MADE BY EXCELSIOR MOTOR

SUPER

MFG AND SUPPLY CO. CHICAGO, U.S.A.

THE SUPER EXCELSIOR MOTORCYCLES

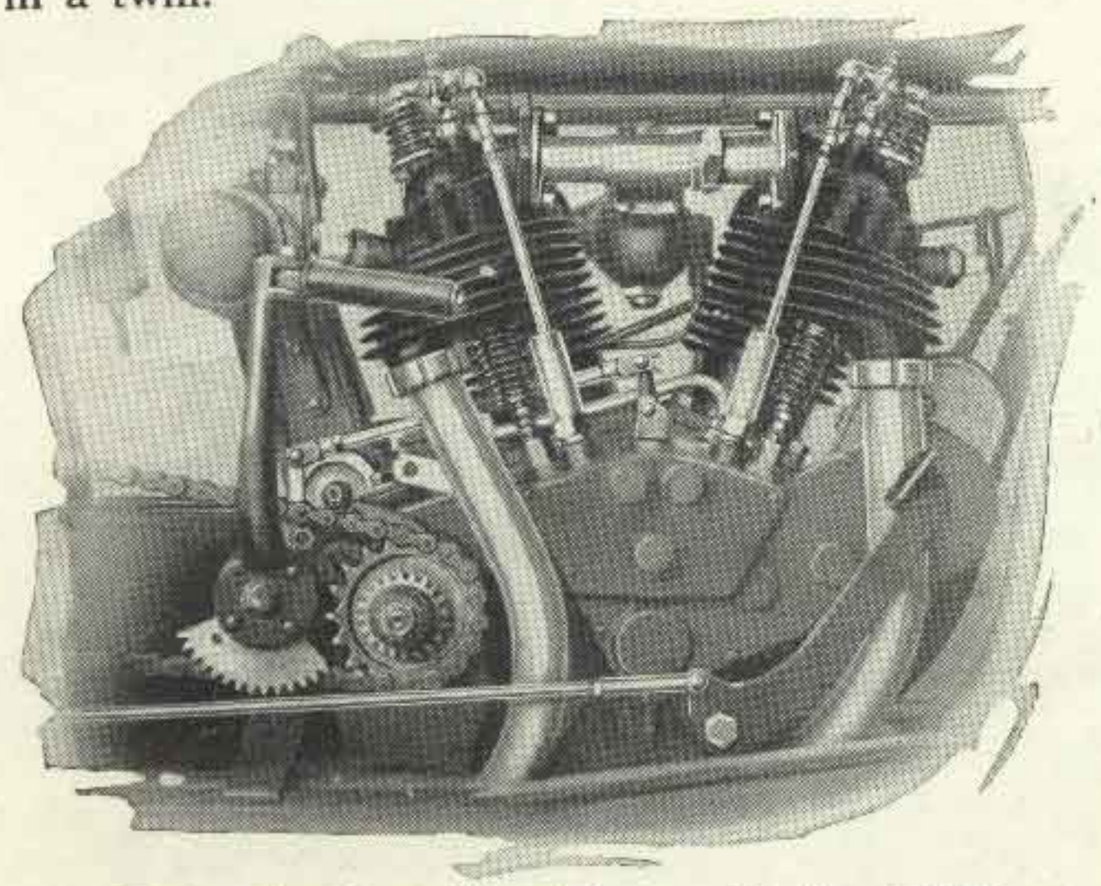
The New

SUPER EXCELSIOR

SUPER EXCELSIOR

MORE than two years ago, the Excelsior Company commenced the development of a new twin to surpass all previous conceptions of two-cylinder motorcycles.

The limitations of existing two cylinder machines were studied, analyzed and avoided and after much research work and experimenting, a machine has been produced with speed, power, safety, riding comfort and economy, never before attained in a twin.



Right side of Power Plant in frame. Note the cleancut design and accessibility of parts.

This machine is lighter in weight with a smaller, more efficient engine and resultant greater economy, possessing all the characteristics of the larger, heavier machines as regards speed and power, together with a perfection of balance, smoothness of operation and a degree of safety never before reached in two-cylinder motorcycle engineering—a machine that is an ideal solo mount, yet has ample power and strength to handle a sidecar with ease and economy.

The accessibility of all the components of this new machine is surprising. Practically every moving part can be removed from the motor without taking the engine out of the frame or disturbing other parts. It is impossible to build a motorcycle which can be more economically serviced than the new Super Excelsior.

The performance of this new model is so phenomenal that it cannot be described adequately and the machine must be ridden to be appreciated fully.

Try a Super Excelsior TODAY! Note how you fit right into the machine—there is no sensation of being perched on it; there is no top-heavy feeling because the center of gravity and the saddle position are low and there is no excess weight. The natural balance and ease of control will delight you.

