NEWSLETTER April 2026

Hello Everyone. Our last meeting at the beginning of the month was well attended and our new member John gave us a very immersive talk on the cable cars of San Francisco, a subject he has a great interest in since his own experience 'on the tracks'. A complex engineering solution to a very challenging terrain, and amazing to realise that the system in one shape or another, has been providing transport to San Franciscans through earthquake and fire for nearly 150 years. The evening was also a great time for socialising, aided by coffee, tea and biscuits provided by our volunteer members. Many thanks to them.

It is only a few weeks until our annual lunch at Kirkbymoorside Golf Club on Friday May 15th. As of writing this newsletter, we don't have as many 'diners' as last year, so please remember Colin has to give the restaurant our menu choice a week before we attend. A menu has been provided on page 3 to aid your memories.

If you have attended our Workshop mornings on the third Tuesday of the month you may have noticed something covered over on a trolley in the corner. That was actually a locomotive that our late great George Gibbs was working on. The loco has passed to George's family, who are now the owners.

It has been offered for sale to *The Ryedale Society of* Model Engineers at Gilling, where George was a member, without success. The locomotive has been fired and runs, and had a boiler certificate, although that will be out of date. George, being the perfectionist dismantled it to carry out some 'tinkering', and was intending to reassemble and run it……..

The loco is now being offered to PEEMS members. The advert and details are on page 4 of the Newsletter and shows its current state. The advert provides a more extensive description of the loco.

We haven't heard from Paul Windross in some time, with his reports about the *Straight-Liners* at Elvington, but at the end of the Newsletter he has sent some information about Graham Sykes' recent record breaking runs on his updated steam rocket bike '*Force Of Nature'.*

I think that's it for now. *Nevile.*

□ **Forthcoming Events.**

- **Wednesday May 6th** ***Aircraft Development*. A Talk by Ivan Shaw.**
- **Friday May 15th** **PEEMS Annual Club Lunch at Kirkbymoorside Golf Club.**
- **Tuesday May 19th** **Workshop Morning.**
- **Wednesday June 3rd** **Summer *Bring and Brag.***
- **Tuesday June 16th** **Workshop Morning.**
- **Wednesday July 1st** **The Rosedale Hill Climb. A talk by Paul Hayward.**
- **Tuesday July 21st** **Workshop Morning.**

Club Evening Wednesday 1st April ~ "The Cable Cars Of San Francisco" A Talk By John Schofield.

Colin welcomed everyone to the meeting, and there were a few announcements.

- **Membership List.**

Colin made a request that members enter their interests on The Members' List. This is so that any new members could identify other members with the same interests.

- **PEEMS Banner Installation On The Hungate Centre Outer Wall.**

This was reported on in last month's Newsletter. Colin wanted to thank everyone who was involved in the design, production and installation of the banner.

- **Bradford Model Engineering Society (BMES).**

BMES are holding their annual model exhibition on Saturday 23rd and Sunday 24th May at the Bradford Industrial Museum. The museum itself is excellent, and the model exhibition should be "the cherry on the cake". PEEMS has been approached in the past by BMES and asked if we would like to attend, but we have had to regretfully decline their kind invitation because it is a two-day event and Bradford is quite a distance from Pickering and therefore PEEMS attendance would involve overnight accommodation. However, we would encourage anyone who is interested, to attend.

- **Pickering Beck Isle Museum.**

After winter refurbishments and repairs, Pickering Beck Isle Museum has reopened.

- **The Yorkshire Wolds Railway Reopens.**

Matthew Brown from the *Yorkshire Wolds Railway* came to give PEEMS a talk in March of 2025. The talk was written up in that month's newsletter. The railway has been given the green light to reopen its doors to the public this spring:

The Visitor Centre and Working Facility. Image: Alan Cooper

Heritage railway to reopen

A HERITAGE railway has been given the green light to reopen its doors to the public this spring.

The Yorkshire Wolds Railway (YWR), based at Fimber Halt and entirely volunteer-run, will welcome visitors from Sunday, April 5, for the start of its 2026 season, with new improvements and a renewed visitor experience.

Matthew Brown, membership and media director at YWR, said: "Throughout the winter period, members of East Yorkshire's only heritage railway have kindly worked in all weathers to bring an improved experience for visitors.

"Once again, we hope that with the continued support of our members and visitors 2026 will be even better – and we thank everyone for that."

Upgrades over the winter have included new lighting and power in the Visitor Centre and Working Facility, a freshly varnished brake van, and a quieter platform area thanks to a relocated generator.

The locomotive Sir Tatton Sykes will also be unveiled in a brand-new livery.

- **Adrian ~ "Print In Place" 3D Printing.**

[Summary: Print-In-Place (PIP) 3D printing is a technique where complex, functional mechanisms—such as hinges, joints, or articulated creatures—are designed to be printed as a single, fully assembled object. Instead of printing parts separately and assembling them later, the slicer produces a model with pre-designed clearances (which are typically between 0.15 mm to 0.35 mm) that prevent the plastic from fusing together. Ref: Wikipedia].

Adrian was visiting PEEMS for the evening, just to see what we were all about. He lived locally and had been invited along for the evening. He is a retired professor of the physiology of the eye, but he's developed an interest in all things engineering.

He did a lot of 3D printing, CAD, and built microcontrollers and was also involved in electronics. He also builds instruments that involve 3D printing.

Adrian brought along a small component that he had 3D printed, but it was unusual in that it had moving parts that had been "printed in place". This means you can print mechanical objects that can move, but the components are completely integrated.

Adrian passed around the object for inspection. There is no other way of manufacturing such components. One of the things that you need to know when you "print in place" is the tolerance that your 3D printer allows. The tolerance is the space around adjacent objects, and if this isn't sufficiently big then the objects will 'bind' together when printed. The 3D printed component that Adrian brought along was a calibration instrument, and the separation of the inner and outer part was 0.05mm (50 microns). Those two parts didn't move relative to each other.

The tolerance between the next two objects was 0.1mm (100 microns), that part didn't move relative to the other either. The next tolerances are 150 microns up to 300 microns which allow movement between adjacent parts. This is just one example of what you can do with 3D printing. All of which sounds like an interesting topic for a talk.

- **William Burrell.**

William has asked that if anyone had a “Z” hoist type trolley that they wish to dispose of, he would like to contact them. His model locomotive is getting a bit heavy now, and this is an operational necessity. William’s contact details are in the Members’ List so please contact him if you can help.

- **PEEMS Annual Club Lunch at Kirkbymoorside Golf Club on May 15th for 12.30 to 1.00pm**

The Annual Club Lunch is being held at Kirkbymoorside Golf Club on Friday May 15th at 12.30 for a 1.00pm start.

For anyone wishing to attend, can they email Colin Bainbridge with their menu choices and any special dietary requirements for themselves and their guests.

The cost is £28 for 2 courses and £34 for all three. Coffee is included.

Hope to see you on the 15th. *Colin*.

Kirkbymoorside Golf Club

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Crispy Filo Brie & Cranberry Parcel

Served with fresh salad

Classic Prawn Cocktail

Served with Marie Rose Sauce

****

Main Course

Chicken Supreme, Wrapped in Parma Ham

Served with Fresh Tarragon Mushroom Sauce and Mashed Potatoes

Roast Yorkshire Ham

Served with Creamy Mustard Sauce and Mashed Potatoes

Vegetarian option:

Feta, Roasted Butternut Squash and Red Caramelized Onion Tart

All served with Seasonal Vegetables

****

Homemade Treacle Tart

Served with Custard

Homemade Lemon Cheesecake

Served with Ice-Cream

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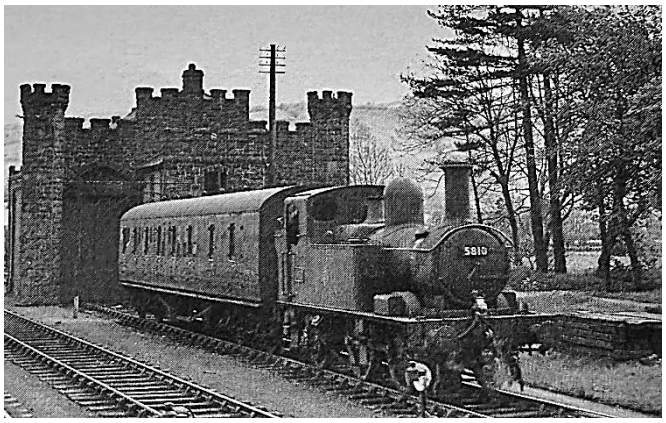
Coffee & Mint

Two Course - £ 28.00

Three Course - £ 34.00

For Sale ~ A 0-4-2T Great Western 5800 Class Tank Engine Number 5810. 5-inch gauge. Live Steam.



