J. A. ALVEY.

CONVEYER.

APPLICATION FILED AUG. 8, 1914.

1,219,899.

Patented Mar. 20, 1917.

3 SHEETS—SHEET 1.

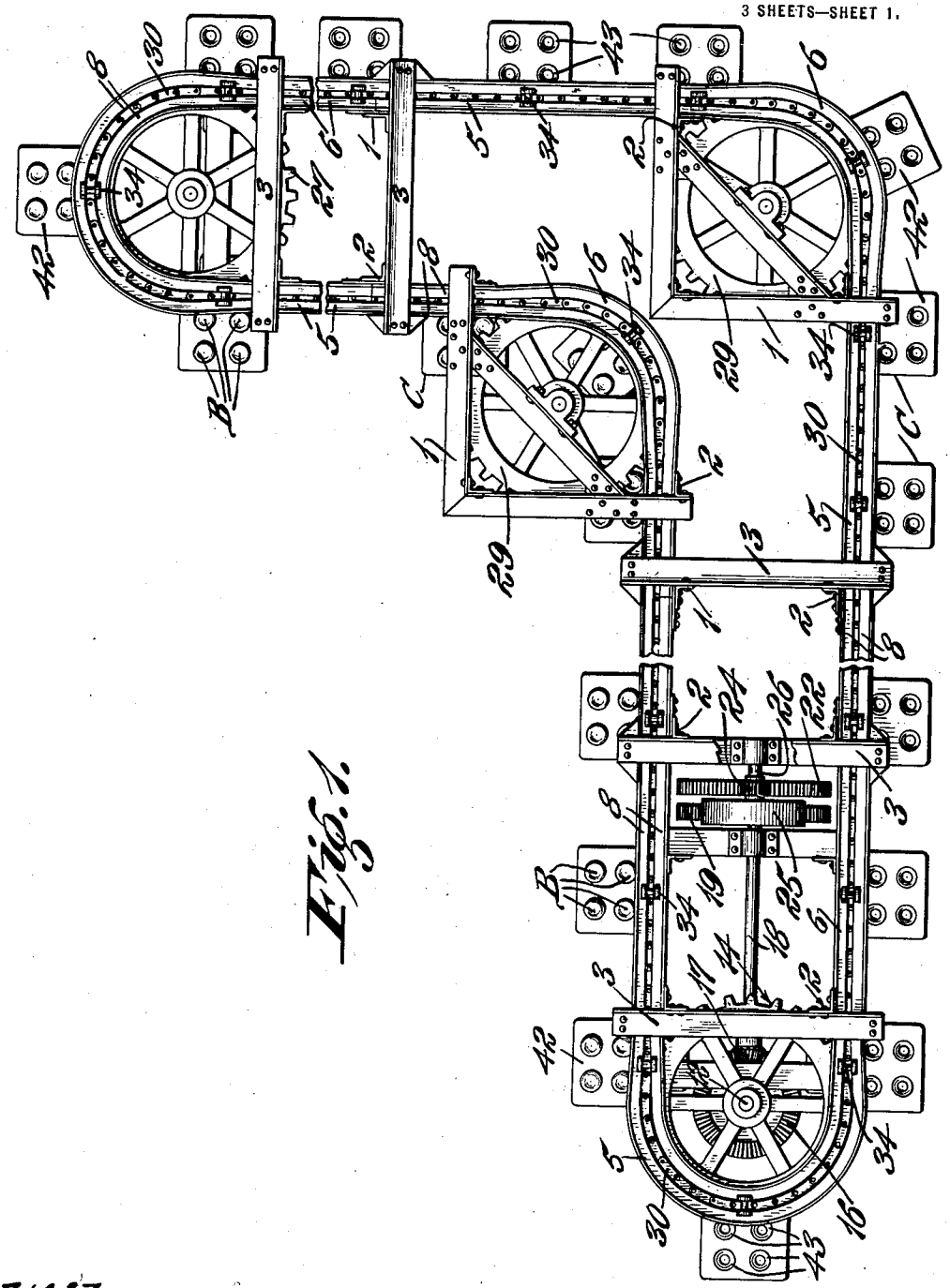


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

