

1993 NOVA AWARD WINNER**Self-Propelling Trench Shoring Machine**

The self-propelling trench shoring machine performs two functions; it holds back the sides of a trench and it moves along the trench as pipe is laid. The machine is composed of steel panels 10 feet long and 2 feet deep. Panels are paired opposite each other along the sides of the trench and hydraulic strut jacks connect them and produce lateral thrust that supports the trench walls. Stacking the panels can support any trench depth down to 30 feet in any type of soil. The panels also are positioned in pairs longitudinal to the trench, thus forming a box that has front and rear sections and is about 20 to 22 feet long. Between the sections are hydraulic travel jacks. Forward movement of the machine begins by relaxing the struts in the front section while maintaining sidewall pressures on the rear section. The travel jacks between the front and rear sections are then actuated and push the front section forward. The front section's struts are then actuated to redevelop sidewall pressure and the rear section's struts are relaxed. The travel jacks then draw the rear section forward. Finally, the rear struts are actuated to maintain the sidewall pressure. The machine moves eight inches in each cycle. Segmented pin-connected structural components allow ready adjustment in trench depth, trench width, panel length, travel speed, and travel thrust. When service crossings are encountered, panels are removed just before the crossing and replaced once the crossing has been completed. Patents on the machine were obtained in 1973 and in 1992.

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