

W. O. THOMPSON & R. H. PARKS.

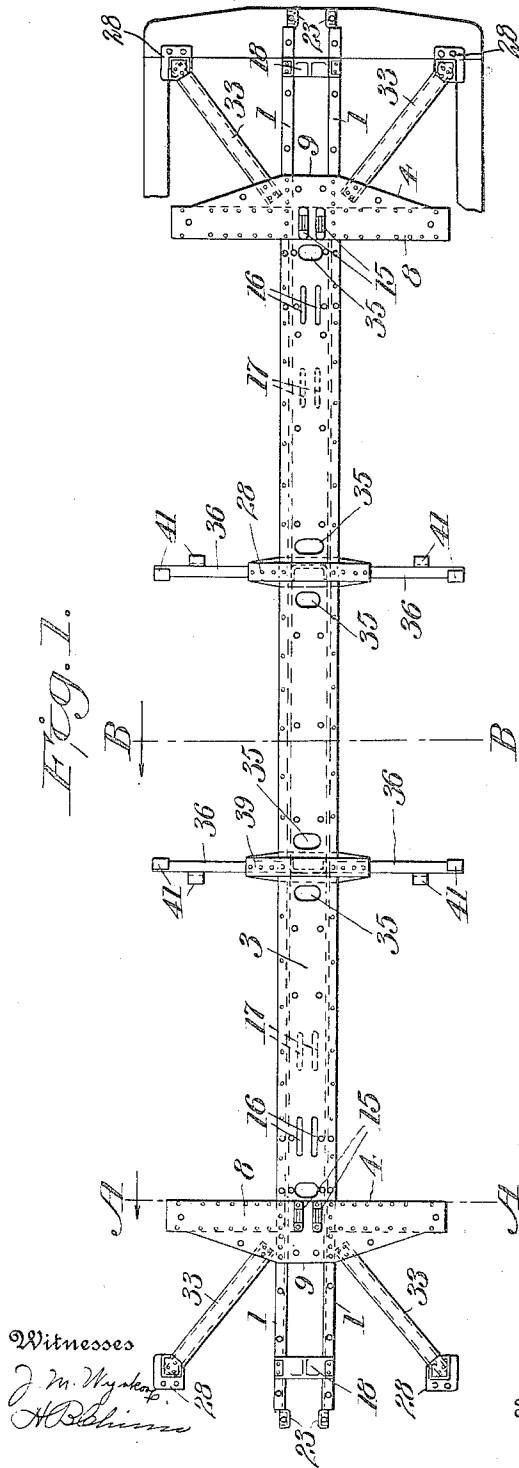
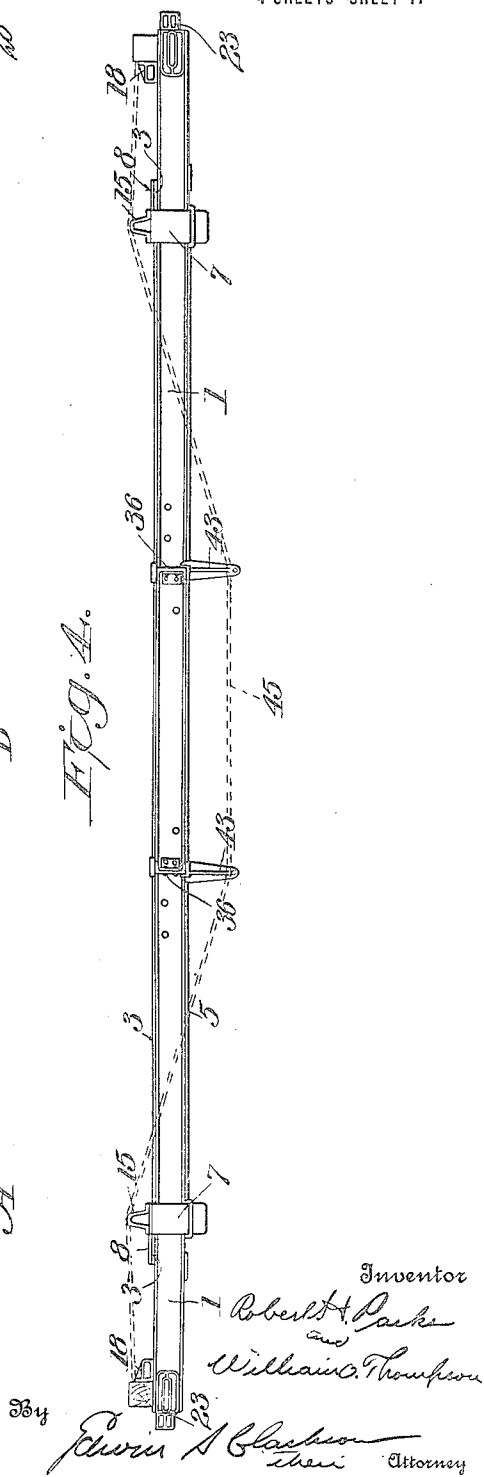
UNDERFRAME FOR CARS.