Partially dismantled 5-inch gauge live steam locomotive from the estate of late member Georges Gibbs.

The engine is an 0-4-2T GWR 5800 Class tank engine. It was not built by George, but purchased as a running locomotive. It ran for a short time at *Ryedale Society of Model Engineers*' track in Gilling East, before being partially disassembled by George, for what was believed to be minor works.

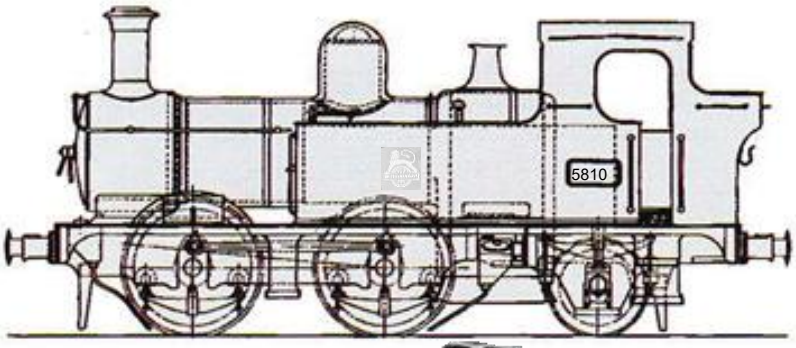
As far as we are aware, all parts removed are still with the loco, but the purchaser should be prepared to undertake the sourcing or making of any missing parts if this is required.

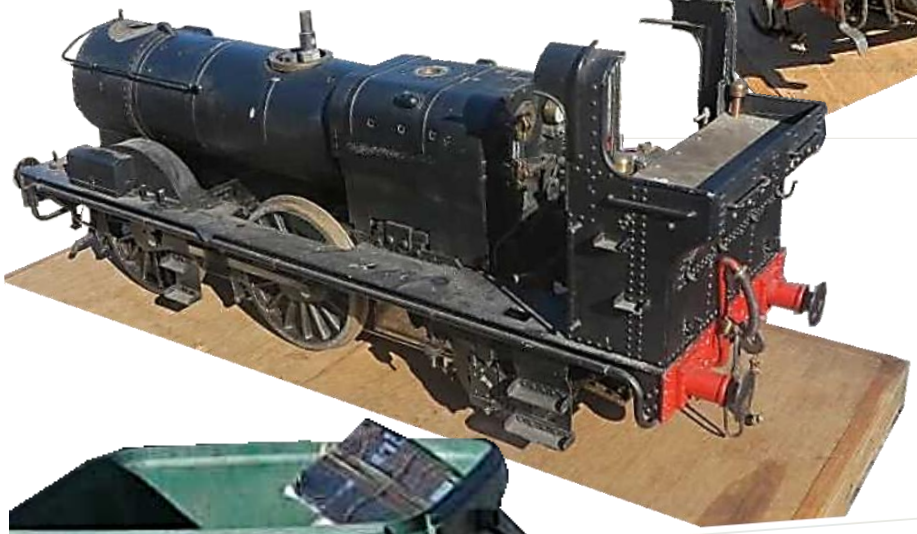
As this engine has been run in the past, we have to assume the boiler was at that time in sound condition. It should not however be taken that this is still the case, and any purchaser will have to satisfy themselves the boiler is still serviceable and suitable for their needs. It does NOT currently have any boiler certificate paperwork, so the purchaser will also have to take responsibility for having the boiler examined and tested in accordance with current tests codes applicable to model boilers of this class.

We are not aware of any construction drawings that George may have had.

Having sought opinion, we believe it would be reasonable to expect offers in excess of £1000 for the locomotive as it stands.

Offers of interest should be made to Colin Bainbridge. All monies raised will go to George's family.






Selection

- **San Francisco Cable Cars, A Talk By John Schofield.**

  - **Introduction.**

John started by saying that although his talk had been advertised as “The Trams Of San Francisco”, they were actually “*Cable Cars*”, but were not “*Funiculars*”. A cable car differs from a funicular in that in the latter, the cars are constantly attached to a cable, whereas in the former, the cable car attaches to, or detaches from, a continuously moving cable. Both cable cars and funiculars are suitable for very steep terrains.

In the case of the San Francisco cable cars, the cable is continuously moving below street level, and each of the cars has a “gripper” which either “grabs” or “lets go” of the cable, which is the way in which the cars are started or stopped.

The speed of the car is dependent on the speed of the cable which runs at a constant 9.5 mph.

John thinks this is the last remaining cable car system of its type in the world.

  - **A Brief History.**

The first cable car system in San Francisco was invented and built in 1877 by Scotsman Andrew Hallidie, and he was responsible for developing the “gripper” system. Further improvements were made so the cars could navigate corners effectively. By 1910, San Francisco which contains some very steep hills, had eighteen short routes of cable cars. Attrition eventually worked these routes away, and by the late 1940s, the Mayor of San Francisco decided to get rid of the system altogether; in his opinion buses were better for the job. There was an outcry, which stopped him doing this. So, three lines were retained:

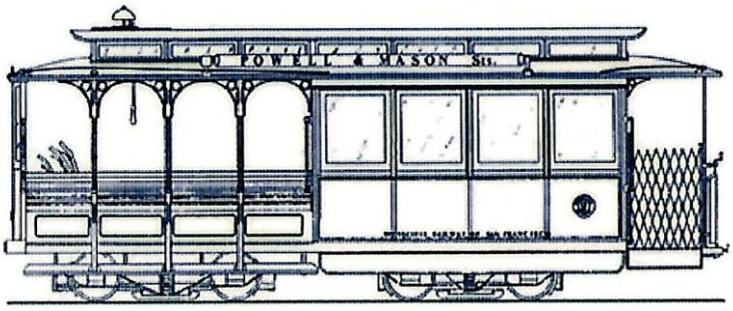
- The California Street Line.
- The Powell Street/Hyde Street Line.
- The Powell Street/Mason Street Line.

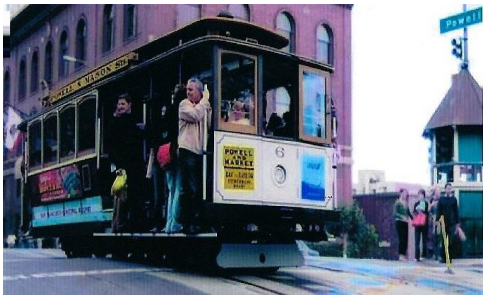
In the photo above, the car is coming down the street towards the viewer (the cable cars drive on the right). There is a track going uphill on the opposite side. The slot under which the cable is moving is seen between the rails, and this is what the “gripper” goes through to engage the cable.

  - **Types Of Car.**

There are two types of car on the system.

- **A Single Ended Car.**

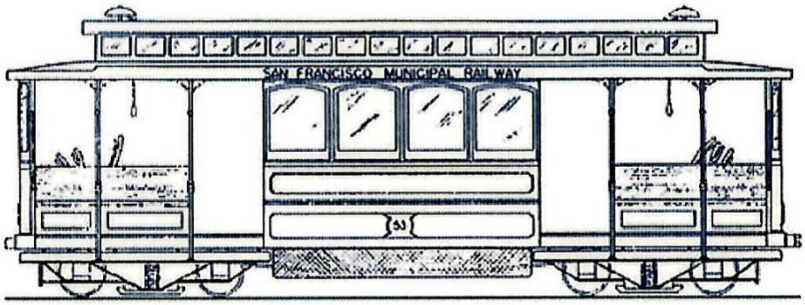




This type of car runs on two of the lines: The Powell Street/Hyde Street and The Powell Street/Mason Street lines. The levers for the “Gripman” can be seen on the left-hand end of the car above. He stands between the outer facing seats. They are not very big vehicles, thirty people can sit in the car, and a few others can stand. There is a covered platform at the back of the car, with a brake lever that the conductor can use when necessary.

On the Powell/Hyde and Powell/Mason lines, there are termini equipped with turntables, so the cars can be turned around.

