

THE ENGINEER'S HANDBOOK

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649573684

The Engineer's Handbook by Charles S. Lowndes

Except for use in any review, the reproduction or utilisation of this work in whole or in part in any form by any electronic, mechanical or other means, now known or hereafter invented, including xerography, photocopying and recording, or in any information storage or retrieval system, is forbidden without the permission of the publisher, Trieste Publishing Pty Ltd, PO Box 1576 Collingwood, Victoria 3066 Australia.

All rights reserved.

Edited by Trieste Publishing Pty Ltd.
Cover @ 2017

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold, hired out, or otherwise circulated without the publisher's prior consent in any form or binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

www.triestepublishing.com

CHARLES S. LOWNDES

**THE ENGINEER'S
HANDBOOK**

THE
ENGINEER'S HANDBOOK

LONDON
PRINTED BY SPOTTISWOODE AND CO.
NEWSCOURT SQUARE

THE
ENGINEER'S HANDBOOK

BY
CHARLES S. LOWNDES
ENGINEER, LIVERPOOL

LONDON
LONGMAN, GREEN, LONGMAN, AND ROBERTS
1860

Eng 348.60.8

345.11

HARVARD UNIVERSITY
SCHOOL OF ENGINEERING

JUN 20 1917
TRANSFERRED TO
HARVARD COLLEGE LIBRARY

PREFACE.

THE Author has endeavoured in this work, to lay before the young engineer the principles which should guide him in the construction of machinery; and to put together in a concise and intelligible form the necessary rules and tables for his assistance. He has himself used most of these rules habitually for many years, and offers them to the public with every confidence.

The rule for calculating the evaporative power of boilers will be found very useful; by its help any engine may be adapted with a boiler capable of supplying it properly with steam, under whatever conditions it may be worked, with unvarying certainty.

The comparative economical effect of using steam expansively is shown clearly and conclusively in the table of expansions, which is recommended to every engineer's particular attention.

The principles which regulate the speed of steam vessels are as yet somewhat obscure. The Author believes that the article on this subject will not be without value, as at least opening the way, in a practical and intelligible manner, to a more complete exa-

mination of the subject. The rule given has been derived from the results obtained from a number of the fastest and most successful steamers both in this country and in America.

In conclusion, the Author would recommend every young engineer, at his leisure, to scrutinise and investigate every rule carefully, either by going down to the principle of it, or by comparing the results obtained from it, with the best and most successful examples that come before his notice.

LISCARD, NEAR LIVERPOOL.

Oct. 25, 1859.

CONTENTS.

	Page		Page
Air Pump	1	Brickwork	28
Beams, solid	3	" weight	39
" cast iron, flanged	5	Case Hardening	29
" wrought iron	6	Centre, main	40
" engine	39	Centrifugal Force	29
Bilge Pump	10	Chimney	21
" injection	60	Coal	22
Boiler evaporation	11	Cocks	29
" economy	15	Cold water Pump	30
" power	11	Columns, solid	30
" proportions	16	" hollow, wrought iron	32
" strength	17	Condensor	35
" rivetting	18	Connecting Rod	39
" form and setting	19	Copper, strength	78
" furnace	20	" weight	89
" tubing	21	Crane	36
" chimney	21	Crank Pin	40
" coal	22	Crosshead	40
Bolt and Cutter	23	Cutter	23
Boring and Turning	24	Engine, power	38
Bracket	66	" friction	38
Brass, composition	24	" sizes	39
" casting	24	" proportion of parts	39
" moulding	27	" expansion	41
" crucibles	27	" evaporation necessary	42
" strength	78	to supply	42
" weight	89	" economy of expansion	43