PERCENTAGE MARK AWARDED: 61.5%

		Examiner's use only
	CLAIMS	
INTEGER	CLAIM 1	
1.1	A system for providing electrical power to a road vehicle, the system comprising:	
1.2	at least a pair of gantries	
1.3	[and] an overhead cable	
1.4	[the overhead cable] supported by a carrier cable extending from the gantries at an elevated position	
1.5	the gantries each having a support leg for engaging the ground either side of a road	
1.6	[and] a beam spanning the road between support legs	
1.7	The overhead cable being connected or connectable to a supply of electricity	
1.8	a first end of the carrier cable being rigidly secured to a first of the gantries	
1.9	a second end of the carrier cable being secured to the second gantry by a resilient biaser arranged to generate tension in the carrier cable	
	CLAIM 2	
2.1	A system according to claim 1	
2.2	wherein the cable has a core	
2.3	and a sheath	
2.4	the core being formed of a first material	
2.5	and the sheath being formed of a second material	

		Examiner's use only	
2.4	CLAIM 3		
3.1	A system according to Claim 1		
3.2	wherein the resilient biaser is a spring		
	CLAIM 4		
4.1	A spring according to claim 3		
4.2	wherein the resistant biaser is secured to the gantries via a flexible connector		
4.3	and is rigidly secured to a first end of the carrier cable		
	CLAIM 5		
5.1	A cable for carrying electricity, particularly in an overhead power system, the cable comprising		
5.2	a core		
5.3	and a sheath		
5.4	the core being formed of a relatively conductive material		
5.5	and the sheath being formed from an elastic material		
5.6	the core having a cross-section which is not circular.		
	The above integers will be used throughout.		
	CONSTRUCTION		
1.1	A system "suitable for" [for] providing electrical power, sets scene/field of invention, to a:	~	
	road vehicle = for example, a tram or trolley car (pg 5, line 9), see definitions of these in client letter, pg 2, line 5–8, which is evidence of common definition of terms. Does not include a car,		
	for example, but any other vehicle which receives power from overhead power supply, e.g. a <u>train</u> or electric bus (see pg 3, lines	V	

9–11) \rightarrow "road-going vehicle, pg 3, ln 1–2. Comprising = including

Page **2** of **19**

but not limited to



		Examiner's use only
1.8	"rigidly secured" = rigid connection between one end of cable and one of gantries (when only two gantries) pg 5, lines 20–22	
1.9	on the other end of cable and second of two gantries (see 1.8) connected by a resilient biaser.	
	Does not need to be actual "end" of carrier cable C, see Figure 2. Can be an intermediate point of carrier cable C.	√
	Important part is that 1.8 and 1.9 features alternate; Fig 2, pg 5 lines 20–22; between successive gantries, attachment means changes (to give tensioning effect to cable C)	~
	"resilient biaser" = includes at least a spring, (either compression or constant force see pg 4, line 11–12), or any other component suitable for generating tension in the carrier cable – deliver appropriate amount of tension (pg 4, lines 8–10).	*
2.1	System having all of features of Claim 1 in addition to	
2.2	"Core" = central portion, electrically conductive, arranged to contact "road-going" vehicle (or train) (pg 3, lines 29-31 and pg 5, lines 41– 43) – 60A, can be copper, copper alloy or other conductor, "Cable" construed as OHE.	~
2.3	"Sheath" – Covers a portion of core – and is protective, feature 61A, can be plastic, polymeric, rubber etc, but should be able to withstand force to alllow securing of OHE to carrier cable.	~
	Must be a portion of core not covered, Figures 4A–4C, to allow electrical contact.	
2.4	"first material", see above 2.2 – construed as conducting material	
2.5	"second material", see above 2.3 – construed as different to first material, i.e. could be conducting, but is a different material than core – is "protective" (pg 5, ln 43)	
3.1	A system having all of features of Claim 1, in addition to	
3.2	"Spring" = any type of spring which can deliver the appropriate amount of tension to carrier cable to maintain tension on OHE (pg 3, lines 23 and pg 4, lines 9–10	~
4.1	System having all of features of Claim 3 + claim 1, in addition to	

