one dipole to the other. Thus signals in a plane will no longer be out of phase, ie the fields will add.

Fig 7 shows a W8JK end on view polar plot with its much reduced level of signal radiated in a vertical direction. Thus not wasting precious watts in putting large signals into Europe when trying to work longer distances.

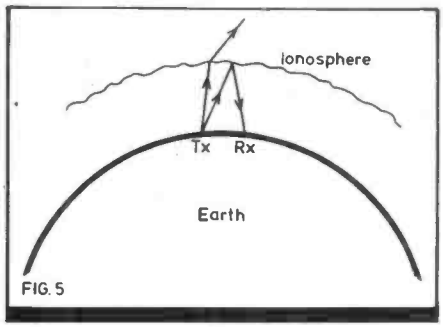

FIG. 5

I decided that 14MHz was the lowest frequency for which the W8JK would be used. My version of the aerial was produced to fit in the loft space of my house, the basic material being 300 ohm ribbon throughout. First of all, two folded dipoles of identical dimensions were produced as per **Fig 8** and lightly tacked to the roof bearers as in **Fig 9.** The ribbon feeder folded dipoles were positioned on the bearers so that the distance between them was exactly 8'.

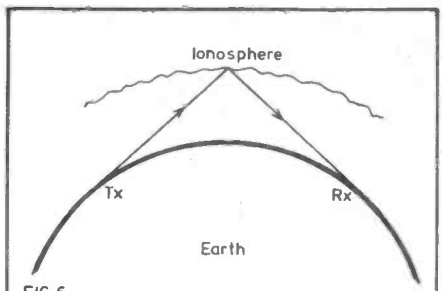

FIG. 6

The phasing harness to the dipoles was another piece of feeder exactly 8' long, with the insulation removed at the precise centre point. The tinned end of the harness were then connected to the dipoles with a half twist being given to one side of the harness to obtain the phase reversal fundamental to the operation of the aerial. The ribbon feeder to the shack was then connected to the bared centre point of the phasing harness, and the other end connected to a balanced output aerial tuning unit in the shack.

The rig and ATU were tuned to 20 metres and a number of CW DX contacts made. Comparisons with an outdoor G5RV inverted vee whose apex was at 35 feet, demonstrated that DX contact signals both in and out were always better on the W8JK.

After a period of weeks, I had another chat with G3ASG and we discussed the possibility of delaying the signals to one dipole to give the array some directivity.

The aerial was modified to the form shown in **Fig 10** and the switching unit in **Fig 11** built. The only critical part of the switching unit is the delay line. This had to be cut so that the phase delay equalled the space delay caused by the dipoles being 8 feet apart.

A length of ribbon feeder 8 feet

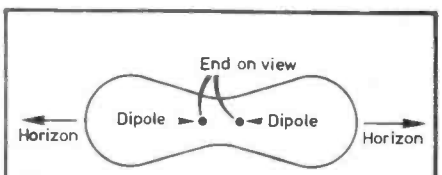

FIG. 7

long was cut, and a temporary 1 turn coupling link soldered to one end as shown in **Fig 12.**

The One Turn link was offered up to a GDO and resonance at 28MHz looked for. Due to the veloci-

FIG. 8

TABLE 1

SWITCH SW1	POSITIONS SW2	CONDITION	PERFORMANCE	POLAR DIAGRAM
1	1	DIPOLE 2 FED FEED TO DIPOLE 1 SHORTED	LOW-MEDIUM ANGLE	A
2	1	DIPOLE 1 FED FEED TO DIPOLE 2 SHORTED	AS ABOVE	AS ABOVE BUT POLAR DIAGRAM ROTATED 180°
1	2	BOTH DIPOLES FED IN PHASE	BEST FOR HIGH ANGLE	B
2	2	AS ABOVE	AS ABOVE	AS ABOVE
1	3	BOTH DIPOLES FED OUT OF PHASE (W8JK)	LOW ANGLE BI-DIRECTIONAL	C
2	3	AS ABOVE	AS ABOVE	AS ABOVE
1	4	BOTH DIPOLES IN PHASE WITH DELAY TO ONE	HIGH ANGLE SLIGHTLY DIRECTIONAL	D
2	4	AS ABOVE	AS ABOVE	AS ABOVE. MAJOR/ MINOR LOBES REVERSED
1	5	BOTH DIPOLES OUT OF PHASE WITH DELAY TO ONE	LOW ANGLE CARDOID	E
2	5	AS ABOVE	AS ABOVE	AS ABOVE. MAJOR LOBE IN REVERSE DIRECTION
1	6	EITHER DIPOLE FED (DEPENDS ON SW1) THE OTHER BEING O/C	MEDIUM/ HIGH ANGLE	F
2	6			

Polar plot diagram over page