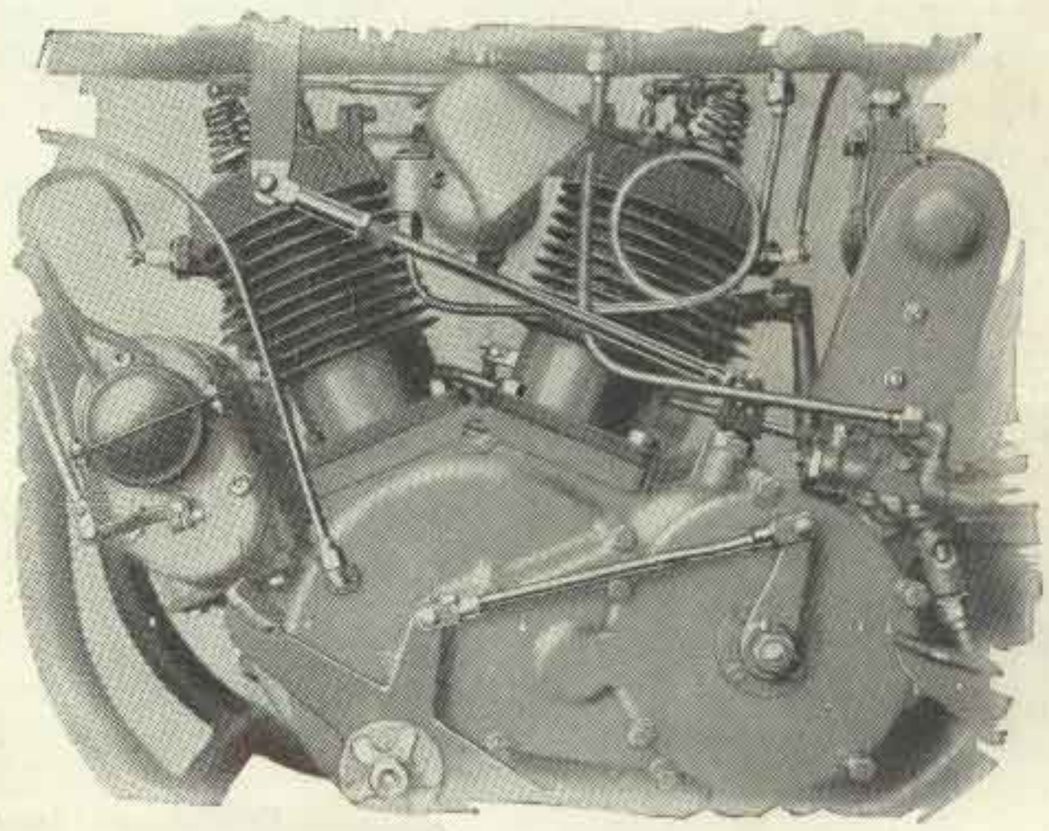
The power, speed, acceleration and flexibility of the motor will amaze you.

You will enjoy the comfort of the largest balloon tires furnished on any motorcycle, the big pan type saddle, the new sport bars, cushion forks and the long wheel base.

You will feel perfectly safe anywhere on any kind of road surface with the unusually low saddle position, perfect balance and smooth though powerful DeLuxe brake.

You will find the Super Excelsior is in every respect a perfectly balanced twin:

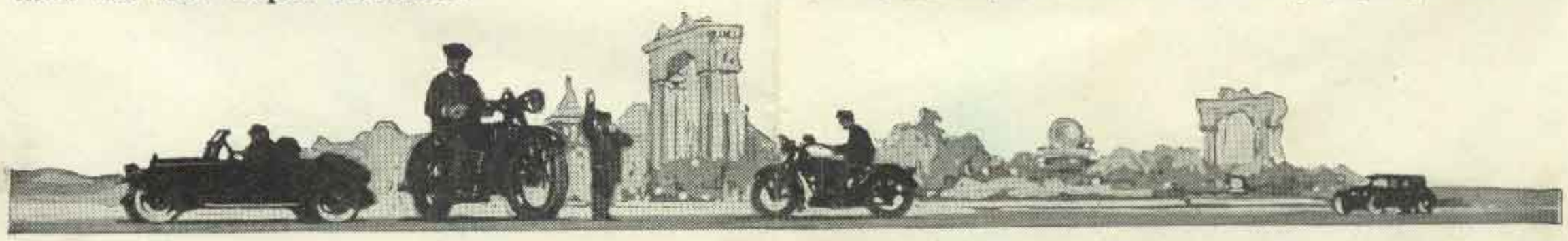
Perfectly balanced as to smoothness of motor operation.



Left side of Power Plant showing clutch control and mounting of oil pump, generator, etc.

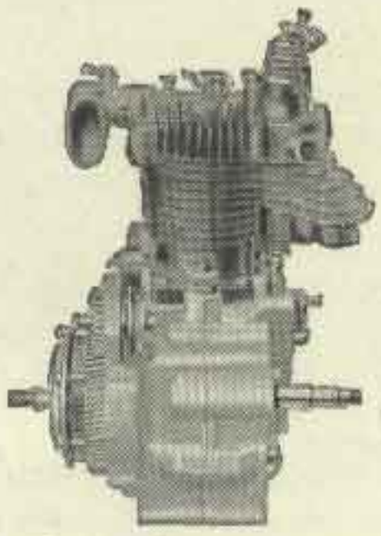
Perfectly balanced as to weight distribution and riding qualities.

Perfectly balanced in design, proportion



and harmonious relation of all parts and components.

Let's examine some of the outstanding features:



End view showing Clutch, Generator—Oil Pump Drive, etc.

The power plant is naturally the first consideration for it is the nucleus around which all of the other motorcycle components are centered. Briefly, the requisites of an ideal motorcycle engine are:

Compactness and light weight.

Ample power for hills, sand and mud.

Plenty of speed for the open road.

Flexibility, wide range of speed and responsiveness to the throttle for easy handling in congested traffic.

