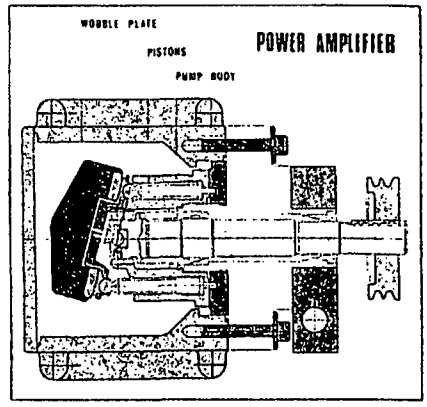
HIGH SPEED DRIVE TRAIN

A power amplifier system is employed to permit nearly instantaneous shock-free accelerations and decelerations of the drive train, which are required for the extremely fast machine operating cycles.

Operation:

1. As the roll cam rotates, it imparts axial motion to the lead screw and nut. Through a linkage, a servo valve is activated.
2. The servo valve, via a bellcrank, shifts a tilt plate which varies the displacement of the servo pump.
3. The servo pump's output supplies a hydraulic input/mechanical output motor which drives the entire generating train. Rotation is transmitted through gearing back to the lead screw, closing the servo loop, which has ample overload safety provisions. Hydraulic output only develops according to the torque demand of the generating mechanism. This minimizes heat build-up in the system and makes machine operation more efficient.



OPTIMIZED OPERATING CYCLES

In addition to supplying rapid changes in motions in either direction, the power amplifier system permits the use of small, lightly loaded roll cams. The roll cam determines the direction and rate of cradle roll relative to the work. Each roll cam path is computer designed; this assures optimum stock removal by each cutter blade, maximum cutter life, and efficient cutting cycles.