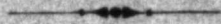
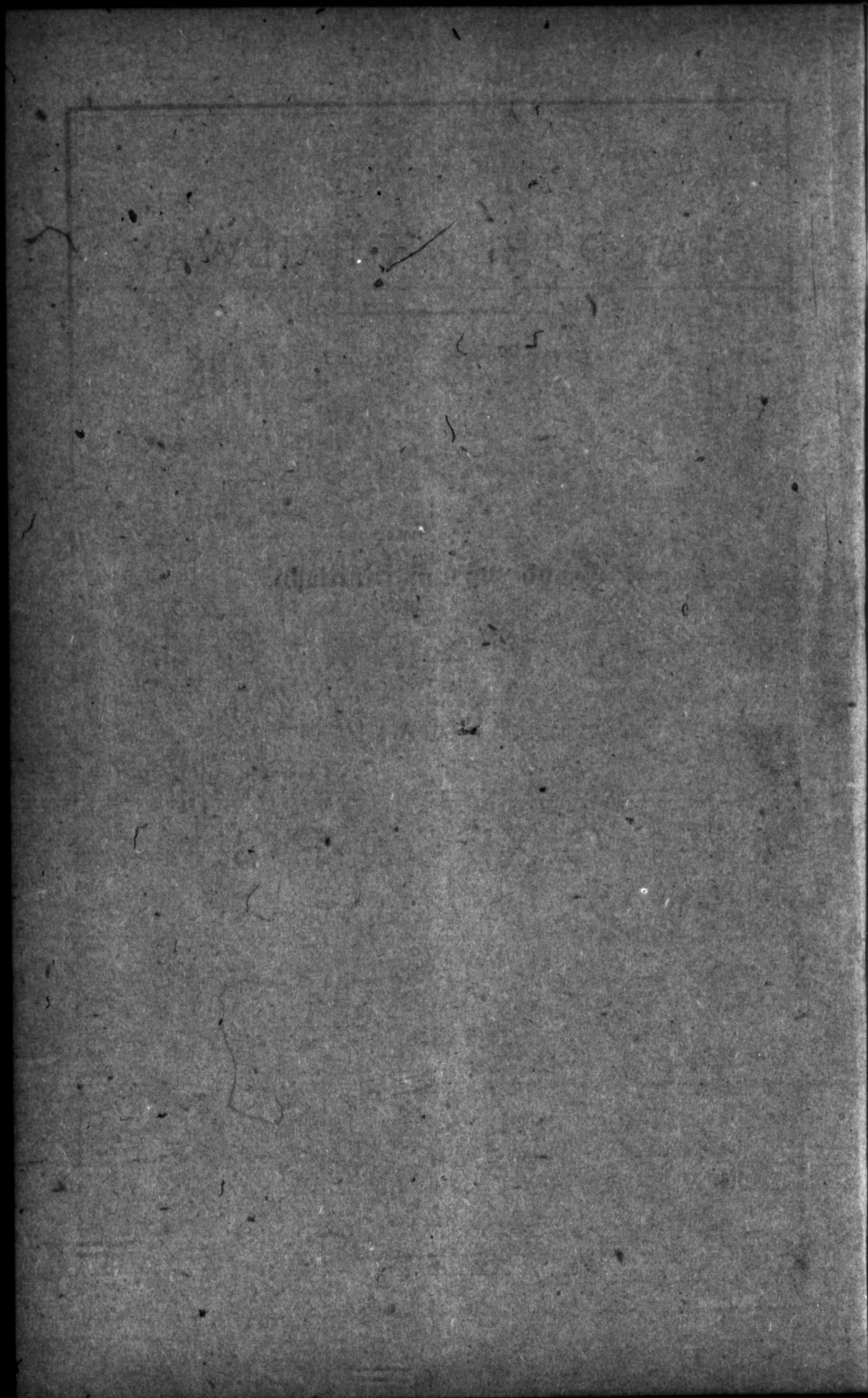


Grand Trunk Railway.



