

THE
BUTTERLEY COMPANY,
LIMITED.

1904.

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ADDRESSES OF WORKS AND OFFICES.

BUTTERLEY WORKS, DERBY,
Butterley Station, Midland Railway.

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

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

LIME WORKS, Bull Bridge, Derby,
Ambergate Station, Midland Railway.

CHIEF OFFICES—BUTTERLEY.

Postal Address—Butterley, Derby.
Telegraphic Address—"Ironworks, Butterley."
Telephone—No. 6 Ripley.

COLLIERY OFFICES, Codnor Park, Alfreton.

Telegraphic Address—"Laoc, Ironville."
Telephone—No. 6 Ripley.

London Offices—118, Cannon Street, E.C.

Manchester Offices—Mawson Buildings, Deansgate.

Birmingham Offices—Exchange Buildings.

Glasgow Offices—144, St. Vincent Street.

South African Offices—Johannesburg, Transvaal.

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, 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.

—
1904.

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

Copyright.

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MAXIMUM DIMENSIONS OF STEEL
SHEETS AND PLATES.

| Thickness. | Area in Square Feet. | Length. | Width. | | Diameter Square. |
|---------------|----------------------------|---------|---------|---------|------------------|
| | | | ft. in. | ft. in. | |
| 26 & 25 w.g. | 15 0 | 6 0 | 2 6 | 2 6 | 2 6 |
| 24 to 21 w.g. | 24 0 | 8 0 | 3 6 | 3 6 | 3 6 |
| 20,, 17 w.g. | 30 0 | 9 0 | 4 0 | 4 0 | 4 0 |
| 1 1/8 in. | 30 0 | 9 0 | 4 0 | 4 0 | 4 0 |
| 3/8 " | 30 0 | 10 0 | 4 0 | 4 6 | 4 6 |
| 1/2 " | 30 0 | 10 0 | 4 0 | 4 6 | 4 6 |
| 5/8 " | 30 0 | 10 0 | 4 0 | 4 6 | 4 6 |
| 3/4 " | 32 0 | 10 0 | 4 0 | 4 6 | 4 6 |
| 7/8 " | 72 0 | 30 0 | 6 0 | 6 6 | 6 3 |
| 1 " | 72 0 | 30 0 | 6 0 | 6 6 | 6 3 |
| 1 1/8 " | 90 0 | 35 0 | 7 0 | 7 0 | 7 0 |
| 1 1/4 " | 115 0 | 40 0 | 7 0 | 7 0 | 7 0 |
| 1 1/2 " | 130 0 | 40 0 | 8 6 | 8 10 | 8 8 |
| 1 3/4 " | 140 0 | 40 0 | 9 3 | 9 8 | 9 3 |
| 2 " | 140 0 | 40 0 | 9 3 | 9 8 | 9 3 |
| 2 1/4 " | 140 0 | 36 0 | 9 0 | 9 8 | 9 3 |
| 2 1/2 " | 130 0 | 33 0 | 9 0 | 9 6 | 9 0 |
| 2 3/4 " | 110 0 | 30 0 | 8 6 | 9 0 | 9 0 |
| 3 " | 100 0 | 20 0 | 8 6 | 9 0 | 8 6 |

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.


BRANDS OF IRON AND STEEL.

Pig 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.

Original document held at Derbyshire Record Office, catalog reference D503/89.
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BRANDS OF IRON AND STEEL—Continued.

SIEMENS-MARTIN ACID 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.

PLATES.

All qualities, and not thinner than $\frac{1}{4}$ in. or thicker than $1\frac{1}{4}$ in. or wider than 9 ft. 8 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 9 in. wide.

The sizes advance in width by

| | |
|-------------------------------------|--|
| $\frac{1}{8}$ in. up to 3 in. wide. | |
| $\frac{1}{4}$ " " 4 $\frac{1}{2}$ " | |
| $\frac{1}{2}$ " " 5 " | |
| $\frac{3}{4}$ " " 5 $\frac{1}{4}$ " | |
| 1 " " 7 " | |
| 1 " " 9 " | |

The thicknesses are not less than

| | |
|-------------------------------------|--|
| $\frac{1}{8}$ in. up to 3 in. wide. | |
| $\frac{3}{16}$ " " 4 " | |
| $\frac{1}{4}$ " " 7 " | |
| $\frac{5}{16}$ " " 8 " | |
| $\frac{3}{8}$ " " 9 " | |

ORDINARY ROUNDS.

From $\frac{3}{8}$ in. to 6 in. diameter.

The sizes advance by

| | |
|---|--|
| $\frac{1}{32}$ in. up to $1\frac{3}{8}$ in. | |
| $\frac{1}{16}$ " " 2 $\frac{5}{8}$ " | |
| $\frac{1}{8}$ " " 5 $\frac{1}{2}$ " | |
| $\frac{1}{4}$ " " 6 " | |

IN IRON OR STEEL.

ROUNDS FOR CABLES, ETC.

