



(12) **United States Patent**  
**Swinderman**

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(54) **BULK MATERIAL CONVEYOR BELT  
LOADING ZONE AND METHOD OF  
LOADING A BULK MATERIAL CONVEYOR  
BELT**

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CPC ..... **B65G 15/08** (2013.01); **B65G 15/60**  
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,427,590	A *	9/1947	Conners .....	B65G 39/125	198/826
2,665,795	A *	1/1954	Holwick .....	B65G 21/2081	198/830
2,685,955	A	8/1954	Kinney et al.		
2,818,966	A *	1/1958	Gill .....	B65G 39/125	198/826
2,883,035	A *	4/1959	Erisman .....	B65G 21/2081	198/502.1
2,998,121	A	8/1961	Gilbert		
3,628,648	A	12/1971	McClusky		
4,245,738	A *	1/1981	Butcher .....	B65G 21/14	198/812
4,775,047	A	10/1988	Grall		
5,303,813	A *	4/1994	de Rooy .....	B65G 21/2081	198/525
5,350,053	A	9/1994	Archer		

(Continued)

FOREIGN PATENT DOCUMENTS

GB 2234482 A 2/1991

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(57) **ABSTRACT**

A conveyor belt assembly comprises a conveyor belt, a tail pulley, and a transition zone comprising a loading device. The conveyor is looped around the tail pulley and has a generally flat transverse cross-section on the tail pulley. The conveyor belt transitions from having the generally flat cross-section to having a full-trough cross section in the transition zone. The loading device comprises a chute and skirtboards that are connected to each other and that are above the conveyor belt. The loading device is configured to load bulk material onto the belt in the transition region. The skirtboards have linear bottom surfaces that rise as the distance from the tail pulley increases. The conveyor belt is supported from below in the transition zone in a manner creating linear portions of the conveyor belt directly beneath the skirtboards that also rise as the distance from the tail pulley increases.

**4 Claims, 4 Drawing Sheets**

