the correspondingly numbered lines in Fig. 1.

Fig. 7 is a diagrammatic horizontal section of this shelter showing the same in a partially folded position.

Fig. 8 is a similar view showing the shelter in its completely folded position.

Figs. 9 and 10 are fragmentary vertical sections, taken on lines 9—9 and 10—10, Fig. 1, respectively.

In the following description similar characters of reference indicate like parts in the several figures of the drawings.

In general this shelter or tent comprises two longitudinal side walls which in their erected position produce a structure which is substantially A-shaped in cross section and are adapted to be moved toward and from each other, and two transverse end walls which in the normal erected position of the shelter extend across the opposite ends of the side walls so as to form closures which are adapted to be folded relatively to the side walls.

In the preferred construction the side walls of the shelter comprise two pairs of side wall sections the members of each pair being pivotally connected with each other so that they can be moved toward and from each other, and the adjacent ends of the corresponding sections of both pairs are also pivotally connected with each other so that the two pairs of side wall sections may be folded and unfolded lengthwise relative to each other.

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Each of these side wall sections is rectangular in shape and comprises a rectangular frame which is made of wire so as to provide a lower horizontal base rod 10, an upper horizontal ridge rod 11 and inner and outer transverse stay rods 12, 13 connecting the corresponding inner and outer ends of the base and ridge rods. Within the frame of each side wall section is arranged a panel 14 which may be made of any sheet-like material but is preferably made in the form of a screen consisting of a perforated sheet of plastic material, perforated sheet metal or closely woven wire or other fabric.

Each of the end walls of the shelter or tent preferably comprises two triangular sections, each of which includes a horizontal lower transverse rod 15 adapted to rest on the ground, an inclined upper rod 16 connected at its lower end with the outer end of the lower rod 15 and pivotally connected with the adjacent outer inclined rod 13 of the respective side wall section and a vertical inner bar 17 which in connected at its upper and lower ends with the inner ends of the upper and lower rods 16, 17. Within each triangular frame is arranged a correspondingly shaped panel 18 which is also preferably made in the form of a screen consisting of a sheet of perforated plastic material, sheet metal, closely woven wire or other fabris.

Means are provided for connecting the upper and lower longitudinal edges of this panel and the transverse edges of the same with the longitudinal base and ridge rods and the inclined inner and outer stay rods of the frame, which means are preferably constructed as follows:

The numeral 19 represents a lower horizontal connecting tube which surrounds the lower frame rod 10 throughout the length thereof and preferably consists of two semi-cylindrical strips of flexible material which are arranged on opposite sides of this rod and are provided along their inner edges with a pair of longitudinal flanges 20 and provided on their outer edges with a pair of longitudinal flanges 21, each of these pairs of flanges being connected with each other to form a tube which completely surrounds the lower rod of the respective side wall section.

The panel 14 of each side wall section is attached to the respective lower connecting tube 19 by loosely arranging the lower longitudinal edge of this panel between the inner flanges 20 of this tube, as shown in Fig. 9, and securing them thereto by any suitable means.

The upper horizontal ridge rods 11, 11 of each pair of side wall sections are pivotally connected

by means of a hinge which preferably has the form of a longitudinal connecting tube 22 which loosely surrounds both of these rods, and which is preferably composed of two substantially half round or channel shaped strips of flexible material which are provided at their opposite longitudinal edges with laterally projecting pairs of flanges 23, 23, the members of each pair on one side of this tube being connected with each other. Each of the panels 14 of the side wall sections is connected with the respective connecting tube 22 by arranging the upper longitudinal edge of this panel between a pair of flanges 23 of this connecting tube, as shown in Fig. 5. The connecting tube 22 is transversely elongated in form so as to accommodate both of the upper ridge rods 11 of the respective pair of side wall sections and operates not only to form a hinge which permits these side wall sections to move transversely relative to each other for folding and unfolding the same but this also forms a closure for the longitudinal joint between these frame rods.