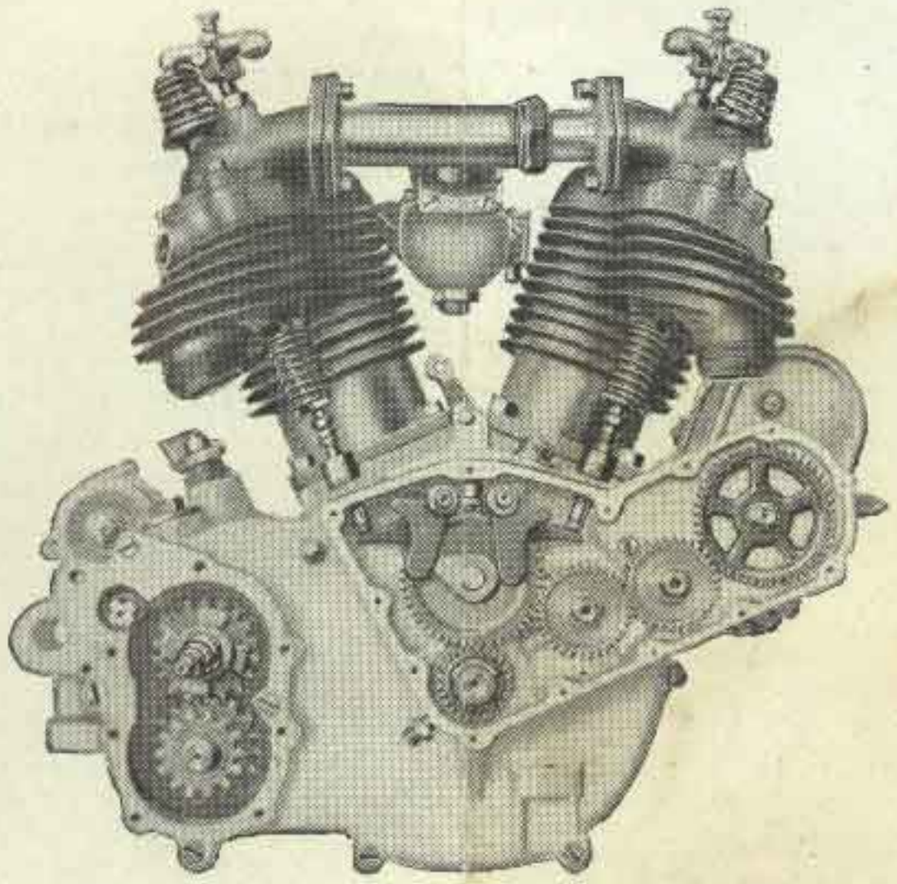
Reliability and durability which involve selection of materials that will wear, sturdy design with oversize parts and wearing surfaces, careful heat treatment and hardening.

Stamina and endurance.

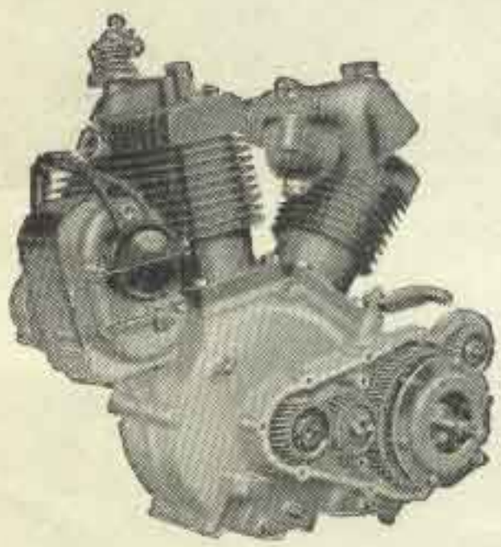
Freedom from complications.

Accessibility to facilitate repair and adjustments.

Fuel, oil and tire economy.



Here's the whole Power Plant showing the accessibility of all parts.



Primary Drive and Clutch details.

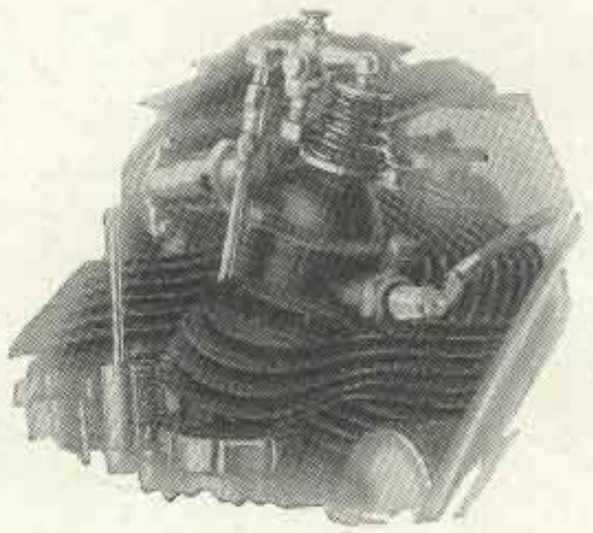
A study of the Super Excelsior power plant will show that all of these points have been carefully considered and no other two-cylinder motorcycle meets all of these requirements so completely as the Super Excelsior.

The power plant is of the true unit type. The clutch and transmission are integral with and built into the crankcase and this construction has several advantages:

It gives a very light, compact power unit.

It eliminates the front chain drive which was an objectionable feature of older models.

Service work is facilitated because the entire power plant is handled in one piece.

