

16 Documents

Publication numbers	Title	Current assignees
US8328173 B1	Support stand system for automobile parts	DESFORGE LINDA, ...
US7448606 B1	Large automotive panel paint rack	INNOVATIVE TOOLS & TECHNOLOGIES
CA2134617 A1	Boom-mountable robotic arm	QUANTA SERVICES OF CANADA
US4466506 A	Wire lift device for high tension electric line	
US4183511 A	Work holder for adjustably supporting a workpiece	MAREK RICHARD G
BE-810335 A	Public works machine having a safety device for the manoeuvre of its working equipment	POCLAIN
DE7301906 U		PFISTERER K FABRIK ELEKTROTECHNISCHER SPEZIALARTIKEL
US1501590 A	Temporary support for telephone wires	WILLIAM GINDORFF, ...
US20120175575 A1	Boom mountable robotic arm	QUANTA ASSET MANAGEMENT, ...
CA2710631 A1	Method and apparatus for providing temporary support and a means for relocating energised electrical conductors	QUANTA
CA2620970 A1	Manipulator for lifting the conductors of a live electric line from a first pole to a second pole	HYDRO QUEBEC
WO2008138094 A2	Boom mountable robotic arm	QUANTA ASSET MANAGEMENT, ...
WO2007140569 A1	Remote manipulator for manipulating live multiple sub-conductors in a single phase bundle	QUANTA ASSOCIATES
WO200522714 A2	Apparatus and method for working on conductors	QUANTA SERVICES
CA2661957 A1	Apparatus for precisely manipulating elongate objects adjacent to and such as energized overhead high voltage transmission lines	QSI, ...
WO9817577 A1	Robot vehicle for hot-line job	YASKAWA ELECTRIC, ...

Support stand system for automobile parts US8328173 B1

Current assignees

DESFORGE LINDA
DESFORGE STEVEN L

Inventors

DESFORGE STEVEN L
DESFORGE LINDA

Priority data including date

2010US-12874139 2010-09-01

IPC - International classification

B23Q-001/64*

CPC - Cooperative classification

B05B-013/02/85 B25B-005/00/3 B25B-005/00/6
B25H-001/00/07* B62B-003/04 B62B-003/10

PCL - US patent classification

PCLO: 269071000*

PCLX: 248176100 254002000B 254008000R
269017000

Family

[US8328173](#) B1 2012-12-11

(US8328173)

A support stand system for supporting parts of automobiles for repair work or painting purposes featuring a main base and one or more additional components including a fender stand for supporting fenders, a bumper stand for supporting bumpers, a paint tray, a door stand for supporting doors and hoods, and a sawhorse. The components are interchangeable. Securing devices such as clamp brackets can be used with any of the components.

Large automotive panel paint rack US7448606 B1

Current assignees

INNOVATIVE TOOLS & TECHNOLOGIES*

Inventors

JOHNSON BRYAN THOMAS

Priority data including date

2003US-60526771 2003-12-04

2004US-10982007 2004-11-04

IPC - International classification

B23Q-003/00*

CPC - Cooperative classification

B05B-013/02/85*

PCL - US patent classification**PCLO:** 269017000***PCLX:** 269016000**Family**[US7448606](#)

B1 2008-11-11

(US7448606)

A large automotive panel paint rack has a wheel-mounted base with an adjustable upright post and at least one platform having adjustable support members and hook members. It also has heat and paint-resistant protective rubber sleeves to keep critical adjustment threads free from over-spray. The large panel paint rack permits stationary support of a large part, especially a large automotive panel part for preparation work, repair and painting.

Boom-mountable robotic arm CA2134617 A1

Current assignees

DANFORD TECHNOLOGIES

QUANTA SERVICES OF CANADA*

Inventors

DEVINE CLIFFORD WILLIAM

O'CONNELL DANIEL NEIL

Priority data including date

1994CA-2134617 1994-10-28

1995WO-CA00469 1995-08-04

IPC - International classification

H02G-001/04*

CPC - Cooperative classification

H02G-001/04*

PCL - US patent classification

PCLO: 248049000*

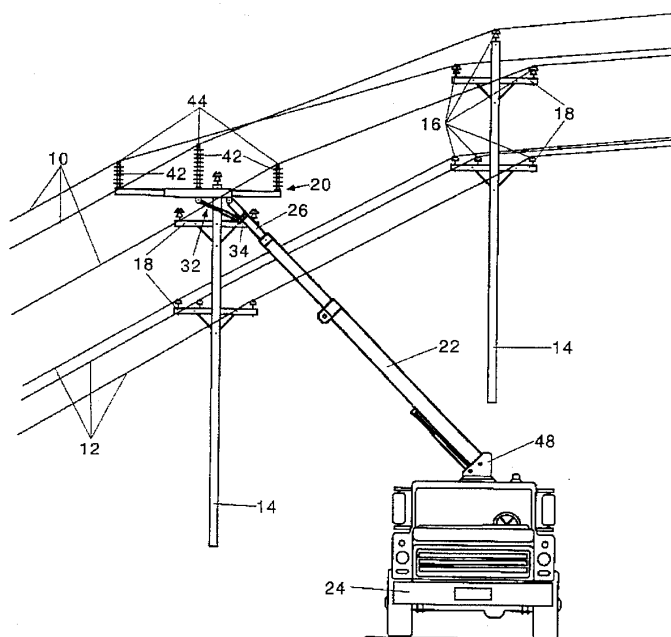
PCLX: 182002110

Family

CA2134617	A1	1996-04-29	EP0788674	B1	1998-06-10
WO9613885	A1	1996-05-09	AT167335	T	1998-06-15
AU3107295	A	1996-05-23	DE69502964	D1	1998-07-16
US5538207	A	1996-07-23	ES2120219	T3	1998-10-16
EP0788674	A1	1997-08-13	DE69502964	T2	1999-03-04
NZ290353	A	1997-11-24	AU703965	B2	1999-04-01
CA2134617	C	1998-01-06	CN1144334	C	2004-03-31
CN1171862	A	1998-01-28			

