

**THE LOCOMOTIVE ENGINE: INCLUDING
A DESCRIPTION OF ITS STRUCTURE,
RULES FOR
ESTIMATING ITS CAPABILITIES AND
PRACTICAL OBSERVATION ON ITS
CONSTRUCTION AND MANAGEMENT**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649638543

The Locomotive Engine: Including a Description of Its Structure, Rules for Estimating Its Capabilities and Practical Observation on Its Construction and Management by Zerah Colburn

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

ZERAH COLBURN

**THE LOCOMOTIVE ENGINE: INCLUDING
A DESCRIPTION OF ITS STRUCTURE,
RULES FOR
ESTIMATING ITS CAPABILITIES AND
PRACTICAL OBSERVATION ON ITS
CONSTRUCTION AND MANAGEMENT**

THE
LOCOMOTIVE ENGINE:

INCLUDING

A DESCRIPTION OF ITS STRUCTURE,
RULES FOR ESTIMATING ITS CAPABILITIES,
AND
PRACTICAL OBSERVATIONS ON ITS CONSTRUCTION AND
MANAGEMENT.

By ZERAH COLBURN.

Third Edition.

PHILADELPHIA:
HENRY CAREY BAIRD & CO.,
INDUSTRIAL PUBLISHERS,
810 WALNUT STREET.
1886.

INTRODUCTORY NOTICE.

THE absence of any purely practical work on American locomotives has induced the preparation of the following pages devoted to that subject. It is believed the book will afford to the student a clear idea of the nature and mode of application of steam power, while to those engaged in the manufacture and operation of engines it will afford much useful matter connected with their construction and management.

Much care has been bestowed to render plain and distinct those parts of the book which are devoted to the principles of

locomotive science; and the rules and illustrations have been adapted to the wants of those who have but little time or taste for the pursuit of abstract investigations. While this feature will constitute a chief merit of the work in the hands of such persons, it will make it none the less definite and exact for the purposes of the designer and engineer.

The particulars of many recent engines, and improvements connected therewith, have been presented, embracing the patterns of a majority of all the builders in the United States. For many of these we are indebted to the manufacturers of engines, while others have been procured for the purpose from the engines themselves—those machines being selected which presented some new or favourable feature in the proportions of their parts or in the arrangement of their machinery.

It is therefore hoped that the book may

impart some benefit to those who read it, and that it may serve to this purpose until the appearance of a better one from those whose opportunities for information would enable them to treat the subject in a manner more suited to the various requirements of its nature.

CONTENTS.

SECTION I.

The Properties of Steam and the Phenomena connected with its Generation.....Page 9

SECTION II.

A general Description of the Construction of the Locomotive Engine..... 22

SECTION III.

Details of the Locomotive Engine.—The Boiler and its Appendages..... 39

SECTION IV.

Details of the Locomotive Engine continued.—Of the Cylinders, Steam Chests, Valves, and Steam Pipes. 62

SECTION V.

Details of the Locomotive Engine continued —Of the Framing, Jaws, Wheels, Springs, &c..... 68

SECTION VI.

Details of the Locomotive Engine continued.—Of the Pistons, Slides, Connecting Rods, Valve Motion, and Pumps..... 78

SECTION VII.	
Remarks on the Management of Engines.....	Page 97
SECTION VIII.	
Various Patterns of Locomotives.....	108
SECTION IX.	
Tables and Calculations relative to the Locomotive...	127
SECTION X.	
Miscellaneous Notes and Observations.....	135
A GLOSSARY OF TERMS applied to the Machinery, and to the Operation of the Locomotive Engine.....	171
INDEX	181