



HERBERT SMITH
FREEHILLS
KRAMER

PTAB Oral Argument

Godbersen-Smith Construction Co. d/b/a Gomaco Corp.

v.

Guntert & Zimmerman Const. Div., Inc.

August 20, 2025

Case No.: IPR2024-00835

Patent No.: 11,535,318

Kramer Levin is now HSF Kramer

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

IPR2024-00835 ('318) – Instituted Grounds

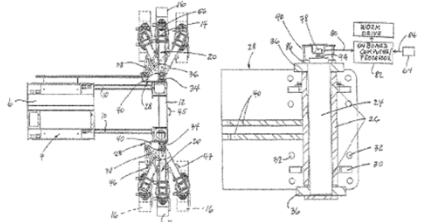
Ground	Challenged Claims	35 U.S.C. §	References
I	1-8	103	CIII, Rio
II	2-7	103	CIII, Rio, Smolders

Summary of the Arguments

The Challenged Claims are not obvious because:

- CIII in view of Rio does not disclose a slew drive rotatably coupled to a jacking column;
 - Petitioner has no reference suggesting to rotatably couple a crawler track to a fixed jacking column;
 - Petitioner's argument relies upon hindsight and uninformative state-of-the-art references;
- neither CIII or Rio suggest on-the-fly steering of a slipform paver under load;
 - Both CIII and Rio lock their swing leg while in operation, preventing on-the-fly steering;
- strong objective indicia evidence of long-felt need, industry praise and skepticism, copying, and commercial success support patentability;
 - Petitioner does not dispute access to the S600 and GP3's substantial similarity, proving copying;
 - Evidence shows a decade long need for more maneuverable pavers;
 - Industry experts were skeptical of G&Z's design;
 - Industry experts praised G&Z's technology; and
 - G&Z's technology led to commercial success.

Overview of the '318 Patent

(12) United States Patent Guntert, Jr. et al. (54) AUTOMATICALLY ADJUSTING SWING LEGS FOR MOUNTING AND ALIGNING AND REORIENTING CRAWLERS (71) Applicant: GUNTERT & ZIMMERMAN CONST. DIV., INC., Ripon, CA (US) (72) Inventors: Ronald M. Guntert, Jr., Stockton, CA (US); Gerald L. Dahlinger, Ripon, CA (US); Richard Wood Francis, Stockton, CA (US) (73) Assignee: Guntert & Zimmerman Const. Div., Inc., Ripon, CA (US) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer. (21) Appl. No.: 16/820,449 (22) Filed: Mar. 16, 2020 (65) Prior Publication Data US 2020/0255074 A1 Aug. 13, 2020 Related U.S. Application Data (63) Continuation of application No. 16/222,714, filed on Dec. 17, 2018, now Pat. No. 10,589,807, which is a (Continued) (51) Int. Cl. B62D 11/20 (2006.01) B62D 55/084 (2006.01) (Continued) (52) U.S. Cl. CPC B62D 55/084 (2013.01); B62D 7/06 (2013.01); B62D 11/003 (2013.01); B62D 11/20 (2013.01); (Continued)	(10) Patent No.: US 11,535,318 B2 (45) Date of Patent: *Dec. 27, 2022 (58) Field of Classification Search CPC B01C 23/04; B62D 7/06; B62D 11/20; B62D 55/0655; B62D 55/084 (Continued) (56) References Cited U.S. PATENT DOCUMENTS 3,252,349 A 5/1966 Widdington 3,572,458 A 3/1971 Tas (Continued) FOREIGN PATENT DOCUMENTS DE 19814052 10/1999 DE 10 2011 014 666 A1 11/2001 DE 102011010479 3/2012 OTHER PUBLICATIONS U.S. Appl. No. 13/669,096, "Office Action", dated Sep. 26, 2012, 7 pages. (Continued) Primary Examiner — Gary S Hartmann (74) <i>Attorney, Agent, or Firm</i> — Kilpatrick Townsend & Stockton LLP (57) ABSTRACT A swing leg assembly, coupled to a paving machine for spreading, leveling and finishing concrete, includes a pivotable swing leg coupled to the paving machine. The swing leg may pivot between multiple angular orientations relative to the paving machine. A jacking column is coupled to the swing leg, and a crawler track is coupled to the jacking column. A slew drive coupled to the jacking column and crawler track rotates the crawler track relative to the jacking column between multiple angular orientations. A processor using sensors determines the angular positions of the swing leg and crawler track, and in response to determining a change in angular orientation of the swing leg controls the slew drive to cause the crawler track to rotate relative to the jacking column. 8 Claims, 18 Drawing Sheets 
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A specialized swing leg assembly for a slipform paver, which allows an operator to easily and quickly reorientate the angle of the swing legs and crawler tracks **on-the-fly**.

A closed loop feedback system of angular position transducers coordinate the operation of the:

- Swing leg hydraulic actuator; &
- Slew drive

' 318 Patent at 6:23-57; 12:43-13:2

Overview of the '318 Patent

Each swing leg assembly is coupled to the paving machine and configured to pivot.

Each swing leg has:

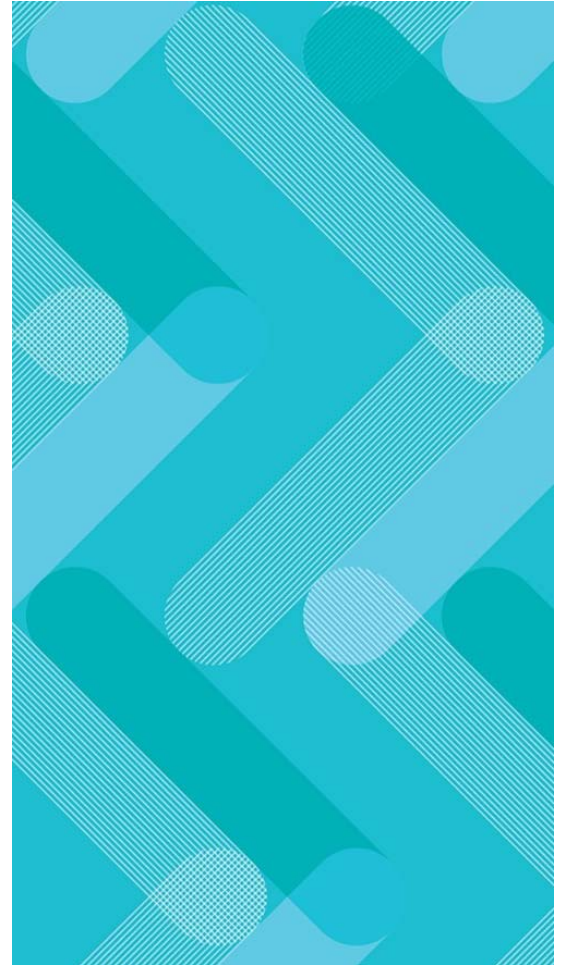
- a jacking column;
- a crawler track rotatably coupled to the jacking column;
- a slew drive coupled to the jacking column and the crawler track; and
- angular position transducers for sending the angular position of both the swing leg and the crawler track to the processor for determination of control signals