APPLICATION FILED FEB. 20, 1914.

1,248,037.

Patented Nov. 27, 1917.

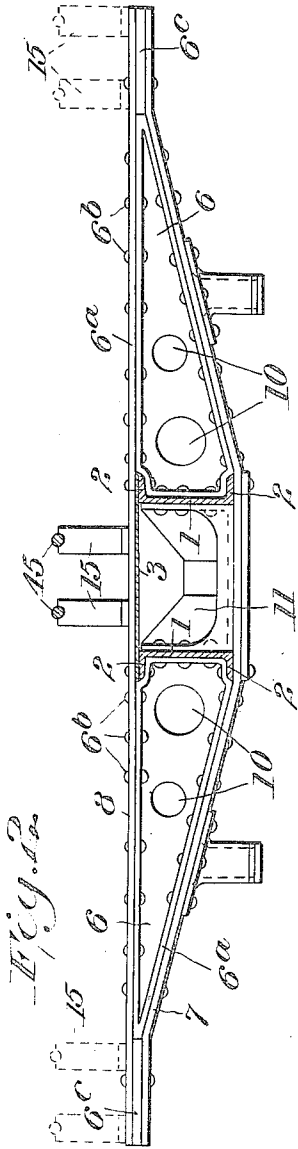
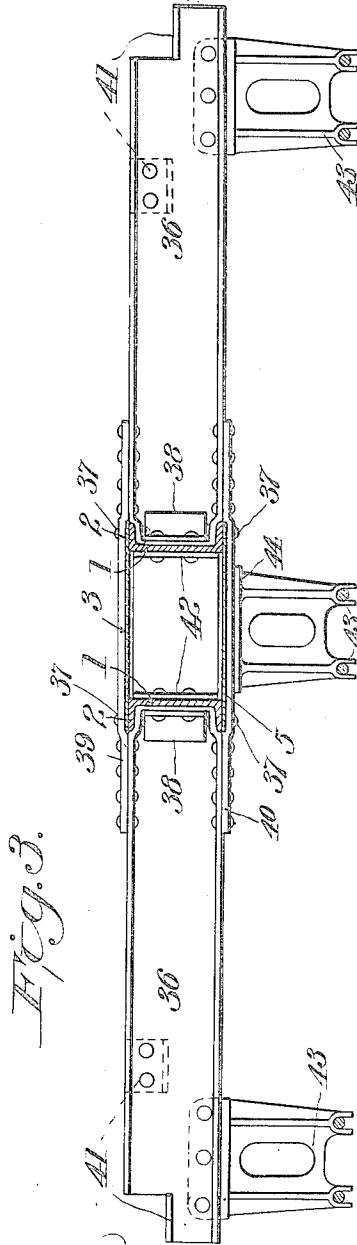
4 SHEETS—SHEET 1.



