

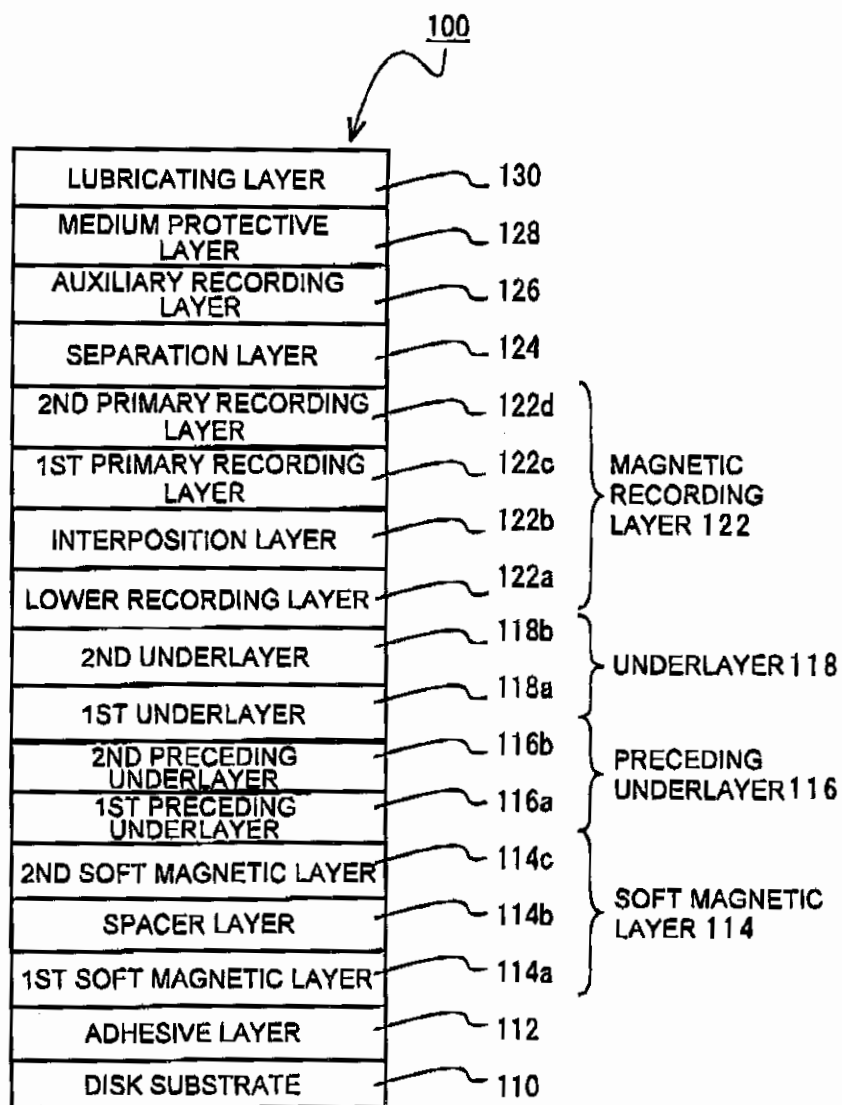


FIG. 1

		1ST PRECEDING UNDERLAYER	2ND PRECEDING UNDERLAYER	1ST UNDER- LAYER	Ra [nm]	$\Delta \theta$ 50 [deg]	Hc [Oe]	Hn [Oe]	SNR [dB]
Example	1	45Ni55Ta	97Ni3W	Ru	0.18	2.3	4950	-2520	18.5
	2	50Ni50Ti	97Ni3W	Ru	0.18	2.4	4920	-2550	18.4
	3	45Ni55Ta	97Ni3W	90Ru10Cr	0.18	2.3	4920	-2490	18.4
Comparative Example	1	45Ni55Ta	--	Ru	0.17	5.2	3880	-1800	15.8
	2	--	97Ni3W	Ru	0.21	3.1	5120	-2630	17.5