Means are provided for pivotally connecting the inner inclined stay rods 12, 12 of the side wall sections on each side of the structure so that the same can be folded and unfolded lengthwise relative to each other. Each of these pivotal connections preferably includes a connecting tube 24 which encloses the adjacent rods 12 of these side wall frames throughout the length of the same and is elongated transversely so as to not only embrace both of the respective frame rods but also close the longitudinal space or gap between them. Each of these connecting tubes preferably consists of two strips of flexible material which are arranged on opposite sides of the rods 12, 12 and are provided at their corresponding edges with pairs of flanges 25, 25, each of these pairs of flanges receiving between them the inner adjacent edge of one of the side wall sections and secured thereto, as shown in Fig. 4.

The outer rod 13 of the frame of each side wall section is likewise pivotally connected with the inclined frame rod 16 of the adjacent triangular section of the respective end wall of the shelter by means of a hinge which is preferably constructed in the form of a transversely elongated connecting tube 26 which encloses both of the rods 13 and 16 throughout the length of the same so as to bridge the joint between these frame rods and permit the respective wall sections to turn relatively to each other. Each of these last mentioned tubular hinges is preferably made of two channel shaped strips of flexible material which are arranged loosely on opposite sides of the rods 13 and 15 and which are provided on one side with corresponding flanges 27, 27 which receive between them the adjacent outer edge of the panel 14 of the respective side wall section, while the opposite edges of these hinge strips are provided with cooperating flanges 28, 28 which receive between them the adjacent edge of the panel 18 of the respective triangular end wall section and are secured thereto.

At the rear end of the structure the two opposing vertical frame rods 17 of the triangular end wall sections are preferably permanently connected by a hinged joint which is so constructed that these two triangular sections are capable of folding and unfolding freely relatively to each other but the joint between these rods is closed, this being preferably accomplished by a connecting tube 29 which is made of two strips of flexible material arranged on opposite sides of the adjacent rods 17, 17 throughout the length thereof and provided on their opposite longitudinal edges with corresponding pairs of flanges 30, 30 each pair receiving between them the vertical edge of the panel 18 of the respective triangular end wall section, and secured thereto.

Each of the vertical inner rods 17 of the triangular front wall sections is preferably connected with the adjacent vertical edge of the respective panel 18 by means which permit the front triangular sections to be moved into and out of an operative position independently of each other for opening and closing the shelter and also to permit of folding the shelter as a whole into compact form. For this purpose a vertical inner frame rod 17 of each front triangular end wall section is enclosed by a connecting tube 31 which is composed of two longitudinal strips of flexible material extending the full length of this rod and provided on one side with corresponding flanges 32, 32 which are received between them and are secured to opposite sides of the adjacent vertical edge of the respective panel 18, and these strips are also provided on opposite sides of this rod with comparatively wide longitudinal flanges 33, 33 which are secured to each other and are adapted to overlap each other in the closed position of the respective front wall sections, as shown in Figs. 1 and 3, and thereby form a closure between the opposing vertical edges of the front end wall sections throughout the height of the structure.

Any suitable means may be provided for retaining the inner vertical edges of the two front wall sections in a closed position when this is desired, this being accomplished, for example, by means of tie straps 34, each of which is attached at one end to one of the tubes 31 while its opposite end is free and adapted to be united with the tie strap 34 on the other triangular front wall section, to form a bow, as shown in Fig. 3.

The lower horizontal rod 15 of each triangular frame of the end wall sections is connected with the adjacent lower edge of the respective panel 18 by a flexible connecting tube 43 surrounding the full length of this rod and provided on its upper side with a pair of flanges 44 which are secured to each other and against opposite sides of the lower edge of the panel 18 by any suitable means.

The joint at the junction between the upper ends of the vertical and inclined rods of the end wall sections and the outer ends of the ridge rods of the side wall sections are covered so as to exclude the entrance of insects into the shelter when the same is erected for use, each of these closures preferably consisting of a hood 35 of flexible material, such as leather, fabric or the like which extends over the respective ends of these several frame sections and is connected at its edge with these sections by means of stitching or otherwise in a comparatively loose condition so as to permit these wall sections to be folded freely relatively to each other and still form a closure between the respective corners of the same.

