

THE  
**BUTTERLEY COMPANY**  
LIMITED.

—  
1895.

—  
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ADDRESSES OF WORKS AND  
OFFICES.

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BUTTERLEY WORKS, DERBY,  
Butterley Station, Midland Railway.

CODNOR PARK WORKS, ALFRETON,  
Codnor Park Station, Mid. and G. N. Railways.

SILVERDALE WORKS, North Staffordshire,  
Silverdale Station, North Staff. Railway.

LIMEWORKS, Bull Bridge, Derby,  
Ambergate Station, Midland Railway.

---

CHIEF OFFICES—BUTTERLEY.

Postal Address—Butterley, Derby.  
Telegraphic Address—"Ironworks, Butterley."  
*London Offices*—118, Cannon Street, E.C.  
*Manchester Offices*—Mawson Buildings, Deansgate.  
*Birmingham Offices*—Exchange Buildings.  
*Glasgow Offices*—128, Hope Street.  
*South Africa*—Johannesburg, Transvaal.  
*Silverdale Offices*—Silverdale, North Staffordshire.

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COLLIERY OFFICES, Codnor Park, Alfreton,  
Codnor Park Station, Midland and G. N.  
Railways.

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THE  
**BUTTERLEY COMPANY, Limited,**  
DERBYSHIRE.  
ESTABLISHED 1790.

—♦♦—  
**Engineers, Iron and Steel  
Manufacturers;  
COLLIERY PROPRIETORS;**

MAKERS OF  
**ADMIRALTY SPECIAL CABLE IRON,**

Hot Blast Pig Iron, Gas and Water Pipes, Bridge  
and Steam Cylinders and heavy Cast Iron-  
work, Wrought Iron and Steel Forgings, Plates,  
Sheets, Bars, Joists and Shipbuilding Material,  
Boilers, Bridges, Roofs, Girders, Dock Gates,  
Caissons and Structural Ironwork, Steam Engines,  
Cranes, Tanks, Heavy Machinery, &c., &c.

CONTRACTORS TO  
THE BRITISH ADMIRALTY,  
WAR, INDIA AND COLONIAL OFFICES;  
ALSO TO

The New South Wales, South Australian, Queens-  
land and New Zealand Governments; The Im-  
perial Austro-Hungarian, Italian, Turkish, Greek,  
Chinese and Japanese Governments, &c., &c.

—  
1895.

NOTE.—All previous lists of maximum sizes of  
Sheets and Plates, and Lists of Extras and of  
Sections, are hereby cancelled.

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## DERBYSHIRE BRANDS.

## FIG IRON :—

"Special Derbyshire," from a mixture of Oolite and native Derbyshire Stone ... .. BUTTERLEY.

"Derbyshire All Mine," made solely from selected Ironstones of the Coal Measures, and obtained on the Butterley Estates ... .. BUTTERLEY MINE.

## MANUFACTURED IRON :—

Bridge and Girder quality	... ..	BUTTERLEY 
Boiler	... ..	BUTTERLEY B.
Best Best	... ..	BUTTERLEY B.B.
Treble Best	... ..	BUTTERLEY B.B.B.
Admiralty Cable	... ..	BUTTERLEY SPECIAL CABLE.
Admiralty Rigging	... ..	BUTTERLEY ADMIRALTY RIGGING.

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## SIEMENS-MARTIN STEEL :—

Ship, Bridge and Girder quality	... ..	BUTTERLEY SIEMENS.
Boiler quality	... ..	BUTTERLEY SIEMENS BOILER.
Fire-box quality	... ..	BUTTERLEY SIEMENS BOILER FIRE-BOX STEEL.
Rivet quality	... ..	BUTTERLEY SIEMENS RIVET.

In all cases the above Brands, when put upon plates, whether of Iron or Steel, are in a circular form.

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MAXIMUM DIMENSIONS OF STEEL SHEETS AND PLATES.

Thickness.	Area in Square Feet.	Length.		Width.		Diameter.		Square.	
		ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.
26 to 24 w.g.	27 0	9 0	3 0	3 0	3 0	3 0	3 0	3 0	3 0
24 ,, 20 w.g.	32 0	10 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
20 ,, 17 w.g.	35 0	12 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
$\frac{1}{16}$ in.	40 0	12 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
$\frac{3}{32}$ ,,	40 0	12 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
$\frac{1}{8}$ ,,	40 0	12 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
$\frac{3}{16}$ ,,	40 0	12 0	4 0	4 0	4 0	4 0	4 0	4 0	4 0
$\frac{1}{4}$ ,,	48 0	20 0	5 0	5 0	5 0	5 0	5 0	5 0	5 0
$\frac{5}{16}$ ,,	65 0	30 0	6 6	6 6	6 6	6 6	6 6	6 6	6 6
$\frac{3}{8}$ ,,	65 0	30 0	6 6	6 6	6 6	6 6	6 6	6 6	6 6
$\frac{1}{2}$ ,,	80 0	30 0	7 0	7 0	7 0	7 0	7 0	7 0	7 0
$\frac{5}{8}$ ,,	112 0	35 0	7 0	7 0	7 0	7 0	7 0	7 0	7 0
$\frac{3}{4}$ and $\frac{1}{2}$ ,,	130 0	35 0	8 6	8 6	8 6	8 6	8 6	8 6	8 6
$\frac{7}{8}$ ,,	140 0	35 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0
$\frac{1}{2}$ ,,	130 0	35 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0
$\frac{3}{4}$ ,,	125 0	35 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0
$\frac{7}{8}$ ,,	125 0	33 0	9 0	9 0	9 0	9 0	9 0	9 0	9 0
1 ,,	100 0	25 0	8 0	8 0	8 0	8 0	8 0	8 0	8 0
1 $\frac{1}{8}$ ,,	100 0	20 0	8 0	8 0	8 0	8 0	8 0	8 0	8 0

1844  
 285 up Rolled for falloway 20 8 1/2 x 6.4 1/8 x 25/32 2 10 2 1/2  
 26 Jan 1901 2 1/2 x 11 1/2 x 2 1/2 20 11 1/2 x 6 3/4 x 13/16 2 1/2 8 1/2  
 26 " " 2 1/2 x 11 1/2 x 2 1/2 20 11 1/2 x 6 3/4 x 13/16 2 1/2 8 1/2  
 For rectangular sheets and plates other than square, the maximum dimensions are obtained thus:—Opposite the given thickness is the maximum superficial area, which can be rolled of that thickness; this divided by the given length (within the table maximum) will show the obtainable width; or divided by the given width (within the table maximum) will show the obtainable length.

PLATES.

All qualities and not thinner than  $\frac{3}{16}$  in., or thicker than  $1\frac{3}{8}$  in., or wider than 9 ft. 6 in. (The wider plates in steel only).

SHEETS.

All qualities, and not thinner than 26 w.g., or wider than 4 ft.

FLATS.

From  $\frac{1}{2}$  in. to  $\frac{9}{16}$  in. wide.  
 The sizes advance in width by  $\frac{1}{16}$  in. up to 3 in. wide.  
 $\frac{1}{2}$  " " "  $\frac{5}{16}$  " "  
 $\frac{5}{8}$  " " "  $\frac{3}{4}$  " "  
 1 " " " 1 " "  
 The thicknesses are not less than  $\frac{1}{8}$  in. up to 3 in. wide.  
 $\frac{1}{8}$  " " " 5 " "  
 $\frac{1}{4}$  " " " 7 " "  
 $\frac{3}{8}$  " " " 8 " "  
 $\frac{1}{2}$  " " " 9 " "  
 78 x 12 8 1/2 Dec 8/78  
 78 x 9 1/2  
 Rolls made for Nut Iron for J. Clayton & Co. 1 1/2 x 1 1/2 1 1/2 x 1 1/2 1 1/4 x 1 1/2  
 1 1/2 x 1 1/2 1 1/2 x 1 1/2  
 20 7/1901

SQUARES.