(EP-788674)

A telescoping robotic arm (20) for temporarily supporting energized power lines (10, 12) to enable repair or replacement of transmission poles, crossarms, insulators and the like. The robotic arm (20) is connectible to the boom (22) of the service vehicle (24) and is operable by remote control. The arm (20) includes a boom adaptor sleeve (26) for receiving the upper end of the boom (22), a frame (28) pivotably coupled to the boom adaptor (26), and at least one telescoping arm (36) coupled to the frame (28) and adjustable between a retracted position and an extended position coaxial with the frame (28). An insulator stack (42) and conductor holder (44) are mounted on each of the telescoping arm (36, 38) and the frame (28) for releasably engaging a corresponding energized conductor (10, 12). The angular position of the frame (28) relative to the boom adaptor (26) is adjustable to permit levelling of the robotic arm (20) irrespective of the boom angle. In one embodiment of the invention, the robotic arm (20) is capable of engaging and supporting both transmission lines (10) supported at the upper end of a transmission tower or pole and distribution lines (12) supported by a lower crossarm (18) directly



underneath the transmission lines (10).

Wire lift device for high tension electric line US4466506 A

Inventors

DOLENTI ALFRED N

Priority data including date

1982US-06339661 1982-01-15

IPC - International classification

B66F-011/04* H02G-001/02

CPC - Cooperative classification

B66F-011/04/4 H02G-001/02*

PCL - US patent classification

PCLO: 182002100*

PCLX: 212292000 254133000R

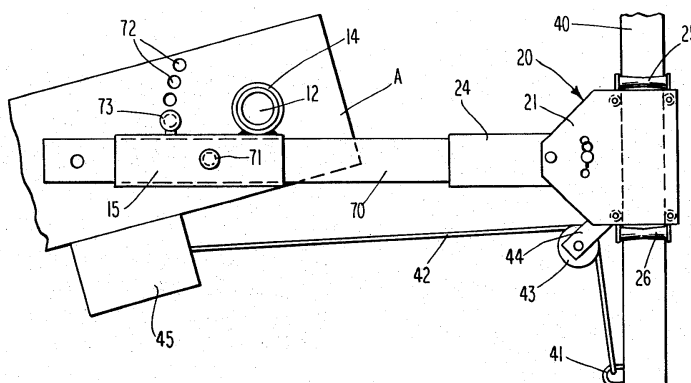
Family

[US4466506](#)

A 1984-08-21

(US4466506)

For use in energized high voltage pole line maintenance work, a vertical mast carrying a temporary crossarm is adjustably attached to an adapter sleeve mounted in lieu of one of the buckets of a dual-bucket truck on the self-leveling cross shaft, so that the axis of the sleeve is always vertically disposed. The mast is slidably received and movable lengthwise within the adapter sleeve. The lineman in the bucket first maneuvers the boom carrying the bucket and the temporary crossarm to a desired position usually adjacent to the pole, under the high voltage line conductor(s). He then, by power means, raises the mast carrying the temporary crossarm, thereby lifting the conductor(s) above the pole top. In so lifting the mast, each of the line conductors drops into a receiving bracket on the temporary crossarm and is automatically locked therein. A quick disconnect for releasing the crossarm from the mast is provided controlled by a lineman on the ground. In a modified form, the mast-carrying sleeve may be mounted on the end of a jib arm extending forwardly from the boom of a bucket truck.



Work holder for adjustably supporting a workpiece US4183511 A

Current assignees

MAREK RICHARD G

Inventors

MAREK RICHARD G

Priority data including date

1978US-05938058 1978-08-30

IPC - International classification

B66C-023/48* B66F-003/08

CPC - Cooperative classification

B66C-023/48 B66F-003/08*

PCL - US patent classification

PCLO: 269017000*

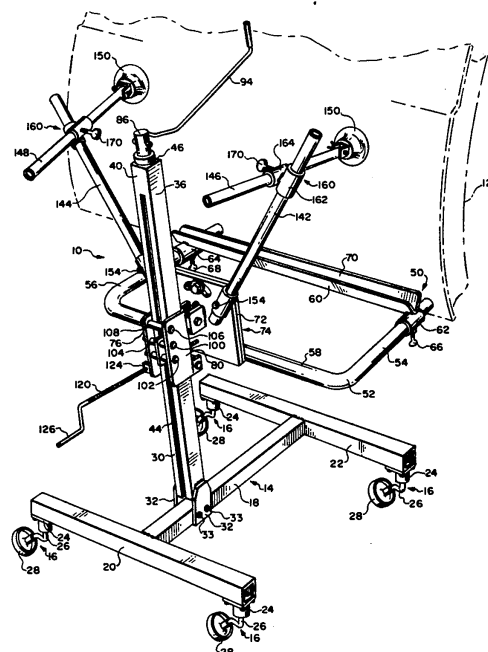
PCLX: 254100000 269060000 269071000

Family[US4183511](#)

A 1980-01-15

(US4183511)

Disclosed herein is a work holder for supporting a workpiece, the work holder including a frame and an upright member supported by the frame and having a longitudinal axis. The work holder also includes a support member for supporting the workpiece, and a bracket member supporting the support member and supported by the upright member for movement longitudinally on the upright member. The support member is also supported for pivotal movement about a generally horizontal axis and about an axis transverse to both the generally horizontal axis and the upright member.