'318 Patent, Claim 1

1. A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction for spreading, leveling, and finishing concrete into a form having a generally upwardly exposed, finished concrete surface and terminating in lateral concrete sides, the swing arm assembly comprising:

- a swing leg configured to be coupled to the paving machine, and configured to pivot about a first axis to a first angular orientation relative to the paving machine;
- a jacking column coupled to the swing leg;
- a crawler track rotatably coupled to the jacking column, wherein the crawler track is configured to rotate about a second axis to a second angular orientation relative to the jacking column;
- a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column;
- a first sensor configured to emit a first signal corresponding to the first angular orientation;
- a second sensor configured to emit a second signal corresponding to the second angular orientation; and
- a processor configured to:
 - receive the first signal from the first sensor, and the second signal from the second sensor;
 - determine a change of the first angular orientation based on the first signal;
 - in response to determining the change of the first angular orientation, determine a target second angular orientation based on the determined change of the first angular orientation and the second angular orientation based on the second signal; and
 - send a control signal to the slew drive in order to cause the second angular orientation of the crawler track to rotate to the target second angular orientation.

Overview of the Prior Art



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

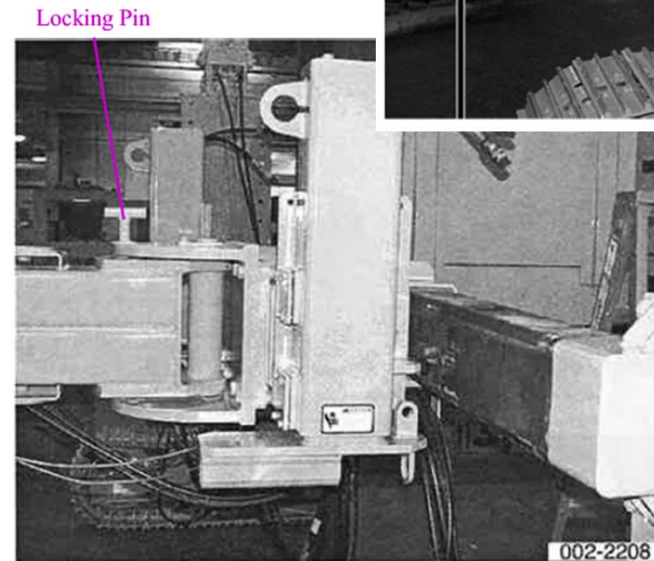
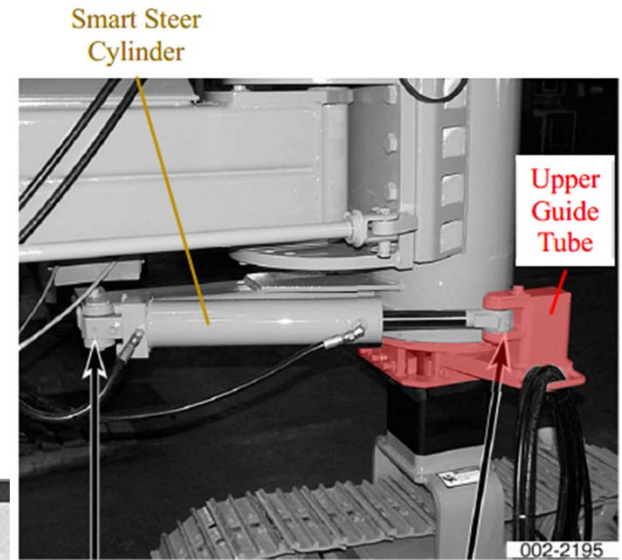
CIII

CIII is a **traditional paving machine** that implements the conventional swing leg/crawler track relocation process.

P.O. Response, 8-11; Pet. 13, 16.

CIII's swing leg has locking pins that hold the swing leg in place while under load.

The pins are only removed after the machine is supported, the crawler track is lifted off the ground, and the hydraulic pivot cylinder is engaged to pivot the swing leg



Rio

Rio's road milling machine ***must stop and raise its crawler track*** before adjusting its swing leg.

Rio, 7:62-8:27; P.O. Response, 11-17.

Rio's "**anti-swing actuator**" prevents the swing leg from moving while operating under load and is only released when "the machine is safely stopped."

Rio, 6:27-35

Next, the operator engages the pivot switch which sends a pivot switch command **112** to the controller **32**, commanding that the one ground engaging unit **20** move from the projecting position to the retracted position. In response to receiving the permissive signals indicating that the machine is safely stopped, the recess cover is open, and the one ground engaging unit **20** is suitably elevated, the controller **32** activates the anti-swing actuator **85** and the anti-rotate actuator **98** to release the corresponding protrusions **86, 102** from engagement with the respective receptacles **88, 96**. Alternatively, these locking devices could be released by separate operator controlled switches or even manually, but automatic release is provided for the convenience of the operator.

Rio

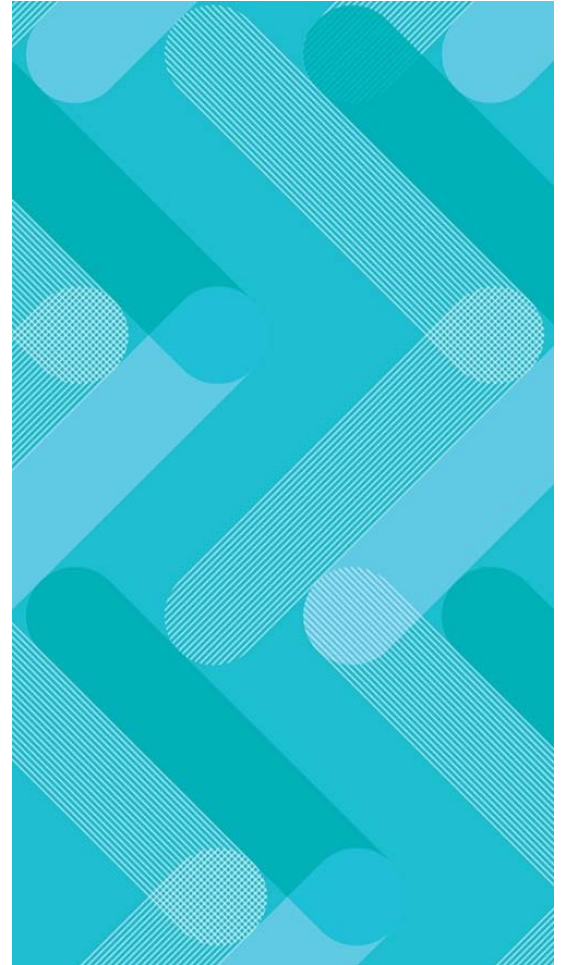
Rio's physical implementation was put into the market in 2007 as CAT's PM102 Cold Planer.