No. 1 wire gauge.

| | |
|--|--|
| " 2 " | |
| $\frac{5}{16}$ in. and $\frac{3}{4}$ in. | |
| $\frac{7}{16}$ " " $\frac{3}{4}$ " | |
| $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| $\frac{9}{16}$ " " $\frac{3}{4}$ " | |
| $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| $\frac{5}{8}$ " " $\frac{3}{4}$ " | |
| $\frac{3}{4}$ " " $\frac{3}{4}$ " | |
| $\frac{11}{16}$ " " $\frac{3}{4}$ " | |
| $\frac{3}{4}$ " " $\frac{3}{4}$ " | |
| $\frac{11}{16}$ " " $\frac{3}{4}$ " | |
| $\frac{3}{4}$ " " $\frac{3}{4}$ " | |
| $\frac{11}{16}$ " " $\frac{3}{4}$ " | |
| I " " $\frac{3}{4}$ " | |

| | |
|---|--|
| 1 $\frac{1}{4}$ in. and $\frac{3}{4}$ in. | |
| 1 $\frac{3}{8}$ " " $\frac{3}{4}$ " | |
| 1 $\frac{3}{8}$ " " $\frac{3}{4}$ " | |
| 1 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 1 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 1 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{16}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{16}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{8}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 2 $\frac{1}{2}$ " " $\frac{3}{4}$ " | |
| 3 $\frac{1}{8}$ " " $\frac{3}{4}$ " | |


SQUARES.

From $\frac{1}{4}$ in. to 4 $\frac{1}{2}$ in.


The sizes advance by

| | | |
|---|--|-------------------------------------|
| $\frac{1}{32}$ in. up to $\frac{1}{16}$ in. | | $\frac{1}{4}$ in. up to 3 in. |
| $\frac{1}{16}$ " " $\frac{1}{8}$ " | | $\frac{1}{4}$ " " 4 $\frac{1}{2}$ " |

IN IRON OR STEEL.


ONE ROUND EDGED TYRE BARS.




| Size in Inches measured over all. | Size in Inches measured over all. |
|---|--|
| 1 $\frac{3}{8}$ wide x $\frac{7}{16}$ thick | 2 wide x $\frac{3}{8}$ thick. |
| 1 $\frac{3}{8}$ " " x $\frac{1}{2}$ " " | 2 $\frac{1}{8}$ " " x $\frac{5}{16}$ " " |
| 1 $\frac{1}{2}$ " " x $\frac{1}{2}$ " " | 2 $\frac{1}{8}$ " " x $\frac{1}{2}$ " " |
| 1 $\frac{1}{2}$ " " x $\frac{9}{16}$ " " | 2 $\frac{1}{8}$ " " x $\frac{3}{4}$ " " |
| 1 $\frac{1}{2}$ " " x $\frac{5}{8}$ " " | 2 $\frac{1}{4}$ " " x $\frac{3}{8}$ " " |
| 1 $\frac{5}{8}$ " " x $\frac{1}{2}$ " " | 2 $\frac{1}{4}$ " " x $\frac{1}{2}$ " " |
| 1 $\frac{5}{8}$ " " x $\frac{9}{16}$ " " | 2 $\frac{1}{4}$ " " x $\frac{3}{4}$ " " |
| 1 $\frac{5}{8}$ " " x $\frac{5}{8}$ " " | 2 $\frac{1}{2}$ " " x $\frac{5}{8}$ " " |
| 1 $\frac{3}{4}$ " " x $\frac{1}{2}$ " " | 2 $\frac{1}{2}$ " " x $\frac{3}{4}$ " " |
| 1 $\frac{3}{4}$ " " x $\frac{9}{16}$ " " | 2 $\frac{1}{2}$ " " x $\frac{1}{2}$ " " |
| 1 $\frac{3}{4}$ " " x $\frac{5}{8}$ " " | 2 $\frac{3}{4}$ " " x $\frac{3}{8}$ " " |
| 1 $\frac{3}{4}$ " " x $\frac{1}{2}$ " " | 2 $\frac{3}{4}$ " " x $\frac{1}{2}$ " " |
| 1 $\frac{7}{8}$ " " x $\frac{5}{8}$ " " | 3 " " x $\frac{5}{8}$ " " |
| 1 $\frac{7}{8}$ " " x $\frac{3}{4}$ " " | 3 " " x $\frac{3}{4}$ " " |
| 1 $\frac{7}{8}$ " " x $\frac{1}{2}$ " " | 3 " " x $\frac{1}{2}$ " " |
| 2 " " x $\frac{5}{8}$ " " | 3 " " x $\frac{3}{8}$ " " |
| 2 " " x $\frac{1}{2}$ " " | 3 " " x $\frac{1}{8}$ " " |


TWO ROUND EDGED TYRE BARS.

| Size in Inches measured over all. | Size in Inches measured over all. |
|---|---|
| 2 $\frac{1}{4}$ wide x $\frac{5}{8}$ thick. | 2 $\frac{1}{2}$ wide x $\frac{5}{8}$ thick. |

IN IRON OR STEEL.

GRATE OR FIRE BARS.

| Width. | Thickness. |
|---|--|
| 3 in.  | 1 $\frac{1}{8}$ in. 1 $\frac{1}{2}$ in. |
| 3 $\frac{1}{2}$ " " " " | $\frac{5}{8}$ " " 3 $\frac{1}{8}$ " " |
| 3 $\frac{3}{4}$ " " " " | 1 $\frac{1}{8}$ " " 3 $\frac{1}{8}$ " " |
| 3 $\frac{7}{8}$ " " " " | $\frac{3}{4}$ " " 3 $\frac{1}{8}$ " " |
| 4 $\frac{1}{4}$ " " " " | $\frac{5}{8}$ " " 3 $\frac{1}{8}$ " " |
| 4 $\frac{1}{2}$ " " " " | $\frac{3}{4}$ " " 3 $\frac{1}{8}$ " " |
| 3 $\frac{3}{4}$ "  | 1 " " 3 $\frac{1}{8}$ " " |
| 4 "  | 1 $\frac{1}{4}$ " " 3 $\frac{1}{4}$ " " |

The above can be slightly increased in thickness.