From  $\frac{1}{4}$  in. to  $4\frac{1}{2}$  in.  
 The sizes advance by  $\frac{1}{16}$  in. up to  $1\frac{1}{2}$  in. |  $\frac{1}{4}$  in. up to 3 in.  
 $\frac{1}{8}$  " " " 2 " " |  $\frac{1}{4}$  " " " 4 1/2 "

In Iron or Steel.

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ORDINARY ROUNDS.

From  $\frac{3}{16}$  in. to 6 in. diameter.

The sizes advance by

$\frac{1}{32}$  in. up to  $1\frac{3}{8}$  in.

$\frac{1}{16}$  " "  $2\frac{3}{8}$  "  
 $\frac{1}{8}$  " "  $3\frac{1}{2}$  "

ROUNDS FOR CABLES.

$1\frac{1}{16}$ in. & $\frac{1}{32}$ in.	$1\frac{3}{4}$ in.
$1\frac{1}{8}$ " "	$1\frac{7}{8}$ " "
$1\frac{1}{8}$ " " $\frac{1}{32}$ "	$1\frac{15}{16}$ " " $\frac{1}{32}$ in.
$1\frac{3}{16}$ " " $\frac{1}{32}$ "	$2\frac{1}{16}$ " " $\frac{1}{32}$ "
$1\frac{1}{4}$ " " $\frac{1}{32}$ "	$2\frac{3}{16}$ " " $\frac{1}{32}$ "
$1\frac{1}{4}$ " " $\frac{3}{64}$ "	$2\frac{1}{2}$ " " $\frac{1}{32}$ "
$1\frac{5}{16}$ " " $\frac{1}{32}$ "	$2\frac{11}{16}$ " " $\frac{1}{64}$ "
$1\frac{3}{8}$ " " $\frac{1}{32}$ "	$2\frac{3}{4}$ " " $\frac{1}{64}$ "
$1\frac{3}{8}$ " " $\frac{3}{64}$ "	$2\frac{7}{8}$ " " $\frac{1}{32}$ "
$1\frac{1}{2}$ " " $\frac{1}{32}$ "	$3\frac{1}{8}$ " " $\frac{1}{64}$ "
$1\frac{1}{2}$ " " $\frac{1}{32}$ "	$3\frac{1}{16}$ " " "
$1\frac{5}{8}$ " " "	$3\frac{3}{8}$ " " "
$1\frac{5}{8}$ " " "	$4\frac{1}{8}$ " " "
$1\frac{7}{8}$ " " "	$4\frac{3}{8}$ " " "

CONVEX.  
 SQUARE EDGE.

$1\frac{3}{8}$ in. x $\frac{3}{4}$ in. x $\frac{3}{8}$ in.	$1\frac{3}{4}$ in. x $\frac{5}{8}$ in. x $\frac{1}{2}$ in.
$1\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{16}$ "	$1\frac{3}{4}$ " x I " x $\frac{1}{2}$ "
$1\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{4}$ "	2 " x $\frac{3}{4}$ " x $\frac{3}{8}$ "
$1\frac{1}{2}$ " x $\frac{3}{8}$ " x $\frac{1}{2}$ "	$2\frac{1}{4}$ " x $\frac{5}{8}$ " x $\frac{3}{8}$ "
$1\frac{1}{2}$ " x I " x $\frac{1}{2}$ "	$2\frac{1}{4}$ " x $\frac{3}{4}$ " x $\frac{3}{8}$ "
$1\frac{3}{8}$ " x I " x $\frac{1}{2}$ "	$2\frac{3}{4}$ " x $\frac{1}{2}$ " x I "
$1\frac{3}{8}$ " x I " x $\frac{1}{4}$ "	6 " x I " x I "
$1\frac{3}{4}$ " x $\frac{9}{16}$ " x $\frac{3}{4}$ "	

$1\frac{3}{4} \times \frac{9}{16} \times \frac{3}{4}$   
 $\times 650 \times 716$   
 $1\frac{3}{4}$

In Iron or Steel.



HALF-ROUNDS AND CONVEX.  
 FEATHER EDGE.

$\frac{1}{2}$ in. wide x $\frac{3}{16}$ in.	$1\frac{1}{2}$ in. wide x $\frac{3}{4}$ in.
$\frac{1}{2}$ " " x $\frac{1}{4}$ "	$1\frac{3}{8}$ " " x $\frac{3}{8}$ "
$\frac{3}{8}$ " " x $\frac{3}{8}$ "	$1\frac{3}{8}$ " " x $\frac{3}{8}$ "
$\frac{3}{8}$ " " x $\frac{1}{2}$ "	$1\frac{3}{4}$ " " x $\frac{3}{8}$ "
$\frac{1}{2}$ " " x $\frac{1}{2}$ "	$1\frac{3}{4}$ " " x $\frac{1}{2}$ "
$\frac{1}{2}$ " " x $\frac{3}{4}$ "	$1\frac{3}{4}$ " " x $\frac{3}{4}$ "
$\frac{3}{4}$ " " x $\frac{1}{2}$ "	$1\frac{3}{4}$ " " x $\frac{3}{4}$ "
$\frac{3}{4}$ " " x $\frac{3}{4}$ "	$2$ " " x $\frac{3}{8}$ "
$\frac{3}{4}$ " " x I "	$2$ " " x $\frac{1}{2}$ "
$1$ " " x $\frac{1}{2}$ "	$2$ " " x $\frac{3}{4}$ "
$1$ " " x $\frac{3}{8}$ "	$2\frac{1}{4}$ " " x $\frac{3}{8}$ "
$1$ " " x $\frac{1}{4}$ "	$2\frac{1}{4}$ " " x $\frac{1}{2}$ "
$1\frac{1}{8}$ " " x $\frac{1}{2}$ "	$2\frac{1}{4}$ " " x $\frac{3}{4}$ "
$1\frac{1}{8}$ " " x $\frac{3}{8}$ "	$2\frac{1}{2}$ " " x $\frac{3}{8}$ "
$1\frac{1}{8}$ " " x $\frac{1}{4}$ "	$2\frac{1}{2}$ " " x $\frac{1}{2}$ "
$1\frac{1}{4}$ " " x $\frac{1}{2}$ "	$2\frac{1}{2}$ " " x $\frac{3}{4}$ "
$1\frac{1}{4}$ " " x $\frac{3}{8}$ "	$2\frac{1}{2}$ " " x I "
$1\frac{1}{4}$ " " x $\frac{1}{4}$ "	$3$ " " x $\frac{3}{8}$ "
$1\frac{1}{2}$ " " x $\frac{1}{2}$ "	$3$ " " x $\frac{1}{2}$ "
$1\frac{1}{2}$ " " x $\frac{3}{8}$ "	$3$ " " x $\frac{3}{4}$ "
$1\frac{1}{2}$ " " x $\frac{1}{4}$ "	$3$ " " x I "
$1\frac{3}{8}$ " " x $\frac{1}{2}$ "	
$1\frac{3}{8}$ " " x $\frac{3}{8}$ "	
$1\frac{3}{8}$ " " x $\frac{1}{4}$ "	

$716 \times 378$

$272 \times 718$

Slotted on  
 on angles  
 $1\frac{3}{8}$   
 $\times 578$   
 $294$   
 $\times 38$  for 6 & 5 w 1000

In Iron or Steel.





