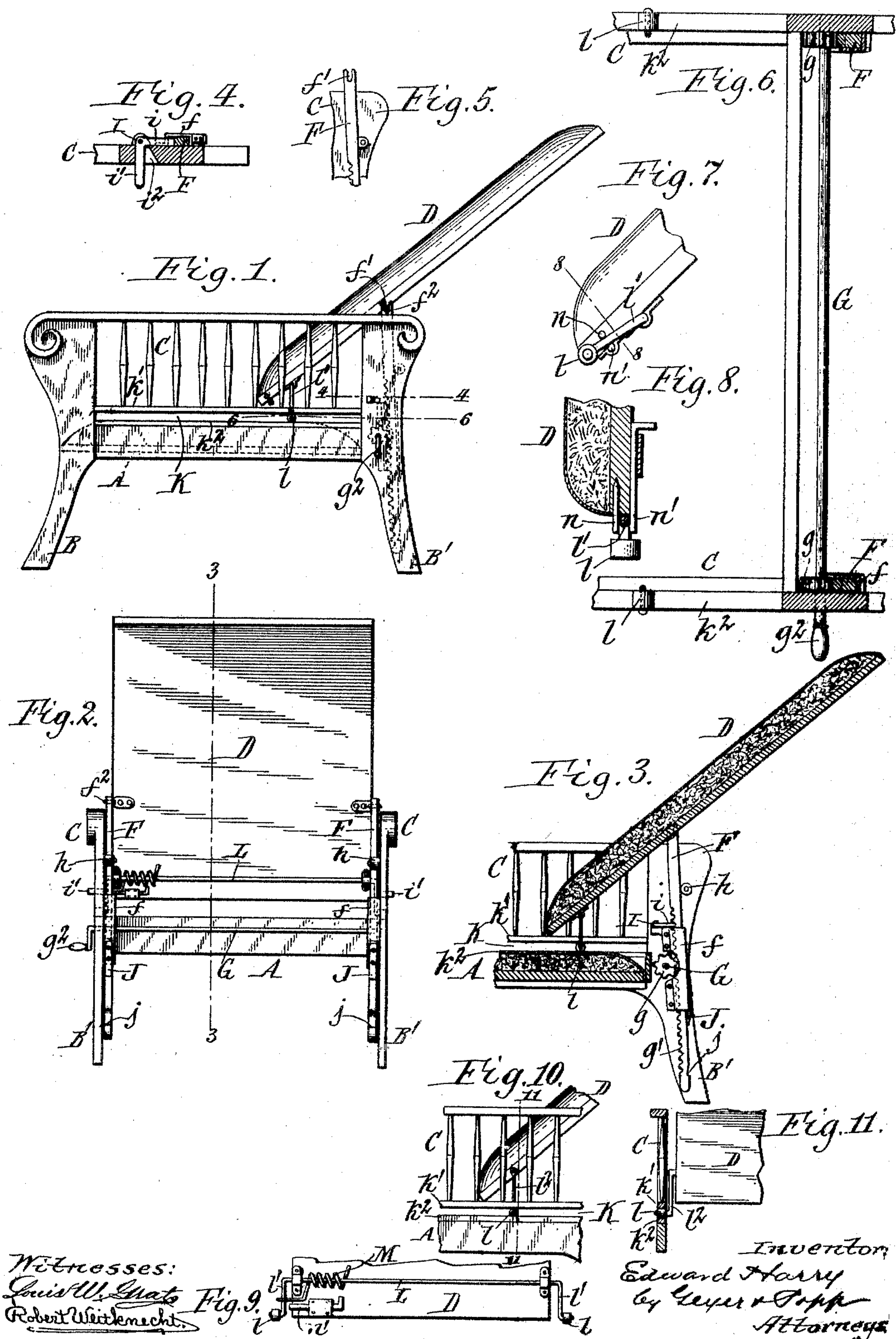


E. HARRY.  
ADJUSTABLE CHAIR OR SIMILAR ARTICLE.

APPLICATION FILED FEB. 10, 1904.

NO MODEL.