Public works machine having a safety device for the manoeuvre of its working equipment

BE-810335 A

Current assignees

DOCLAIN

POCLAIN*

Inventors

BOURGES BERNARD M

Priority data including date

1973FR-0008621 1973-03-09

IPC - International classification

E02F-003/43* E02F-009/24 F15B-020/00

CPC - Cooperative classification

E02F-003/43/3 E02F-003/43/6* F15B-020/00

PCL - US patent classification

PCLO: 414699000*

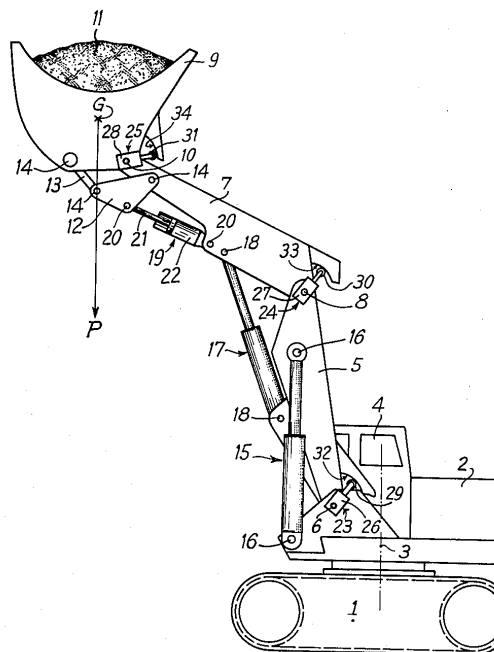
PCLX: 091358000A

Family

[BE810335](#) A 1974-05-16[DE2411051](#) A1 1974-09-26[FR2220630](#) A1 1974-10-04[JPS49120403](#) A 1974-11-18[BR7401504](#) D0 1974-12-03[AR202706](#) A1 1975-07-15[FR2220630](#) B1 1975-08-22[US3905500](#) A 1975-09-16[ES423718](#) A1 1976-05-01[IT1009251](#) B 1976-12-10[GB1462073](#) A 1977-01-19[JPS578252](#) B2 1982-02-16[JP1118332](#) C 1982-10-15[DE2411051](#) C2 1984-03-01

(US3905500)

A loader having a body on which is pivotally mounted a jib system and a bucket and which is operated by fluid motor means is provided with a discharge conduit extending from the bucket raising side of one of the fluid motor means and control valve means to open the conduit to fluid flow whereby movement of the bucket over the loader cab is prevented.



DE7301906 U

<u>Current assignees</u> PFISTERER K FABRIK ELEKTROTECHNISCHER SPEZIALARTIKEL* <u>Priority data including date</u> 1973DE-U001906 1973-01-19	<u>IPC - International classification</u> H02G-001/04* <u>CPC - Cooperative classification</u> H02G-001/04*
<u>Family</u> DE7301906 U 1973-04-19	

Temporary support for telephone wires US1501590 A

Current assignees

GUY COCHRAN

WILLIAM GINDORFF

Inventors

FLOYD VICTOR C

Priority data including date

1921US-01474409 1921-06-02

IPC - International classification

H02G-001/02*

CPC - Cooperative classification

H02G-001/02*

PCL - US patent classification

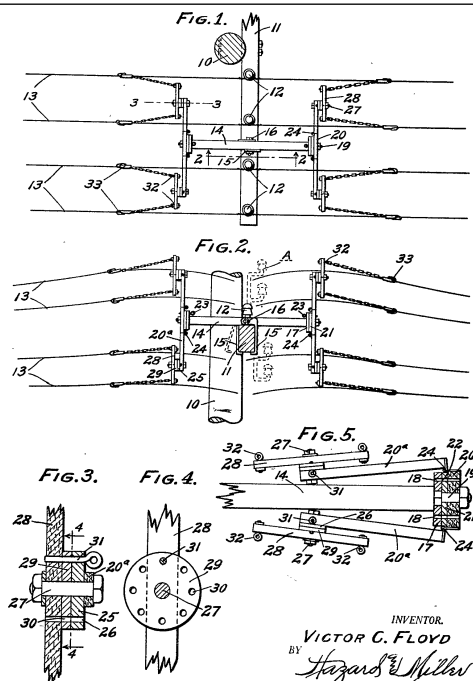
PCLO: 248049000*

PCLX: 248058000 254134300P

A

Family[US1501590](#)

A 1924-07-15



Boom mountable robotic arm US20120175575 A1

Current assignees

QUANTA

QUANTA ASSET MANAGEMENT

Inventors

DEVINE CLIFFORD WILLIAM

O'CONNELL DANIEL NEIL

Priority data including date

2006WO-CA00909 2006-06-02

2007WO-CA00834 2007-05-16

2009US-12227834 2009-04-13

2009US-12451492 2009-11-16

2011US-13374057 2011-12-09

IPC - International classification

H02G-001/08*

CPC - Cooperative classification

G08C-019/16

H02G-001/02*

H02G-001/04

PCL - US patent classification

PCLO: 254134300P

A*

PCLX: 182002100 248258000 254134300R

254134500 269903000

Family

[US2012175575](#)

