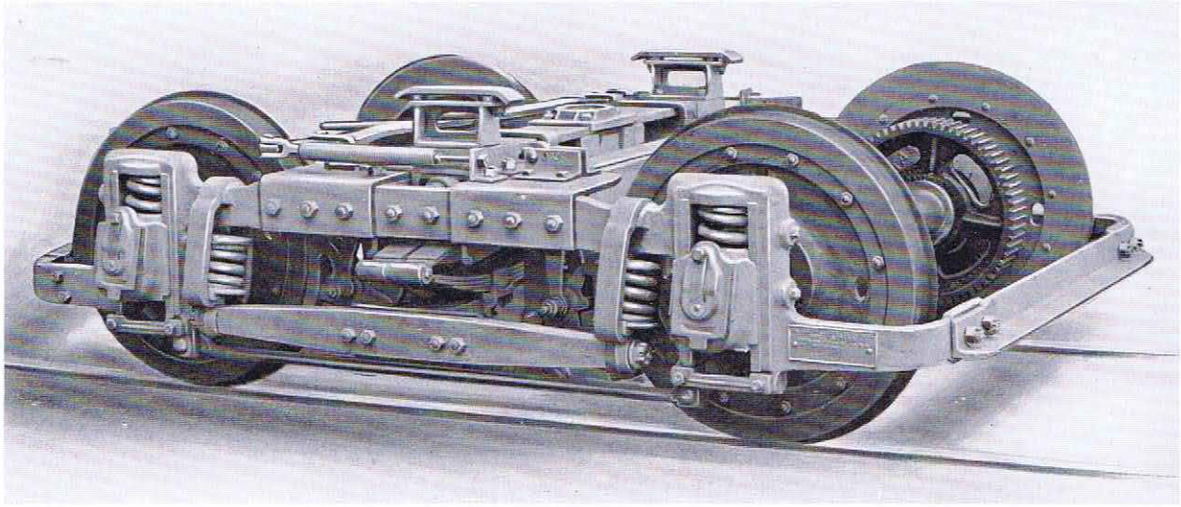


BRILL No. 27-E TRUCK

WHAT has been said in regard to the frame of the preceding truck applies equally to the No. 27-E truck, as the frames are identical in every particular.

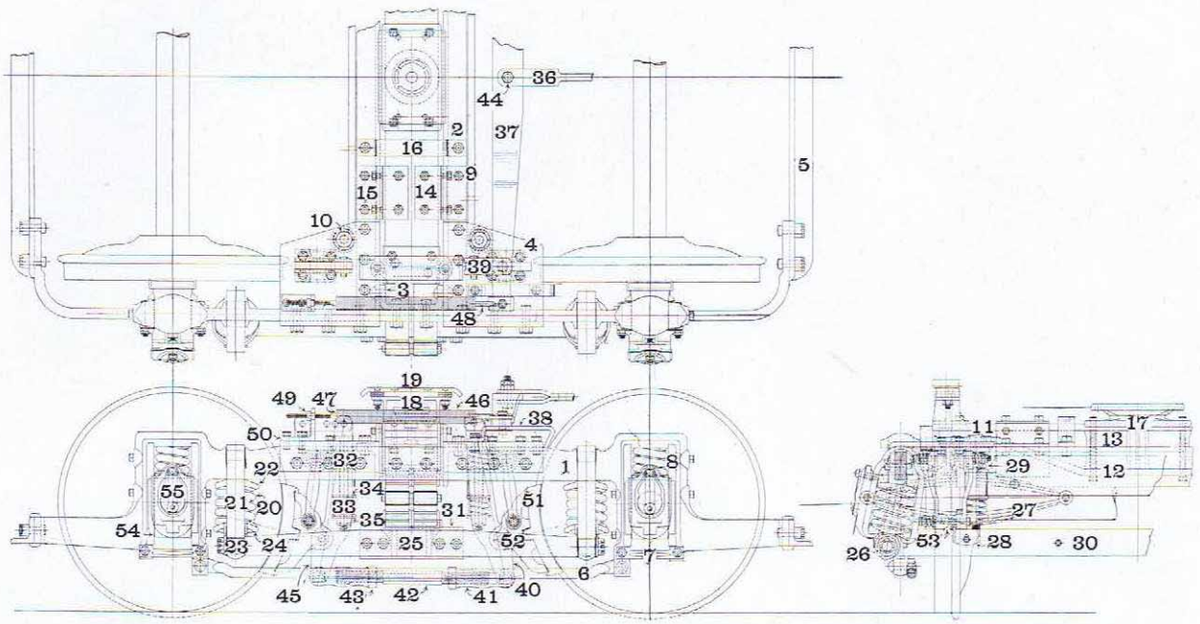
In this type of truck the equalizing bars and spring plank are rigidly secured together, forming a cradle for the bolster.