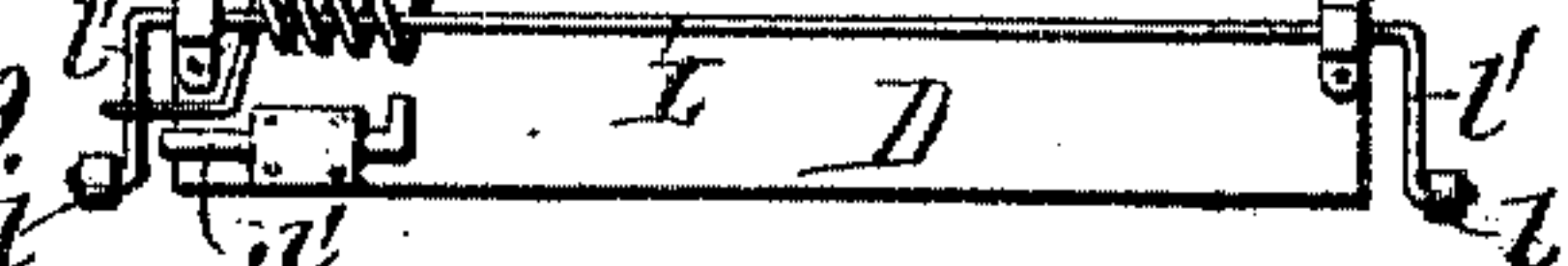


Witnesses:

Louis W. Galt

Robert Weidenecht

Fig. 9.



Inventor:  
Edward Harry  
by C. E. & J. P. Popp  
Attorneys



# UNITED STATES PATENT OFFICE.

EDWARD HARRY, OF BUFFALO, NEW YORK.

## ADJUSTABLE CHAIR OR SIMILAR ARTICLE.

SPECIFICATION forming part of Letters Patent No. 776,740, dated December 6, 1904.

Application filed February 10, 1904. Serial No. 192,888. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD HARRY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have  
5 invented new and useful Improvements in Adjustable Chairs or Similar Articles, of which the following is a specification.

This invention relates to a chair, couch, or similar article having a back which is capable  
10 of adjustment into different positions to suit the convenience or requirement of different persons.

The object of this invention is to provide simple and efficient means whereby the back  
15 may be quickly and conveniently adjusted into the required position and also permit the back to either tilt or remain rigid while in use.

In the accompanying drawings, Figure 1 is a side elevation of a chair equipped with my  
20 improvements. Fig. 2 is a rear elevation of the same. Fig. 3 is a fragmentary longitudinal section in line 3 3, Fig. 2. Fig. 4 is a fragmentary horizontal section in line 4 4, Fig. 1. Fig. 5 is a fragmentary inside eleva-  
25 tion of one of the chair-arms and the adjacent part of the back-supporting device. Fig. 6 is a fragmentary horizontal section, on an enlarged scale, in line 6 6, Fig. 1. Fig. 7 is a fragmentary side elevation of the lower part  
30 of the chair-back and the means whereby the same is guided on the chair-body. Fig. 8 is a horizontal section of the same in line 8 8, Fig. 7. Fig. 9 is a fragmentary rear elevation of the lower part of the back and adjacent  
35 guiding means. Fig. 10 is a fragmentary side elevation of the chair, showing a modification of the means for guiding the lower end of the back. Fig. 11 is a vertical section of the same in line 11 11, Fig. 10.

40 Similar letters of reference indicate corresponding parts throughout the several views.

The chair shown in the drawings for illustrating the application of my invention consists of a body composed, essentially, of a seat  
45 A, legs B B', arranged at the front and rear ends of the seat, sides or arms C C, rising from opposite sides of the seat, and a back D, arranged over the rear part of the seat and between the rear part of the arms.

50 The back is connected with the body of the

chair by guiding and adjusting means to permit of varying the position of the back relatively to the body, which means are constructed as follows: F F represent two upright supporting bars or standards whereby the cen- 55 tral part of the back is supported from the body. These bars are preferably arranged to slide in guides or loops  $f f$  on the inner sides of the rear legs and the adjacent rear part of the arms and are pivotally connected 60 with the back in any suitable manner. The preferred connection for this purpose consists in constructing the upper end of each supporting-bar in the shape of a fork, as shown at  $f'$ , Fig. 5, and providing the adjacent cen- 65 tral part of the back at its side with a laterally-projecting horizontal pin  $f''$ , which is seated in the corresponding fork  $f'$ , as shown in Fig. 1. By this means the back can rock on the supporting-bars when adjusted to dif- 70 ferent positions and can also be readily removed for cleaning, repairing, or other purposes.