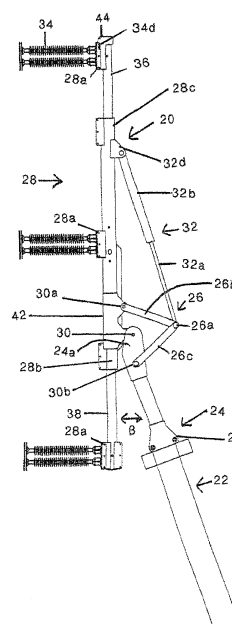
A1 2012-07-12

[US8684333](#)

B2 2014-04-01

(US8684333)

A boom mountable robotic arm for includes a beam pivotally mounted on a boom mounting adaptor, at least two electrically insulated support posts mounted to and spaced apart along the beam, and at least a first rotation coupling and a plurality of second rotation couplings. The first rotation coupling provides pivotal mounting of the beam on the boom mounting adaptor so as to provide selectively controllable rotation of the beam in a substantially vertical plane. The second rotation couplings provide selectively controllable rotation of the electrically insulated support posts about corresponding second axes of rotation between a retracted position substantially laid flush along the beam and a pick-up position ready to receive a conductor being supported. An actuated scissor linkage is mounted to the beam and the boom mounting adaptor for selectively adjusting an angular position of the beam relative to the boom mounting adaptor.



Method and apparatus for providing temporary support and a means for relocating energised electrical conductors

CA2710631 A1

Current assignees

QUANTA*

QUANTA* ASSOCIATES

Inventors

WABNEGGER DAVID

Priority data including date

2010CA-2710631 2010-07-21

2010US-61344432 2010-07-21

2011AU-0282439 2011-07-21

2011CA-2805678 2011-07-21

2011EP-0809120 2011-07-21

2011US-13810634 2011-07-21

2011WO-CA00902 2011-07-21

2013US-13810634 2013-01-16

2015US-14946474 2015-11-19

2016AU-0208252 2016-07-25

IPC - International classification

F16M-013/02 H02G-001/02 H02G-001/04*

H02G-007/05

CPC - Cooperative classification

F16M-013/02/2* H02G-001/02 H02G-001/04

H02G-007/05

PCL - US patent classification

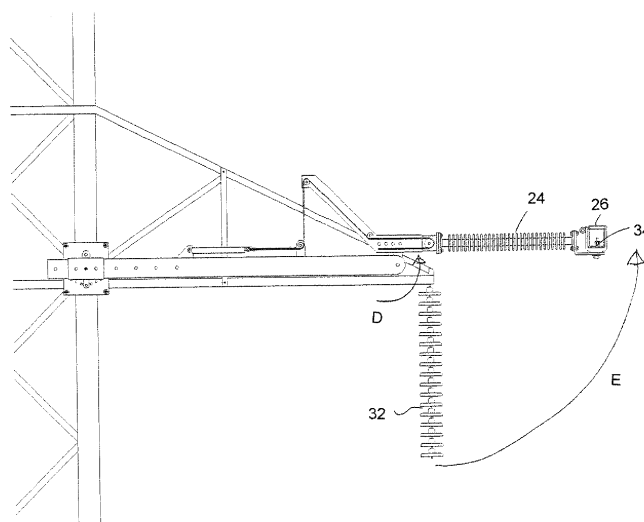
PCLO: 254134300P 248070000*
A*

Family

[CA2710631](#) A1 2012-01-21[WO2012009806](#) A1 2012-01-26[CA2805678](#) A1 2012-01-26[AU2011282439](#) A1 2013-03-14[EP2596559](#) A1 2013-05-29[US2013134369](#) A1 2013-05-30[EP2596559](#) A4 2014-01-08[NZ607350](#) A 2014-10-31[US9197041](#) B2 2015-11-24[CA2710631](#) C 2015-11-24[US2016076696](#) A1 2016-03-17[AU2011282439](#) B2 2016-07-28[AU2016208252](#) A1 2016-08-11[EP2596559](#) B1 2016-12-14[PT2596559](#) T 2017-03-15[DK2596559](#) T3 2017-03-20[EP3148023](#) A1 2017-03-29[HRP20170397](#) T1 2017-05-19[ES2618909](#) T3 2017-06-22[PL2596559](#) T3 2017-06-30

(EP3148023)

A temporary support (10) for relocating energized conductors (34) is described. The temporary support (10) comprises a support arm (12) and a crank arm (16). The support arm (12) has a cantilevered end (12b) and a base end (12a), the crank arm (16) has upper and lower portions (16a, 16b), and is pivotally mounted on the cantilevered end (12b) of the support arm (12). The lower portion (16b) of the crank arm (16) is elevatable relative to the upper portion (16a). A two-stage actuator (20, 21) cooperates between the crank arm (16) and the support arm (12). A first actuation stage of the two stage actuator (20, 21) elevates the lower



portion (16b) of the crank arm (16) relative to the upper portion (16a), and a second actuation stage of the two stage actuator (20, 21) rotates the crank arm (16) relative to the support arm (12) about the cantilevered end (12b).

