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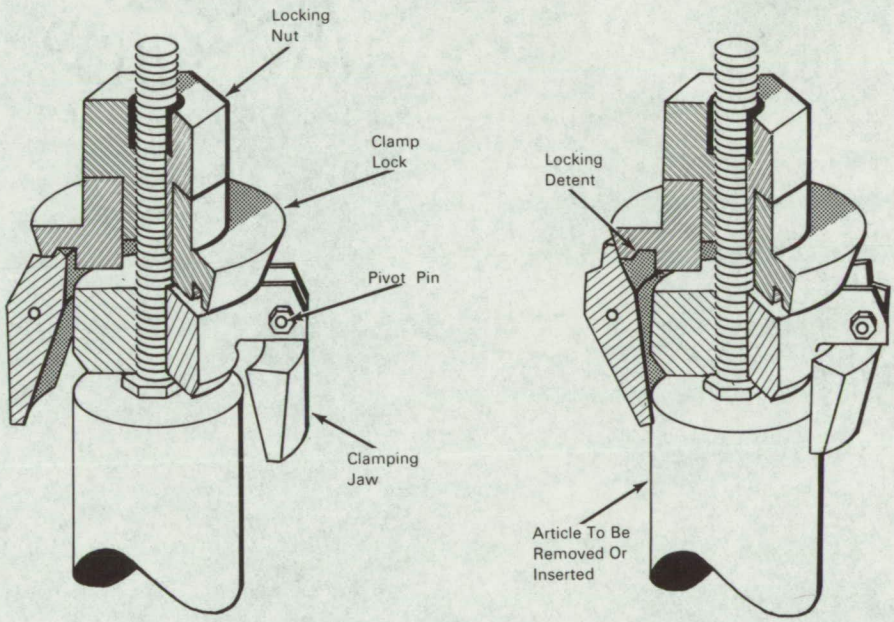
NASA TECH BRIEF

Remotely Operated Clamping Tool Has Positive Grip



TOOL OPEN

TOOL CLAMPED

The problem: To insert or remove objects within hazardous environments such as severe radiation fields, contaminated atmospheres, or at extreme depths under water. A tool is needed that will give a strong, positive gripping force and that can be operated remotely by conventional mechanical manipulating devices.

The solution: A jaw-type clamping tool that is applied or released by operation of a wedge-screw mechanism.

How it's done: The clamping tool consists mainly of a pair of jaws that pivot on pins and are held in the closed position by light spring loading when not in use. Operation of the tool involves a tapered convex-sided clamp lock that has a locking detent in the form of a machined groove in its underside. The detent locks the upper portions of the clamping jaws, as shown in the left illustration, thus holding the jaws in the open position. The tapered convex sides of the clamp lock impose a downward and outward pressure on the upper portions of the clamping jaws, as shown in the right illustration, thus pivoting the lower or jaw portions inward to clamp the object to be moved. A locking nut above the clamp lock imparts the necessary downward thrust on the clamp lock and holds it locked in place throughout the moving operation.

(continued overleaf)

Retracting the locking nut removes the wedging pressure on the clamping jaws and the spring loading of the jaws is easily overcome by an upward lifting of the tool to release the held object.

Note: Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion Office
U.S. Atomic Energy Commission
Washington, D.C., 20545
Reference: B65-10254

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: A. W. Sewald and S. A. Aducci
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