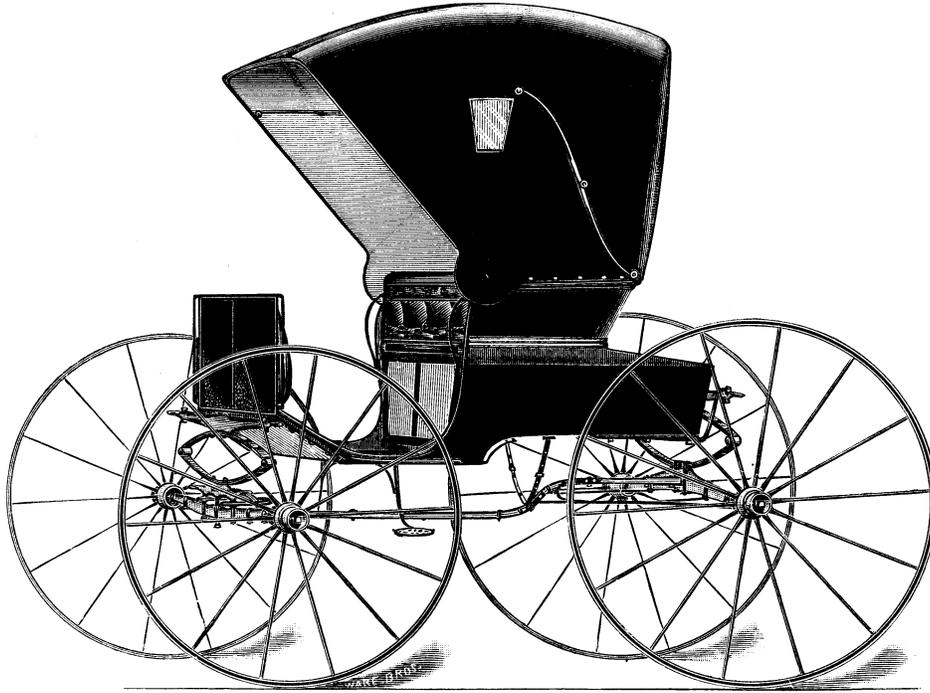


MICHELL, SCHWARZ & KEACHLINE, PHILADELPHIA, PENNSYLVANIA.



PHYSICIAN'S WAGON.

PLATE No. 61.—VOL. 23.—HALF-INCH SCALE.—*Explanation on page 179.*

Plate No. 61. PHYSICIAN'S WAGON.

Carriage Monthly October 1887 page 179.

The design and construction of this wagon is intended solely for the use of physicians, and embodies all the necessary requirements for that purpose. The body is very compact, but has sufficient foot room, and consequently the wheels are very close together, making the carriage part as short as possible. The body, under the seat, is provided with drawers for physicians' instruments and other necessities. The seat is molded, which looks well when made as illustrated. This wagon was designed and constructed by Messrs. Michell, Schwarz & Keachline, of Philadelphia.

Dimensions.—Wheels: Exterior diameter of wheels $43\frac{1}{2} \times 47$ inches, Exterior diameter of hubs $4\frac{1}{8}$ inches, Length of hubs 7 inches, Diameters of bands of hubs $2\frac{7}{8} \times 3\frac{1}{4}$ inches, Width of spokes at square end $1\frac{3}{16}$ inches, Number of spokes, front and back 14 x 14, Thickness and depth of rims $1\frac{1}{16} \times 1\frac{1}{4}$ inches, Stagger $\frac{3}{8}$ inches, Tire, steel $1 \times \frac{7}{32}$ inches.