## TEES.

Size in inches.	Thickness in inches.		Thickness in inches.		Thickness in inches.	
	Table.	Stalk.	Table.	Stalk.	Table.	Stalk.
7	x	3 1/2	1/2	1/2		
6	x	4	1/2	1/2	3/8	3/8
5	x	5	3/8	3/8		
5 1/2	x	3 3/4	1/2	1/2		
5	x	4	1/2	1/2	3/8	3/8
6	x	3	3/8	3/8	1/2	1/2
5 1/2	x	3	1/2	1/2		
5	x	3 1/2	3/8	3/8		
4	x	4	1/2	1/2	1/16	1/16
5	x	3	3/8	3/8	1/2	1/2
4	x	3	3/8	3/8	1/16	1/16
3 1/2	x	3 1/2	1/2	1/2		
3 1/2	x	3	3/8	3/8	1/2	1/2
3	x	3 1/2	1/2	1/2		
4	x	2	3/8	3/8	7/16	7/16
3	x	3	3/8	3/8	1/2	1/2
3	x	2 1/2	3/8	3/8		
2 3/4	x	2 3/4	3/8	3/8	7/16	7/16
3	x	2	1/16	1/16	3/8	3/8
2 1/2	x	2 1/2	1/4	1/4	1/16	1/16
2 1/2	x	2	1/4	1/4	1/16	1/16
2 1/4	x	2 1/4	1/4	1/4	1/16	1/16
2 1/2	x	1 3/4	1/4	1/4	1/16	1/16
2 1/2	x	1 1/2	1/4	1/4	1/16	1/16
2	x	2	1/4	1/4	1/16	1/16
2	x	1 1/2	1/4	1/4	1/16	1/16
1 3/4	x	1 3/4	1/4	1/4	1/16	1/16
1 1/2	x	2	1/16	1/16	1/16	1/16

*Rolls lost 11 May 1904*

*Destroyed 20 July 05*

*one destroyed*

*Brands changed to this*

In iron only. Others in iron or steel.



## TEES—continued.

Size in inches.	Thickness in inches.		Thickness in inches.		Thickness in inches.	
	Table.	Stalk.	Table.	Stalk.	Table.	Stalk.
1 3/4	x	1 1/2	1/4	1/4		
1 1/2	x	1 1/2	1/8	1/8	3/16	3/16
1 1/4	x	1 1/4	1/8	1/8	1/4	1/4
1 1/8	x	1 1/8	1/8	1/8	3/16	3/16
1	x	1	1/8	1/8	3/16	3/16
3/8	x	3/8	1/8	1/8		
3/4	x	3/4	1/8	1/8	3/16	3/16

In iron or steel.



ANGLES.

Size in inches.	Thickness in inches.		Size in inches.	Thickness in inches.	
	From	To		From	To
* 10 x 3 1/2	7/16	3/8	3 1/2 x 3	5/16	3/8
* 9 x 3 1/2	7/16	3/8	3 1/4 x 3 1/4	5/16	3/8
8 x 4 1/2	7/16	3/8	4 x 2	5/16	1/2
8 x 4 1/2	3/4	only.	<del>3 1/2 x 2 1/2</del>	5/16	1/2
6 x 6	3/8	1	3 x 3	5/16	1/2
* 8 x 3 1/2	7/16	3/8	3 x 2 1/2	5/16	1/2
5 1/2 x 5 1/2	7/16	3/4	2 3/4 x 2 3/4	5/16	1/2
7 x 3 1/2	7/16	3/8	2 3/4 x 2 1/2	5/16	3/8
6 1/2 x 4	1/2	3/8	3 x 2	5/16	1/2
7 x 3	3/8	3/8	2 1/2 x 2 1/2	5/16	1/2
6 x 4	3/8	3/8	2 3/4 x 2	5/16	3/8
5 x 5	3/8	3/4	3 x 1 1/2	5/16	only.
6 x 3 1/2	3/8	3/8	2 1/2 x 2	5/16	3/8
6 x 3	3/8	3/8	2 1/2 x 1 1/2	5/16	3/8
5 x 4	3/8	3/8	2 1/4 x 2 1/4	5/16	3/8
4 1/2 x 4 1/2	3/8	3/8	2 x 2	5/16	3/8
5 1/2 x 3	3/8	3/8	2 x 1 3/4	5/16	3/8
5 x 3 1/2	3/8	3/8	2 x 1 1/2	5/16	3/8
4 1/4 x 4 1/4	3/8	3/8	1 3/4 x 1 3/4	5/16	3/8
4 3/4 x 3 3/4	3/8	3/8	1 3/4 x 1 1/2	5/16	3/8
5 x 3	3/8	3/8	1 1/2 x 1 1/2	5/16	3/8
4 1/2 x 3 1/2	3/8	3/8	1 1/2 x 1 1/4	5/16	3/8
4 x 4	3/8	3/8	1 1/4 x 1 1/4	5/16	3/4
4 1/2 x 3	3/8	3/8	1 x 1	5/16	3/4
4 x 3 1/2	3/8	3/8	1 x 3/4	5/16	3/8
4 x 3	3/8	3/8	3/8 x 3/8	5/16	3/8
3 1/2 x 3 1/2	3/8	3/8	3/8 x 3/4	5/16	3/8
4 x 2 1/2	7/16	3/8	3/8 x 3/8	5/16	3/8

has rolled 1160 thickness  
 an order 29/1/74 - 4th op.  
 20 Jan. 1904 - weight 144 lbs 11.  
 25/1/74  
 5/16  
 3/8  
 1/2  
 3/4  
 1  
 1 1/4  
 1 1/2  
 1 3/4  
 2  
 2 1/4  
 2 1/2  
 3  
 3 1/4  
 3 1/2  
 4  
 4 1/4  
 4 1/2  
 4 3/4  
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 5 1/2  
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 7 1/2  
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\* In iron only. Others in iron or steel.



BOILER ANGLES.

Size in inches.	Thickness in inches.		Size in inches.	Thickness in inches.	
	From	To		From	To
3 x 3	1/2	3/8	2 1/2 x 2 1/2	7/16	3/8



CHANNELS.

Inches.	Depth of Flanges. Inches.	Thickness.	
		Web.	Flanges.
		Inches.	Inches.
* 12	3 3/4	3/4	3/8
* 10	3 1/2	1/2	7/8
* 8	4	1/2	1/2
* 7	2 3/4	3/8	3/8
6	2 1/2	1/2	1/2
6	2 1/2	3/8	3/8
5 1/2	1 3/4	3/8	3/8
4 1/2	1 1/2	1/8	3/8
4 1/4	2 1/8	1/8	7/16
* 3 3/8	1 3/8	1/8	3/8
* 3 1/8	1 3/8	1/8	3/8
2 3/4	1 1/4	3/8	3/8
2 1/4	1 1/8	1/8	3/8
1 3/8	3/8	1/8	3/8
4	2	3/8	3/8
1 5/8	1 3/16	1/4	3/8

28 Gals. 1903  
 29 per 8. 1. 2/1/04  
 1/2 per 5 L 2 1/2  
 101  
 2 3/4 x 1 1/2 x 2 1/2  
 16 3/8 For MID. P.C.  
 made 20/2/03

Channel Roll  
 Sundry Hammer

\* In iron only. Others in iron or steel.

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## JOISTS OR GIRDERS.

Depth.	Width of Flanges.	Minimum Thickness of Web.	Weight per Foot.	
			From	To
Inches.	Inches.	Inches.	lbs.	lbs.
16	5½	11/16	69	72
15	5½	7/8	58	60
12	6¼	5/8 bare	56	60
12	6	3/4	68	80
12	5	1/2 bare	47	50
10½	5½	1/2 bare	38	41
10	5¾	3/4 full	60	62
10	5	1/2 bare	36	40
9	5½	1/2	42	45
8½	4½	1/2	33	37
8	3	1/2	24	26
8	5¼	1/2	33	36
8	2½	7/16 bare	19	21
7¼	2½	1/2	19	21
7	5	1/2	29	31
7	3½	1/2 bare	23	25
7	2¾	7/16	17	19
6¾	3¾	7/16	18	20
6¼	2¾	7/16	18	20
6¼	2½	3/8	14	16
† 6	5	11/16 full	26	28
6	4¾	7/16	31	33
6	4	1/2	23	25
5¾	5	1/2	27	29
4½	4	3/8	17	19

† In iron or steel. Others in iron only.



