THE J. G. BRILL COMPANY

PHILADELPHIA

Cable Address: "Brill," Philadelphia *London Office: Aldwych House, Aldwych, W.C.2.* *Cable Address: "Axles," London*

American Car Company — ST. LOUIS

G. C. Kuhlman Car Co. — CLEVELAND

Wason Manfg. Company — SPRINGFIELD, MASS.

Compagnie J. G. Brill (France, Spain and Algeria)

49 Rue des Mathurins, PARIS, FRANCE *Cable Address; "Bogibril," Paris*

AGENCIES

Argentine, Paraguay and Uruguay — Leng, Roberts & Cia, 314 Reconquista, Buenos Aires, Argentine.

Australia—Noyes Brothers, Melbourne, Sydney; J. R. W. Gardam, Perth.

Belgium, Italy, Switzerland, Luxembourg—Cie. J. G. Brill, 49 Rue des Mathurins, Paris, France.

Bolivia—International Machinery Co., Oruro.

Chile—International Machinery Co., Calle Morande No. 530, Santiago.

China—Andersen, Meyer & Co., Ltd., 4 and 5 Yuen Ming, Yuen Road, Shanghai.

Colombia and Venezuela—Wesselhoeft & Poor, Bogota, Barranquilla and Medellin, Colombia; and Carenas, Venezuela.

Ecuador—Guayaquil Agencies Co., Apartado 186, Guayaquil.

Natal, Transvaal and Orange River Colony—Thomas Barlow & Sons (S. A.) Ltd., Durban, Natal.

New Zealand—Richardson, McCabe & Co., Ltd., 11 Grey Street, Wellington.

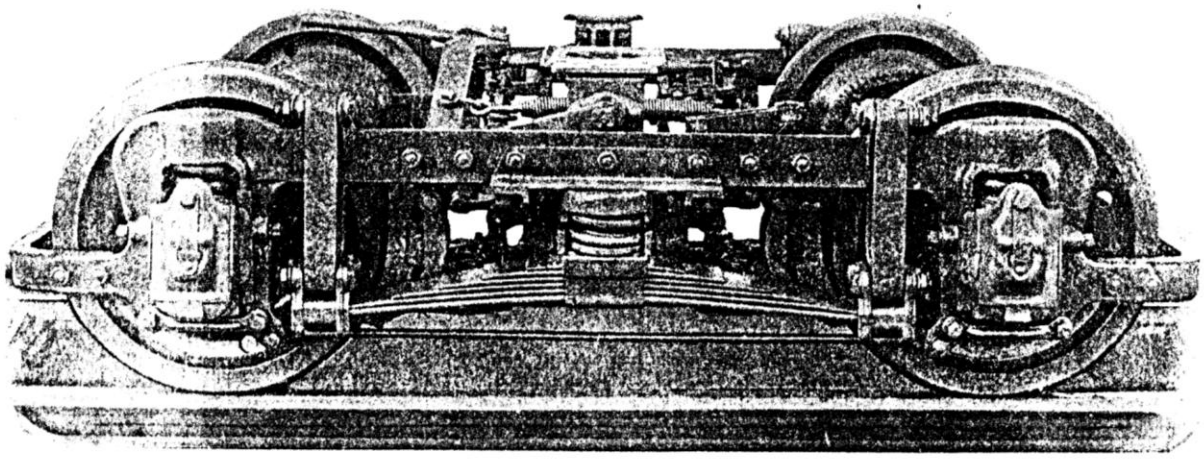
Peru—W. R. Grace & Co., Calle Banco del Herrador, Lima.

BULLETIN No. 306

THE BRILL 177-E TRUCK

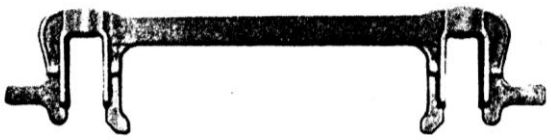
FOR LIGHT-WEIGHT CARS

In general design and arrangement the Brill No. 177-E truck conforms to those of the popular 77-E type noted for the unusually smooth and comfortable riding action it provides. The Half-ball type of Bolster Guide, a recent innovation, which keeps the bolster in its proper relation to the transoms, also contributes its part to the general satisfaction with which this truck is acclaimed. Considering its solid-forged sideframes, a remarkably light weight truck is obtained by a specially designed sidebar which, while light in weight, lacks none of the strength and durability for which this feature of Brill truck construction is particularly noted.



Standard Brill No. 177-E type truck except Brill Twin Links are shown instead of the plain links. Conforms generally in design to popular No. 77-E type, arranged for inside-hung motors, but developed to meet requirements of light-weight modern cars.