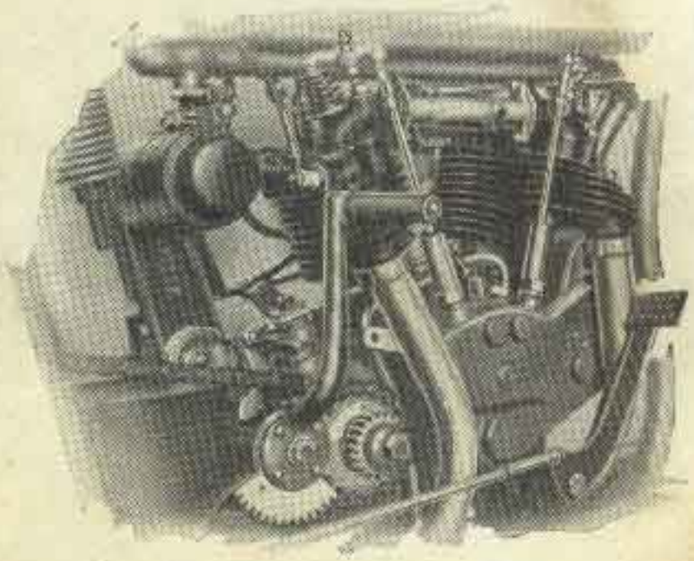


Intake Valve Cage details.

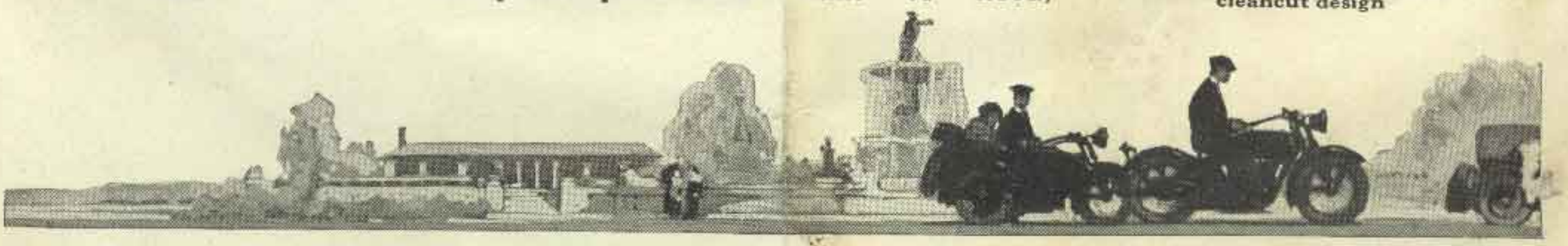
Absolute alignment of the power generating and transmitting units is insured at all times.

The engine is of the two-cylinder "V" design with a displacement of 45 cubic inches (under 750 c.c.). The cylinders are of the latest high efficiency type with large valves and direct gas passages, enabling this smaller motor to give a greater power output than larger motors of older design. This follows the trend of the automotive industry in the use of smaller and more efficient power plants, and operating economy is a natural result.

The Super Excelsior has all the power and speed the average rider will want or need,



Another view emphasizing the cleancut design

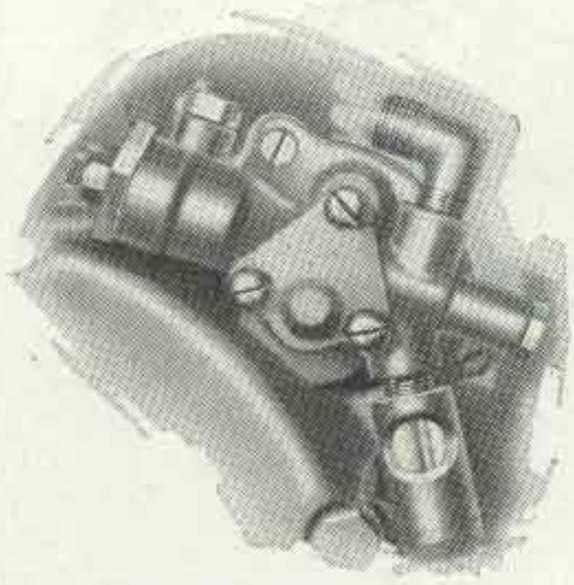


and its flexibility, wide range of speed, acceleration and smooth running are truly remarkable.

Dependability and durability were carefully considered in the design, and these very desirable qualities are achieved by judicious proportioning and selection of materials which will stand up in hard service, and by scientific heat-treating and hardening.

Simplicity of design and absence of complications are outstanding features. There is nothing that is freakish, untried or experimental. The general design and construction have been proven in practice.

The crankcase, which houses the transmission and clutch, is formed in two halves with a vertical, leak-proof joint. The crank and main bearings are of the roller type, as are the bearings for the primary gear drive. The large helical gear which houses the clutch is mounted on a heavy duty annular ball bearing. The crankshaft assembly comprising flywheels, crank and main shafts, connecting rods, etc., is sturdy indeed, and friction is reduced to an absolute minimum by the roller bearings.

