(No Model.) 3 Sheets—Sheet 1.

G. W. BEMIS, Sr.

CHANGEABLE GAGE TRUCK.

No. 305,271. Patented Sept. 16, 1884.

Fig. 1.

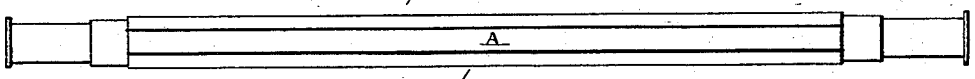


Fig. 2.

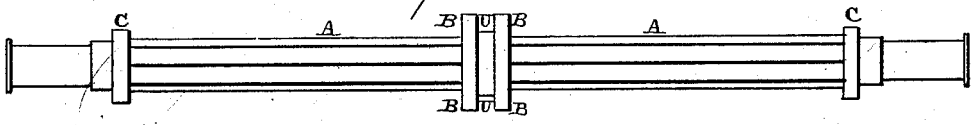


Fig. 3.

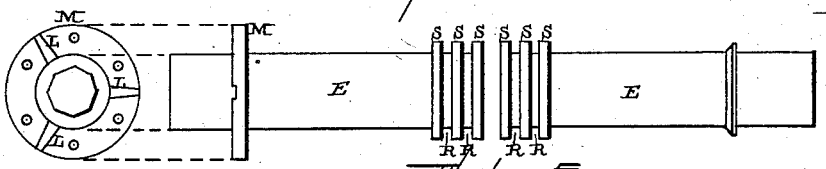


Fig. 6.

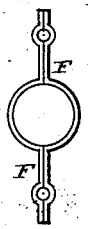
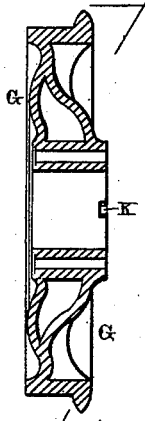


Fig. 5.

Fig. 4.



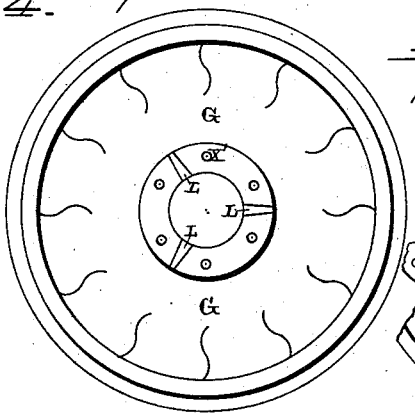


Fig. 7.

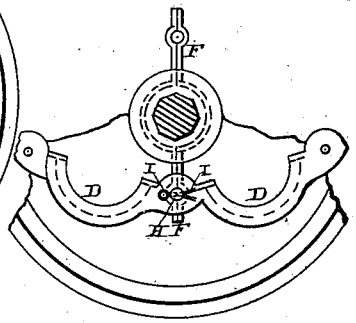


Fig. X.

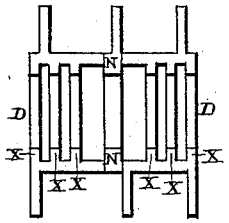


Fig. 9.

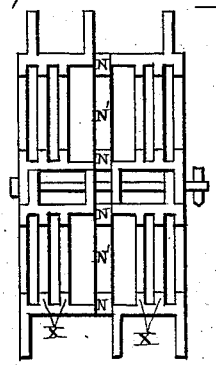
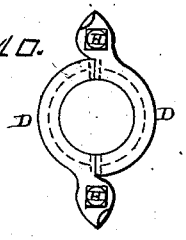


Fig. 10.



Witnesses.

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(No Model.) 3 Sheets—Sheet 2.

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No. 305,271. Patented Sept. 16, 1884.

Fig. 11.