SOLID-FORGED SIDE-FRAMES. In addition to their unusual strength and durability, and consequently long life and low maintenance, Brill solid-forged sideframes are noted for their positive squareness and rigidity. They are forged from open hearth steel billets on special hydraulic presses. Solid-forged sideframes form the foundation upon which the Brill system of trucks is built. They are guaranteed against breakage except when caused by collision or derailment.



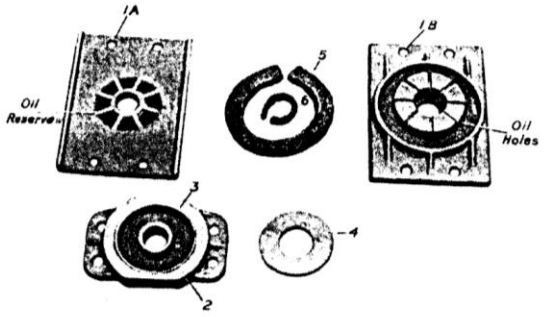
While of lighter design the solid-forged sideframes of Brill No. 177-E truck lack none of the strength and durability of heavier designs.

BOLSTER. The cast steel bolster is of a light-weight design, yet possesses the necessary strength for maximum service requirements. Each end is so designed as to form a cap for the coil spring support on each side of the truck.

TRANSOMS. On each side of bolster an angle transom extends across the truck under the sideframes, to which it is attached with angle bracket on the outside and an L-shaped gusset on the inside. Both are attached to sidebar with body turned bolts in reamed holes driving fit.

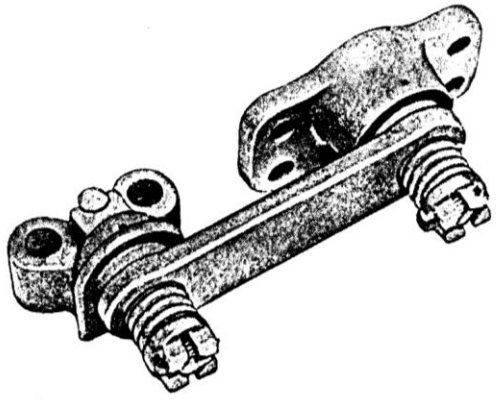
SIDE BEARINGS. The side bearing on each end is cast integral with the bolster. It supports a rub or wear plate, which is adjustable for height by the use of steel shims. Provision is made for not less than ½ inch adjustment downward while as much upward adjustment is permitted as may be requested.

OIL-RETAINING CENTER BEARING. A brass wear ring constantly in a bath of oil, with felt rings to keep out dust between the body and truck center plates, facilitates smooth and steady riding and lessens flange and rail wear at curves. The Brill Oil-Retaining Center Bearing is refillable from inside the car through a pipe in the body bolster.

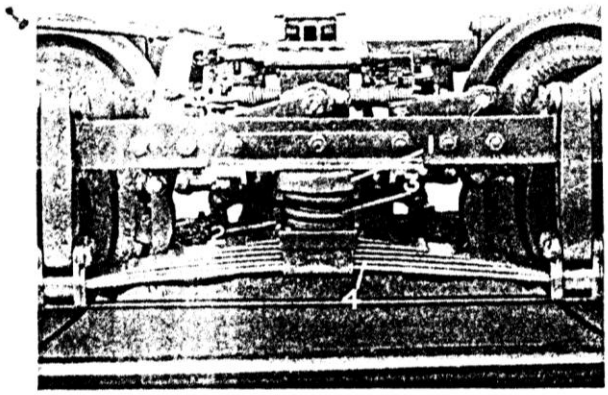


1-A Top view of body center plate.
1-B Bottom view of body center plate.
2 Truck center plate.
3 Brass lining of truck center plate.
4 Brass wear ring.
5 and 6 Felt dust guards.

BOLSTER GUIDE. Forming a flexible connection between each end of the bolster and transoms the Brill Bolster Guide holds them in their proper relationship under motor and brake pressure, making unnecessary the use of vibration-producing chafing plates.



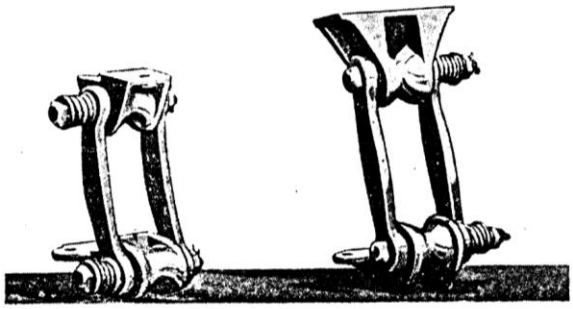
The Brill Bolster Guide eliminates from the car the shocks and vibrations resulting from bolster and transom contact.



When the passenger load increases sufficiently to cause the coil spring cap (No. 1) and seat (No. 2) to contact the coil spring (No. 3) automatically goes out of action and thereafter the semi-elliptic plate spring (No. 4) provides necessary resiliency.