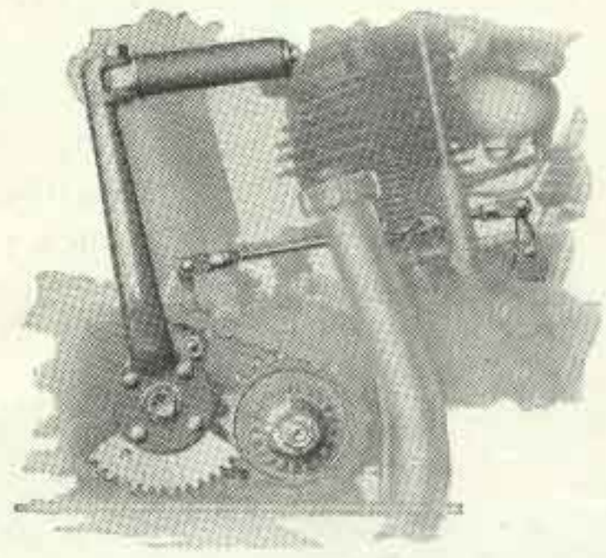


The New Oil Pump.
(Patent applied for)

The valve action is quiet, enduring and thoroughly reliable. The parts are sturdy enough for all possible service requirements yet sufficiently light to give a snappy valve action. A new design of cam is used which combines maximum power and speed with flexibility and quiet running.

A positive mechanical oil pump of novel design is used which delivers the proper amount of oil for any and all engine speeds. This pump is not susceptible to air locks, has no delicate parts to clog or fail at critical times and it can be adjusted easily without taking off any of the parts. The oil distribution has been perfected so that each cylinder will receive the proper amount of oil at all engine speeds.

The automatic valve lift, a tried and proven Excelsior feature, is built into the kickstarter mechanism. At the beginning of the kickstarter stroke, the exhaust valves are automatically lifted, relieving compression and making it easy to kick the motor over. At the proper point in the downward stroke of the starter to insure easy starting, the valves are dropped on their seats. This does away with the necessity of kicking against compression, or manipulating some inconvenient hand-controlled valve lift.

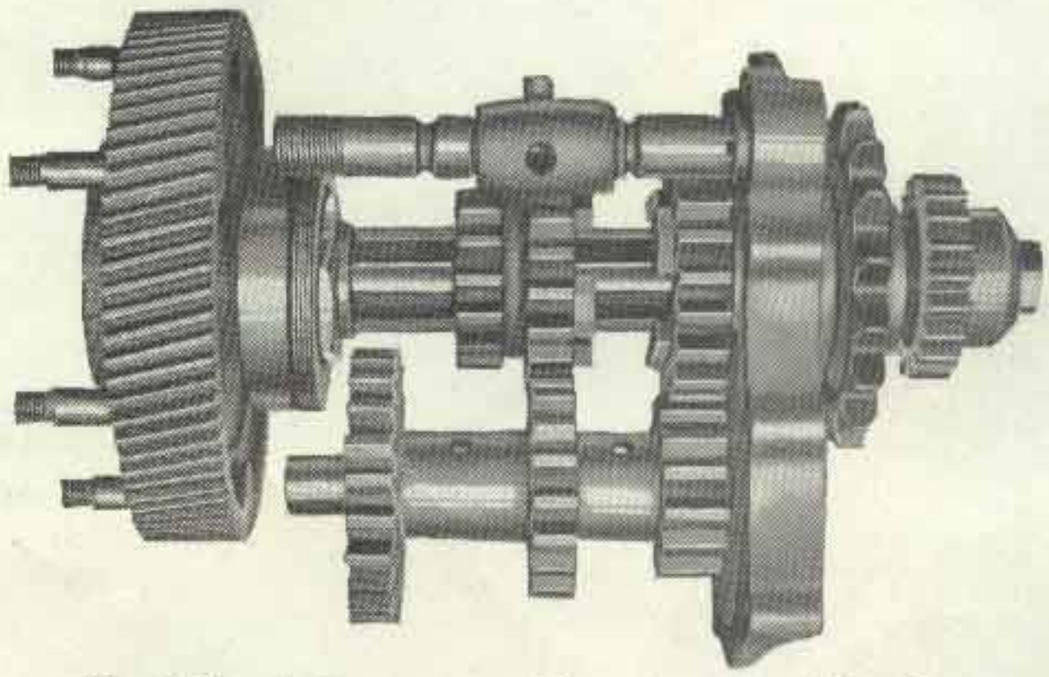


Kickstarter parts and Automatic Valve Lift.