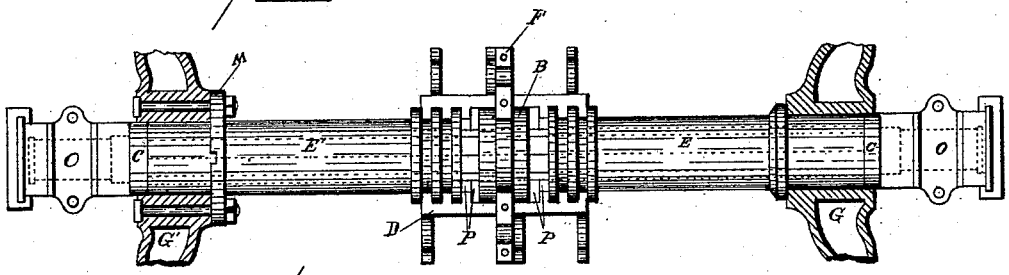


Fig. 12.

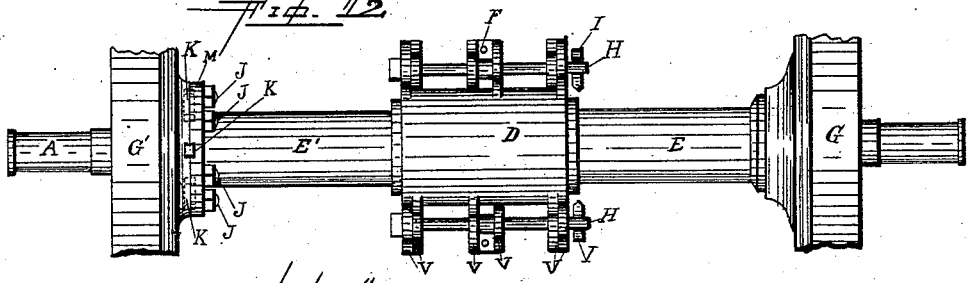


Fig. 13.

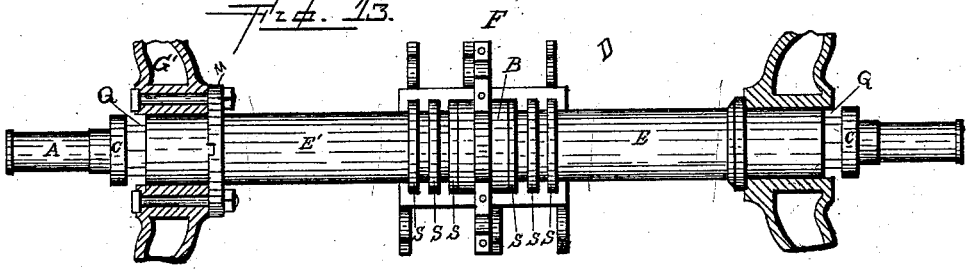
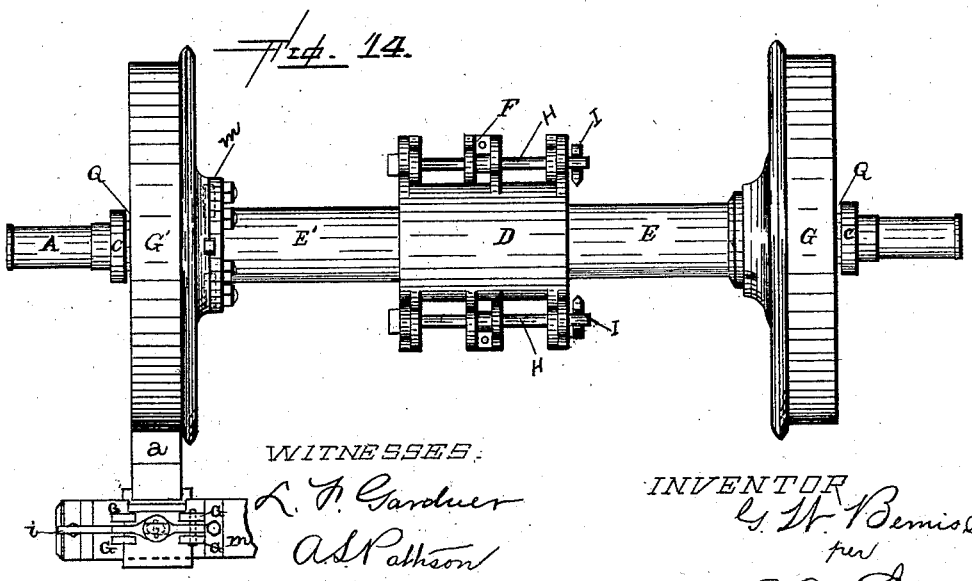


Fig. 14.