P.O. Response at 14-17; Ex. 2018

The PM102 used a conventional steering cylinder on its on movable leg, not a hydraulic rotary actuator of any kind.



Claim Construction



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Claim Construction

Term	G&Z Construction
“A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction . . .”	Preamble is limiting Plain and ordinary meaning which requires a paving machine with a swing leg assembly moving in a paving direction with its crawler tracks on the ground and under load, while laying and finishing concrete in a form P.O. Response at §IV(A); P.O. Sur-Reply at §II(A)

A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction . . .

The claimed processor's function can ***only achieve its "specified objective"*** of moving in a paving direction, when the swing leg is actually coupled to the paving machine.

'318 Patent, 6:23-31; P.O. Response at §IV(A); P.O. Sur-Reply at §II(A)

Thus, the prior art needs to disclose a swing leg assembly that was "designed . . . to accomplish the specified objective,"

See *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1349 (Fed. Cir. 2012)

track. An onboard computer or other processor receives the outputs from the transducers and generates a signal to pivot the crawler track relative to the associated jacking column to keep the crawler tracks oriented in the paving direction when the angular orientation of the swing leg changes, and also keeps all the crawler tracks' orientations synchronized. Thus, no matter what the swing leg angle is, the crawler track stays straight ahead in the paving direction and position. Of course it is also possible to override this comput-

A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction . . .

- a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column;
- a first sensor configured to emit a first signal corresponding to the first angular orientation;
- a second sensor configured to emit a second signal corresponding to the second angular orientation; and
- a processor configured to:
 - receive the first signal from the first sensor, and the second signal from the second sensor;
 - determine a change of the first angular orientation based on the first signal;
 - in response to determining the change of the first angular orientation, determine a target second angular orientation based on the determined change of the first angular orientation and the second angular orientation based on the second signal; and
 - send a control signal to the slew drive in order to cause the second angular orientation of the crawler track to rotate to the target second angular orientation.

The Challenged Claims properly read out embodiments where the crawler tracks are pivoted one at a time to new positions while off the ground and under no load. P.O. Sur-Reply at §II(A)

The alternative embodiment is inconsistent with the claimed position transducer and feedback loop that incorporate components to prevent the swing legs from pivoting while the machine moves.

A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction . . .

When prosecuting the '811 Application, G&Z distinguished the Colvard reference because its conventional steering cylinder and collar configuration (same as CIII and PM102) did not enable on-the-fly steering. P.O. Response at §IV(A); P.O. Sur-Reply at §II(A); Ex. 2034 at 9.

The steering collar of Colvard has a set of plates (e.g. upper annular plate 54) each having a square opening 52, where collar elements (e.g. collar element 48) is rotated from one side of the plates to another, with piston-and-cylinder element 42 actuated respectively to the orientation of the collar elements. To hold the steering collar in place, it is required that the steering collar be bolted at the mounting lobe, and each change of orientation of each steering collar requires the unbolting and re-bolting of the steering collars. *See e.g., Colvard at col. 6., ln 40 – col. 7, ln. 24.* Such immovable-during use bolted/pinned structures and the time-consuming efforts required to reposition jacking columns of such a paving machine is in part what the presently-claimed invention specifically overcomes. *See e.g., Spec. at paras. [0007]-[0011].*

A swing leg assembly configured to be coupled to a paving machine configured to move in a paving direction . . .

Collateral estoppel does not apply because in the '749 IPR:

1) the issue of whether or not the claims are limited to an embodiment for obviousness is different, and

2) the issue of a limiting claim construction was never addressed.

P.O. Sur-Reply at §II(A); Ex. 1036 at 37.

As an initial point, we note that neither party offers an express construction of any terms in the Challenged Claims that would limit the claims to an embodiment where the crawler track is rotated when the crawler track is in contact with the ground. Petitioner does argue that on-the-fly steering is not a claimed feature. Pet. Reply 17 (referencing Ex. 1157, 54:15–59:3; Ex. 1001, 6:52–60, 10:64–11:1). Patent Owner replies that its reliance on on-the-fly steering is directed to secondary considerations. PO Sur-reply 14–15.

Claim Construction

Terms	G&Z Construction	Gomaco Construction
“a crawler track rotatably coupled to the jacking column” & “a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column”	“one side of the slew drive is coupled to the jacking column, one side of the slew drive is coupled to the crawler track, and neither cylinder of the jacking column rotates along with the crawler track.” P.O. Response at §IV(B); P.O. Sur-Reply at §II(B)	Petitioner does not dispute G&Z’s construction

Claim Construction

The Challenged Claims require a slew drive that rotatably couples the crawler track to the jacking column such that it rotates the crawler track relative to the entire jacking column.

P.O. Response at §IV(B); P.O. Sur-Reply at §II(B)

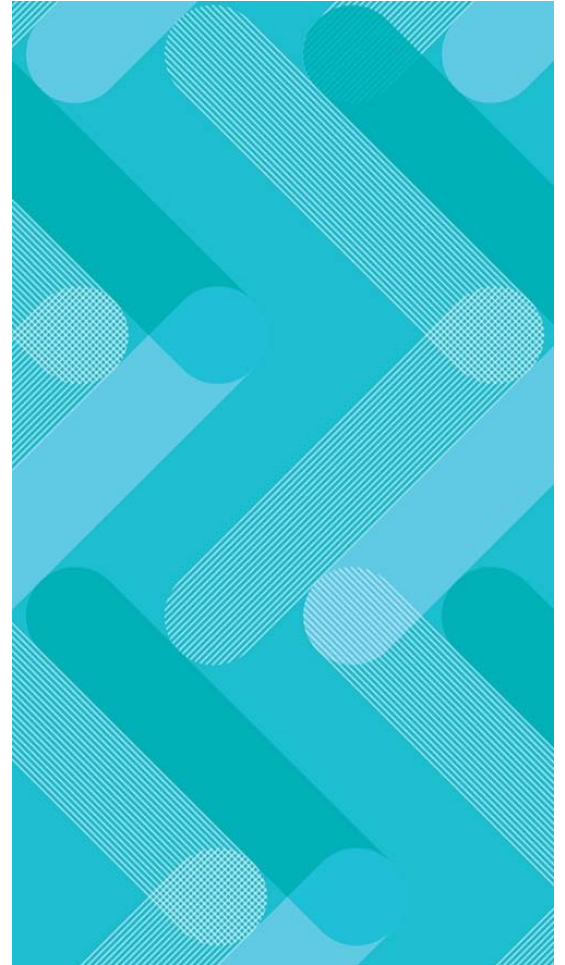
The '749 IPR adopted a much broader construction of the term, which required only that the power drive be “physically between” the jacking column and crawler track without specifying:

- (1) which if any components were coupled to each other and
- (2) which components rotate with respect to which components. Ex. 1036 at 35-57

a crawler track rotatably coupled to the jacking column, wherein the crawler track is configured to rotate about a second axis to a second angular orientation relative to the jacking column;

a slew drive coupled to the jacking column and the crawler track, wherein the slew drive is configured to cause rotation of the crawler track relative to the jacking column;