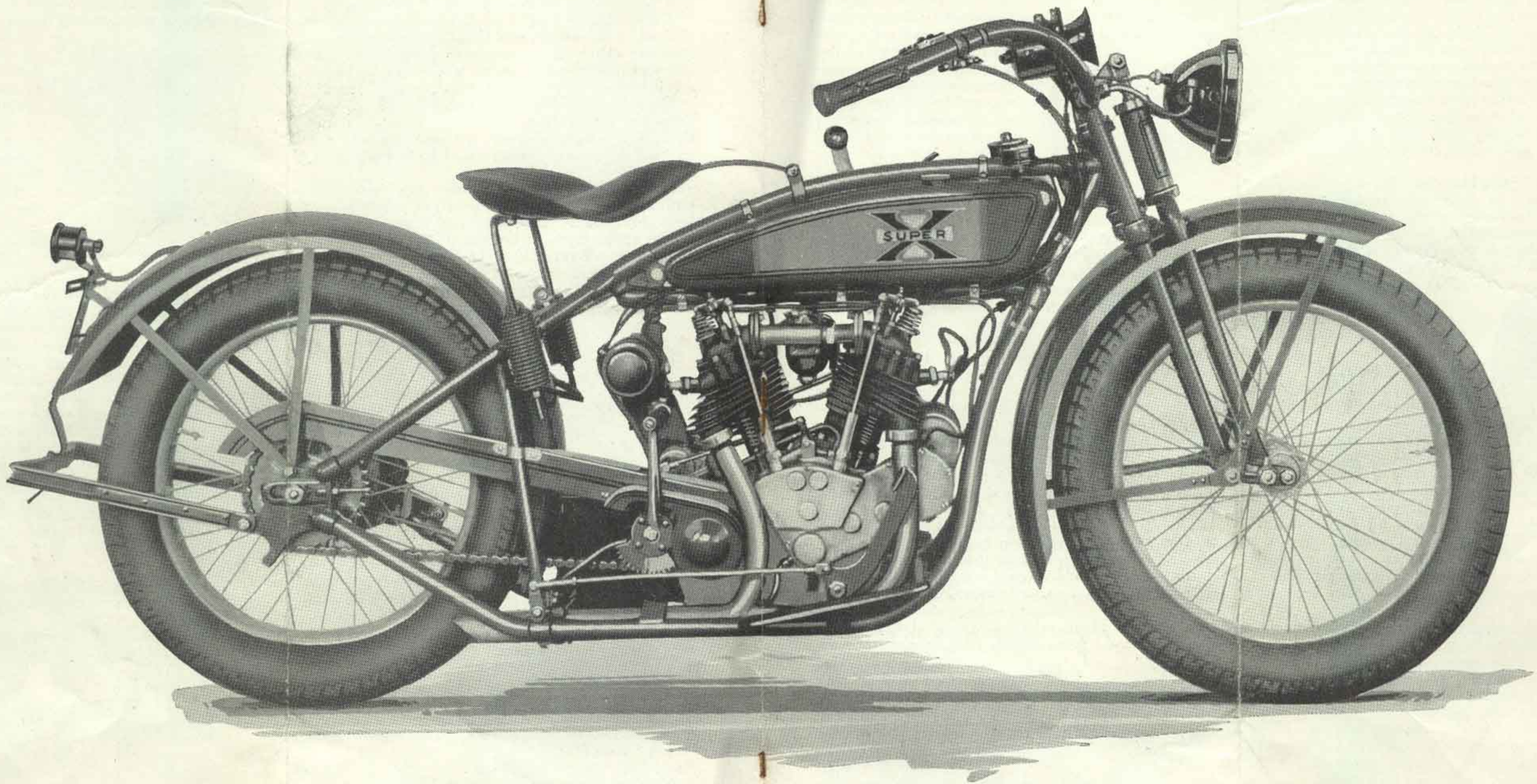
The clutch is of the multiple disc type with steel and Raybestos discs running in the same oil that is used in the transmission. The release mechanism is actuated by a cam arrangement and its action is smooth and sure. Inasmuch as all the clutch parts are running in an oil bath there is practically no wear.

The transmission is sturdy and strong and all parts have an ample factor of safety. The gears are machined from solid alloy steel forgings and the teeth are cut with absolute accuracy. The annular bearings carrying the main shaft are oversize. The gear shifting mechanism is thoroughly adequate and the locking device for holding the shifting gears in their various positions is positive and cannot work loose.

The starter is of the gear and segment type, operated by a downward thrust of the starter lever.



Here's the whole gear assembly again emphasizing the accessibility and simplicity of Super "X" parts.



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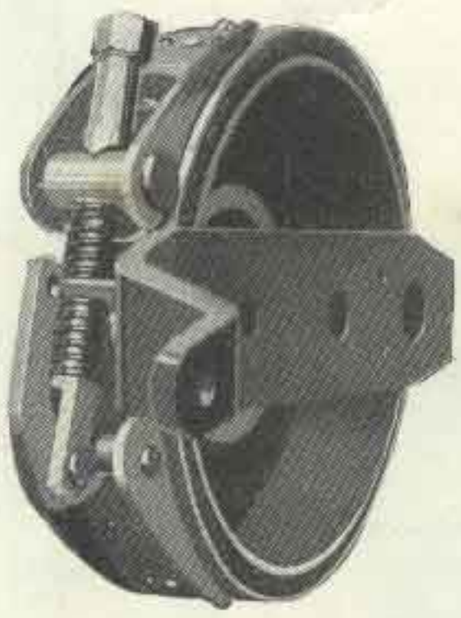
The automatic valve lift, already mentioned, is operated by a cam on the starter shaft which lifts the exhaust valves at the beginning of the starter stroke and drops them at the proper point for easy starting. Kicking a motor over against compression means unnecessary work while manipulating a separate hand operated valve lift involves synchronizing of the hand and foot movements and dropping the valves at the proper time. The Super Excelsior starter eliminates both of these objectionable features and makes starting of the motor easy and certain.

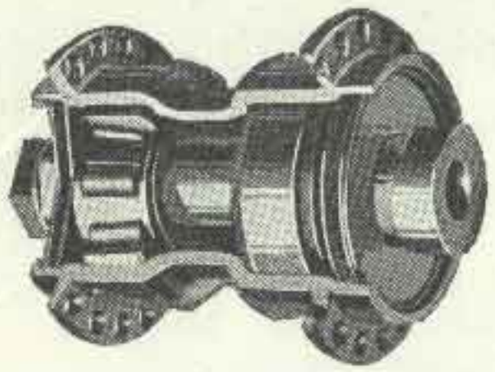
The frame is the very foundation of the motorcycle structure. In design, the frame of the Super Excelsior follows closely the construction of the Henderson frame which has been so satisfactory. The power plant is mounted on a three-point suspension which is the ideal way of securing a motor in a frame. The center of gravity is low and the saddle position enables short riders to get both feet squarely on the ground. Although the power plant is held securely still it may be removed easily and quickly, although access may be had to most of the parts without taking the motor out of the frame. Accessibility of all parts is one of the outstanding features of the Super Excelsior. It is possible to remove almost any part without disturbing other parts. Consequently, no other machine can be serviced so economically as the Super Excelsior.



