

	PAGE		PAGE
Pumping Machinery	40-43	Process used in Extracting Metals— <i>continued.</i>	
Knowles's Patent Compound Condensing Min- ing-pump	42	Silver-ores	69
Useful Information in connection with Steam- pumps	43	1. Sampling the Ores	70
Wrought-iron Welded Pipe	44	2. Roasting the Ores	70
Friction of Water in Pipes	44	(a.) Roasting the Ores in Heaps	70
Rotary Pump	45	(b.) Roasting the Ores in Reverber- ratory Furnace	71
Mineral Railways	45	3. Fusion for Matte	71
Cost of Railway	46	4. Ziervogel Process	72
Cost of Steel Sleepers	46	(a.) Crushing and Roasting the Matte for Sulphate of Silver.. .. .	72
Wagon-wheels and Axles	46	Roasting Sulphate of Silver	73
New Explosives	47	Leaching Sulphate of Silver	74
Rackarock	47	(b.) Precipitating the Silver	74
Tasmania—Mount Bischoff Tin-mine	48	(c.) Washing and Fusing the Ce- ment-silver	74
Reduction and Dressing Works	49	(d.) Precipitation of Copper	75
Pyramidal Boxes	49	(e.) Refining the Copper	75
Jiggers	50	5. Treatment of the Ziervogel Tub-residues	75
Concave Buddles	50	(a.) Fusion for White-metal	75
Convex Table	51	(b.) Roasting the White-metal	75
Tossing-tub	52	6. Treatment of Residues of Ziervogel Process	76
Broken Hill Mine and Works	52-55	(b.) By the Augustine Process	76
Zinc Desilverisation Process	55-68	Solution	76
Dry Creek Smelting-works, Adelaide.. .. .	55	7. Treatment of Bottoms	76
Softening Process	56	8. Treatment of the Oxidized Copper-alloy	76
Lead-ores	56	Brick-making Machinery	77-79
Dry Ores	57	Pulverising-and-sifting Mill	77
Silver-and-gold ore	57	Patent Mixing-and-kneading Machine	78
1. Softening the Lead	58	Moulding-and-pressing Machine	78
2. Incorporation of Zinc and Separation of Zinc Scums	60	Brick-pressing or Calcindering Machine	78
3. Refining the Desilverised Lead	63	General Remarks	79-80
4. Treatment of Zinc Scums	64	Improved Planing, Matching, and Moulding Machine, No. 3 Size	79
Distillation of Zinc rich in Silver	67	Planing-and-matching Machine, No. 5 Size	79
Description of Process used in Extracting Metals from Ore at the Boston and Colorado Works, in America	68-72	Appendix	80
Separation of Gold and Silver from Copper, Boston and Colorado Smelting-works	69	Professor Roberts-Austen's Report on Smelting- works, Freiberg, Germany	80
Gold-ores	69		