- **A Double Ended Car.**



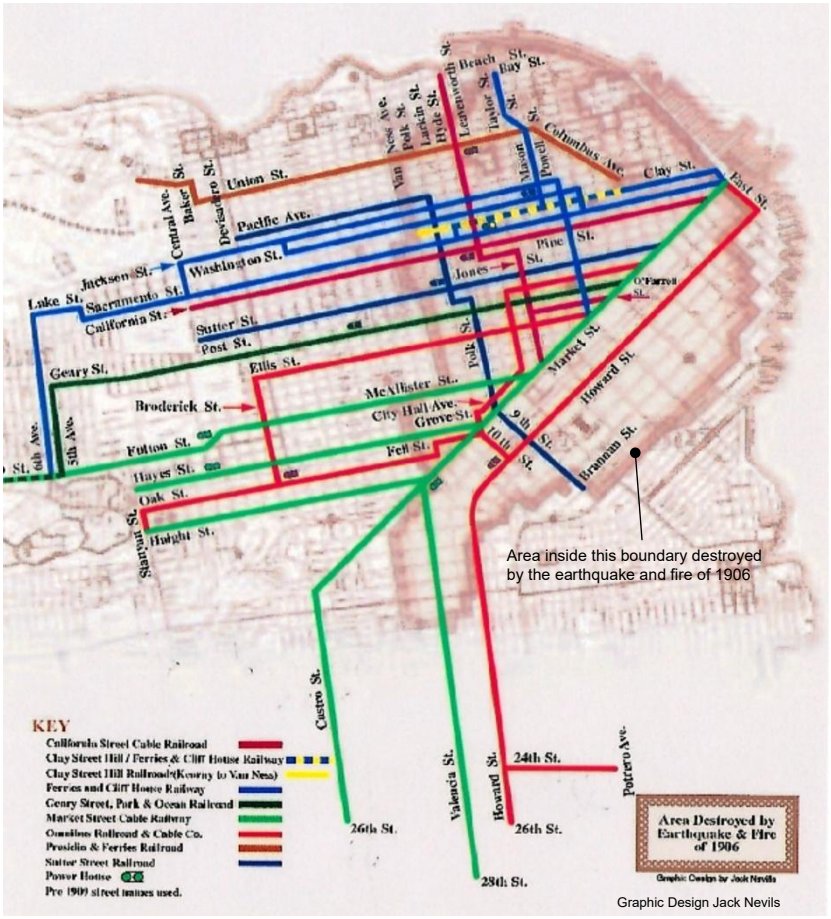
There are also double ended cars which only run on the California Street line. There is no need for turntables on this route, and there are “gripper” handles at each end for the “Gripman” to operate.

As an aside, Manchester had double decker trams, apart from one route which used single deckers because of the low bridges. The tram cars on that route were modelled on the California Street cable cars of San Francisco. They were known as the “California” cars.

This surviving example of a “California” car normally lives at the Heaton Park Tramway in Manchester, but is here on a visit to The Beamish Museum.

- **The San Francisco Cable Car System From The 1890s.**

Map Of San Francisco Cable Car Lines At The Fullest Extent Of Operation 1890s.



Graphic Design Jack Nevils

This graphic shows how big the original system was in the 1890s. It was a fairly complex system with lines crossing. It must have been very complicated to operate.

John read somewhere that a tram could be despatched every 30 seconds during rush hour on some of the lines.

The system was gradually reduced; it wasn’t helped by the earthquake of 1906. The brown boundary on the left shows how much of the system was affected by the earthquake.

It should be noted that the extensive system remained live until the 1940s.

- **The San Francisco Cable Car System From 1948.**

In 1948, the system was reduced to three lines:

- **The California Street** line goes up and down a hill. The geography of San Francisco is such that this line runs along the top of a ridge.

  The line essentially goes straight up, but levels out as it crosses other streets.

- **The Powell/Hyde and Powell/Mason** lines start at the same point.

  The line along Powell is very steep, and it crosses the California Street line at a very complex junction. The line then drops down and splits at 'points' for the Mason and Hyde lines.

  The Mason line drops continuously down to San Francisco bay.

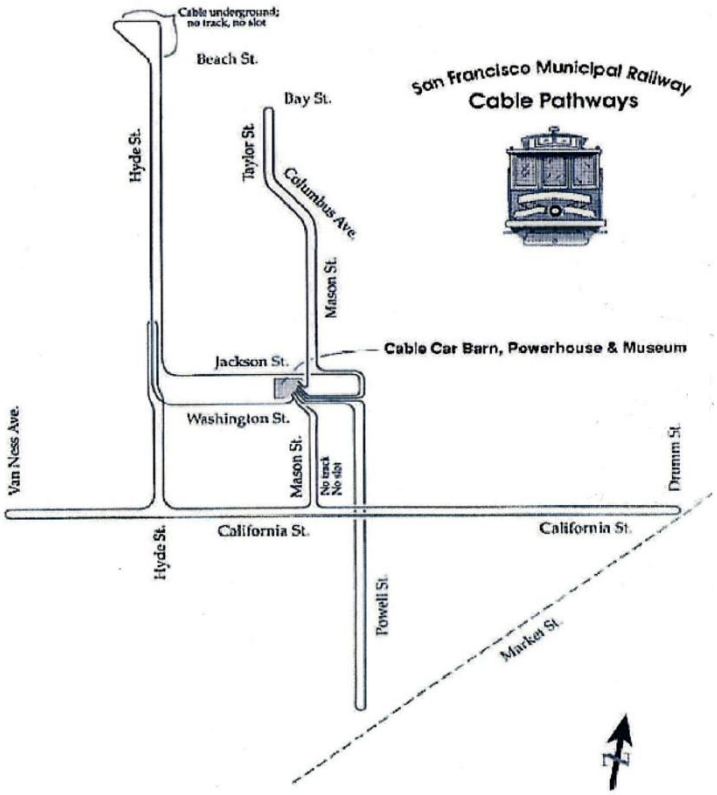
  The other part of the line turns left, goes uphill along Washington Street and then turns north north west along Hyde Street to Green street, and then drops steeply to San Francisco bay.

  The Car Barn (or Shed) is between Jackson and Washington streets. To get cars onto the California line from the Barn, there is a "non-revenue" track on Hyde street.

- **'Drift' And 'Pull' Curves.**

As can be seen on the above map, 'drift' and 'pull' curves are marked. If a car is being pulled uphill it will be pulled around a 'pull curve'. If the car is going downhill, there is the option of disconnecting the car from the cable, and allowing it to freewheel through the 'drift curve'. The mechanisms at these curves will be discussed in more detail later.

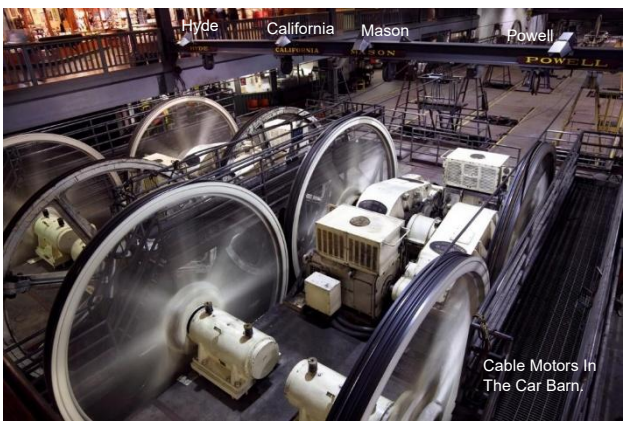
- **The Cable Runs.**



The cable runs can be seen in this picture, but they don't match the cars. There are four cable runs:

- **The California Cable Run** which includes the "non- revenue" track along Hyde and the lower part of Mason.
- **The Powell Cable Run** which includes the cable run around to Mason Street.
- **The Mason Cable Run.**
- **The Hyde Cable Run** which includes Jackson and Washington Streets.

The cars running through the system have to let go of one of the above cable runs and pick up one of the other cable runs. It's a very complex system.

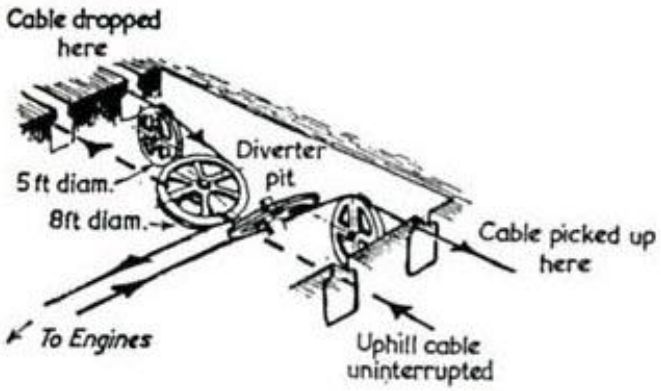


Cable Motors In The Car Barn.

- **The Cable/Car Barn.**

▪ **The Cable System At The Cable/Car Barn.**

When the cars come out of the Car Barn, they have to get onto the street, so there is this system of cables and pulley wheels.



The uphill cable runs over the top of the mechanism and is uninterrupted. The downhill cable has to drop into a diverter pit, passing over the top of a 5 ft pulley wheel and then down and around an angled 8 ft pulley wheel and into the engine house. The cable then comes out of the engine house passes over another angled 8 ft pulley wheel and then out into the system.

