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**United States Patent** [19]  
**Cooper**

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[54] **MULTI-COMPONENT TELEPRESENCE SYSTEM AND METHOD**

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[73] Assignee: **Intuitive Surgical, Inc.**, Mountain View, Calif.

[\*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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[21] Appl. No.: **08/975,617**

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[22] Filed: **Nov. 21, 1997**

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**Related U.S. Application Data**

[60] Provisional application No. 60/033,321, Dec. 12, 1996.

[51] **Int. Cl.**<sup>7</sup> ..... **A61B 1/00**

[52] **U.S. Cl.** ..... **600/102; 606/130; 606/1**

[58] **Field of Search** ..... 600/101, 102, 600/114, 121, 122; 606/1, 130; 128/849-856

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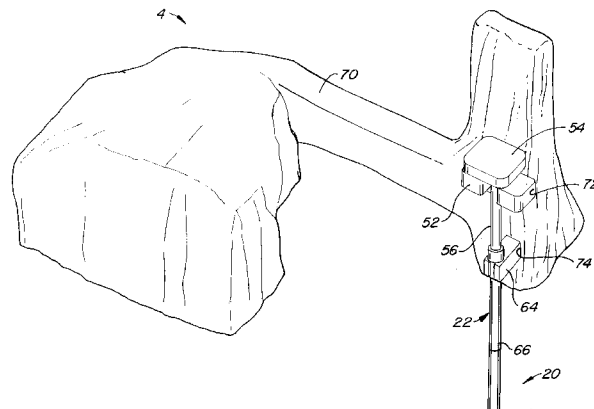
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[57] **ABSTRACT**

The present invention provides systems and methods for performing robotically-assisted surgical procedures on a patient. In particular, a three-component surgical system is provided that includes a non-sterile drive and control component, a sterilizable end effector or surgical tool and an intermediate connector component that includes mechanical elements for coupling the surgical tool with the drive and control component and for transferring motion and electrical signals therebetween. The drive and control component is shielded from the sterile surgical site, the surgical tool is sterilizable and disposable and the intermediate connector is sterilizable and reusable. In this manner, the intermediate connector can be sterilized after a surgical procedure without damaging the motors or electrical connections within the drive and control component of the robotic system.

**41 Claims, 9 Drawing Sheets**



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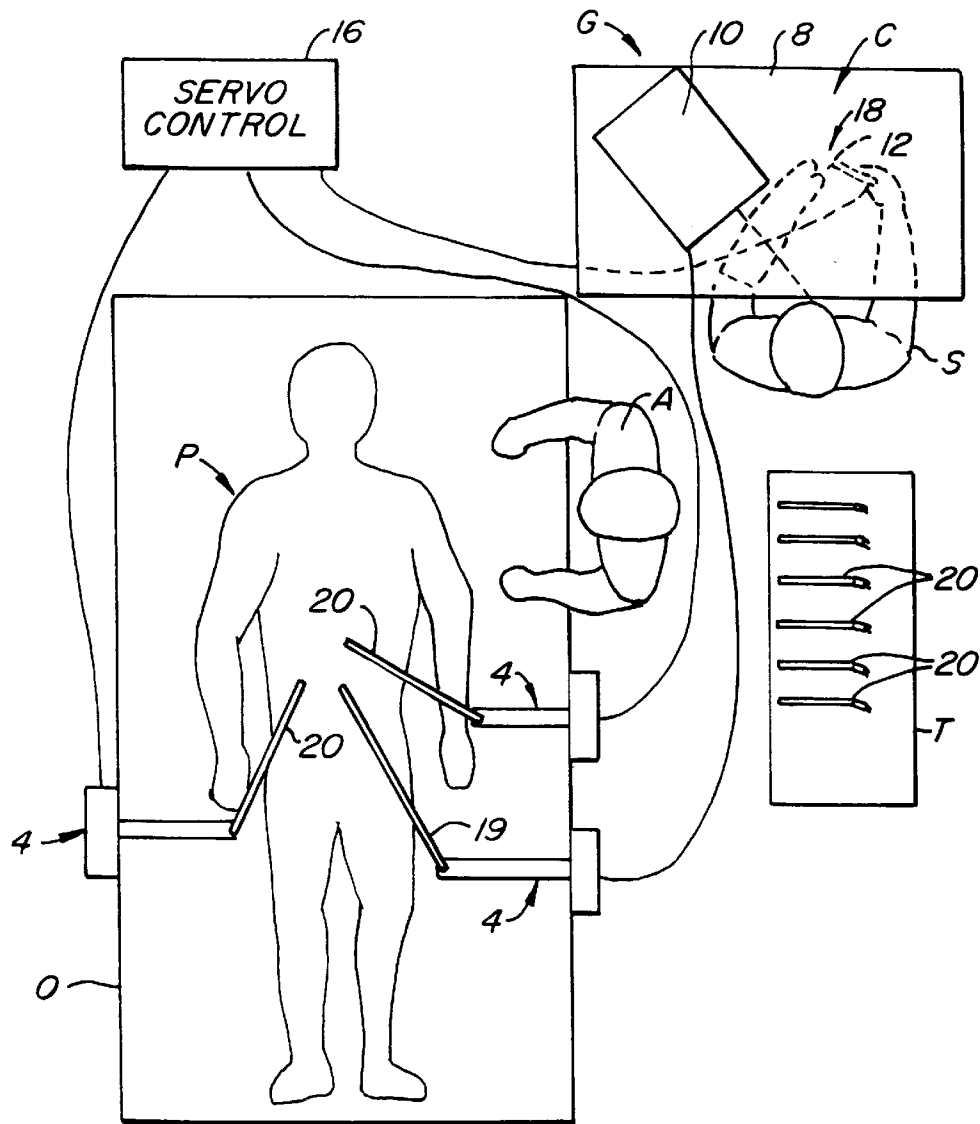