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CHANGEABLE GAGE TRUCK.

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Fig. 15.

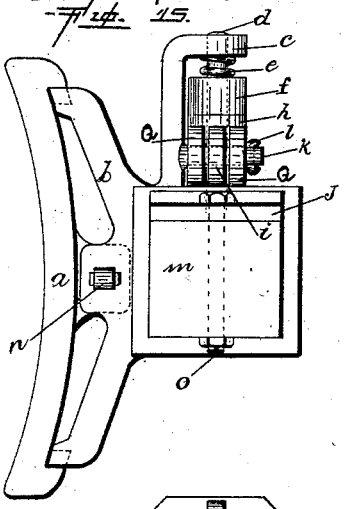


Fig. 30

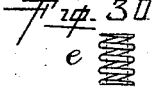


Fig. 17.

Fig. 18.

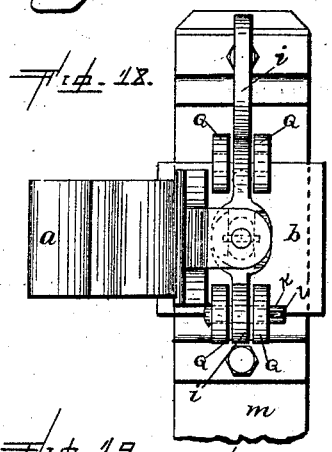


Fig. 31. Fig. 32.

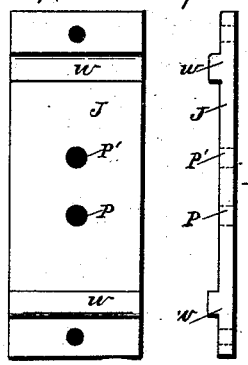


Fig. 33.

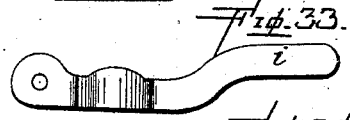


Fig. 34.

Fig. 24.

Fig. 25.

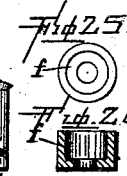


Fig. 26.

Fig. 28

Fig. 27

Fig. 35.

Fig. 29.

Fig. 19.

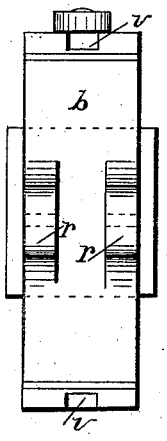


Fig. 20.

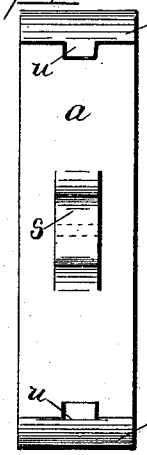


Fig. 21.

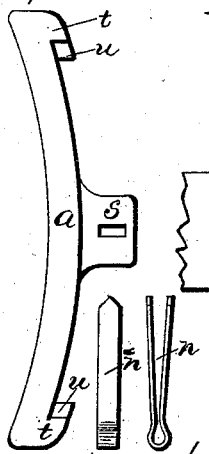
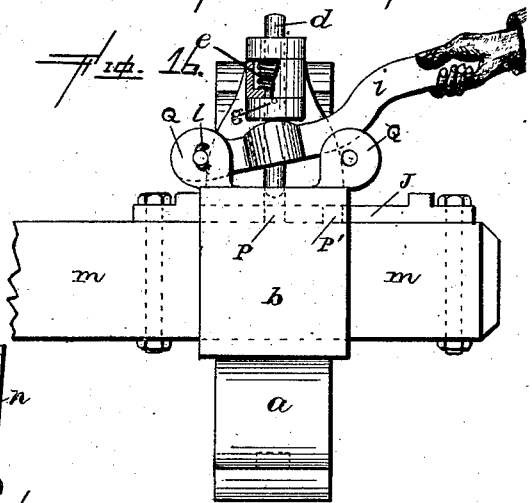


Fig. 22. Fig. 23.