FIG. 2

		1ST PRECEDING UNDERLAYER	2ND PRECEDING UNDERLAYER	1ST UNDER- LAYER	Ra [nm]	$\Delta \theta$ 50 [deg]	Hc [Oe]	Hn [Oe]	SNR [dB]
Example	4	65Ni35Ta	97Ni3W	Ru	0.22	2.7	4820	-2410	17.9
	5	55Ni45Ta	97Ni3W	Ru	0.19	2.4	4930	-2510	18.4
	1	45Ni55Ta	97Ni3W	Ru	0.18	2.3	4950	-2520	18.5
	6	35Ni65Ta	97Ni3W	Ru	0.18	2.3	4810	-2310	17.8

FIG. 3A

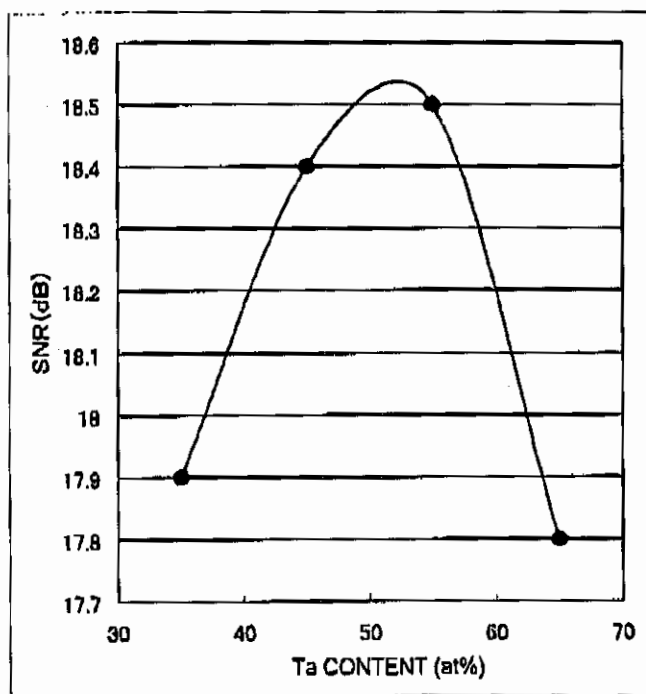


FIG. 3B

		1ST PRECEDING UNDERLAYER	2ND PRECEDING UNDERLAYER	1ST UNDER- LAYER	Ra [nm]	$\Delta \theta 50$ [deg]	Hc [Oe]	Hn [Oe]	SNR [dB]
Example	1	45Ni55Ta	97Ni3W	Ru	0.18	2.3	4950	-2520	18.5
	7	45Ni55Ta	95Ni5W	Ru	0.18	2.2	4920	-2500	18.5
	8	45Ni55Ta	93Ni7W	Ru	0.17	2.2	4880	-2480	18.2
	9	45Ni55Ta	91Ni9W	Ru	0.18	2.3	4750	-2380	17.7

