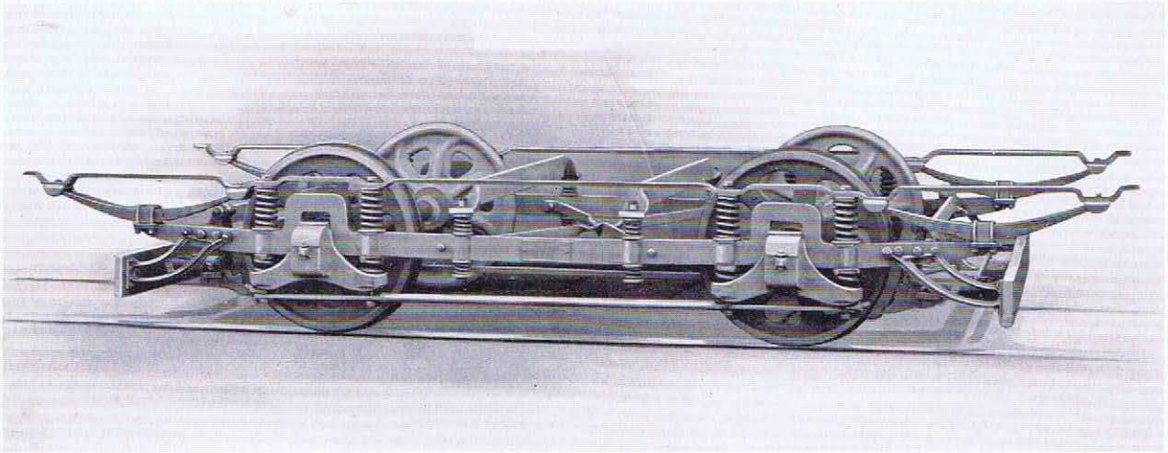


BRILL No. 21-E TRUCK

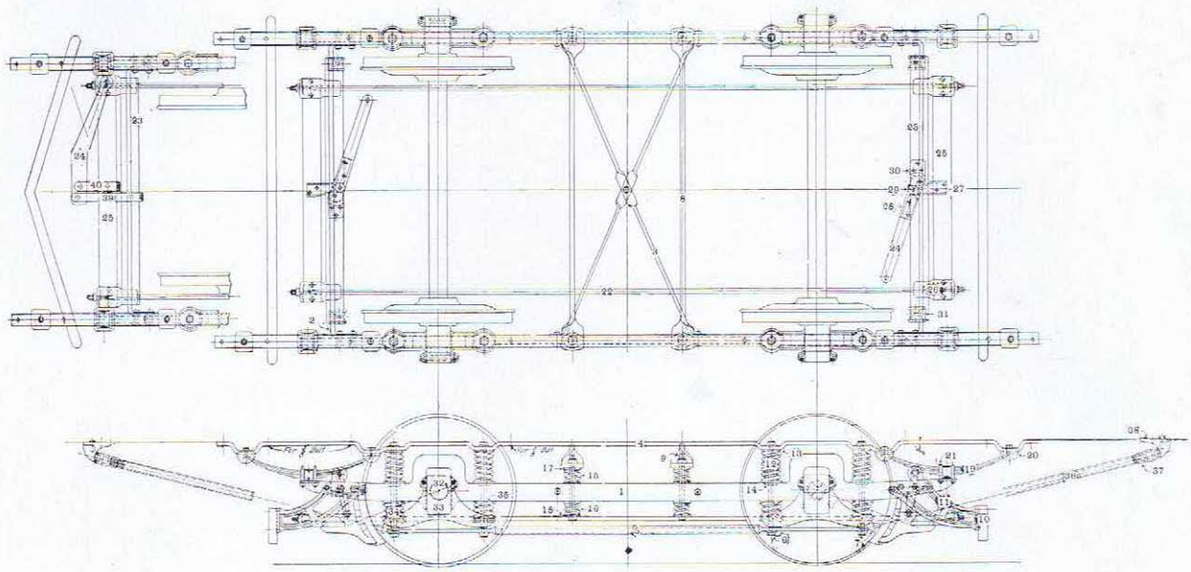
THE spring arrangement of the No. 21-E Truck has been followed by nearly all builders, but this particular system provides for carrying the car body two inches lower than any other. As single trucks are chiefly used in city service, the reduction of two inches in height of steps lessens the chances of accidents and makes an important difference in the time taken by passengers in getting in and out of cars. The J. G. Brill Company was the first to recognize that the uniformity of springs was responsible for the rhythmic motion which developed into a gallop as the speed accelerated, and counteracted this oscillation by subduing the quick action of the coil springs by slower yielding semi-elliptics. The position of the semi-elliptics extends the spring base as far as is necessary to obtain an easy and steady support. Besides the semi-elliptics, eight coil springs rest in pairs on the side frames. These are placed close to the yokes and directly over the journal box coil springs which support the frame. It will be seen, therefore, that the part of the side frames between the yokes is relieved of most of the car body weight and left free to support the motors. The side motion of the car body is cushioned by an allowance of sufficient space in the side frames for play of the spring posts and controlled by the torsional action of the semi-elliptics.