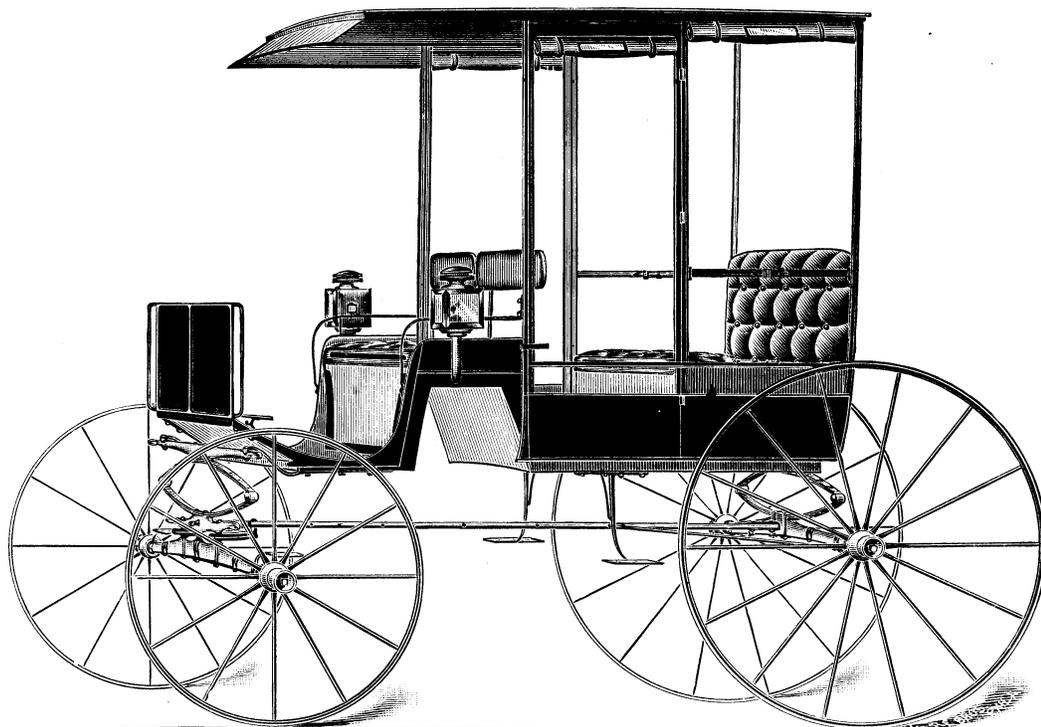
Front Springs: Length from center to center of bolts 36 inches, Open from out to out $8\frac{1}{2}$ inches, Width of steel $1\frac{5}{16}$ inches, Number of leaves 4, Thickness of first leaf No. 3, Thickness of other leaves No. 3, 3, 4, Clipped, Weight of springs about 18 lbs., Length of arms of axle for 7 inch hubs, Thickness of axle, at square end 1 inch.

Back Springs: Length of cross springs 37 inches, Open from out to out of cross springs 9 inches, Width of steel $1\frac{5}{16}$ inches, Number of leaves on cross spring 5, Thickness of first leaf No. 3, Thickness of other leaves Nos. 3, 3, 3, 4, Clipped, Weight of springs about 23 lbs., Length of arms of axle for 7 inch hubs, Thickness of axle, at square end 1 inch steel.

Body: Across boot, front 32 inches, Across body front bottom 32 inches, Across door pillar front body top 33 inches, Seat bottom 35 inches, Seat top 40 inches, Turn-under $\frac{1}{2}$ and $2\frac{1}{2}$ inches. Painting,—Body : black, Carriage-part: deep green, striped two round lines of yellow.

Trimming.—Green cloth. The back is trimmed in the block-and-pipe design, and is made over soft low springs; the side quarters are squabbed in diamonds, the whole being tufted with cloth buttons. The cushion has a block top plaited one way only; the front is $1\frac{3}{4}$ inches high, and has a plain raiser; the fall is slightly stiff, is made with plain raisers and is bound with leather; the welts in the cushion are of leather. The top is a four-bow top, with plain cloth head-lining, and heavy pebble grain leather; the back curtain has the Brewster curtain fastners attached; it has a light of medium size; the front valance is $1\frac{1}{4}$ inches wide, and is stitched to top as usual. The side lights are finished with moldings, plated; the bottom of the top is finished with English saddle nails in place of molding. The rug is a green carpet with red figure, and bound with heavy cloth.

Mountings.—Silver.



DEPOT WAGON.

PLATE NO. 47.—VOL. 24.—HALF-INCH SCALE.—*Explanation on page 153.*

**MICHELL, SCHWARTZ & KEACHLINE,
Philadelphia, Pennsylvania.**

Plate No. 47. DEPOT WAGON.

Carriage Monthly September 1888 page 153.

This is a very attractive depot wagon, built by Messrs. Michell, Schwarz & Keachline, of Philadelphia. The side-panels are only 8 inches deep, with a false-bottom $1\frac{3}{4}$ inches in depth. Length of body, from pillar to pillar, on top rail, 3 feet $7\frac{1}{2}$ inches, and length of rockawayfront from front pillar is 3 feet long. The body is suspended on two o full elliptic springs, 33 inches from the floor; the front on shackles and spring-bar, and the back under the end-bar. The back is movable, and the body has a tail-gate, with which the spring does not interfere. The back is fastened with movable back fasteners, made by J. B. Foster, of Wilmington, Del.

