

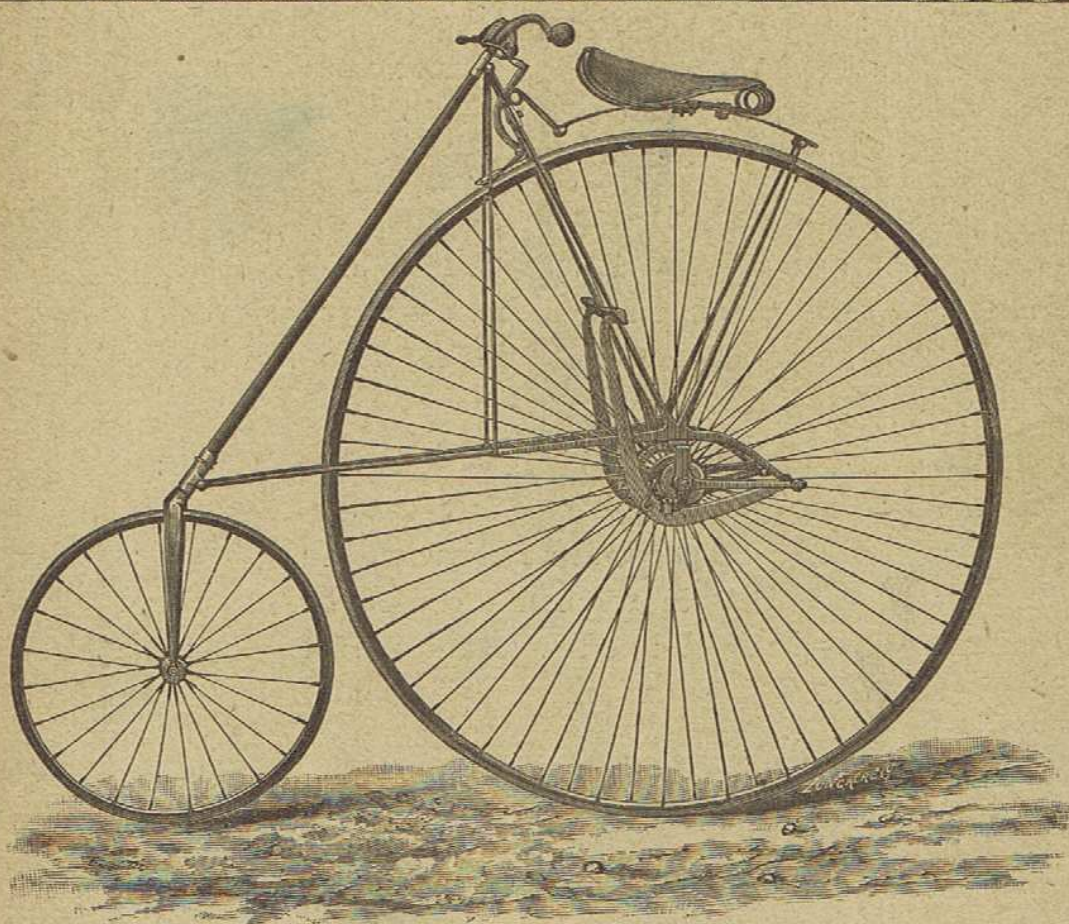
☼ 1891 ☼



CATALOGUE OF



STAR
BICYCLES



MANUFACTURED BY

H. B. SMITH MACHINE CO.

WORKS AND PRINCIPAL OFFICE AT
SMITHVILLE, BURLINGTON COUNTY, NEW JERSEY.

DIRECTIONS

: Terms, net cash with order, or C. O. D. when
 : order is accompanied by money enough to
 : : pay express charges both ways, in case the
 : : : machine is not accepted. Freight and ex-
 : : : press charges to be paid by the purchaser.
 : : : We cannot guarantee the safe delivery of
 : : goods. Our responsibility ceases when goods
 : are delivered to freight or express offices.


In ordering it is always well to give weight of rider, and
 if selection of size is left to us, give length of leg; also height.
 As a rule small machines, sizes under 51 inch, give the best
 satisfaction for road use. We do not recommend anything
 larger than 48 inch.

We warrant all of our bicycles to be free
 from imperfections in material or manufac-
 ture, and will make good, at any time within
 a year, any defects in them not caused by
 misuse or neglect. All defective parts must
 be sent to us for examination before any
 claim is allowed.