- **Some System Dimensions and Gauges.**

Track & Cable:

- 3' 6" gauge single track - 8.8 miles.
- Steepest grades - 21%, Hyde between Bay and Francisco; 18%, California between Grant Ave. and Stockton; 17%, Mason between Union and Green; 17%, Powell between Bush and Pine.
- Cables - four cables moving at 9 1/2 mph, each powered by a 510 hp electric motor in the cable car barn, using a total of 3.7 million kwh per year.
- Cable diameter - 1 1/4".
- Cable length: Powell - 9,300 ft.; Mason - 10,300 ft.; Hyde - 16,000 ft.; California - 21,700; Total - 57,300 ft.

The Vehicles:

MODEL	SERIES	NO.	LBS.	L.	W.	H.	CAP.*
Powell	1-28	28	15,500	27' 6"	8'	10' 4 3/4"	29/60
California	49-60	12	16,800	30' 3"	8'	10' 2"	34/68
	TOTAL	**40**					

* cap. - seated/total optimum capacity

Summary:

The rail gauge is 3ft 6inches and the steepest gradient (on Hyde) is 21% (1:4.76).

John doesn't think that an electric tram could get up that sort of gradient.

The four cable systems move at 9.5 mph and each is powered by a 510hp electric motor in the Cable/Car Barn.

The cables are 1¼" in diameter and are of varying lengths as shown in the table. These cables last between one and four years, after which they have to be replaced. The replacement is done overnight, and John assumes the new cable is pulled through the system by the old cable.

- **Cars On The System.**

There are 40 cars on the system, 28 single ended cars for use on the Powell/Hyde and Powell/Mason lines, and for California street, 12 double ended cars.

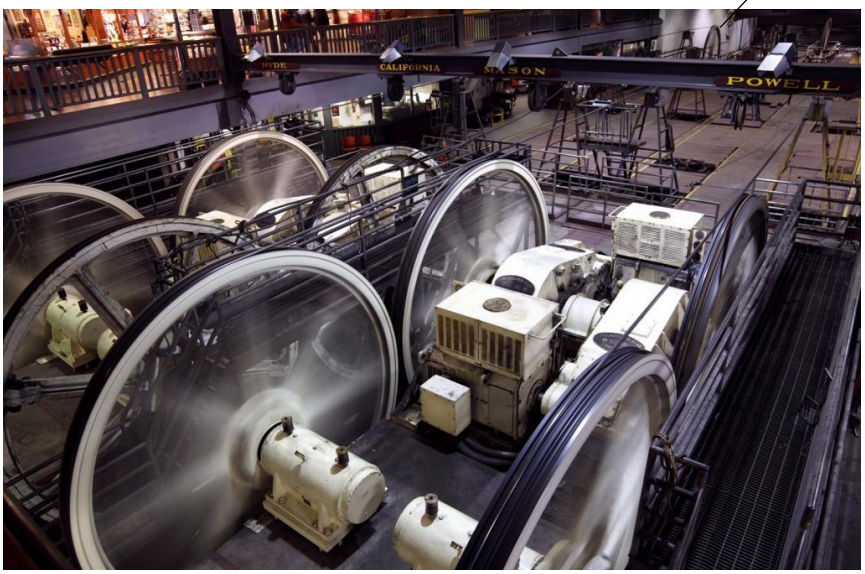
There are 29 seated passengers and a total capacity of 60 (with the rest standing) for the single ended cars. For the double ended cars there are 34 seated passengers with a total capacity of 68.

- **Details Of The Engine House In The Cable/Car Barn.**

Originally the cable car system was steam powered, and the remains of the chimney can be seen in the photo.

The chimney was originally a lot higher. Before the First World War, the system was electrified.

- **The Cable Drive System**



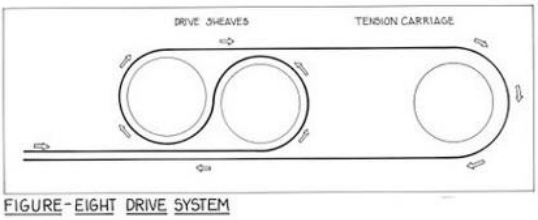
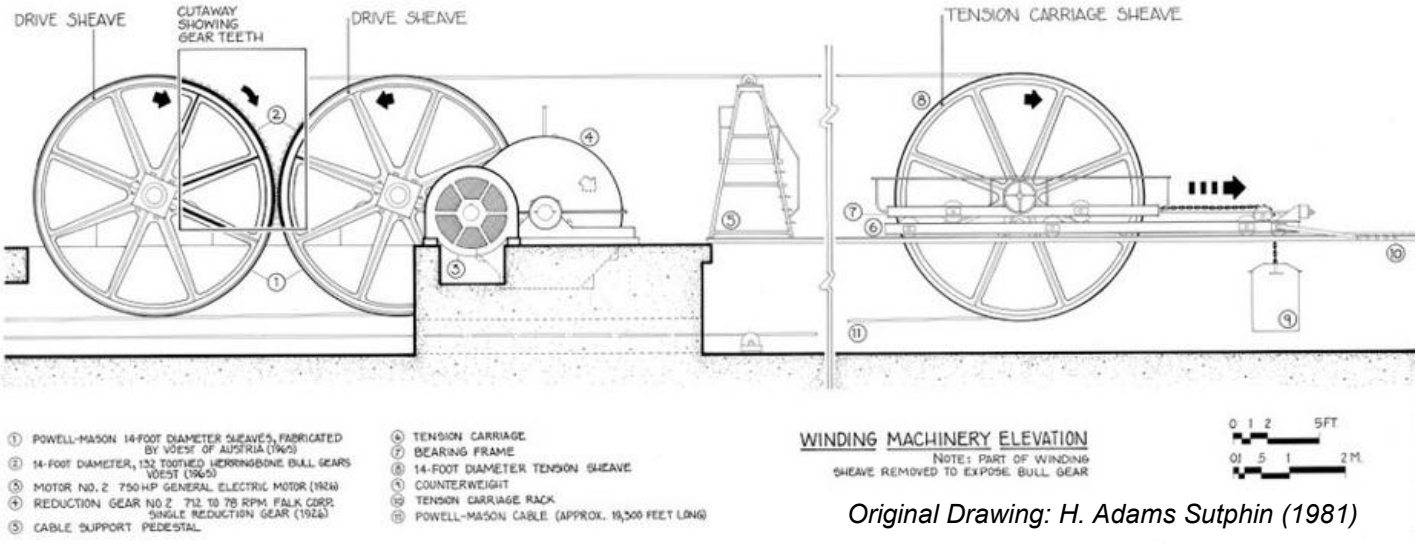


FIGURE-EIGHT DRIVE SYSTEM



Original Drawing: H. Adams Sutphin (1981)

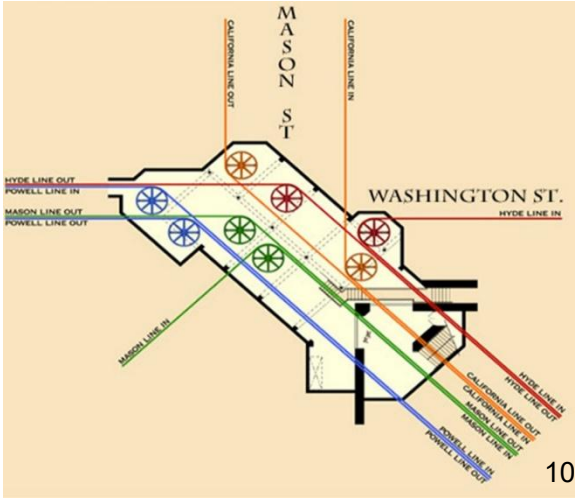
This is the Engine House and the drive sheaves for the four cable lines: Hyde, California, Mason and Powell can be seen.

The motors and gearboxes are situated between drive sheave pairs. In the rear can be seen a tension carriage sheave.

Each of the four cables come into the Engine House and run in a figure of 8 through the two drive sheaves for its particular line, with cable tension provided by the tension carriage sheave.

Each tension sheave sits in a bearing frame mounted on a movable carriage. Heavy chains connect the frame with a counterweight suspended in a pit below the carriage. The weight pulls the bearing frame and sheave back on the carriage, compensating for load variations on the cable and taking up its daily stretching. When the sheave and frame reach the limit of their travel, a block and tackle is used to move the carriage back on its rails, raising the counterweight and moving the bearing frame to the front of the carriage, where the entire process is repeated. After a carriage reaches the limit of its travel, its cable is replaced, and the carriage is repositioned at the near end of the tension run.

The cables then come out of the Barn and go in various directions.