SPECIFICATIONS  
OF  
BOX CARS.



# GRAND TRUNK RAILWAY.

## SPECIFICATION OF BOX CARS.

GAUGE 4 FEET 8 $\frac{1}{2}$  INCHES.

### GENERAL CONDITIONS.

The Cars must be made to the dimensions given in the following specifications, and according to drawings and samples furnished. The timber used must be of first quality, dry, sound, and well seasoned, and accurately fitted together. The wrought iron must be of best "Staffordshire," or of equal and approved quality. The castings must be made from tough grey pig iron, and must be sound, smooth, and perfect in all respects.

All the bolts and nuts used must be screwed to "Whitworth's" thread.

The Cars must be fitted and finished in the most complete manner to the entire satisfaction of the Company's Mechanical Superintendent, or his Agent, who shall be allowed to inspect the work, with power to reject any part found to be defective in quality or workmanship, or not in accordance with specifications.

The wheels, axles and springs to be warranted for twelve months after being set to work, any failure during that period—except such as results from accident, must be made good by the contractor.

MECHANICAL SUPERINTENDENT'S OFFICE,  
MONTREAL, 15th April, 1873.

No.	FRAMING.	Feet.	Inches.
	Length.....	29	0
	Breadth.....	8	6
2	Outside sills, white oak.....		9 x 5
2	Intermediate longitudinals of Tamarac or Hard Red Pine.....		9 x 4½
2	Centre longitudinals, oak.....		9 x 4½
2	Headstocks, white oak....length 8ft. 1.....		9 x 5
2	Body Bolsters do do.....	8½	14 x 5
2	Transome do do or white ash....	8½	3 x 8
2	Centre pieces for king pin.....	2	7 x 7½

Central and intermediate longitudinals framed into headstocks with two 1½ tenons and secured by ½ joint bolts. Headstocks morticed with two 1½ tenons into side sills, and secured by cast iron corner brackets with 4 bolts ¾ in. diameter (as per drawing). Body bolsters checked into all longitudinals and bolted to each by ½ bolts, except centre which are ¾ diameter. Transom checked into all longitudinals, and secured by one ½ bolt to each and ½ joint bolt to doorposts.

### BODY FRAMING.

Description White Oak or White Ash.		
8	Corner, and Door Posts...length 6 ft. 1.....	5 x 3
	Tenons, top 2 in. long, bottom 2½ in.....	4 x ¾
20	Diagonal Braces.....	2 x 3½
1	Inside Belting.....	3 x 4
2	Top Rail, beveled to suit roof.....	3 x 5
12	Tie Bolt, rail to sill, ½ in. diameter.	

Belting notched into all uprights, and braces secured by 2 No. 18 2½ in. screws, and bolted to standards by ½ inch cup headed carriage bolts, and to corner posts by ½ inch joint bolts. Diagonal braces have ¾ in. flange at ends secured to upright by 2½ inch No. 18 screws. All parts to be planed and finished to proper shape and dimensions. The Car to be built with ¾ in. upward camber at centre frame. All bolts and nuts have broad washers.

No.

**ROOF TIMBERS.**

Feet.

Inches:

No.	Description, white oak or ash.	Feet.	Inches:
5	Transverse Arch Rails, depth.....	.....	12
	Thickness end ones 3 in., inner ones.....	.....	2½
1	Central Longitudinal.....	.....	3½ x 3½
2	Intermediate ".....	.....	2½ x 3½

Rails tenoned into wall plates and bolted joint bolt ½ in x 9½ in. Longitudinals checked into rails, bolted coach screws 6 x ½ in. White oak, ash, tamarac, or hard red pine, for longitudinals.