Dimensions.—Wheels: Exterior diameter of wheels 37 x 46 inches, Exterior diameter of hubs $4\frac{1}{2}$ inches, Length of hubs $6\frac{1}{2}$ inches, Diameters of bands of hubs $2\frac{3}{4}$ x $3\frac{1}{2}$ inches, Width of spokes at square end $1\frac{1}{4}$ inches, Number of spokes, front and back 12 and 14, Thickness and depth of rims $1\frac{1}{4}$ x $1\frac{5}{16}$ inches, Stagger $\frac{3}{8}$ inches, Tire, steel $1\frac{1}{4}$ inches.

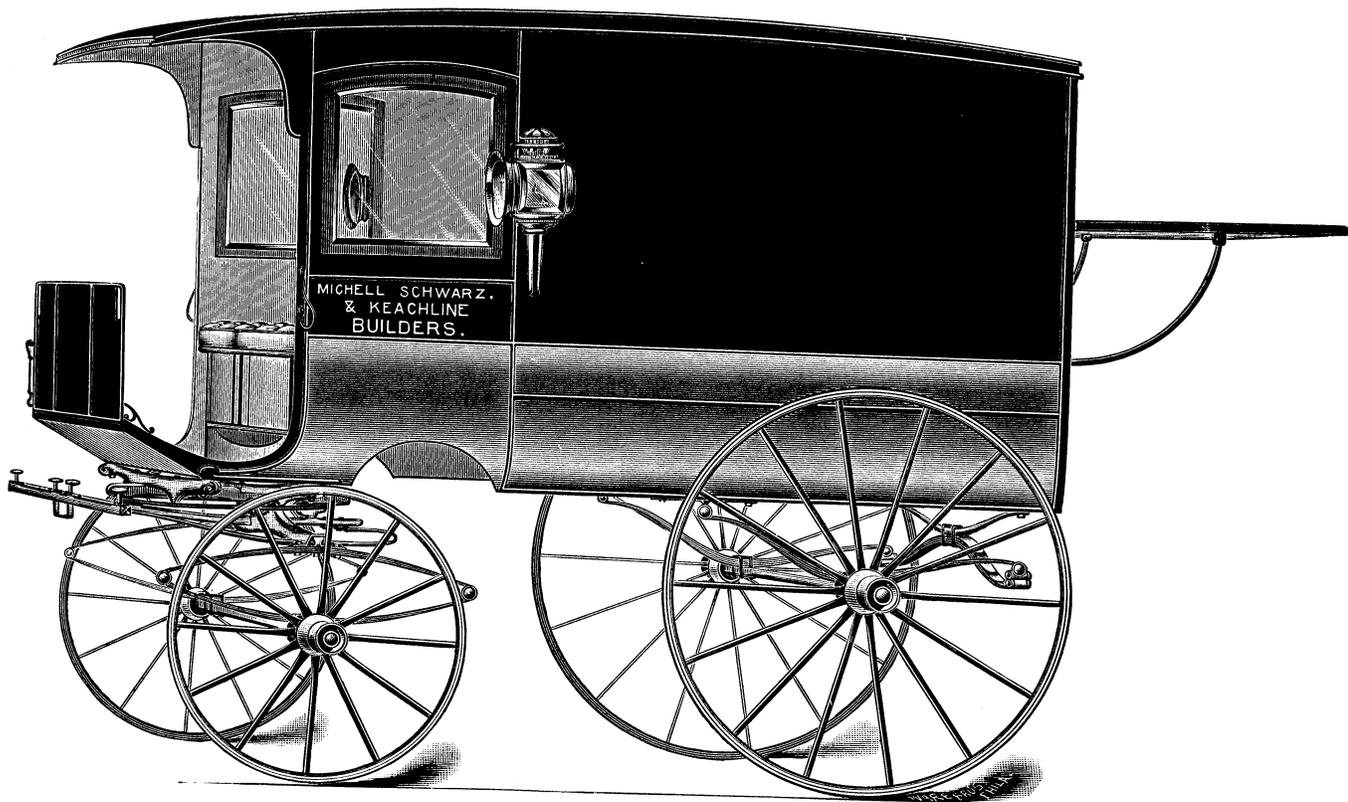
Front Springs: Length from center to center of bolts 36 inches, Open from out to out $10\frac{1}{4}$ inches, Width of steel $1\frac{1}{2}$ inches, Number of leaves 5, Thickness of first leaf No. 2, Thickness of other leaves No. 3, 3, 3, 3, Distance of holes apart and size $3\frac{1}{2}$ x $\frac{5}{16}$ t. &b.inches, Weight of springs about 28 lbs., Length of arms of axle for $6\frac{1}{2}$ inch hubs, Thickness of axle, at square end $1\frac{1}{8}$ inches.