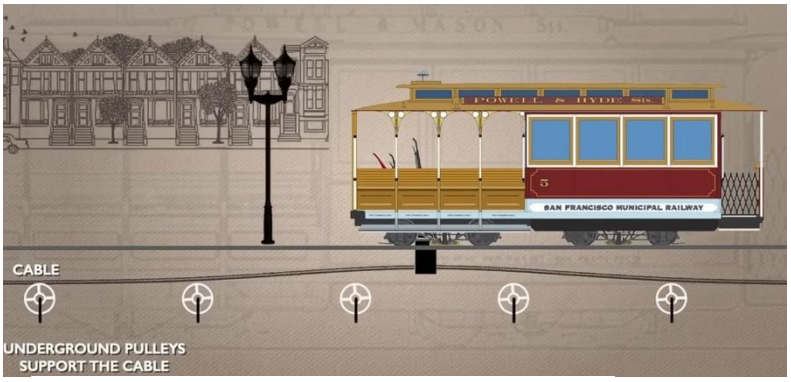
Q: So, when the system was first built, with its extensive range, how many cable barns were there?

John: There were about 5 to 10 cable barns when the system was first set up. After 1948 the system was reduced to the three lines and the single cable barn.

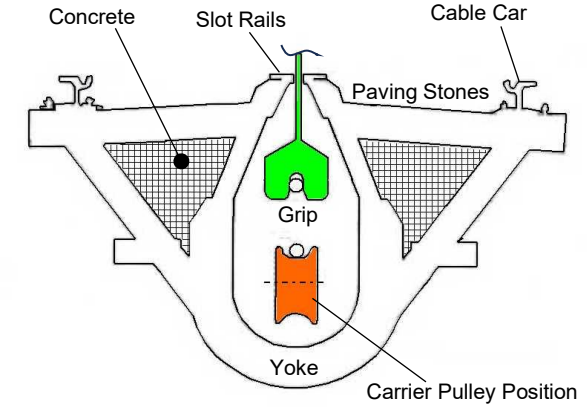
In fact, the lines were re-jigged after 1948, using the single cable barn. When that happened, the drive system had been electrified.

Here a cable is being delivered on a low loader. The cable, as mentioned is 1¼" diameter with six strands, each strand consisting of 19 wires wrapped around a sisal rope core.

- **The Cable System Running Below The Roadway.**



Taken from YouTube video
"*Below The Slot ~ San Francisco's Cable Car Hidden Secrets*"



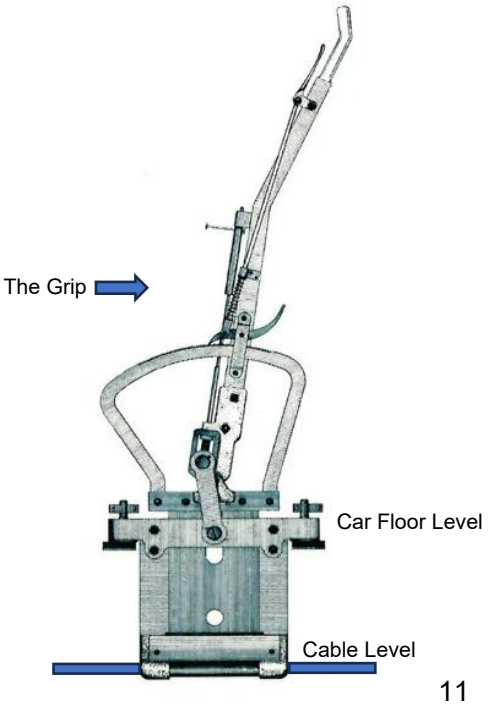
The whole cable system has to be rigid for it to operate and dimensionally, it is very tight. If the cars are not running, the cable runs a couple of inches below the "grip" level.

For the system to work, the cables are running over a series of underground pulleys all the way along the track.

The cable is running a few inches below the grip on the cable car.

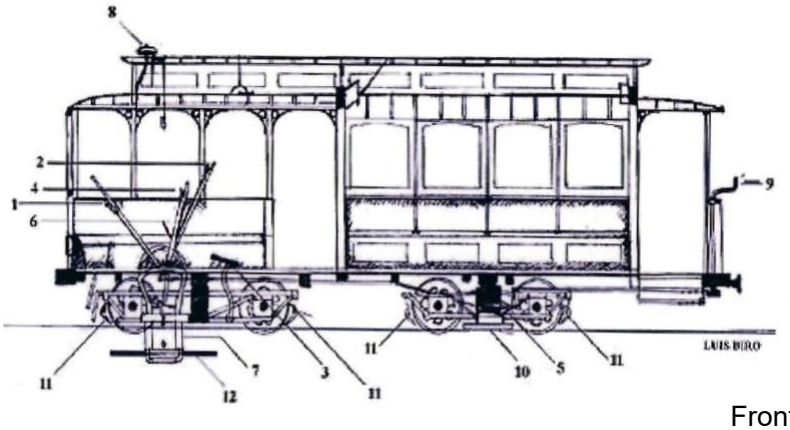
The cable has to be lifted up into the grip on the cable car by means of a trackside lever, usually by the conductor. Once in the jaws of the grip, the cable is held, it can't drop back, but it can move through the grip, it's not attached to the car. When the Gripman wants to start the car, the cable is gripped properly, but more of this later.

- **The Gripman's Controls On The Cable Car.**



- **Levers And Brakes.**

The previous photograph shows the grip lever, which fits through a slot in the floor of the car. There are three levers in the photo, the Grip, a rear Wheel Brake lever and a red Emergency Brake lever.



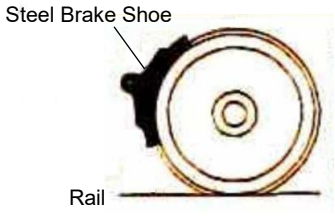
1. Emergency Brake Lever
2. Track Brake Lever
3. Wheel Brake lever
4. Grip Lever
5. Emergency Brake
6. Adjusting Lever
7. Grip
8. Bell
9. Rear Wheel Brake Lever
10. Track Brake
11. Wheel Brake
12. Cable

Here is a single ended car. The “gripper” is seen below the front of the car, and the wheel brakes are indicated.

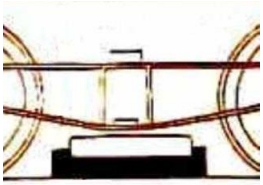
On this particular car, the wheel brake is operated by a foot pedal (3), probably for more gentle braking. The rear wheel brakes are operated by a handle (9) at the back of the car, by the conductor at key moments.

If harder braking is required, the track brakes (10) are operated by the Gripman’s lever (2).

Front and Rear Wheel Brakes



Track Brake



- **Brake Types.**

There are three types of brake on the cable cars: Wheel brake, Track brake and Emergency Slot Brake.

The wheel brakes are operated by the Gripman by foot pedal (3) on this type of car, and by a rear handle (9) by the conductor. Each wheel has its own brake, a soft steel shoe which presses against the wheel. On the Powell Street cars, the rear truck wheel brakes are operated by the rear handle, and the Gripman’s foot pedal engages the wheel brakes on all four front wheels.

The track brakes are actually 2ft long blocks of wood (soft Monterey Fir) and they last about four days and then have to be replaced. On this car type, the track brakes are operated by the Gripman at the front. This lever puts down more force instantaneously.

The Emergency Brake brakes the car in the track slot between the two rails. The Emergency Slot Brake lever forces down an 18” steel wedge into the slot forcing the car to stop. Because this can damage the slot, it is very rarely used.

Sometimes, things go wrong and the grip fails when the car is in use. Here, the grip mechanism can be seen on the left ready to replace a failed one.

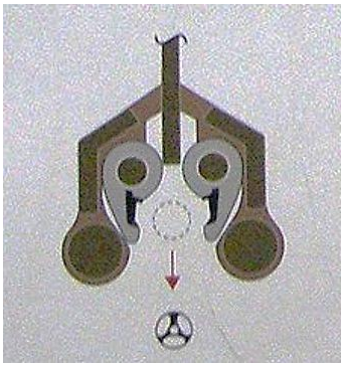
The grip mechanism weighs 300 to 400lb. John doesn’t think that the grip mechanism fails very often.

The photo on the right shows what a difficult job the “Gripman has. The car is going downhill with traffic in the way.

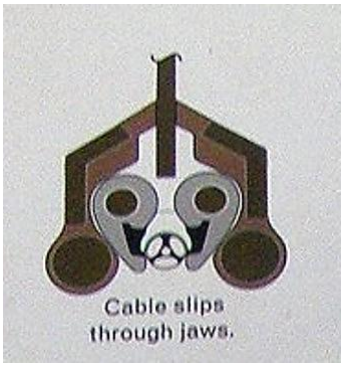
It’s not the easiest job in the world controlling a cable car going through that environment.