**CHANNELS.**

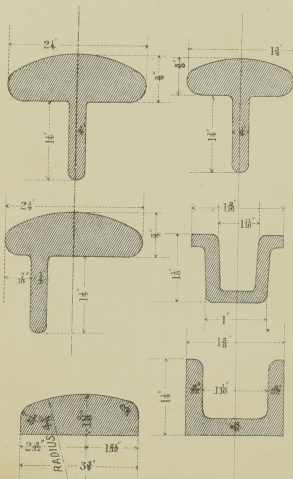
| Width. | Depth of Flanges. | Thickness. | |
|---------------------|--------------------|--------------------|-------------------|
| | | Web. | Flanges. |
| 1 $\frac{3}{8}$ in. | $\frac{5}{8}$ in. | $\frac{1}{16}$ in. | $\frac{1}{8}$ in. |
| 2 $\frac{1}{4}$ " | 1 $\frac{9}{16}$ " | $\frac{1}{16}$ " | $\frac{9}{32}$ " |
| 4 " | 2 " | $\frac{3}{8}$ " | $\frac{3}{8}$ " |
| 6 " | 2 $\frac{1}{2}$ " | $\frac{3}{8}$ " | $\frac{3}{8}$ " |
| 6 " | 2 $\frac{1}{2}$ " | $\frac{1}{2}$ " | $\frac{1}{2}$ " |
| * 8 " | 4 " | $\frac{1}{2}$ " | $\frac{1}{2}$ " |

**ZED OR SPACE BARS.**

| Depth of Web. | Width of Flanges. | Thickness | |
|---------------------|-----------------------------------|-------------------|-------------------|
| | | From. | To. |
| 2 $\frac{1}{2}$ in. | in. in. | | |
| 3 " | 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ | $\frac{3}{8}$ in. | $\frac{1}{2}$ in. |
| 4 " | 3 x 2 $\frac{1}{2}$ | $\frac{7}{16}$ | $\frac{5}{8}$ " |
| 4 " | 2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ | $\frac{3}{8}$ " | $\frac{1}{2}$ " |
| 4 " | 3 $\frac{1}{2}$ x 3 | $\frac{3}{8}$ " | $\frac{9}{16}$ " |
| 6 " | 3 $\frac{1}{2}$ x 3 | $\frac{3}{8}$ " | $\frac{1}{2}$ " |

* In Iron only. Others in Iron or Steel.

SECTIONAL BARS.



HALF-ROUNDS AND CONVEX.

| Width in inches. | Thickness in inches. | | | | | |
|--------------------------------|--|---|--|--|---|---------------------------------------|
| | $\frac{1}{8}$ and $\frac{5}{16}$ | $\frac{3}{16}$ 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 $\frac{1}{2}$ |
| $\frac{5}{16}$ | 100/- | 90/- | 70/- | .. | ... | ... |
| $\frac{3}{8}$ to $\frac{1}{2}$ | 100/- | 80/- | 60/- | 50/- | ... | ... |
| $\frac{1}{2}$ to $\frac{3}{4}$ | 80/- | 60/- | 40/- | 30/- | 20/- | 10 |
| $\frac{3}{4}$ to 1 | 60/- | 40/- | 40/- | 30/- | 20/- | 10/- |
| 1 to 3 | 40/- | 30/- | 20/- | 10/- | ... | ... |

ANGLES AND TEES.

| Size in united inches. | Thickness in inches. | | |
|-----------------------------------|----------------------|----------------|---------------|
| | $\frac{1}{8}$ | $\frac{3}{16}$ | $\frac{1}{4}$ |
| $\frac{7}{8}$ and 1 | 80/- | 70/- | ... |
| $1\frac{1}{4}$ and $1\frac{1}{2}$ | 40/- | 30/- | 20/- |
| $1\frac{3}{4}$ | 30/- | 20/- | 10/- |
| 2 and over | 20/- | 10/- | ... |

Angles and Tees to 9 united inches without extra; over 9 united inches 10/- per ton extra for each inch or part of an inch. Sizes larger than 9 united inches cannot be made in a lower quality than Best, and will therefore be subject to the extra for quality in addition to the above.


CUTTING TO LENGTH.—6 in. and under ... 40/-
Over 6 in. to 12 in. 20/-
Over 12 in. to 24 in. 10/-
Over 24 in. ... 5/-

All Bars of ordinary sizes up to 25 ft. long without extra; exceeding this length per Special Agreement.

EXTRA FOR SECTION OVER ORDINARY BARS.

| | | | | |
|------------------------|-----|-----|-----|------|
| Angles | ... | ... | ... | 5/- |
| Tees | ... | ... | ... | 10/- |
| Half Rounds and Convex | ... | ... | ... | 10/- |
| One and two Round Edge | ... | ... | ... | 5/- |

EXTRA FOR QUALITY OVER CROWN.

| | |
|---|------|
| Best, and Iron-branded  or Best Shoe | 10/- |
| Best, Best | 30/- |
| Best, Best, Best | 70/- |

| | | | |
|-----------------------------|-----|-----|-----|
| Lots under 5 cwt. of a size | ... | ... | 5/- |
|-----------------------------|-----|-----|-----|

The basis price fixed at any time shall be for delivery in 4-ton lots and over, and of not less than 5 cwt. of a size; smaller lots than 2 tons being subject to special agreement.