## BULB TEES OR DECK BEAMS.

Depth.	Width of Flange.	Width of Bulb.	Minimum Thickness of Web.	Weight per Foot.	
				From	To
Inches.	Inches.	Inches.	Inches.	lbs.	lbs.
† 11	6	2	1/2 bare	36	40
† 10	6	2	1/2	32	36
† 9½	5½	1¾	1/2	31	35
† 9	5¼	1¾	3/8	27	29
† 8½	5¼	1¾	3/8 full	25	28
† 8	5	1¾	3/8	22	24
† 7	5	1¾	3/8	19	22
6	4½	1½	3/8	16	18
6	4	1½	1/2	18	20
5	4	1½	3/8	14	16
* 4	3	1¼	1/2	9	10



## ZED OR SPACE BARS.

Depth of Web.	Width of Flanges.	Thickness.	
		From	To
10 in.	3½ in. × 3½ in.	7/16 in.	9/16 in.
9 "	3 " × 3 "	3/8 "	1/2 "
6 "	3½ " × 3 "	3/8 "	1/2 "
4 "	3½ " × 3 "	3/8 "	1/2 "
4 "	2½ " × 2½ "	3/8 "	1/2 "
3 "	3 " × 2½ "	7/16 "	3/8 "
3 "	2¾ " × 2¼ "	3/8 "	1/2 "
2¾ "	2½ " × 2¼ "	7/16 "	3/8 "
2½ "	2½ " × 2½ "	3/8 "	1/2 "



LIST OF EXTRAS.  
FLATS.

Width in inches.	Thickness in inches.						
	$\frac{1}{16}$ and $\frac{3}{32}$	$\frac{1}{8}$ and $\frac{5}{32}$	$\frac{3}{16}$ and $\frac{9}{32}$	$\frac{1}{4}$ and $\frac{5}{16}$	$\frac{5}{16}$ and $\frac{11}{32}$	$\frac{3}{8}$ and $\frac{13}{32}$	$\frac{7}{16}$
$\frac{1}{2}$ to $\frac{11}{16}$	110/-	40/-	30/-	20/-	20/-	15/-	10/-
$\frac{3}{4}$ to $\frac{15}{16}$	40/-	30/-	20/-	10/-	...	...	...
1 to 3	+44/-	20/-	10/-	...	...	...	...
Over 3 to 6	...	...	10/-	...	...	...	...

*+ 6 McEwan  
Jan. 21/16*

Over 6 in. wide to 7 in. 10/-; over 7 in. to 8 in. 20/-; over 8 in. to 12 in. 30/-.

Ordinary sizes to 25 ft. without extra; exceeding 25 ft. per special agreement.

ROUNDS TO 6 INCHES, AND SQUARES  
TO 4½ INCHES.

No. 7 & $\frac{3}{16}$	No. 6.	No. 5 & $\frac{1}{4}$	No. 4.	No. 3 & $\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{15}{16}$
80/-	70/-	60/-	59/-	35/-	30/-	25/-	20/-	15/-	10/-	10/-	5/-

*No 1 = 5/16 round = 20/- for*

3½ in. to 4 in. to 18 ft. long	10/-
4½ " " to 4½ in. " "	15/-
4¾ " " to 5 in. " "	20/-
5½ " " to 5½ in. to 16 ft. long	25/-
5¾ " " to 6 in. " "	30/-

Iron Rounds and Squares in excess of 3 in. made in "Best" only, and therefore subject to 10/- per ton extra, in addition to above.

Ordinary sizes to 25 ft., without extra; exceeding 25 ft., and 3½ in. to 6 in. in excess of lengths named above, per special agreement.

LIST OF EXTRAS—continued.  
HALF-ROUNDS AND CONVEX.

Width in inches	Thickness in inches.					
	$\frac{1}{8}$ and $\frac{3}{16}$	$\frac{3}{16}$ and $\frac{7}{32}$	$\frac{1}{4}$ and $\frac{9}{32}$	$\frac{5}{16}$ and $\frac{11}{32}$	$\frac{3}{8}$ and $\frac{13}{32}$	$\frac{7}{16}$ to $\frac{1}{2}$
$\frac{1}{2}$ to $\frac{11}{16}$	80/-	60/-	40/-	30/-	20/-	10/-
$\frac{3}{4}$ to $\frac{15}{16}$	60/-	40/-	40/-	30/-	20/-	10/-
1 to 1½	40/-	30/-	20/-	10/-	...	...

## ANGLES AND TEES.

Size in united inches.	Thickness in inches.		
	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$
1¼	30/-	20/-	15/-
1½ to 1¾	25/-	15/-	10/-
2 to 3	20/-	10/-	...
over 3	...	10/-	...

For every inch or part of an inch exceeding 9 united inches, 10/- extra. Iron Angles and Tees exceeding 9 united inches, made in "Best" only, and therefore subject to 10/- per ton extra in addition to the above. Ordinary sizes to 30 feet long, without extra; exceeding 30 feet, per special agreement.

## LIST OF EXTRAS—continued.

## IRON PLATES.

THICKNESS— $\frac{3}{16}$ in. ....	10/-
LENGTH—Over 25 ft. to 30 ft. ....	20/-
"    30 ft. to 35 ft. ....	40/-
WIDTH—Over 4 ft. 6 in. to 5 ft. 0 in. ....	20/-
"    5 ft. 0 in. to 6 ft. 0 in. ....	40/-
"    6 ft. 0 in. to 6 ft. 6 in. ....	60/-
"    6 ft. 6 in. to 7 ft. 0 in. ....	80/-
WEIGHT—Boiler quality; 8 to 10 cwts. ....	20/-
"    10 to 12 " ....	40/-
"    12 to 14 " ....	60/-
"    14 to 16 " ....	80/-
Bridge quality 10 to 12 " ....	20/-
"    12 to 16 " ....	40/-
AREA— For every 10 ft. or part over 60 ft. ....	20/-
SKETCHES AND CIRCLES. ....	20/-
UNDER 12 IN. WIDE. ....	10/-

## IRON SHEETS.

Gauge.	Length to		Width to		Area to	
	ft.	in.	ft.	in.		
Singles under $\frac{3}{16}$ to 20 w.g. <i>4.0 x 10</i>	9	0	3	6	25	0 Nil.
Doubles to 24 "	9	0	3	0	22	0 10/-
Lattins 25 "	8	0	3	0	20	0 30/-
"    26 "	8	0	3	0	20	0 30/-
"    27 "	8	0	3	0	20	0 30/-
LENGTH—For every 12 in. or part over specified length .....						10/-
WIDTH— For every 3 in. or part over specified width. ....						10/-
AREA— For every 5 ft. or part over specified area .....						10/-
SKETCHES AND CIRCLES .....						20/-
UNDER 12 IN. WIDE. ....						10/-

## LIST OF EXTRAS—continued.

## STEEL PLATES.

$\frac{1}{4}$ in. thick and upwards.	
LENGTH—Over 25 ft. to 30 ft. ....	20/-
"    30 ft. to 35 ft. ....	40/-
WIDTH— For every 3 in. or part over 7 ft. ....	5/-
WEIGHT—For every 5 cwt. or part over 20 cwt. ....	5/-
"    Over 40 cwt. ....	special

Under  $\frac{1}{4}$  in. but not thinner than  $\frac{3}{8}$  in.