- **Grip Operation.**

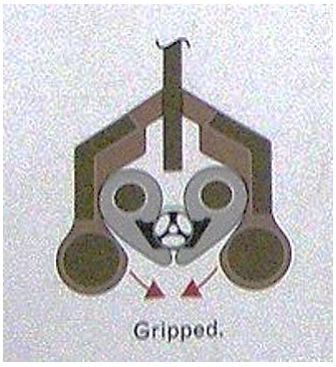
As mentioned previously, the cable runs about 2 inches below the grip. Here are the three grip positions:



The grip is open and the cable runs below.



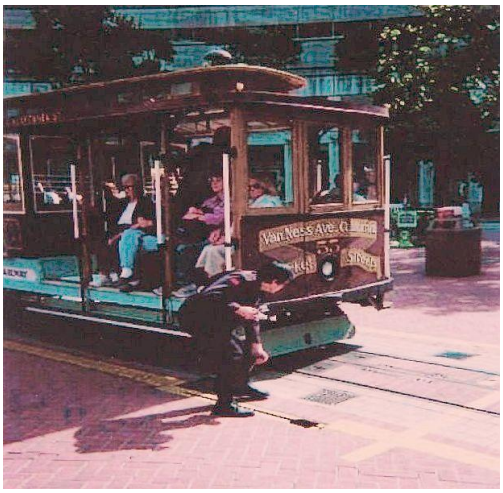
The cable is slipping through the grip jaws but it can't drop back. The car is not attached to the cable.



The cable is gripped

There are three ways that the cable can be raised into the jaws of the grip:

- The cable can be "fished out with a long steel hook to pull it up, but John thinks that would be too difficult, because the weight of the cable is too high. That is not normally done.
- At various places along the route there are levers in slots in the road adjacent to the track.

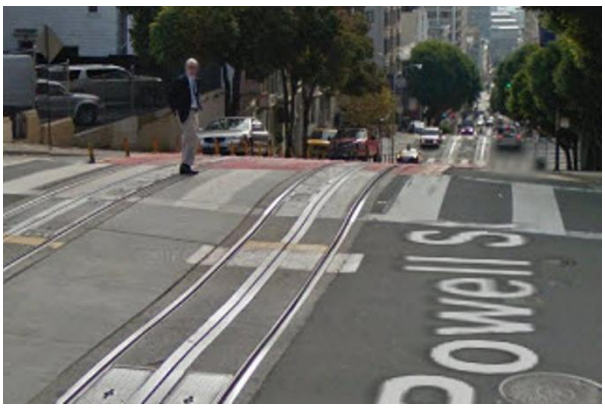


Here, the conductor is pulling on a lever which fits in a slot in the road. When he pulls on the lever, that lifts a cable support pulley which pushes the moving cable up into the grip.

The Gripman can then "half close" the grip so he has contact with the cable, yet it is not yet pulling the car. To start the car, the Gripman operates the lever so the moving cable is tightly gripped.

These levers are provided at the termini, and there are usually a couple of other positions along the route, usually at points where the cable is dropped.

- At some places, the track is deliberately dropped so that the running cable is the proximity of the grip.



This is on Powell and the track dips a couple of inches. A car coasting over this spot can catch the cable. For a couple of seconds, the bogie drops down and the running cable is gripped quickly by the Gripman.

This location is at a road crossing beyond, which is a very steep hill. On these routes with steep inclines, it is important for the car to be in contact with the 9.5 mph cable whilst going downhill!

- **Going Around "Pull" and "Let-Go" Curves.**

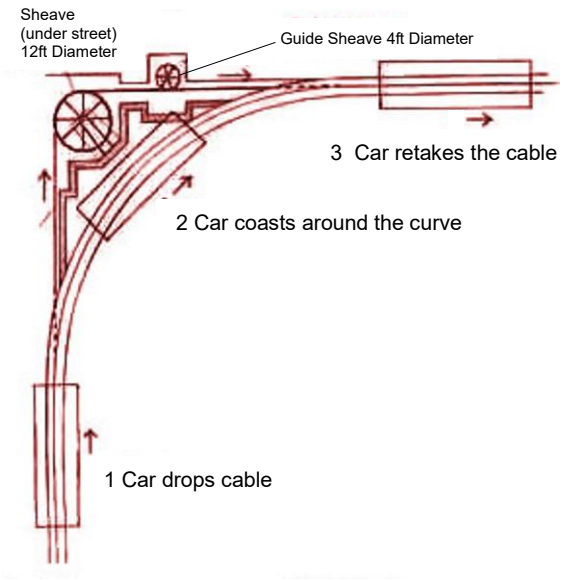
There is a very good video here that illustrates the engineering that goes into the various cable car operations in San Francisco, and illustrates "Pull" and "Let-Go" mechanisms, helping to visualise the system:

"*Below The Slot ~ San Francisco's Cable Car Hidden Secrets*"

https://www.youtube.com/watch?v=lazLKSLszuY

To view, click on the link, to return to the newsletter click on the back arrow at the top left-hand side of the page.

- **The “Let-Go” (Drift) Curve (going downhill).**

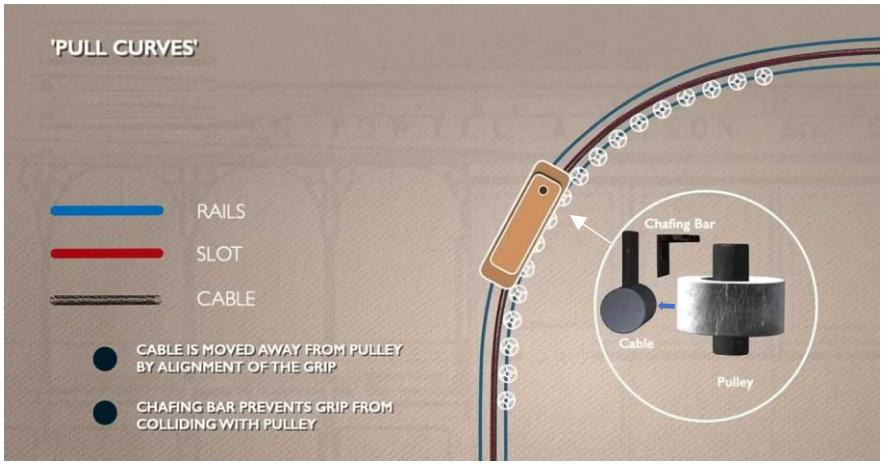


Here the cable runs around a corner pulley, and a guide sheave which puts it into the correct position as it re-enters the system.

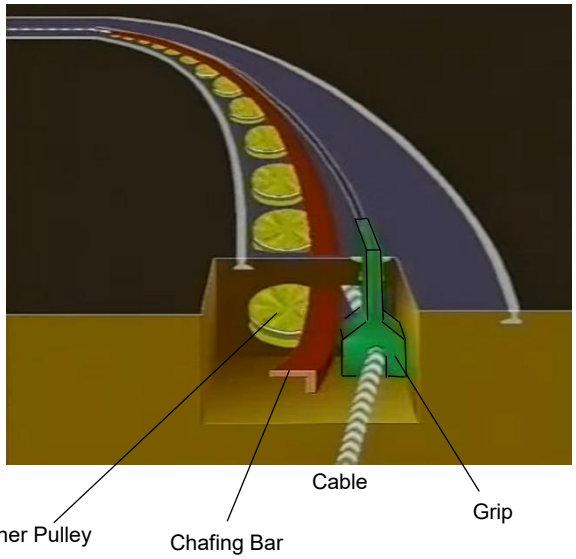
As the car approaches the curve, the Gripman drops the cable, allowing the car to coast around the curve going downhill, and there is a depression in the track (see previous page) which allows the Gripman to reconnect to the cable.

- **The ‘Pull” Curve (going uphill).**

The “Pull” curve is more complicated than the “Let-Go” curve.



Taken from YouTube video
“*Below The Slot ~ San Francisco’s Cable Car Hidden Secrets*”



In this case, going uphill, the cable still has to pull the cable car. There is a series of horizontal pulleys around the curve. The problem is that the grip must keep holding onto the cable around the curve while it is still attached to the pulleys and whilst not contacting the pulleys. So, around the curve there is a Chafing Bar which is at grip level, but just above and outboard of the pulleys (allowing outboard movement of the cable). As the grip slides along the Chafing Bar, the cable can move away from the pulley, under the bar as the grip passes. To allow this to happen, the grip mechanism has the capability to rock from side to side. This puts a lot of strain on the grip system.

