

methods, and when a complete exposition of a principle has required an application of higher mathematics, it has been treated in the notes at the end of the volume.

The first volume relates to the production of oscillating currents, beginning with the fundamentals on electromagnetic induction and developing the subject over the field usually covered in works on alternating currents, leading to consideration of high frequency oscillations required in wireless telegraphy apparatus.

The second volume is a continuation of the last chapters of the first and proceeds with the development of the methods of producing electromagnetic waves and the apparatus applicable to wireless telegraphy installations.

With the numerous commercial applications of wireless apparatus the necessity of a close study of the subject is apparent, and a work covering the field from fundamentals to commercial apparatus should have an extended sphere of usefulness.

L. E. P.

MACHINE—OUTILS. OUTILLAGE—VERIFICATEURS. Notions Pratiques par P. Gorgeu, Capitaine d'artillerie. iv + 232 pages, 6½ x 10 inches, with 200 diagrams, 1909; price 7 f. 50. Paris, Gauthier-Villars.

The present work is intended chiefly for the guidance of artillery officers engaged in inspection service. The operation, the relation of the different parts, and methods of driving of the usual types of machine tools, wood-working tools, and measuring devices are illustrated and described.

The subject is presented under four main divisions:

Part 1. Generalities on machine tools—relates to the kinematic devices employed.

Part 2. Study of classified groups of machine tools—considers the various tools embraced under the respective operations of cutting, shearing, grinding, hammering, die-pressing, and drawing.

Part 3. Cutting tools—relates to the principles involved and the manufacture of cutting tools.

Part 4. Construction and use of test-gauging instruments—describes the different forms of test-gauges employed in machine construction, methods of using, tolerances, and other matters involved in the process of inspection.

The illustrations are of the diagrammatic type only and do not purport to represent actual machines. The framing is shown in a shaded outline, the moving parts and their relation to each other being clearly defined and easily traceable, a mode of illustration excellently adapted to the intended purpose.

The powerful multi-speed drives and feed mechanisms of lathes employed particularly in ordnance manufacture are not illustrated. Indeed, the work covers a field embracing the elements of modern machine-shop equipment rather than a consideration of the elaborate mechanisms found in the most modern development of high-powered tools.

For a class of readers interested in the elemental operation of machine tools, the subject is well covered.

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