Manipulator for lifting the conductors of a live electric line from a first pole to a second pole

CA2620970 A1

Current assignees

HYDRO QUEBEC*

Inventors

LESSARD ANDRE

Priority data including date

2008CA-2620970 2008-01-31

2009CA-2712531 2009-01-26

2009WO-CA00050 2009-01-26

IPC - International classification

H02G-001/00 H02G-001/02 H02G-001/04*

H02G-007/00

CPC - Cooperative classification

H02G-001/00 H02G-001/02* H02G-001/04

H02G-007/02

PCL - US patent classification

PCLO: 254134300P

A*

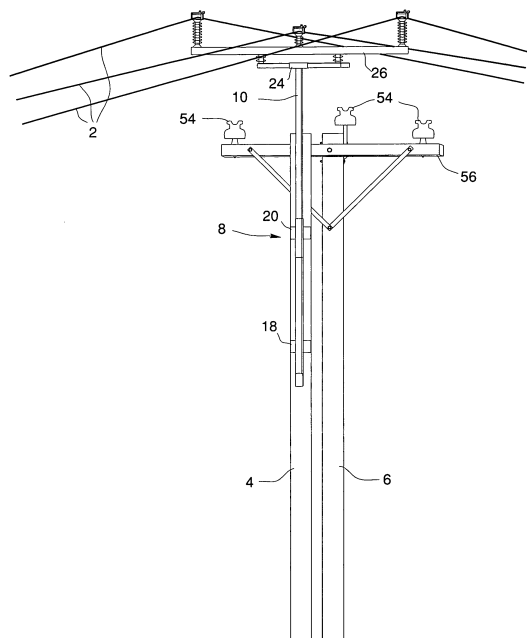
PCLX: 254134300R 294174000

Family

[CA2620970](#) A1 2009-07-31[WO2009094747](#) A1 2009-08-06[CA2712531](#) A1 2009-08-06[US2011011987](#) A1 2011-01-20[US8714525](#) B2 2014-05-06[BRPI0907027](#) A2 2015-07-07[CA2712531](#) C 2016-11-08

(WO200994747)

The invention relates to a manipulator for lifting the conductors of a live electric line from a first pole to a second pole. The manipulator includes a vertical lifting assembly on which is mounted a transverse movement assembly. The vertical lifting assembly is attached to one of the poles by a fastening assembly. The transverse movement assembly includes a mobile member provided with a number of insulators on which are mounted conductor holders capable of receiving the conductors of the electric line to be lifted. The transverse movement of the mobile member and the movement of another mobile member of the lifting assembly are carried out by driving members controlled by a control unit.



Boom mountable robotic arm WO2008138094 A2

Current assignees

DEVINE CLIFFORD WILLIAM
QUANTA
QUANTA ASSET MANAGEMENT
QUANTA ASSOCIATES
QUANTA SERVICE OF CANADA
QUANTA SERVICES

Inventors

DEVINE CLIFFORD
O'CONNELL DANIEL

Priority data including date

2007EP-0719758 2007-05-16
2007NZ-0581937 2007-05-16
2007NZ-0601702 2007-05-16
2007WO-CA00834 2007-05-16
2009US-12451492 2009-11-16
2012US-13555835 2012-07-23
2013US-14083374 2013-11-18
2014EP-0176807 2007-05-16
2014EP-0176808 2007-05-16

IPC - International classification

B25J-013/00 B25J-018/04 B66C-023/66
H02G-001/00 H02G-001/02* H02G-001/04
H02G-001/08

CPC - Cooperative classification

H02G-001/04* Y10S-269/903

PCL - US patent classification

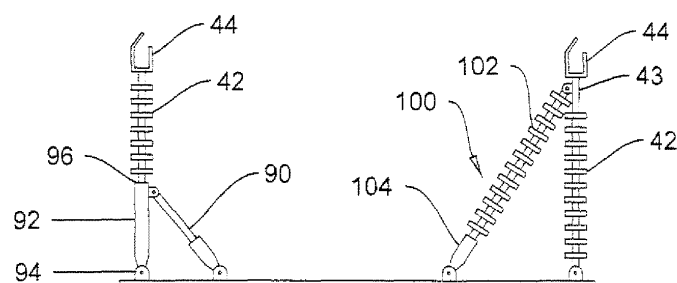
PCLO: 254134300P 254134300P 254134300P
 A* A* A*
PCLX: 182002100 248288110 254134300R
254134500 269903000

Family

WO2008138094	A2	2008-11-20	US2014069717	A1	2014-03-13
CA2687346	A1	2008-11-20	NZ601702	A	2014-03-28
CA2687346	E	2008-11-20	EP2149180	B1	2014-11-05
AU2007353299	A1	2008-11-20	DK2149180	T3	2014-12-08
WO2008138094	A3	2009-02-26	EP2814125	A1	2014-12-17
EP2149180	A2	2010-02-03	EP2814126	A1	2014-12-17
US2010133490	A1	2010-06-03	AU2007353299	B2	2015-01-29
IN8187/DELNP/2009	A	2010-06-25	ES2527916	T3	2015-02-02
CN101803134	A	2010-08-11	PT2149180	E	2015-02-09
CA2687346	C	2011-12-20	SI2149180	T1	2015-02-27
US8226069	B2	2012-07-24	HRP20150013	T1	2015-03-27
NZ581937	A	2012-09-28	AU2007353299	C1	2015-05-14
US2012286108	A1	2012-11-15	US9038989	B2	2015-05-26
EP2149180	A4	2013-07-24	CY1115872	T1	2017-01-25
US8585020	B2	2013-11-19	IN286580	B	2017-08-25

(EP2814126)

A boom mountable robotic arm (20) for temporarily supporting an elongate conductor comprises a rigid member (28) adapted for mounting onto an upper end of a boom



(22), an electrically insulated support post (42) mounted to said rigid member, at least two rotation devices for selectively controllable rotation of said rigid member and said at least one electrically insulated support post about corresponding axes of rotation, wherein a first axis of rotation (68) is an axis of rotation extending substantially laterally across said rigid member for rotation of said at least one electrically insulated support post relative to and substantially along said rigid member, and wherein a second axis of rotation extends laterally of and between said rigid member and said upper end of said boom for rotation of said rigid member relative to said boom in a substantially vertical plane so as to level said rigid member.