Various means may be employed for raising and lowering the supporting-bars and the back 75 supported thereon. As shown in the drawings, I prefer to effect this adjustment by means of a horizontal shaft G, journaled transversely in the body in rear of the seat, gear-wheels  $g g$ , mounted on the shaft and meshing 80 with gear teeth or racks  $g' g'$  on the lower part of the supporting-bars, and a hand-crank  $g''$ , applied to one end of the shaft outside of the chair-body, as shown in Figs. 1, 2, 3, and 6. Upon turning the shaft in one direction 85 or the other the supporting-bars and the back pivoted thereon are raised or lowered. The lower end of the back is free to move horizontally back and forth relatively to the seat as the back is raised and lowered bodily. By 90 this means the back may be adjusted to assume different positions and inclinations relatively to the body to suit individual requirements or conveniences.

In order to sustain the upper ends of the 95 supporting-bars against backward displacement when subjected to pressure in this direction by the weight of a body resting on the back, means are provided for sustaining the supporting-bars at their upper ends. For this 100



purpose auxiliary guides  $h$ , consisting, preferably, of rollers, are mounted on the inner side of the arm-rests and engage with the rear sides of the supporting-bars above their main guides  $f$ . These auxiliary guides receive the rearward thrust of the supporting-bars and relieve the friction of the bars against the same.

The gear wheels and teeth are preferably arranged on the front side of the supporting-bars, whereby a rolling support is furnished for the bars on opposite sides by means of the wheels  $g$  and rollers  $h$ , which reduces the friction against the bars upon moving the same vertically while under rearward pressure at their upper ends.

For holding the supporting-bars at different elevations a pawl, lock, catch, or other detent device is provided consisting, preferably, of two dogs or pawls  $i$ , mounted on the chair-body and cooperating with the teeth of the supporting-bars. Each of these dogs is of elbow shape and pivoted on the inner side of the body opposite the teeth of one of the rack-bars, so that its inner arm  $i^1$  may be moved into and out of engagement with the teeth of the adjacent supporting-bar while its other or outer arm  $i^2$  projects laterally through a slot or opening  $i^3$  in the chair-body, so that the same can be manipulated from the outer side of the chair. When the pawl engages with the teeth of the adjacent supporting-bar, it is arranged between the bar and its pivot, as shown in Fig. 4, and rests on top of the main guideway of the bar, as shown in Fig. 3, whereby the pawl is firmly supported and prevented from being deflected out of engagement with the teeth of the bar by the downward pressure exerted against the same. Although I have shown a catch or pawl applied to each of the gear-racks in the drawings, this is only necessary under exceptional conditions, as ordinarily a single pawl applied to but one of the gear-racks answers the purpose.

In order to prevent accidental withdrawal of the gear-racks from their guides during the normal operation of the back-adjusting device, a stop device is provided consisting, preferably, of flat springs  $J$ , secured at their upper ends to the guides  $f$  and bearing at their lower ends against the back of the gear-racks. Upon raising the latter into the highest operative position they engage, by means of shoulders or notches  $j$  at their lower ends, with the stop-springs, thereby preventing the total withdrawal of the bars from the guides. When it is desired to withdraw the supporting-bars entirely from their guides for cleaning or repairing the chair or for other purposes, this can be done by first retracting the spring-stops  $J$ , so that they clear the shoulders  $j$  of the supporting-bars.

At its lower end the back is guided on the body of the chair by a guiding device, which is preferably constructed as follows:  $K$   $K$  represent horizontal guide ways or slots ar-