FIG. 4A

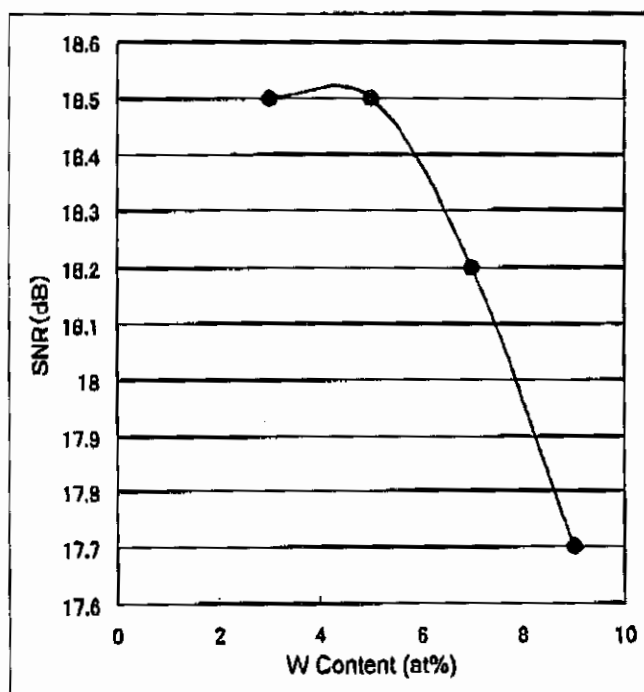


FIG. 4B

		MATERIAL			Dq50(Ru) [deg]	GRAIN DIAMETER [nm]	SNR [dB]
		1ST PRECEDING UNDERLAYER	2ND PRECEDING UNDERLAYER	LOWER RECORDING LAYER			
Example	21	50Cr50Ta	95Ni5W	95(Co-10Cr-18Pt)-2.5(SiO ₂)-2.5(TiO ₂)	2.4	8.6	18.6
	22	50Ni50Ta		95(Co-10Cr-18Pt)-2.5(SiO ₂)-2.5(TiO ₂)	2.4	8.7	18.5
