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(54) **SLIDABLE CURRENT COLLECTOR AND METHOD FOR CONTACTING CONDUCTOR RAIL**

(52) **U.S. Cl.**  
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(57) **ABSTRACT**

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A slidable current collector has an array of terminals with carbon brushes for contacting conductor rails to deliver electrical power to a moving work machine. The terminals have upper sections with a conductive post, lower sections that include a reservoir of liquid metal, and bladders that connect the upper sections with the lower sections. Magnets surround outer shells of the terminals. Fluid above a threshold pressure fed into the bladders holds the upper sections apart from the lower sections and forces the magnets away from the conductor rails. Fluid below the threshold pressure allows the magnets to clamp the terminals to the conductor, lowers the conductive post into the liquid metal, and urges the carbon brushes against the conductor rails. The bladders provide a fluid suspension distributed across the array of terminals, enabling consistent electrical contact and wear for the carbon brushes.