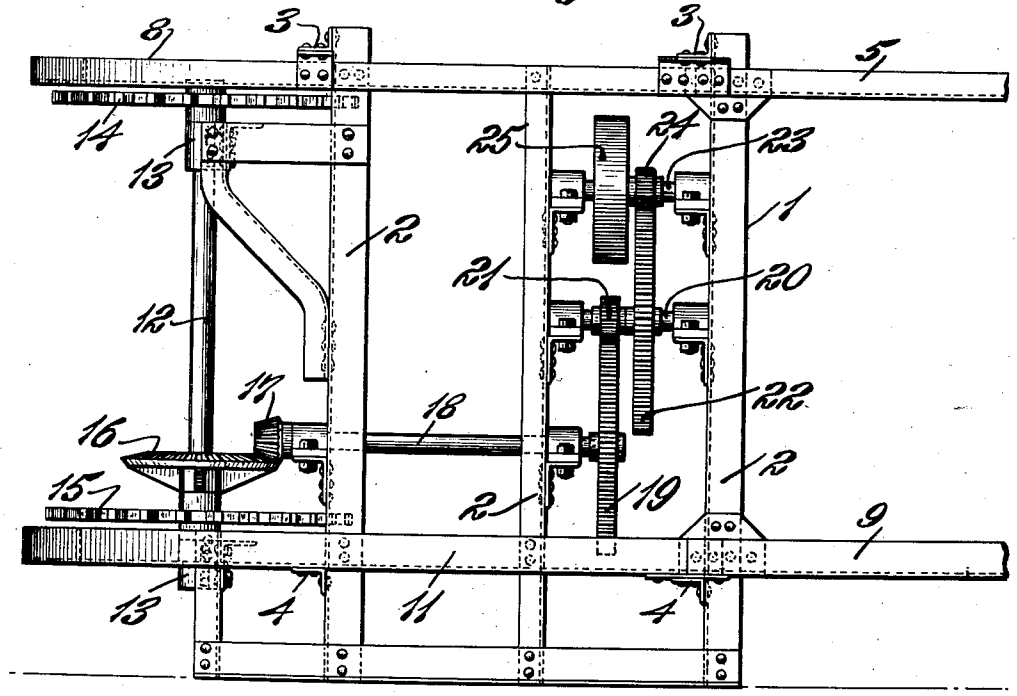


Fig. 3.

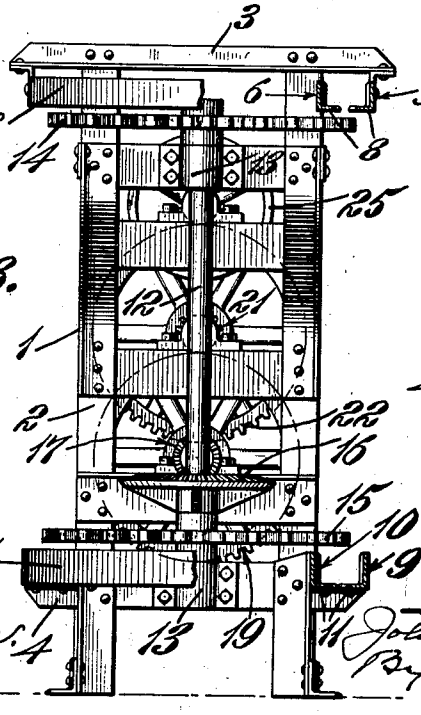
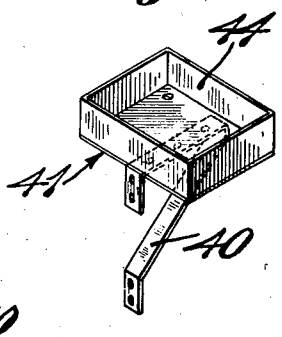


Fig. 7.



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3 SHEETS—SHEET 3.