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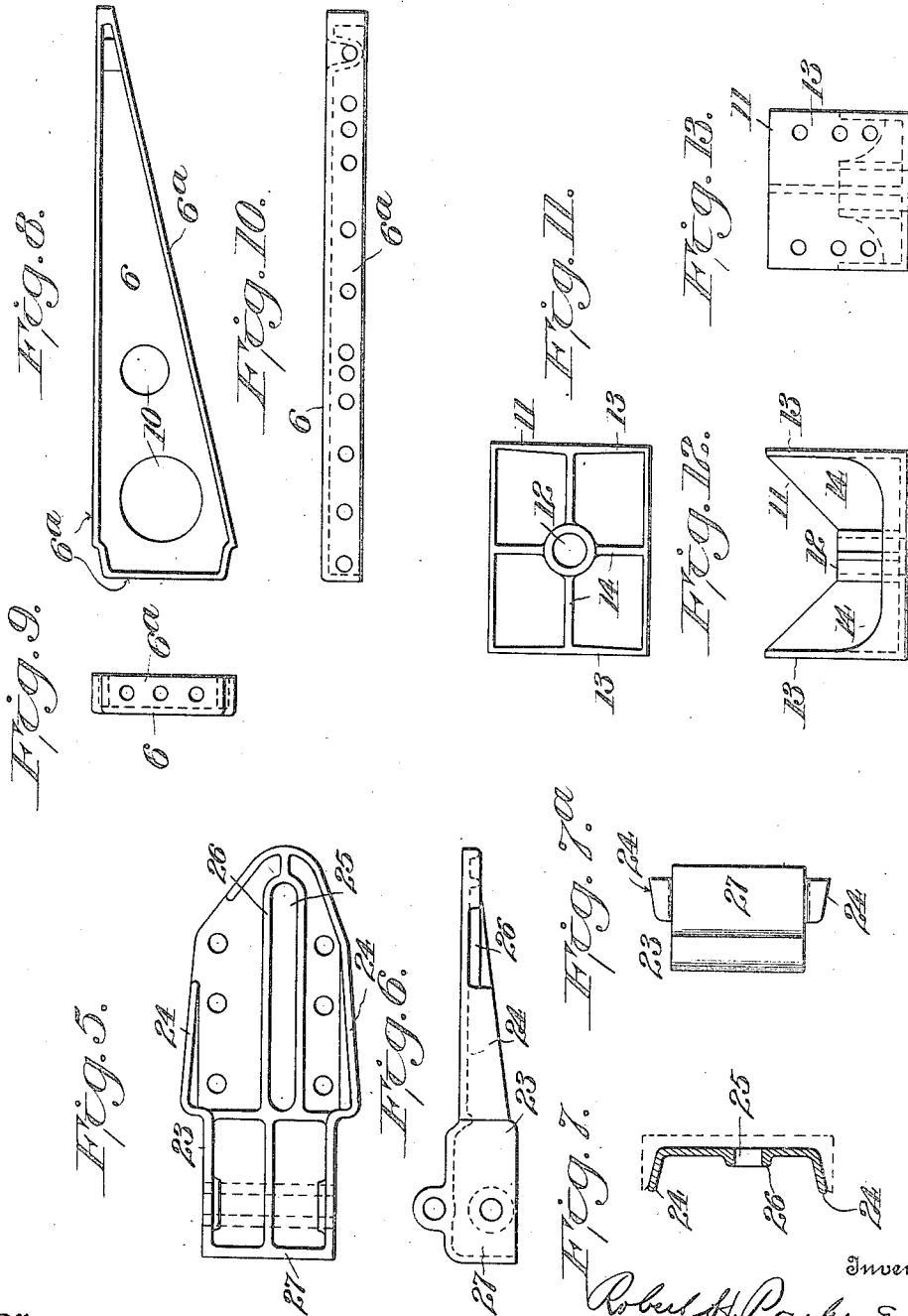
Witnesses
 J. H. Kooop.
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Inventors
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 By J. H. Kooop
 their Attorney