Adjusting Clevis and details of the Brake.

A dependable brake is every bit as important as motor speed and pulling power. The Super Excelsior brake is of the same size and type as used on the Henderson where it has proven eminently satisfactory. Because of the lighter weight of the super Excelsior, this big, powerful brake is particularly effective. For stock equipment, the external contracting band only, is furnished. For a reasonable extra charge, an internal expanding brake, operated by a heel pedal can be applied.

The large area of effective braking surface of the external band, makes it possible to stop the machine within a very few feet and tendency to locking the wheel is largely obviated. Many motorcycle brakes do not have sufficient surface to absorb the energy stored in a rapidly moving machine and when applied vigorously in an emergency, usually cause the wheel to lock and slide. With the Super Excelsior brake, only a very light touch is required on the brake pedal.

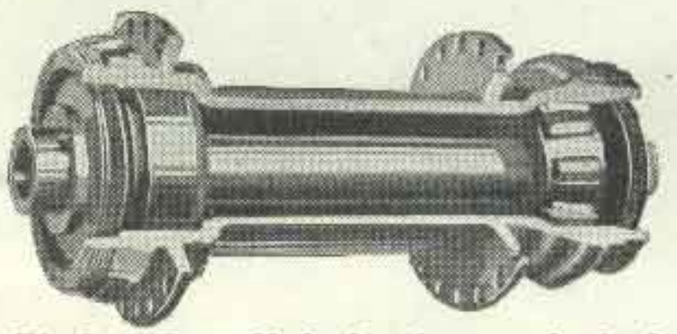


Excelsior Timken Front Hub

The outside band is 1½ inches wide. It is strengthened at the ends with sturdy reinforcements. The center of the band is anchored on a spring support which prevents dragging. Both ends of the band are drawn together when the brake is applied making it just as effective when the machine is moving backward as forward.

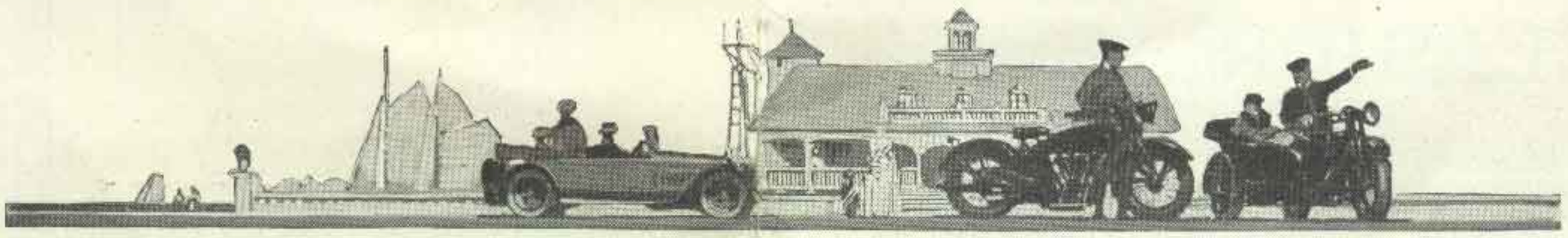
Adjustment of the external band to compensate for wear is readily effected by an ingenious clevis device. The clevis bolt is fastened to the lower end of the band by a cross pin. The bolt extends up through a cross pin in the upper end of the band. On the top end of the clevis bolt is a cap nut, milled out underneath to conform to the contour of the cross pin. Obviously, to tighten the band it is only necessary to turn down this cap nut a turn or so and the adjustment is permanently maintained.

The Timken bearing wheels have far greater load-carrying capacity than ball bearings and the tapered construction enables them to absorb heavy thrust loads imposed when the machine is rounding a sharp corner. Also, compensation may be made readily for wear. These bearings are interchangeable with the Henderson and are of standard size, also used in the front wheels of light cars.



Timken Rear Hub showing method of sealing to retain lubricant and exclude dirt and water.

An effective method has been devised for excluding dirt and water and retaining lubricant. Within the shell at either end is a recess into which



two steel discs are snugly fitted with a heavy felt washer between. A snap ring holds the discs in place and the whole assembly revolves with the hub. The inner roller races project through small holes in the centers of the discs and are effectively sealed by the felt packing. In both hubs, one of the roller races is permanently affixed to the hub quill and adjustments are made from the other end. Bearing adjustment is permanently maintained by two heavy lock nuts and a spline washer. The wheels should not require lubrication oftener than every 5,000 miles, for centrifugal force aids in retaining the lubricant. Knockout axles are used in both hubs.

The accompanying illustration shows the comparative air volumes of the new 25 in. x 3.85 in. Firestone Four-ply Balloon Cord Tires which were developed especially for the Super Excelsior. These tires really have an outside diameter of about 4 inches. With the great increase in air volume and the lower inflation pressures (20 pounds in the front tire and 25 to 30 pounds in rear)—more than 50 per cent more air volume and half the inflation pressure—riding comfort is greatly increased and wear-and-tear on the machine are reduced. The greater area of tread in contact with the road minimizes the likelihood of skidding and the resiliency of the balloons permits higher sustained speeds over rough roads. The Super Excelsior was designed for Balloon Tires and the frame, fork and mudguard clearances are ample.

The mudguards are similar to those used on the Henderson.

