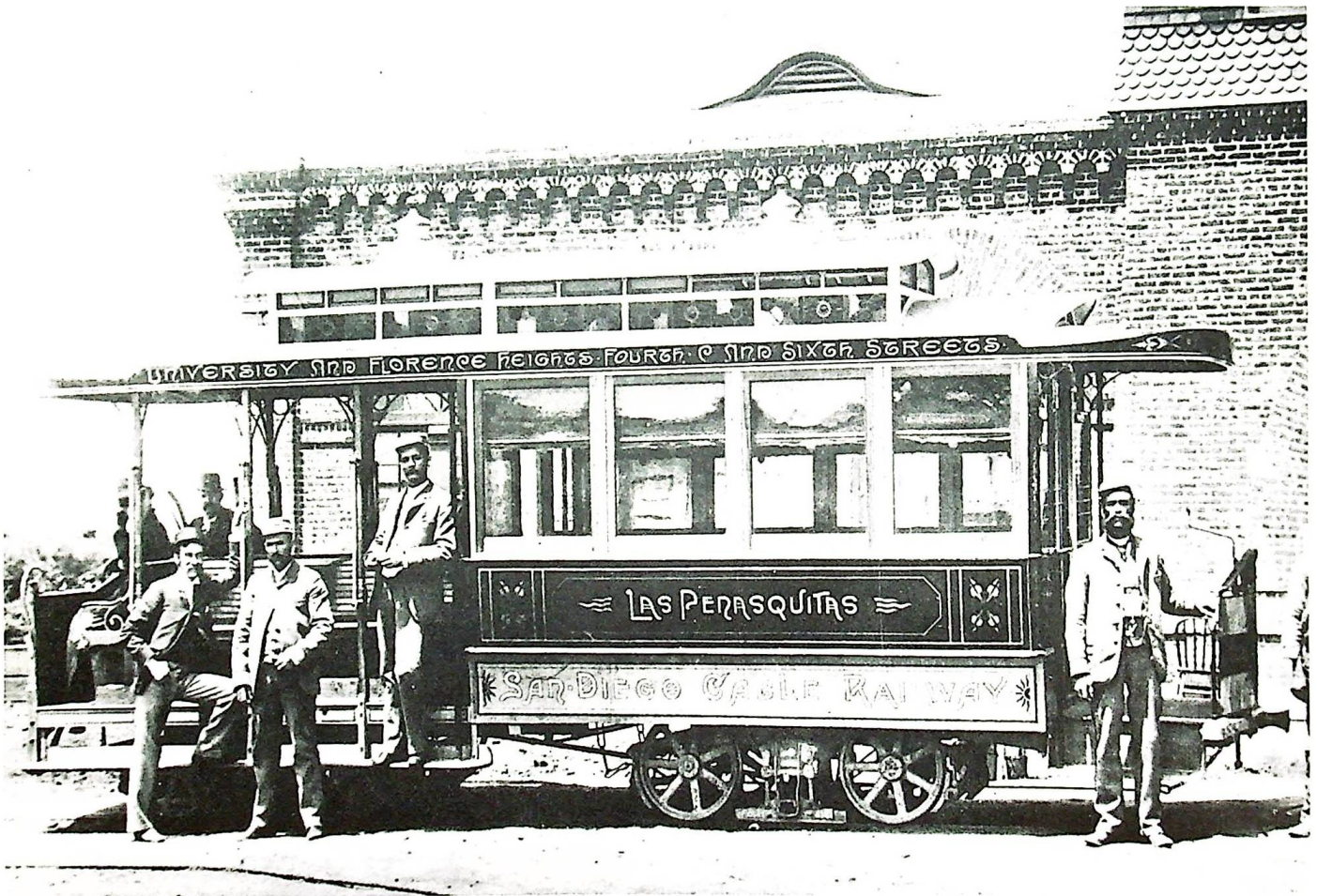


SAN DIEGO'S GRIP CARS

by RICHARD V. DODGE



Dispatcher

May 1962

Issue 39

Railway Historical Society of San Diego, Inc.

MISSION VALLEY - SAN DIEGO RIVER

BLUFFS
PAVILION

ADAMS AVE.

**Cover Picture

S.D.Cable Railway Co. car
"Las Penasquitas" proudly
supports its designer,
Chief Engineer Frank Van
Vleck, at the left. Car
is at Power House, 1890.
(Collection of Fred Reif
& Title Insurance & Trust
Co., Union Title Office)

UNIVERSITY

EL CAJON AVE.

HEIGHTS

UNIVERSITY AVE.

FOURTH AVE.

SIXTH AVE.

RECREATION PARK - SOLD 1892

TENTH AVE.

PARK BLVD.

HILL CREST

NORMAL ST.

WALNUT ST.

POWER HOUSE

SPRUCE ST.
REDWOOD ST.FLORENCE
HEIGHTS

FIR ST.

CEDAR ST.
BEECH ST.

SIXTH AVE.

FOURTH AVE.

C ST
BROADWAY

F ST.

MARKET ST.
ISLAND AVE.

L ST.

BAY OF SAN
DIEGO

Dispatcher

A feature and news publication issued quarterly as an official publication of the Railway Historical Society of San Diego, Inc. Society officers are: Wendal Byers, president; Earle Swaine, first vice president; Charles (Tommy) Mann, second vice president; Charles Rezek, third vice president; Mrs. Gladys Umbarger, recording secretary; Mrs. Jane Rezek, corresponding secretary; Fred Finke, treasurer; Corky Thomson, excursion director; and Eric Sanders, historian. Corky Thomson is editor of the Newsletter.

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Subscriptions: \$1 for four issues (or equivalent). Subscription is included in \$2.50 annual Society membership.

Society Address: F.O. Box 9351, San Diego 9, California

Dispatcher Address: 7861 Normal Avenue, La Mesa, California

Note: Dispatcher guarantees delivery of issues but issue dates are subject to delay.

**SYSTEMS
OF THE**

**SAN DIEGO CABLE RAILWAY COMPANY-1890
AND
THE CITIZENS TRACTION COMPANY-1896
SCALE APPROXIMATELY**

0 1/4 1/2 3/4 1 MILE
SAN DIEGO, CALIF. JUNE 14, 1961 R.V. DODGE

Have you ever ridden on a cable car of a street railway? If so, wasn't your first trip a memorable experience?

Today the only representative cable car service remaining is the heritage of the City of San Francisco, the birthplace of the first successful grip car. If you have never had the thrill of watching the gripman manipulate the levers and pedals, of sliding down the longitudinal seats when operating on steep hills or of grabbing a stanchion at the warning call "Look out for the curve", do make a trip to San Francisco before it is too late. Three routes are still operated but the antiquated cable car is doomed to vanish some sad day.

The origin of the underground cable-propelled car is said to have been the result of a tender-hearted man witnessing a cruel horse car accident. Andrew S. Hallidie, born in London in 1836, came to San Francisco with his family in 1852. Soon he turned his endeavors, as you might expect, to prospecting for gold in the Sierra foothills. Four years later he established a wire rope mill in San Francisco. There he developed plans for aerial tramways for the transporting of ores and supplies from and to mines in mountainous terrain.

He had noted the great difficulties experienced in the operation of street cars on the City by the Golden Gate's hilly routes. As many as four horses were frequently required. One cold, rainy evening in 1869, people, eager to reach home, crowded a car to more than its rated capacity. In fact, there wasn't even a hand and toe hold for the proverbial just one more. The horses had painful difficulty in getting started. When half a block up a hill, one horse slipped and fell. The driver immediately wound up the brake staff so tightly that the chain which sets the brakes snapped in two. The car rolled backwards, dragging the bodies of the unfortunate horses over the cobble stones. The animals had to be put out of their misery. Then and there Hallidie determined that horses should be replaced with cable-propelled cars.

By 1872, he had organized a company and plans were begun. The difficulties to be overcome were stupendous. All parts had to be designed and fabricated. A sizable power plant with steam boilers, engines and machinery was a necessity. Clay Street was selected for the demonstration. It had to be trenched, a channel or conduit formed, pulleys installed, track and slot rails laid, wire rope strung and spliced to form an endless cable and a grip designed which could be clamped around the cable or released by an operator. A small four-wheeled car, of the future "dummy" type, was obtained to carry the grip and the gripman.

Finally all the obstacles were overcome. The crucial test came early in the morning of foggy August 1, 1873. The dummy was pushed to the end of the slot rails where the grip could be adjusted into operating position at the top of the steep hill at Jones Street. No one except Hallidie had the courage to risk the handling of the controls on the awe-inspiring descent. He, confidently, released the brake, turned the hand wheel, the grip clamped onto the moving cable and the car gracefully rolled down to Kearny Street, completely under control. The distance was six blocks. At the lower terminus, the dummy was turned and climbed back to Jones Street without a hitch. The Clay Street Hill Railroad was a phenomenal success. It was soon perfected and extended. Within a short time other cable roads were organized and networks were constructed, not only in San Francisco but in most large cities of the nation.

Cables boomed Kansas City! Property values along car routes zoomed 50 to 600 per cent. Just look what they did for Nob Hill in San Francisco! That community has more cable lines than any other city in the world, over 100 miles of them. Companies are operating prosperously in Seattle, Portland and Los Angeles. They are a necessity here in San Diego for the development of the

mesa areas: Florence Heights, what is now Hillcrest and University Heights. So opined the still optimistic realtors of the day.

San Diego had its horse car system and steam dummy and motor roads. It had tried out primitive electric street car lines. The great Land Boom of the 1880's had sagged alarmingly, the city's population was dwindling (the 1890 Census listed only 15,159 persons), and a stout stimulus was needed to sustain property development.

There was no two ways about it. A cable road is essential to growth.