Remote manipulator for manipulating live multiple sub-conductors in a single phase bundle

WO2007140569 A1

Current assignees

QUANTA
QUANTA ASSET MANAGEMENT
QUANTA ASSOCIATES*
QUANTA SERVICE OF CANADA
QUANTA SERVICES

Inventors

DEVINE CLIFFORD WILLIAM
O'CONNELL DANIEL NEIL

Priority data including date

2006WO-CA00909 2006-06-02
2009US-12227834 2009-04-13
2013US-14070555 2013-11-03
2015US-14827976 2015-08-17

IPC - International classification

B25J-005/00	B63B-035/03	B65H-059/00
B66C-001/42	B66C-023/70	B66F-003/00
E21C-029/16	F16L-003/00	F16M-013/00
H02G-001/02*	H02G-001/04	H02G-001/08
H02G-007/12		

CPC - Cooperative classification

B66C-001/42	B66C-023/66	H02G-001/02
H02G-001/04*		

PCL - US patent classification

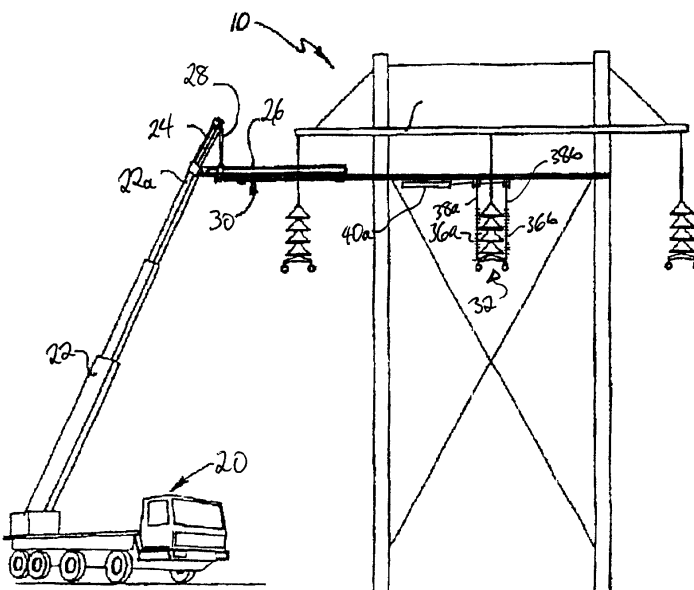
PCLO:	294081600*	254134000*
PCLX:	174040000R	248049000
	254134300R	248544000

Family

WO2007140569	A1	2007-12-13	NZ573791	A	2012-01-12
CA2653812	A1	2007-12-13	US8573562	B2	2013-11-05
AU2006344329	A1	2007-12-13	CA2653812	C	2015-02-10
EP2036179	A1	2009-03-18	EP2036179	A4	2015-03-25
US2009206305	A1	2009-08-20	US2015357802	A1	2015-12-10
AU2006344329	B2	2011-06-02	EP2036179	B1	2018-01-31

(EP2036179)

A manipulator for separating sub-conductors in an energized single phase bundle includes a rigid support member and first and second actuators mounted on the support member, wherein each actuator is independently actuatable of the other. Insulators are mounted on each actuator. A selectively releasable coupler is mounted on each insulator for selectively releasable coupling of each insulator to a corresponding sub-conductor. The actuators extend corresponding insulators independently of one another from the support member to thereby separate from each other by an optimized separation distance the distal ends of each insulator. When the corresponding sub-conductors of the single phase bundle are releasably coupled to the corresponding distal ends of the insulators the surge impedance loading of the single phase bundle may be improved by separation of the corresponding distal ends of the insulators and the sub-conductors by the



optimized separation distance.

Apparatus and method for working on conductors WO200522714 A2

Current assignees

QUANTA
QUANTA SERVICES*
QUANTA SERVICES* HOUSTON
QUANTA SERVICES* OF CANADA

Inventors

DEVINE CLIFFORD
O'CONNELL DANIEL NEIL

Priority data including date

2003US-60498707 2003-08-29
2004AU-0302823 2004-08-27
2004EP-0786590 2004-08-27
2004US-10498707 2004-08-27
2004US-10927467 2004-08-27
2004WO-US27807 2004-08-27
2006EP-0076673 2004-08-27
2006EP-0076674 2004-08-27
2006EP-0076675 2004-08-27
2009US-12379729 2009-02-27
2011AU-0201704 2011-04-15
2012AU-0203376 2012-06-08