IRON SHEETS.

| Gauge. | Length to. | Width to. | Area to. | | |
|---------------------------------|------------|-----------|----------|-----|------|
| | ft. in. | ft. in. | ft. | in. | |
| Singles under $\frac{1}{4}$ in. | | | | | |
| to 20 w.g. | 9 0 | 3 6 | 25 0 | | Nil. |
| Doubles to 24 w.g. | 8 0 | 3 0 | 22 0 | | 10/- |
| Lattins 25 w.g. | 6 0 | 2 6 | 18 0 | | 30/- |
| " 26 w.g. | 6 0 | 2 6 | 18 0 | | 30/- |
| " 27 w.g. | 6 0 | 2 6 | 18 0 | | 30/- |

Length.—For every 12 ins. or part over specified length 10/-

Width.—For every 3 ins. 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/-

STEEL PLATES.

Other than for Lancashire and Cornish Boilers.

| | | | | |
|---|-----|-----|-----|----------|
| UNDER $\frac{3}{8}$ in. to $\frac{5}{16}$ in. | ... | ... | ... | 2/6 |
| " $\frac{5}{16}$ in. to $\frac{1}{4}$ in. | ... | ... | ... | 5/- |
| 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. to $\frac{3}{16}$ in. | ... | ... | ... | 20/- |
| LENGTH—Over 15 ft. to 20 ft. | ... | ... | ... | 20/- |
| WIDTH—For every 3 ins. or part over 4 ft. | ... | ... | ... | 10/- |
| AREA—For every 5 ft. or part over 32 ft. | ... | ... | ... | 10/- |

| | |
|---|------|
| SKETCHES and CIRCLES of all thicknesses | 25/- |
| UNDER 12 ins. wide | ... |
| Special Soft Fire Box Quality | ... |

STEEL SHEETS.

| Gauge. | Length to | Width to | Area to | | |
|--|-----------|----------|---------|-----|------|
| | ft. in. | ft. in. | ft. | in. | |
| Singles under $\frac{1}{8}$ in. to 20 w.g. | 9 0 | 3 6 | 25 0 | | Nil. |
| Doubles to 24 w.g. | 8 0 | 3 0 | 22 0 | | 10/- |
| Lattins to 25 w.g. | 6 0 | 2 6 | 18 0 | | 40/- |
| " 26 w.g. | 6 0 | 2 6 | 18 0 | | 40/- |

LENGTH—For every 12 in. or part over specified length 10/-

WIDTH—For every 3 in. or part over specified length 10/-

AREA—For every 5 ft. or part over specified area 10/-

SKETCHES and CIRCLES 20/-

UNDER 12 in. wide 10/-

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.

&c., &c., &c.

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. | | | |
| 3 ^o | ½ | ·5000 | 12·700 | 20·000 | |
| 2 ^o | | ·4452 | 11·288 | 17·808 | |
| 1 ^o | | ·3964 | 10·068 | 15·856 | |
| 1 | | ·3532 | 8·971 | 14·128 | |
| 2 | ¼ | ·3147 | 7·993 | 12·588 | |
| 3 | | ·2804 | 7·122 | 11·216 | |
| 4 | | ·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 | | ⅓ | ·1250 | 3·175 | 5·000 |
| 11 | | | ·1113 | 2·827 | 4·452 |
| 12 | ·0991 | | 2·517 | 3·964 | |
| 13 | ·0882 | | 2·240 | 3·528 | |
| 14 | ⅛ | ·0785 | 1·994 | 3·140 | |
| 15 | | ·0699 | 1·775 | 2·796 | |
| 16 | | ·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 | ¾ | ·0392 | ·996 | 1·568 |
| 21 | | ·0349 | ·886 | 1·396 |
| 22 | | ·03125 | ·794 | 1·250 |
| 23 | | ·02782 | ·707 | 1·128 |
| 24 | ½ | ·02476 | ·629 | ·9904 |
| 25 | | ·02204 | ·560 | ·8816 |
| 26 | | ·01961 | ·498 | ·7844 |
| 27 | | ·01745 | ·4432 | ·698 |
| 28 | | ·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.

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 | 1'051 | 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 |
| 26 | '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.

TABLE OF WEIGHTS OF FLAT BAR
IRON PER LINEAL FOOT.

