

No. 681,566.

Patented Aug. 27, 1901.

S. N. McCLOUD.
ADJUSTABLE SPRING BACK CHAIR.

(Application filed Oct. 8, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 2.

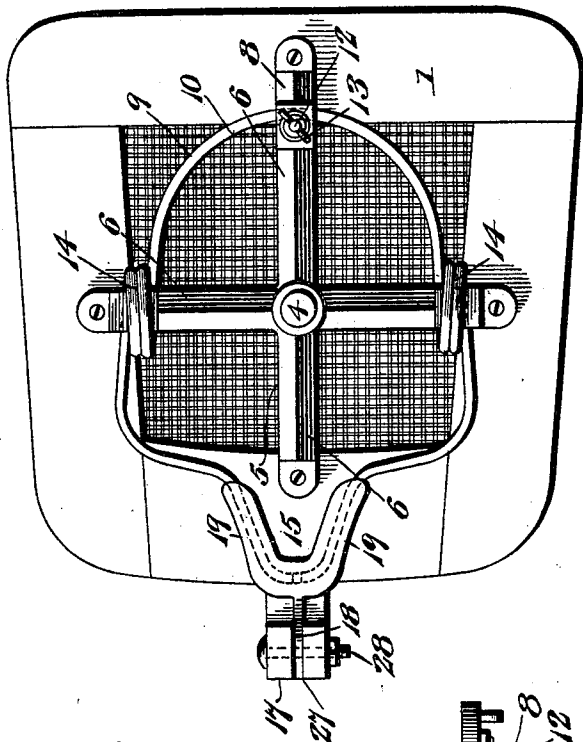
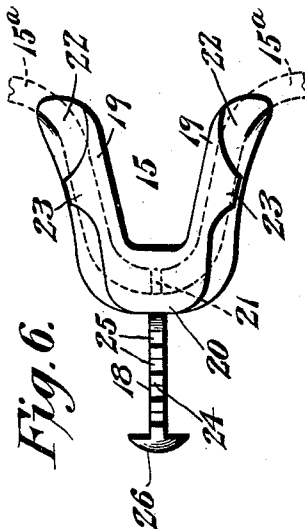


Fig. 7.

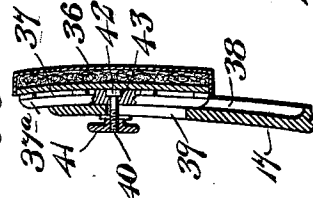
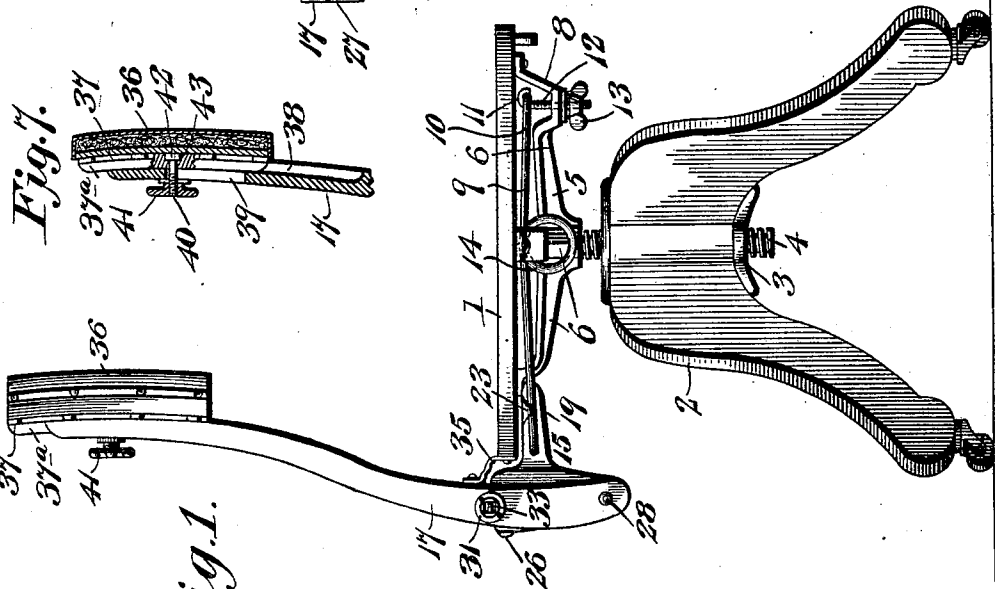


Fig. 1.