IPC - International classification

F16C-013/00 H02G-001/02* H02G-001/04*
H02G-005/00 H02G-005/06 H02G-007/00
H02H-007/06

CPC - Cooperative classification

H02G-001/02* H02G-001/04*

PCL - US patent classification

PCLO: 307147000* 307147000*
PCLX: 174068200

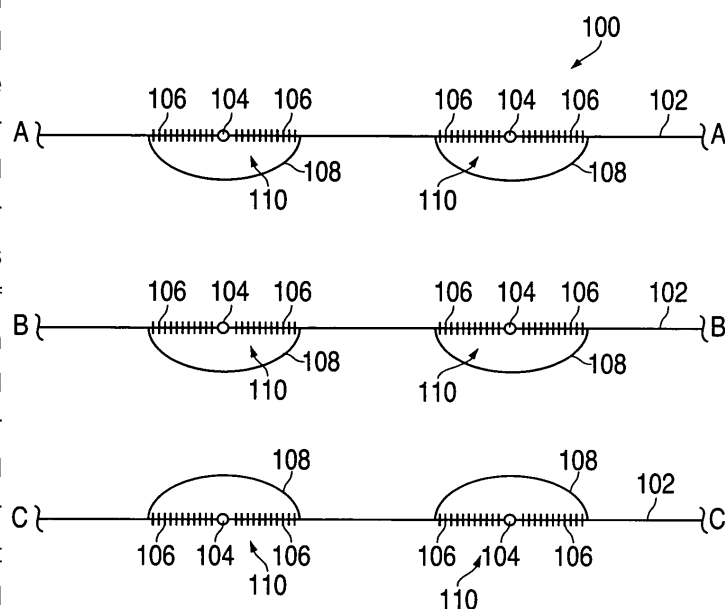
Family

WO2005022714	A2	2005-03-10	AU2011201704	A1	2011-05-12
CA2537218	A1	2005-03-10	PT1661220	E	2011-05-23
AU2004302823	A1	2005-03-10	DK1661220	T3	2011-05-23
US2005133244	A1	2005-06-23	ES2361318	T3	2011-06-16
WO2005022714	A3	2005-09-01	SI1661220	T1	2011-06-30
EP1661220	A2	2006-05-31	AU2011201704	B2	2012-03-08
CN1860653	A	2006-11-08	AU2012203376	A1	2012-06-28
EP1724892	A2	2006-11-22	CA2537218	C	2013-07-30
EP1724891	A2	2006-11-22	US8508081	B2	2013-08-13
EP1724890	A2	2006-11-22	EP1724892	A3	2014-03-19
EP1724889	A2	2006-11-22	EP1724891	A3	2014-03-19
EP1727251	A2	2006-11-29	EP1724889	A3	2014-03-19
EP1739803	A2	2007-01-03	EP1724890	A3	2014-06-18
EP1796235	A2	2007-06-13	EP2849296	A1	2015-03-18
EP1795769	A2	2007-06-13	EP2866320	A2	2015-04-29
EP1795769	A3	2007-10-24	EP2866320	A3	2015-07-01
EP1739803	A3	2007-12-19	CY1111890	T1	2015-11-04
NZ545763	A	2008-12-24	EP1724890	B1	2016-02-03
CN101431220	A	2009-05-13	DK1724890	T3	2016-04-25
US7535132	B2	2009-05-19	ES2570331	T3	2016-05-17

CN101442195	A	2009-05-27	HRP20160435	T1	2016-05-20
CN101483326	A	2009-07-15	EP1724892	B1	2016-07-13
CN101483325	A	2009-07-15	DK1724892	T3	2016-09-26
CN101483324	A	2009-07-15	EP2866320	B1	2016-10-05
CN101494360	A	2009-07-29	PT1724892	T	2016-10-25
NZ567027	A	2009-07-31	DK2866320	T3	2017-01-16
US2009195083	A1	2009-08-06	PT2866320	T	2017-01-17
CN101505040	A	2009-08-12	PL1724892	T3	2017-01-31
CN101546893	A	2009-09-30	ES2599307	T3	2017-02-01
EP1796235	A3	2010-01-27	EP2849296	B1	2017-03-15
EP1727251	A3	2010-02-17	DK2849296	T3	2017-06-06
EP1739803	B1	2010-04-07	PT2849296	T	2017-06-09
AT463871	T	2010-04-15	ES2617541	T3	2017-06-19
DE602004026487	D1	2010-05-20	PL2866320	T3	2017-06-30
EP1661220	B1	2011-02-16	ES2628238	T3	2017-08-02
AT498932	T	2011-03-15	PL2849296	T3	2017-09-29
DE602004031432	D1	2011-03-31	EP1727251	B1	2017-12-20

(EP2866320)

Apparatus for working on conductors having sections located between first and second dead ends without disrupting power delivery from an upstream position electrically upstream of said dead ends to a downstream position electrically downstream of said dead ends, comprises a first conducting means (102) extending on opposite sides of said dead ends and having a section strung between said first and second dead ends, a second conducting means (114) strung alongside and proximate said first means for conducting electricity, a first means for transferring power electrically connecting said second means for conducting electricity to said first means for conducting electricity at a first segment of said first means for conducting electricity oppositely disposed said section of said first means for conducting electricity strung between said dead ends, on an opposite side of said first dead end opposite to said section, and a second means for transferring power electrically connecting said second means for conducting electricity to said first means for conducting electricity at a second segment of said first means for conducting electricity oppositely disposed said section of said first means for conducting electricity strung between said dead ends, on an opposite side of said second dead end opposite to said section, wherein current bypasses said first means for conducting electricity upstream of said first dead end and travels through said second means for conducting electricity and is returned to said first means for conducting electricity downstream of said second dead end.