Back Springs: Length of cross springs 37 inches, Open from out to out of cross springs $10\frac{1}{4}$ inches, Width of steel $1\frac{1}{2}$ inches, Number of leaves on cross spring 6, Thickness of first leaf No. 2, Thickness of other leaves Nos. 3, 3, 3, 3, 3, Distance of holes apart, and size $3\frac{3}{4}$ x $\frac{5}{16}$ inches top, Weight of springs about 32 lbs., Length of arms of axle for $6\frac{1}{2}$ inch hubs, Thickness of axle, at square end $1\frac{1}{8}$ inches steel.

Body: Across body front $35\frac{1}{2}$ inches, Body door $41\frac{1}{2}$ inches, Body back $41\frac{1}{2}$ inches, Body bottom $40\frac{1}{2}$ inches, Turn-under $\frac{1}{2}$ inches.

Painting.—Body: black. Carriage-part: deep carmine, striped with three black lines, -?g inch line in the center and one fine line each side, $\frac{9}{16}$ inch apart.

Mountings.—Silver.



UNDERTAKER'S WAGON.

PLATE NO. 16.—VOL. 27.—HALF-INCH SCALE.

UNDERTAKER'S WAGON.

Carriage Monthly May 1891 & July 1891 page 109.

With this plate we illustrate the most popular undertakers' wagon in Philadelphia, differing in many respects from the old style, and is manufactured by Messrs. Michell, Schwarz & Keachline, of Philadelphia. The construction of the body is simple, having the same width at the bottom as at the top, being slightly concave and convex from its belt, as shown in the cut. The moldings are $\frac{1}{2}$ inch wide, flat round, and at the front end finishing with a scroll. The body is paneled and canvased from the inside. The carriage part is made different from the general style, and must be constructed to turn under the wheelhouse without striking the body.

Dimensions.—Wheels exterior diameter of wheels 37 x 51 inches, exterior diameter of hubs $5\frac{1}{4}$ inches, length of hubs $7\frac{1}{2}$ inches, diameter of bands and hubs $3\frac{1}{2}$ x 4 inches, width of spokes at square end $1\frac{3}{8}$ inches, number of spokes, front and back 12 and 14, thickness and depth of rims $1\frac{3}{8}$ x $\frac{3}{8}$ inches. Front Springs length from center to center of bolts $36\frac{1}{2}$ inches, open from out to out 10 inches, width of steel $1\frac{1}{2}$ inches, number of leaves 5, thickness of first leaf no. 2, thickness of other leaves 3, 3, 3, 3, distance of holes apart, and size clipped, length of arms of axle for $7\frac{1}{2}$ inch hub, thickness of axle, at square end $1\frac{1}{4}$ inch collinge. Back Springs length of side springs 40 inches, length of cross springs 45 inches, open from out to out of side springs 6 inches, open from out to out of cross springs 6 inches, width of steel $1\frac{1}{2}$ inches, number of leaves on side springs 6, number of leaves on cross springs 6, thickness of first leaf no. 2, thickness of other leaves 3, 3, 3, 3, 3, distance of holes apart, and size clipped, length of arms of axle for $7\frac{1}{2}$ inch

hub, thickness of axle, at square end $1\frac{1}{4}$ inch collinge. Body across boot, front 46 inches across body, front all over 54 inches.

Painting.—Body: black. Carriage part: deep green, striped three fine lines of light green. Glass frames painted black.

Trimming.—Cushions made up in two, without a fall; dash covered with patent leather.

Finish.—Oval flange silver plated lamps; beveled glass in glass frames, and handles painted.

CARRIAGE PART FOR UNDERTAKERS' WAGON.

Three-Quarter-Inch Scale.

With Plate No 16, Vol. 27, we illustrated an undertakers' wagon, differing in many respects from those we have shown before. Also the gear has some originality which we illustrate in Figs. 1, 2 and 3.

TOP VIEW OF LOWER GEAR.

Fig. 1 is the top view of the lower gear, the wood parts consisting of the two bent futchels, bent bed and straight draw bar. The iron parts consist of the fifth wheel, and the braces, which are made of two pieces each, jointed at the back and behind the fifth wheel, the main brace running over the springs, connecting with the outside surface of the futchel front, and under the futchel at back end. The other

brace laps over the main brace at back end, following the shape of the futchel to front end of wooden futchel. On the inside surface of bent futchel is another iron ending inside of mortice of bent bed. The bent bed is ironed on the top and bottom. The straight draw bar is not on top of the bent futchels, but directly in front, and to make it plainer we have drawn the front view of the draw bar.

SIDE VIEW OF LOWER AND UPPER GEAR.