Accordingly John C. Fisher, City Alderman, formed and headed a syndicate in the Spring of 1889 to finance and build one. Among the organizers were Messrs. D. D. Dare, George Copeland, D. C. Reed and George B. Hensley. Philadelphia capitalists were interested in the venture. David Dare was one of the founders of the California National Bank of San Diego; Copeland headed the San Diego Flume Company, was a heavy investor in San Diego's primitive electric street railway and operated its incandescent electric light plant; Reed was a well-known real estate broker; and Hensley, after ranching, served as Secretary of the Pacific Beach Company. Mr. C. W. Collins, also one of the organizers of the California National Bank, was prominent in the cable car promotion.

Copeland held the franchises for the ill-fated Electric Rapid Transit Street Car Company on Fourth Avenue, then Street, and an option was arranged. The route planned was: (for clarity, present street names will be used) Beginning at L Street, on Fifth Avenue, to K St., to Fourth Avenue, to University Avenue, to Normal Street, to Park Boulevard, to the Mission Valley Bluffs at Adams Avenue.

Fisher reported that there would be enough money available to complete the first four miles, the end of the Electric Rapid Transit's route, by August 1890, but that the syndicate which had been formed asks for a cash subsidy. Six miles of other lines were planned, including a branch to run out C Street to Golden Hill.

A money-raising campaign was launched in June 1889. Property owners met and had raised \$12,000 by the 30th. Just think, "Citizens residing on University Heights will be whirled down to his place of business in a commodious car propelled by a steam cable." It was expected that there would be a loss at the start, estimated at \$100 a day. A mass meeting boosted the subscriptions to \$21,000. Then D. C. Reed offered to raise \$20,000 more if the route were changed to start at the foot of Sixth Avenue, to C Street, to Fourth Avenue, et seq.

Operating conditions on Fifth Avenue between K and L Streets would be unsatisfactory. The street was already occupied by The San Diego Street Car Company's and the Pacific Steamship Company's rails. To route the cable line down Sixth Avenue would serve equally the steam motor roads. The National City & Otay Railway's and the Belt Line of the Coronado Railroad's depots were located on L Street between Fifth and Sixth Avenues. The terminus would be only one block from the Pacific Coast Steamship Company's depot and wharf at the foot of Fifth Avenue. It would be one block nearer to the San Diego, Cuyamaca & Eastern Railway's station.

However, an erstwhile competitor, with the name of Morphy, had obtained franchises and proposed to build a horse car road, to be converted to cable later, from 26th Street, on K Street, to Sixth Avenue, to C Street to the waterfront for a subsidy of \$25,000. His opposition was quickly overcome and Fisher said that the cars will run down "Sixth Street" and turn around at L Street.

On the 22nd of July, Fisher and Dare announced that the road is a settled fact. \$54,000 had been subscribed. Articles of incorporation of the San Diego Cable Railway Company were filed at the end of the month, representing a capitalization of \$500,000, to exist for a term of fifty years. The company was also known as San Diego Cable Car Company or San Diego Cable Tramway

Company. Dare was elected President; Fisher Vice President; Collins Treasurer and Hensley Secretary.

OFF TO A GOOD START

The position of Chief Engineer was awarded to Mr. Frank van Vleck, of Los Angeles. He stated that the gauge of the track would be three feet - six inches. The route miles totalled 4.7.

Cable car lines are usually double-tracked. The company applied for a franchise for the second track but it was decided to build a single track system. The only such construction existing in California was the line of the Temple Street Cable Railway in Los Angeles. This meant that both runs of the cable would have to be in one conduit. See Figure A.

Second track was specified for C Street with switch-overs on Fourth Avenue and on Sixth Avenue, total length 846 feet. There were also two tracks serving as leads to and from the terminal turntables.

In addition, provisions were made for several turn-outs or passing tracks, each 110 feet long. Most of these were located where curves occurred in the track. By so doing, the "runs" of the cable would be separated and "pull" curves could be installed. Otherwise, in one direction at least, "gravity" curves would have to be used and the gripman would have to "let go" of the cable and allow the car to coast around. It would not be possible to maintain the relative positions of both cables, about four inches apart, around the arc.

Pull curves require separate tracks. The cable is made to conform closely with the curve by the installation of vertical sheaves or rollers. A layout is illustrated in Figure B. The sheaves are usually about 20 inches in diameter with a groove and a flange at the bottom to hold the cable. In negotiating pull curves the grip has to hold on to the cable all the way. This means that the car will operate at full speed, eight or ten miles an hour, hence the warning cry to the passengers of the open section "Look out for the curve", or other words to that effect. Not shown in the sketch is a "Chafing Bar" which is a metal strip installed for the length of the curve to prevent the grip from fouling the sheaves.

It is believed that pull curves were used at all track curves as this feature was commented upon in an article which Addison Laflin, Jr., of Berkeley, California, found in an 1892 edition of Street Railway Journal, written by C. B. Fairchild, the editor. Note: The route drawing reproduced was prepared by San Diego Electric Railway Company per the inventory in 1898 and does not show turn-outs on University Avenue at Fourth Avenue and at Normal Street. It is probable that these were removed by track changes made by The Citizens Traction Company, successor to San Diego Cable Railway Company.

No time was lost in the starting of the construction. The first "dirt" was thrown on Sixth Avenue on August 3, 1889.

Excavation progressed with 200 men working until October 2. At that date the San Diego Gas & Electric Light Company obtained an injunction claiming interference with its gas pipes. A satisfactory agreement was reached within a week. Ground was next broken on C St.

Slot rails and 60 tons of running rails, the latter weighing 30 pounds per yard, were received in October.

Since the cars were to be of single-end type, turntables were needed at the ends of the line, at Sixth Avenue and L Street and at Mission Valley Bluffs, just north of Adams Avenue. One was also installed at the Power House in front of the car storage section.

Special depressing-type pulley installations must be provided at the beginning of an ascent, in order to keep the cable down in position and, in addition, to allow the plate of the grips to pass by.

Since Fourth Avenue had not been fully graded at the time, the track had to be built on the side of the canyon

south of the Power House. Some trestle construction was necessary.

The building of a cable car system turned out to be a tremendous and expensive task. The usual cost estimates ranged from \$50,000 to 150,000 or more a mile of road fully equipped. The operating efficiency is very low. Figures show that about 85% of the available energy is spent in the winder mechanisms and moving the cable. The remainder, 15%, propels the cars and the passengers. A costly power plant is required.

Van Vleck announced that the road will be divided into two sections with the power house to be located at the southwesterly corner of Fourth Avenue and Spruce Street, at approximately the mid-point.

CABLES ORDERED

Each section had to have its own cable. The specifications were that the two were to be formed of wire rope 1 1/8 inches in diameter, made of charcoal iron, consisting of six strands of 19 wires, being the standard, with a hemp center. An order was placed for one for the downtown section 24,600 feet long, including allowances for the runs into and out of the Power House, turns around the winding wheels and the tensioners and for the making of the long splice to form an endless cable. The bill for this one was \$5,624.66.

The one for the uptown, north or "mesa" section was a little longer, about 27,000 feet.

TRACK WORK

A sizable trench had to be dug in the streets. The measurements given were: four feet deep by four feet wide on top and two feet wide on the bottom.

Cast iron yokes or frames were required to form the cable channel or conduit. These were embedded in cement and were spaced four feet on centers. They carried the running rails and the slot rails. Sheaves or pulleys, ten inches in diameter and usually spaced about 16 feet apart, supported the cable. See Figure A.

Each turn-out required a pair of switches, mates and frog. Five crossings with the tracks of The San Diego Street Car Company's horse car lines were unavoidable. These were located at: Market Street, F Street, Broadway, Fifth Avenue and Fir Street. Fortunately there was no other cable car company in existence, though several had been proposed. Crossings of the cables present problems. In such cases one cable has to dip under the other. The gripmen on cars using the lower one have to "Let-Go" of the rope at a sign, coast over the crossing and again "Take Rope" beyond. Sometimes the members of the crew and the passengers have to get out and push.

THE POWER HOUSE

The block bounded by Fourth Avenue, Spruce Street, Third Avenue and Redwood Street was purchased. Most of it was a "hole in the ground".

The combination power and car storage structure was a massive affair of brick construction, fronting 100 feet on Fourth Avenue by about 200 feet along Spruce St. The boiler and the enginerooms were located below the main or street level floor, the natural slope into the canyon reducing the amount of excavation needed. The arched doorway in the middle bay facing Fourth Avenue provided the entrance way for the cars from the turntable. A transfer-table enabled the storage of the cars on four tracks efficiently.