Petitioner's Obviousness Case Fails

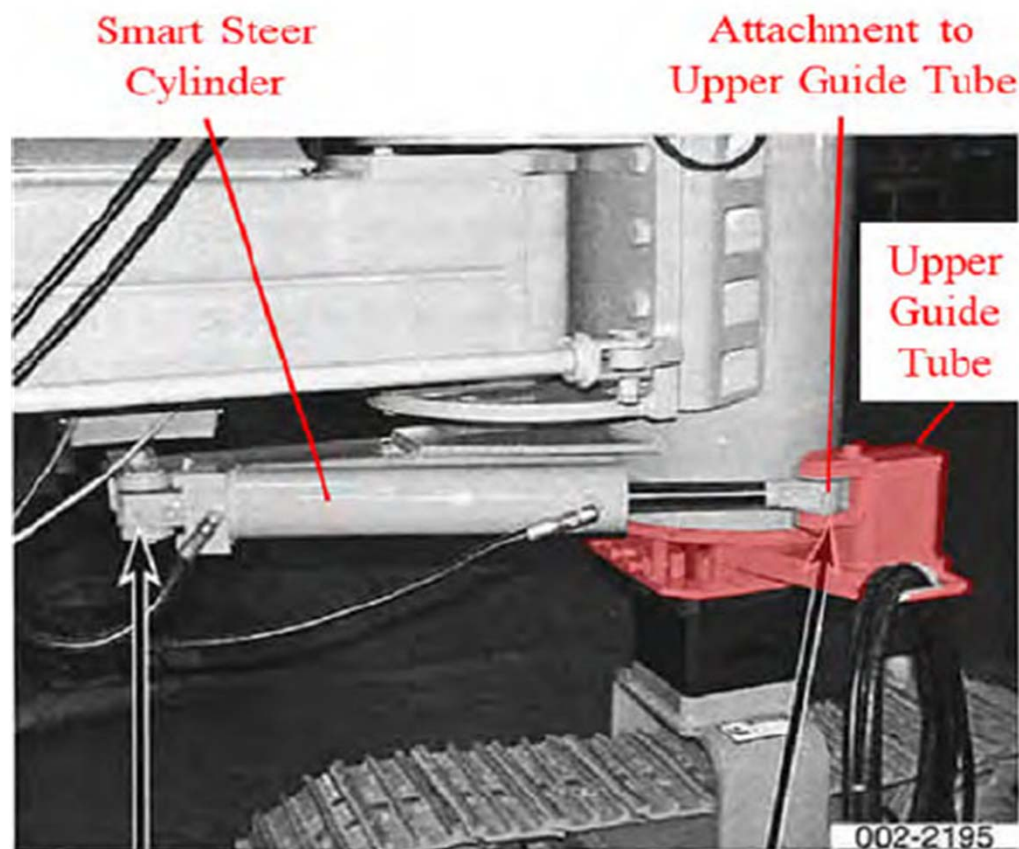


DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

CIII-Rio Does Not Disclose a Slew Drive Rotatably Coupled to a Jacking Column

CIII and *Rio* **only** disclose steering assemblies where the inner tube of the jacking column rotates with the crawler track. P.O. Response at §V(B); P.O. Sur-Reply at §III(A)

“On 4-track capable machines, the track yoke is bolted to the base plate of the inner guide tube.” *CIII* at 378

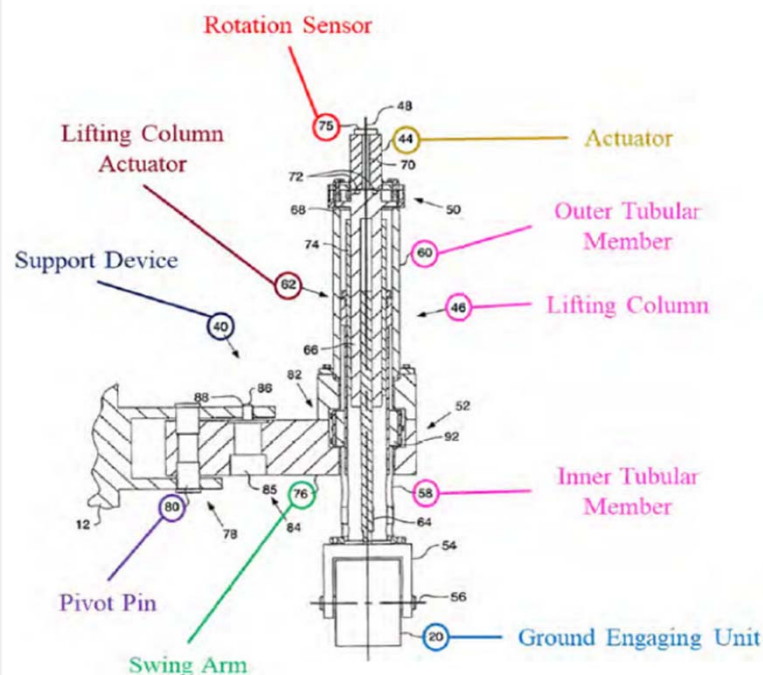


CIII-Rio Does Not Disclose a Slew Drive Rotatably Coupled to a Jacking Column

Rio does not describe **any** embodiments in which its second rotary actuator does not cause at least a portion of the lifting column 46 to rotate about a lifting column axis 48.

- *Rio* at 5:32-6:6 (the inner tubular member 58 rotates using a key and keyway arrangement that permit sliding between it and the outer cylinder 66);
- *Rio* at 4:56-60 (actuator 44 “is adapted to cause at least a portion of the lifting column 46 to rotate”)

P.O. Response at §V(B); P.O. Sur-Reply at §III(A)



State-of-the-Art does not cure CIII-Rio deficiencies

No state-of-the-art reference suggests rotatably coupling a crawler track to a fixed jacking column to achieve the coordinated adjustment of the swing leg/track while moving and under load. P.O. Response at §V(B)(3); P.O. Sur-Reply at §III(B)

- Littman and Johns disclose light work vehicles without a swing leg assemblies (inclusive of a swing leg, jacking column, and a crawler track).
- Miller's steering housing 122 connects to the machine frame's walking beam, not the inner tube of the jacking column.
- Smolders relies upon a fixed connection between its lifting column and crawler track