**ROOF.**

No.	Description, Hipped, Iron Sheeted.	Feet.	Inches:
22	Sheeting (pine) 5 in to 8 in. wide, thickness Sheets, Iron. Thickness W. G. No. 20.	.....	7/8

Battens, to be notched, tongued and grooved: each strip secured by 14 nails 2½ in. long, good joint required at point of roof. Tongues and grooves, all joints and bedding surfaces thickly coated with white lead. Great care must be taken to turn up edges of plate to ¼ in. radius. At ends and sides, iron sheet lapped downwards and nailed, thus making roof water and fire proof. Plates are protected and held in position by grooved transverse (oak or ash) and longitudinal (oak or red pine) battens, as per drawing. Longitudinal carries running board-pine 14 x 1½ in.

The upper surface of wood roof and both sides of iron plate must have one coat brown mineral paint. When finished the upper surface of iron plate must have a second coat of the same.

**BODY SHEETING.**

No.	Description, best white pine, planed, tongued grooved, matched and beaded. Width 4½ in. to 5 in. Thickness.....	Feet.	Inches:
	.....	.....	7/8

Nailed by heavy clench nails 2½ in. long, 5 in. sills, 3 in. belting, 3 in. wall plates and 1 or 2 in. braces.



No.	CORNICES.	Feet.	Inches.
	Description, Tamarac or Red Pine Section.....		2 $\frac{1}{8}$ x 3 $\frac{1}{4}$
	Spiked to wall plate by 4 $\frac{1}{2}$ cut nails and bolted, 5 bolts $\frac{1}{2}$ in. diameter.; these also carry guide for door outside of cornice.		
2	Guides, oak 4 $\frac{1}{2}$ in. deep centre, 3 in. at ends.		
2	Guides, oak thickness.....		1
2	Cornices, end of Car. ....		1 $\frac{1}{2}$ x 3
2	Outside Doors. Description, Sliding, of White Ash.		
4	Top and centre rails.....		2 x 5
4	Stiles.....		2 x 5
2	Bottom Rails.....		2 x 6
	Sheeting, Pine, 2 lengths 5 in. or.....		4 $\frac{1}{2}$ x 3 $\frac{3}{4}$
	Tenons, top and centre rails.....		3 $\frac{1}{2}$ x 5 $\frac{5}{8}$
	Do bottom.....		4 x 5 $\frac{5}{8}$
	Do length (all).....		2
	Rails rabbeted for sheeting.....		3 $\frac{3}{4}$ x 3 $\frac{3}{4}$
2	Door Slides, Wrought Iron.....	10 $\frac{1}{2}$	2 x 1 $\frac{1}{2}$
	Top and bottom rail tenon checked down 1 $\frac{1}{4}$ in. clear of edge—1 $\frac{1}{4}$ in. pressed nails for sheeting. Cast iron corner brackets for slide secured by 5 No. 20 screws and 1 joint bolt $\frac{1}{2}$ in. x 11 in. Slide carried by 5 brackets secured by $\frac{1}{2}$ in. bolt and a 2 $\frac{1}{2}$ in. screw No. 18. Wrought Iron fastenings for locking doors are secured by rivets to doors and car side. The Ry. Co. and U. S. Government standard lock required for each door. Door stop, oak 1 $\frac{1}{2}$ in. x 1 $\frac{1}{4}$ in. secured by $\frac{3}{4}$ in. pressed nails.		
2	INSIDE OR GRAIN DOORS.		
	Description. Lifting.....		
	Length.....	5	2
	Height.....	2	6
	Thickness.....		$\frac{7}{8}$
3	Battens.....	2 $\frac{1}{2}$	5 x 1

No.	Feet.	Inches.
<p>Plank, planed one side, tongued and grooved, nailed by 2 in. pressed nails clenched (for details see drawing). Wrought iron chain—2 guides, 3 brackets and 1 catch required.</p>		

**INSIDE SHEETING.**

Height.....	2	6
Sheeting 8 in. to 10 in. Thickness.....		$\frac{7}{8}$

Sheeting runs lengthways, planed one face, tongued and grooved, fitting tightly between floor and belting, nailed by 2 $\frac{1}{4}$  in. nails similar to outside sheeting.