GRADUATED SPRING SYSTEM. A quick-acting coil spring in combination with a heavier and slower-acting semi-elliptic plate spring under each end of the bolster is so arranged that uniform comfortable riding spring action is obtained under varying passenger loads. When the carbody is empty and up until the increased passenger load causes contact between the coil spring cap, an integral part of the cast steel bolster, and its seat the coil spring functions. At that point it automatically goes out of action and from then on the semi-elliptic springs furnish the necessary spring action.

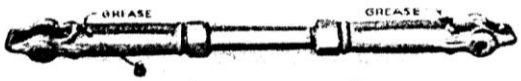
HALF-BALL BRAKE HANGER. With the hemispherical ends of its forged hangers held in their sockets by compressed coil springs, the Brill Half-ball Brake Hanger is noiseless, self adjusting to wear and self cleaning. It also maintains shoes in proper adjustment, thus reducing uneven shoe wear.



The Brill Half-ball Hanger insures satisfactory brake operation.

JOURNAL BOXES. Journal Boxes of Brill manufacture are carefully machined to give a tight fit to the pressed steel lid and to insure a smooth and close fit in the truck pedestals.

BRAKE RIGGING. With motors supported between the transoms and the axles the brake rigging is of the inside-hung type. In order to facilitate easy adjustment to compensate for wheel and brake shoe wear, the bottom brake rods between the live and dead levers on each side of the truck are fitted with the Brill Lubricated Brake Rod Jaw Castings.

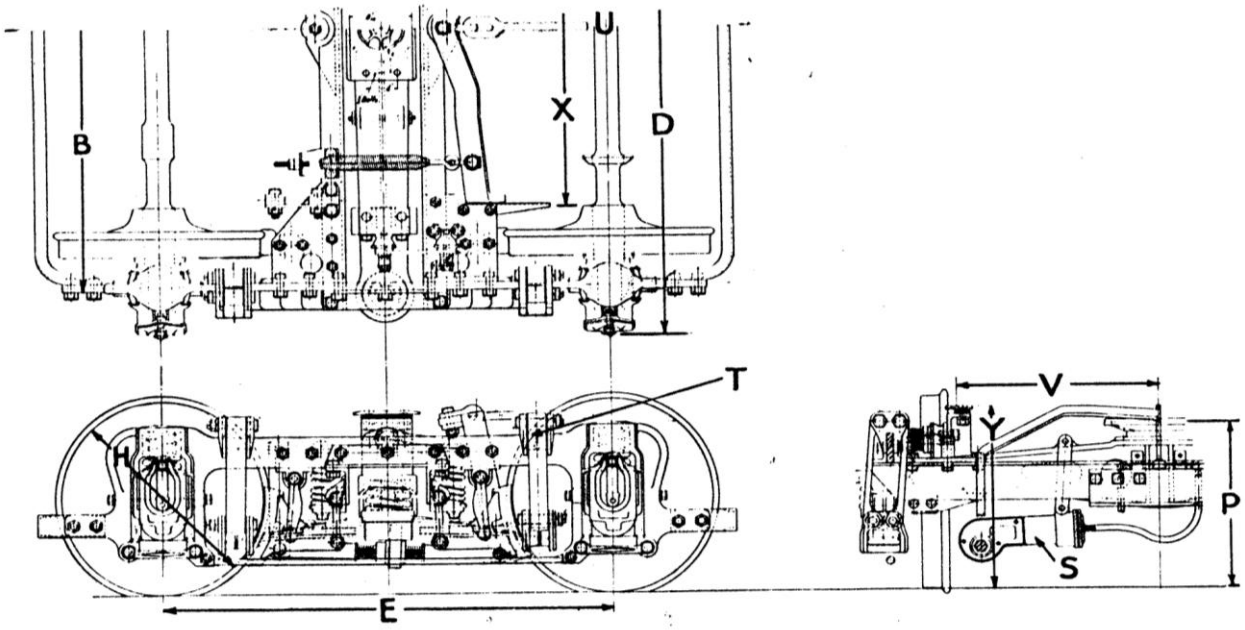


Bottom brake rod with lubricated jaw castings. Brake adjustment is easy despite the ravages of dirt and rust.

TWIN LINKS. While our standard construction involves the use of plain swing links suspending the semi-elliptic plate springs, this unique device, furnished only when specified and at additional cost, retains the smooth and comfortable riding action of this truck on uneven track and under the higher rates of speed. It carries the ends of the springs in substantially a horizontal position while at the same time permitting necessary lateral movement.

DIMENSIONS OF BRILL 177-E TRUCKS

Patented and patents pending in the United States and foreign countries.