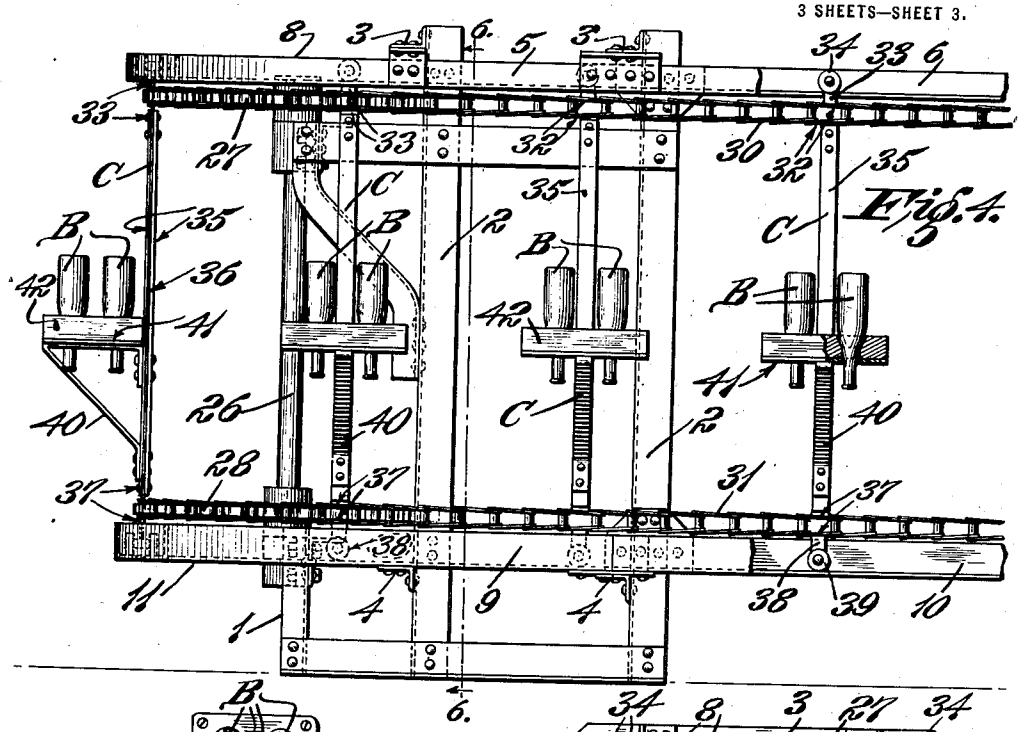


Fig. 4.

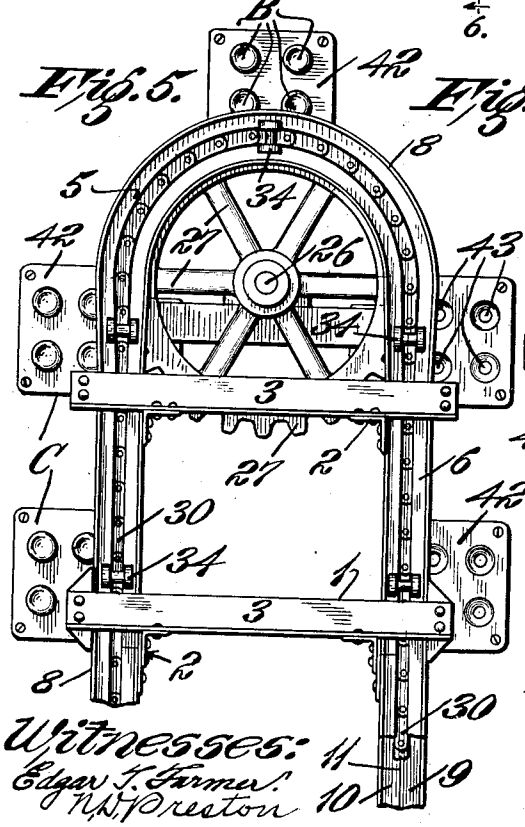


Fig. 5.