**FLOORING.**

White or Red Pine laid transversely... Width timber 7 to 10. Thickness.....		2
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Planed one side, tongued and grooved, each board secured by 18 nails 4 $\frac{1}{2}$  in. long. Floor protected at door by wrought iron plate 3 $\frac{1}{8}$  in. x  $\frac{1}{4}$  in. mitered  $\frac{1}{8}$  in. into door posts, secured by 8 No. 18 2 $\frac{1}{2}$  in. screws. Floor tightly fitted to braces and standards.

**2 BUNTERS.**

Description, Cast Iron, Rubber Springs to G.T.R. standard. Sample supplied..		
2 Outer Spring Seats, Cast Iron.....		1 $\frac{3}{4}$
2 Inner do do Wrcd do thickness..		1 $\frac{1}{2}$
2 Rubber Springs, length 7 in. diameter..		6

Cradle and glands, wrought iron, secured  $\frac{3}{4}$  bolts, double nuts and split pin, 2 tail pins 2 in. dia., flat gib headed cotter, 2 in. x  $\frac{5}{16}$  in. secured by  $\frac{3}{8}$  in. split pin.

**2 BUNTER HEADS.**

Description, Oak faced with iron.

No.	Feet.	Inches.
4 plates $\frac{1}{4}$ thick 10 x 9 in., secured by 4 $\frac{3}{8}$ in. rivets. 4 bolts 1 in. dia., 2 to bolster and 2 to head stock. Bunters to have coupling links and pins of wrought iron.		

### BRAKES.

Description outside on 1 Truck, Oak beam with cast iron shoes.

4 Slings.. .. . dia.	1	6
4 Sling Supports.. .. . do	1	$\frac{1}{8}$
4 Safety Links.. .. . do	$\frac{3}{4}$	
4 Toggle pins 1 ft. $1\frac{1}{2}$ in. long.. .. . do	$\frac{7}{8}$	
2 Beams oak 5 ft. $2\frac{1}{2}$ in. long.. .. .	$6\frac{1}{2}$ x $3\frac{1}{2}$	
2 Shoes.. .. . Surface	3 x 15	
2 Brake Rods.. .. . dia.	$\frac{5}{8}$	
1 do Shaft.. .. . do	1	$\frac{1}{4}$
1 do Wheel.. .. .	1	3

The ladders and steps, roof and side handles, ticket box and other details are shewn on drawing.

### TRUCKS. (Patterns Supplied.)

Description, 4 Wheeled, Lateral Motion Swing.		
8 Wheels, Centres.. .. .	4	4
Do Diameter.. .. .	2	9
Do Tread, broad.. .. .		4
4 Elliptic Springs, Centres.. .. .	2	0
Frame all oak.		
4 Transverse timbers, length .. .. .	7	6
Section do .. .. .		$4\frac{1}{2}$ x $8\frac{1}{2}$
Blocking Pieces, length $10\frac{7}{8}$ .. .. .		$2\frac{3}{4}$ x $6\frac{1}{4}$
4 Bolts, for same do 1 ft. $8\frac{1}{4}$ diameter .. .. .		$\frac{5}{8}$
4 Sole plates, cast iron, thickness.. .. .		$\frac{3}{4}$



No.		Feet.	Inches.
WROUGHT IRON SIDE FRAME.			
4	Bars.....length 5 ft. 1.....		1 x 3
4	do .....length 5 ft. 1.....		3 x $\frac{5}{8}$
4	do .....length 5 ft. 4 $\frac{1}{2}$ .....		1 x 3
4	do .....length 5 ft 7.....		3 x $\frac{5}{8}$
16	Axle Box Bolts. .... diameter.....		$\frac{7}{8}$
	do do do .....length.....	1	2 $\frac{1}{2}$
8	Bolts—wood to iron frame, diameter.....		$\frac{3}{4}$
8	Stirrup Bolts..... do .....		$\frac{3}{4}$
8	do Blocks..length, 9 $\frac{1}{4}$ inches .....		4 x 3 $\frac{1}{2}$
3	Bridge Plates, wrought iron 6 in. long .....		3 x $\frac{5}{8}$

Axle Box Bolts have double nuts and split pins  $\frac{3}{8}$  in. diameter. Screwing must not be carried more than  $\frac{1}{4}$  in. up in to the Bar.