Fig. 16.



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per

F. A. Lehmann, Atty.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

GEORGE W. BEMIS, SR., OF CINCINNATI, OHIO.

CHANGEABLE GAGE-TRUCK.

SPECIFICATION forming part of Letters Patent No. 305,271, dated September 16, 1884.

Application filed June 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEO. W. BEMIS, Sr., of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Devices for Changing the Gage of Railroad-Trucks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in devices for changing the gage of railroad-trucks; and it consists, first, in the combination of the sleeves, which are adjustable upon the axle, and which have flanges on their inner ends, with a clamp which is made in two parts, for holding the inner ends of the sleeves at any desired relation to each other, and a suspending link or lever to which the clamp is loosely attached, so that when the clamp is dropped down it will be suspended just under the axle, ready to be applied as soon as the gage has been changed; second, in the combination of the axle, a removable sleeve placed thereon, which sleeve is provided with a flange near its outer end, the car-wheel, and the bolts by means of which the car-wheel is attached to the sleeve; third, the combination of the axle, the adjustable sleeves, and the wheels connected to the sleeves of a railroad-track in which the rails are made to gradually approach or recede from each other, so as to automatically change the gage of the wheels from a wide to a narrow road or from a narrow to a wide road; fourth, the combination of the brake-block, the beam upon which it is placed, a sliding frame which passes around the end of the beam, and a locking mechanism whereby the brake-block can be locked in position on the beam, as will be more fully described hereinafter.

The object of my invention is to make the wheels adjustable upon their axles automatically, and thus dispense with the use of screws, hoists, or other elevating and depressing apparatus, the employment of a large force of men to adjust the wheels, and the double expense of car-trucks, oil, waste, and other expenses incident to the present method of adjusting the gage to the wheels.

Another object of my invention is to make a brake-block adjustable back and forth upon the beam, so as to adjust the block for use in connection with variable gage-trucks, which are to be used on different-gaged railroad-tracks, and by means of which the brake-blocks can be changed readily and easily.

Figures 1, 2 are side elevations of axles embodying my invention. Fig. 3 is a side elevation of the two sleeves, which are placed upon the axle by themselves. Fig. 4 is a vertical section of the car-wheel. Fig. 5 is a side elevation of the same. Fig. 6 is an edge view of the lever or device by which the band is suspended from the axle. Fig. 7 is a vertical section taken through the axle, showing the band suspended, ready to again be applied as soon as the gages of the wheels have been changed. Figs. 8 and 9 are detail views of the band. Fig. 10 is an end view of the band by itself. Figs. 11, 12, 13, 14 show the wheels secured upon the axle and adjusted to different gages, Figs. 10 and 12 being shown partly in section. Fig. 15 is an end view of a brake-block embodying my invention. Figs. 16 and 17 are rear views of the same, showing the lever in different positions. Fig. 18 is a plan view. Figs. 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, and 35 are detail views of the different parts.

A represents the axle, which will be made of any desired shape, and which is provided at its center with a collar having the flanges B, which collar serves the purpose of limiting the movement of the sleeves, and which is also provided with flanges C near its outer ends, for the purpose of limiting the outward movement of the car-wheels. These flanged collars are secured to the axle in any suitable manner. The two flanges B are separated from each other just far enough to allow the suspending lever, link, or device F to be attached to the axle between them, and to allow the device F to turn freely upon the axle. Placed upon the axle between the flanges B and C are the two sliding collars E, which, owing to the angular form or other similar construction of the axle, always revolve with