FIG. 1.

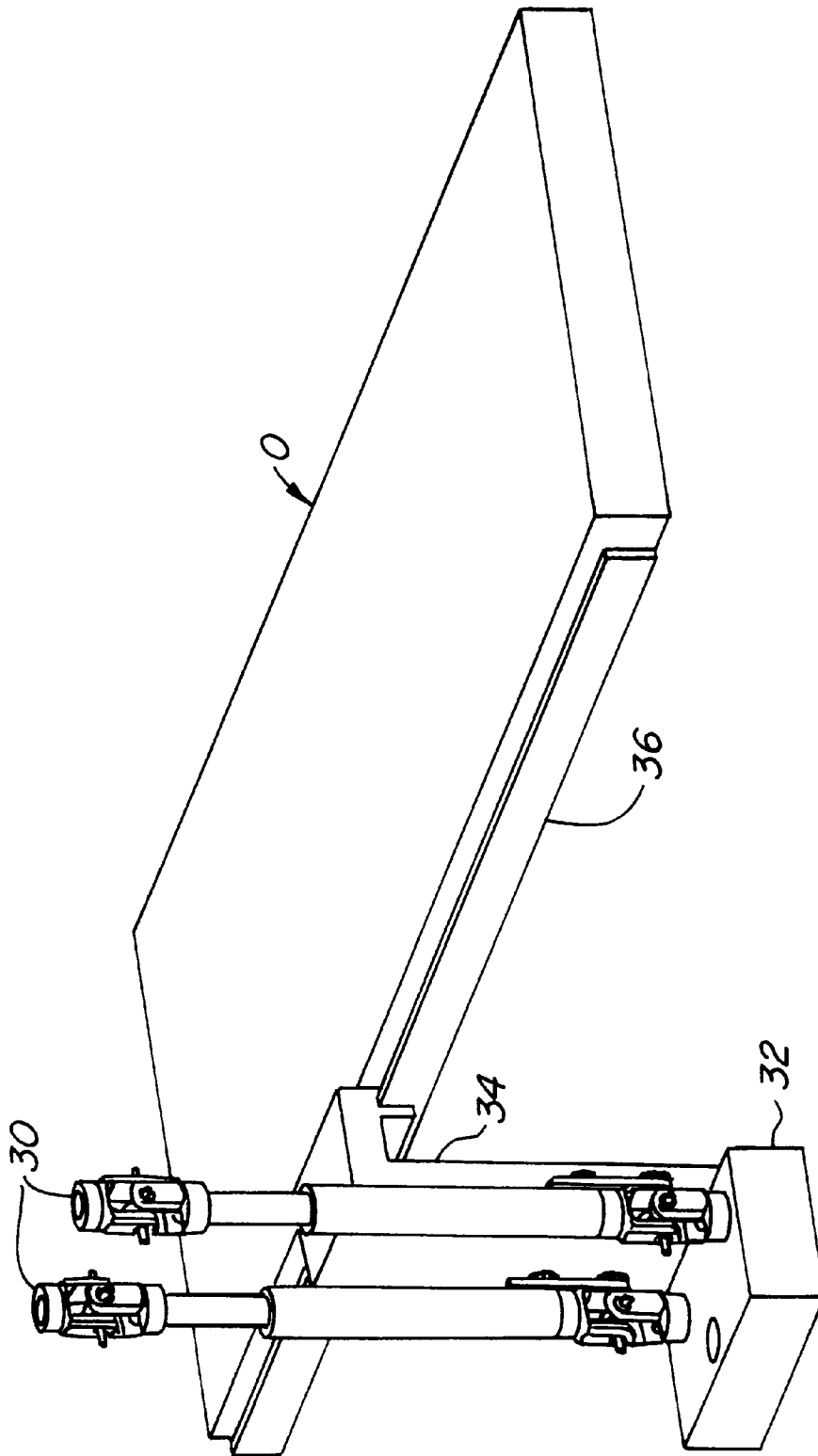


FIG. 2.

