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# ANCHOR, SPLICING, AND PRESTRESSING DEVICE FOR FRP RODS

## MECHANICAL, CIVIL, & ENVIRONMENT

Device that reduces costs and limits likelihood of structural failure by facilitating FRP rod attachment, splicing, and prestressing for infrastructure repairs.

### TECHNOLOGY TYPE

Infrastructure  
Devices

### STAGE OF DEVELOPMENT

Ongoing development and testing of an industrial prototype.

### IP PROTECTION

#### Nationalized PCT and Continuation-in-Part Issued in the United States

Anchoring, Splicing, and Tensioning Elongated Reinforcement Members  
US8904721B2  
US8925279B2

#### Nationalized PCT Issued in the United States

Sheet and Rod Attachment Apparatus and System  
US10006477B2

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Reference Number: U-4393

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### TECHNOLOGY SUMMARY

Tens of thousands of US bridges and buildings, many over 50 years old, need repairs or are at risk of failure due to antiquated technology and materials. Fiber-reinforced polymer (FRP) composite rods have high strength-to-weight ratios and resist corrosion, but as yet have not been used widely in post-tensioning or in pre-stressing applications. Standard gripping anchors, when used with FRP rods used to repair infrastructure, place stress on individual fibers, leading to premature failures.

The proposed technology is an inexpensive anchor, splicing, and pre-stressing device for FRP rods. The device is simple to build and uses conventional materials such as steel and epoxy to achieve pre-stressing of FRP rods of any length. It makes FRP rods a more viable option for construction, significantly reducing costs and adding a successful FRP anchor for post-tensioning and pre-stressing applications.

### FEATURES AND BENEFITS

- Facilitates the use of FRP rods in infrastructure rehabilitation.
- Reduces the likelihood of structural failures.
- Decreases the costs of structural repairs.

### RECENT PUBLICATIONS

Burningham, C.A., Pantelides, C.P., Reaveley, L.D. (2014). Repair of prestressed concrete beams with damaged steel tendons using post-tensioned carbon fiber-reinforced polymer rods. *ACI Structural Journal*. 111(2):387-395. doi: [10.14359/51686529](https://doi.org/10.14359/51686529).

### INVENTOR PROFILE

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