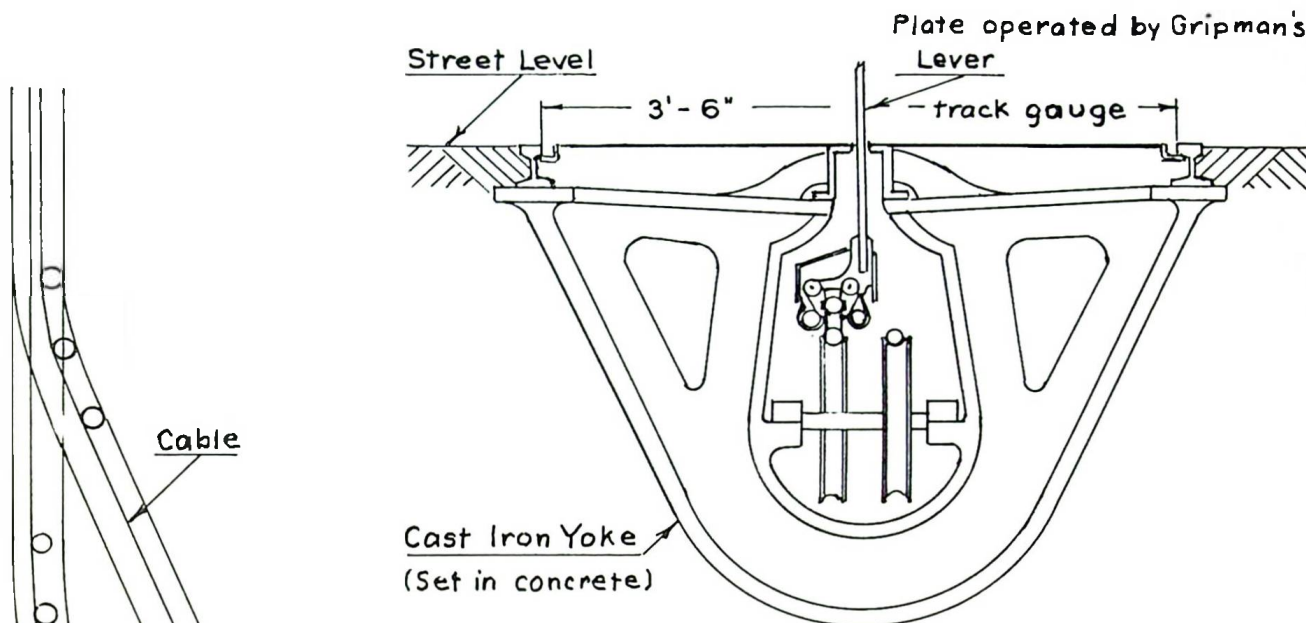
A second floor with a pagoda-styled hip roof was built over the doorway for the administrative office spaces.

In the Boiler Room there were four Atlas Boilers, built in St. Louis, 80 horse power rating each. The smoke breechings were connected into a towering brick stack at the rear.

Machinery in the Engine Room included two Corliss single expansion steam Engines, manufactured by Robert

SAN DIEGO CABLE RAILWAY COMPANY.

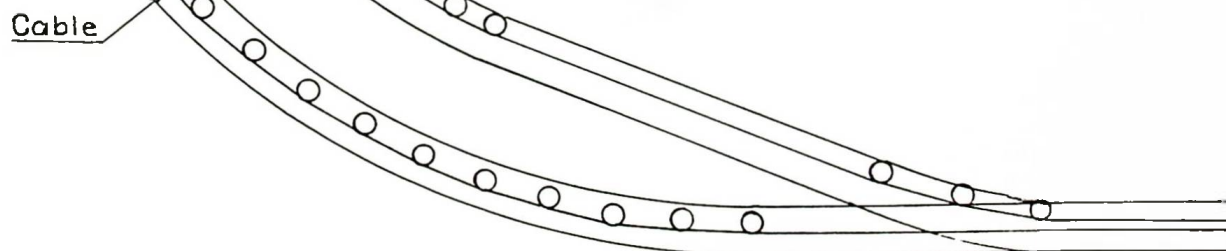
FIGURE "A" - UNDERGROUND CHANNEL



Sketch showing Yoke, cable-carrying Pulleys and Grip Mechanism, squeezing the cable.

FIGURE "B" - DOUBLE "PULL" CURVES

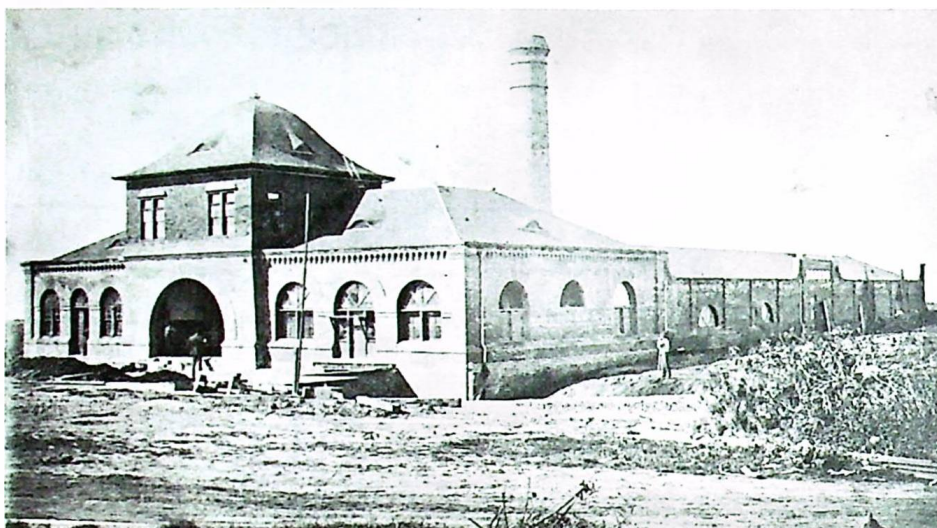
Schematic Layout of Curve and Turnout. Car grip retains hold on cable in transit.



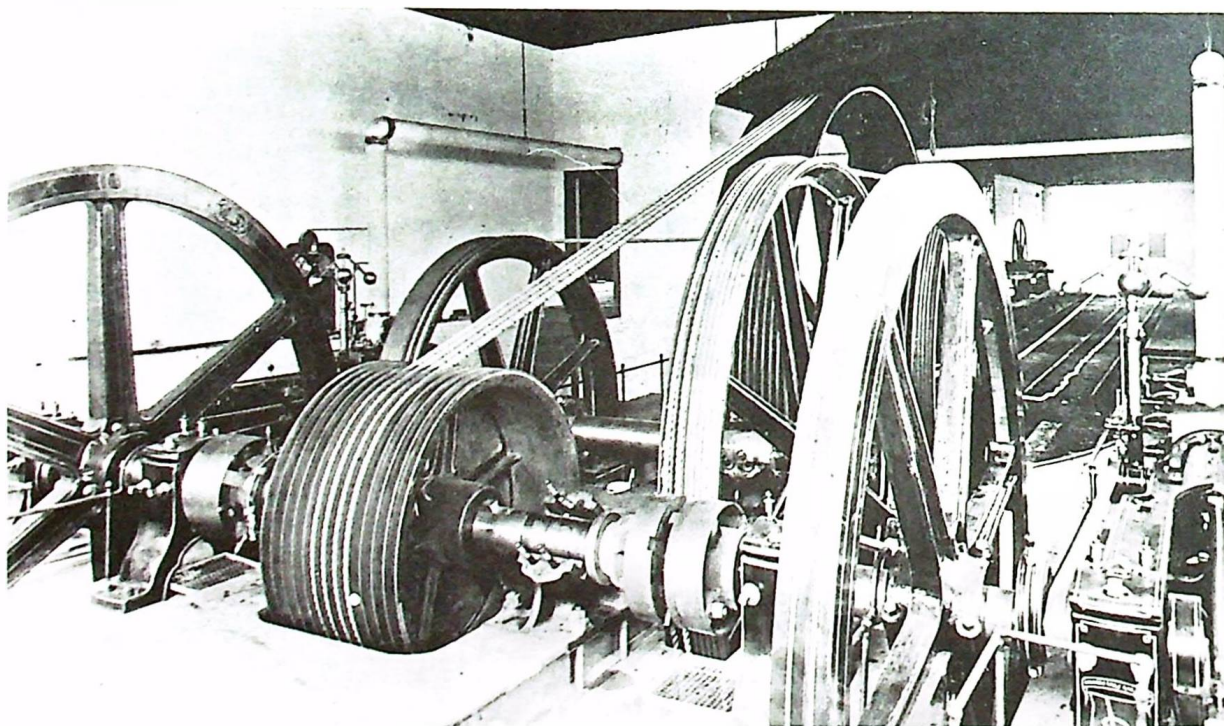
○ represents a Vertical Roller or Sheave which guides the cable.

Note: Slot Rails and Chafing Bar are not shown.

Adapted from tracings made by Addison Laflin, Jr., of Diagrams illustrating an article entitled: STREET RAILWAYS, Their Construction, Operation and Maintenance by G. B. Fairchild, Editor of STREET RAILWAY JOURNAL in 1892.