BRILL 177-EX, 177-E1X and 177-E1 TRUCKS

	177-EX							177-E1X							177-E1						
Gage	3′3½″	3′6″	4′0″	4′8½″	5′0″	5′2½″	5′3″	3′3½″	3′6″	4′0″	4′8½″	5′0″	5′2½″	5′3″	3′3½″	3′6″	4′0″	4′8½″	5′0″	5′2½″	5′3″
*Centers of Side Frames	4′10⅛″	5′2″	5′8¼″	5′9¼″†	6′0¼″†	6′3″	6′3¼″†	4′10⅛″	5′2″	5′8¼″	5′9¼″†	6′0¼″†	6′3″	6′3¼″†	4′10⅛″	5′2″	5′8¼″	5′9¼″†	6′0¼″†	6′3″	6′3¼″†
Radius of Rub Plates	1′5⁷⁄₁₆″	1′6½″	1′9½″	2′2″	2′3½″	2′4½″	2′4½″	1′5⁷⁄₁₆″	1′6½″	1′9½″	2′2″	2′3½″	2′4½″	2′4½″	1′5⁷⁄₁₆″	1′6½″	1′9½″	2′2″	2′3½″	2′4½″	2′4½″
*Length of Axle, M. C. B. Journal	5′5½″	5′9″	6′3½″	6′4½″†	6′7½″†	6′10″	6′10½″	5′5½″	5′9″	6′3½″	6′4½″†	6′7½″†	6′10″	6′10½″†	5′6½″	5′10½″	6′4½″	6′5½″†	6′9″†	6′11½″	7′0″
Length of Axle restricted width Cheek Plate Journal	5′6¼″	5′9¾″	6′3¾″	6′4¾″†	6′8¾″†	6′10¾″	6′11¾″†	5′6¼″	5′9¾″	6′3¾″	6′4¾″†	6′8¾″†	6′10¾″	6′11¾″†	5′6¼″	5′9¾″	6′3¾″	6′4¾″†	6′8¾″†	6′10¾″	6′11¾″†
Length of Axle, Cheek Plate Journal	5′6¼″	5′9¾″	6′3¾″	6′5″†	6′8¾″†	6′10¾″	6′11¾″†	5′6¼″	5′9¾″	6′3¾″	6′5″†	6′8¾″†	6′10¾″	6′11¾″†	5′6¼″	5′9¾″	6′3¾″	6′4¾″†	6′8¾″†	6′10¾″	6′11¾″†
*Width over all—M. C. B. Journal	6′0¼″	6′3½″	6′9¾″	6′10¾″†	7′2¼″†	7′4½″	7′5¼″†	6′0¼″	6′3½″	6′9¾″	6′10¾″†	7′2¼″†	7′4½″	7′5¼″†	6′1⅜″	6′4¾″	6′10¾″	7′0″†	7′3½″†	7′5¼″	7′6½″†
Width over all—Check Plate Journal	6′1⅜″	6′4¾″	6′10¾″	7′0″†	7′3½″†	7′5¾″	7′6½″†	6′1⅜″	6′4¾″	6′10¾″	7′0″†	7′3½″†	7′5¾″	7′6½″†	6′1⅜″	6′4¾″	6′10¾″	7′0″†	7′3½″†	7′5¼″	7′6½″†
Width over all—restricted width Cheek Plate Journal	5′8¼″	5′11½″	6′5½″	6′6¾″†	6′10¼″†	7′0½″	7′1¼″†	5′8¼″	5′11½″	6′5½″	6′6¾″†	6′10¼″†	7′0½″	7′1¼″†	5′8¼″	5′11½″	6′5½″	6′6¾″†	6′10¼″†	7′0½″	7′1¼″†
Wheel Base	Standard 4′10″							Standard 5′4″							5′4″ and 6′0″						
Wheel Diameter	24″			26″				26″							26″		30″		33″		
Track to underside of Body Bolster with Empty Car	21¼″			22¼″				22¼″							22¼″		28½″		30″		
Height (minimum) of Side Bearings with Empty Car Body	23½″			24½″				24½″							24½″		31½″		33″		

* If width of motor does not allow length of wheel hub to equal diameter of wheel bore, these dimensions may be increased.
S Automatic Slack Adjuster furnished only when specified.
T Twin Swing Links furnished only when specified.
U Truck brakes furnished to this point only.
X Distance between hubs. This is variable to suit motor.
Contact beam support cast on journal boxes if required.
King bolt not furnished by truck builder.
†These dimensions to be increased when wheels having wider than 2¼″ tread are used.

The Following Limitations are Recommended

	177-EX	177-E1X	177-E1
Maximum Diameter of Journal	3″	3¼″	3¼″
Weight of Car Body with Equipment and Pass. Load—Not to exceed	30,000 lb.	37,000 lb.	46,000 lb.
Speed—Not to exceed	30 M. P. H.	35 M. P. H.	50 M. P. H.
Motors—Not to exceed	25 Hp.	35 Hp.	60 Hp.