———— + * + ————
 Smithville, N. J., : : :

is on the Camden and Burlington County Railroad (Amboy
 Division of the Pennsylvania Railroad), 20 miles from Phil-
 adelphia, and 75 miles from New York. We are always
 pleased to see our customers and friends here. Take the fer-
 ry foot of Market street, Philadelphia, if coming that way;
 if via New York, take either Cortlandt street or Desbrosses
 street ferries and come via Trenton.

INTRODUCTORY

 HIS, our *Tenth Annual Greeting*, recalls to mind our first efforts of ten years ago, when we constructed the first *Star Bicycle*. The machine was commenced in January and finished in April. The levers were hinged in front, near the steering wheel, and the clutches were of the lawn mower style. The spokes were passed through flanged hubs in tangential style and riveted into the rims. The tire had a hole throughout its length and was secured to the rim by a wire and nut. The springs for raising the levers were of rubber and concealed within the back framing. The front steering fork was bent in the usual Star style and mounted as in the case of the American Star. The brake, like the rest of the machine, was largely experimental, and the whole is now considered a relic, and as compared with our modern productions looks as if it belonged to another century; but a few of the distinctive features of the machine have lived, and one of those features—that of *Safety*—has revolutionized bicycling.

At first the idea of *Safety* was ridiculed by daring youth and it was generally conceded that those who rode the Star were *afraid* to ride a regular bicycle, and those who rode it from principle deserve much credit, for the more daring riders of other wheels would give them a scorching at every opportunity. It was not long, however, before the Star began to show some riding qualities, and a few years later was not only heard on the road but was a formidable competitor on the track. It will be remembered that Frazier won the first twenty-five mile race at Springfield, Mass., in 1883, and Weber the fifty-mile road race at Clarks-ville, Mo., a year or so later. It will also be remembered that the Star has always won all important Hill Climbing contests, both in Speed and Steepness of incline. The Safety feature, although not the most important of the Star, has developed into other shapes, and well-known forms of so-called "Chain Safeties" have sprung up all over the country. As the history of the Star has been one of rapid progress, we, too, have evolved other forms. We would call attention to the *New Lever Safety* as meeting a want among middle-aged and business men. The safety feature has been well preserved and it has the advantages of lever propulsion—the most valuable feature of the Star.

We would also call attention to a new machine—the Rover-Star, which we think has some advantages over all other ma-

chines. Besides the Safety and Lever features, it has the Rover Steering, which is so well liked on the regular chain safeties, and it has the Special Star driving mechanism, the best of all lever motions. On this new machine the rider has the advantage of sitting directly over the driving wheel, thus placing the weight on the wheel that is constantly being lifted over obstructions, thus insuring ease of propulsion; and the driver is of such size that the rider is about the same distance from the ground as in the case of ordinary safeties.

We have also given some attention to Cushion and Pneumatic tires, and have some other improvements in hand that will come out as required by the trade. We have given much thought and attention to HUB SPRINGS, having tried nearly *all* kinds of materials, and at last we have procured a material that promises to meet all the requirements, *none having as yet broken.*

We would ask intending purchasers to peruse the catalogue and study the merits of our machines.

Thanking you for the liberal patronage we have enjoyed, we venture to suggest that you will not be disappointed in our latest efforts.

H. B. SMITH MACHINE CO.

GENERAL DESCRIPTION

Or Points of Merit Relating to the Star Bicycle.

STRENGTH —The framing is in solid halves and is one of the finest steel forgings made; is of a braced triangular form and rigidly and durably connected.

SAFETY.—The dangerous "Headers" which occur on the "Ordinary" machine have induced various manufacturers to make "Dwarf" machines with the exponent of "Safety" based upon sitting back towards the hind small wheel, but their success is only partial. The Star is provided with the small steering wheel in front, thus making a rolling support or brace against momentum occasioned by an obstruction or sudden stoppage of the machine, and hence the Star rider can go over very rough roads or coast any hill with perfect safety, and can go over very large obstructions if necessary.

EASE OF CONTROL.—As the wheel is held firmly in lines

with the framing, the push of the rider does not throw it out of its course, and the machine may be easily ridden *without* hands.

STEERS MORE EASILY.—As the push of the rider does not affect the wheels the steering can be made very sensitive and quick, so that shorter turns can be made, and it is arranged so that in turning at right angles suddenly to avoid a fence or ditch, the rider can dismount on the inside of the circle where he can avoid falling.

EASIER TO MOUNT.—The step being at the left side of the machine, near the saddle, the rider steps easily to and from the seat instead of climbing up from behind.