Comparative Example	21	-		95(Co-10Cr-18Pt)-2.5(SiO ₂)-2.5(TiO ₂)	3	8.5	17.8
	22	-		95(72Co-10Cr-18Pt)-5(SiO ₂)	3.1	8.2	18
	23	50Cr50Ta		95(72Co-10Cr-18Pt)-5(SiO ₂)	2.3	9.2	18.2
	24	50Ni50Ta		95(72Co-10Cr-18Pt)-5(SiO ₂)	2.4	9.1	18.2

FIG. 5

FIG. 6A

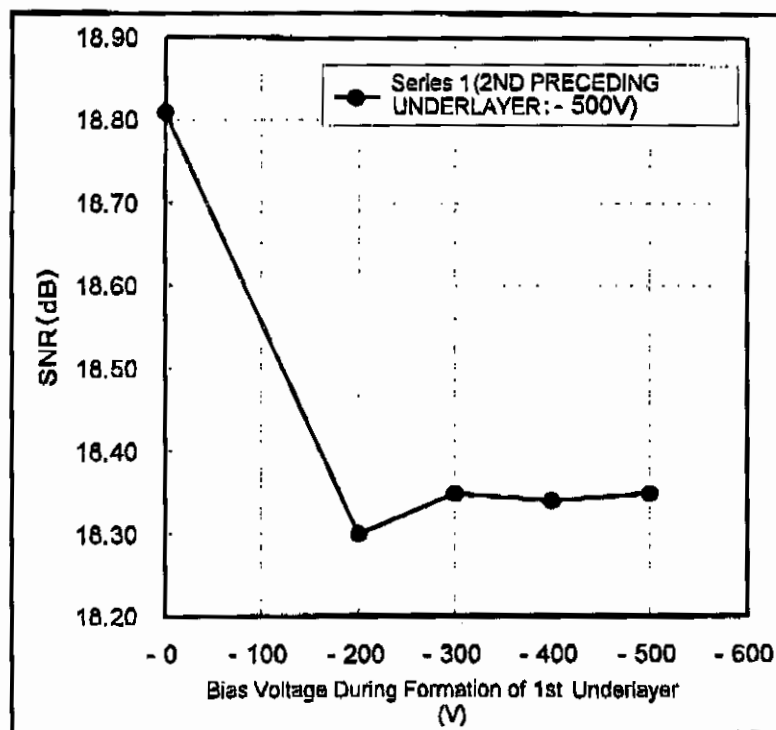
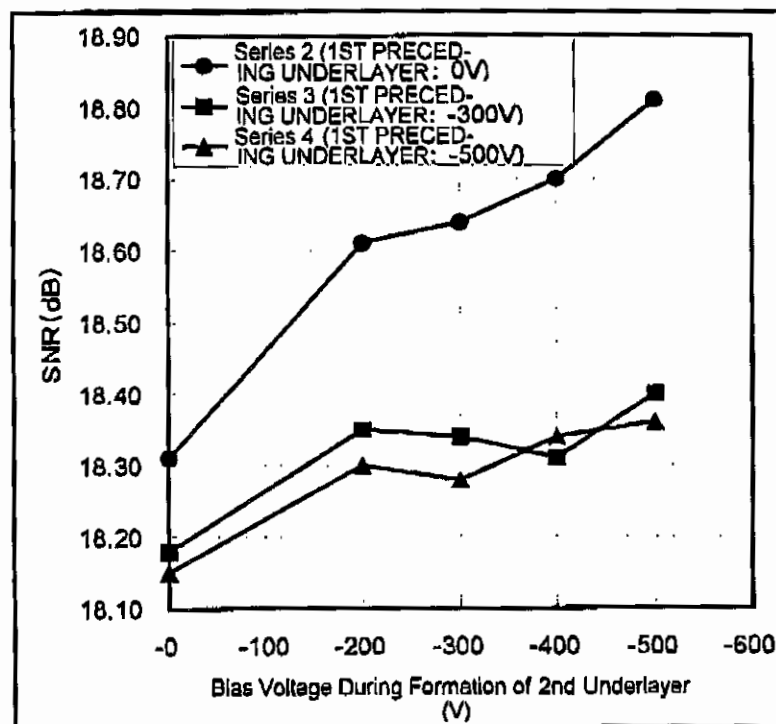