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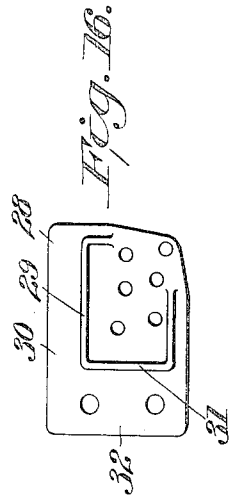
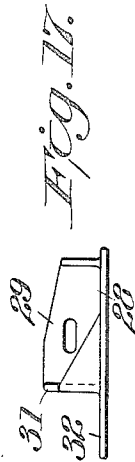
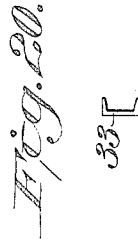
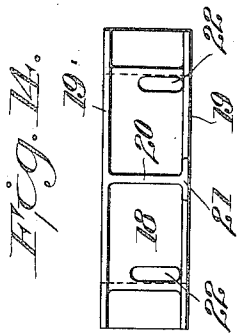
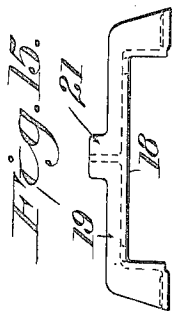
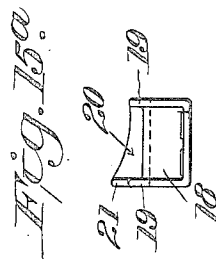
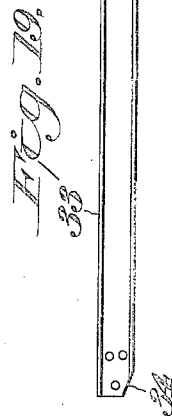


Witnesses
 J. M. Hyunkoop.
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 Robert H. Parks and
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 By Edwin S. Clarkson
 Their Attorney

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 4 SHEETS—SHEET 4.



Witnesses
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 Their Attorney

UNITED STATES PATENT OFFICE.

WILLIAM O. THOMPSON, OF BUFFALO, AND ROBERT H. PARKS, OF EAST ROCHESTER,
NEW YORK.

UNDERFRAME FOR CARS.

1,248,037.

Specification of Letters Patent. Patented Nov. 27, 1917.

Application filed February 20, 1914. Serial No. 819,987.

To all whom it may concern:

Be it known that we, WILLIAM O. THOMPSON, of Buffalo, in the county of Erie and State of New York, and ROBERT H. PARKS, of East Rochester, in the county of Monroe and State of New York, both citizens of the United States of America, have invented certain new and useful Improvements in Underframes for Cars, of which the following is a specification.

One of the objects of our invention is to construct an underframe which may be readily and securely attached to any existing car bodies at a minimum expense and without altering or disturbing the construction of said bodies. Another object of our invention is to produce a steel underframe supported by truss rods, whereby it carries the entire load with the aid of the truss rods. In many instances the old tie rods of the existing car may be used; still another object of our invention is to provide a steel underframe suitable for repair equipment for wooden car bodies which may be designed for any type of wooden cars, thereby extending the life and strength of the car and rendering it more efficient for service; and with these and other objects in view our invention consists of the parts and combination of parts as will be more fully hereinafter set out.

In the drawings:—

Figure 1 is a top plan view of an underframe embodying our invention;

Fig. 2 is a section on the line A—A, Fig. 1;

Fig. 3 is a section on the line B—B, Fig. 1;

Fig. 4 is a side elevation of Fig. 1;

Fig. 5 is a side elevation of the draft sill end casting;

Fig. 6 is a top plan view of the same;

Fig. 7 is a section on the line A—B, Fig. 5;

Fig. 7^a is an end view of the end casting;

Fig. 8 is an enlarged front elevation of one of the bolster fillers;

Fig. 9 is a sectional view on the line C—C, Fig. 8 looking in the direction of the arrow;

Fig. 10 is a top plan view of the bolster filler;

Fig. 11 is a top plan view of the bolster center filler;

Fig. 12 is a side elevation of the same;

Fig. 13 is an end elevation of the bolster filler;

Fig. 14 is a top plan view of the top center sill, tie plate;

Fig. 15 is a side elevation of the same;

Fig. 15^a is an end view of the tie plate;

Fig. 16 is a top plan view of the corner brace socket;

Fig. 17 is a side elevation of the corner brace;

Fig. 18 is an end view of the corner brace;

Fig. 19 is a top plan view of the corner brace;

Fig. 20 is a transverse section of the same.