ranged lengthwise on opposite sides of the body, each guideway being preferably formed by a pair of upper and lower rails  $k'$   $k^2$ , arranged one above the other. On opposite sides of its lower end the back is provided with runners or rollers  $l$ , which move back and forth in the guideways. These rollers are preferably connected with the back by means of a horizontal rod  $L$ , journaled transversely on the rear lower part of the back and provided at its opposite ends with depending arms or hangers  $l'$ , on the lower ends of which the rollers  $l$  are journaled. Upon raising or lowering the back bodily with its supporting-bars and also when tilting the back on the bars the rollers are shifted in the guideways  $K$  and adapt themselves to the various positions of the back. For steadying the movement of the guide-rollers  $l$  and causing the same to always assume a definite relation to the back in different positions of the parts a spring  $M$  is provided, which has a constant tendency to move the guide-rollers in one direction. As shown in Fig. 9, this spring is applied to the transverse rod  $L$  and bears at its opposite ends against the back and one of the arms  $l'$  in such manner that the rod is turned and the arms and rollers are constantly moved forward, thereby not only causing the rollers to assume a definite position relatively to the back, but also keeping the parts in close contact to prevent looseness and rattling. When the rollers are free, they move back and forth in their guideways  $K$  in following the movements of the back as the same is shifted while in use. If it is desired to hold the back rigid after the same has been adjusted to the required elevation and inclination, this can be done by means of a fastening or locking device, whereby the back is held rigid relatively to the guide-rollers. As shown in the drawings, this is effected by means of fixed stops or pins  $n$ , arranged on opposite sides of the back and engaging with the front sides of the hanger-arms  $l'$ , and sliding bolts or similar movable stops  $n'$ , arranged on the back and constructed to engage the rear sides of said arms, as shown in Figs. 7 and 8.

Instead of pivoting the arms  $l'$  on the back by means of the rod  $L$ , which connects the same, this rod may be omitted and the rollers  $l$  may be supported by links or arms  $l^2$ , pivoted individually on opposite sides of the back, as shown in Figs. 10 and 11.

My improved back adjusting and guiding device for chairs and similar articles can be easily manipulated and is of such construction that it does not detract from the appearance of the chair.

I claim as my invention—

1. A chair or similar article comprising a body, a movable back, upright bars supporting said back and guided on the body and having gear-racks, gear-wheels meshing with said racks, and an elbow-shaped pawl for holding



a gear-rack in place pivoted on the body opposite the teeth of the gear-rack so that one of its arms can be moved horizontally into and out of engagement with said teeth while  
5 its other arm projects laterally through an opening in the body, substantially as set forth.

2. A chair or similar article comprising a body, a back, vertically-movable supporting-bars for said back guided on the body and each  
10 having a single shoulder on its rear side and a plurality of gear-teeth on its front side, a shaft provided with gear-pinions meshing with said gear-teeth, and stop-springs mounted on the body and constructed to engage said shoulders, substantially as set forth.

3. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, guides arranged on opposite sides of the seat and each  
20 consisting of upper and lower rails forming a guideway between them, and depending arms pivoted at their upper ends on said back and guided at their lower ends in said ways, substantially as set forth.

25 4. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, longitudinal guides arranged on opposite sides of the seat and each composed of upper and lower rails  
30 forming a guideway between them, depending arms pivoted at their upper ends to the lower end of the back, and rollers arranged on the lower ends of said arms and engaging with said guideways, substantially as set forth.

35 5. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, longitudinal guides arranged on opposite sides of the seat and each composed of upper and lower rails  
40 forming a guideway between them, depending arms pivoted at their upper ends to the lower end of the back, rollers arranged on the lower ends of said arms and engaging with said guideways, and a spring device operating  
45 to turn said arms, substantially as set forth.

6. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, longitudinal guides arranged on opposite sides of the seat and each composed of upper and lower rails  
50 forming a guideway between them, depending arms pivoted at their upper ends to the lower end of the back, rollers arranged on the lower ends of said arms and engaging with said guideways, and means for holding said arms against  
55 turning on the back, substantially as set forth.

7. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, guides arranged lengthwise on opposite sides of the  
60 seat and each consisting of upper and lower rails forming a guideway between them, a rod journaled transversely on the lower part of the back and having depending arms at its ends, and rollers arranged on said arms and  
65 engaging with said guides, substantially as set forth.

8. A chair or similar article comprising a seat, a back, an adjustable support connected with the central part of the back, guides arranged lengthwise on opposite sides of the  
70 seat and each consisting of upper and lower rails forming a guideway between them, a rod journaled transversely on the lower part of the back and having depending arms at its  
75 ends, rollers arranged on said arms and engaging with said guides, a spring operating to move said arms and parts connected therewith forwardly, fixed stops arranged on the back in position to be engaged by the front  
80 side of said arms, and movable stops arranged on the back and adapted to engage with the rear side of said arms, substantially as set forth.

Witness my hand this 6th day of February, 85  
1904.

EDWARD HARRY.

Witnesses:

THEO. L. POPP,

EMMA M. GRAHAM.