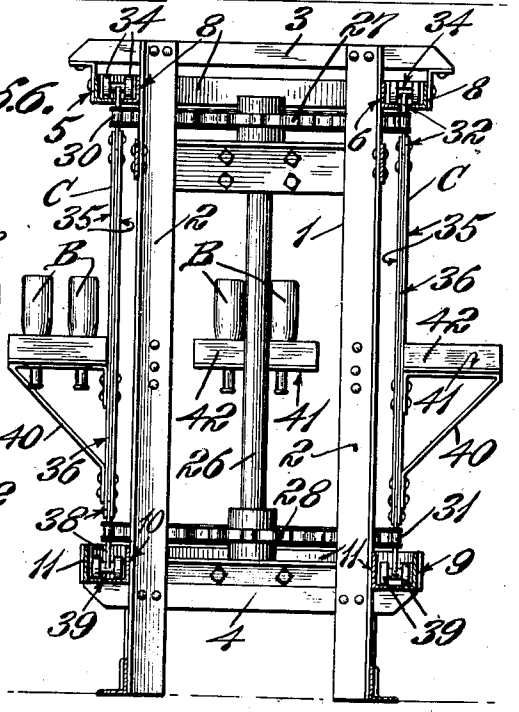


Fig. 6.

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UNITED STATES PATENT OFFICE.

JOHN A. ALVEY, OF ST. LOUIS, MISSOURI, ASSIGNOR TO ALVEY MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

CONVEYER.

1,219,899. Specification of Letters Patent. Patented Mar. 20, 1917.

Application filed August 8, 1914. Serial No. 855,735.

To all whom it may concern:

Be it known that I, JOHN A. ALVEY, a citizen of the United States, and a resident of the city of St. Louis and State of Missouri, have invented a new and useful Improvement in Conveyers, of which the following is a specification.

My invention relates to conveyers, particularly to that type adapted to convey bottles or similar articles.

My invention has for its objects to provide a conveyer for transporting bottles or like articles from one part of a floor to another part, which will operate continuously and which can be easily loaded and unloaded.

The invention consists in the construction of the parts and in the arrangements and combinations of the parts which will be more fully set forth hereinafter.

In the accompanying drawing which forms part of this specification, and in which like symbols refer to like parts throughout,

Figure 1 is a top plan view of a conveyer embodying the invention;

Fig. 2 is a side elevation of a portion of the conveyer near the driving end thereof;

Fig. 3 is an end elevation of the driving end of the conveyer, parts being broken away;

Fig. 4 is a side elevation of a portion of the conveyer at the other end thereof;

Fig. 5 is a top plan view of the portion of the conveyer shown in Fig. 4;

Fig. 6 is a vertical transverse section taken on the lines 6—6 on Fig. 4; and

Fig. 7 is a view of a modified form of carrier detached.

In the conveyer shown in the accompanying drawing, the parts of the conveyer are supported on a frame 1 which is preferably constructed of angle irons. At intervals in the length of the frame 1 are vertical members 2 arranged in pairs. Secured to each pair of vertical members 2 is a top cross-member 3, which extends a short distance beyond said vertical members. Also secured to each pair of vertical members 2 is a bottom cross-member 4, which extends a short distance beyond said vertical members.

Secured to each top cross-member 3, near each end thereof, is a longitudinal angle iron 5, which has one leg projecting horizontally and inwardly. Secured to the outside face of each vertical member 2, near the top thereof, is a second longitudinal angle iron 6, which also has one leg projecting horizontally and outwardly. The horizontal legs of the angle irons 5 and 6 are in the same plane and have a space between their adjacent edges. The two angle irons 5 and 6 constitute a channel-shaped upper track 8. In a similar way, angle irons 9 and 10 are secured to each bottom cross-member 4 and the corresponding vertical members 2, respectively, and constitute a channel-shaped lower track 11. The adjacent edges of the horizontal legs of the angle irons 9 and 10 are close together.

The upper track 8 and the lower track 11 are located on each side of the frame 1, and at each end of the frame 1 said tracks are each curved in the arc of a circle. Consequently, the upper track 8 and the lower track 11 are endless and provide a continuous loop extending from end to end of the frame 1. In the construction shown, the frame 1 is L-shaped and has two portions arranged at right angles to each other. In this latter construction, the upper track 8 and the lower track 11 are each curved in the arc of a circle at the angle of the frame 1. In the curved portions of the upper track 8, at each end of the frame 1 and at the angle thereof, the angle irons 5 and 6 constituting said upper track are spaced farther apart than in the straight portions of said upper track, for the reason hereinafter stated. Likewise, in the curved portions of the lower track 11, the angle irons 9 and 10 are spaced farther apart than in the straight portions of said lower track.