		Examiner's use only				
4.2	"flexible connector" = includes at least a ball - and -socket joint, but construed as any non-rigid connection (pg 4, lines 17–19).	~				
	Construed as the spring (of claim 3) is secured with a non-rigid connection to the second gantry of Claim 1.	~				
4.3	"rigidly secured" — spring or resilient biaser is secured with a rigid connection to end of cable which is connected to the second gantry, i.e. the second end of carrier cable (Fig 2, pg 4, ln 17-19)	~				
	Construed as carrier cable secured to the second gantry by means of a rigid connection to the spring (which spring in turn is non-rigidly connected to the second gantry, see 4.2)					
5.1	A cable [for = suitable for] carrying electricity. "Particularly" in an OH power system is <u>not</u> a limiting feature of Claim, as is an <u>one</u> unclear word feature. Construed to mean <u>any</u> electrical wire or cable.	✓ ✓				
	Comprising = including but not limited to					
5.2	Core = 2.2 but w/o construction of cable as OHE cable, not necessarily arranged to contact anything (see 5.1)					
5.3	Sheath = 2.3, but can cover all of Core, since no need for electrical connection with anything (see 5.1)					
5.4	"relatively" – considered not a limitation. Core is conductive, i.e. suitable for use in supplying power to a road-going vehicle via core of OHE cable (pg 5, ln 42–43)	~				
5.5	"elastic" – sheath can be rubber, polymer or any other suitable elastic and <u>insulating</u> material which it is formed from, such that sheath is elastic (to withstand clamping) – pg 5, ln 44–46	~				
5.6	See Figures 4A–4C, core = 60A.					
	Construed to mean general shape of cross-section of core is not circular, but square/rectangle, hexagon, etc.					
	Doesn't need to be strictly that shape, can be rebates (62A) for aiding connection, but overall, viewed impression of core cross-section is not-circular. Dep 0.5	~				
	10.5 MARKS AWARDED 10.5					
000 4 1/5	Page 5 of 19					

_



Examiner's use only NOVELTY- DOC A BACKGROUND, Figures 1A–1D and pg 3, lines 1 to pg 4, lines 6 and pg 4, line 35 to pg 5, line 7 is prior art, since it represents state of knowledge at filing date of A, (if not at priority date) – Need to check content of priority document with client Assume contents entitled to priority and background reflects knowledge at priority date. X = not present, $\checkmark = present$. χ/√ INTEGER \checkmark 1.1 ✓ OH power for trains (pg 3, lines 9-11) and Figure 1A, power to trains on railway RL 1.2 Х pylons ≠ gantries (different arrangement) but are more than 2 pylons (P) see Figure 1A. \checkmark 1.3 OHE cable, feature 0, is suspended (pg 4, lines 37-38) above RL. 1.4 Х Carrier cable C of Fig 1A and dropper lines D support OHE, O, but carrier cable not suspended from gantries above RL (see pg 4, lines 35–39) 1.5 Х pylon only has one leg, or pole at one side of RL, Fig 1A 1.6 Х pylon has arms which extend over rails (pg 3, lines 8 - 9) but arm doesn't extend between two support legs. \checkmark 1.7 OHE cable for providing power to train pg 3, line 7–8. 1.8 Х secured with pulley system PS (see Fig 1D) to maintain tension in cable C 1.9 \checkmark PS provides resilience to provide one unclear word force to carrier cable (tensioning), pg 3, lines 24–28). = Conclusion: Claim 1 novel over background in A because: no gantries with two support legs one present and an end of Cable isn't rigidly secured the carrier to a _ gantry/pylon. 2.1 Х Features of gantry and rigid securing missing from A.

			Examiner's use only
2.2	✓	Core of copper, pg 3, lines 31–32	
2.3	✓	protective cover, pg 3, lines 31–32	✓
2.4	✓	Copper, pg 3, lines 31–32	✓
2.5	~	protective cover, coated or covered on non-contact side) to stop delimination, i.e. to protect when OHE cable is clamped by dropper wires (pg 3, lines 30–32)	
= ALL feat	ures of	Claim 2 found in A	
3.1	х	Features of gantry and rigid securing missing from A	
3.2	х	Pulley system ≠ spring	~
= Claim 3	novel c	over A	
4.1	х	No spring, gantry or rigid securing in doc A	
4.2	х	pulley is connected to pylon P with rigid connection, (else desired tensioning wouldn't occur)	
4.3	~	rigid connection between pulley system PS and carrier cable C (see Fig 10) else tensioning with weights W wouldn't be effective	
= Claim 4	novel c	over doc A, no flexible connection	
5.1	✓	OHE cable, see pg 3, lines 8–10	~
5.2	✓	Core, pg 3, line 30	✓
5.3	✓	protective cover, pg 3, line 31–32	~
5.4	✓	Copper = conductive, pg 3, line 30	~
5.5	х	Not stated as being elastic	~
5.6	х	Not present – Fig 1C, overall cross-section circular, see pg 5, lines 3–5 = "substantially" circular, as per construction	~
= Claim 5	is nove	l over doc. A, since 5.5 missing, and 5.6 missing.	