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No. 681,566.

Patented Aug. 27, 1901.

S. N. McCLOUD.
ADJUSTABLE SPRING BACK CHAIR.

(Application filed Oct. 3, 1900.)

(No Model.)

2 Sheets—Sheet 2.

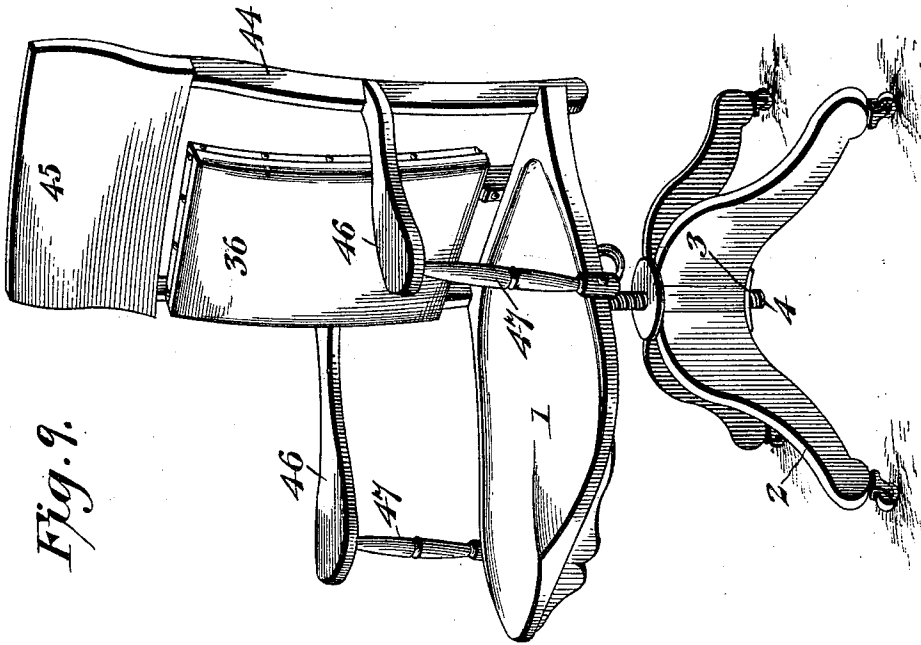


Fig. 9.

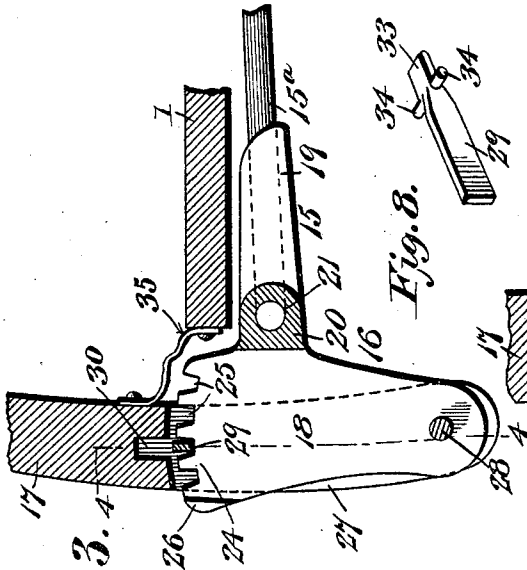


Fig. 3.

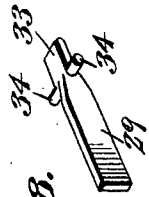


Fig. 8.