The reference numeral 1 designates two channel beams running the length of the underframe, the top and bottom flanges 2 of each of which extend outwardly. These beams are connected together by means of a top plate 3, which extends under the bolster top plate 8 to the outer edge of the same, while the lower cover plate 5 extends to the inner edge of the lower tie plate 7 to secure increased strength at the bolster section. The beams and top and bottom plates constitute the center construction of box like type; the beams extending from end sill to end sill while the top and bottom plates form the box like construction between the bolsters. The top and bottom plates are each of one piece construction and materially increase the strength of the center construction between the bolsters. By means of this construction the stresses in the center construction are transmitted in the actual plane of the coupler.

The bolsters 4 comprise fillers 6, a bottom tie plate 7, which extends from side to side of the underframe and under the center beams, and a top or cover plate 8 which is gradually increased in width from each end toward the center toward the end of the underframe as clearly shown in Fig. 1, the greatest width being at the center and squared as at 9 equal to the width of the center construction. The fillers 6 are preferably made of malleable iron, the inner end being formed, preferably by swaging, to the outer contour of the center beams 1, as clearly shown in Fig. 8, thereby enabling us to make a close union between the filler and beam and thus increasing the contact of the two elements throughout the area of their

abutment. We find that we retain the maximum strength of the filler by swaging its inner end instead of cutting it to form. The fillers are provided with openings 10 to provide a passage for the train line pipe. 5 The filler 6 is preferably formed with a flange 6^a around its perimeter which serves to stiffen it and serves also as an increased bearing surface for the bottom tie plate 7 and cover plate 8 which are secured to the flange by means of the rivets 6^b. 10

The ends of the bottom tie plate 7 and cover plate 8 of the bolster extend beyond the end of the filler 6 and we introduce a filler piece 6^c which is riveted between them as shown in Fig. 2. 15

Thus it will be seen that each bolster is tied to the sides of and braced from the top and bottom of the center construction.

In order to brace the center construction between the ends of the bolster fillers and in line with the axis of the filler, we introduce at this point, between the beams 1, a compression member 11 (see Figs. 3, 11, 12 and 13) provided with a king bolt opening 12 and having side members 13 which are riveted to the channel beams 1 (see Fig. 2) and provided with integral brace ribs 14. 20 25

15 are truss rod saddles secured to the bolster cover plate 8, which may be of any suitable construction. 30

These truss rod saddles may be positioned immediately on each side of the center of the center construction for coal car type in order that the truss rods may clear the drop doors, and to accommodate the underframe for this type, we provide the top plate 3 with elongated slots 16 and the bottom plate 5 with similar slots 17, through which the truss rods may pass; the slots 16 and 17 being spaced from each other to provide for the angular disposition of the rods as shown in Figs. 1 and 4. 35 40

The top center sill tie plate, draft sill spreader or end sill stop 18 (see Figs. 1, 14, 15 and 15^a) is arched to give clearance for different types of draft gear yokes. This plate is provided with vertically disposed side marginal flanges 19 and a transversely disposed center rib 20. One of the objects of this center sill tie plate 18 is to prevent the car body from shifting relatively to the underframe. The plate is also provided with a flange 21 designed to fit in between the wooden center sills of a car body to secure greater bearing surface on the face of the end sill and prevents the car body from sliding or shifting, and transmits strains to the center beams 1. 45 50 55

The tie plate 18 is provided with elongated slots 22 through which bolts from the wood center sill of a car body pass to secure said sills to the underframe. The elongation of these slots provides for variations in assembling of draft gear side cast- 60 65

ings and permits the placing of the above named bolts as near the end sills as is possible, thus reducing leverage on the bolts.

The draft beam end casting 23 (see Figs. 5, 6 and 7 and 7^a) is provided with outwardly extending flanges 24, at the top and bottom which engage the flanges of the center beams 1, said casting being provided with an elongated coupler key slot 25 which is surrounded on the outside by a rib 26 which provides a wide seat for the said key to slide on as the draw bar moves in buffing and draft. 27 is a forward extension integral with the end casting 23 to which is secured the striking block or deadwood and coupler carry iron. 70 75 80