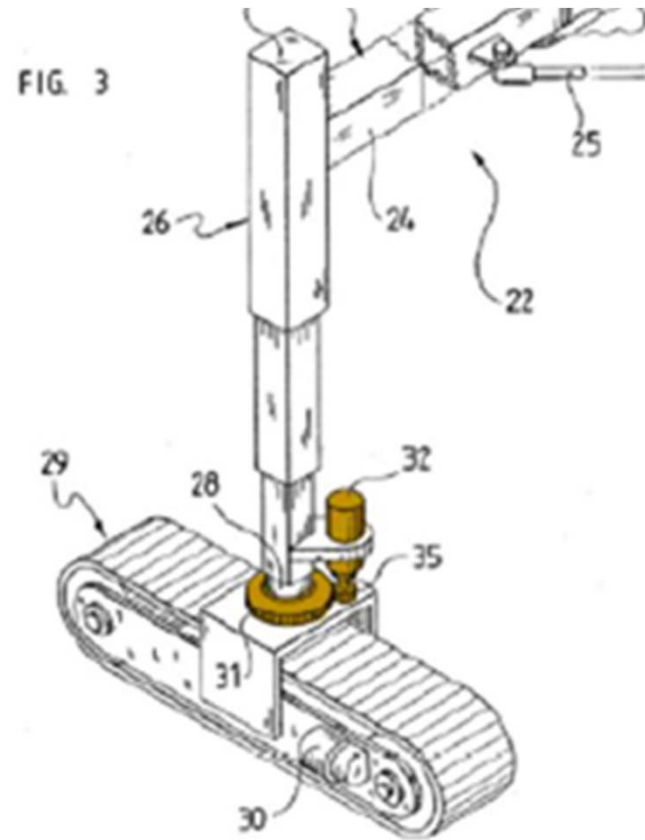
State-of-the-Art does not cure CII-Rio deficiencies

Whitaker does not disclose a slew drive rotationally coupled to the jacking column and crawler track as claimed, nor would it inform a POSITA to rotationally couple a slew drive to a rotationally fixed jacking column.

P.O. Response at §V(B)(3); P.O. Sur-Reply at §III(B)

Whitaker's "slew drive" components 32 and 35 point to a ring and pinion gear, not a slew drive.
Whitaker, 4:1-16 and Claim 13

- 13.** Apparatus as described in claim 11 wherein said pivoting means for each tracked conveyor comprises:
- (a) a ring gear affixed to each tracked conveyor and rotatively mounted to said lower end of said telescopic shaft; and
 - (b) a steering motor mounted to said telescoping shaft and having a pinion gear operatively connected to said ring gear.

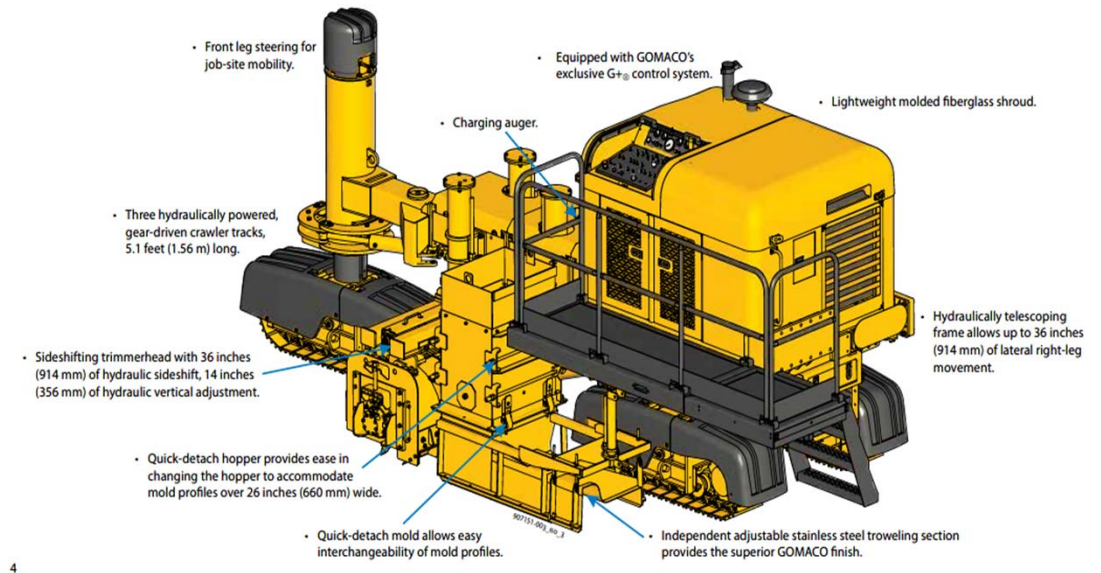


State-of-the-Art does not cure CII-Rio deficiencies

GT-3200 had a Helac rotary actuator **inside** the jacking column.

Gomaco **abandoned** this design altogether in 2009 for a Colvard style steering cylinder configuration.

P.O. Sur-Reply at §III(B); Ex. 2037 at 4, 7.



FRONT STEERING ONLY SYSTEM

Type: The front track only, with a hydraulic steering cylinder.

Petitioner's CIII-Rio Argument is the Product of Hindsight

“To draw on hindsight knowledge of the patented invention, when the prior art does not contain or suggest that knowledge, is to use the invention as a template for its own reconstruction—an illogical and inappropriate process by which to determine patentability.”

Sensonics, Inc. v. Aerosonic Corp., 81 F.3d 1566, 1570 (Fed. Cir. 1996)

There is no “state-of-the-art” reference suggesting to rotatably coupling a crawler track to a jacking column in the claimed manner. P.O. Response at §V(B)(3); P.O. Sur-Reply at §III(B)

Petitioner’s alleged knowledge goes back over 30 years, including their own machines, but neither them nor anyone else attempted to implement a rotary connection with a slew drive to a jacking column and crawler track.

Petitioner's CIII-Rio Argument is the Product of Hindsight

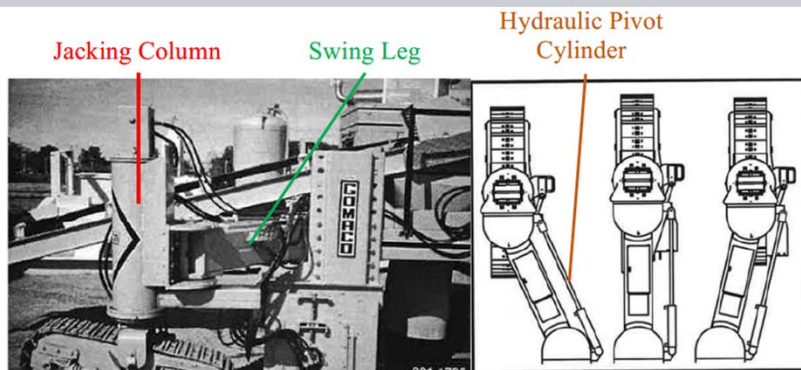
Petitioner touts all the benefits obtained from G&Z's design as providing motivation for a POSITA in 2010 to modify CIII-Rio since none exists in the prior art. P.O. Sur-Reply at §III(B); Reply at 8.

GOMACO also provides significant rationales for its proposed slew drive modification, such as providing increased range of motion (*id.*, 27-28), providing high torque and achieving fine rotary steering control (*id.*, 28), “reduc[ing] the power” needed to rotate the crawler track (*id.*, 31), and simplifying the manufacturing and maintenance of the jacking column (*id.*, 31).¹ The Board relied on each of these rationales when finding all challenged claims obvious in the '749 IPR. (*See, e.g.*, Ex. 1036, 59-62.)

