

Men of Austrian nationality were called up for service by the State on various public works; and it is worthy of note that many of them, even if permitted to do so, show no disposition to return to gum-digging after having enjoyed regular hours and good wages in the place of long hours, arduous work, and uncertain prices in the gum industry.

Taking into consideration the higher cost of living on the gumfields, the more or less isolated life, and the hard work necessary to make other than a mere existence, it is not a calling that men will be attracted to. It is chiefly due to the free and independent life, and the fact that a man is his own master, that so many men are engaged in the industry at all.

All things considered, the important consideration in regard to the kauri-gum industry to-day is the necessity for an increased and regular output. Unless the alien is again given the right to return to the gumfields and to "pothole," burn, and desolate the country at will, it would appear that the chief hope of increasing production lies in the field of labour-saving devices and plants enabling the digger to turn over more ground and to recover a larger percentage of the gum than hitherto.

A BONUS RECOMMENDED.

I recommend that a substantial bonus should be offered for, say, the best three plants for dealing with kauri-gum-bearing soils and the recovery of the kauri-gum contained therein. These plants should be capable of being turned out cheap enough to be within the reach of the diggers; and special consideration would be given to plants capable of being worked by two or three men, and which could be moved about from one place to another without much expense. In this connection it has been deemed advisable to make a short summary of existing patents dealing with the matters here discussed. Complete specifications and drawings of the inventions summarized are filed at the Government Kauri-gum Office, 7 Hobson Street, Auckland, where they may be inspected free of charge by any *bona fide* inquirer. Copies of any specifications and drawings relating to patented inventions may be had on application to the Registrar of Patents, Wellington, on payment of a small fee to cover the cost of copying.

SUMMARY OF EXISTING PATENTS.

No. 36483, F. V. Raymond (23 figures, 44 claims).—Consists of the adaptation or application of buckets operated on an endless link chain, pipes in which operate the force of suction or an adjustable mouthed grab to the raising or lifting of gum soils.

No. 36431, F. V. Raymond (8 figures, 14 claims).—Relates to means of treating and separating kauri-gum-bearing soils by means of chutes.

No. 37667, F. V. Raymond (11 figures, 12 claims).—Consists of mechanical devices for separating soil and foreign matter from the gum.

No. 37947, J. S. Maclaurin (no drawings, 11 claims).—Consists of placing kauri-gum and impurities in a salt solution having a higher specific gravity than the gum, but a lower specific gravity than the impurities, and in removing the air-bubbles which would otherwise prevent the impurities from sinking.

No. 38059, F. V. Raymond (20 figures, 46 claims).—Consists of treating kauri-gum-bearing soils by passing soils over plates, screens, meshes, flumes, and the like by the action of running water, and methods of mechanically dealing with timber found therein.

No. 39091, F. V. Raymond (1 figure, 9 claims).—Relates to the application of heat for the purpose of separating kauri-gum from the impurities among which it is found, and also for drying and grading the gum.

No. 39575, F. V. Raymond (1 figure, 6 claims).—Relates to the drying of kauri-gum by compressed air.

No. 39579, F. V. Raymond (3 figures, 10 claims).—Consists of improved methods whereby kauri-gum-bearing soils may be expeditiously treated mechanically.

No. 39579, F. V. Raymond (3 figures, 10 claims).—Consists of spraying the kauri-gum-bearing soils, which softens the bulk and separates the various particles. The mass is then dried, and by use of fans of varying power particles of different specific gravities are sucked up and forced by air-currents into settling-rooms, resulting in a grading or sorting being performed.

No. 40439, V. De Vally (4 figures, 5 claims).—Consists of a pump for lifting gum slush from kauri-gum-bearing swamps, in combination with a perforated rotating cylinder provided with beaters, and a conveyor or conveyers for beating and conveying the gum through the cylinders to a receptacle.

No. 40702, H. A. Pyke (12 figures, 2 claims).—Consists of putting kauri-gum and impurities contained therein in a receptacle containing water, heated or cold, capable of withstanding internal pressure, which is applied at about 30 lb. to the square inch or more. The result of this treatment will be to precipitate the foreign matter and some of the gum. After treatment in this manner the whole is transferred to another receptacle containing water heated to a suitable temperature, with the result that the gum will float and the foreign matter sink.

No. 39580, F. V. Raymond (5 figures, 6 claims).—Relates to obtaining samples of soils by means of mechanically operated slotted hollow spear rods with a view to locating deposits of kauri-gum.

No. 39618, F. V. Raymond (2 figures, 7 claims).—Improvement and extension of methods and apparatus described in No. 39580 above.

No. 39463, C. Suttie (4 figures, 6 claims).—Consists of an agitating-vessel with beaters affixed to a revolving shaft, for breaking up gum-bearing soils to dissolve the soluble earth and matter therein, and for separating the solid content thereof, such as wood and gum particles, and of grading the same into different sizes.

No. 39547, C. Suttie (6 figures, 4 claims).—Consists of a revolving cylinder for screening kauri-gum and its impurities.

No. 39574, W. R. Cockburn and W. J. F. Jenkins (2 figures, 3 claims).—Relates to the mechanical extraction of kauri-gum from the soils in which it is found, by means of a horizontal or inclined cylinder in which is operated a spiral brush, in conjunction with a bowl with perforated sides, said bowl being mounted so as to be capable of rotation about its vertical axis, and being located within a non-rotary casing. Jets of water are used in the reducing treatment.

No. 39926, C. Suttie (2 figures, 5 claims).—Consists of the use of a number of loosely lying lines of chains connected to a base to move along a surface among the material to be operated on. The rubbing or disintegrating effect on the material can thus be done without seriously abrading the gum.

No. 39932, F. V. Raymond (10 figures, 15 claims).—Consists of the washing of gum-bearing soils by agitation within a vessel of reciprocating perforated plates and frames carrying cross-bars set at various angles and inclinations for the purpose of separating the gum from the impurities.

No. 39576, F. V. Raymond (4 figures, 9 claims).—Consists of mechanical means for reducing gum soils to a state that will enable them to be easily raised and delivered to a screening appliance. Jets of water are directed on the soils, which may be further pulverized and disintegrated by appliances such as a movable frame, or by the use of tines, harrows, and the like. When the soils are sufficiently reduced they are raised to the screening appliances by any suitable form of elevator.