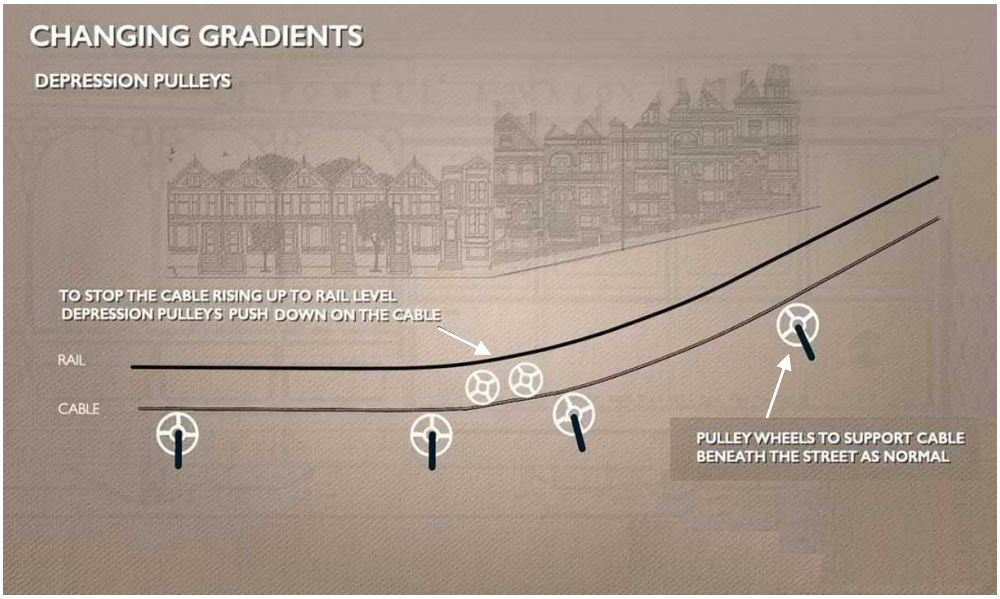
In general, cars have to go around a “Pull” curve with the cable tightly held at full speed. This can be dangerous in heavy traffic, especially if they have to suddenly stop.

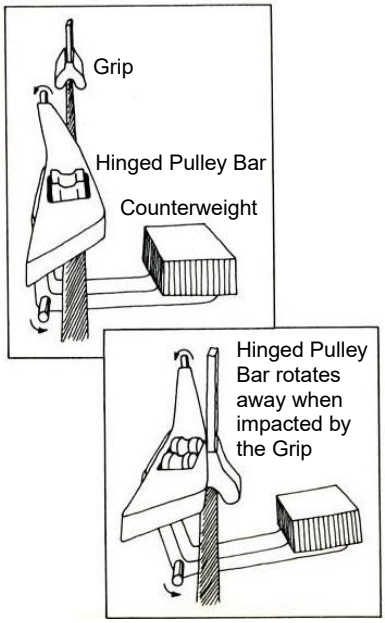
- **Depression Pulleys.**

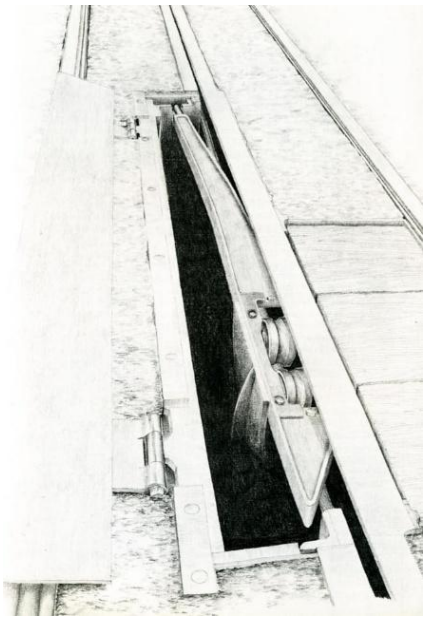
The cars are alright when they go over the brow of a hill but in depressions in the road or when the track starts to go uphill, the cable is forced upwards and has to be held down by pulleys. When the grip comes along it has to avoid the depression pulleys while still gripping the cable.

The depression pulleys are retained inside a bar, and when the grip contacts the pulley bar, it rotates out of the way on a hinge. Once the grip passes, the pulley bar moves back into position under a counterweight.

This is illustrated on the next page.







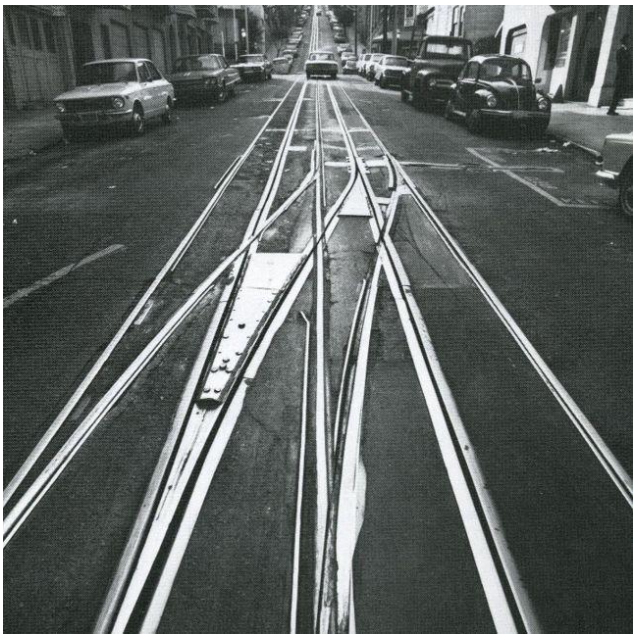
- **Spring Loaded Points.**

This is the rail system at the end of the California Street line. The car at the top left is coming down the tracks over a slightly downhill stretch. The car stops just in front of where it is in the photo, to allow any passengers to alight. The cable is dropped and the car just freewheels downhill to a position at the bottom of the photo, where it stops to take on some passengers for the journey back.

The points here are spring loaded. There is a lever just to the right (out of view) to allow grip connection to the uphill cable.

The cable that was dropped when the passengers were let off, comes down under the street to the left of the photo and the tracks. It goes around a big pulley wheel and back up California Street.

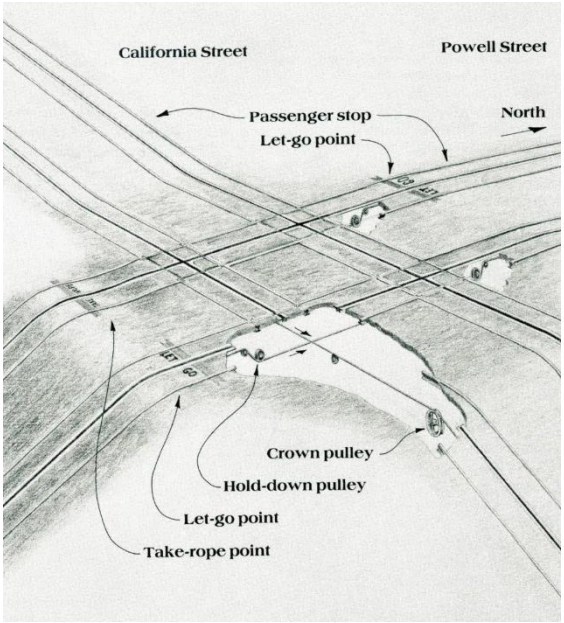
- **Common Rail.**



Here the street is very narrow, and although there are two sets of tracks, they share a centre rail.

There is also an emergency ‘crossover’ which wouldn’t be normally used.

- **The California Street/Powell Street Crossing.**



Here Powell is going North/South and California Street East-West. This is the most complex junction on the system.

The California Street line was built first and is on a steep incline, whilst Powell and Hyde were built afterwards. The Powell line, which comes from the city centre is also a very steep line. At the crossing, the Powell line cables have to pass under those for California Street in both directions.

Coming up the hill northwards on Powell, at 9.5 mph, the Gripman has to drop the cable at the “Let-Go” point, and then coast through the junction, and as it’s not very steep, keep coasting.

Coming in the southerly direction, the Gripman drops the cable at the “Let-Go” point, coasts through the junction but has to regrip the cable at the other side because it’s such a steep hill (1 in 6), and he has to maintain control at 9.5 mph.

To allow this, there is a depression in the track just south of California so the cable is at a level to allow the “gripper” to lock onto the cable straight away.