2	BOLSTERS.		
	Length.....	5	9 $\frac{1}{2}$
	Section.....		9 x 9
2	King Pin, 2 inches, diameter, head.....		$\frac{3}{4}$ x 3 $\frac{1}{2}$
8	Bolts crown plate..... diameter.....		$\frac{3}{4}$

2	SPRING BOARDS.		
	Length.....	5	8
	Section.....		3 x 7 $\frac{3}{4}$
	Suspension Links..... length.....	2	0
	Section metal..... square.....		1
4	End carrying pin, diameter.....		1 $\frac{5}{8}$
	Centre of do do square.....		1 $\frac{3}{4}$

Pin is checked  $\frac{1}{4}$  in. into board, and upper side has 2 clamping irons 1 $\frac{1}{2}$  x  $\frac{1}{4}$  in. to secure spring. Under side of bolster is checked  $\frac{3}{8}$  in. to receive spring buckle, also having clamping iron. Head of king pin to be flush with floor of car.

4	Upper Suspension pins, diameter.....		1 $\frac{5}{8}$
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No.	Feet.	Inches.
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These are carried by cast iron seat recessed into transverse beams and held by 2 coach screws  $3 \times \frac{1}{2}$  in., 2 rubber pieces are recessed into each side of bolster, secured by coach screws  $3 \times \frac{1}{2}$  in. at top, and at face by  $1\frac{3}{4}$  in. No. 20 screws (heads countersunk  $\frac{3}{16}$  in.), 2 rubbing pieces recessed in. each transverse, secured at tops by coach screw  $3 \times \frac{1}{2}$  in., and at face by two  $\frac{1}{2}$  in. countersunk bolts.

4 Friction Chairs,

4 Axles

Diameter at centre.....		4
Do do Wheel seat.....		$4\frac{1}{2}$
Do do Journal.....		$3\frac{1}{2}$
Length of do.....		6
Centres of do.....	6	4

One-half of the Axles to be of the Patent Shaft and Axletree Company's (England) make, branded with their name, and half of Moistic Iron (branded with maker's name) or of equal and approved make.

Wheels of best Salisbury or Three Rivers Charcoal Iron or of equal and approved quality.

Axle Boxes of cast iron with rubber or leather washer on back end of box (as per sample sent), Bearings of best brass. Springs of Krupp's best spring steel  $\frac{3}{8} \times 3$  in., 7 plates in spring.

Trucks when turned out must have axle boxes packed with cotton waste saturated with best petroleum oil, as used on Grand Trunk Railway.

### PAINTING.

All tenons and mortices to be thickly painted with white lead. Outside of car must have 4 coats best oil paint,—2 of white lead and 2 of permanent buff colour,—this with lettering to equal best Grand Trunk Cars. All iron work to have one coat good black paint, and wood of truck 2 coats of approved colour.