it, although they can be adjusted freely endwise upon the axle. Upon the inner end of each of these collars E are formed a suitable number of flanges, S, which are placed just far enough apart to give the grooves R, which are formed between them, sufficient width to receive the flanges X, which are formed upon the inner side of the band D. This band D is formed in two parts, and these two parts are fastened together at opposite ends by means of the two bolts H. These bolts H pass through three hinges or flanges on each side of the band, as shown. At the center of each part of the band is made an opening, N, through which the ends of the suspending device F pass, and through these ends the bolts H also pass. The bolts serve as the pivots upon which the halves of the band turn when dropped downward. Each bolt is made readily removable, so that the band can be opened at any time and dropped down below the axle, as shown in Fig. 7. Upon each bolt H is formed a suitable head at one end, and through the outer end is passed a suitable spring-stop, I, which is readily removable, so that the bolts or rods can be withdrawn whenever it is desired to change the gage of the wheels. At the center of each part D of the band is formed the flange N′, which is just wide enough to fit in the groove U between the flanges B on the collar, secured to the center of the axle and over the outer edge of that part of the suspending device F which passes around the collar. This device F is made in two parts, which are riveted together around the collar on which the flanges B are formed, but which device F does not entirely fill the recess U in the collar in which it catches. Upon each side of this flange N′ is made a suitable recess, which is just wide enough to receive the flanges B and the inner flanges, S, upon the sleeves E when the sleeves are forced inwardly to their full extent. Also formed upon the inner side of each part D of the band, at their outer ends, are the flanges X, which catch in the groove R on the sleeves E, as already described. The car-wheels G are secured to the outer ends of the sleeves E, so as to move with them and be adjusted freely back and forth upon the axle. If desired, the wheel may be shrunk or otherwise rigidly secured to the sleeve, or the sleeve may be provided with a flange, M, and through the hub of the car-wheel may be passed suitable clamping-bolts, X′. By attaching the wheel to the end of the sleeve by means of bolts, the wheels, when worn out or injured, may be quickly removed and replaced by others. Where the flange M is used, there will be made suitable grooves, L, in its outer side, and corresponding grooves in the inner side of the hub of the car-wheel, and into these grooves will be forced suitable wedges, K. These wedges will preferably be made to increase in width toward the center of the wheel, and they will serve to take the strain off of the bolts X′.

As long as the hinged band D, which is made in two parts, is applied to the axle and the sleeves, as shown in Figs. 12 and 14, the flanges X on the band catch in the grooves R on the sleeve, and hold the sleeves and the wheels securely to them in any desired relation to each other on the axle.

When it is desired to change the gage of the wheels either to a narrower or a wider track, it is only necessary to withdraw one of the rods H in the band, when the band will drop downward, as shown in Fig. 7. The sleeves and the wheels are then left free to move endwise upon the axle. When the tracks are suitably formed so as to catch the flange upon the wheels, it gradually forces the wheels either inward or outward. It will readily be seen that the wheels automatically adjust themselves to the width of the track by the movement of the cars alone. As soon as the cars have reached the gage upon which they are run, the band D is raised upward around the ends of the sleeves, and the rod H and spring-stop I are again inserted, and the cars are ready to proceed upon the new gage road without any further loss of time, trouble, or expense.

The flanges S upon the sleeves will be so proportioned that they can be adjusted either to the slightest or to a considerable difference in the gages of the tracks. When the wheels are adjusted to a narrow gage, the outer ends of the hubs of the wheels will be forced inward, as shown in Figs. 13 and 14, so as not to be in contact with the flanges C upon the axles; but when the wheels G are adjusted to the greatest width of the track the wheels are forced outward against the flanges C, as shown in Figs. 11 and 12.

The great advantage in the construction above described consists in compelling the tracks to change the gage of the wheels without any further trouble than simply to open the bands D, so as to allow the wheels and their sleeves to freely adjust themselves upon the axle. Two men can quickly loosen the bands D, so that they will drop down below the axle, as shown in Fig. 7, and then, after the wheels have automatically adjusted themselves to the gage required, as quickly close the clamps. It will be seen that all mechanisms of every kind for raising and lowering the cars, changing of trucks, and the many expenses incident thereto are entirely done away with.