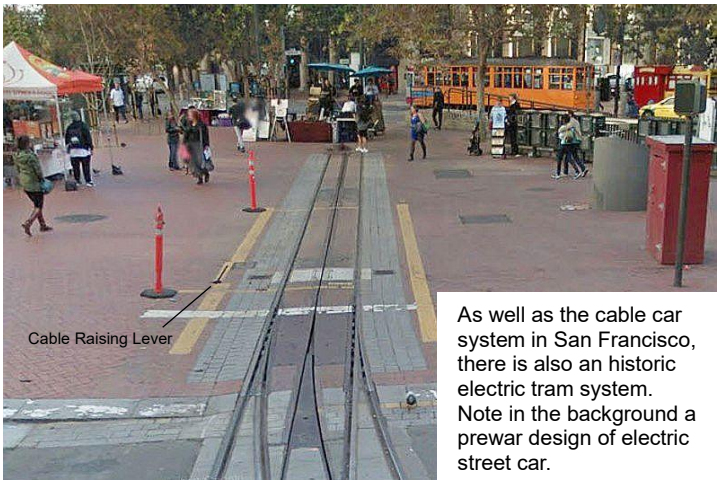
The other problem is that the crossing point is in the middle of a junction with traffic lights. There is a signal box here with a man sitting inside. When he sees a cable car coming, he puts the stop lights on.

Because the traffic is so heavy, there is usually a traffic jam of cable cars down the hill. They have to stop behind each other.

Sometimes the system goes wrong and loses momentum, and sometimes people have to get out and push the cable cars. Note that these photos were taken in 1997.

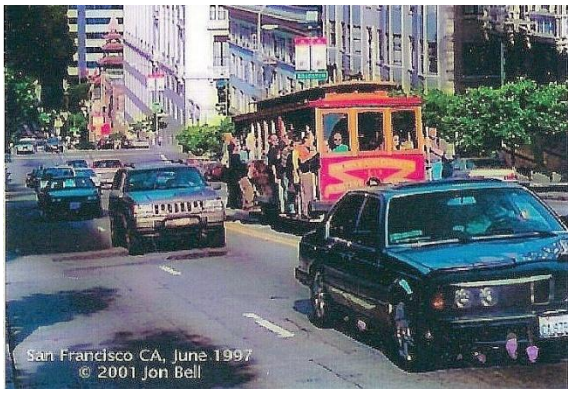
Nowadays, tow trucks are brought in.

The California Street Terminus. As the cable cars are double ended there is no need for a turntable on this line. The cable raising lever can be seen on the left.



As well as the cable car system in San Francisco, there is also an historic electric tram system. Note in the background a prewar design of electric street car.

Historically, there were a number of stops along the routes. The first time John went to San Francisco 40 years ago, for every three or four cars, they would despatch an empty one which would pick people up along the route. The stops were in the middle of the road.

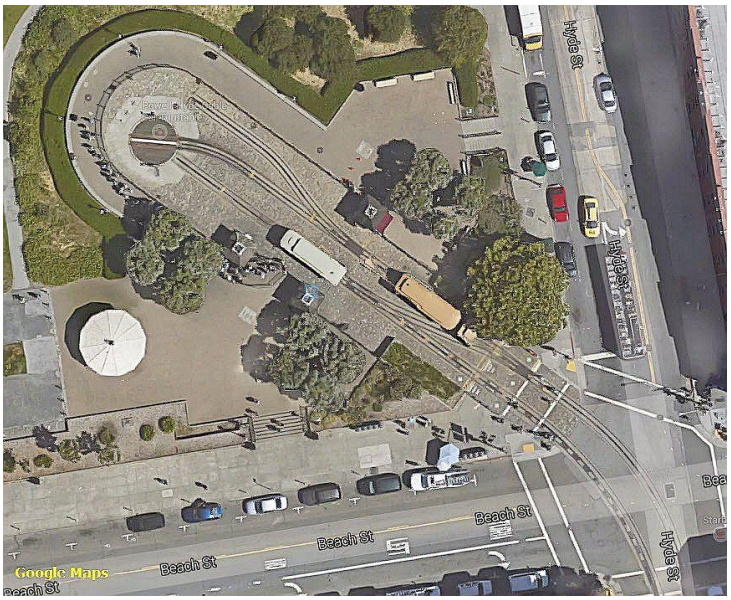


The footboards are quite wide, so people can ride on the outside of the cars.

The single ended cable cars are turned manually on turntables at the termini by the driver and conductor.

People riding on the footboards on Powell. You can see on this photo how steep the street is.

Here is where the line splits, and there will be a cable raising lever in the vicinity. The lines come together and share a centre rail.



The upper right photo shows an aerial view of the Powell/Hyde terminus with the turntable for the single ended cars. The cars have come downhill, and then the track then goes slightly uphill allowing the cars to coast into the terminus. From there they are turned around and go back up the system. The cable goes around the turntable area at the top of the photo, then under the park at the top, and then under Hyde street and back.

The terminus is built on a slight hill, so once the cars have been turned around and reloaded with passengers, the car just freewheels back onto Hyde and picks up the cable again.

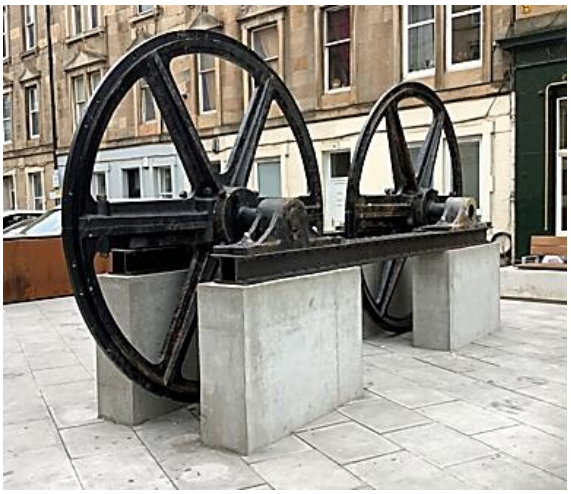
- **Other Cable Car Systems.**

The Great Orme Tramway is on the right. The slot between the rails can be seen.

This is really a funicular because the cars are permanently attached to the cable.

There have been cable car systems in the UK. The last surviving one was on the Isle Of Man.

This was the Upper Douglas Cable Tramway. It was about 1½ miles long and ran up the streets. One car survived, and was renovated. It also had an electric motor fitted so it could go down the horse tramway.



The biggest cable car system in the UK was in Edinburgh, which had a massive system. This existed until 1923 when it was converted. An Edinburgh Cable Car Tram is shown in the photo with the cable slot between the rails. Behind it is an electric tram. Every so often, they would dig up some of the pulleys as shown above, which had been buried and forgotten. The new Edinburgh tram system had an extension built to Leith, and when the tracks were put in, these winding pulleys were found under the street.

The first photo shows a typical American electric street car of the 1930s and 1940s. This is the same street car as shown in the background of the California Street terminus on page 17. America had some massive street car systems until the 1950s and then they got rid of them.

The other photo shows an American style street car, in Milan. The design has been copied from an American design. There are still a few of these in Milan. The historic system is about 5 miles long.

Finally, San Francisco have also bought some ex- Blackpool trams.

- **In Conclusion.**

John recommended a video of a cable car journey through the San Francisco system, which gives a full view of the experience on the California Street Line.

"The Cable Car and how it works"

https://www.youtube.com/watch?v=YNM8Sz9vEHM&t=539s

To view, click on the link, to return to newsletter click on the back arrow at the top left-hand side of the page.

A special thanks to John for proof reading this article

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- **A Message From Paul Windross About Graham Syke's Steam Rocket Bike's Latest Runs.**

I'm sorry I have been absent from Club meetings and workshop.

Graham's modified steam jet bike's first private test run at Elvington, was very promising with a speed of 206 mph at 549 ft running against a 20mph head wind.

Here is an article in Motorcycle News (April 2026): "*Steam Powered Rocket Bike Built In Yorkshireman's Shed Is The Fastest Accelerating Motorcycle Ever".* To see article, click on link.

https://www.motorcyclenews.com/news/2026/april/steam-powered-drag-bike/

The times he recorded under steam power (from the article):

- 0.81 seconds over 60ft from 'standstill', with best ever at 0.72 seconds on an earlier version.
- Over the eighth of a mile, it has clocked 3.17 seconds at 203mph – with a previous 1.96-second run standing as the outright world record for the distance for a two-wheeler.
- At 1000ft, the bike has stopped the clocks in 4.53 seconds at 193mph while a best-ever quarter-mile time of 5.5039 seconds (achieved at the recent Santa Pod Festival of Power event) places it as the second quickest motorcycle ever over the distance – roughly half a second behind Frenchman Eric Teboul, who covered the distance in 4.976 seconds at 290.51mph in September 2022 aboard a hydrogen peroxide rocket-powered bike.

At Sunday's Melbourne meet, when Phil Wood had run it, it was a very cold day.

If you want more details, please contact Graham. *Paul.*

Test Run At Elvington.

Graham's Team At Melbourne

Contact: If you would like to contribute to the Newsletter, the contact is:
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