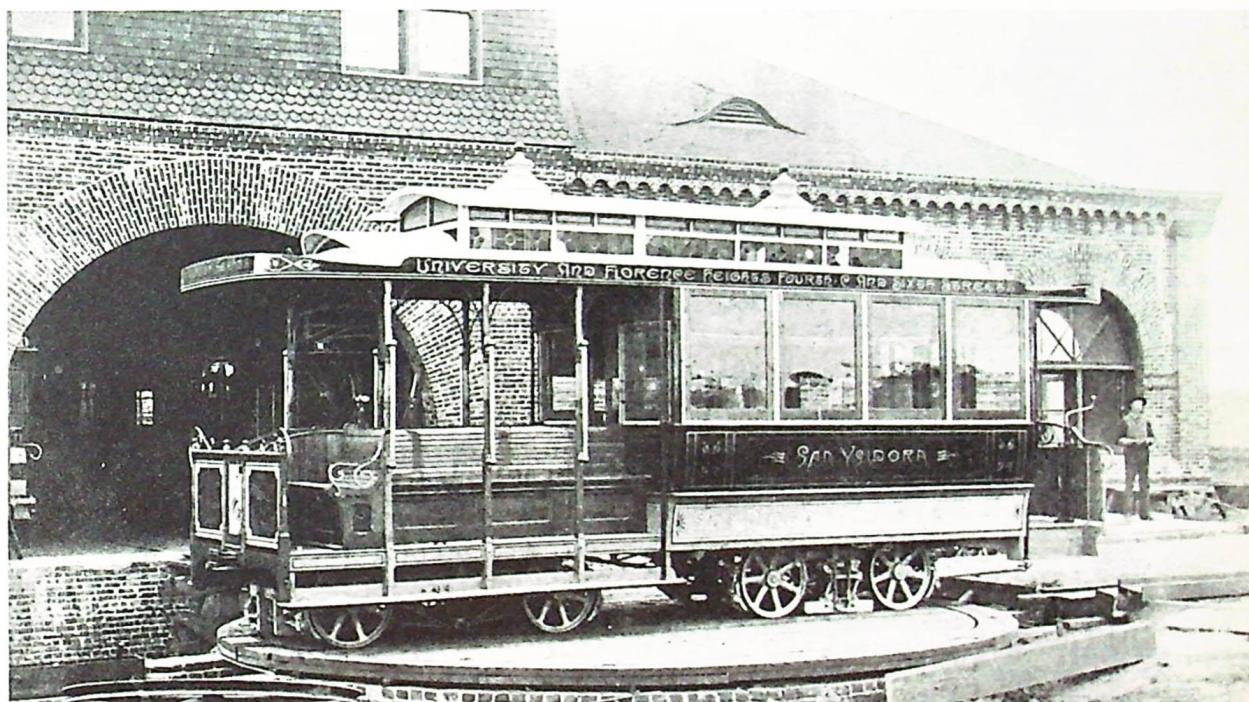
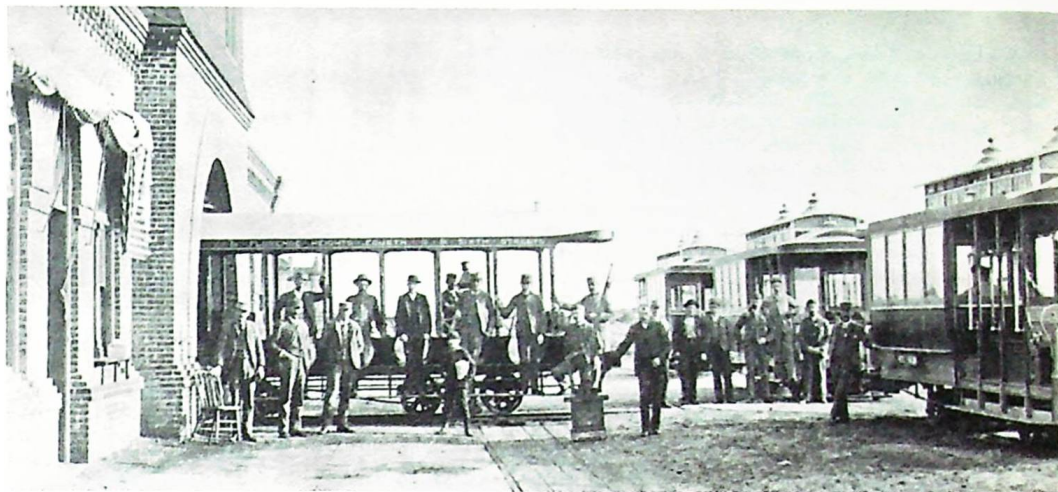
The Power House of the San Diego Cable Railway is nearing completion. The location is on the west side of Fourth Avenue just south of Spruce Street in 1890. (Title Insurance & Trust Co., Union Title Office, San Diego, Calif., historical collection)



A view in the engine room, looking west, taken prior to the completion of the installation. In the foreground at the right a portion of one of the Corliss steam engines with its heavy flywheel can be seen. The other engine with its flywheel is at the left. Between the couplings is the rope drive pulley. From the latter, cotton rope belts drive the immense wheel, twenty five feet in diameter, which is mounted on the main shaft. This shaft also carries two cable winding wheels, which are obscured in the photograph. Between the pulley shaft and the main shaft can be seen an idler shaft to which are keyed two grooved wheels which are mates of the cable winders. The one for the downtown section is at the left and the one for the mesa or pavilion section is at the right. (Title Insurance & Trust Co., Union Title Office, San Diego, Calif., historical collection)

Top Three combination cable cars are shown here standing on Fourth Avenue, south of Spruce Street, while the rear section of one of the open cars protrudes from the doorway of the Car House. A cable grip assembly stands on the ground alongside the open door.

Bottom Another "little pal-ace on wheels" was named "San Ysidora". It stands on the unfinished turntable in front of the car storage section of the Power House on Fourth Avenue, south of Spruce Street in 1890. (Both pictures: Title Insurance & Trust Co., Union Title Office, San Diego, Calif.)



Weatherall of Chester, Pennsylvania. The ratings were 350 and 250 horse power respectively, according to a newspaper article. (These were inventoried in 1893 as 250 and 150 horse power.) Each engine was connected to the end of a section of shafting which carried a large fly-wheel and one-half of a clutch. Between these two shafts was a middle section fitted with the mating halves of the clutches at its ends and a rope-belt pinion or sizable pulley at its mid-point. Cotton rope belts transmitted the power to a monster wheel 25 feet in diameter on the main or driver shaft. The pinion and the big wheel each had twelve grooves for the ropes.

Two sets of cable winding wheels were installed. The winders for the downtown division were 12 feet in diameter to give a car speed of eight miles per hour. The ones for the uptown or the mesa section were 16 feet in diameter to produce a "high speed", ten miles per hour. One wheel of each set was mounted on the driver shaft and the other two were carried by an auxiliary or idler shaft placed between the engine and the driver shafts, to increase the traction.

All the winders and the large belt wheel were cast

and the grooves were turned in their rims by the Coronado Foundry in Coronado, California.

Tensioners and slack-adjusting pulleys were provided to compensate for the stretch in the cable and to cushion unusual strains. One of these devices on rails can be seen in the cable drive picture, which was taken before the completion of the installation, near the rear door.

THE ROLLING STOCK

The cars were designed by Chief Engineer Van Vleck. Twelve were of "composite" or combination style, one-half closed and the other open, single end operation in the open section, with open dashes. They were almost identical to the original Powell Street cars in San Francisco.

The National City Record of February 20, 1890 reported that "the first grip car had arrived". It stated that nine others of similar pattern will soon be en route. "San Diego will soon have a cable railway system equal to Los Angeles".

The San Diego Union described the rolling stock as "things of beauty built in Stockton, California", by the

Stockton Combine, Harvester & Agricultural Works. "The closed portions are beautifully finished in rare woods, stained glass in the transoms and the windows are richly curtained. All metal work is nickel plated and there are electric bells for passengers to ring for stops. They are gorgeous little palaces on wheels."

The signal bells were operated by push buttons and were powered by "wet-cell" batteries stowed under the seats. The cars had double trucks with seven spoke wheels. The exteriors were tastefully painted in maroon and gray with white roofs.

Photographs show an open car. The late William C. Enneking, veteran conductor and gripman, said that there were two. They also had double trucks and each was fitted with a cable grip but they were generally used as trailers. The regular cars were given names. The San Diego Union of April 11, 1890 reproduced the roster, as follows:

No. 1 - Montezuma	No. 7 - San Ysidora
2 - El Escondido	8 - San Juan Capistrano
3 - Las Penasquitas	9 - Tia Juana
4 - La Jolla	10 - El Cajon
5 - Alvarado	11 - Point Loma
6 - Cuyamaca	12 - Las Flores

Poor's Manual of Railroads for 1891 lists the company as the San Diego Cable Tramway and as owning 14 cars.

Each car had a portable oil headlight which the gripman set on the floor behind an opening in the dash. During the day a door or slide filled the aperture. For general illumination there were two oil lamps, one in each section, mounted below the roof or ceiling. Roof vents were provided for the escape of the fumes.

Colored roundels or lenses were placed in the end of the closed section. If you were waiting at a corner and saw a red light, it meant that the car was approaching. If you were a little late and it showed green, it indicated that you just missed it.

GRIPS

Hallidie's original grip mechanism, which he patented, had two horizontal plates, the lower one being fixed. A threaded vertical spindle, moved by the turning of a hand wheel, clamped the cable between the plates.

Henry Casebolt, in order to avoid the paying of royalties to Hallidie, came up with a more practical grip operated by a hand lever with a quadrant and latch. A heavy vertical plate moved the grip pieces or jaws. The cable was picked up from the right hand side. This design was used on his Sutter Street Wire Cable Railroad in San Francisco in 1877. An improved model but substantially similar side grip, known as the Henry Root type, was adopted for the California Street Cable Railroad in 1878 and that style remained the standard on California Street cars until 1957 when the Municipal Railway of San Francisco rebuilt the remnant of the line and changed to their bottom pick-up grip.

William Eppelsheimer, who had been Construction Engineer of the original Clay Street Hill Railroad and was the inventor of many essential parts for it, became the Chief Engineer of the Geary Street, Park & Ocean Railroad in San Francisco. For its cable division, he designed the first lever-operated "bottom grip" in 1879. This style of grip mechanism was used also on the Powell Street lines in 1887 and on Hyde Street line in 1891. The principle of the plate moving downward to clamp the jaws around the cable was employed. When the Huntington interests bought into the Geary Company, the entire road was rebuilt from five foot gauge to the standard four feet - eight and one-half inches. Since Henry Root had been placed in charge of the construction, naturally his side grips replaced the Eppelsheimer bottom type.

The opinions of old timers varied in regard to the type of grip employed in San Diego. One claimed that the cable was picked up from the right hand side, in the direction of travel. This would seem to be the logical one to use in a single track road and had been selected

by the Temple Street line in Los Angeles. Another indicated that a standard bottom grip was used. With the two runs of the cable so close together, you can imagine how disastrous it might be if the wrong one were seized.

However, Addison Laflin, Jr. recalled that he had read in a descriptive article on the San Diego Cable Railway that Chief Engineer Van Vleck had designed a modified version of the Eppelsheimer grip by offsetting the jaws. This was illustrated diagrammatically, lacking sufficient detail, in C. B. Fairchild's book: Street Railways, Their Construction, Operation and Maintenance. Figures C and D show the author's interpretation of the scheme, the views being drawn as they would appear if you were down in the conduit facing an approaching car.

HOW THE GRIP WORKS

(Numbers refer to parts shown in Figures C and D.)