LENGTH—Over 15 ft. to 20 ft. ....	20/-
WIDTH—For every 3 in. or part over 4 ft. ....	10/-
AREA— For every 5 ft. or part over 35 ft. ....	10/-

SKETCHES AND CIRCLES of all thicknesses, UNDER 12 IN. WIDE .....	20/-
	10/-

## STEEL SHEETS.

Gauge.	Length to		Width to		Area to	
	ft.	in.	ft.	in.		
Singles under $\frac{3}{16}$ to 20 w.g.	9	0	3	6	25	0 Nil.
Doubles to 24 "	9	0	3	0	22	0 10/-
Lattins 25 "	8	0	3	0	20	0 40/-
"    26 "	8	0	3	0	20	0 40/-
"    27 "	8	0	3	0	20	0 40/-
LENGTH—For every 12 in. or part over specified length .....						10/-
WIDTH— For every 3 in. or part over specified width. ....						10/-
AREA— For every 5 ft. or part over specified area .....						10/-
SKETCHES AND CIRCLES .....						20/-
UNDER 12 IN. WIDE. ....						10/-

LIST OF EXTRAS—*continued.*

## ALL BARS, ANGLES, TEES, &amp;c.,

CUT TO LENGTHS:—

6 in. and under .....	40/-
Over 6 in. and to 12 in. inclusive...	20/-
Over 12 in. and to 6 ft. inclusive...	5/-

EXTRAS FOR QUALITY OVER "CROWN"  
IRON.

## PLATES, SHEETS, BARS, ANGLES, TEES, &amp;c. :—

Best .....	10/-
Best Best .....	30/-
Best Best Best .....	70/-

Small Lots under 3 cwts. of a size, 5/-	} Over Bars	
Half-rounds, ordinary sizes .....		7/6
Angles .....		5/-
Tees .....		10/-

"SPECIAL SOFT FIRE BOX" quality of Steel  
Plates 20/- per ton extra over Boiler quality.

## FORGINGS.

All kinds of Forgings for Engineering Work  
and general purposes, in Iron and Steel, up  
to six tons each, including:—

PLAIN SHAFTS up to 30 feet long.

CONNECTING RODS.

CROSS-HEADS.

PISTON RODS.

CRANK ARMS.

Do. SHAFTS, SINGLE and DOUBLE THROW.

HYDRAULIC PRESS PILLARS OR COLUMNS.

TIE RODS.

BRIDGE LINKS.

&amp;c., &amp;c., &amp;c.

## STRENGTH OF BUTTERLEY IRON JOISTS.

Depth in inches.	Breadth in inches.	Minimum Thickness of Web, inches.	Average Thickness of Flanges, inches.	Weight per Lineal Foot in lbs.		Co-efficient of strength transverse.
				From	To	
16	5½	11/16	1	69	72	7644
15	5½	¾	¾	58	60	6704
12	6¼	1	1	...	80	7069
12	6¼	¾	¾	56	60	5180
12	6	¾	1	68	70	6368
12	5	½	11/16	47	50	4156
10½	5½	½	¾	38	41	2700
10	5	½	¾	37	40	2564
9	5½	½	¾	42	45	2902
9	4½	½	¾	33	37	2144
8	5¼	½	¾	33	36	2068
8	2½	1/16	¾	19	21	1194
7¼	2¼	½	1/16	19	21	807
7	5	½	1/16	29	31	1552
7	3½	½	1/16	23	25	1144
6¾	3¾	1/16	1/16	18	20	846
6¼	2¾	1/16	½	18	20	821
6	5	1/16	1/16	26	28	1245
6	4	½	1/16	23	25	1094
5¾	5	½	½	27	29	1117
4½	4	¾	1/16	16	18	560

Divide the number in the last column by the span in inches, and the quotient will be the breaking load in tons for a beam supported at both ends and loaded in the middle.

Safe steady load =  $\frac{1}{3}$  breaking load.

Safe moving load =  $\frac{1}{4}$  to  $\frac{1}{5}$  breaking load.

## BIRMINGHAM WIRE GAUGE (B.W.G.)

No. of Gauge.	Thickness in decimals of an inch.	No. of Gauge.	Thickness in decimals of an inch.
5/0	.500	17	.058
4/0	.454	18	.050
3/0	.425	19	.041
2/0	.380	20	.035
0	.340	21	.032
1	.300	22	.028
2	.284	23	.025
3	.260	24	.022
4	.238	25	.020
5	.220	26	.018
6	.203	27	.016
7	.180	28	.014
8	.165	29	.013
9	.148	30	.012
10	.135	31	.010
11	.120	32	.009
12	.109	33	.008
13	.095	34	.007
14	.083	35	.005
15	.072	36	.004
16	.065		

There does not appear to be any absolutely defined Standard for the B. W. G., several different values being given, but the above is the one most generally adopted.



STANDARD SHEET AND HOOP IRON  
GAUGE (B.G.)

ISSUED IN MARCH, 1884,

By the South Staffordshire Ironmasters' Association  
for the use of Sheet and Hoop Iron Makers.

No. of Gauge.	Thickness in			Approximate weight per superficial foot of Sheet Iron in lbs.
	Ordinary fractions of an inch.	Decimals of an inch.	Millimetres.	
3°	½	·5000	12·700	20·000
2°		·4452	11·288	17·808
1°		·3964	10·068	15·856
1		·3532	8·971	14·128
2		·3147	7·993	12·588
3		·2804	7·122	11·216
4	¼	·2500	6·350	10·000
5		·2225	5·651	8·900
6		·1981	5·032	7·924
7		·1764	4·480	7·056
8		·1570	3·988	6·280
9		·1398	3·551	5·592
10	⅕	·1250	3·175	5·000
11		·1113	2·827	4·452
12		·0991	2·517	3·964
13		·0882	2·240	3·528
14		·0785	1·994	3·140
15		·0699	1·775	2·796
16	⅙	·0625	1·587	2·500
17		·0556	1·412	2·224
18		·0495	1·257	1·980
19		·0440	1·118	1·760

NOTE.—The Weight in Steel can be found by adding 2 per cent., or  $\frac{1}{50}$ th, to the weight in Iron.STANDARD SHEET AND HOOP IRON  
GAUGE (B.G.)—continued.

ISSUED IN MARCH, 1884,

By the South Staffordshire Ironmasters' Association  
for the use of Sheet and Hoop Iron Makers.

No. of Gauge.	Thickness in			Approximate weight per superficial foot of Sheet Iron in lbs.
	Ordinary fractions of an inch.	Decimals of an inch.	Millimetres.	
20		·0392	·996	1·568
21		·0349	·886	1·396
22	⅓	·03125	·794	1·250
23		·02782	·707	1·1128
24		·02476	·629	·9604
25		·02204	·560	·8816
26		·01961	·498	·7844
27		·01745	·4432	·698
28	⅓	·015625	·3969	·625
29		·01390	·3531	·556
30		·0123	·3124	·492
31		·0110	·2794	·440
32		·0098	·2489	·392
33		·0087	·2210	·348
34		·0077	·1956	·300
35		·0069	·1753	·276
36		·0061	·1549	·244
37		·0054	·1371	·216
38		·0048	·1219	·192
39		·0043	·1092	·172
40		·00386	·0980	·1544

NOTE.—The weight in Steel can be found by adding 2 per cent., or  $\frac{1}{50}$ th, to the weight in Iron.

STANDARD WIRE GAUGE (W.G.)  
LEGALIZED BY BOARD OF TRADE, MARCH, 1884.

