

CONTENTS.

	PAGE.
INTRODUCTORY REMARKS,	1-3
BOILERS AND ENGINES,	4-17
Description of Boilers—Furnace Apparatus—Economiser—Dimensions of Flues and Arrangement of Dampers,	4-10
Description of Engines—Abstract of Horse Power—Coals and Water per Horse Power per Hour—Pond Capacity,	10-12
Engine Diagrams and how to calculate them,	13-17
SPEED OF SHAFTING,	18
JUTE BATCHING—	
Description of the Process of Batching,	19, 20
Selection of Batch for Warp and Weft Yarns for Hessian of Standard quality,	21, 22
Particulars of Jute Opener and Jute Softener, Speed and Diagrams,	23-26
JUTE PREPARING AND PREPARING MACHINERY—	
General Description of Preparing Process,	27, 28
Explanation of the Working of Breaker and Finisher Cards,	29 32
Rules for Calculations of Single Doffer Breaker and Finisher Draft,	33-35
Double Doffer Breaker and Finisher Draft,	36, 37
Arrangement of Single Doffer Clock—Calculations for same, with Diagram,	38-40
Specifications and Speed of Single Breaker Card, with Tables of Wheels for Speed of Workers, Drafts, &c.,	41 47
Diagrams and Tables of Wheels and Pulleys for same,	48-51
Specifications and Speeds of Double Doffer Breakers, with tables of Wheels for Speeds of Workers, Drafts, &c.,	52-59
Arrangement of Double Doffer Clock,	60
Diagrams and Tables of Wheels and Pulleys for Double Doffer Breaker,	61-64
Diagrams of Upstriker Breaker Card, with Tables of Wheels and Pulleys,	65-68
Diagrams of Single and Double Doffer Finisher Card, with Tables of Wheels and Pulleys for same,	69-76

	PAGE.
Diagrams of Upstriker Finisher Card, with Tables of Wheels and Pulleys, for same,	77-80
Specifications and Speeds of Single Doffer Finisher, with Tables for Speed of Workers, Drafts, &c.,... ..	80-98
Lap Machine—Diagrams and Tables of Wheels and Pulleys for same, ...	99, 100
Dimensions of Card Cylinders and Rollers,	101, 102
Details of Covering for Breakers and Finishers,	103-106
Specification of Single Doffer Breaker and Finisher Staves,	107, 108
Specification of Double Doffer Breaker and Finisher Staves,	109, 110
Details of Covering for Upstriker Breaker and Finisher for Weft—Covering for Jute Snipper	111
Diagrams of Breaker and Finisher Staves,	112-118
General Instruction as to Setting of Breaker and Finisher Cards for Hessian Yarns,	119
Particulars of Upstriker Breaker and Finisher Cards Drafts and Speed of Workers,	120
Drawing Frames—Description of Drawing Process and different kinds of Drawing Frames,	121-126
Arrangements of Wheels for Speed, Gill Bars, and Roving,	128, 129
Diagrams of Drawing Frames, with Tables of Wheels and Pulleys for same, ...	130-143
Diagram—Spiral Drawing Frame, Bend, and Screws,	144
Diagrams and Particulars of Drawing and Roving Gills,	145-147
Fluting of Drawing Rollers—Diagrams of Drawing and Pressing Rollers, ..	148-150
Spiral Roving Frame—The Roving Process—Arrangement of Wheels for Clock Calculations, Drafts, Twists, Speed of Spindles, &c.,	151-153
Diagrams of Spiral Disc Roving Frame, with Tables of Wheels, Pinions and Pulleys for same,	154-157
Diagrams—Roving Screws and Gill Bars,	158
Automatic Motion for Roving Frame Drawing Roller—Diagram and Arrangement of Wheels,	159, 160
General Instructions as to Working of Roving,	161
Diagrams—Roving Screws and Gill Bars, showing arrangement of Collar and Pitch Pin,	162
Diagrams—Differential Motion and Calculations for Speed of Bobbin and Traverse,	163-168
Diagrams—Rotary Drawings and Rovings, with Tables of Wheels and Pulleys for same,	169-175
Diagram—Spinning Roving Frame—Table of Wheels and Pinions, ...	176, 177
Speed of Preparing Machinery,	178

	PAGE.
Concluding Remarks on Preparing Machinery,	179
Diagrams of Barrows for Rove and Spinning Bobbins,	180
Arrangements of Preparing Machinery Systems to produce Rove from which Hessian Yarns are to be spun,	181-187
Sacking, Warp, and Weft arrangements,	188, 189
JUTE SPINNING,	190, 101
Instructions as to the Working of Rove Plate,	192
Explanation of the term "The Rove Running,"	193
Speed of Spinning Frame Spindles,	194
Diagram—Spinning, Spindle, and Flyer,	195
Production from Spinning Frames,	196, 197
Twist of Hessian Yarns,	198, 199
Spinning Frame—Draft and Twist arrangement of Wheels, for Calculation— <i>Fairbairn</i> ,	200 202
Diagrams of End Gables of Spinning Frames, showing Twists and Grist or Draft Arrangement of Wheels, &c.— <i>Fairbairn</i> ,	203-206
Diagram—Heart motion,	207
Diagram of Full Bobbin,	208
Automatic Motion for Drawing Roller— <i>Fairbairn</i> ,	209
Arrangement of Spring and Lever for Pressing Rollers,	210
Arrangement of Spring and Lever for Pressing Rollers and Retaining Rollers, Automatic Motion for Drawing Roller— <i>Thomson</i> ,	211
Diagram—Rove Plate Arrangement— <i>Fairbairn</i> ,	212
Diagrams—Spinning Frame Gables, showing Twist and Grist or Draft Arrangement of Weeels, &c.— <i>Low, Monifeth</i> ,	213
Diagram—Automatic Motion for Drawing Roller— <i>Low, Monifeth</i> , ..	214-216
Particulars of Twist and Grist or Draft Arrangement, showing method of Calculation— <i>Low, Monifeth</i> ,	217
Diagram of Belt Joint,	218-227
The Driving of Spinning Frame,	228
Instructions for Setting Pulleys for Spinning Frame Belts,	229
Diagram—Showing Setting of Guide Pulleys,	230
COP WINDING,	231
Particulars of Cop Machine Gearing, with Diagrams,	232
REELING AND BUNDLING,	233-240
Diagrams—Power Reel,	241
	242, 243

	PAGE.
Instructions and Particulars as to the Reeling of the Yarn, ...	244-246
Diagram and Particulars of Warping Mill, ...	247
Diagram—Bundling Press, ...	248
Diagram—Bundling Stool, ...	249
Diagram—Warp Winding Machine, ...	250
 CONCLUDING REMARKS—	
Waste, ...	251-254
Speed to be put upon the Machinery, ...	254, 255
Upkeep of Preparing and Spinning Machinery, ...	256
Bobbins, ...	256, 257
Accidents to the Machinery, ...	257
Finishing the work for the day, ...	258
Arrangement for Extinguishing Fire, ...	258

APPENDIX.

JUTE SNIPPER—

Explanation of Machine, with Diagrams, ...	261 263
Lathe attachment for Grinding Spinning Spindles, ...	264, 265

WASTE CLEANER—

Explanation of Machines, with Diagrams ...	266-268
The Adjustment of the Breaker Shell, ...	269, 270

ADDENDA, ...	271, 272
Table of Circumference and Areas of Circles, ...	273-284