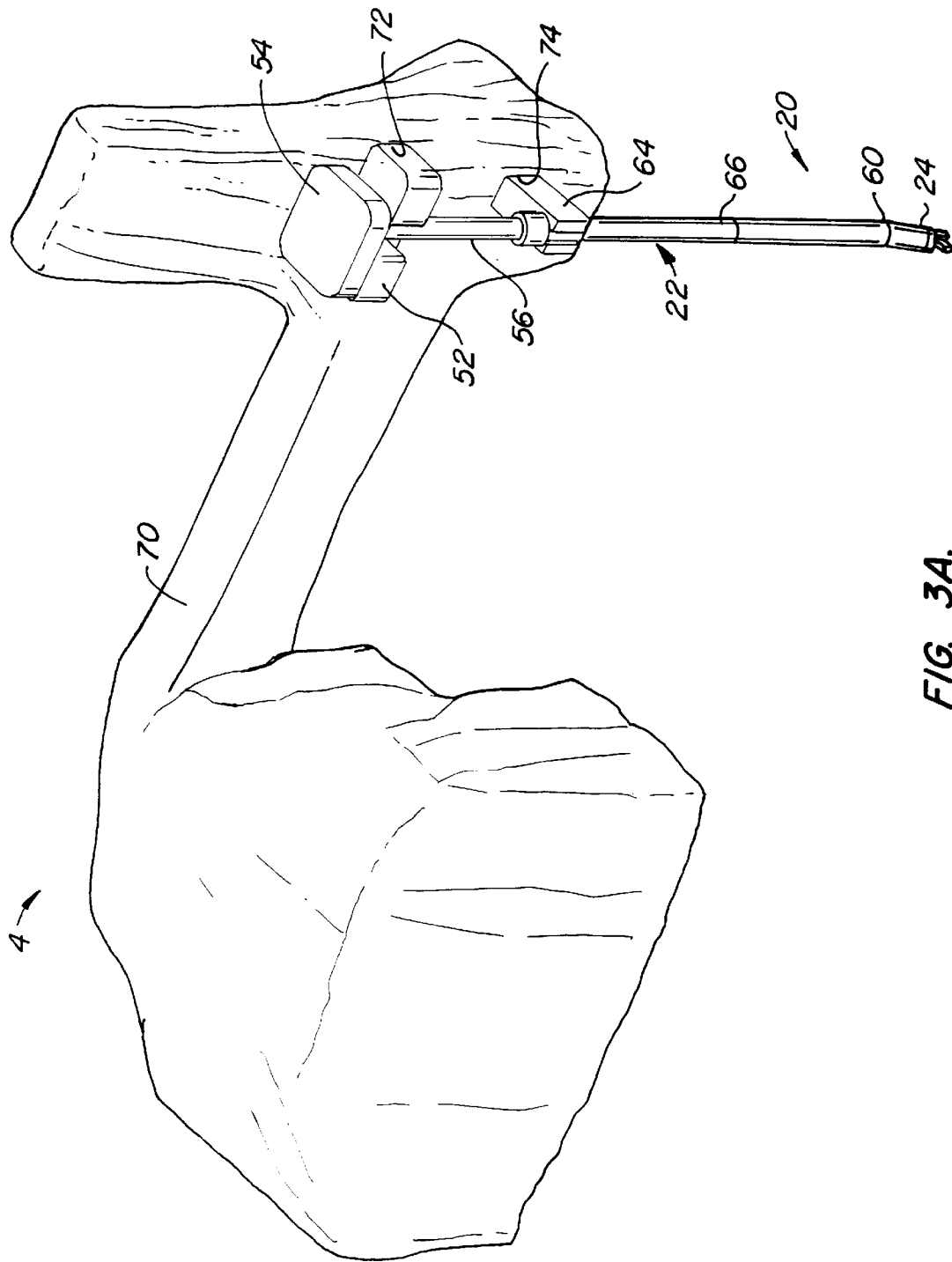


FIG. 3A.

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