| Width. | 1/4 | | 5/16 | | 3/8 | | 1/2 | | 5/8 | | 3/4 | | 7/8 | | 1 | |
|--------|------|------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|
| | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. | lbs. |
| 1 | 83 | 1'04 | 1'25 | 1'67 | 2'08 | 2'50 | 2'92 | 3'33 | | | | | | | | |
| 1 1/4 | 1'04 | 1'30 | 1'56 | 2'08 | 2'60 | 3'13 | 3'65 | 4'16 | | | | | | | | |
| 1 1/2 | 1'25 | 1'56 | 1'88 | 2'50 | 3'13 | 3'75 | 4'38 | 5'00 | | | | | | | | |
| 1 3/4 | 1'40 | 1'82 | 2'19 | 2'92 | 3'65 | 4'38 | 5'10 | 5'83 | | | | | | | | |
| 2 | 1'67 | 2'08 | 2'50 | 3'33 | 4'17 | 5'00 | 5'83 | 6'67 | | | | | | | | |
| 2 1/4 | 1'88 | 2'34 | 2'81 | 3'75 | 4'69 | 5'63 | 6'56 | 7'50 | | | | | | | | |
| 2 1/2 | 2'08 | 2'60 | 3'13 | 4'17 | 5'21 | 6'25 | 7'29 | 8'33 | | | | | | | | |
| 2 3/4 | 2'29 | 2'86 | 3'44 | 4'58 | 5'73 | 6'88 | 8'02 | 9'17 | | | | | | | | |
| 3 | 2'50 | 3'13 | 3'75 | 5'00 | 6'25 | 7'50 | 8'75 | 10'00 | | | | | | | | |
| 3 1/4 | 2'71 | 3'39 | 4'06 | 5'42 | 6'77 | 8'13 | 9'48 | 10'83 | | | | | | | | |
| 3 1/2 | 2'92 | 3'65 | 4'38 | 5'83 | 7'29 | 8'75 | 10'21 | 11'67 | | | | | | | | |
| 3 3/4 | 3'13 | 3'91 | 4'69 | 6'25 | 7'81 | 9'38 | 10'94 | 12'50 | | | | | | | | |
| 4 | 3'33 | 4'17 | 5'09 | 6'67 | 8'33 | 10'00 | 11'67 | 13'33 | | | | | | | | |
| 4 1/4 | 3'54 | 4'43 | 5'31 | 7'08 | 8'85 | 10'63 | 12'40 | 14'17 | | | | | | | | |
| 4 1/2 | 3'75 | 4'69 | 5'63 | 7'50 | 9'38 | 11'25 | 13'13 | 15'00 | | | | | | | | |
| 4 3/4 | 3'96 | 4'95 | 5'94 | 7'92 | 9'90 | 11'88 | 13'85 | 15'83 | | | | | | | | |
| 5 | 4'17 | 5'21 | 6'25 | 8'33 | 10'42 | 12'50 | 14'58 | 16'67 | | | | | | | | |
| 5 1/4 | 4'38 | 5'47 | 6'56 | 8'75 | 10'94 | 13'13 | 15'31 | 17'50 | | | | | | | | |
| 5 1/2 | 4'58 | 5'73 | 6'88 | 9'17 | 11'46 | 13'75 | 16'04 | 18'33 | | | | | | | | |
| 5 3/4 | 4'79 | 5'99 | 7'19 | 9'58 | 11'98 | 14'38 | 16'77 | 19'17 | | | | | | | | |
| 6 | 5'00 | 6'25 | 7'50 | 10'00 | 12'50 | 15'00 | 17'50 | 20'00 | | | | | | | | |
| 6 1/4 | 5'42 | 6'78 | 8'12 | 10'84 | 13'54 | 16'26 | 18'66 | 21'66 | | | | | | | | |
| 6 1/2 | 5'84 | 7'30 | 8'76 | 11'06 | 14'58 | 17'50 | 20'42 | 23'34 | | | | | | | | |
| 6 3/4 | 6'66 | 8'34 | 10'00 | 13'31 | 16'66 | 20'00 | 23'34 | 26'66 | | | | | | | | |

TABLE OF WEIGHTS
OF ROUND AND SQUARE BAR IRON
PER LINEAL FOOT.

| Dia- meter or Side. | Round. | | Square. | meter or Side. | | Round. | | Square. |
|------------------------------|--------|------|---------|----------------------|--------|--------|------|---------|
| | In. | lbs. | lbs. | In. | lbs. | lbs. | lbs. | lbs. |
| 1/4 | 1'09 | 1'12 | 1 3/4 | 8'10 | 10'32 | | | |
| 1/4 | 1'17 | 1'21 | 1 7/8 | 9'30 | 11'84 | | | |
| 3/8 | 1'26 | 1'32 | 2 | 10'58 | 13'47 | | | |
| 3/8 | 1'37 | 1'47 | 2 1/8 | 11'95 | 15'21 | | | |
| 1/2 | 1'51 | 1'65 | 2 1/4 | 13'39 | 17'05 | | | |
| 1/2 | 1'66 | 1'84 | 2 3/8 | 14'92 | 19'00 | | | |
| 5/8 | 1'84 | 1'07 | 2 1/2 | 16'53 | 21'05 | | | |
| 5/8 | 1'93 | 1'32 | 2 3/8 | 18'23 | 23'21 | | | |
| 3/4 | 1'25 | 1'59 | 2 3/4 | 20'21 | 25'47 | | | |
| 3/4 | 1'49 | 1'90 | 2 7/8 | 21'87 | 27'84 | | | |
| 7/8 | 1'75 | 2'22 | 3 | 23'81 | 30'31 | | | |
| 7/8 | 2'07 | 2'58 | 3 1/4 | 27'04 | 35'58 | | | |
| 1 | 2'33 | 2'96 | 3 1/2 | 32'41 | 41'26 | | | |
| 1 | 2'65 | 3'37 | 3 3/4 | 37'20 | 47'36 | | | |
| 1 1/8 | 3'49 | 4'26 | 4 | 42'32 | 53'89 | | | |
| 1 1/4 | 4'13 | 5'26 | 4 1/2 | 53'00 | 67'50 | | | |
| 1 1/2 | 5'00 | 6'37 | 5 | 65'45 | 83'33 | | | |
| 1 1/2 | 5'95 | 7'59 | 5 1/2 | 79'20 | 101'68 | | | |
| 1 3/8 | 6'99 | 8'89 | 6 | 95'05 | 121'00 | | | |

AREAS OF CIRCLES.