No. of Gauge.	Thickness in		No. of Gauge.	Thickness in	
	Decimals of an inch.	Milli-metres.		Decimals of an inch.	Milli-metres.
7/0	.500	12.700	23	.024	.610
6/0	.464	11.785	24	.022	.559
5 0	.432	10.973	25	.020	.508
4/0	.400	10.160	26	.018	.457
3/0	.372	9.449	27	.0164	.4166
2/0	.348	8.839	28	.0148	.3759
0	.324	8.229	29	.0136	.3454
1	.300	7.620	30	.0124	.3150
2	.276	7.010	31	.0116	.2946
3	.252	6.401	32	.0108	.2743
4	.232	5.893	33	.0100	.2540
5	.212	5.385	34	.0092	.2337
6	.192	4.877	35	.0084	.2134
7	.176	4.470	36	.0076	.1930
8	.160	4.064	37	.0068	.1727
9	.144	3.658	38	.0060	.1524
10	.128	3.251	39	.0052	.1321
11	.116	2.946	40	.0048	.1219
12	.104	2.642	41	.0044	.1118
13	.092	2.337	42	.0040	.1016
14	.080	2.032	43	.0036	.0914
15	.072	1.829	44	.0032	.0813
16	.064	1.626	45	.0028	.0713
17	.056	1.422	46	.0024	.0610
18	.048	1.219	47	.0020	.0508
19	.040	1.016	48	.0016	.0406
20	.036	.914	49	.0012	.0305
21	.032	.813	50	.0010	.0254
22	.028	.711			

The above Gauge is the only one for Wire under which Contracts and business dealings can be made legally binding.

*Handwritten note:*  
The above Gauge is the only one for Wire under which Contracts and business dealings can be made legally binding.  
440.

WHITWORTH'S DECIMAL GAUGE.  
WITH WEIGHT OF IRON SHEETS.

No. of Whitworth's Gauge.	Thickness in		Weight of Iron Sheets per ft. in lbs.	No. of Whitworth's Gauge.	Thickness in		Weight of Iron Sheets per ft. in lbs.
	Decimals of an inch.	Milli-metres.			Decimals of an inch.	Milli-metres.	
1	.001	.025	.04	36	.036	.914	1.44
2	.002	.051	.08	38	.038	.965	1.52
3	.003	.076	.12	40	.040	1.016	1.60
4	.004	.102	.16	45	.045	1.143	1.80
5	.005	.127	.20	50	.050	1.270	2.00
6	.006	.152	.24	55	.055	1.397	2.20
7	.007	.178	.28	60	.060	1.524	2.40
8	.008	.203	.32	65	.065	1.651	2.60
9	.009	.229	.36	70	.070	1.778	2.80
10	.010	.254	.40	75	.075	1.905	3.00
11	.011	.279	.44	80	.080	2.032	3.20
12	.012	.305	.48	85	.085	2.159	3.40
13	.013	.330	.52	90	.090	2.286	3.60
14	.014	.356	.56	95	.095	2.413	3.80
15	.015	.381	.60	100	.100	2.540	4.00
16	.016	.406	.64	110	.110	2.794	4.40
17	.017	.432	.68	120	.120	3.048	4.80
18	.018	.457	.72	125	.125	3.175	5.00
19	.019	.483	.76	150	.150	3.810	6.00
20	.020	.508	.80	200	.200	5.080	8.00
22	.022	.559	.88	250	.250	6.350	10.00
24	.024	.610	.96	300	.300	7.620	12.00
20	.026	.660	1.04	350	.350	8.890	14.00
28	.028	.711	1.12	400	.400	10.160	16.00
30	.030	.762	1.20	450	.450	11.430	18.00
32	.032	.813	1.28	500	.500	12.700	20.00
34	.034	.864	1.36				

NOTE.—The weight in Steel can be found by adding 2 per cent., or  $\frac{1}{50}$ th, to the weight in Iron.

**BUTTERLEY WORKS,  
DERBY.**

BUTTERLEY STATION, MIDLAND RAILWAY.

*Telegraphic Address—*

“IRONWORKS, BUTTERLEY.”

PIG IRON ... .. *see page 6*

CASTINGS OF ALL KINDS.

Ordinary Water and Gas Pipes up to 36 in. dia.

Engine Bedplates up to 20 tons.

Cylinders, 10 ft. diameter.

Columns, 30 ft. long.

Stancheons.

Road Rollers up to 10 tons each.

Bending Rolls, 25 tons, 32 ft. long.

ROAD METAL AND BALLAST.

**A FEW OF THE  
ENGINEERING WORKS EXECUTED  
ARE—**

**FEN DRAINAGE ENGINES AND SCOOP  
WHEELS** at Sutton and Mepal, 100 foot River,  
Manea and Welney, Binnimoor, March West Fen,  
&c., &c.

**WATERWORKS' ENGINES** at Shrewsbury,  
Oxford, Chelsea, Nottingham, Hull, Amsterdam,  
Hamburg, &c.

**WINDING AND PUMPING ENGINES** at  
Clay Cross, Moira, Portland, Langley, Kirkby,  
and Silverdale Collieries, &c.

**ROLLING MILL MACHINERY** at Crewe for  
London and N. W. Railway Co. ; at Horwich  
for Lancashire and Yorkshire Railway Co. ; at  
Sheffield for Vickers, Sons & Co. ; and others.

## A FEW OF THE ENGINEERING WORKS EXECUTED,

CONTINUED—

**BRIDGES**—at Vauxhall over the Thames ; at Trent over the Trent ; at Dordrecht over the Old Maas ; at Selby over the Ouse ; at Cambridge over the Cam ; and for all the principal Railways, including the Midland, Gt. Northern, London and North Western ; Manchester, Sheffield, and Lincolnshire ; Lancashire and Yorkshire ; London, Brighton and South Coast ; Hull and Barnsley ; Lancashire, Derbyshire and East Coast ; Nottingham Suburban ; also for the New South Wales, Queensland, and Tasmanian Governments ; the principal Indian Railways, the Smyrna and Cassaba Railway, &c., &c.

**HEAVY AND LIGHT GIRDERWORK** of all descriptions.

**ROOFS.** St. Pancras Station ; Vickers, Sons and Co.'s Steel Works ; Leicester Gas Works ; Bass & Co.'s Ale Stores ; M.R. Loco. Shed, Derby, &c., &c.

**CRANES AND PURIFIERS** for Hastings and other Gas Works ; 20 ton Cranes for Portsmouth Dockyard, &c., &c.

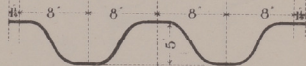
**COAL SORTING MACHINERY** for New Hucknall, Wollaton, Kirkby, Portland, Ibstock, Clifton, Bedworth, Blackwell, Whitwick Collieries, &c.

Iron and Steel Chimney Tubes, Steam Navvies, Colliery Ventilating Fans, Headstocks and Cages.

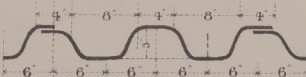
**BOILERS.** Lancashire, Cornish, and Egg-end.

## SECTIONS OF FLOOR PLATING FOR BRIDGES & CONSTRUCTIONAL WORK.

N<sup>o</sup> 1.

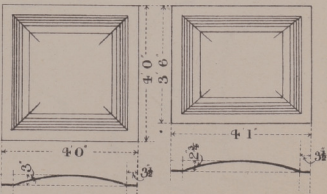


N<sup>o</sup> 2.

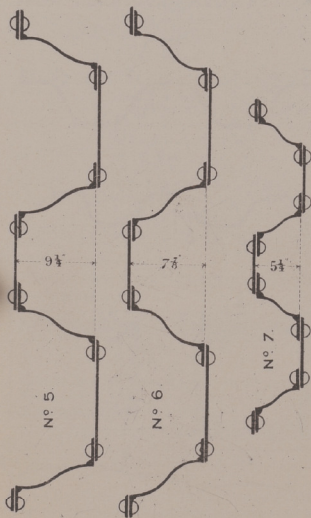


N<sup>o</sup> 3

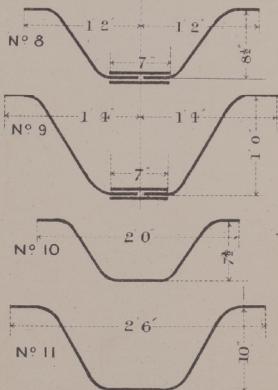
N<sup>o</sup> 4



## FLOOR PLATING.



## FLOOR PLATING.



The above List is not a complete one, but is continually being added to, and any other section can be made if ordered in sufficient quantity.