Fig. 2 illustrates the lower and upper gear, and how it is bolted to the body as viewed from the side elevation. The springs are clipped top and bottom, and the upper futchels halved into the two upper cross beds.

TOP VIEW OF UPPER PART.

Fig. 3 is the top view of the upper part, consisting of a full circle, 1½ by 5/16 inch flat iron, same size as the lower circle, the two beds and the futchel. The two cross beds are not ironed, and the futchel is halved into the beds at each intersection. The corners of the beds and futchel can be rounded top and bottom or chamfered; the rounding of all these parts and top and bottom gear is best, as the paint does not wear off at the corners, and improves the appearance.

Bent beds, also bent futchels as illustrated in Fig. 1, can be bought ready for use by those who make a special business for this work. They are generally bent heavier than wanted for some work, and are mortised down to suit the size of the gear. The bent bed is always made heavier in the middle when viewed from the top, and to do that

successfully, a correct pattern must be made and the bed dressed after the pattern. The futchels are heaviest at front and lightest at back and being slightly tapered toward the back end. The upper beds also are sawed out and dressed after a pattern especially made to suit the span between top of springs and bottom of body. Plate No. 16. Undertaker's Wagon. *Carriage Monthly* May 1891 & July 1891 page 109. Also printed in the book *Horse-drawn Funeral Vehicles 19th Century Funerals* published by Carriage Museum of America.

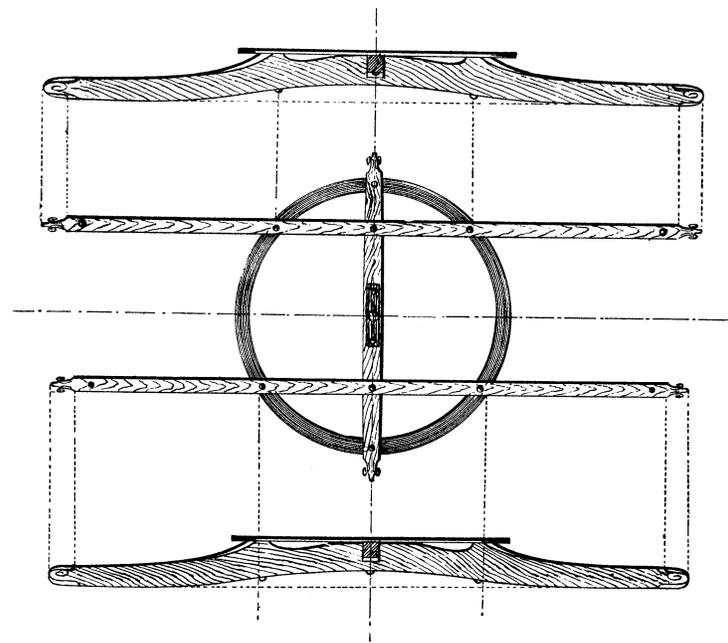


Fig. 3.