The propelling of the cable car is accomplished by an ingenious grip mechanism which is attached to an iron framework mounted between the axles of the forward truck.

Above ground is a long hand-lever latching on a quadrant mounted on a base member which fits into the framework. To the lower part of the lever links are attached which produce a toggle effect to move a steel plate (1). This plate extends down from the base member, through the slot and into the underground conduit. Only the bottom part of the plate is shown in the sketches. When the lever is pulled back by the gripman on the car, the plate is forced down. When the lever is pushed forward, it is raised.

At both the front and the rear edges of the plate are shanks or suspender pieces of the same thickness as the plate through the slot, their upper ends being attached to the base member. The plate slides up and down between the shanks as guides. The lower ends of the shanks (2) are fitted with fork-shaped pieces forming a crotch (3) or way for the cable. They also provide bearings for two rollers (4).

At the lower edge of the plate is attached a body part (5) which carries two hinge pins (6). On the latter swing the jaws or grip pieces (7). The outer faces of the latter are cam-shaped and into the inner faces are set special metal strips called dies (8). The dies are formed to grip the cable as the gripman pulls back mightily on his lever. His action pushed the plate, body and the jaws downward and the latter are forced together by the rollers, pinching the cable (9) between them. This setting is illustrated in Figure C.

The abrasive action on the gripping surfaces is severe. Therefore dies, which are readily replaceable, are used where the wear occurs instead of renewing the entire jaw.

Sand Plates (10), bolted through the shanks, tie the lower parts of the grip assembly together.

When the gripman throws his lever to full forward position, the plate, body and jaws are raised, lifting the latter above the rollers. The cable (11) is then free to drop out of the crotch and onto the carrying pulleys in the conduit. This operation is shown in Figure D.

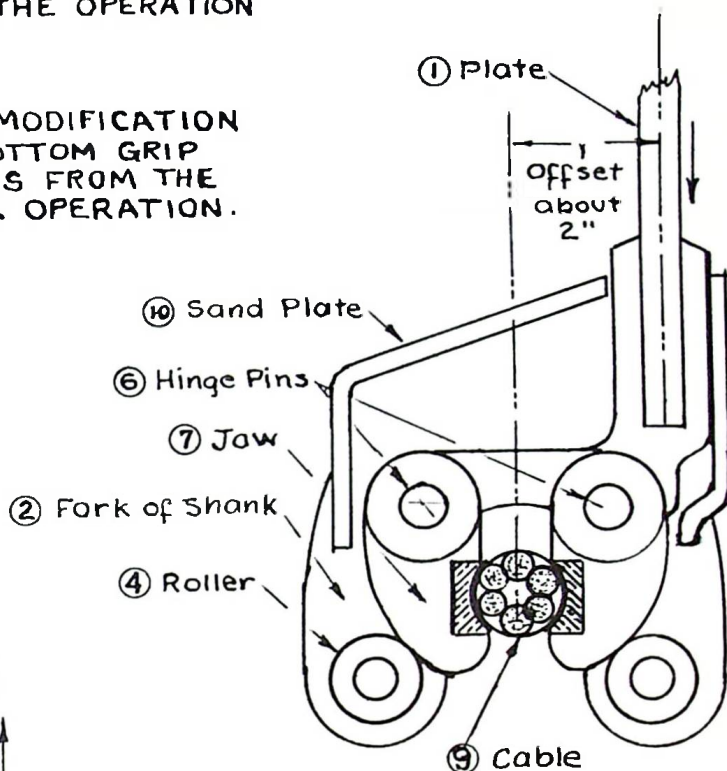
Midway between these extreme positions of the lever, the jaws will release the tight squeeze on the cable but the rollers will hold the jaws so that they will prevent the cable from falling out.

This same Eppelsheimer grip mechanism is still being used on the remaining cable cars of the Municipal Railway of San Francisco, the plate being centered over the jaws and the cable.

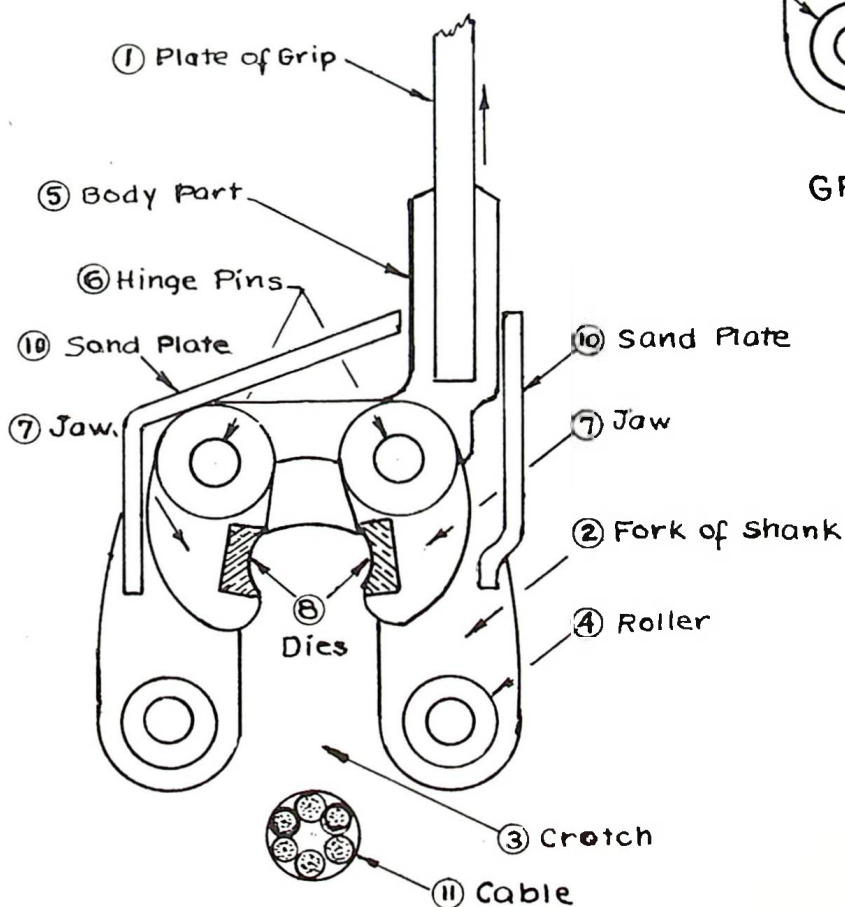
In all cable car systems the cable or "rope" is dropped out of the jaws only for some particular reason, such as: crossing other cable lines, rounding gravity type curves, in switching from one cable to another or to branch lines or by accident. In San Diego "let goes" had to be made at the terminal turntables and at the Power House. Means must be provided for the picking up of the cable at these necessary points and other strategic locations. One such arrangement is a hand lever, set in the surface of the street, which raises a roller under the

SKETCHES ILLUSTRATING THE OPERATION
OF THE CABLE GRIP.
(Not to Detail)

VAN VLECK INVENTED A MODIFICATION
OF THE EPPELSHEIMER BOTTOM GRIP
BY OFFSETTING THE JAWS FROM THE
PLATE FOR SINGLE TRACK OPERATION.



GRIPPING THE CABLE
FIGURE C



LET GO
FIGURE D

ADAPTED FROM PRINTS IN
"ANATOMY OF THE SAN FRAN-
CISCO CABLE CAR", BY FRANK
L. PARKER; MUNICIPAL RAIL-
WAY OF SAN FRANCISCO
PUBLICATION AND PRACTICE.
by R.V. Dodge October 3, 1961



Cable car named "El Escondido" led the triumphal procession on the inaugural day, June 7, 1890. It is about to take the switch in Sixth Avenue to swing around onto the north track on C Street. The second car, following at E Street, is the "San Juan Capistrano." (Title Insurance & Trust Co., Union Title Office, San Diego, Calif., historical collection.)

cable and lifts it. Another way is to form a dip or swale in the track. This lowers the car so that the cable enters the crotch and the gripman can "take rope" anywhere between the carrying pulleys. The next time you are in San Francisco, take a look at the turntable on Powell Street at Market or before a car rounds the pull curve from Powell into Jackson or several other points. These sunken spots were not caused by the Earthquake. A "Full Stop" is required to perform the operation safely.

In making routine stops, the gripman moves his lever to a mid-position which does not drop the cable but permits it to run freely between the dies while the car is standing.

BRAKES

The usual practice in cable car operation was to have three sets of brakes. The wheel brakes of the forward truck were generally applied by means of a foot pedal depressed by the gripman. Those on the rear truck are set by the conductor using a staff and handle. In addition, track brakes were mounted between the wheels of the rear truck. By means of a hand lever and rigging, the gripman forces strips of suitable wood or shoes down against the rails. In San Francisco where the hills encountered are much steeper, up to 21 per cent grades, an emergency brake lever, also operated by the gripman, drives a tapered metal plate into the slot. The San Diego cars were equipped with three levers. Since it is doubtful if there were such an emergency brake, both the wheel and the track brakes must have been applied by the hand levers.

GETTING SET

Work on the cable channels and track had progressed slowly but surely. The main track of the downtown section was completed first. The mesa section was ready before its cable arrived.

The boilers were fired up on April 10, 1890 and the

"melodious" whistle echoed through the canyons. In The San Diego Union of April 26, an article revealed that the engines were started and the "Wheels-Go-Round".

At that time the workmen were putting in the turn-outs.

The first cable, for the downtown division, was delivered. It had to be fished through the channel, placed onto the sheaves and guide pulleys. What a tremendous job that appeared to be! But The San Diego Union explained how it would be done. The end of the cable will be attached to the grip of a car at the turntable at the Power House. Then the car will be drawn by "almost a dozen horses" over the route, down Fourth Avenue, east on C Street and down Sixth Avenue to the turntable at L Street. There the car was turned, the cable was again attached and the return journey was made to the Power House. Next the rope was threaded through the tunnels into the engine room, the required turns were placed around the winding wheel and the tension adjusting wheel. A long splice was made, completing the endless cable.