FIG. 6B



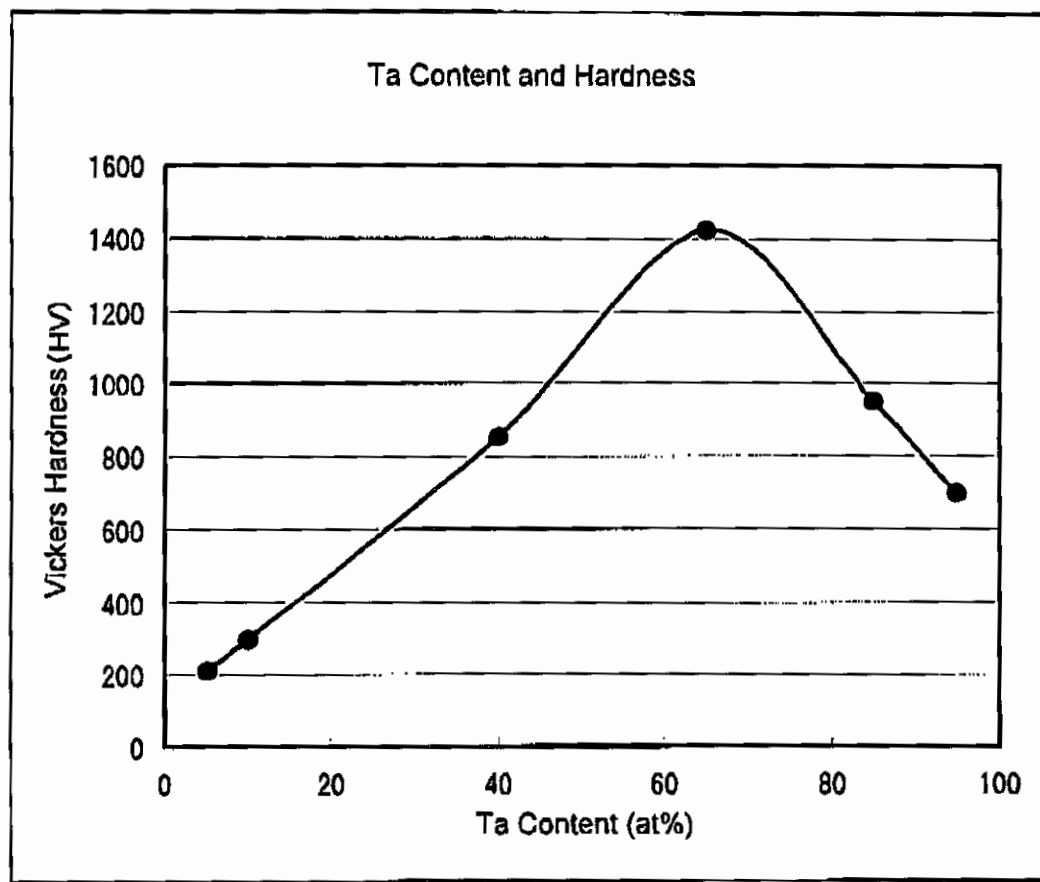


FIG. 7

	Composition of Amorphous Protective Layer	Film Thickness [nm]	Composition of Preceding Underlayer	Film Thickness [nm]	SNR [dB]
Example 41	45Ni55Ta (950HV)	0	95Ni5W	7.2	18.0
		0.7			18.1
		1.4			18.3
		2.4			18.4
Comparative Example 41	97Ni3W (160HV)	0		4.3	17.6
		1.4			17.4
		2.9			17.3
Comparative Example 42	90Ni10Ta (250HV)	0		5.8	17.5
		0.7			17.3
		1.4			17.3
		2.4			17.4

FIG. 8A

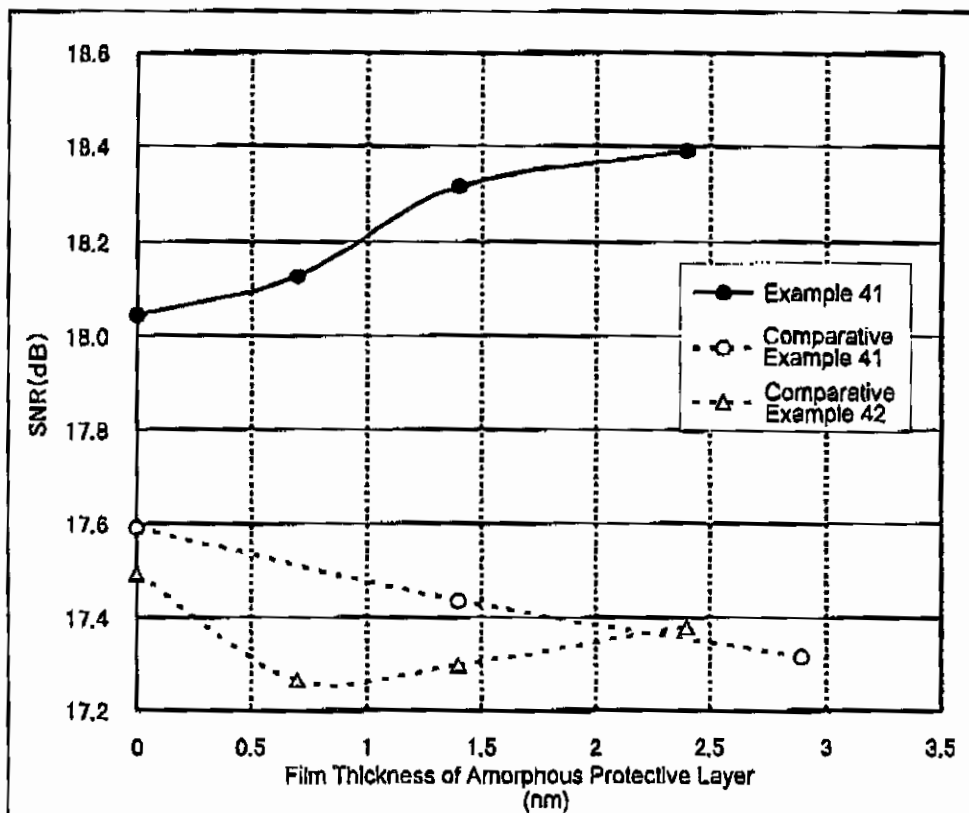


FIG. 8B