All No. 21-E Single Trucks are now equipped with the Brill Wide Wing Journal Box, which has two important advantages over the short wing journal box used heretofore. The first advantage is that greater stability in riding is produced by increasing the spring base of the truck frame. The length of the spring base of the frame of the Brill No. 21-E Truck equipped with the Brill Wide Wing Journal Box is 7½ inches greater than with the former box and 20 inches greater than trucks having the journal springs on top of the box. The second advantage is in reducing the stress on the truck frame by supporting the frame directly under the body coil springs. The position of these springs enables the car body to be carried low and their equal bearing secures the upright position of the journal boxes, preventing tilting and sticking in the frame jaws. Being in pairs the springs have large carrying capacity without stiffness.

Long cars may have extra supports by setting truss pipes upon the ends of the post stays, forming therewith complete and substantial trusses. The brake system

is simple, easily adjusted, responds quickly to the operating mechanism and insures uniform pressure of the entire surface of each shoe upon each wheel. The solid forged side frames double the life of the truck.

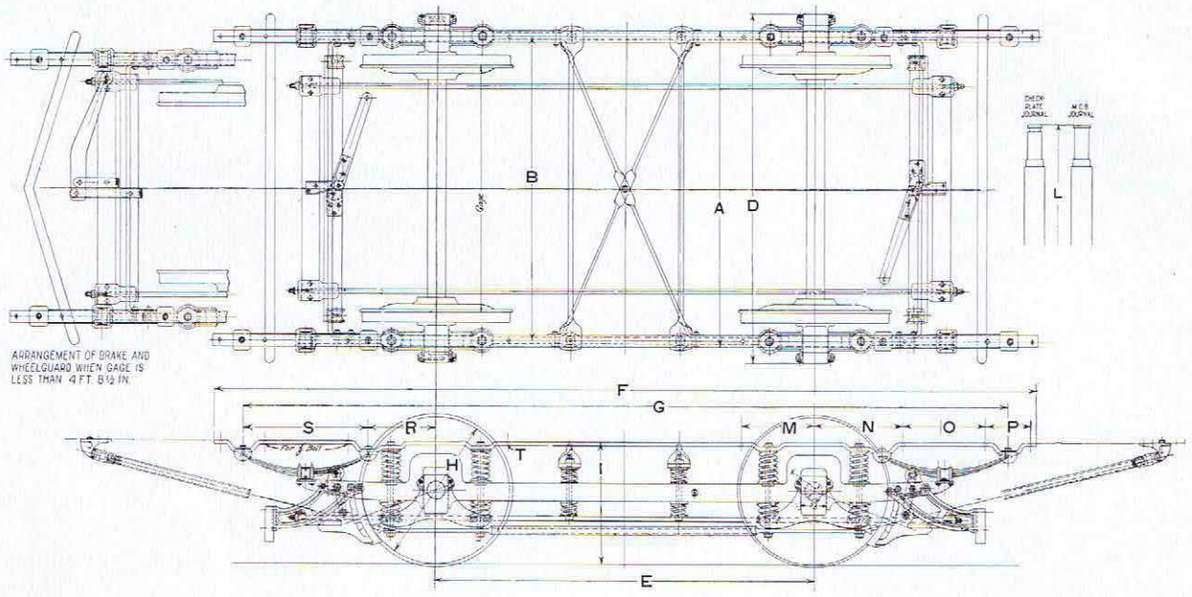
NAMES OF PARTS OF
BRILL No. 21-E TRUCK



1. Side Frame
2. End Frame
3. Diagonal Brace
4. Top Chord
5. Spring Post Stay
6. Body Spring Post
7. Spring Post Stay Lug
8. Motor Suspension Bar
9. Motor Suspension Bar Bolt
10. Wheelguard
11. Wheelguard Bracket
12. Body Spring
13. Body Spring Cap
14. Body Spring Seat
15. Motor Suspension Spring (Top)
16. Motor Suspension Spring (Bottom)
17. Motor Suspension Spring Cap
18. Motor Suspension Spring Seat
19. Body End Spring
20. Body End Spring Cap
21. Body End Spring U-Bolt
22. Brake Rod
23. Brake Beam
24. Brake Lever
25. Equalizing Lever
26. Equalizing Lever Casting
27. Equalizing Lever Fulcrum
28. Brake Lever Casting
29. Brake Lever Stud
30. Brake Beam Fulcrum
31. Brake Hanger Carrier
32. Journal Box Lid
33. Journal Box
34. Journal Box Spring
35. Journal Box Spring Cap
36. Spring Post Stay Extension
37. Spring Post Stay Extension Adjusting Sleeve
38. Spring Post Stay Extension Adjusting Sleeve Bearing
39. Brake Beam Strap
40. Equalizing Lever Strap