The links which suspend the cradle from the frame enclose equalizing springs, but it is plain that these springs do not directly equalize the load on the wheels, as in the "M.C.B." method; they equalize the load on the frame, and the journal springs complete the equalization on the wheels, producing a frame stability that is unaffected by the application of the brakes while running at high speed or by a rough or crooked track.

The No. 27-E truck has three sets of springs—one set more than possessed by any other type of high-speed truck. There are but two motions in a truck, vertical and side, and in this truck both are cushioned. The spring link which cushions the side swing is perhaps the chief feature of the truck. At the entrance to curves these links swing outwardly, and at the end of the swing the springs in the links are compressed, drawing the car body gently out of the line of its momentum into the new direction without the jarring or lurching. The position of the links on the side frames brings the load upon the frame close to where it is itself supported on the journal springs, producing by this wide-apart suspension an effective leverage in favor of frame stability and relieving the central part of side frames of the load strain. Being outside the wheels, the spring links furnish a wide link base which tends to steady the car on curves. They also amplify the vertical motion of the other springs and impart a smooth motion to the car body. The car body has the full benefit of the action of the spring links and the elliptical springs, as these are independent of the weight of the motors.

The brake arrangement is devised to leave ample clearance for the motors and to provide an equal pressure of the entire surface of each shoe upon the wheels. The upright levers of inside-hung brakes are straight with the fulcrum, resistance and power points in a vertical line, thereby securing direct alignment of brake shoe and wheel tread.