## DERBYSHIRE & NOTTINGHAMSHIRE COLLIERIES.

COLLIERY OFFICES:—CODNOR PARK,  
ALFRETON.

TELEGRAPHIC ADDRESS:—"WOOLLEY, IRONVILLE"

### LIST OF COALS.

#### PORTLAND—

Hard.  
Bright.  
Roof.  
Mixed.

#### KIRKBY—

Hard.  
Loco. Hard.  
Bright Cobbles.  
Mixed Cobbles.  
Screenings.  
Hard Cobbles.

#### BRANDS—

Hard.  
Picked Bright.  
Bright Cobbles.  
Bright Screenings.  
Hard Screenings.  
Low Main Screenings.

#### CODNOR PARK—

Picked Bright.  
Bright Cobbles.

#### PLUMPTRE—

Hard.  
Picked Bright.  
Bright Cobbles.  
Cross Bright.  
Hard Screenings.  
Slack.

### LIST OF COALS—*continued.*

#### LANGLEY AND LOSCOE—

Hard.  
Hard Cobbles.  
Picked Bright.  
Bright Cobbles.  
Slack.

#### RIPLEY, MAREHAY AND WAINGROVES—

Hard.  
Picked Bright.  
Bright Cobbles.  
Bright Screenings.  
Hard Screenings.  
Ell Coal.  
Ell Coal Screenings.  
Rough Slack.

#### LOW MAIN—

Best Bright.  
Large Steam.  
Screenings.

#### KILBURN—

Picked Bright.  
Hand Picked Cobbles.  
Bag Cobbles.  
Screenings.

#### HARTSHAY—

Hard.  
Picked Bright.  
Bright Cobbles.  
Bright Screenings.  
Hard Screenings.

#### BIRCHWOOD—

Best Black Shale.  
Seconds Bright.

**EMPTY WAGONS**

should be addressed as follows:—

- For **KIRKBY**, to Kirkby Junction Colliery Sidings.
- For **PORTLAND COALS**, to Portland Junction, Midland Railway.
- For **BRANDS**, and **CODNOR PARK COAL**, to Codnor Park, viâ Midland or viâ Great Northern Railway.
- For **LANGLEY** and **LOSCOE COALS**, to Heanor Junction, Midland Railway.
- For **PLUMPTRE COALS**, to Langley Mill, Midland or Great Northern Railway.
- For **RIPLEY COALS**, to Ripley, viâ Derby, Midland Railway.
- For **MAREHAY** and **LOW MAIN COALS**, to Marehay, viâ Derby, Midland Railway.
- For **WAINGROVES COALS**, to Waingroves, viâ Derby, Midland Railway.
- For **HARTSHAY COALS**, to Hartshay Sidings, viâ Ambergate, Midland Railway.
- For **BIRCHWOOD COALS**, to Upper Birchwood Siding, Midland Railway.
- For **KILBURN COALS**, to Denby Hall, viâ Derby, Midland Railway.

**BUTTERLEY IRONSTONES.**

These are all from the lower Coal measures, and very similar in appearance and composition to those of West Yorkshire.

“**BROWN RAKE**” Ironstone is a separate seam.

“**BLACK RAKE**” Ironstone occurs immediately above, and is worked along with the Ell Coal.

“**BLUE RAKE**” Ironstone occurs immediately above the deep hard Coal.

From the above three seams are obtained the Ironstone from which “**Butterley All Mine**” Pig Iron is exclusively made.

The Iron is specially suited for Cylinders and High-class Castings; also, for the superior qualities of Iron Boiler Plates.

**LIMESTONE QUARRIES.**

These are in the Carboniferous or Mountain Limestone.

The upper or "Chert" beds are somewhat silicious, and are broken into large and small lumps for Road metal, Footpaths, Asphalting material, &c.

The lower Limestone Beds are nearly pure Carbonate of Lime, there being less than one per cent. each of Silica, Alumina and Oxide of Iron, and are burnt into the well-known "Crich" lime for Agricultural, Gas works, Sanitary and other purposes, besides being sold raw for flux in smelting furnaces.

Telegraphic Address— Railway Station—  
"HAMILTON, CRICH." AMBERGATE, M.R.

Postal Address—  
THE BUTTERLEY CO., LTD.,  
Ball Bridge Lime Works,  
Derby.

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## STAFFORDSHIRE BRANDS.



FIG IRON:—.....WSS.  
Forge and Foundry qualities.

MANUFACTURED IRON:—

BC		S.
BC		S CABLE.
BC		S BEST.
BC		S BEST BEST.

OFFICES—

SILVERDALE, NORTH STAFFORDSHIRE.

TELEGRAPHIC ADDRESS—

"BUTTERLEY, NEWCASTLE-UNDER-LYME."

## FLATS.

From  $\frac{1}{2}$  in. to 6 in. wide.  
The sizes advance in width by  
 $\frac{1}{8}$  in. up to 2 in. wide.  
 $\frac{1}{4}$  in. ,, 5 in. ,,  
 $\frac{1}{2}$  in. ,, 6 in. ,,

The thicknesses are not less than  
 $\frac{3}{8}$  in. up to 2 in. wide.  
 $\frac{3}{16}$  in. ,, 3 in. ,,  
 $\frac{1}{4}$  in. ,, 6 in. ,,

## ROUNDS AND SQUARES.

Rounds from  $\frac{3}{16}$  in. to 4 in.  
Squares ,,  $\frac{3}{16}$  in. to  $3\frac{1}{2}$  in.

The sizes advance by  
 $\frac{1}{16}$  in. up to  $\frac{3}{16}$  in.  
 $\frac{1}{8}$  in. ,,  $\frac{9}{16}$  in.  
 $\frac{1}{4}$  in. ,, 2 in.  
 $\frac{3}{8}$  in. ,,  $3\frac{1}{4}$  in.  
 $\frac{1}{2}$  in. ,, 4 in.



## OVALS.

$\frac{5}{8}$ in. $\times$ $\frac{5}{16}$ in.	$\frac{7}{8}$ in. $\times$ $\frac{3}{8}$ in.
$\frac{3}{8}$ ,, $\times$ $\frac{3}{8}$ ,,	$\frac{7}{8}$ ,, $\times$ $\frac{7}{16}$ ,,
$\frac{3}{4}$ ,, $\times$ $\frac{5}{16}$ ,,	$\frac{7}{8}$ ,, $\times$ $\frac{13}{32}$ ,,
$\frac{3}{4}$ ,, $\times$ $\frac{3}{8}$ ,,	$\frac{7}{8}$ ,, $\times$ $\frac{1}{2}$ ,,
$\frac{7}{8}$ ,, $\times$ $\frac{5}{16}$ ,,	$\frac{7}{8}$ ,, $\times$ $\frac{3}{8}$ ,,



## SUNDRIES.

Colliery Bridge Rails	.....	16 lbs. per yard.
Tram Rails	.....	4½ in. × 2½ in.
Turntable Bars	.....	2¼ in. × 2¼ in.
"                    "	.....	2½ in. × 2½ in.
Screen Bars	.....	2¼ in. × ¾ in. × ½ in.
"                    "	.....	1½ in. × ¾ in. × ¼ in.
Bevel Iron	.....	1 in. × ⅞ in. × ¼ in.
" Tyre	.....	1½ in. × ¼ in.
Fin Iron	.....	1 in.
Channel Iron	.....	1¾ in. × ½ in. × ¼ in.