			Examiner's use only
		Novelty – Doc C = full prior art	✓
1.1	х	thread for clothing not suitable for power provision to trains or trams	
1.1	х	None of structural features of system present	
1.3	Х		
1.4	Х		
1.5	Х		
1.6	Х		
1.7	Х	Connectable to electricity but not an overhead cable as per construction at 1.3	
1.8	Х		
1.9	Х		
= Claim 1	novel	over document C	
2.1	Х		
2.2	х	Core, see sketches of C, but is not an "overhead" cable as construed	
2.3	х	Sheath = coating, but not cable	
2.4	✓	Core= conductive, see sketch	
2.5	✓	"Sheath" = polymer, i.e. insulating (pg 14, lines 12–13; <u>not</u> conducting) so a different material.	
= Claim 2	novel o	over C	
3.1	Х		
3.2	Х		
= Claim 3	novel	over C	

			Examiner's use only
4.1	Х		
4.2	Х		
4.3	х		
= Claim 4	novel o	over C	
5.1	~	as per construction, "particularly" not one unclear word, conductive material to be woven into material – conductive "thread", see sketch and pg 14, lines 19-23) and ln 24-25	~
5.2	✓	Core, see sketch	~
5.3	✓	Sheath = coating, as per construction at 5.3	✓
5.4	✓	"Conductive" core, see sketch	✓
5.5	✓	polymer, see construction at 5.5 flexible too,	
5.6	~	≠ Circular, see pg 14, lines 1–2 circular shape has been "altered"	~
= Claim 5	<u>NOT</u> no	ovel over document C	
1 1	\checkmark	Novelty – doc-D = full prior art	
1.1		System for electrifying railways (pg 15, lines 3–4, and In 16–18)	~
1.2	~	gantries, a series of, spaced as far apart as possible (gantries can be used in place of pylons) (see pg 15, lines 16–20).	~
1.3	✓	"over head cable" (pg 15, ln 15–16)	✓
1.4	✓	suspended from carrier cables (pg 15, line 15–16)	
1.5	~	Considered implicit in use of gantry instead of pylon (pg 15, In16)	~
1.6	✓	"	
1.7	~	Contact on train to receive electrical power (pg 15, line 16-17) – conductive (pg 15, ln 21-24)	~
1.8	Х	No rigid securing, uses pulley or spring	✓

			Examiner's use only	
1.9	~	pulley (and spring), see Fig of D used to provide tension (spring balances out variations in tension from weights, see pg 15, ln 29–41).	~	
= Claim 1	novel,	no rigid connection.		
2.1	Х	Feature 1.8 missing		
2.2	*	has a central, conducting portion to cable to provide conductivity		
2.3	Х	No sheath or cover	✓	
2.4	✓	formed of metal (pg 15, ln 23)		
2.5	х	No sheath		
= Claim 2	Novel,	no sheath (or rigid connection) over D		
3.1	х	No rigid connection		
3.2	✓	helical spring	✓	
= Features of Claim 3 NOT novel over D				
4.1	Х	No rigid connection		
4.2	х	Spring secured to gantry by curved track welded to pylon or gantry (pg 16, line 1-3). ∴ a rigid connection, not "flexible".	✓	
4.3	~	Spring rigidly secured to carrier cable elso tensioning effect would be limited.		
= Claim 4	novel,	no flexible connection	✓	
5.1	~	Overhead cable for providing electrical power, pg 15, In 16–18		
5.2	\checkmark	metal, conducting to provide power		
5.3	х	No sheath		
5.4	✓	Conducting		
5.5	х	No sheath		



Examiner's use only

The same argument can be made by ascribing background of A as CGK of PSA and starting from D, which has most features in common with Claim 1.

D is old and appears not well-known to client (see pg 2, ln 37), whereas background of A states that "it is well known" to provide a system as described in Figures 1A – 1D. A can therefore be considered the CGK of PSA.