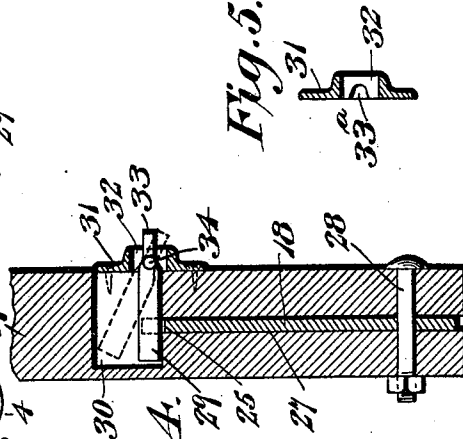


Fig. 4.

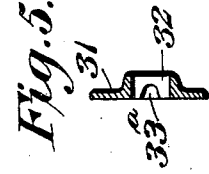


Fig. 5.

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UNITED STATES PATENT OFFICE.

SMITH N. McCLOUD, OF MARYSVILLE, OHIO, ASSIGNOR TO THE DAVIS CHAIR COMPANY, OF SAME PLACE.

ADJUSTABLE SPRING-BACK CHAIR.

SPECIFICATION forming part of Letters Patent No. 681,566, dated August 27, 1901.

Application filed October 3, 1900. Serial No. 31,882. (No model.)

To all whom it may concern:

Be it known that I, SMITH N. McCLOUD, a citizen of the United States, residing at Marysville, in the county of Union and State of Ohio, have invented a new and useful Adjustable Spring-Back Chair, of which the following is a specification.

This invention relates to chairs, and has special reference to that type of chairs known in the trade as "adjustable spring-back chairs," which are particularly designed for the use of type-writers and other persons requiring a proper support or rest for the back while working.

To this end the invention contemplates divers improvements which are intended to provide an adjustable spring-back chair possessing every necessary adjustment, besides having the parts thereof arranged in a very effective way to insure perfect ease and comfort to the person occupying the same. In the accomplishment of this result the invention provides for a novel construction and mounting of the spring-support or supporting-spring for the back and also novel means for adjustably supporting the back-carrying standard from the spring.

It is also the purpose of the invention to provide improved means for locking the standard in any adjusted position for regulating the tension of the supporting-spring, as well as for securing a vertical adjustment of the back or back-rest proper which is carried by the standard.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts herein-after more fully described, illustrated, and claimed.

While the essential features of the invention are necessarily susceptible to some modification without departing from the spirit or scope thereof, still the preferred embodiment of the improvements is shown in the accompanying drawings, in which—

Figure 1 is an elevation of an adjustable spring-back chair embodying the improvements contemplated by the present invention. Fig. 2 is a bottom plan view thereof,

omitting the leg-base. Fig. 3 is an enlarged detail sectional view showing the connection between the back-standard and the holder therefor which is carried by the supporting-spring. Fig. 4 is an enlarged detail sectional view on the line 4 4 of Fig. 3, showing the mounting and action of the pivotal or swinging locking-dog. Fig. 5 is a sectional view of the keeper or keeper-plate for the locking-dog. Fig. 6 is a detail plan view of the standard-holder, including the bridle or head thereof which attaches to the supporting-spring. Fig. 7 is a detail sectional view showing the adjustable mounting of the back or back-rest. Fig. 8 is a detail in perspective of the pivotal locking-dog for the back-standard. Fig. 9 is a perspective of a modified form of chair in which the improvements are associated with a supplementary stationary back or back-frame.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the invention the improvements are necessarily adapted to different styles of spring-back chairs—such, for instance, as piano, type-writer, office chairs, and the like—so it will therefore be understood that the invention is not restricted to any special form or shape of chair; but for illustrative purposes there are shown in the drawings types of chairs in connection with which the improvements possess special utility.

Referring particularly to the type of chair shown in Fig. 1 of the drawings, the numeral 1 designates the chair-seat, which is preferably of the non-tiltable type, but which may be rotatable and vertically adjustable upon the leg-base 2 in the ordinary manner, said leg-base carrying the ordinary nut 3, receiving the adjustable pivot-screw 4, which is rigidly fitted at its upper end to the seat-support 5, which, as illustrated, is of the spider form and essentially comprises a plurality of crossed arms 6, arranged beneath the chair-seat 1 and secured at their terminals thereto by means of screws or other equivalent fasteners. The spider-arm 6, which extends toward the front edge of the chair-seat 1, is preferably provided contiguous to its front

extremity with a depressed offset 8, subserving a function in connection with the adjustment of the back-supporting spring, as will be hereinafter more fully explained.