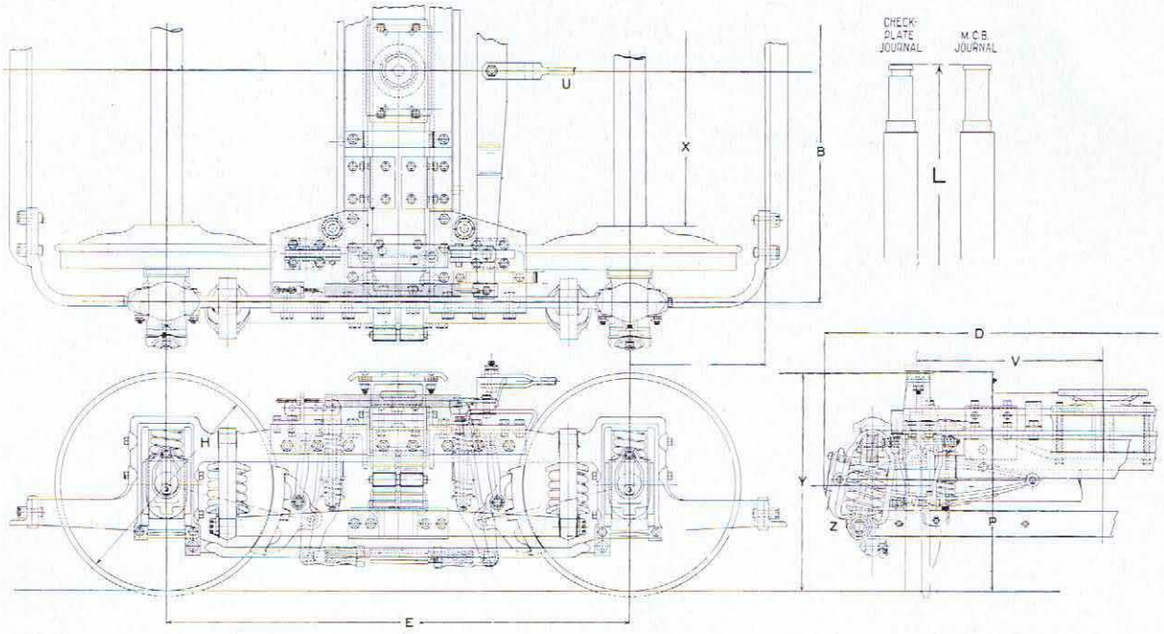
NAMES OF PARTS OF
BRILL No. 27-E TRUCK



1. Side Frame
2. Transom
3. Transom Corner Bracket
4. Transom Gusset Plate
5. End Frame
6. Pedestal Tie Bar
7. Pedestal Cap
8. Pedestal Gib or Wear Plate
9. Motor Suspension Bar
10. Motor Suspension Bar Bolt
11. Bolster Top Plate
12. Bolster Bottom Plate
13. Bolster Filling Casting
14. Bolster Chafing Plate
15. Transom Chafing Plate
16. Transom Tie Bar
17. Truck Center Plate
18. Side Bearing
19. Side Bearing Wear Plate
20. Equalizer Spring
21. Equalizer Spring Link
22. Equalizer Spring Cap
23. Equalizer Spring Eye-Bolt
24. Equalizer Spring Seat
25. Equalizer or Equalizer Bar
26. Equalizer Nut
27. Bolster Spring
28. Bolster Spring Seat
29. Bolster Spring Cap
30. Spring Plank
31. Spring Plank Carrier
32. Motor Suspension Spring (Top)
33. Motor Suspension Spring (Bottom)
34. Motor Suspension Spring Cap
35. Motor Suspension Spring Seat
36. Brake Rod
37. Radius Bar
38. Radius Bar Guide
39. Radius Bar Clevis
40. Live Lever
41. Brake Turnbuckle End
42. Brake Turnbuckle
43. Brake Turnbuckle Lock Nut
44. Brake Rod Fulcrum Pin
45. Dead Lever
46. Brake Release Spring
47. Brake Release Spring Casting (location indicated)
48. Brake Release Spring Hook Bolt
49. Brake Release Spring Nut
50. Brake Release Spring Clip
51. Brake Shoe
52. Brake Head
53. Brake Hanger
54. Journal Box
55. Journal Box Lid

BRILL No. 27-E TRUCK

Patented and patents pending in the United States and Foreign Countries



Dimensions of Brill 27-E Trucks

		27-E 1							27-E 1½						
	Gage	Metre 3'3⅜"	3'6"	4'0"	4'8½"	5'0"	5'2½"	5'3"	Metre 3'3⅜"	3'6"	4'0"	4'8½"	5'0"	5'2½"	5'3"
B	**Centers of Side Frames	4'10⅜"	5'2"	5'8½"	5'11⅝"*	6'3½"*	6'5¾"*	6'6½"*	5'2"	5'4½"	5'10½"	6'3"	6'6½"	6'9"	6'9½"
V	Radius of Rub Plates	1'11½"	2'1½"	2'4"	2'5"	2'5"	2'5"	2'5"	1'11½"	2'1½"	2'4""	2'5"	2'5"	2'5"	2'5"
L	**Length of Axle—M. C. B. Journal	5'6⅞"	5'10¼"	6'4⅛"	6'7⅝"*	6'11⅛"*	7'1⅜"*	7'2⅛"*	5'11¼"	6'1⅜"	6'7¼"	7'0¼"	7'3¼"	7'6¼"	7'6¾"
	**Length of Axle—Check Plate Journal	5'6¼"	5'9⅜"	6'3¼"	6'7⅛"*	6'10⅛"*	7'1¼"*	7'1¾"*	6'0⅛"	6'3¾"	6'9¼"	7'1¼"	7'5⅛"	7'7¼"	7'8¼"
	**Length of Axle—Check Plate Journal—Restricted Width	5'6¼"	5'9⅜"	6'3¼"	6'7⅛"*	6'10⅛"*	7'1¼"*	7'1¾"*							
	**Width Over All—M. C. B. Journal	6'1⅜"	6'4½"	6'10⅞"	7'2⅜"*	7'5⅞"*	7'8½"*	7'8⅝"*	6'8"	6'8½"	7'2½"	7'7"	7'10½"	8'1"	8'1½"
D	**Width Over All—Check Plate Journal	6'1⅜"	6'4½"	6'10⅞"	7'2⅜"*	7'5⅞"*	7'8½"*	7'8⅝"*	6'5¼"	6'7¼"	7'1¾"	7'6"	7'9½"	8'0"	8'0½"
	**Width Over All—Check Plate Journal—Restricted Width	5'8⅝"	5'11½"	6'5⅜"	6'9⅜"*	7'0⅝"*	7'3½"*	7'3⅝"*							
E	Wheel Base	6'0" to 6'6"							6'0" to 6'6"						
H	Wheel Diameter	30"		33"		34"			30"		33"		34"		
P	Distance from Track to Under Side of Body Bolster—Car Empty	29½"		31"		31½"			29½"		31"		31½"		
Y	Distance (Minimum) from Track to Top of Rub Plates—Car Empty	32½"		34"		34½"			32½"		34"		34½"		