After greasing the cable and oiling all the pulley bearings, trial tests were performed.

WHEELS A-WHIRLING

At last, the long-awaited Gala Day arrived. It was Saturday, June 7, 1890. Seven cars left the Power House, according to newspaper accounts. The conductors and the gripmen were proudly arrayed in their new uniforms of dark gray cloth with gold buttons. Of course, there was class distinction. The caps, also of gray cloth, were trimmed in gold for the conductors while the gripmen's were in silver. The cars ran light to the foot of Sixth Avenue and turned.

The official welcoming trip began at 1:30 in the afternoon. Car "El Escondido", decorated with an American flag on its dash and with palm branches led the procession. W. C. Enneking was the conductor and J. A. Grow, gripman. The members of the renowned City Guard Band climbed aboard and the parade, accompanied by the oom-

pahs, started. The second car was "San Juan Capistrano". At a point just south of C Street, the cars took the switch for the north track on that street.

A stop was made at the Brewster Hotel, situated on the south east corner of Fourth Avenue and C Street. There the distinguished guests: Robert W. Waterman, Governor of the State of California and party; San Diego's Mayor Douglas Gunn and other notables, were picked up. It is said that Miss Kate Sessions, a well-known horticulturist, was the first revenue passenger. The cavalcade of the "horseless horse cars" climbed the hills to the mesa and continued out to the Power House.

The car storage section had been fitted with seats and a speakers' platform. Oratorical masterpieces were delivered. The Mayor pointed out that San Diego was the fourth city in California to boast a cable railway, the others being San Francisco, Oakland and Los Angeles. Los Angeles' was less than two years old.

The future plans were explained. The uptown, or north or mesa section will be finished soon. The track is all in and the cable is ordered.

A tour of the plant followed. "The Power House" is a big affair with monster machinery. It fills one with awe to see those great wheels revolving with so little friction and noise."

On a signal, the whistle was blown, filling all the bay region with one loud, long, sonorous, booming toot. Then came the hip-hip-hurrahs and "We throw up our hats for Collins, Dare and Fisher. No more complete single track road was ever built."

Regular service was inaugurated.

OUT TO THE BLUFFS

The cable for the mesa section was received a few weeks later. Then the installation was completed. Service from the Power House to Mission Valley Bluffs began in the fourth week of July, 1890. Tourists can now ride from downtown to University Heights. Lots in the latter tract had been placed on the market in December of 1887 and the country from University Avenue to the Bluffs was very sparsely settled. Not much regular revenue could be expected.

RECREATIONAL LURES

It was the nation-wide practice of public service transportation companies to establish amusement parks at the ends of some of their car lines to boost the number of fares. The San Diego Cable Railway conformed with the trend.

At the inaugural services it was announced: "Near the terminus at the Bluffs, the erection of a large pavilion is in progress. It will be a handsome structure where concerts will be held. It will have a commodious stage, a hall for dancing and private dining rooms."

The plot of ground contained five acres and extended along the northerly line of Adams Avenue from Campus

Street to Georgia Street. The area around the pavilion was landscaped. This was the start of the attractive private park later known as Mission Cliff Gardens.

The opening of the Pavilion was delayed until Admission Day, September 9th. Thousands then visited the new recreation center and enjoyed the magnificent views of Mission Valley, unmarred by freeways and commercial developments.

The company also owned "Recreation Park" on the northerly side of University Avenue about Tenth Avenue. It was fenced and a grandstand was constructed. Here baseball games, bicycle-riding contests and other sport events were staged.

FOR THE EMPLOYEES

South of the Power House was a company-owned "Boarding House" or barracks. This provided facilities for the unmarried carmen.

Mr. Enneking revealed that the pay was 18 cents an hour. The men alternated long and short days. The long day was from 5:30 a.m. to 11:30 p.m. with an hour off for meals. The hours of the short shifts were from 5:30 a.m. to 3:15 p.m. or from 3:15 to 11:30 p.m.

In cable railway practice, the carmen were required to supply their outfits, as per the specifications prescribed by the company. In San Francisco, the uniforms cost from \$19.50 to \$22.50 and the caps added \$2.50. Rules instructed that the men keep their clothing clean and neat. On the California Street Cable Railroad, a force of inspectors was maintained but it was provided that the inspections be made only when the employees are on duty. "In case, however, it is found that any of the men are in the habit of spending their time in saloons and gambling places, they are soon discharged."

TOIL AND TROUBLE

Following the auspicious opening, trials and tribulations soon began to plague the company.

Ordinary maintenance of the road and equipment, including the laborious oiling and greasing, was costly. The wood strips used for the track brakes had to be replaced every week or so. On the California Street line, the dies of the cable grips had a life of about three weeks.

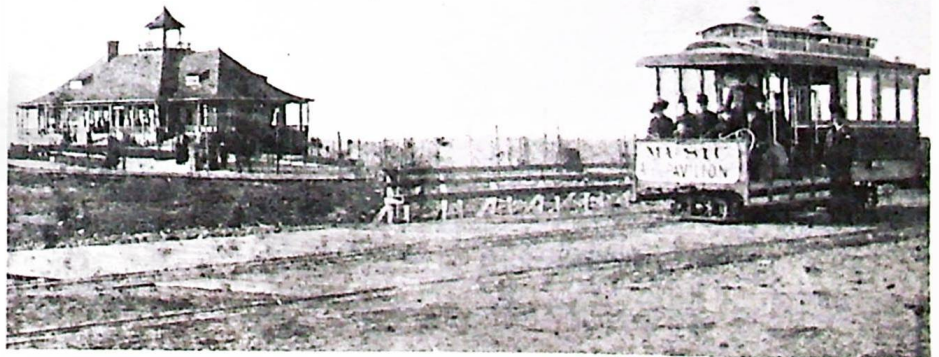
Bills came in for the paving of Sixth Avenue covering the areas between the rails and two feet on either side.

Mr. Samuel A. Hammons began suit for \$15,487 on account of injuries sustained in a fall from a scaffold.

M. K. Hill, a tinner, fell off the trestle which had been built near Palm Street. Seriously injured, he lay in the canyon all night.

Gripman W. T. Laird told about the dangerous difficulties that may arise when a strand of cable breaks and

The northerly terminus of the cable line was on Park Boulevard extended north of Adams Avenue, on the "Bluffs" of Mission Valley. There the pavilion was erected in 1890, the beginning of a recreational park, later known as "Mission Cliff Gardens." (Title Insurance & Trust Co., San Diego, Cal.)





Cable cars pass on the double track on C Street at Fourth Avenue, dwarfed by the renowned Brewster Hotel, about 1891. (Title Insurance & Trust Co., Union Title Office, San Diego, picture)

buckles around the grip. Sometimes it would be impossible to "let-go" the cable and this was a single track road. Once, when this happened, in a desperate effort to avoid a head-on collision, he slammed on both the wheel and the track brakes and, at the same time, released the cable grip with his foot. Fortunately that worked and the strand broke loose. Enneking mentioned that he had rigged up a detector device in the Power House so that broken wires would strike and ring a bell.

In July 1891 "A construction car (probably a small car carrying a track crew) came down through University Heights at high speed. It struck some obstruction and all the men aboard were thrown off. Thompson's head hit the rail and was cut open. The car sped away and was not caught for several blocks."

Another time, in September, a disabled grip caused a car to "prance about". It was rounding the last curve before reaching the straight run to the Pavilion. "The grip acted strangely. The front end of the car shot up, coming down solidly as eight tons of iron and wood usually do." (Note: the cars weighed about four tons.) The gripman was thrown out. There was a delay until the next car came along and pushed the disabled one back to the Power House.

A horse became frightened at one of the cars at Fourth Avenue and Palm Street. The carriage was hurled down the bank into the canyon.

THE CONJUNCTURE

Thus things rolled along, steady by jerks, until a financial crisis developed when the California National

Bank of San Diego closed its doors in November 1891. It had failed suddenly and disastrously. Collins and Dare had made "Wild Cat loans" and indulged in reckless speculation. It had been rumored that the cable railway did not get all the money due it on the sale of the bonds. Dare was in Europe when the bank failed and he did not return. When gross mismanagement was revealed, Collins committed suicide in the Brewster Hotel. The bank was backing the cable railway. In December, F. N. Pauly of Los Angeles was appointed Receiver for the bank. The continuity of cable car operation was interfered with during the turmoil.

Then creditors of the railway began to take action. Spreckels Brothers Commercial Company filed a claim of over \$4,000 but continued to furnish the indispensable coal. Others included the Coronado Foundry and the Pioneer Truck Company. Sheriff John H. Folks was appointed as Receiver of the San Diego Cable railway Company. He soon resigned and George B. Hensley succeeded him. He held the office until April 23, 1892 when C. W. Pauly of San Diego was elected "Assignee". "The old bills can wait," he ruled.

Hensley was asked what the results had been of some experiments in curtailing service by taking off the night cars. He was in favor of keeping them on.

Taxes became delinquent on Monday night, April 25.

The employees wanted their wages. Salaries would be paid out of the first monies.

Pauly did not know then what the policy would be. The 10,000 pounds daily coal consumption had been reduced to 5,600 pounds. The expectation was that the cables would be good for eight to ten months longer. (The average life of those of the California Street Cable Railroad in San Francisco was only 330 days.)

A few days later Pauly informed that the road is running behind \$1,100 a month. He was endeavoring to raise funds on Assignee's Certificates.

By mid-May 66 claims had been filed but the real contest was the one of the California National Bank for \$104,358.