8

| Diam. ins. | 0 in. | 1 in. | 2 in. | 3 in. | 4 in. | 5 in. | 6 in. | 7 in. | 8 in. | 9 in. | 10 in. | 11 in. |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Diam. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. | Sq. ft. |
| 1 | 7854 | 922 | 1707 | 1233 | 140 | 158 | 177 | 197 | 218 | 241 | 264 | 289 |
| 2 | 314 | 341 | 369 | 398 | 428 | 459 | 491 | 524 | 559 | 594 | 630 | 666 |
| 3 | 707 | 747 | 788 | 830 | 873 | 917 | 962 | 1008 | 1056 | 1104 | 1154 | 1205 |
| 4 | 1257 | 1310 | 1364 | 1419 | 1475 | 1532 | 1590 | 1650 | 1710 | 1772 | 1835 | 1899 |
| 5 | 1954 | 2029 | 2097 | 2165 | 2234 | 2304 | 2376 | 2448 | 2522 | 2597 | 2673 | 2749 |
| 6 | 2827 | 2906 | 2987 | 3068 | 3150 | 3234 | 3318 | 3404 | 3491 | 3578 | 3667 | 3757 |
| 7 | 3848 | 3941 | 4034 | 4128 | 4224 | 4320 | 4418 | 4517 | 4616 | 4717 | 4819 | 4922 |
| 8 | 5027 | 5132 | 5238 | 5346 | 5454 | 5564 | 5675 | 5786 | 5899 | 6013 | 6128 | 6244 |
| 9 | 6362 | 6480 | 6600 | 6720 | 6842 | 6964 | 7088 | 7213 | 7339 | 7466 | 7594 | 7724 |
| 10 | 7854 | 7985 | 8118 | 8252 | 8386 | 8522 | 8659 | 8797 | 8936 | 9076 | 9217 | 9360 |
| 11 | 9503 | 9648 | 9793 | 9940 | 10088 | 10237 | 10387 | 10538 | 10690 | 10843 | 10998 | 11153 |
| 12 | 11310 | 11467 | 11626 | 11786 | 11947 | 12109 | 12272 | 12436 | 12601 | 12768 | 12935 | 13104 |
| 13 | 13273 | 13441 | 13610 | 13780 | 13963 | 14138 | 14314 | 14491 | 14669 | 14849 | 15029 | 15211 |
| 14 | 15394 | 15578 | 15763 | 15949 | 16136 | 16324 | 16513 | 16703 | 16895 | 17089 | 17281 | 17476 |
| 15 | 17672 | 17868 | 18066 | 18265 | 18466 | 18667 | 18869 | 19073 | 19277 | 19483 | 19689 | 19897 |
| 16 | 20190 | 20316 | 20527 | 20739 | 20953 | 21167 | 21383 | 21599 | 21817 | 22035 | 22255 | 22470 |

BUTTERLEY WORKS.

Butterley Station, Via Ambergate, Pye Bridge, Ripley or Langley Mill, Midland Railway.

PIG IRON.

Special Derbyshire, made from a mixture of oolite ores and native Derbyshire stone; brand, "Butterley."

Derbyshire All Mine, made solely from selected Ironstones of the Coal Measures obtained from the Company's Derbyshire Mines (see page 42); brand, "Butterley Mine."

Iron Castings of every description, Gas and Water Pipes to 36 inches diameter, Bed Plates for Engines and Machinery, to 20 tons weight.

Bridge Cylinders and Culvert Pipes to 10 feet diameter.

Columns and Stanchions.

Road-Roller Cylinders to 10 tons.

Bending Rolls to 25 feet long, cast vertically.

Broken Cinders for Road Metal, Railway Ballast, Concrete, or Asphalte Paving, from selected Slag.

Engines, Boilers, Heavy Machinery, Coal Sorting Plants, Rolling Mills, Bridges, Roofs, Gas Works Plant, Structural Iron and Steel Work.

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ENGINEERING WORKS EXECUTED

Include Boilers, Engines, and Scoop Wheels for draining the Fen Districts of Littleport and Downham, Deeping, Sutton and Mepal, Manca and Welney, Waterbeach, March first and fourth Districts, Mildenhall, &c., &c.

Pumping Engines at the Waterworks, Shrewsbury, Oxford, Chelsea, Nottingham, Hull, Amsterdam, Hamburg, &c., &c.

Colliery Winding and Pumping Engines and Boilers at Clay Cross, Netherseal, Eastwood, Moira, Portland, Langley, Silverdale, Kirkby and other Collieries.

Rolling Mills at the London and North Western Railway Works, Crewe; the Lancashire and Yorkshire Railway Works, Horwich; the works of Vickers, Sons & Co., Sheffield; &c., &c.

BRIDGES.—At Vauxhall, over the Thames. At Trent, over the River Trent. Fixed and swing bridges at Dordrecht. At Selby, over the Ouse. At Cambridge, over the Cam. At Ely, over the Ouse.