At one end of the frame 1 is a vertical shaft 12 which is located at the center of the curved portions of the upper track 8 and the lower track 11, and which is mounted to rotate in bearings 13 secured to said frame. Secured to shaft 12, a short distance below upper track 8, is an upper sprocket wheel 14; and secured to said shaft, a short distance above the lower track 11, is a lower sprocket wheel 15.

The sprocket wheels 14 and 15 have about the same radius as the curved portions of the upper and lower tracks 8 and 11. Fixed to the shaft 12, near its lower end, is a bevel gear 16. Meshing with the bevel gear 16 is a bevel pinion 17, fixed to a horizontal shaft 18, near one end. Near the other end of the

shaft 18 is fixed a gear 19. Above the shaft 18 is journaled a horizotnal jack shaft 20, having fixed thereto a pinion 21, which meshes with the gear 19. Also fixed to the jack shaft 20 is a gear 22. Above the jack shaft 20 is a third horizontal shaft 23, to which is fixed a pinion 24 meshing with the gear 22. To the shaft 23 is fixed a pulley 25 which is driven by any suitable power, preferably by an electric motor supported upon the frame 1.

Near the end of the frame 1, opposite to the driving end, that is, the end near which the vertical shaft 12 is mounted, is mounted a vertical shaft 26. Fixed to said shaft 26, a short distance below the upper track 8, is an upper sprocket wheel 27, and also fixed to said shaft, a short distance above the lower track 11, is a lower sprocket wheel 28. In a similar way, at the angle of the frame 1 are mounted upper and lower sprocket wheels 29.

Engaging the teeth of the upper sprocket wheels 14 and 27 near the ends of the frame 1, and the upper sprocket wheels 29 at the angle of the frame 1, is an endless upper sprocket chain 30. Likewise, a lower endless sprocket chain 31 engages the teeth of the lower sprocket wheels 15 and 28 near the ends of the frame 1, and the lower sprocket wheels 29 at the angle of the frame 1.

To the sprocket chains 30 and 31, preferably at equal intervals, are connected carriers C, which are supported by the tracks 8 and 11. The construction of the carriers C is the same, and a description of one will suffice for all. At equal intervals throughout the length of the upper sprocket chain 30 are specially constructed links 32 each of which has two projections or lugs 33, one extending upwardly and one extending downwardly. To the upwardly extending projection 33 is fixed a carriage 34, having two wheels arranged to bear upon the horizontal legs of the angle irons 5 and 6 of the upper track 8. To the downward projection 33 are riveted two vertical bars 35, having between them a spacing bar 36. Likewise, the lower sprocket chain 31 has links 37 at intervals throughout its length, which are disposed directly below the links 32 of the upper sprocket chain 30. The links 37 have upwardly and downwardly extending projections or lugs 38. The upwardly extending projection 38 is riveted to the bars 35; and to the downwardly extending projection 38 is fastened a wheeled carriage 39, whose wheels rest upon the horizontal legs of the angle irons 9 and 10 of the lower track 11.

To each pair of bars 35 and the corresponding bar 36 is riveted an angle bracket 40. To each bracket 40 is fastened a rectangular plate 41, and to said rectangular plate is fastened a wooden block 42. The block 42 constitutes a shelf or rack for holding bottles, and is preferably provided with four tapering holes 43, each of which is adapted to support a bottle B placed therein upside down.

In the modification shown in Fig. 7, a tray or pan 44 is secured to the plate 41 and this tray is used to hold bottles or other articles.