COMFORT.—As the Star is provided with a long flexible spring, much comfort is added to the rider in going over rough roads.

ADJUSTABLE POSITION OF SADDLE.—Almost any kind of saddle may be used on the Star, and as it can be adjusted over the driving wheel, the gravity of the rider can be used for propelling the machine and the rider can sit erect.

SIZE OF MACHINE.—The Star being more or less self-adjusting, the rider does not require a machine so nearly his size, and hence a large man can ride a small machine which may be made lighter and stiffer, and a boy can ride the same machine.

ECONOMY OF POWER.—Other bicycles are propelled by cranks turned by foot, a method of propulsion now out of use in most kinds of machinery. On a 6-inch crank a bicyclist must make muscular motion of about $37\frac{1}{2}$ inches in order to bear down on his crank an average of less than 4 inches full power. The Star, by use of levers and clutches, has a continuous power, which turns the wheel two-thirds around with the same motion and exertion required to move the crank one-half around the old machine, thus enabling the rider to go faster and easier with the same amount of labor, at the same time giving independent action to the levers, the rider pushing with one foot or both, at pleasure, or sitting with his feet resting on the pedals, which do not move unless he moves them. The gravity of the rider is more perfectly utilized, as the arc through which the feet moves is of a large circle—the length of the lever being the radius, and has a vertical direction under the rider. The spring which brings the levers back is of less tension than is usually back-pedaled on the ordinary machine, and the action of the levers is positive and quick.

THE BRAKE.—The Star is provided with a strong and durable *brake*, and it may be applied so as to lock the wheel without any possible danger of a header. Again, very little exertion is required to put the brake on with the hands, while the feet may rest in coasting and thus economize power. It consumes power to back-pedal.

The Star bicycle is conceded to be a *practical* machine adapt-

ed alike for pleasure and for business. It has won nearly all the open road races in which it has participated, including the great 50-mile Road Race at Clarksville, Mo.—3h. 7m. 38¾sec.; holds the 24-hour accepted record for the World—305 miles; has likewise won all the open hill climbing contests since 1883, and its wonderful record on the racing path last season is fresh in the minds of every one.

Classification of Machines

AND A

Description of the Different Clutches, Rims, Tires, Etc.

The Star Bicycle may be divided into six classes, viz:

1st. The American Star, with gravity pawls; spring over steering wheel; jacket covering over steering bar, etc., etc., as made during 1890, with some added improvements.

2d. The Semi-Racing Star, which dispenses with the spring over front wheel and jacket over the steering rod. Is fitted with patent silent ratchet, hollow levers, solid steel hub, long flexible spring; or, if for racing, a light hood for supporting the saddle, etc.

3d. The Special Star, also dispensing with the jacket covering and spring over the steering bar and front wheel. Has patent silent ratchet, hollow levers, solid steel hub, and is on the lines of the Semi-Racer, made low head with long handle bars dropped to a convenient position. Provided with long flexible seat spring, the front end of which is attached to an oscillating coil to compensate for fore and aft motion. A comfortable road machine for all kinds of roads.

4th. The Star Racer, made with hollow framing, hollow levers, hollow rims, light tangential spokes, solid steel hub, low head, etc., rigidity and lightness being constantly kept in view. The machine is more or less special and is adapted for racing only on the track.

5th. The Pony Star, which may be made on any of the above lines, with the distinction that the driving wheel is 39, 42 or 45 inches diameter, and the hinged ends of levers are dropped so as to bring the arc movement of the foot in the right direction when pedaling.

6th. The new 39x30 Rover-Star, with Rover Steering, Balls to head front wheel and lever hinges. Retaining the long flexible seat spring and oscillating coil to compensate for fore and

aft movement. In this we have combined all the good features of the high machine as well as the long one.

Further *descriptions with each style will be found* with the accompanying engravings. We will now refer to our patent

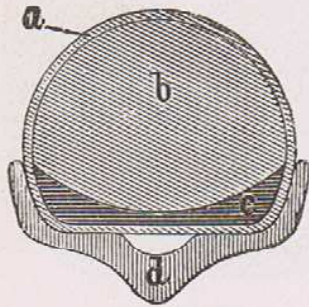


Fig. 1.

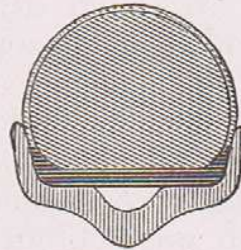


Fig. 2.

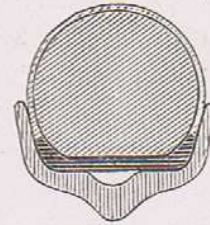


Fig. 3.