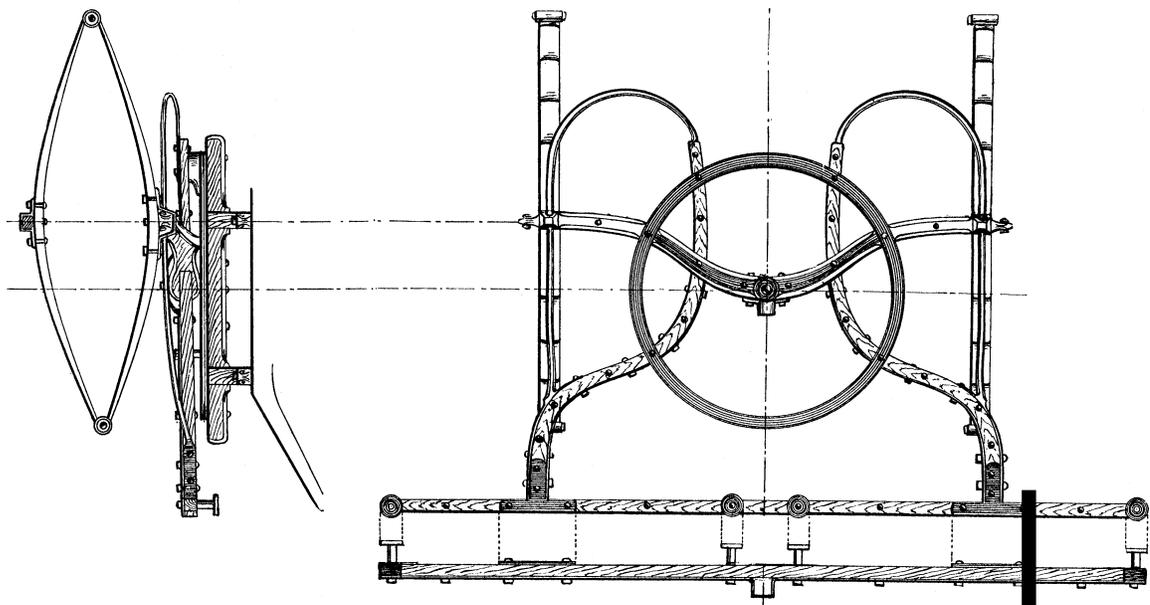
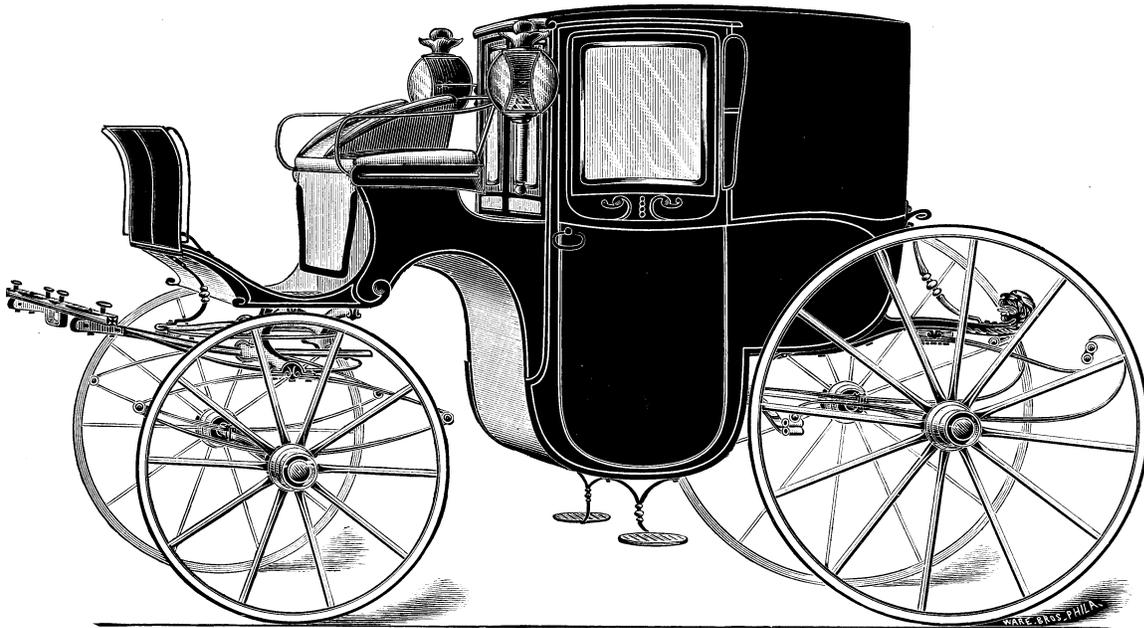


Fig. 1.
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BROUGHAM.

PLATE NO. 34.—VOL. 28.—HALF-INCH SCALE.—*Explanation on page 130.*

Plate No. 34. BROUGHAM.

Carriage Monthly August 1892.

With this plate we illustrate an original style of brougham which has been designed and built by Messrs. Michell, Schwarz & Keachline of Philadelphia. The outlines and finish of this brougham look exceedingly well. Nearly all angular lines are avoided. Beginning with that portion of the boot at, the horizontal line where the carriage part is bolted, the front and back ends are rounded with the aid of a scroll, and the boot, with the exception of the neck molding which is $\frac{3}{8}$ inch, is edged with $\frac{5}{8}$ -inch round molding. The novelty of this brougham consists mostly in the belt line sweep connecting with the side quarters by curving, intercepting the regular molding of the side quarters. The curve of belt rail and side quarter look exceedingly well on the finished job. The roll on the top across the front of the body forms a scroll on each side, and at the same time makes connection with the drip molding, which is also original and looks well. The back end belt scroll is the first one we have designed on broughams. There are other notable features worthy of mention; the carving above the door belt and below the glass frame, round corners on each side of it, and the round corners on, top. The side sweep of the top is more curved than on any of our previous broughams, and the top back corner is rounded also, as are the inside corners of the glass frames. The molding is finished with a square bead on inside edge, and the outside surfaces rounded. Otherwise the body is built the same as others, with the exception of the boot, which is 32 inches across the front and 38 inches across the back on the front of the body. The body is 45 inches across front, and the boot sides are set in $\frac{3}{2}$ inches only ore each side. The upper back bed on the front carriage part, carved; carved back bar and latest style carved pumphandles; ornamented centers on front stay under bracket front, step stay and pumphandle stay, and latest style of scroll springs.