BRILL No. 21-E TRUCK

Patented and patents pending in the United States and Foreign Countries



Dimensions of Brill No. 21-E Truck

			Metre						
	Gauge	3′0″	3′3⅜″	3′6″	4′0″	4′8½″	5′0″	5′2½″	5′3″
A	Width Over Top Chords	5′0¾″	5′1⅜″	5′4¾″	5′10⅞″	6′0″	6′2⅜″	6′5⅜″	6′5⅜″
B	Centers of Top Chords	4′10″	4′10⅝″	5′2″	5′8⅛″	5′9¼″	5′11⅜″	6′2⅝″	6′2⅝″
D	Width Over Journal Boxes—M. C. B. Journal	6′0¾″	6′1⅜″	6′4¾″	6′10⅞″	7′0″	7′2⅜″	7′5⅜″	7′5⅜″
	" " " " —Check Plate Journal	6′0¾″	6′1⅜″	6′4¾″	6′10⅞″	7′0″	7′2⅜″	7′5⅜″	7′5⅜″
	" " " " —Check Plate Journal—Restricted Width	5′7½″	5′8⅛″	5′11½″	6′5⅝″	6′6¾″	6′9⅛″	7′0⅛″	7′0⅛″
L	Length of Axle—M. C. B. Journal	5′6¼″	5′6⅞″	5′10¼″	6′4⅜″	6′5½″	6′7⅞″	6′10⅞″	6′10⅞″
	" " " —Check Plate Journal	5′5⅝″	5′6¼″	5′9⅜″	6′3¾″	6′5″	6′7¼″	6′10¼″	6′10¼″
	" " " —Check Plate Journal—Restricted Width	5′5⅝″	5′6¼″	5′9⅜″	6′3¾″	6′4⅞″	6′7¼″	6′10¼″	6′10¼″

E	Wheel Base	6′0″	6′6″	7′0″	7′6″	8′0″	8′6″	9′0″
F	Total Length—With 36″ Semi-Elliptic Spring	15′7″	16′1″	16′7″	17′1″	17′7″	18′1″	18′7″
	" " —With 30″ Semi-Elliptic Spring	14′3″	14′9″	15′3″	15′9″	16′3″	16′9″	17′3″
G	Spring Base—With 36″ Semi-Elliptic Spring	14′6″	15′0″	15′6″	16′0″	16′6″	17′0″	17′6″
	" " —With 30″ Semi-Elliptic Spring	13′2″	13′8″	14′2″	14′8″	15′2″	15′8″	16′2″
M	Location of Body Bolt Hole	16″	16″	16″	16″	16″	16″	16″
N	" " " " "	19⅝″	19⅝″	19⅝″	19⅝″	19⅝″	19⅝″	19⅝″
P	" " " " "	10″	10″	10″	10″	10″	10″	10″
O	" " " " " —With 36″ Semi-Elliptic Spring	26⅜″	26⅜″	26⅜″	26⅜″	26⅜″	26⅜″	26⅜″
	" " " " " —With 30″ Semi-Elliptic Spring	18⅜″	18⅜″	18⅜″	18⅜″	18⅜″	18⅜″	18⅜″
R	Location of Body End Spring Cap	15″	15″	15″	15″	15″	15″	15″
S	" " " " " " —With 36″ Semi-Elliptic Spring	36″	36″	36″	36″	36″	36″	36″
	" " " " " " —With 30″ Semi-Elliptic Spring	28″	28″	28″	28″	28″	28″	28″

T Car Body Bolt Holes ¾″ Diameter for ⅝″ Bolts.
Semi-Elliptic Springs. 36″ Springs Only Furnished on Trucks Built to Restricted Width Dimensions Unless Otherwise Desired.

The Following Limitations Are Recommended

Maximum Diameter of Journal	3¼″
Weight of Car Body with Equipment and Passenger Load—Not to Exceed	24,000 Lbs.
Speed—Not to Exceed	25 M. P. H.
Motors—Not to Exceed	50 H.-P.

H	Wheel-Diameter	30″	33″	34″
I	Height of Truck with Weight of Empty Body	25⅛″	26⅝″	27⅛″