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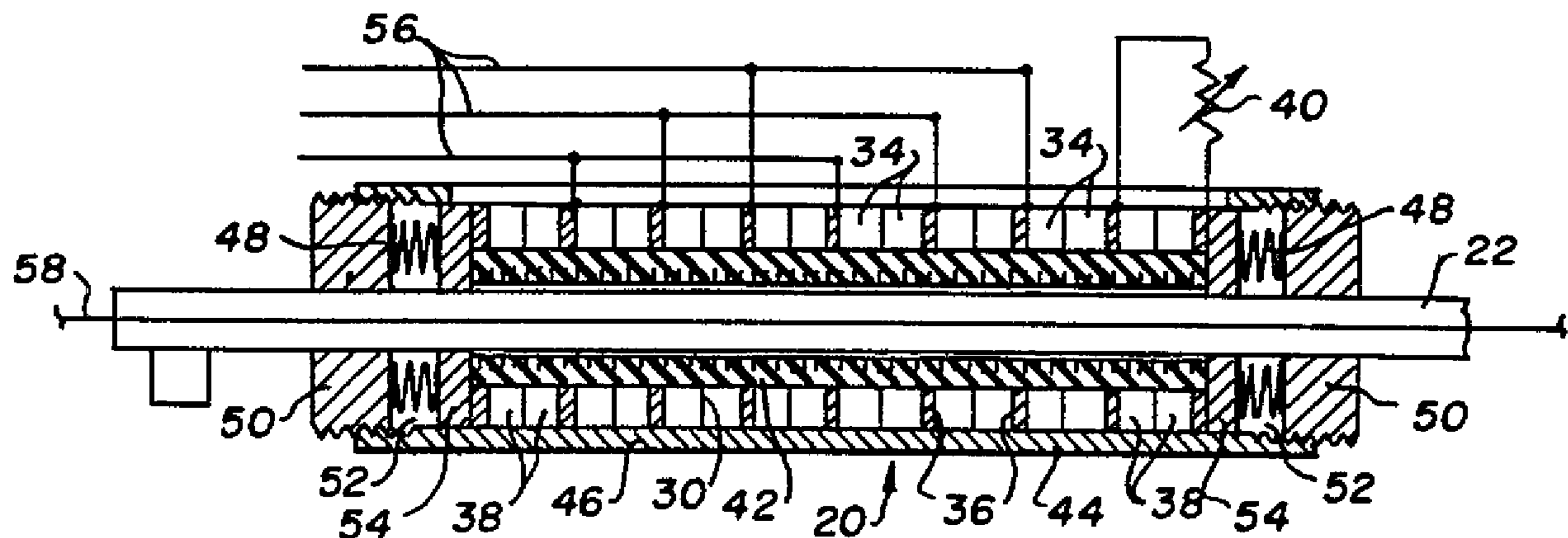
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(54) Title: POSITIONING APPARATUS



(57) Abrégé/Abstract:

An actuator (20) able to move along a track (22). The actuator has an elastic coupling member (30) that surrounds the track (22). The coupling member (30) has a regularly grooved internal surface (32). There are pairs of piezoelectric transducers (34) surrounding the coupling member. These transducers (34) are polarized with each member of a pair being polarized in a direction different from the other member of the pair. There is an insulator (36) between neighbouring pairs of transducers (34) and absorbers (38) at each end of the actuator (20). Voltage can be applied to the transducers (34) whereby the application of voltage expands and contracts the transducers (34), generating waves in the coupling member (30) causing it to move along the track (22).





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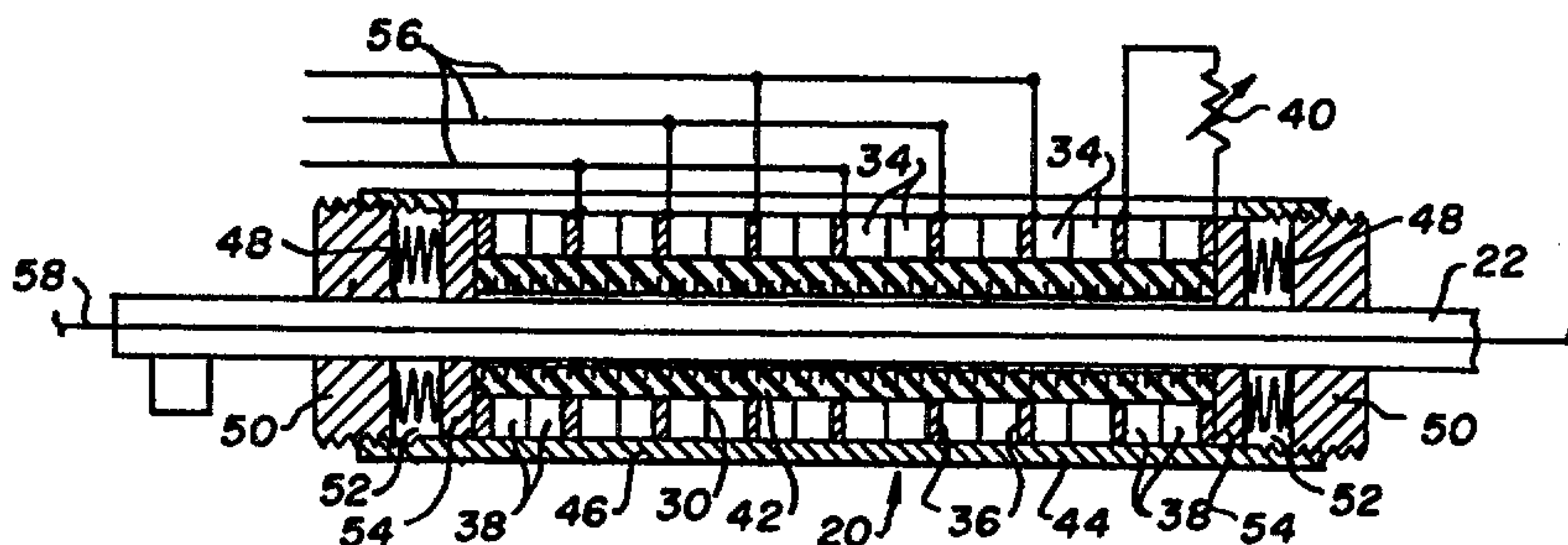
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POSITIONING APPARATUS

FIELD OF THE INVENTION

This invention relates to an actuator able to move along a track, and to a card scanner that uses the
5 actuator.

DESCRIPTION OF THE PRIOR ART

The introduction of high resolution, reflective laser recording material has made possible the development of optical data cards. These cards, which
10 are about the size of a credit card, are able to store several megabits of information. This type of high density storage card is disclosed, for example, in US Patents 4,360,728 and 4,500,777 issued to Drexler. A disadvantage is that in order to read the optical data
15 stored in the optical data card, bulky and complex optical data readers are required. These readers are similar to automatic teller machines currently used by bank customers and the like to have access to their accounts.

20 Optical data cards have information in digital format recorded in micro-sized holes on a layer of optical material mounted on the card, which is typically of plastic. Because the holes, each representing a data bit, are small, ranging from 1 to 40 microns, a large
25 number of holes or bits can be recorded on one card. Depending on format, densities of 20 million or more bits of data can be achieved.

A substantial amount of space has been required in order to position the optics, source and detectors close
30 to the medium being read. If a rectangular optical data card is used, a series of motor drives are required to move the card below the optics.