In the operation of the conveyer, power applied to the pulley will be transmitted to the vertical shaft 12 through the pinion 24, gear 22, the pinion 21, the gear 19, the shaft 18, the bevel pinion 17, and the bevel gear 16. The sprocket wheels 14 and 15 turn with the shaft 12 and move the sprocket chains 30 and 31. The sprocket chains 30 and 31 move the carriers C in an endless looped path around the frame 1. As hereinbefore described, the angle irons which constitute the upper track 8 and the lower track 11 are spread apart in the curved portions of said tracks. Accordingly, when the carriers C move along the curved portions of the tracks, the carriages 34 and 39 of said carriers are not liable to bind or stick. The bottles are placed by hand in the holes 43 in the blocks 42 at a loading station located at some place along the conveyer, and are taken from said blocks 42 at an unloading station. There may be several stations where the carriers can be loaded and unloaded. The bottles can be placed in and removed from the holes 43 in the blocks 42 while they are moving. Thus, the operation of the conveyer is continuous. The operator or operators at the loading station can load the bottles when they are ready and the bottles can be removed by the operator or operators at the unloading station as they can use them.

The preferred form of construction shown is designed to be used to convey bottles from washing machines to filling machines, and the bottles are conveyed upside down so that they may drain while being transported. However, the conveyer is not limited to such use, but may be used with a tray like that shown in Fig. 7, or with any other form of container or supporting device so that the conveyer can be used to convey bottles or other articles from one place or places to another place or places upon the same floor, as desired. Other changes may be made in the particular construction shown and described without departing from the invention, and I do not wish, therefore, to be limited to the details of that particular construction.

What I claim as my invention is as follows:

1. A conveyer comprising a frame, two endless tracks each comprising two rails spaced apart, said tracks being arranged one above the other and secured to said frame,

a plurality of vertical bars extending from the lower track to the upper track with their ends fitting between the rails of the upper track, wheels connected to said bars near each end thereof and supported by said tracks, said bars and wheels being guided by the inner edges of said upper track rails, horizontal shelves on said bars which are adapted to support the articles to be conveyed, endless sprocket chains secured to the ends of said bars, and means for moving said sprocket chains simultaneously at equal velocities in the same direction along said tracks.

2. A conveyer comprising a frame, two endless channel-shaped tracks arranged one above the other and supported on said frame, the upper track having a continuous longitudinal slot therein, an endless sprocket chain adjacent to each track, sprocket wheels mounted on said frame for driving and guiding said sprocket chains, a plurality of vertical bars each extending from the lower track through the slot in the upper track and rigidly connected to said sprocket chains, wheels rotatably mounted in pairs on opposite sides of each of said bars near each end thereof and guided in said tracks, said bars having horizontal shelves fixed thereto which are adapted to support the articles to be conveyed.

3. A conveyer comprising a plurality of vertical members arranged in pairs, an upper cross member and a lower cross member connected to each pair of the vertical members, upper and lower endless tracks consisting of two angle irons arranged in a channel-shape, the angle irons of the upper track being spaced apart thereby leaving a slot in said upper track extending longitudinally thereof, a plurality of vertical carrier bars having a pair of wheels connected thereto at each end thereof and supported and guided by said tracks, endless sprocket chains connected to said carrier bars, and means for moving said sprocket chains.

4. A conveyer comprising a frame, upper and lower tracks arranged one above the other and supported on said frame, said tracks each comprising two angle irons arranged in a channel shape, the angle irons constituting the upper track having a space between the edges of the adjacent legs, a plurality of carrier bars extending from said lower track to said upper track and having wheels secured thereto near each end, said wheels of said carrier bars being supported and guided by said tracks, said tracks each having portions thereof curved, the angle irons of each of said tracks being farther apart throughout said curved portions than throughout the straight portions of said tracks, whereby their inner edges maintain said bars in the vertical plane of movement of the conveyer.

5. A conveyer comprising a frame, upper and lower endless tracks secured to said frame, said upper track having a longitudinal slot in the bottom thereof, a plurality of vertical carrier bars extending from said lower track through the slot in the upper track and fitting loosely therein, each of said bars having a carriage secured thereto at each end, each of said carriages having two wheels rotatably mounted thereon on a horizontal axis, shelves secured to said carrier bars and adapted to support the articles to be conveyed, and means for connecting and for moving said carrier bars.

Signed at St. Louis, Mo., this 6th day of August, 1914.

JOHN A. ALVEY.

Witnesses:
NEIL D. PRESTON,
MARTHA A. SHELTON.