5 The present invention contemplates the support of the back from a spring or spring-frame, so that the back will readily yield to the pressure of the person in leaning backward, while at the same time it will follow up
10 the forward or leaning movement of the person, and thereby afford a perfect rest. Like in other types of adjustable spring-back chairs the back-supporting spring 9 in the present invention is arranged beneath the
15 chair-seat 1 and is adapted to be held thereto in a suitable manner, so as to be freely movable with the seat in the revolving and vertical movements thereof, while at the same time admitting of a yielding and swinging
20 movement of the tiltable back. The said back-supporting spring 9 in the present invention is preferably in the form of an approximately circular spring-wire frame consisting of a single length of spring-wire bent
25 into an approximately circular form and having a truly-curved loop portion 10, extending toward the front edge of the chair-seat and underlying the front portion thereof, said front loop portion of the spring or spring-
30 frame 9 being arranged to lie directly above the depressed offset 8 in one of the spider-arms and adapted to be engaged by the upper hook extremity 11 of the tension-adjusting bolt 12, working through an opening in
35 the base of the offset 8 and having mounted on its lower end a thumb-nut 13, bearing against the under side of the spider having the offset 8, so as to constitute a complete tension device for drawing down upon or easing
40 up the front loop portion 10 of the spring, and thereby varying the tension thereof. The said approximately circular back-supporting spring or spring-frame 9 is provided at an intermediate point of diametrically opposite side portions thereof with the spring-
45 coils 14, which are respectively coiled about the opposite arms of the spider 5 to provide a proper support for the spring or spring-frame, while at the same time providing a fulcrum therefor to permit of the rear portion of the spring yielding, so as to respond
50 to the pressure upon the back, while the front portion of the spring is held fast by the tension device just described. The rear portion of the spring 9—that is, the part thereof
55 in rear of the spring-coils 14—is bent into an approximately U or V form to conform to the shape of the bridle or head 15, constituting a part of the holder 16 for the tiltable back-standard 17. The said holder 16 preferably consists of an integral malleable casting comprising a flat upright holding-plate
60 18 and an approximately horizontal forwardly-projecting bridle 15, offset from the front edge of the said plate and underlying the rear edge portion of the chair-seat 1. The said bridle or head 15 is designed to provide

a rigid connection between the holder 16 for the standard and the supporting-spring 9, and the same is preferably of a U or V shape, 70 having the forwardly-divergent engaging arms 19 and the solid base portion 20, in which base portion is formed a socket 21, which receives the extreme ends or rear terminals of the bent spring or spring-frame 9, said ends 75 or terminals of the spring or spring-frame preferably meeting within the socket of the solid base portion 20 of the spring-bridle 15. The opposite forwardly-divergent engaging arms 19 of the bridle are provided with 80 the longitudinal receiving-grooves 22, running the full length thereof and extending into the socket 21, so as to snugly receive therein the sides of the U or V shaped rear portion 15^a of the spring 9, and in addition 85 to the receiving-grooves 22 the engaging arms 19 of the bridle have formed integral therewith the malleable retaining or fastening ears 23, overhanging the grooves 22 and adapted to be bent down over the portions of 90 the spring lying therein, thus providing a rigid fastening connection between the said bridle and the said rear vertically-yielding portion of the spring or spring-frame 9.

The upright flat holding-plate 18 of the 95 standard-holder 16 is provided at the upper end thereof with a toothed segment 24, essentially consisting of a plurality of locking-notches 25, and at the extreme rear upper corner of the same the said plate 18 is further 100 provided with a stop-lug 26, projecting from both sides of the plate and serving as a stop to limit the rearward movement of the back-standard 17 irrespective of the lock which is associated therewith. In fact, the stop- 105 lug 26 serves as a retainer for the standard 17 in its extreme rearward position.