Apparatus for precisely manipulating elongate objects adjacent to and such as energized overhead high voltage transmission lines

CA2661957 A1

Current assignees

CONNELL DANIEL NEIL O

QSI

QUANTA*

Inventors

DEVINE CLIFFORD WILLIAM

O'CONNELL DANIEL NEIL

Priority data including date

2002US-60357116 2002-02-19

2003CA-2419417 2003-02-19

2003US-10248784 2003-02-18

IPC - International classification

B25J-015/00 B66C-001/26 B66C-001/62*

B66C-001/64 B66C-023/687 B66C-023/69

B66C-023/70 H02G-001/04

CPC - Cooperative classification

B66C-023/70/2* H02G-001/04

PCL - US patent classification

PCLO: 414680000*

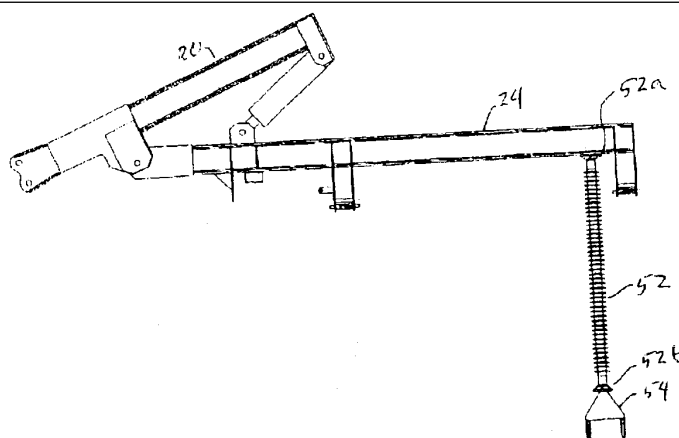
PCLX: 212168000

Family

[CA2661957](#) A1 2003-08-19[CA2659700](#) A1 2003-08-19[CA2419417](#) A1 2003-08-19[US2003156936](#) A1 2003-08-21[US6837671](#) B2 2005-01-04[CA2419417](#) C 2009-04-14

(US6837671)

A remotely-controlled manipulator for mounting to the end of a telescopic boom, includes at least one releasable support mounted to a cross member for releasably holding or clamping an elongate object.



Robot vehicle for hot-line job WO9817577 A1

<u>Current assignees</u> KYUSHU ELECTRIC POWER YASKAWA ELECTRIC <u>Inventors</u> INOKUCHI HIROFUMI TOMIYAMA TOSHIHIDE YURITA YOSIHIRO MURAI SHINJI HIRANO YUSUKE HARADA SHINJI TSURUTA KENGO MOTOMURA YOUICHI IMAI KAZUTOSHI HAGA YOSHIAKI NAKAMURA YOSHIKATSU HASHIGUCHI YUKIO MATSUZAKI MITSUHIRO YAMADA HIROMICHI MISHIMA AKIHIKO MARUYAMA YOSHINAGA YANO KYOJI NAKASHIMA MORIYUKI YAMASHITA OSAMU <u>Priority data including date</u> 1996JP-0276671 1996-10-18 1997WO-JP03734 1997-10-16 1999US-09284674 1999-05-17 2001US-09880317 2001-06-13	<u>IPC - International classification</u> B25J-005/00 B25J-005/06 B25J-009/00 B25J-015/04 B66F-009/06 B66F-009/24 B66F-011/04* H02G-001/02 <u>CPC - Cooperative classification</u> B25J-005/06* B25J-009/00/84 B25J-015/04 B66F-011/04/6 H02G-001/02 Y10T-483/15 <u>PCL - US patent classification</u> PCLO: 483013000* 414800000* PCLX: 182002110 212284000 212332000 318568100 414728000 700052000 700247000 700250000 901001000 901008000 901050000
--	---

Family					
WO9817577	A1	1998-04-30	KR100494235	B1	2005-06-13
CA2268959	A1	1998-04-30	CA2268959	C	2005-07-26
EP0940366	A1	1999-09-08	EP0940366	A4	2006-11-15
KR20000049242	A	2000-07-25	JP4005639	B2	2007-11-07
TW400272	B	2000-08-01	EP0940366	B1	2008-12-10
US6325749	B1	2001-12-04	DE69739160	D1	2009-01-22
US2001055525	A1	2001-12-27	ES2321671	T3	2009-06-09
US6540473	B2	2003-04-01			

(EP-940366)

A robot vehicle for hot-line job for transmission and distribution lines which comprises an insulating boom formed of an insulating material at a tip end stage of multiple stage booms, a base end of which is supported on an elevated work

vehicle to be capable of swinging, pivoting up and down, and extending and contracting, and a frame provided on the tip end of the insulating boom, the frame mounting thereon double arm manipulators of multishaft construction for performing a distribution work, a slide device for sliding independently these right and left double arm manipulators front to rear, and lifting arms of multishaft construction having a function of lifting a heavy article, so as to allow an operator to perform remote control. An electric actuator is used for driving the double arm manipulators and the slide device, and hydraulic manipulators for driving the lifting arms. Accordingly, a robot vehicle for hot-line job is provided to mount thereon a third arm which enables highly accurate positioning of the manipulators, remote control by an operator and automatic operation through a teaching-playback, has a function of lifting a heavy article, and is small-sized and lightweight.

<IMAGE>