Dimensions.—Wheels: Exterior diameter of wheels 38 x 50 inches, Exterior diameter of hubs $\frac{5}{8}$ inches, Length of hubs 8 inches, Diameters of bands of hubs $\frac{3}{4}$ x $\frac{4}{4}$ inches, Width of spokes at square end $1\frac{1}{2}$ inches, Number of spokes, front and back 10 and 12, Thickness and depth of rims $1\frac{1}{2}$ x $15/8$ inches, Tire, steel $1\frac{3}{8}$ x $\frac{3}{8}$ inches.

Front Springs: Length from center to center of bolts $38\frac{1}{2}$ inches, Open from out to out $10\frac{1}{2}$ inches, Width of steel $1\frac{5}{8}$ inches, Number of leaves 4, Thickness of first leaf No. 2, Thickness of other leaves No. 2, 3, 3, Clipped, Length of arms of axle for 8 inch hubs, Thickness of axle, at square end $1\frac{5}{16}$ inches collinge.

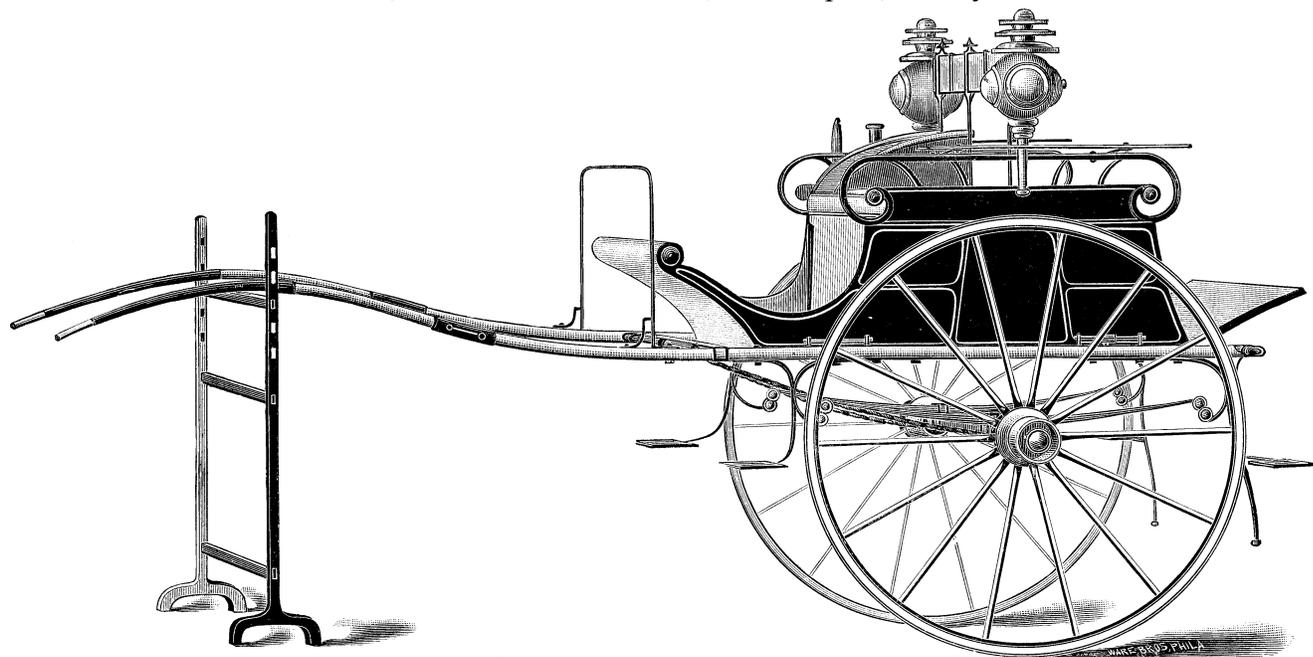
Back Springs: Length of side springs 37 inches, Length of cross springs 37 inches, Open from out to out of side springs 11 inches, Open from out to out of cross springs $5\frac{1}{2}$ inches, Width of steel $1\frac{5}{8}$ inches, Number of leaves on side springs 4, Number of leaves on cross spring 4, Thickness of first leaf No. 2, Thickness of other leaves Nos. 2, 3, 3, Distance of holes apart, and size $\frac{4}{2}$ x $\frac{5}{16}$ inches, Length of arms of axle for 8 inch hubs, Thickness of axle, at square end $1\frac{5}{16}$ inches.

