|  | CONTENTS  |        |
|--|---|--------|
| PREFACE .                                      |   | v      |
| PART ONE.                                      | SELF-IGNITION   | 1      |
| Chapter I.                                     | THERMAL AND CHAIN-THERMAL EXPLOSION .                       | 1      |
| § 1.   | Thermal Explosion   | 1<br>1 |
| § 2.   | Chain-Type Explosion .                                      | . 16   |
| 1.<br>1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1 |   |        |
| Chapter II.                                    | SELF-IGNITION OF HYDROCARBONS                               | 31     |
| . § 3  |   | 31     |
| §4.  | Degenerate Branching During the Oxidation of Hydrocarbons . | 41     |
| § 5.   | Interaction of the Various Means of Degenerate Branching    |        |
|  | During the Oxidation of Hydrocarbons.                       | 49     |
| §6.  | High-Temperature Ignition of Hydrocarbons                   | 61     |
| § 7.   | The Low-Temperature Ignition of Hydrocarbons                | 76     |
| § 8.   | The Effect of Admixtures on the Ignition of Hydrocarbons    | 102    |
|  |   |        |
| Chapter III.                                   | HYDROCARBON IGNITION AT HIGH PRESSURES                      | 125    |
| § 9.   | Low-Temperature Ignition by Means of Compression            | 125    |
| § 10.  | The High-Temperature Compression Ignition of                |        |
|  | Hydrocarbons  | 153    |
|  |   |        |
| PART TWO.                                      | FLAME   | 165    |
| Chapter IV.                                    | LAMINAR FLAMES  | 165    |
| -  | Structure and Propagation of Laminar Flames                 | 165    |
|  | Thermal Theories of Flame Propagation                       | 185    |
|  | The Kinetic Parameters Reactions in Flames.                 | 196    |
|  | Diffusion Theories of Flame Propagation                     | 222    |
|  | Limits of Ignition and Land Propagation                     | 232    |
| §16.   | Equilibrium in Flanges                                      | 249    |
|  |   |        |
| Chapter V.                                     | TURBULENT COMBUSTION  | 275    |
| •  | The Turbulent Burning Velocity                              | 275    |
| § 18.  |   | 284    |
| § 19.  | Theories of Turbulent Combustion.                           | 294    |

iii 🕔

| •  | • | 321                  |
|----|---|----------------------|
|    |   | 321                  |
|    |   | 321                  |
|    |   |                      |
|    |   | 339                  |
| ve |   | 357                  |
|    |   | 384                  |
|    |   |                      |
|    |   |                      |
| •  | • | 414                  |
| •  | • | 414                  |
|    |   | ,                    |
|    | • | 443                  |
|    |   |                      |
|    |   |                      |
|    |   | 457                  |
|    |   | <br><br><br><br><br> |