A similar hood 36 of leather, canvas or other suitable material is over the inner opposing corners of the several rectangular side wall sections and secured at its edge thereto by means of stitching or otherwise with sufficient looseness or slack so that these rectangular side wall sections may be folded freely relatively to each other and still close the gap between the respective corners for excluding insects from the structure.

Each of the connecting tubes whereby the several panels are mounted on the rods of their respective frames and each of the hoods which close the joints between the several corners at the ridge of the structure may be made of any suitable material which is sufficiently flexible and still strong enough to provide a reliable connection between the parts with which they are associated and also to permit freedom of action when these several members to which they are attached are moved relatively to one another and these tubes and hoods may therefore be made of either leather, canvas or similar woven or fibrous material and secured to their respective rods and panels by means of stitching, riveting or the like in case the panels are made of woven wire or textile material or the members of these tubes may be secured to the parts with which they cooperate either by cement or fusion in case the panels are made of plastic material.

Means are preferably provided for securing this shelter or tent-like structure upon the ground so that the same is not liable to be blown away by wind, which means are preferably constructed as follows:

The flanges 21 on the outer longitudinal side of each of the lower connecting tubes 19 of the rectangular side wall sections are made sufficiently wide to form flaps which are adapted to lie on the ground and form a closure between the latter and the lower edes of the side wall sections. At intervals throughout the length of each of these flaps the same is provided with openings or eyes 37, each of which is adapted to receive a spike, nail or pin 38 which is driven into the ground and provided above this flap with an inwardly projecting hook or head 39 adapted to engage over the adjacent part of the adjacent connecting tube 19 and bear downwardly on the horizontal rod 10 therein for holding the same upon the ground, as shown in Fig. 9.

When the panels of the side wall sections of the structure are made of foraminous material, such as perforated sheets or fabric woven of wire or threads, the structure serves mainly for protection against insects. If, however, additional protection is required from rain or undue sunshine, a canopy 40 of comparatively closely woven raintight fabric or similar material is provided, which is stretched over the ridge at the upper ends of the side wall sections and extended downwardly along opposite inclined outer sides of the structure so as to shed any rain which may fall upon the same and also act as an umbrella for modifying the effects of sunlight on the occupants of the shelter. This canopy preferably rests loosely on the ridge of the structure and may be unfurled so as to cover as much of the area of the side walls as desired and is held in its operative position over these side walls by means of eyes or openings 41 aranged along the opposite lower longitudinal edges of the canopy and engaged with hooks or heads 42 arranged at the upper ends of the spikes and projecting outwardly therefrom, as shown in Figs. 1 and 9.

When this shelter is in use the two pairs of side wall sections are spread apart and rest upon the ground and the two end wall sections are arranged in an upright posiiton across the opposite ends of the A-shaped structure formed by the side walls, as shown in Fig. 1.

When it is desired to fold this structure so as to render the same more compact for transportation or storage the pairs of triangular end wall sections are folded inwardly relatively to each other and the side wall sections are moved inwardly against opposite sides of the folded end wall sections, as shown in Fig. 7. Thereafter the two groups of wall sections constituting opposite ends of the structure are folded lengthwise relative to each other into the position shown in Fig. 8, thereby producing a compact arrangement of the several wall sections in which the same are all parallel with one another which permits the same to be not only conveniently transported but also stored in a minimum amount of space.

In order to permit these several wall sections to be thus folded relatively to each other the flexible tubular connecting and hinge members are made sufficiently loose in a direction crosswise of each of these tubes so that sufficient slack is available in these tubular members to permit complete freedom of movement of these wall sections relatively to each other when folding and unfolding the same and insure a relatively tight closure in the joints between the several members which will effectively exclude the entrance of insects from the exterior to the interior of the structure when the same is in use and also shelter the occupants from undue sunshine and weather.