Comparative air volume spaces of the 3.85 Balloons and old style high pressure 3 and 3½-inch tires.

The comparatively flat contour of the guards affords protection from splash and gives mud no holding place.

The tank is of the same size and shape as that of the Henderson. The seams are spot-welded and soldered and an oil tank and auxiliary hand pump are built-in. The tank capacity is approximately three gallons of gasoline and three quarts of oil.

The new sage green color trimmed with red and black striping and cream wheels is very attractive.

SPECIFICATIONS

ENGINE—Unit power plant with integral clutch and transmission; two-cylinder "V" type; bore 3-inch by 3-7/32-inch stroke; 45 cubic inches displacement (under 750 c. c.). Roller or ball bearings throughout.

LUBRICATION—Double force system, mechanically operated, gear driven positive pump with baffle distribution, insuring adequate oiling in proportion to motor speed. Independent hand pump.

ELECTRICAL EQUIPMENT—Splitdorf high tension magneto for ignition, Splitdorf separate unit generator, Wico battery lighting system. Ammeter, horn, head and tail lights.

STARTER—Foot type segment and pinion gear, folding foot lever, automatic valve lifter.

CARBURETOR—Latest improved Excelsior Schebler.

FRAME—Low saddle position, double cradle Henderson type made of heavy seamless tubing with special forged steel joints, reinforced and braced. Three point motor suspension.

FRONT FORK—Balanced plunger type with straight-line fork sides; forged rockers.

TANK—Heavy leaded steel, Henderson type, capacity approximately 3 gallons of gasoline and 3 quarts of oil. Auxiliary hand pump.

TRANSMISSION—Built into crankcase, auto type three speed, oversize gears, main shaft carried on annular ball bearings, countershaft on large non-gran bronze bearings, double shifter gear, meshing for low and second and engaging dog clutch for high gear, positive locking device for different gear positions, shift lever on left side of tank.

CLUTCH—Steel and Raybestos discs running in oil, release actuated by a simple cam arrangement operated by combination heel and toe pedal on left side. Clutch built into crankcase.

DRIVE—Primary drive by helical gears running in oil bath; bearings, roller or ball type. Secondary drive by chain from transmission to rear wheel.

HUBS—Interchangeable with Henderson; Timken bearings front and rear.

WHEELS—Fitted with "24"—"CC" rims, 18 inches in diameter to fit the new 25- by 3.85-inch Firestone four-ply Balloon Cord Tires.

BRAKE—Standard equipment, external contracting band (same as Henderson), controlled by foot pedal on right side. Internal expanding brake controlled by heel pedal can be furnished at extra cost.

HANDLEBARS—Heavy service "sport" type with cross brace and grips at a comfortable wrist position.

CONTROLS—Left grip controls spark timing; right grip, throttle. Gear shift at left side of tank; clutch controlled by heel and toe pedal. Brake pedal at right side.

FINISH—Sage green with red and black striping, cream wheels. Handlebars, lamp brackets, etc., finished in black.

SADDLE—Similar to Henderson; large bucket type with De Luxe spring suspension.

WHEELBASE—56½ inches.

THE EXCELSIOR GUARANTEE

All EXCELSIOR motorcycles, sidecars and parts thereof are guaranteed against imperfections in workmanship and material for ninety (90) days from date of the original sale by dealer, with the understanding that all said articles are to be examined and tested when delivered, and that we are to be promptly notified of any defects.

Our liability on said articles sold under this guarantee is limited to replacement of defective parts, so found after being sent to our factory for inspection. We will in no event be liable for labor expended or any damages incurred in the use of any article.

1. Transportation charges must be prepaid on any parts returned for credit, replacement or repairs, otherwise shipment will not be accepted.
2. When machines or assembled parts are sent to us in which defective parts are to be replaced, a reasonable charge for labor will be made.
3. Our guarantee cannot apply to wear resulting from misuse, abuse or negligence.
4. When sending parts for replacement, customer must tag same with his name and address.
5. A letter giving full and detailed particulars must be sent to us in each case, giving the engine number, to avoid delay in identifying the consignment.
6. This guarantee is not effective when parts manufactured by other than this company are inserted or used for repair.
7. Alteration of our construction in any way whatsoever, or use of devices, not approved by us, terminates this guarantee.
8. We do not guarantee any parts of equipment or specialties not of our own manufacture, such as tires, magnetos, saddles, etc., as these parts are guaranteed by their respective manufacturers, and should they develop defects, should be sent direct to them.
9. Purchaser accepts the provisions hereof upon purchase of motorcycle sidecar and parts thereof and agrees to rely solely thereon.

Every EXCELSIOR Motorcycle sold by other than our recognized dealers is sold without our guarantee, unless otherwise provided.

All prices are F. O. B. Factory and are subject to change without notice.

The Excelsior Motor Mfg. & Supply Co. reserves the right to change at any time the design, construction, or equipment, of its product as herein described, and in the event of such changes, no liability shall attach to them.

MOTORCYCLE PATENTS

U. S. January 20, 1914, No. 1084654.
U. S. Sept. 19, 1916, No. 1198669.
U. S. December 7, 1915, No. 1162993.
U. S. February 13, 1917, No. 1215877.
U. S. July 11, 1916, No. 1190956.
U. S. April 24, 1917, No. 1223740.
U. S. June 4, 1918, No. 1268501.

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SUPER EXCELSIOR —PRICES—

With full electrical equipment $285

Without equipment ... 250

F. O. B. Factory Plus Federal Tax