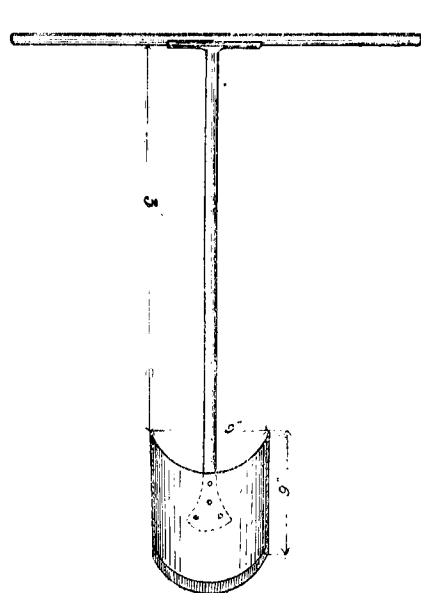
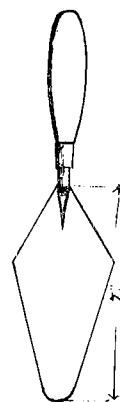




CIRCULAR-PIT DIGGER.



CUTTING TREAD DIBBLER.

LARGE PLANTING-TROWEL.
For Plantation-work.

EXCELLENT NOTCHING-TOOL.

Sowing in situ.—Foresters generally are evidently devoting a good deal of attention to the creation of pine forests by sowing seed directly *in situ*, but my observations in both America and Britain have convinced me that unless exceedingly favourable conditions for plant-life abound the measure of success attained will not justify the continuation of the practice. Generally the area being operated upon is brought to a fine state of cultivation for the reception of the seeds, which receive a coating of red-lead after having been placed in damp sand for a few days. The seeds are then either sown by hand or machine in drills or broadcast, and finally a brush harrow is drawn over the surface. Perhaps the irregularity of the eventuating stand, rapidity of weed-growth, and necessity for early thinning constitute the chief weaknesses of the method; but nevertheless there certainly should be inexpensive trials made of this and in every other phase of afforestation-work, so that sufficient local data may be acquired by the Department, and distribution of knowledge so gained if desired. Another method seen, which is worthy of trial, was sowing of an easy-germinating pine-seed in specially prepared spots. The results from this idea were sufficiently good to merit its adoption in semi-sheltered situations where there is no likelihood of rank vegetation smothering the eventuating seedlings.

COST OF OPERATIONS.

In forming a brief comparison of our expenditure in conducting afforestation-work generally with that of countries visited the contrasting conditions in the value of labour and nature of ground being operated upon have been taken into consideration. Investigations regarding the actual cost of foreign tree-planting work disclosed such inconsistent results that it is indeed difficult to arrive at a uniform basis for comparison with our New Zealand operations. Undoubtedly our present rate of wages in New Zealand exceeds that paid labourers similarly employed in the British Isles, France, Hawaii, and even America, and we therefore cannot reasonably hope to show such low working-costs.

Comparative Rates of Pay to Nursery and Plantation Workers.

				Men (per Day).	Youths (per Day).
New Zealand	..	..	..	8s. to 9s.	4s. 6d.
British Isles	..	..	..	3s. to 4s. 6d.	2s. 6d. and 3s.
America	..	..	..	7s. 6d. to 8s. 6d.	4s.
France	..	..	..	3s. to 4s.	2s. 6d.
Austria-Hungary	..	..	..	1s. 10d. to 2s. 6d.	..
Hawaii (Portugese labour)	..	..	..	4s. 6d. to 6s. 6d.	3s. 6d.
New South Wales	..	..	..	8s. to 9s. 6d.	3s. 6d. and 4s.
Victoria	..	..	..	8s. to 10s.	4s.

In the British Isles a good deal of planting-work is conducted by working students, whose individual remuneration averages approximately 17s. per week. The proportionally large employment of low-paid youths there was noticeable in many places, and it is therefore not surprising that the cost of tree raising and planting an acre of ground ranges between £3 10s. and £6 10s. according to surface conditions, against our 30-per-cent. increase on that expenditure. In Canada, where afforestation on an extensive scale has not yet been attempted, planters endeavour to prepare the ground by ploughing and cultivating before planting for shelter and ornamental purposes, and this generally works out about 30 per cent. cheaper than in New Zealand; but, of course, less than one-half of the trees are necessary to obtain the desired results, and the nature of the ground operated upon, differing from that generally utilized in the South Island for tree-planting, offers no obstruction to cultivation. At Hawaii Islands pits measuring 18 in. by 18 in. by 12 in. are made for the reception of *Eucalyptus* seedlings, and no reliable information regarding total working-expenditure could be obtained in the few hours at my disposal there. The necessity of preparing such large holes absolutely forbids operating economically, notwithstanding the comparatively low labour cost.