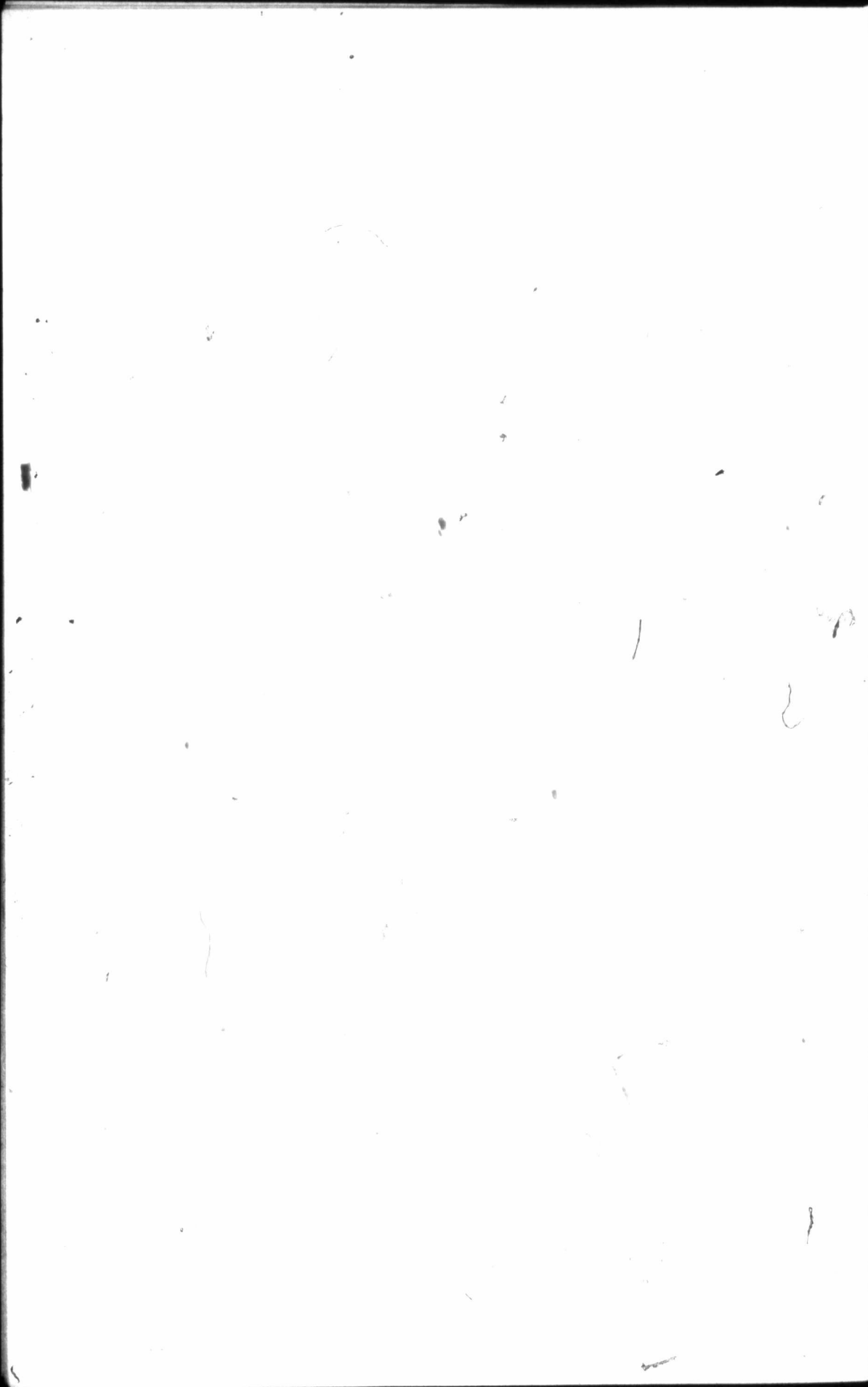
FORM OF TENDER.

do hereby agree to supply the Grand Trunk  
Railway Company with .....  
Box Cars in accordance with the Specifications, for the  
sum of .....  
.....  
for each Car.

*Signed,* .....

*Witness.*

To be delivered at Stratford, Toronto, or Montreal, free of  
charges, on or before 1st October, 1873.



FORM OF TENDER.

do hereby agree to supply the Grand Trunk  
Railway Company with  
Box Car Trucks in accordance with the Specifications, &c.,  
for the sum of  
for each Truck.

*Signed,*

*Witness.*

To be delivered at Stratford, Toronto, or Montreal, free of  
charges, on or before the 1st of October, 1873.