I claim as my invention:

1. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of inclined side wall sections which are adapted to rest at their lower edges on the ground and are pivotally connected at their upper edges, and an end wall which is arranged vertically across an end of said side wall sections and which includes a pair of end wall sections pivotally connected with each other and also pivotally connected respectively to the corresponding ends of the side wall sections, each of said side wall sections being of rectangular form and each of said end wall sections being of triangular form and each of said sections having a marginal frame and a panel arranged within the frame and connected at its edges to the frame.

2. A foldable shelter tent comprising two pairs of side wall sections which upon being unfolded into an operative position produce a structure of A-shape in cross section, the lower edges of these sections being adapted to rest on the ground, the upper edges of the members of each pair of sections being pivotally interconnected, thereby permitting folding of the same longitudinally relative to the length of the tent, and the opposing inner transverse edges of the sections of each side wall being pivotally interconnected, thereby permitting folding of the same transversely relative to the length of the tent.

3. A foldable shelter tent comprising two pairs of side wall sections which upon being unfolded into an operative position produce a structure of A-shape in cross section, the lower edges of these sections being adapted to rest on the ground, the upper edges of the members of each pair of sections being pivotally interconnected, thereby permitting folding of the same longitudinally relative to the length of the tent, and the opposing inner transverse edges of the sections of each side wall being pivotally interconnected, thereby permitting folding of the same transversely relative to the length of the tent, and end walls pivotally connected with the outer transverse edges of said side wall sections to permit of folding and unfolding said end walls relative to said side wall sections.

4. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of in-

clined side wall sections which are adapted to rest at their lower edges on the ground and are pivotally interconnected at their upper edges, and an end wall which is arranged vertically across an end of said side wall sections and which includes a pair of end wall sections pivotally connected with each other and also pivotally connected respectively to the corresponding ends of the side wall sections; each of said wall sections including a frame and a panel within said frame, and each pivotal connection including a tube which surrounds the adjacent frame members of adjacent wall sections.

5. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of inclined side wall sections which are adapted to rest at their lower edges on the ground and are pivotally interconnected at their upper edges, and an end wall which is arranged vertically across an end of said side wall sections and which includes a pair of end wall sections pivotally connected with each other and also pivotally connected respectively to the corresponding ends of the side wall sections, each of said wall sections including a frame and a panel within the frame, each of said pivotal connections including a flexible tube which surrounds the adjacent frame members of adjacent wall sections, and said panels having their edges secured to said tubes.

6. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of inclined side wall sections which are adapted to rest at their lower edges on the ground and are pivotally interconnected at their upper edges, an end wall which is arranged vertically across an end of said side wall sections and which includes a pair of end wall sections pivotally connected with each other and also pivotally connected respectively to the corresponding ends of the side wall sections, and a flexible hood covering the adjacent corners of the side wall sections and the end wall sections and connected with said sections.

7. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of inclined side wall sections which are adapted to rest at their lower edges on the ground and which are pivotally interconnected at their upper edges, an end wall which is arranged vertically across an end of said side wall sections, and a flexible hood covering the adjacent upper corners of a pair of side wall sections and connected at its edge to said side wall sections.

8. A foldable shelter tent which is normally A-shaped in cross section, comprising a pair of inclined side wall sections which are adapted to rest at their lower edges on the ground and are pivotally interconnected at their upper edges, an end wall which is arranged vertically across an end of said side wall sections, horizontal flaps arranged on the lower longitudinal edges of said side wall sections and adapted to lie on the ground and provided with eyes, a canopy extending over said side wall sections and provided at its lower edges with eyes, and fastening pegs passing into the ground and severally provided with pairs of hook shaped heads engaging with associated eyes at the bottom of said canopy and side wall sections.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
755,369	Hunter	Mar. 22, 1904
872,404	Burch	Dec. 3, 1907
1,642,640	Doddridge	Sept. 2, 1927