Notice was given that the road will have to shut down August first, 1892, unless a \$400 subsidy is raised by the patrons. The ultimatum was "Subscribe or Climb the Hill". Desperate efforts were being made to continue cable car operation until the new electric car line of the San Diego Electric Railway is running on Fifth Avenue. \$300 was subscribed and Recreation Park was sold.

On July 29, Mr. Bennett, an employee, was struck by a car and injured. He was standing too close but the gripman assumed that he would jump out of the way.

The cars continued to run and advertisements were published for the events scheduled at the Pavilion. Sacred concerts were given by a full orchestra on Sundays. Other attractions were provided: a merry-go-round, swings, and a shooting gallery. "Cars every 10 minutes" the notice assured.

Picnic parties were suggested to help the finances.

On August 17, the bond holders again asked for a Receiver, and Mr. Hensley was reappointed. It will be known in a week if a new cable has to be put in. It turned out that both had to be replaced and operation on the uptown division had to be suspended. Hensley reported that conditional contracts had been drawn up for the purchase of the two cables. Judge Puterbaugh gave court permission to proceed and the cables were ordered by telegraph. On September 21, information was released that the new cable for the pavilion end was expected daily. The slots were being cleaned and the pulleys serviced.

The San Diego Electric Railway made the initial run with one of its double-deckers on that date, up Fifth Avenue, but its cars would operate to University Avenue only.

The cable, 27,000 feet long, for the uptown run, was shipped from San Francisco and had arrived at the Southern California Railway depot on October fourth. The reel or spool had been considerably damaged in transit, presenting a problem of how to handle the 54,000 pounds load. It had been planned to install it on Saturday the eighth.



A southbound cable car on Sixth Avenue approaches the intersection with Market Street and the crossing of the horse car track of the San Diego Street Car Company, about 1891. (Title Insurance & Trust Co., Union Title Office, San Diego, Calif., historical collection)

Threading it through the conduit would require only two hours as the old cable was still in place. The announcement was made that the fence is up again at Recreation Park, now owned by Philip Morse of the San Diego Lumber Company, and as soon as the new cable is in, the games of baseball will be resumed.

But the cherished hopes of having the cars running to the Pavilion on Sunday were dashed.

Time ran out. On October 15, 1892, E. W. Britt, as attorney for the California Title Insurance and Trust Company, the largest bondholders of the cable road, appeared in Judge Puterbaugh's Court. He stated that one new cable was here and another was on its way from Worcester, Massachusetts. As there was no money to move the ropes and put them in and as no Receiver's Certificates could be disposed of, he asked for and Judge Puterbaugh signed an order to stop operation of the road on the grounds that there are no funds.

Then came the gloomy but terse pronouncement: "The Cable Road is shut down." Mr. Enneking served in the capacity of gripman on the last car.

POST-OBITS

For a time, a resurrection was hoped for. The San Diego Sun of January 16, 1893 disclosed that "The two ropes in the cable bed were operated yesterday in order that they may be kept from rusting." Eventually the old ones were sold to Madame Katherine Tingley, head of the Theosophical Society, and were used for the fencing of the grounds of the Institute on Point Loma.

The litigation dragged on for several years. Some properties were sold. The case of Pauly, Receiver of the California National Bank, versus Pauly, Assignee for the San Diego Cable Railway Company, resulted in a judgment rendered to the plaintiff of \$9,444.

A respected citizen recalled that, on one Hallowe'en,

a group of juvenile pranksters broke into the Power House, attempted to push out a car and start it down Fourth Ave. Several other cars were damaged, a couple beyond practical repair, by vandalistic "brats".

On January 2, 1896, the remnants of the cable road's properties were sold to Mr. George B. Kerper, of Cincinnati, Ohio, for the sum of \$17,600. Kerper planned to convert the system to electric operation. He adopted the name The Citizens Traction Company for the enterprise.

Nine or ten combination cars were equipped with new trucks, motors, pole trolleys, etc. and wiring. The two cable winders in the Power House were replaced with bipolar generators. Poles and overhead were installed. Electric street car service began on July 28, 1896.

Attachments were filed in 1897, followed by a receivership. The properties were sold through a Commissioner's Deed March 21, 1898 and were acquired indirectly by San Diego Electric Railway Company. Trackage from Fifth and University Avenues to the "Bluffs" was changed to standard gauge, and the route of the cars on the Fifth Avenue line was extended to furnish through service.

Parts of eight former cable cars were utilized by the San Diego Electric Railway to construct four California type, closed center compartments with open end sections, electric street cars. The body of one of the latter has been rescued by Railway Historical Society of San Diego and, at this writing, is being restored as a railroad museum specimen.

IN RETROSPECT

Forseeing rapid progress in the development of urban transportation, the following quotation from Street Railway Journal of January 1891 has been submitted by Addison Laflin, Jr.: "Mr. Frank Van Vleck, of Los Angeles, recently read a paper before the American Society of Mechanical Engineers in which he said 'The writer, although con-

nected with the development of the cable system, cannot but conclude that the day of usefulness for the cable ... has forever gone and that the electric road stands champion in the field."

Looking back to the grand opening day of San Diego's only cable car line, Philip Morse composed an appropriate ditty for the occasion. It is repeated here, in part, as it appeared in the National City Record:

We greet you all today with a welcome in our song,
For this is the day we've longed to see;
So we'll get aboard the car and swiftly glide along
To the table lands that overlook the sea.

Then let the big wheel turn that hauls the cable round,
And everyone will make the trip;
And over all the world the chorus shall resound:
San Diegans never lose their grip!

CREDITS:

Valuable assistance has been rendered generously by Addison Laflin, Jr., Secretary of the Bay Area Electric Railroad Association, Berkeley, California. He is Editor of the Bay Area Electric Railroad Review and the Circuit Breaker. His article in The Circuit

Breaker of November 2, 1947, entitled "Today's 14 Cables in 1893, based on C. B. Fairchild's account in Street Railway Journal, contained helpful information. He furnished considerable technical data which are included in this story.

Newspapers: The San Diego Union, San Diego Sun, National City Record

Files of the Junipero Serra Museum, San Diego Historical Society

San Diego Historical Society Quarterly, Jerry MacMullen, Editor, January 1956: article by W. C. Enneking and car drawing by Jerry MacMullen

Westways, article by Jerry MacMullen

Cable Car Days of San Francisco, by Edgar M. Kahn

The Cable Cars of San Francisco, by Phil and Mike Palmer

Street Railways, Their Construction, Operation and Maintenance by C. B. Fairchild.

Anatomy of a San Francisco Cable Car by Frank Parker

the Cable Cars of San Francisco by Municipal Railway of San Francisco and for the courtesies extended by its employees.

Frederick W. Reif of San Diego, for data and photographs. Union Title Insurance Company of San Diego for the use of photographs from its Historical Collection.

Revised to October 5, 1961

The Story Of Car 54

STORY BY THE EDITOR
(Pictures on back cover)

Resting in the "backyard" of historic Whaley House in Old Town, San Diego, is the body of one-time San Diego Electric Railway Company street car number 54. The car awaits restoration and exhibition.

The informed visitor will examine the body structure with great care because the car was built in San Diego from the bodies of two former cable cars.

Examine the roof and clerestory, check the details against those visible in cable car photographs, and one will see that it is so. Cable car ancestry is clearly evident in street car number 54.

In 1892 the San Diego Cable Railway Company closed down and twelve combination style (open-closed) and two all-open type cable cars went out of service. However, in 1896, after remodeling and conversion into electric street cars, the twelve combination style cars were returned to service by the new-owner Citizens Traction Company. The track was still narrow gauge but overhead and other necessary electrical facilities had replaced the endless wire cable. Life of the line was short as in 1898 service was again discontinued.

In time, the Citizens Traction franchise, cars, and other facilities were purchased by the San Diego Electric Railway Company. Uptown narrow gauge track was converted into standard gauge and then combined with SDERy's own Fifth Avenue line. Remaining narrow gauge rail was abandoned. SDERy's own cars went into service on the line and the twelve narrow gauge cars went into storage.

In 1903, four of the cars were scrapped but the remaining eight were worked over into four double-end electric cars. This was done by cutting away one third of an old car and splicing it with the remains of another car. The rebuilt cars, numbered 51 through 54, then went into service on SDERy's lines.

The much-publicized center-entrance "Exposition Cars" began arriving in 1914 and many old cars were displaced. Electrics 51 through 54 went into dead storage. Two years later as an economy move the cars were sold for scrap.

The body of Number 54, less trucks and electrical equipment, was purchased by H. H. Himebaugh and located in Logan Heights on the west side of the 2100 block on Logan Avenue (there's the body of an "Exposition Car" located today on the east side of the same block). Closed sections were boarded up and Himebaugh used the car as a real estate office.

Two or three years later the car body was moved to the backyard of the family home at 2140 Kearny Avenue. Until his health failed Himebaugh continued to use it as his office.

The home later passed into the hands of Himebaugh's daughter, Mrs. Nellie Clower. Members of the Clower family used the car as living quarters and for storage. Two RHSofSD members who lived in Logan Heights in the twenties remember seeing the car there. In 1955 member Lyle Judd "rediscovered" the car and the Society was given the word.

In 1958 Mrs. Clower donated the car to the Society and on March 15, Robert E. Staite, a contractor who once "hawked" newspapers on the car, moved it to M. H. Hiesman's "Bullfrog Haven" at 47th and Nogal Streets. Later it was moved to the Star Machine Company yard on 10th Ave.