Also for the principal railways including the London and North Western, Midland, Great Northern, Great Eastern, Great Central, Lancashire and Yorkshire, Lancashire, Derbyshire and East Coast, Hull and Barnsley, London, Brighton and South Coast, South Eastern, &c., &c.; also for the New South Wales, Queensland, New Zealand and Tasmanian Governments; the principal Indian and Colonial Railways, Smyrna and Cassaba Railway, &c., &c.

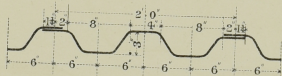
ROOFS.—St. Pancras Station, London; Leicester Gas Works; Bass & Co.'s Ale Stores; Midland Railway Locomotive Sheds; Vickers and Sons, Steel Works; Mersey Docks; &c., &c.

CRANES AND GAS WORKS PLANT.—Purifiers for Hastings, Derby and other works; 20 tons cranes for Portsmouth Dockyard, &c., &c.

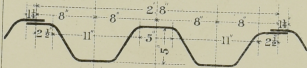
COLLIERY PLANT.—Iron headstocks, pulleys, cages, ventilating fans, and coal sorting machinery, at New Hucknall, Wollaton, Kirkby, Portland, Ibstock, Blackwell, Clifton, Bidworth, Whitwick, Baddesley, Swanwick, Pentrich, and other Collieries.

SECTIONS OF
PRESSED FLOORING.

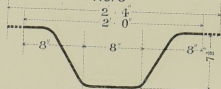
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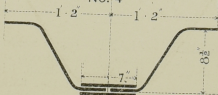
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No. 3

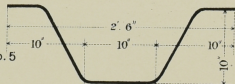


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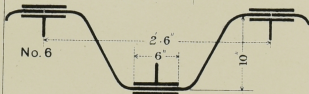


PRESSED FLOORING.

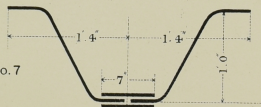
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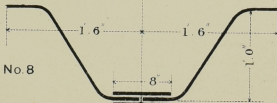
No. 6



No. 7



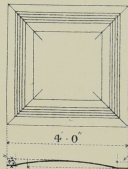
No. 8



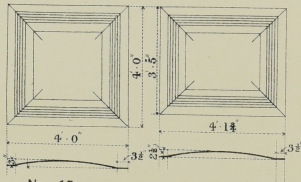
PRESSED TROUGH FLOORING.

BUCKLED PLATES.

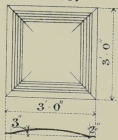
No. 13.



No. 14.



No. 15.



STANDARD FLANGED PIPES.

| Internal diameter. | Length. | Thickness in body. | Diameter of flange. | Number of holes. | Size of holes. | Diam. through holes. | Thickness of flange. |
|--------------------|---------|--------------------|---------------------|------------------|-----------------|----------------------|----------------------|
| ins. | ft. in. | in. | ins. | | in. | ins. | in. |
| 2 | 6 0 | $\frac{3}{8}$ | 6 $\frac{1}{2}$ | 4 | $\frac{3}{4}$ | 4 $\frac{1}{2}$ | $\frac{1}{8}$ |
| 2 $\frac{1}{2}$ | 6 0 | $\frac{3}{8}$ | 7 | 4 | $\frac{3}{4}$ | 5 $\frac{1}{2}$ | $\frac{1}{8}$ |
| 3 | 9 0 | $\frac{3}{8}$ | 7 $\frac{1}{2}$ | 4 | $\frac{3}{4}$ | 6 | $\frac{3}{8}$ |
| 3 $\frac{1}{2}$ | 9 0 | $\frac{3}{8}$ | 8 $\frac{1}{2}$ | 4 | $\frac{3}{8}$ | 7 | $\frac{3}{4}$ |
| 4 | 9 0 | $\frac{1}{2}$ | 9 $\frac{1}{2}$ | 4 | $\frac{3}{8}$ | 7 $\frac{1}{4}$ | $\frac{3}{4}$ |
| 5 | 9 0 | $\frac{1}{2}$ | 10 $\frac{1}{2}$ | 4 | $\frac{3}{8}$ | 8 $\frac{1}{4}$ | $\frac{7}{8}$ |
| 6 | 9 0 | $\frac{3}{8}$ | 12 | 4 | 1 | 10 | $\frac{7}{8}$ |
| 7 | 9 0 | $\frac{3}{8}$ | 14 | 6 | 1 | 11 $\frac{1}{2}$ | 1 |
| 8 | 9 0 | $\frac{3}{4}$ | 15 | 6 | 1 $\frac{1}{8}$ | 12 $\frac{1}{2}$ | 1 |
| 9 | 9 0 | $\frac{3}{4}$ | 16 $\frac{1}{2}$ | 6 | 1 $\frac{1}{8}$ | 14 $\frac{1}{4}$ | 1 $\frac{1}{16}$ |
| 10 | 9 0 | $\frac{3}{4}$ | 17 $\frac{1}{2}$ | 6 | 1 $\frac{1}{8}$ | 15 $\frac{1}{4}$ | 1 $\frac{1}{8}$ |
| 11 | 9 0 | $\frac{7}{8}$ | 19 | 6 | 1 $\frac{1}{8}$ | 16 $\frac{1}{2}$ | 1 $\frac{3}{16}$ |
| 12 | 9 0 | $\frac{7}{8}$ | 20 | 6 | 1 $\frac{1}{4}$ | 17 $\frac{1}{4}$ | 1 $\frac{1}{4}$ |
| 14 | 9 0 | $\frac{7}{8}$ | 22 | 8 | 1 $\frac{1}{4}$ | 19 $\frac{1}{4}$ | 1 $\frac{1}{4}$ |
| 15 | 9 0 | $\frac{7}{8}$ | 23 | 8 | 1 $\frac{1}{4}$ | 20 $\frac{1}{2}$ | 1 $\frac{1}{4}$ |
| 16 | 9 0 | $\frac{7}{8}$ | 24 $\frac{1}{2}$ | 8 | 1 $\frac{3}{8}$ | 22 | 1 $\frac{5}{16}$ |
| 18 | 9 0 | 1 | 26 $\frac{1}{2}$ | 8 | 1 $\frac{3}{8}$ | 23 $\frac{1}{2}$ | 1 $\frac{3}{8}$ |
| 20 | 9 0 | 1 | 29 | 8 | 1 $\frac{1}{2}$ | 26 | 1 $\frac{3}{8}$ |