In Figs. 16, 17 and 18 we have illustrated corner brace castings 28 which are designed to be securely fastened to the end sill of the car. These corner brace fastenings have a vertical flange 29 against which the side sills of a car body abut, and a laterally extending flange 30 upon which said side sills rest and to which they are secured. 31 is a vertically disposed flange against which the end sill of a car abuts and 32 is a laterally extending flange upon which the end rests and to which it is secured. These flanges just described constitute vertical and longitudinal abutments for the side sills and end sills, thereby stiffening the wood underframe and preventing the car body from twisting out of alignment, besides which they transmit shocks, through the corner braces 33 to the center beam construction. 85 90 95 100

The corner braces 33 (see Figs. 1, 19 and 20) are constructed from commercially rolled channel iron, one end of which is beveled at one corner at 34. One end of this corner brace is riveted to the forwardly extending portion of the bolster cover plate 8, while its other end is riveted to the corner plate 28 as best seen in Fig. 1 and, as above stated transmits all strains and shocks into the center beam construction. 105 110

The top plate 3 for the center beams is provided with openings 35 to permit of ready access into the box girder construction for the purpose of introducing therethrough rivets, angle plates, stiffeners, etc., and to permit of the introduction of a holding-on-tool or anvil for the rivets. 115

Referring more particularly to Fig. 3, the "needle" beam is composed of the two side members 36 constructed, preferably, from commercially rolled channel iron and swaged at their inner ends to conform to the channel of the center beams 3 and 5 and secured to the center beams by means of rivets 37 passing through the flanges of the said beams and side members. 38 are angle irons placed at the juncture of the end members 36 and the center beams 3 and 5 and riveted to said members and said beams thereby serving as additional ties between 120 125 130

said members and said beams. A stop strap 39 overlies the center beams 3 and 5 and is riveted at its ends to the top flange of the needle beams 36 and to the top flange of the center beams 3 and 5; and a bottom tie strap 40 underlies the center beams 3 and 5 and is riveted to the lower flange of the needle beams and to the lower flanges of the center beams 3 and 5. 41 are sill connecting angle irons on the needle beams to which the wooden sills of a car body may be secured.

42 are stiffeners or compression members secured in the center construction between the center beams 3 and 5 in axial alinement with the needle beams. The top tie plate 39 of the needle beam overlies the top plate 8 of the center beams and acts as a tension member for the needle beam while the lower tie plate 40 underlies the lower cover plate 5 and acts as a compression member for the needle beam.

By riveting the top and bottom tie plates 39 and 40, the needle beams together and to the center beams 1, we increase the strength of the needle beams, and increase the sectional modulus of sectional area and bring all members into play. Queen posts 43 are riveted to the needle beams. These posts are flanged back as at 44 to facilitate riveting them to said beams.

The truss rod saddles 15 carry the truss rods 45 over the bolster, said rods being tied through the end sills at their outer ends, whereby the underframe is supported by the truss rods.

Among the many advantages of our invention may be enumerated the fact that an underframe constructed in accordance therewith may be made of stock or commercial shapes; may be readily assembled; is adapted to different types of cars; reinforces a wooden car, thus extending its life; and finally we provide a truss rod repair underframe.

What we claim is:

1. An underframe for cars including an arched tie and draft beam spreader having marginal upstanding flanges and a vertically disposed stop extending from one of said flanges to prevent a car body shifting on the frame and to transmit strains to the center beam.

2. An underframe for cars including an arched tie and draft beam spreader having marginal upstanding flanges, an upstanding rib transversely of and between said flanges, and a vertically disposed stop extending from one of said flanges.

3. An underframe including an arched tie and draft beam spreader having marginal upstanding flanges and elongated slots between said flanges to provide for variations in draft gear side castings and permit of placing bolts from a wood center sill of a car securing it to the underframe, near the end sills to reduce leverage on the bolts.

4. An underframe for cars including corner brace castings comprising a base having upstanding flanges and laterally extending side and end flanges, said side flange being constructed to be positioned under the side sills of the car and the end flange being constructed to be positioned under the end sill of the car, while the upstanding flanges abut against the inner faces of said sills, thereby preventing the car from twisting out of alinement.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM O. THOMPSON.
ROBERT H. PARKS.

Witnesses for William O. Thompson:

L. S. WEST,
C. ARTHUR BECKER.

Witnesses for Robert H. Parks:

WILLIAM H. COLBY,
FRANK DEYAT.