The inventive concept is the use of a rigid and a flexible connection of carrier cables to remove the need to tension with weights, as discussed above.

Starting from Doc D and old article about trains, which has most features in common with Claim 1, the difference between inventive concept and D is use of a rigid connection between gantry and carrier cable.

As discussed above, A teaches only use of pulley system in background, and D as CGK doesn't teach or suggest any viable alternative to a weight based pulley system.

Claim 1 therefore involves inventive step over D + CGK from A.

Claim 2

PSA is as above in regard to Claim 1.

CGK is background of A, as discussed above.

Inventive concept of Claim 2 features is to provide an overhead cable with suitable conductivity characteristics which is protected and so can withstand clamping forces (A, pg 5, 42-46) from carrier cables, by providing conducting core and a protective sheath.

Difference between doc. D, closest starting point for development in electrification and inventive concept is use of a protective sheath around conducting cable.

It is not CGK of PSA to use a protective cover to cover at least non-contact side of cable to protect cable (see pg 3, 30-32).

Skilled person would thus incorporate this feature into D without inventive skill.

However, Claim 2 inventive for reasons stated above in regard to Claim 1.

<u>Claim 3</u>

Use of a spring is known from starting point of D -

Claim 3 therefore has no further novel features, and is inventive for reasons stated above in regard to Claim 1 and Claim 2 for PSA starting from D + CGK of A (background).

Examiner's use only

Claim 4

As discussed with regard to Claim 1, PSA is designer of of OHE systems.

CGK of PSA = background of A.

Inventive concept of features of Claim 4 is use of a flexible connection between resilient biaser and gantry, which flexible connection provides for relative motion between biaser/spring and carrier cable.

Starting from D, differences to inventive concept of Claim 4 is use of flexible connector. D teaches a rigid connection between spring and gantry/pylon by welding.

It would not be obvious to allow for relative motion of biaser and carrier cable, since in weight based systems this would place additional strain on weights and could affect tensioning of carrier cable. Moreover, movement of weights could be hazardous (pg 3, ln 37), and movement is therefore undesirable.

Nothing in D or CGK suggests feature.

Features of Claim 4 therefore involve an inventive step.

Claim 5

PSA is designer of cables for OHE systems and understands that cable construction can affect contact between cable and vehicle and clamping of cable (see pg 5, ln 1–5).

CGK is represented by background of A, which would be known to PSA (since stated in A as "well known").

Inventive concept is provision of a cable which has improved contact with tram/trolley-car (vehicle) by provision of a flat contact surface and is able to withstand clamping forces by use of elastic protective sheath. (pg 5, ln 41–47).

			Examiner's use only	
Starting from Doc C, which is full prior art since published Jan 2010, before				
priority da	ate of A	A, difference in C and inventive concept is nothing. document		
provides p	protect	ion to conductive core and is insulating and provides		
elasticity/	flexibil	ity required for functional clothing.	✓	
Claim 5 la	cks an	inventive step. over C + CGK.		
		CMC 1		
		13MARKS AWARDED 13		
		INFRINGEMENT – B.		
		X = not present, \checkmark = present.		
INTEGER	X/✓			
1.1	✓	pg 11, lines 1–5 – trams and electrification project –	✓	
		"system", line 6, and Fig Street view		
1.2	~	Plan view – use buildings, but a single gantry is at each end of tramway (pg 11, 30–31) = 2 gantries.	~	
1.3	✓	OHE Cable, Figure street view	~	
		= CARRIER CABLE OF B		
1.4	~	"Suspension cable" slung between legs of gantry –		
		suspension cable carries OHE cable via "carrier cable" pg		
		member = elevated position so suspension cable "supports"	×	
		carrier cable between gantries		
1.5	✓	first leg, other leg, has to cross tram way to allow tram to		
		reach end of tramway (pg 11, lines 32-35)	✓	
1.6	✓	cross member, 11, ln 35		
1.7	✓	OHE to supply power to tram, requires electrical supply	✓	
1.8	✓	at one gantry, suspension cable is connected to gantry with		
		an anchor bolt static connection (rigid), and so carrier cable	√	