To provide for a proper operative relation between the upright pivotal back-standard 17 and the holding-plate 18 therefor, the said 110 standard is provided at its lower end with a bifurcation 27, loosely receiving therein the upright plate 18, and at or contiguous to its lower end the forked or bifurcated portion of the standard is pivotally held to the lower 115 end of the plate 18 through the medium of the pivot-bolt 28 or equivalent fasteners.

The pivotal mounting of the standard 17 permits of the same being tilted or adjusted to different angles with reference to its sup- 120 port in order to suit different persons, and in order to provide for holding the standard 17 adjusted at the angle to which it may be set there is associated with the same a locking device essentially consisting of a single locking-dog 29. This locking-dog consists of a 125 single straight bar or pin adapted to have a play within a recess 30 in the standard 17 at the upper end of its fork or bifurcation, the open side of said dog-receiving recess being 130 preferably covered by a keeper-plate 31, held to the side of the standard by means of screws or equivalent fasteners. The said keeper-plate 31 is provided with a central opening

32, through which projects the finger piece or lip 33 at the outer end of the dog 29. At diametrically opposite sides of the opening 32 therein the said keeper-plate is provided with bearing-notches 33^a, which loosely receive opposite pivot-studs 34, projecting from opposite sides of the dog contiguous to the outer extremity of the finger-piece 33 thereof. It will thus be seen that the dog 29 is in the form of a straight lever pivotally supported near one edge, thereby leaving the long arm or locking portion thereof free to gravitate to the locking position. The said long arm or locking portion of the dog 29 fits in the recess 30, so as to permit of the said dog being readily lifted out of any of the notches 25 with which it may be engaged. A slight pressure upon the outer end of the finger-piece 33 of the dog lifts the same up into the recess 30 and out of engagement with the holding-plate 18, so that the standard 17 may be swung upon its pivot to any desired angle, after which, by releasing the pressure upon the finger-piece 33, the dog 29 will gravitate into engagement with another notch 25, thus securing the standard in its newly-adjusted position. In order to restrict the swing of the standard with the vertically-yielding rear portion of the supporting-spring or spring-frame, a flexible or equivalent stop 35 is preferably connected at its opposite ends, respectively, to the rear edge of the chair-seat and the adjacent portion of the standard.

The tiltable standard carries the back or back-rest 36, which may be of any of the usual types employed in spring-back chairs, said back or back-rest 36 being of slatted, cane, or cushion formation, as desired by the manufacturer. In the drawings a simple form of cushion-back or back-rest is shown for illustrative purposes; but the present invention contemplates improved means for effecting the vertical adjustment of the back-rest to suit the height of the person occupying the chair. The construction adapted for this purpose is shown in the drawings and essentially comprises a slide-plate 37, rigidly fastened to the rear side of the back-rest 36 and provided with a longitudinally-disposed rib 37^a, slidably engaging in the guide-groove 38, formed longitudinally in the inner side of the tiltable back-standard 17. The said standard is also provided with a longitudinally-disposed slot 39, extending for a portion of the length of the groove 38 and adapted to have extended therethrough the adjusting-bolt 40, rigidly connected with the slide-plate 37 and carrying upon the rear extremity thereof a clamp-nut 41, preferably in the form of a hand-wheel and binding against the rear side of the standard 17 to provide for fastening the back-rest 36 in any adjusted position.

A feature of the construction described resides in having the head 42 at the inner end of the bolt 40 housed and interlocked within a countersink 43, formed in the inner side of the plate or casing 37, intermediate the upper

and lower ends thereof. The said plate or casing 37 therefore serves also in the capacity of a fastening or holder for the adjusting-bolt 40.

As previously explained, the improvements described may be utilized in connection with any form of chair embodying an adjustable spring-back or back-rest, and one of the useful adaptations of the invention is shown in Fig. 9 of the drawings, and consists in combining the improvements described with a chair structure embodying a supplemental back-frame 44, which is fitted rigidly to the chair seat or bottom 1 and includes a shoulder-rest 45 and may be associated with side arms 46, braced from the chair seat or bottom by the usual posts 47. In this structure the back or back-rest 36 is movable within the open part of the frame 44 and carries out the same useful purpose as the construction already described.