STANDARD SOCKET PIPES.

| Diameter. | Length in Work. | Weight of each. | | |
|-----------------|-----------------|-----------------|----|------|
| | | c. | q. | lbs. |
| ins. | ft. ins. | | | |
| 2 | 6 0 | 0 | 2 | 0 |
| 2 $\frac{1}{2}$ | 6 0 | 0 | 2 | 10 |
| 2 $\frac{1}{2}$ | 9 0 | 0 | 3 | 7 |
| 3 | 9 0 | 1 | 0 | 14 |
| 4 | 9 0 | 1 | 2 | 0 |
| 5 | 9 0 | 1 | 3 | 21 |
| 6 | 9 0 | 2 | 2 | 0 |
| 7 | 9 0 | 3 | 0 | 0 |
| 8 | 9 0 | 3 | 2 | 21 |
| 9 | 9 0 | 4 | 0 | 0 |
| 10 | 9 0 | 4 | 3 | 0 |
| 12 | 9 0 | 6 | 0 | 0 |
| 12 | 12 0 | 8 | 0 | 0 |
| 14 | 12 0 | 10 | 2 | 0 |
| 15 | 12 0 | 11 | 2 | 0 |
| 18 | 12 0 | 15 | 3 | 0 |
| 21 | 12 0 | 19 | 0 | 0 |
| 24 | 12 0 | 22 | 0 | 0 |
| 30 | 12 0 | 31 | 0 | 0 |

Bends, Branches, Tapers, and other Specials usually kept in stock. Larger pipes and other sizes and thicknesses made to order.

COLLIERIES.

COLLIERY OFFICE—CODNOR PARK.

Telegraphic Address—"Laoc, Ironville."
Telephone No. 6, Ripley.—(Colliery Dept.)

The Collieries of the Butterley Company, Limited, are situated in Derbyshire and Nottinghamshire.

The Seams of Coal worked are as follows:—

The Top Hard or Barnsley Seam of Coal is worked at:—The Kirkby and Portland (Nos. 2 and 4) Pits.

The Deep Hard Seam is worked at:—Plumtre, Langley, Loscoe and New Langley Pits, also at Brands, High Holborn, Ripley, Waingroves and Hartshay Pits.

The Deep Soft Seam is worked at:—Plumtre, Langley, Loscoe, and New Langley Pits, also at Brands, High Holborn, Britain, Ripley, Waingroves, and Hartshay Pits.

The Tupton or Low Main Seam is worked at:—Britain, Langley, Hartshay, Ripley, Marehay and Birchwood Pits.

The Blackshale or Silkstone Seam of Coal is worked at the Railway Pit.

The Kilburn Seam of Coal is worked at Denby Hall Pit.

EMPTY WAGONS

SHOULD BE ADDRESSED AS FOLLOWS:—

KIRKBY.—To Kirkby Junction Colliery, via M.R., G.N.R., L.N.W., G.C., and L.D. & E.C.

PORTLAND.—To Portland Colliery, M.R.

BIRCHWOOD.—To Upper Birchwood Sidings, M.R.

| | | |
|---------------|---|---|
| BRANDS. | } | To Codnor Park, M.R., |
| BRITAIN. | | G.N.R., L.N.W., & G.C.; |
| HIGH HOLBORN. | | to Brand's Sidings, M.R., or to Ripley, M.R., via Derby. |

RIPLEY.—To Ripley, M.R., via Derby.

WAINGROVES.—To Waingroves, M.R., via Derby.

| | | |
|--------------------|---|-------------------|
| MAREHAY, WHITELEY, | } | To Marehay, M.R., |
| and RAILWAY. | | Via Derby. |

DENBY HALL.—To Denby Hall, M.R., via Derby.

HARTSHAY.—To Ripley, M.R., via Derby, Brand's Sidings, M.R.; or to Codnor Park, M.R., G.N.R., L.N.W., or G.C.

| | | |
|--------------|---|---------------------------|
| LOSCOE. | } | To Heanor Junction, M.R., |
| LANGLEY. | | via Erewash Valley. |
| NEW LANGLEY. | | |

PLUMPTRE.—To Langley Mill, M.R., or to Langley Mill and Eastwood, G.N.R., L.N.W., and G.C.

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, and are situated at Crich and Wirksworth, in the County of Derby.

The 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, and Sets for Paving.

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

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