Rim and Tire.

The engraving represents three principal sizes used, although for racing we use a smaller size, designated No 4, being about $\frac{1}{2}$ inch across the face.

Figure 1 is wide and rather heavy, and is adapted for the larger machines and for use on stony roads or where there is much sand; but for general use on fair roads the No. 2 is large enough. Where hollow rims are used the No. 3 size will be used, unless ordered No. 2 size.

Figure 3 is used for the front wheels; also on Semi-racers and Pony Stars for smooth roads.

The Rubber tires are made endless, in iron moulds, of best Para rubber. It will be noticed that the rims are flat seated and that the tires are made to conform to the shape of the rim.

During 1881, we tried the U, V and Crescent rims; also, a lot of Invincible hollow rims, but all were found to be too weak and would not withstand the strain to which the Star rider subjected the machine. To prevent buckling, it was thought to present a flat section in the base and it proved a great *success*, and it was also found difficult to make the tires stay in a rounded groove, but the square groove prevented it from rolling out, hence the new rim and tire made a stronger wheel and one in which the tire could be cemented to remain. Next it was found that the spokes were breaking, which brought about another valuable invention, the



Double Butt-ended, Solid Drawn Spoke,

and for which patents were granted January 29th, 1884.

At first we upset the ends of the spokes, but of course in doing this the fibre was disarranged or broken and caused a great

deal of annoyance. We next imported a lot of solid drawn, single butt-ended spokes, which answered very well when washers were used; but in solid rims, where it was desirable to pass the spoke through the rim and screw into the hub like a screw bolt, it left an unfilled hole in the rim unless the outer end was upset, when we again met with the old trouble of breakage. The solid drawn, double butt-ended spoke, overcame the difficulty, and now the interior portion of the spoke is reduced three sizes by drawing. With the very best spoke that could be made the trouble of breaking had been greatly reduced, but still, now and then they would break, which excited our thought in another direction, for the cause and the result was another great improvement, this time in the hub of the wheel. We refer to the

Nutted Spoke

and corresponding groove in the hub flange. The hub is now provided with a groove in which rounded face nuts are seated when the spokes pass through the hub flange and screw direct into case-hardened nuts. These nuts being rounded to suit the groove in the flange, of course only present a line contact in the flange parallel to the driving strain, and hence there is no purchase over which to bend the spoke from the propelling force, and as the spokes are not bent back and forth, as in the old way, we have a minimum of breakage. Again we had trouble to keep the wheel taut on the old plan, as the spokes would loosen in the rim at each turn and gradually unscrew and back out; but the nutted spoke passes through the hub flange in a manner that the suspension action of the wheel can move at the hub and the spokes at the rim remain tight, hence they cannot back out. There are many other improvements, but they will be noticed with the descriptions of the different machines.

Tangential Spokes.

For years our racing machines have been fitted with Tangential spokes, because the wheels could be made a little lighter, and for the reason that Tangential spokes resist the driving strain more directly and hence there is less spring, which is important when every exertion counts. We furnish any machine with true Tangem spokes when so ordered. They, of course, require hollow rims, and are not so easily kept in repair as the simple, direct spoke.

The ratchet mechanism received a great deal of study and attention from the first conception of the machine. Mr. Pressey first applied and patented a friction clutch, and went over about the same ground that late inventors of such clutches had to travel. We also tried friction pawls in grooves, rolls and balls

impinging between wedging surfaces, friction straps, etc., but all gave way to a simple, practical

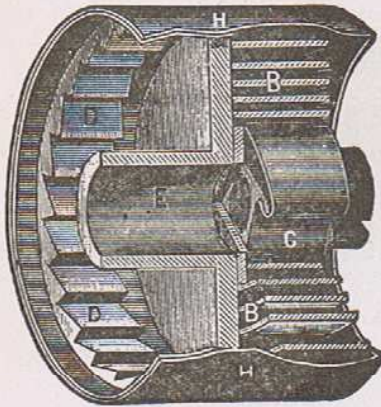


Fig. 1.

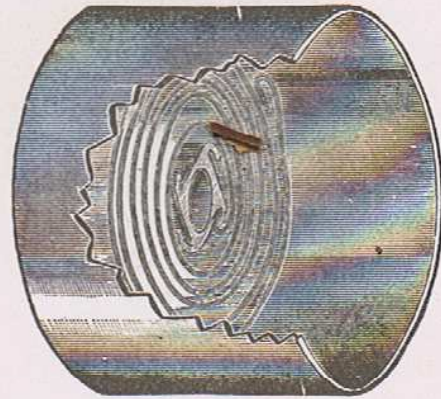


Fig. 2.