In adapting the improvements to other chairs than those illustrated in the drawings—such, for instance, as solid-bottom chairs with legs depending directly from the chair-seat—it might be necessary to utilize different expedients for holding the spring-frame beneath the seat; but as this would be fully comprehended within the invention it will be understood that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a chair, the combination with the seat, and the supporting-spider therefor, one of the arms of said spider having an offset, of a back-supporting spring mounted beneath the seat and having a continuous loop portion arranged over said offset, a back-carrying standard connected with the rear portion of the spring, and a tension device mounted on the spider and engaging with the loop portion of the spring.

2. In a chair, the combination with the seat and the supporting-spider therefor, one of the arms of said spider having a depressed offset, of a back-supporting spring mounted beneath the seat and having a loop portion arranged over said offset, a back-carrying standard connected with the rear portion of the spring, and a tension device comprising an adjustable bolt mounted in the seat-supporting spider, and arranged to engage the loop portion of the spring disposed above said offset of the spider-arm.

3. In a chair, the combination with the seat, of a continuous spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion, a standard-holder having a bridle or head engaging the rear portion of the spring-wire frame, and comprising forwardly-diverging longitudinally-grooved arms in which the spring-terminals

are housed and concealed, and a back-carrying standard supported upon said holder.

4. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form, and a standard-carrying holder having a bridle or head conforming in shape to said vertically-yielding portion of the spring, and rigidly joined thereto, said holder also comprising means for receiving and housing both terminals of the spring-wire frame.

5. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form; a standard-holder having a bridle or head conforming in shape to said rear portion of the spring and rigidly united thereto, said bridle or head having a socket receiving and housing both terminals of the spring-wire frame, and a tiltable back-carrying standard adjustable upon the holder.

6. In a chair, the combination with the seat, of a spring-wire frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U or V form, and a standard-carrying holder provided with an approximately U or V shaped bridle having in the base portion thereof a socket to receive the terminals of the spring-wire, and also provided with grooved engaging arms receiving the sides of said rear vertically-yielding portion of the spring-frame.

7. In a chair, the combination with the seat, of a spring-frame mounted beneath the seat and provided with a rear vertically-yielding portion of an approximately U form, and a standard-carrying holder provided with an approximately U-shaped bridle receiving the correspondingly-shaped portion of the spring-frame and provided in its base portion with a socket for the terminals of the spring-wire, said bridle also having the divergent arms thereof longitudinally grooved and provided with malleable retaining-ears overhanging the grooves.

8. In a chair, the combination with the chair-seat, and the back-supporting spring, of a

standard-holder connected with said spring, and provided at the upper edge thereof with a toothed segment and also with a stop-lug at the rear edge thereof, a back-carrying standard pivotally mounted upon the holder, and a locking device carried by the standard and co-operating with said toothed segment.

9. In a chair, the combination with the seat, and the back-supporting spring, of a standard-holder connected to said spring and provided at its upper edge with a series of locking-notches, a back-carrying standard pivoted upon the holder, a keeper fitted to the standard and having bearings, and a gravity locking-dog pivoted in the bearings of said keeper and having a member lying within the standard and adapted to engage with said notches.

10. In a chair, the combination with the seat, of a standard-holder having a plate provided with a plurality of notches, a tiltable back-carrying standard pivotally mounted upon said plate, a keeper-plate fitted to the standard and provided with bearing-notches, and a single pivotal gravity locking-dog provided at one end with a finger-piece projecting through the keeper-plate, and contiguous to that end with pivot-studs loosely engaging in said bearing-notches, said dog being arranged to move vertically in and out of engagement with said notches.

11. In a chair, the combination of the back-carrying standard provided with a longitudinally-disposed guide-groove, and a slot intersecting said groove, the back-rest, a slide-plate secured to said rest and provided at its inner side with a countersink, and at its outer side with a rib engaging said guide-groove, an adjusting-bolt having its head held within said countersink, and extending through the slot of the standard, and a clamp nut or wheel engaging the said bolt at the rear side of the standard.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

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Witnesses:

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