			Examiner's use only
5.1	 ✓ 	OHE cable	 ✓
5.2	~	Core – Conductive – (coated hence part inside = core)	
5.3	✓	Coating — see pg 11, lines 36-37	✓
5.4	~	Conducting (10.5)	
5.5	Х	Not specified what coating is made of	✓
5.6	✓	Square, pg 11, ln 36 + Figures	✓
= <u>NOT</u> all product	feature	es of Claim 5 explicitly present, but <u>could</u> be elastic in actual	
		Dep Con 2	
		MARKS AWARDED 10.5	
		SUFFICIENCY	
What is "a undue bu example.	approp rden be	riate level of tension" ? Possible insufficiency issue, would e required to determine the level, see pg 4 of A, In 8–10, for	
 Coil spring of A may also be insufficient - only just managed to design and manufacture suitable spring – (see letter, ln 16-20) description at pg 5, lines 24-40 ∴ doesn't sufficiently describe spring enough to be able to put into practice. 			
Helical sp	ring ap	pears sufficient – previous experiments used helical.	
		1 MARKS AWARDED 1	
		AMENDMENT	
Claim 4 – reference to "the gantries" unclear – should be the second gantry			
May not be possible to amend post-grant, a broadening amendment? Could try to correct based on Claim 1.			
Also a " first end of the carrier cable" – issue with antecedant basis and seemingly meant to refer to "second end". Again try to connect based on Claim 1.			
Claim 2 –	amend	l to specify which cable	

_____1

Г

Examiner's use only Claim 1 – "Support legs", amend to be the support legs, already introduced in claim lack of antecedent basis for "the second gantry" – amend this, to "a second of the gantries" Could delete Claim 5, not valid and not infringed, or amend to be a square cross-section - this would be novel, arguably inventive given state of art (since no suggestion of cross-section given in C). However, still would not be infringed (?) by B – see advice, re elastic. However B has a square cross-section. Advise amending Claim 5, S27. **MARKS AWARDED 1** ADVICE Claim 1 is novel over all citations and involves an inventive step. Claims 2 to 4 also involve an inventive step, either by virtue of dependency on Claim 1, or additionally through features of said claims. Claim 5 is not novel or inventive. Claims 1–4 infringed by system in press-release B. Claim 5 not infringed (no elastic sheath). What does priority document include? Answer relevant to priority date of claims, and so to relevance of prior art of doc. C, and also to the extent of background knowledge cited in doc. A (if not known at priority date, may affect above novelty analysis for A). Ask to see copy of priority document – client drafted so possible information may not be sufficient for priority claim, could affect analysis RE A only (C and D before priority/filing date) - Advise test purchase of cable, if possible, or ask for more info on cable of B if coating elastic, Claim 5 infringed (advise amending to square cross-section to make claim 5 novel) – not implicitly elastic, since cable may not move in B. \rightarrow : advise amending as discussed to make valid. - Patent granted, can be enforced against Mez. First renewal fee not due until end of July 2020.

Threats – action can be brought by any person aggrieved by threat. Mez
 will likely be aggrieved if they lost tender as a result, for example, of letter to
 Mains Town.

Examiner's use only

However, you have a defence as patent is valid and infringed, so no relief available to Mez in any threats action.

MEZ infringing Claims 1–4 (at least, see above) by acts of using patented system (to install, Mains Town also infringe by use – a town, no private non-commercial defence – however don't advise enforcing against customers) and seemingly by manufacturing or otherwise supplying system.

Can bring infringement proceedings against Mez.

Suggest to Mains Town you provide in place of Mez, since licencing or other royalties from Mez to you would increase cost of Mez tender to Mains Town, and infringement proceedings (which you will bring) will delay project
 This puts you in better position re tender (subject to any contract between MT and Mez).

Advise interim injunction is applied for:

- Are infringing valid claims, reasonabe case

-damages not adequate remedy, one losing contracts, won't regain market share.

 Balance of (in)convenience – Mez have only just been awarded tender, so not difficult to stop process.

Status quo is to keep Mez off market and from supplying infringing system

Have to give cross-understanding for costs, but appears will be awarded, on facts.

- Send letter before action to Mez.

- In infringement proceedings, remedies are: full injunction

damages or account of profits delivery up or destruction declaration of infringement (and validity if contested) and costs/expenses - Litigation expensive - if have no tenders, enough money to fund litigation?

Advise trying to settle first, but this probably won't stop competition on new contracts so may need to take more definite action.

 Advise amending claims as set out in amendment section – do before taking action, reduced chance of opposition by 3rd parties, but if speed very important, start action and then amend <u>later</u>.

MARKS AWARDED 6



Examiner's use only

 \checkmark

Page 19 of 19