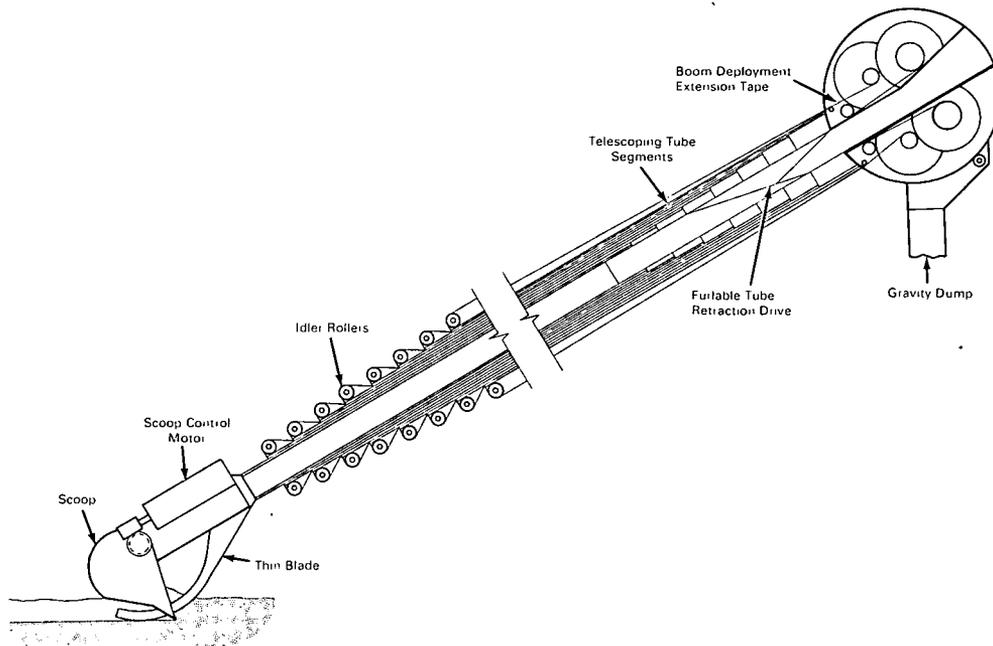


NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151..

A Mechanically Extendible Boom



Telescoping Boom Backhoe Concept

The problem:

To design a telescoping boom of high strength and rigidity which will allow a gravity dump at any point in the extension cycle.

The solution:

Use a series of elements connected by idler rollers and two tapes, one for extension and one for retraction.

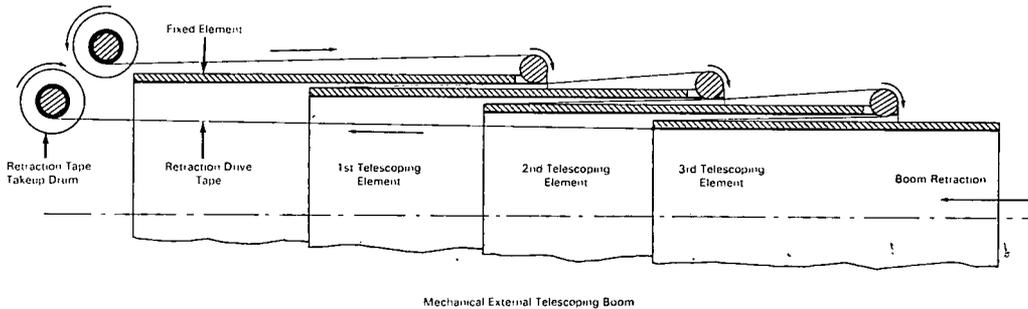
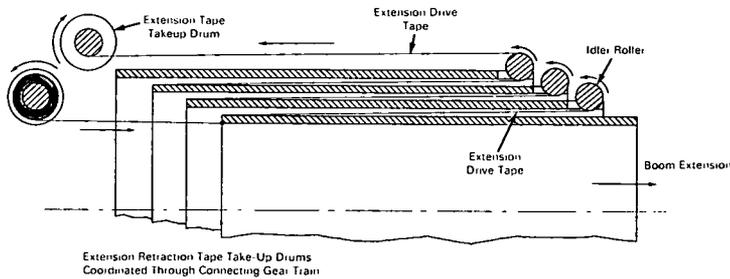
How it's done:

An idler roller is attached to the tip of each element (tube) except the last; a tape is attached to the first telescoping element, passed over the roller, back be-

tween the tube segments, and attached to the next tube. This procedure is continued until all segments are connected; then the tape is passed back to a take-up drum. A second tape is attached to the base of each segment and attached to a retraction take-up drum. By sizing the drums and interconnecting the extension take-up with the retraction take-up through a gear train, the tapes can be coordinated so that they will always be taut during extension or retraction of the boom.

Flexible cables of small diameter may be substituted for tapes. The retraction tapes form a furlable tube as the boom is extended and can be used as a chute to deposit the soil by simply raising the boom to a vertical position.

(continued overleaf)



Note:

Documentation is available from:
 Clearinghouse for Federal Scientific
 and Technical Information
 Springfield, Virginia 22151
 Price \$3.00
 Reference: TSP69-10328

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: Wilfred H. Bachle of
 Philco-Ford Corporation
 under contract to
 NASA Pasadena Office
 (NPO-11118)