



**MAGNETRON SPUTTER COATING METHOD AND
APPARATUS WITH ROTATING MAGNET CATHODE**

Abstract of the Disclosure

5 A target (40), of a thickness that varies
across its radius according to the amount of
material required to be sputtered, is supported in
a nest (42) in a chamber (10) of a sputter coating
apparatus. A closed loop permanent or electro-
magnet strip (80), preferably a flexible permanent
10 magnet, is fixed to a magnet carrier (55) that
rotates behind the nest about the target center
axis. Portions of the magnet are near the rim of
the target and portions are near, but not on, the
target center. One pole of the magnet faces the
15 target rim and one faces the target center axis so
that its field will enclose the target rim within a
magnetic tunnel that traps a plasma over the
target. Lumped magnets (90,91,92) across the
center from the strip support the plasma near the
20 center so as to cause some sputtering at the target
center. Other lumped magnets (95,96,97,98)
adjacent the strip help sharpen the field so that a
desired distribution of sputtering can be achieved.
Enclosed in a sealed space (44) behind and in
25 thermal contact with the target nest is the carrier
from which the magnets project to facilitate the
flow of cooling fluid across the back surface of
the nest to cool the target as the carrier rotates.