CIII-Rio Prohibit On-the-Fly Steering

- In both CIII and Rio, the swing legs are **locked in place while under load** and only allow rotation of the swing leg while stopped. P.O. Response at §V(A); P.O. Sur-Reply at §III(C); Pet. at 15

CIII



Id., 79-80 (annotated). To swing the leg, an operator raises the crawler track off the ground with the jacking column, removes the pin locking the leg in place, and holds a switch to extend or retract the pivot cylinder until the leg reaches the desired position. *Id.*

Rio

The automatic rotation of Rio's swing leg only occurs when (1) the machine is stopped; (2) the swing leg is lifted off the ground; and (3) the anti-swing device is disengaged. Rio, 7:62-8:27

ing position to the retracted position. In response to receiving the permissive signals indicating that the machine is safely stopped, the recess cover is open, and the one ground engaging unit 20 is suitably elevated, the controller 32 activates the anti-swing actuator 85 and the anti-rotate actuator 98 to release the corresponding protrusions 86, 102 from engagement with the respective receptacles 88, 96. Alternatively,

CIII-Rio Prohibit On-the-Fly Steering

Petitioner's argument ignores the practical implementation of the machines discussed and the physical limitations caused by their size.

P.O. Response at 42-43; P.O. Sur-Reply at §III(C); Bryden Decl. at ¶65.

65. They would also notice that in asphalt milling machines that included crawler tracks, those machines used conventional steering cylinders, not rotary actuators. *Supra* at §VII.B. Because of the similarities in weight and the forces required to rotate the crawler tracks in *CIII* and *Rio*, a POSITA would not have expected success in a design where the rotation of the crawler track was not performed by rotating at least the lower portion of the jacking column as well. Dr. Singhose acknowledged that due to the weight of the machines and the extra friction, crawler tracks require more torque to rotate than wheels, especially on unprepared, uneven, or loose ground. Ex. 2011 (Singhose Tr. Day I) at 70:8-73:17; 114:10-24; 144:18-145:11.

Petitioner's Reply Introduces New References

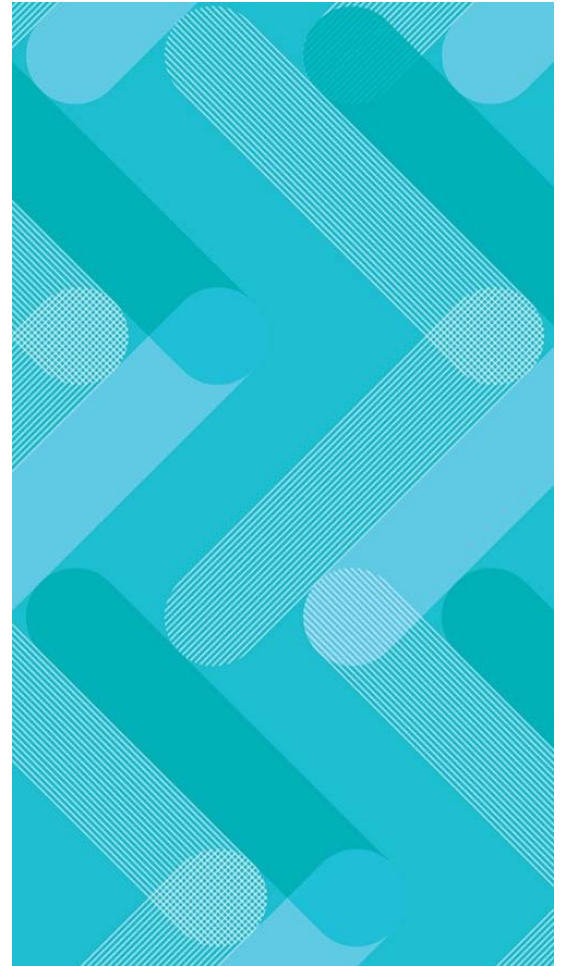
“[A] petitioner may not in reply rely on new prior art to teach a claim limitation” if that art was not “relied on in the petition.”

Axonics, Inc. v. Medtronic, Inc., 75 F.4th 1374, 1383 (Fed. Cir. 2023)

- “Tax” is not cited or referenced in the Petition and does not rely on Dr. Singhose’s discussion of it. P.O. Sur-Reply at 15.
- Skotnikov appears for the first time in Petitioner’s Reply. P.O. Sur-Reply at 15.



OBJECTIVE INDICIA EVIDENCE CONFIRM THE NONOBVIOUSNESS OF ON-THE-FLY PAVER ADJUSTMENTS



DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

Nexus

Nexus exists in G&Z's S600's implementation of unique characteristics of the claimed invention's swing leg, slew drive, sensors, and processor features enabling its SmartLeg / AccuSteer Technology. P.O. Response at §VII(A); P.O. Sur-Reply at §V(A)

SMARTLEG SWING LEG SYSTEM



▲ The SmartLeg system in tandem with AccuSteer allows the swing leg angle to be adjusted on-the-fly to maneuver around an obstacle while automatically keeping the crawler track straight ahead.

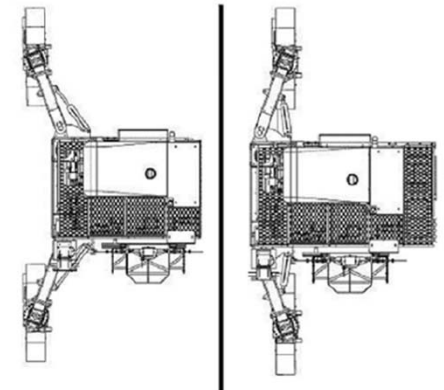
ACCUSTEER SLEW DRIVE TRACK CONTROL



▲ The AccuSteer system offers unparalleled maneuverability and accuracy allowing synchronized steering in 90 degree mode in every swing leg position.

HYDRAULIC SWINGLEG SYSTEM

As an option, the Hydraulic SwingLeg system is used in lieu of the standard adjustable turnbuckles. Working in tandem with the crawler track slew drives, the SmartLeg system allows the operator to adjust the bolster swing leg angle on the fly by means of a hydraulic cylinder and a bolster angle transducer, which relocates the crawler track while keeping the crawler track pointing straight ahead. This allows contractors to maneuver around track line obstacles on the fly without need of stopping to make a mechanical adjustment and re-calibrating the sensor transducer.