LIST OF EXTRAS.  
FLATS.

Width in inches.	Thickness in inches.					
	⅛ & ⅜	⅞ & ⅜	¼ & ⅜	⅞ & ⅜	¾ & ⅜	⅞
½ to 11/16	40/-	30/-	20/-	20/-	15/-	10/-
¾ to 11/8	30/-	20/-	10/-	...	...	...
1 to 3	20/-	10/-	...	...	...	...

## ROUNDS AND SQUARES.

¾	¼	⅞	1½	¾	1½	¾
60/-	35/-	25/-	20/-	15/-	10/-	5/-

## HALF-ROUNDS AND CONVEX.

## OVALS.

Width in inches.	Thickness in inches.				Width in inches.	Thickness in inches.
	¼ & ⅞	⅞ & ⅜	¾ & ⅜	7/16 to 1		
½ to 11/16	40/-	30/-	20/-	10/-	½ & ⅞	30/-
¾ to 11/8	40/-	30/-	20/-	10/-	¾ & 11/16	25/-
1 to 1¾	20/-	10/-	...	...	¾ & 11/8	20/-
					7/8	10/-

## ANGLES AND TEES.

Size in united inches.	Thickness in inches.		
	⅛	3/16	¼
1¼	30/-	30/-	...
1½	25/-	15/-	10/-
1¾	25/-	15/-	10/-
2	20/-	10/-	...
2¼	20/-	10/-	...
2½	20/-	10/-	...
2¾	20/-	10/-	...
3	20/-	10/-	...

All Bars, Angles, Tees, &c., cut to lengths—  
 6 in. and under ..... 40/-  
 Over 6 in. and to 12 in. inclusive ..... 20/-  
 Over 12 in. and to 6 feet inclusive ..... 5/-

Rounds and Squares over 3 in. made in "Best" only.—Best 10/- and Best Best 30/- per ton over "Crown" quality.

SILVERDALE IRONSTONES.

- |                |  |
|----------------|--|
| 1. BLACK BAND. | } These three seams are generally classified as the "Red Mines." |
| 2. RED SHAG.   |  |
| 3. RED MINE.   |  |

The "Puddle Mine" for Forge purposes is selected from all the above Seams after calcination.

4. CANNEL MINE.
5. SHEATH MINE.
6. CHALKEY MINE.
7. NEW MINE.
8. LITTLE MINE.
9. BROWN MINE.
10. GOLD MINE.
11. TOP TWO-ROW.

4 to 11 are Ironstones used for smelting only.

SILVERDALE COLLIERIES,  
NORTH STAFFORDSHIRE.

LIST OF COALS.

- MOSS COAL.
- FOUR FEET COAL.
- SEVEN FEET COAL.
- EIGHT FEET COAL.
- BULLHURST COAL.
- TEN FEET COAL.
- GAS COAL.
- „ BURG.
- NUTS.
- BOWLING ALLEY COAL.
- GREAT ROW COAL.
- GREAT ROW SLACK.
- COKING SLACK.

COLLIERY OFFICES—  
SILVERDALE, NORTH STAFFORDSHIRE.

TELEGRAPHIC ADDRESS—  
"BUTTERLEY, NEWCASTLE-UNDER-LYME."

1 Kilo = 2.2 lbs. Metre <sup>10<sup>00</sup> 8<sup>00</sup></sup> 3.3<sup>3</sup>/<sub>8</sub>

Apr 7/99 Slit Plates can get 25% Slon in 8"

but not in 10"  
 June 13/01 we undertake 25% in 10 upon flats & end  
 plates for Oldham Barls who do under 143/169

Dyes & Whitworths gauges for Milland

Ruby Co

Secover 13/4 Kd 13/8 13/4

39/132 3/4 . 1 1/4 .

5/8 . 1 .

1/2 .

18/2/1900  
 Order of O R & Lyre 2 1/2 x 5/8 teaked  
 for BCo London. Tensile 24.4 tons per sq in  
 Slon 25% in 8" Con<sup>2</sup> 27%  
 Said for Lyre generally something over  
 22 tons. with 15/8 to 90 Slon 4. —

Beyer Bevel of ordinary orders for Bars  
 are to be cut 14.6/15.6. —

Jan 1900  
 Old Shut Mill

Widest Shut we can roll is 4'-6"  
 but don't want any wider than 4'-0" (1903)

Steel 8'-0" x 4'-0" x 3/16 larges we can now  
 roll, as the shears will not cut Bars  
 for larger Shuts.

24 March 1900

21 Bar Mill. Nothing thinner than 9/16 to give  
 out in small flats, & C says better let the  
 Mill stand, than roll them.

Some 2 x 5/8 were given out in 21" to relieve  
 pressure in 10" & to help to keep promises.

21 Bar Mill new rolls made Dec 1900  
 to roll 1 1/2 1 3/8 1 3/4 & 1 7/8 & 7/8" out 2  
 in lengths.

21 Bar Mill 9" flats can be rolled out of  
 1 pair of rolls, when we have 8" flat orders  
 on hand at the same time.

9" flats out of lengths out of 1 pair Rolls at Rolling end  
 if long lengths, Rollers have to be used in addition.

21" Bar Mill  $6\frac{1}{2}$  flats take a  
Train, as they have to go in at bolting end  
of train =

Apr 7/

June 5/

20 Lge Plates where there are fractions of an inch  
Example 10 3% + 4.4% say  $\frac{10 \cdot 3 \cdot 7 \cdot 6}{4 \cdot 4 \cdot 1 \cdot 6}$  thus % are 2 to 6 1/2

See other

39/

Reynolds tests for Boiler Plates as supplied by  
Ransomes Sims & Jeffries 9 May 1901 are  
26/30 Tons Seville, not less than 20% Seve for shell  
quality, and 25% in 8" for Bone Welding & Flanging  
Plates, with usual bending tests =

18/2/1902

1902  
35 Sep. Largest Ingot we can make is 3'-5"  
when mould is run quite full  
say 3'-0" of good metal -  
The 4 tons Ingot is 24" wide end, tapers to 21" Luff

1903

22 July

We roll in Plate Mill plates 109 x 4 3/4 x 3/16  
for Bayer Processed 100 - as near to table  
weight as possible -

Carbon for BC Slit - 15 6 + 20.

48/603 Aveling & Porter - War Office Inspection  
Shell, Ends, Firebox & Butts 28/30 Tons 20% Seve 30%  
with or across grain, Hot & Cold Bends, & Drifts -

48/791 Aveling & Porter - Admiralty Inspection  
Plates not exposed to flame Seville 28/30 Tons 20% in 8"  
& will not be flanged - 28/30 Tons 20% in 8"

Plates exposed to flames 24/27 " 25% in 8"  
& Flanging Plates.

Bending & Welding Tests, welding test broken  
in testing machine to show efficiency of weld.  
"Note for Boilers Makers" Plates and Bars must  
not be worked when the heat has fallen to the  
dangerous limit of temperature, known as "blue  
heat" say from 600° to 400° F

Clayds Tests as supplied by Ransomes. 9 May 1901

26/30 Tons Seville, not less 20% in 8" for Shell,  
and not less 25% in 8" for Firebox Weld & Flanging

Board of Trade Tests for GA 750 48/120 -  
Welds 26/30 Tons Seville 20/25% in 10"  
Inspector from Liverpool witnessed obtaining test  
pieces had to be sent to Liverpool as they could only  
taken tests on approved & certified machines,  
which must be tested and adjusted annually  
by them -  
This fee is £2.2.0 a day & travelling fee 2 -