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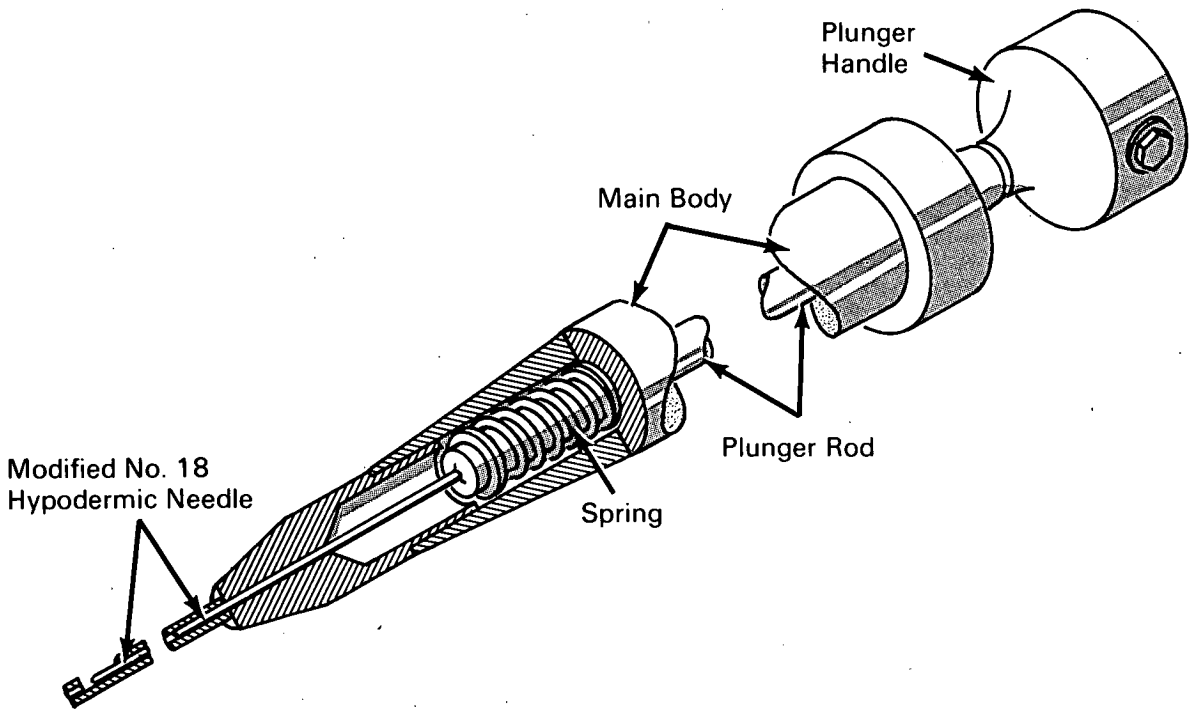
NASA TECH BRIEF

Micromanipulation Tool Is Easily Adapted to Many Uses



The problem:

A micromanipulation tool is needed that can be easily adapted to a number of work operations, such as cutting, precision clamping and spot welding of microscopic filaments or other parts.

The solution:

A special tool equipped with a plunger mounted in a small tube and designed so that the tip of the tube can be varied to accommodate a variety of work operations.

How it's done:

The main body of this tool is made so that a plunger handle can be inserted at one end and a modified No. 18 hypodermic needle can be mounted at the other end. A cylindrical hollow inside the main body permits a spring to be placed around the plunger. By moving the spring from one side of a stop (a washer soldered in place) to the other, the plunger rod can be forced to move down the tube and act as a clamp or to be held in an open position. For greater ease of handling, a flexible cable release may be used instead of a plunger.

(continued overleaf)

Several tips should be made using a thin tube or a modified hypodermic needle. For cutting actions, a slot is cut at the tip of the tube and the end of the plunger rod is ground to a diagonal cutting edge. To use as a clamp, the end of the tube is plugged with a soft metal and the end of the plunger rod ground flat. Small jaws can also be fixed to the tube and the plunger rod.

Notes:

1. Where extreme steadiness at high magnification is required, this tool is particularly useful. It would also be of value where the work area is inaccessible to bulkier tools, such as jewelers forceps.
2. Repair and assembly of instruments which have fine watchlike parts would be another application of the micromanipulation tool. Specific tips and plunger rods could be designed for particular operations.
3. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Jet Propulsion Laboratory
   4800 Oak Grove Drive
   Pasadena, California 91103
   Reference: B67-10004

Patent status:

No patent action is contemplated by NASA.

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(JPL-129)