Automatically Retracting Needle-Tip Electrocautery Device

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Technology description

Everyday thousands upon thousands of surgeries occur with a surgeon's safety as low priority. The purpose of this project was to come up with an electrical and mechanical design of a retractable sheath that would protect health care workers from incidental contact with the sharp tip of the elctrocautery surgical device. Our team has come up with a new tool that provides automated protection against pricks from surgical tools, specifically an electrocautery surgery device. It was designed with the following goals: The sheath was designed to retract into the casing when powered on, and extend to cover the needle when powered off. Hospitals, insurers, nurses and patients all benefit from increased safety and confidence within the operating room. The tool would essentially limit the chances of accidental HIV, Hepatitis C or any other infections to %0. The sheath would act as a safety barrier in the operating room and could quickly become a standard of surgical device safety. The design of the tool may also be applied to other sharply tipped surgical devices. The tool can also be manufactured with cost effectiveness in mind. Total cost would be below $30 initially and at production time, around $5-$20. The invention is a hand-held electrocautery stylus with a protected tip. When buttons are pressed for either cutting or coagulating current to be applied through the tip, the tip is exposed. This is an improvement of existing and widely used operating room technology. Electrocautery tips may be sharp or dull. The advantage of a needle-sharp tip is in precision of cutting and cauterization. Unfortunately, the sharp tip represents a hazard on the surgical field, with risk of needle-stick transmission of blood-borne pathogens. The proposed design shields the tip except when it is in active use, nearly eliminating the risk of inadvertent injury. This same principle could be applied to any other sharp surgical instrument requiring a hand-switch.

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