Body: Across boot, front 32 inches, Across body boot back 38 inches, Across door pillar front 45 inches, Across door pillar back $50\frac{1}{2}$ inches, Across body, back 41 inches, Turn-under $\frac{3}{4}$ inches.

Painting.--Lower panels, deep blue ; upper part, moldings and boot, black ; moldings striped a fine line of pale blue and lemon yellow. Carriage part: deep blue, striped $\frac{1}{4}$ -inch line of pale blue, edged with a fine like each side of lemon yellow.

Trimming.--Lower part, blue cloth; upper part, blue silk; broad silk lace of the latest style and blocks combined with diamonds on back and side squabs.

Finish.--Glass frames covered with deep blue cloth; inside edges of door near glass frame finished black; inside fixtures covered with blue or black cloth. Lamps, new design, silver plated; handles; axle caps.



TWO WHEELER.

PLATE No. 49.—VOL. 28.—HALF-INCH SCALE.—*Explanation on page 194.*

Plate No. 49. TWO WHEELER.

Built by Michell, Schwarz and Keachline, Philadelphia, PA.
Carriage Monthly October 1892

This design, of two-wheeler, manufactured by Messrs. Michell, Schwarz and, Keachline, of Philadelphia, Pennsylvania, has some very commendable features, original in their application, combined with practical results. The front bracket ending and forming a scroll on front end of body is original in this case as applied on this body, and being constructed without dash, its finish is most commendable. The moldings on on body are raised $\frac{3}{4}$ inch above the surface of panel, all corners are rounded and all edges beveled. The position is different from those applied heretofore. The foot board on the back is finished to correspond with the sides, and its movement is secured with a stop hinge requiring no chain. This hinge is similar to the one used for the front seat of small extension front brougham, which is secured to the ends of the seat, and the two vertical pieces between the rocker plates. In this case the hinge is secured to the ends of the foot board and the sides of the body, and the stop for the position of the foot board is on the hinge itself. The seat also has original features. It is boarded half way, and the ends of the rail form a scroll, finished with a rosette. The sticks are all curved, with the exception that the center stick is straight, and is vertical from the side elevation. The panels on body and seat are rabbeted into the frame work, and glued against the frame.

The body is suspended on sliding irons, and is shifted with the aid of a lever only. This is the most simple and practical method of shifting; all rattle and unnecessary labor and expense are avoided. The sliding irons are made from 7 to 8 $\frac{1}{2}$ inches long, and their supports are bolted through the shafts. The main suspension is the same as usual, and steps welded to them.

Dimensions. Wheels: Exterior diameter of wheels 54 inches, exterior diameter of hubs 6 $\frac{1}{2}$ inches, length of hubs 8 inches, diameters of bands of hubs 4 x 5 $\frac{1}{4}$ inches, width of spokes at square end 1 inches, number of spokes 14, thickness and depth

of rims 1 x 1 $\frac{3}{4}$ inches, tire, steel 1 $\frac{1}{2}$ x inches. Front springs: Length from center to center of bolts 47 inches, open from out to out 2 $\frac{1}{2}$ inches, width of steel 1 $\frac{3}{4}$ inches, number of leaves 6, thickness of first leaf No. 2, thickness of other leaves No. 3, 3, 3, 3, 3, springs clipped, length of arms of axle for 8 inch hubs, thickness of axle, at square end 1 inches. Body: Across body bottom 36 inches, across body top 37 $\frac{3}{4}$ inches, seat bottom 38 $\frac{1}{4}$ inches, seat top 40 $\frac{1}{4}$ inches, turn-under x 1 inches.

Painting. Body: panels, deep blue; moldings and seat, black. Carriage-part: deep blue, striped pale blue.

Trimming. Blue cloth, finished as illustrated.

Finish. Lamps, ball pattern; back of wide leather straps. Lamps, axle nuts, rein rest and singletree tips, silver.

Photos of Charles L. Schwarz, Carriage and Coach Builder, 317 and 319 North Broad Street, Successor to Michell, Schwarz & Keachline--Joseph F. Michell and Martin D. Krespach, of Michell & Krespach, Carrige Builders, 2213 to 2219 Callowhill street--Michell & Krespach factory 2213 to 2219 Callowhill Street, carriage builders, successors to Michell, Schwarz and Keachline. Specilty: light work and rubbers tires. Repairing also a specialty. The only carriage factory in the city equipped with a rubber-tire plant. can be seen in *Philadelphia Pennsylvania, the Book of Its Bourse & Co-operating Bodies*, by George Washington Engelhardt, published by Lippincott Press, Philadelphia, 1898-1899 page 388.