Inboard/Outboard Positions

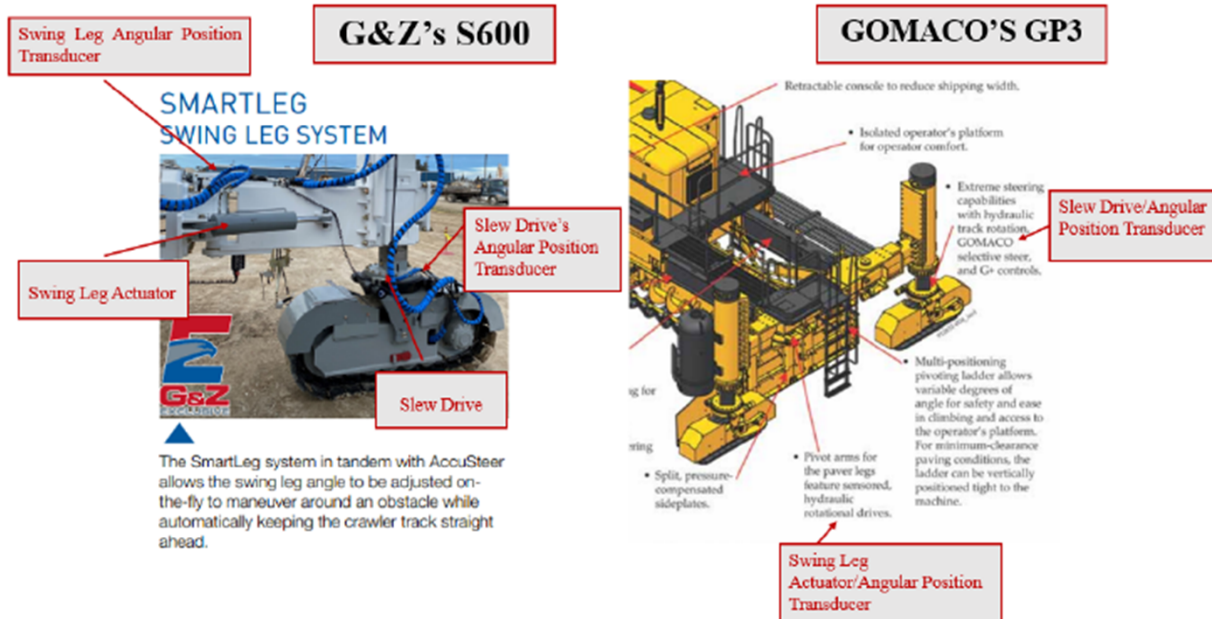
Copying - Gomaco

“[A]ccess to a patented product combined with substantial similarity to the patent product” demonstrates copying. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010)

- Gomaco had undisputed access to the G&Z's S600 Machine beginning at ConExpo 2011. P.O. Response at §VII(D); P.O. Sur-Reply at §V(B);
- Gomaco released the GP3 in 2015.



Copying - GP3 is substantially similar to G&Z's S600



The GP3 was the first machine to debut for Gomaco using its slew drive smart leg and steering design in 2015.

P.O. Response at §V(A); P.O. Sur-Reply at §V(B).

Gomaco also does not dispute that its GP3 is substantially similar to the S600. Reply 21-22.

Copying - GP3 is substantially similar to G&Z's S600



G&Z S600 Paver Introduced 2010

All photos in this and the next three slides come from Ex. 2040
(<https://www.youtube.com/watch?v=wEtMOGdBqbl> and
<https://www.youtube.com/watch?v=zXDWqokctxw>)

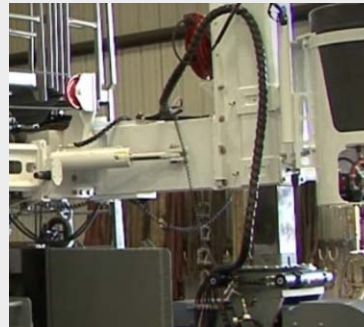


Gomaco GP3 Paver Introduced 2015

All photos in this and the next three slides come from Ex. 2046
<https://www.youtube.com/watch?v=RUBWqWR9fNo>

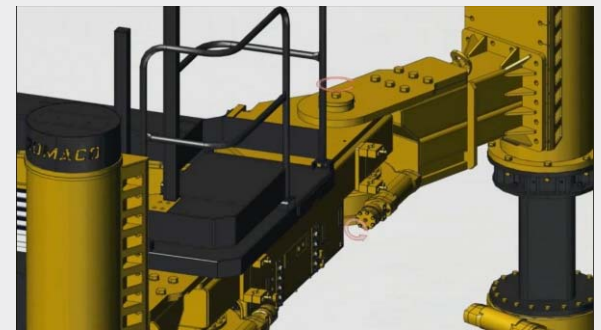
Copying – GP3 is substantially similar to G&Z's S600

G&Z S600 2010



“SmartLeg”

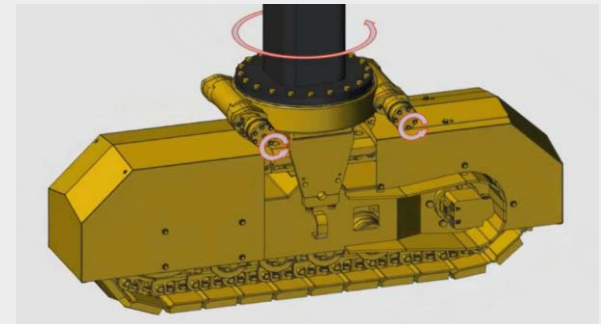
GOMACO GP3 2015



“SmartLeg” Positioning



“AccuSteer” Slew Drive Steering



“Extreme” Slew Drive Steering

Smart Leg and Jacking Columns With Slew Drives Reposition Crawler Tracks “On the Fly” and Under Load From any Swing Leg Position

Ex. 2040 (<https://www.youtube.com/watch?v=wEtMOGdBqbl>);
<https://www.youtube.com/watch?v=zXDWqokctw>;
Ex. 2046 (<https://www.youtube.com/watch?v=RUbWqWR9fNo>)
[HSFKRAMER.COM](https://www.hsfkramer.com)

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

// 34

Copying – GP3 is substantially similar to G&Z's S600

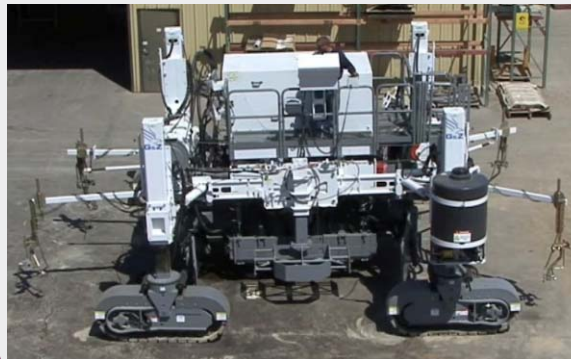
With Smart Legs and Slew Drives Counterrotation and 90 Degree / Transverse Steering Is Possible from Any Swing Leg Position

Ex. 2040 (<https://www.youtube.com/watch?v=wEtMOGdBqbl>);
<https://www.youtube.com/watch?v=zXDWqokctxw>;
Ex. 2046 (<https://www.youtube.com/watch?v=RUbWqWR9fNo>)

G&Z S600 2010



Counterrotation



90 Degree Steering

GOMACO GP3 2015



Counterrotation



Transverse Steering

Copying – GP3 is substantially similar to G&Z's S600

Legs Walked Into Outboard Position

With Smart Legs and Slew Drives using the 90 Degree Steering Mode Jacking Columns and Crawler Tracks are Walked into Transport Position Under Load

Machine Transformed and Shown in Transport Mode

Ex. 2040 (<https://www.youtube.com/watch?v=wEtMOGdBqbl>);
<https://www.youtube.com/watch?v=zXDWqokctxw>;

Ex. 2046 (<https://www.youtube.com/watch?v=RUbWqWR9fNo>)

G&Z S600 2010



GOMACO GP3 2015



Copying - Wirtgen

- Accessed the S600 at ConExpo 2011.
- The SP 64i debuted in 2017 that copied the S600.