In order to change the wheels from a wide to a narrower track or from a narrow to a wider track, the rails are made to gradually approach or recede from each other, so that the flanges of the wheels, by catching against the rails, will draw the wheels outward upon the axles or force them inward, according as the cars are moving from a wide to a narrow gage or from a narrow to a wide gage.

a represents the brake-shoe, which is provided with a perforated projection, *s*, at the

center of its rear side, and with the projections *u* at opposite ends upon its rear side. The projections *s* catch between the corresponding perforated projections or ears, *r*, formed upon the front side of the brake-block *b*, and the projections *u* catch in corresponding recesses, *v*, made in opposite ends of the block *b*. Through the projections *r s* is passed the spring *n*, which locks these two parts together. The projections *u* and recesses *v* prevent any lateral movement of the shoe under any circumstances. The block *b* forms a separate sliding frame, which passes over the end of the brake-beam *m*. Upon the top of the beam is secured the plate J, which is secured in position by means of the bolts O, and which is provided with the flange *w* near each end, for the purpose of forming stops for the sliding frame. Through this plate J are formed a series of holes, P P′, in which the locking-bolt *d* catches, for the purpose of securing the sliding frame in any desired position. Upon the top of this sliding frame are formed the four ears or projections Q, which are perforated for the passage of the pivotal bolt *k*, and in between which one end of the lever *i* is pivoted. The pivotal bolt *k* may be passed through either pair of ears or projections Q, in which case the other pair will serve as guides to hold the lever in place. Through the lever *i* is made an oblong slot, as shown in Figs. 18 and 34, and up through this slot passes the locking-bolt *d*. This bolt is guided in its vertical movement by means of the arm or extension *c*, which extends up from the top of the sliding frame; and by means of the washer *h* and the cup placed around the bolt *d*, between the under side of the guide *c* and the cup, is the spiral spring *e*, which is compressed when the bolt is raised upward by the lever *i*, as shown in Fig. 16, and which spring returns the bolt to position as soon as it is left free to move. Passed through the bolt *d* is a pin, *g*, which pin *g* has its ends to catch in suitable recesses in the top of the washer *h*, as shown in Figs. 16 and 27. This washer is placed underneath the cup *f* and upon the top of the surrounding portion of the lever *i*. When the lever *i* is raised upward, as shown in Fig. 3, the spring *e* is compressed by the upward movement of the cup and the washer, and the bolt *d* is forced upward a sufficient distance to raise its lower end out of the hole P through the plate J. The sliding frame being then released by either pulling or pushing upon the lever *i*, it can be moved either out or in upon the beam, so as to bring the shoe *a* just opposite the wheel. There will be any suitable number of openings P, and hence the shoe can be adjusted so as to correspond to the wheels when adjusted for the narrowest or widest gage of track.

Where the same brakes are to be used in connection with wheels which are made adjustable on their axles, it will readily be seen that were the brake-block and shoe not made adjustable it could not act properly upon the wheels after they had been adjusted into a different position. In order to adapt the same brakes to be used with this lateral adjustment of the wheels, the brake block and shoe are made also laterally adjustable, so as to correspond with the movement of the wheels.

Having thus described my invention, I claim—

1. The combination of the axle, the adjustable sleeves placed thereon, a band which is made in two parts and adapted to engage with the flanges upon the sleeves, and a suitable lever, link, or other device, F, for suspending the clamp from the axle when the clamp is opened, substantially as set forth.

2. The combination of the axle, a sleeve provided with a flange, M, the car-wheel, and the clamping-bolts, substantially as specified.

3. The combination of the sleeve provided with the flange M, and the grooves L, with the car-wheel G, the clamping-bolts, and the wedge, substantially as shown.

4. The combination of the axle, the sleeves provided with flanges upon their inner ends, and having the car-wheels G secured to them, with the band D, which is made in two parts, the two bolts, and suitable means for holding the bolts in place, substantially as described.

5. The combination of the brake-beam, the adjustable brake block and shoe, and a means for locking it in position upon the beam, substantially as shown.

6. The combination of the brake-beam, the plate J, secured upon its top, provided with suitable flanges at its ends, and openings for the locking-bolt to catch in, with the locking-bolt and the lever for raising the locking-bolt upward, so as to release the sliding frame, substantially as set forth.

7. The combination of the beam, the sliding frame, the lever, the locking-bolt, the spring, the cup, and the washer, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. W. BEMIS, SR.

Witnesses:
MASON RICKERT,
JOHN W. ROBERTS.