		27-E 2							27-E 3						
	Gage	Metre 3'3⅜"	3'6"	4'0"	4'8½"	5'0"	5'2½"	5'3"	Metre 3'3⅜"	3'6"	4'0"	4'8½"	5'0"	5'2½"	5'3"
B	**Centers of Side Frames	5'6½"	5'9"	6'0"	6'3"	6'6½"	6'9"	6'9½"	5'7½"	5'10"	6'1"	6'4"	6'7½"	6'10"	6'10½"
V	Radius of Rub Plates	1'11½"	2'1½"	2'4"	2'6"	2'6"	2'6"	2'6"	1'11½"	2'1½"	2'4"	2'6"	2'6"	2'6"	2'6"
L	**Length of Axle—M. C. B. Journal	6'3⅜"	6'6¼"	6'9¼"	7'0⅛"	7'3¼"	7'6¼"	7'6¾"	6'6"	6'8½"	6'11½"	7'2½"	7'6"	7'8½"	7'9"
	**Length of Axle—Check Plate Journal														
	**Length of Axle—Check Plate Journal—Restricted Width														
D	**Width Over All—M. C. B. Journal	6'11½"	7'2"	7'5"	7'8"	7'11½"	8'2"	8'2½"	7'1½"	7'4"	7'7"	7'10"	8'1½"	8'4"	8'4½"
	**Width Over All—Check Plate Journal														
	**Width Over All—Check Plate Journal—Restricted Width														
E	Wheel Base	6'3" to 7'0"							6'6" to 7'6"						
H	Wheel Diameter	33"		34"		36"			33"		34"		36"		
P	Distance from Track to Under Side of Body Bolster—Car Empty	35"		35½"		36½"			35"		35½"		36½"		
Y	Distance (Minimum) from Track to Top of Rub Plates—Car Empty	38"		38½"		39½"			38"		38½"		39½"		

*It is necessary to use a longer axle with wheels over 3½" width of tread. These dimensions require to be increased proportionately.
**If width of motor does not allow length of wheel hub to equal diameter of wheel bore, these dimensions may be increased.
X Distance between hubs. This is variable to suit motor.
U Truck brakes furnished to this point only.
Z Contact beam support cast on journal boxes if required.
King bolt not furnished by truck builder.

The Following Limitations are Recommended

	27-E 1	27-E 1½	27-E 2	27-E 3
Maximum Diameter of Journal	3¼"	4¼"	4½"	5"
Weight of Car Body with Equipment and Passenger Load—Not to Exceed	46,000 Lbs.	53,000 Lbs.	63,000 Lbs.	75,000 Lbs.
Speed—Not to Exceed	50 M. P. H.	60 M. P. H.	65 M. P. H.	75 M. P. H.
Motors—Not to Exceed	75 H.-P.	100 H.-P.	150 H.-P.	200 H. P.