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Gittemeier et al.(10) **Pub. No.: US 2023/0231532 A1**(43) **Pub. Date: Jul. 20, 2023**(54) **COMBINER/SPLITTER**(52) **U.S. Cl.**(71) Applicant: **Qorvo US, Inc.**, Greensboro, NC (US)CPC ..... **H03H 7/487** (2013.01); **H01P 5/16**  
(2013.01); **H04B 1/40** (2013.01)(72) Inventors: **Timothy M. Gittemeier**, Plano, TX  
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**ABSTRACT**(21) Appl. No.: **18/061,210**(22) Filed: **Dec. 2, 2022****Related U.S. Application Data**(60) Provisional application No. 63/301,123, filed on Jan.  
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A combiner/splitter is disclosed having a first trifilar transformer having a first outer transmission element electrically connected between a first port node and a first intermediate node. A second trifilar transformer has a second outer transmission element electrically connected between the first intermediate node and a second port node. A third trifilar transformer has a third outer transmission element electrically connected between the first port node and a second intermediate node. A fourth trifilar transformer has a fourth outer transmission element electrically connected between the second intermediate node and a third port node.