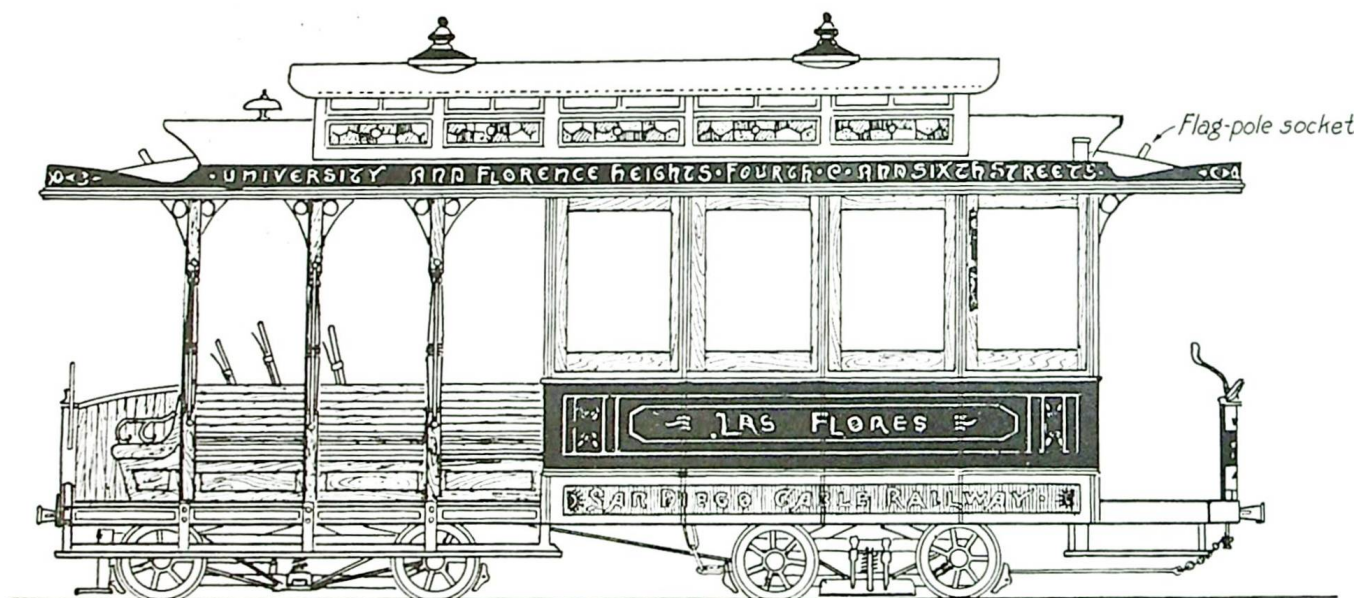
Another move became necessary in 1962. Previously the San Diego County Board of Supervisors had approved the exhibition of the car at the rear of the Whaley House after restoration had been completed. On the assurance of RHSofSD member Jack Stodelle that the Society would appropriate funds for professional labor and materials, the Board in May 1962 approved immediate placement of the car in the Old Town location. During the May hearing Chairman DeGraaf Austin recalled that he had ridden to and from school on Car 54.

Belyea Truck Co. with the assistance of Contractors Crane and Rigging Co. will handle the final move. Belyea in previous years has transported railroad equipment to the Del Mar Fairgrounds and to the Los Angeles Travel Town Museum.

The car body will be repaired and restored. Wheels have been obtained and side frames are to be cast. Immediate goal is to make 54 worthy of exhibition. Society members also dream of seeing 54 operate at some future time on the rails of the proposed Society operating and stationary railroad museum.

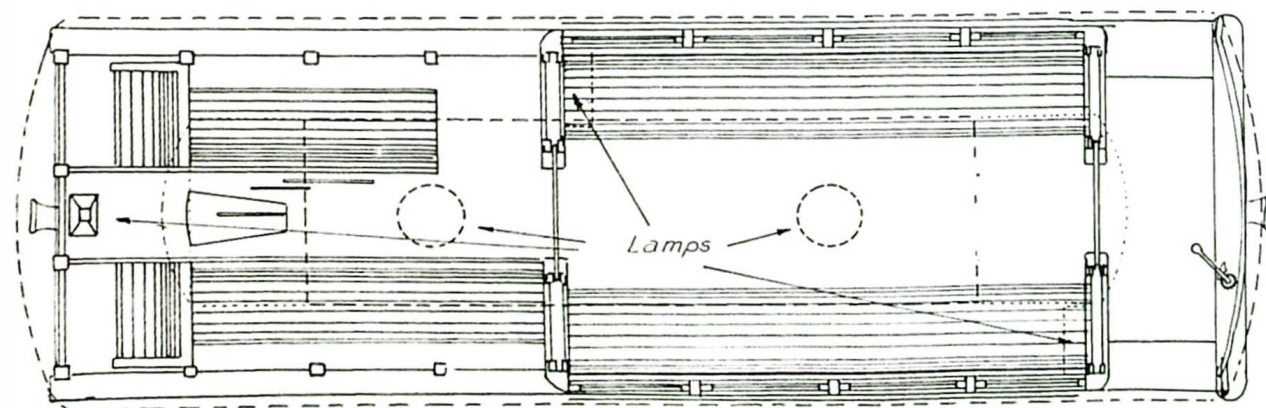
The Railway Historical Society of San Diego has been successful in acquiring other railroad equipment. On exhibition at the Southern California Exposition and San Diego County Fair at Del Mar are San Diego Electric Railway Co. street car 528 (the last new car to be purchased by the company), San Diego & Arizona Eastern Railway Co. locomotive 104 (a Consolidation 2-8-0), and San Diego and Arizona Railway Co. private car "Carriso Gorge." A Society-owned former San Francisco standard type street car is stored temporarily at the Orange Empire Trolley Museum at Perris, California, and a United States Gypsum narrow gauge inspection car is stored at Gillespie Field in El Cajon.

The Society plans to locate much of this equipment in a proposed railroad museum. Completion of this granddaddy of all projects awaits purchase of land and availability of funds.



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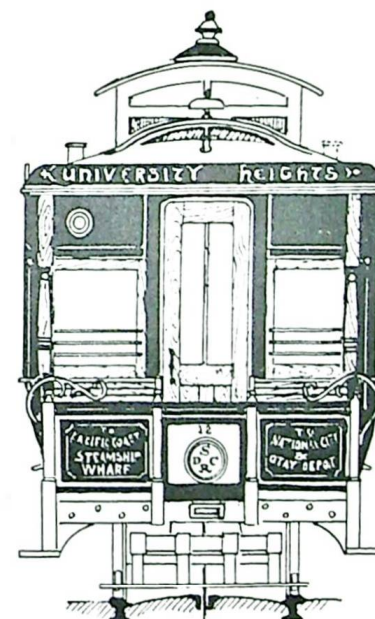
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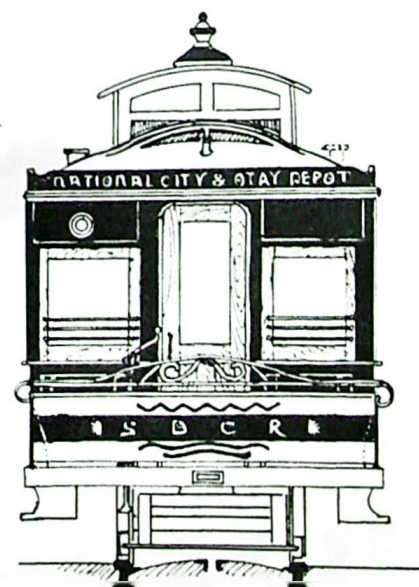
SAN DIEGO CABLE CAR 1890

Drawing by
Jerry MacMullen

Courtesy of
S.D. Historical Society



(Track gauge 3'6")



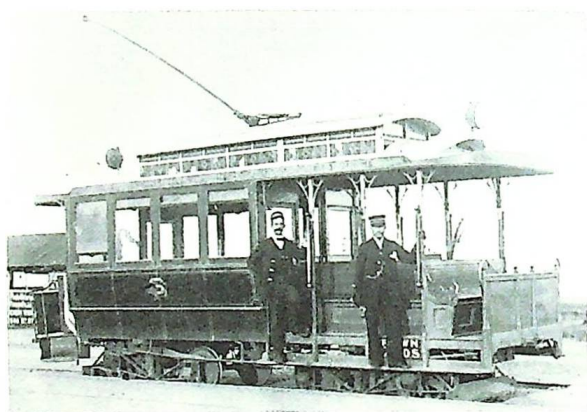
SAN DIEGO HISTORICAL SOCIETY - 1956

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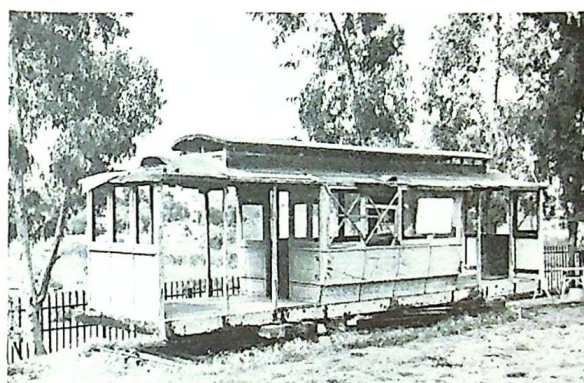
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1. South on Fifth from E Street. About 1905. Cars are: Left No. 54; middle 51. Operator is SDEry.

2. Citizens Traction Company No. 6, a converted cable car. University Ave. near Tenth Street at the Recreation Park. About 1896.

3. Car 54 at Bullfrog Haven, 1959.

4. Car 54 in service on the K St., Grant Avenue (Ocean View Blvd.) line about 1910. SDEry owned the car. Pictures 1 & 2: Title Insurance & Trust Company, Union Title Office. Picture 3: Eric Sanders. Picture 4: J. W. Kerr

Note: First came the cable cars. Then the cable cars were converted into electric cars (see No. 6). Then San Diego Electric Railway electric cars 51 - 54 were constructed from the bodies of eight former cable cars. Note the similarity in roof details of No. 6 and No. 54.