Gravity Pawl and Ratchet,

which was finally adopted for the American Star Bicycle, and we append the following as a brief description, reference being had of the engravings:

Figure 1 gives the details of the ratchet boxes, with ratchet, collet, spring and box, each in place. The spring B is shown in broken sectional coils. Collet C shows its round seat on axle and one "tang" engaging inside end of spring. The slot in right side of C engages with a small pin projecting from side of frame, which prevents collet from turning when spring is wound. D shows the ratchet and E represents the sleeve attached to same, which gives it bearing on projecting end of hub. The whole is encased in a sheet metal box, H, around which is wound the strap, the tension of which imparts the rotary motion. The end of the hub forms a hollow spindle which butts against C, being prevented from binding by a shoulder on axle. The axle of the machine is, of course, understood to be fast in the frame and has no movement.

Figure 2 shows box H with D E removed, and spring B with collet C showing in place at bottom of box. This cut shows four tangs on C by which adjustment of B is facilitated.

Figure 3 shows pawl cage and pawls, six in number, dropping into place. It is, of course, understood that the pawls work by gravity alone and engage at the bottom as shown. The pawl cage screws on to the hub and becomes a part of the same when the machine is operated.

Figure 4 shows ratchet E D complete. On the back will be seen a tang on which the outer end of spring hooks. The spring works freely in the chamber between back wall of D E and end of box H, being wound by rotation of the entire mechanism around axle with collet C fast thereon, holding inner end of spring, which last reacts and causes box and contained mechanism to return to the original position.

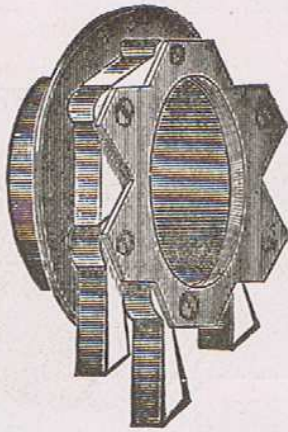


Fig. 3.

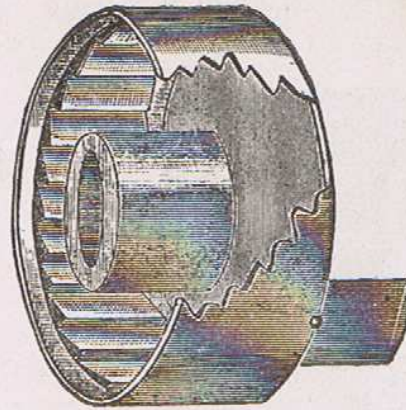


Fig. 4.

The machines of 1882, 1883 and most of 1884, were fitted with this Ratchet. During these years the Star was doing some good work both on the road and on the path; but to meet the demand for a noiseless clutch we conducted a number of experiments and made many draughts of the "Coming Clutch," with at first indifferent success. The friction idea had been disposed of, and the study was to make a positive and at the same time noiseless clutch. To be wholly positive the notches had to be retained. The ordinary gravity pawls were at first provided with small friction buttons at the outer ends, which rubbed against the driving case as the wheel pulled them around, and, of course, the friction would draw them out and the same friction would throw them in when the driver moved faster than the wheel. The same results were obtained by placing the pawls on the driver and allowing the friction discs to rub against the hub of the wheel. The next step was to place the friction pieces to an upper extension of the pawl, so as to apply at right angles with rotation; and then it was noticed that the friction had to be great enough to overcome gravity, which suggested an intermediate piece to balance the gravity of the pawls, and to which a slight friction could be applied. Thus, step by step, we came to the

Silent Ratchet,

and for which patents were granted in July of 1885. A few machines with the silent ratchet were fitted up and used during 1883, and all the racing machines of 1884 were of the *two way* silent ratchet. We have had an opportunity to examine some of the first machines made, which have traveled thousands of miles, and to our great surprise they show little or no signs of wear. The ratchet may be heard to click a little if the foot is depressed slower than the wheel is coasting, but in practice the ratchet is practically silent and consumes none of the running power of the wheel. The following description will give a better idea of its construction:

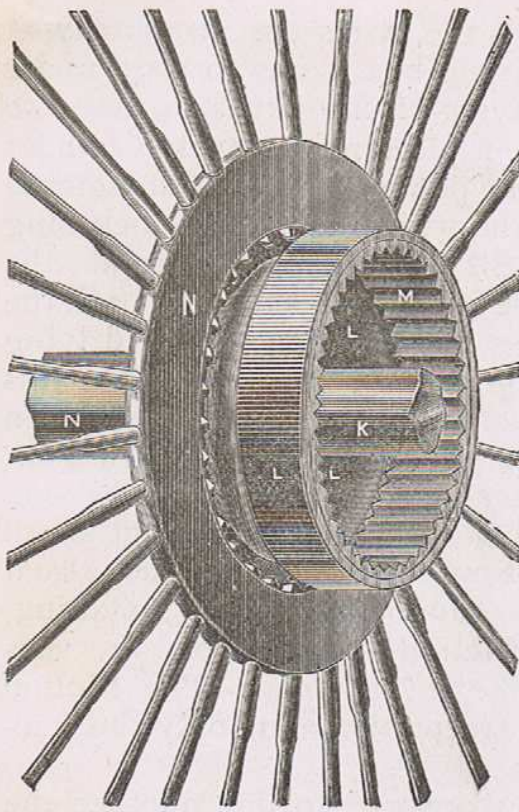


Fig. 1.

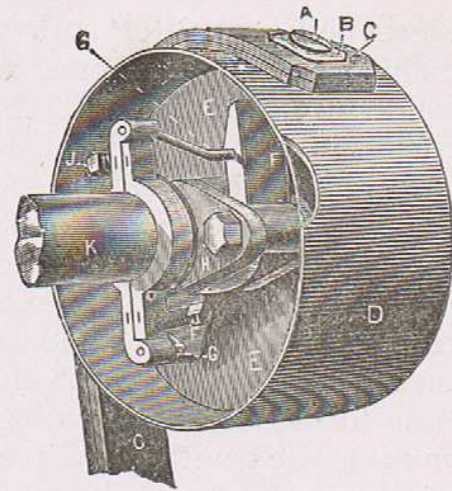


Fig. 2.



Fig. 3.

Figure 1 represents the hub proper—through the flanges of which the spokes pass and screw into case-hardened nuts, which are seated within a groove, as before described. The ratchet box L is screwed on to an extension of the hub and contains the notch ring—both are made of steel—the latter being accurately notched by cutting, and carefully hardened, and both are removable and likewise replacable in case of accident. The extension K represents a portion of the spindle, the same being shown in Figure 2. This latter figure represents the driving box, showing the strap C, covering D, manner of fastening the strap A and B, and pawls F F, and also containing the retracting spring beyond the wall E E. This spring hooks into the hollow collet, Figure 3, in the manner shown, and this hollow collet admits of a good long bearing to the driving box. The friction piece I I is separate from the driving mechanism and also from the hub, except through small crank wires G. This friction piece is divided and held together by screws and springs J, so as to produce a slight friction upon the still shaft K. Now when the driving box is in place the pawls will be directly under the notches and the friction piece between the hub and box separated from the latter by a collar, but connected as before stated by the wires. The action of the clutch will be understood when it is remembered that the friction piece controls the outer ends of the pawls and cannot move around the shaft except as drawn by the pawls, which are hinged so as to move freely on their bearings. The friction

piece being parallel with the pawls the wires are necessarily at about right angles, hence as the driving box moves forward under a pressure from the foot, the first action of the pawls must be to spread into the notches as the friction piece refuses to move under so slight a pressure, but soon as the pawls engage with notches the forward movement must drive the wheel, the whole including the friction piece moving together till the end of the stroke, the wheel continuing to move, but as the foot reverses to come back the retracting spring in the case reverses the direction of the driving mechanism, when again the friction piece comes into play, this time to withdraw the pawls from the notches to a stop and then coming back with the driver, but of course holding the pawls out until the foot again depresses the treadles. Hence it will be seen that the clutch must be very positive and noiseless except when the foot is depressed slower than the wheel is coasting; and also it will be seen that the wheel can be run backwards in handling, which is a convenience, and as no friction is taken from the running wheel it must run perfectly free in coasting. The friction required to control the pawls is imperceptible, being only the fraction of an ounce.

The pawls being diametrically opposed to one another the strain that would otherwise fall upon the spindle, is balanced and therefore there is no binding as in the case where the pawls operate only on one side of the ratchet box.

The ratchet which runs only one way of course takes its friction from the running wheel and therefore consumes a little power, however slight, all the time, but of course is perfectly noiseless under all conditions. After a thorough test of now some five years we have adapted the two-way silent ratchet, it being more satisfactory, and its durability has been confirmed by thousands of riders.