P.O. Response at §VII(D); P.O. Sur-Reply at §V(B); Ex. 2053 at 23-24

Innovative Worm Gear Steering

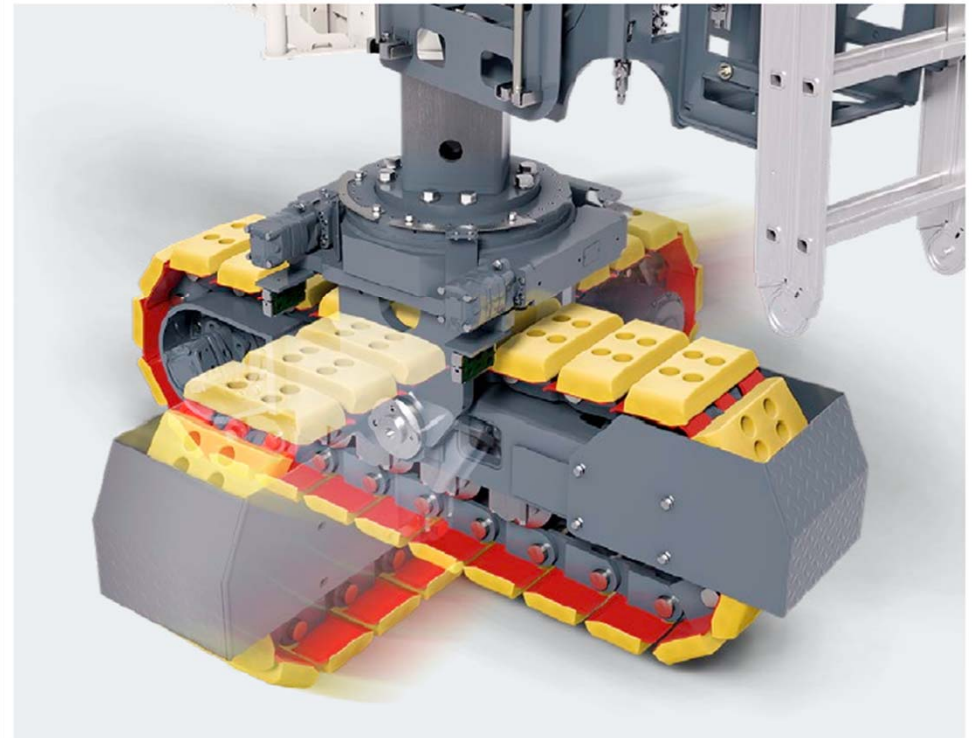
The crawler units' steering angles of up to 100° to the left and 160° to the right increase flexibility, such as the ability to easily approach obstacles, particularly on tight job sites.

Hydraulically Adjustable Swivel Arms for Easy Transport

The ability to quickly switch all four swivel arms from the transport to the operating position and vice versa within just a few minutes greatly simplifies machine transport.

Hydraulically Adjustable Swivel Arms for Increased Ergonomics

The ability to hydraulically adjust the swivel arms increases ergonomics and user-friendliness.



Decade Long Need for On-the-Fly Paver Adjustments

Petitioner conceded that the need for more maneuverable pavers was known at least as far back as the early 2000s when the change was made to rehab highways.

- Fed. Cir. held that a 6-year need was long felt. *Texas Instruments, Inc. v. U.S. Int'l Trade Comm'n*, 988 F.2d 1165, 1178 (Fed. Cir. 1993)

'749 IPR, Paper 76 (Oral Arg.) at 98:3-19; Ex. 2023, ¶ 4; P.O. Response at §VII(B); P.O. Sur-Reply at §V(C).

In the early 2000s, contractors began requesting a slipform paver that could maneuver in the tight confines of urban and airport worksites, as the industry began moving towards more jobs centered on repairing roads rather than originally laying them down on undeveloped ground where space was not limited and maintaining traffic was not an issue. Bryden Decl., ¶71; Ex. 2022 (“Greenwood Decl.”) at ¶¶ 3, 5.

Industry Skepticism Existed on Whether the Use of a Slew Gear Drive Was a Workable Solution

- G&Z's S600's unique steering application had industry experts worried or doubtful of whether G&Z's claimed solution would work for driving and steering a paver while under load. P.O. Response at §VII(C); P.O. Sur-Reply at §V(D).
 - Kinematics was **worried** whether their slew gear drive (a twin drive unit) would provide the torque. Ex. 2013 at 1.
 - G&Z's VP of engineering was **doubtful** of G&Z's claimed solution. Ex. 2024 at 4

Industry Praise for G&Z's On-the-Fly Paver Adjustments

Mr. Greenwood expressed that G&Z's claimed solution "was a revolutionary change to the conventional slipform paver" and that it "was a license to print money." Ex. 2022 at ¶¶ 6-7

Mr. Holley referred to G&Z's claimed solution as a "game changer." '749 IPR, Ex. 2031 at ¶ 7; P.O. Response at §VII(E); P.O. Sur-Reply at §V(E).

7. G&Z's SmartLeg / AccuSteer technology significantly reduced the time it took to reposition the slipform paver from one mode to another, as the technology allows an operator to automatically readjust the positions of the swing legs and rotate the crawler tracks to 90 degree steering position to walk the slipform paver from one paving location to another. This revolutionary change was a license to print money.

7. Purchasing G&Z's slipform pavers with SmartLeg / AccuSteer technology was a game changer, as it dramatically decreased the number of workers required and time spent on repositioning the swing legs and crawler tracks. Specifically, the technology reduced the number of workers from roughly six down to two—just the operator and the supervisor—that are needed to reposition the slipform paver. With the SmartLeg / AccuSteer technology, an

Commercial Success

- Evidence shows G&Z lost significant market share when Gomaco released the GP3 in 2015, while Gomaco's market share rose. P.O. Response at §VII(F); P.O. Sur-Reply at §V(F).
 - Gomaco does not dispute the accuracy of the relied upon market share analysis.
 - Gomaco's argument regarding Wirtgen's competition effecting G&Z's sales supports the success of G&Z's technology as Wirtgen also copied the S600.
 - Gomaco's reliance upon COVID supply chain delays effecting S600's delivery was after G&Z's market share already declined.
 - A lone customer change order in 2010 fails to explain G&Z's market share expansion after releasing its SmartLeg / AccuSteer pavers in 2010.