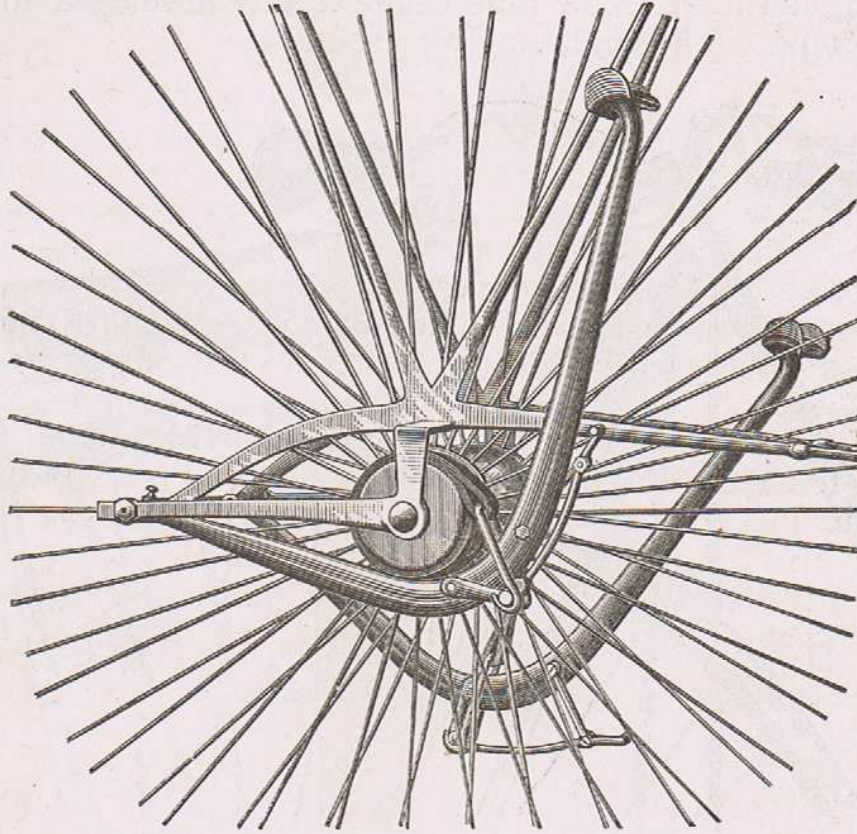
For the Special and Semi-Racer machines, the levers are made of weldless steel tubing and hardened, and the hinged ends *coned*.

They are fitted with two pins upon which to hitch the drum straps, the forward pin being for speed, the other for power. This brings us to our patent

Changeable Power Attachment,

of which we submit an engraving. We cannot recall how many times something of this kind has been invented by different riders. The idea "struck" us the first time we saw the machine, which was in 1880; and our first conception of a movable fulcrum was that of a sliding block and for which patents were granted to Moses G. Crane, under an application made October 6th, 1881. But prior to this we had developed the radial link and constructed working models, which were satisfactory, and which with some

supplemental links were finally adopted. In order to avoid an interference with Mr. Crane on the general application of a movable or changeable power attachment we purchased the exclusive right of his entire patent, and have otherwise fortified ourselves for the exclusive right to use this important invention.



The engraving represents the two positions of the power attachment, the one on this side being up is at the highest speed, while the one on the opposite side, being down, is at its greatest power, which is about 20 per cent over the speeded position, and hence a hill may be ascended that much more easily by the aid of these power traps.

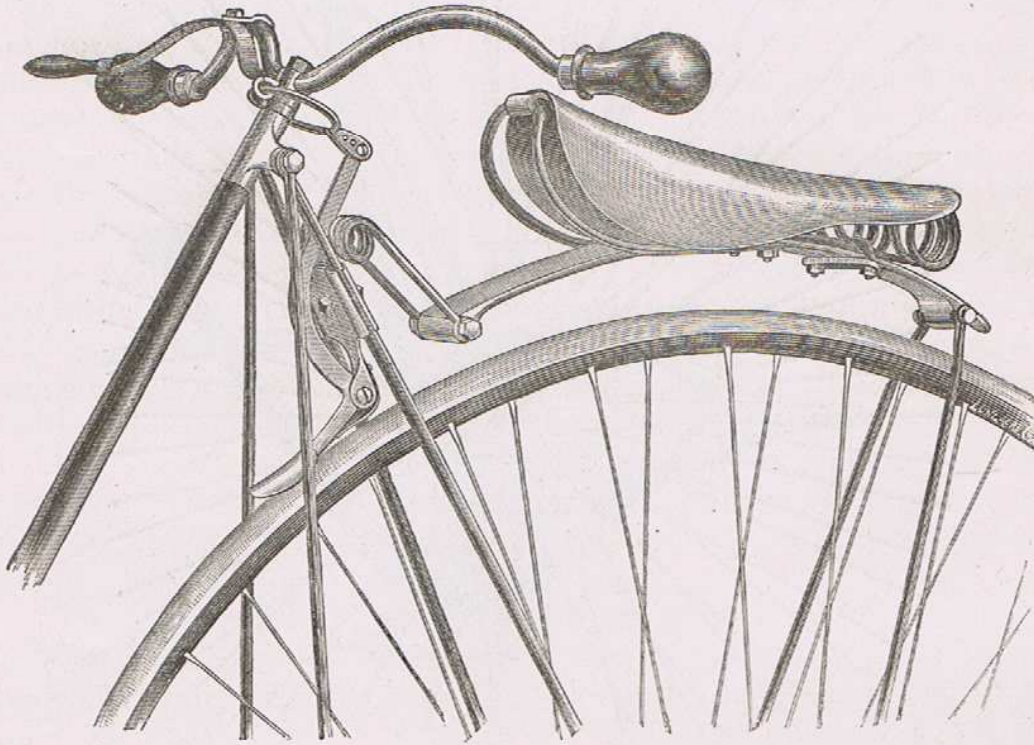
In making the radial link practical we found it necessary to add the supplemental links so as to avoid the step on one side of the machine and also to bring the toe pieces within easy reach of the feet, and in putting on these links it was found necessary to arrange them so that the power of the foot to shift them should be applied at or about right angles to the radial link, so as to make the adjustment not only practical but very easy—that a slight touch with the toe would throw them forward and back as desired.

In using the power traps the change from speed to power, or vice versa, is made without stopping or dismounting. For instance, at or near the bottom of a hill one stroke of the foot on each side changes the traps back to power and when the ascent of the hill is made a single touch of the toe on each side brings the

traps to the speeded positions, and as these changes are almost instantaneous, and made while coasting, little or no time is lost.

The power traps are arranged to suit either hollow or solid levers, and can be put on solid levers if returned to the works. They are always an extra.

The brake, being very important on the Star, received much attention, and it was some time before it was developed in satisfactory shape. The engraving represents



The Brake

as now applied on all of the machines except racers, where the simple thumb-brake is used.

The ring connection is divided and provided with adjusting holes where it connects with the extension of spoon, so that the brake may be applied hard or soft as desired. The ring connection with the lever admits of operating the brake at any angle the machine can be steered, and the lever is always within easy reach of the rider without losing hold of the handle bar.

The spring under the spoon holds all the parts to place so as to avoid rattling. As all sliding parts are avoided there can be little or no wear of the connections. The handle-bars are bent to cow-horn shape and brought back to a convenient position for the rider, as has been determined by experience.

The saddle as shown is a late modification of the Kelley spring saddle and which has given very general satisfaction during 1890. We were perhaps the first to introduce the coil spring saddle and since 1882 quite a number have been put on the mar-

ket and some of them possessing merit. We believe upon the whole that our spring saddle has given the most general satisfaction. The saddle illustrated is quite elastic and provision is made to allow the front end to depress in case the rider is thrown violently on the horn of the saddle. We shall be glad to explain other modifications of saddles, and will use every effort to secure for our customers just what they desire.

Styles of Finish.

As regards finish the American Star will be furnished in four styles this season, viz: Plain (being painted); full enamel (except trimmings, which are nickeled); two-thirds nickeled (the wheels being enameled) and full nickeled (including rim and all). The Special and Semi-Racing Stars will be finished in three styles, viz., full enamel, two-thirds nickel, and full nickel. The enamel will be black, *bright and glossy*. Hollow rims and tangential wheels are finished in enamel as they are difficult to polish and nickel.

In reference to our nickel we first put on a good coat of copper and then all the nickel it will bear.

Bearings for Small Front Wheels.

The regular bearing for the front wheels will be that of cones, the same as during 1890. One of the cones is secured to the fork by a "Dutchman" and the bolt passes through, jamming it firmly. On the other end of the bolt is another cone which adjusts like a nut and when set just right is secured by a nut on the outside of fork, thus jamming this second cone to the fork. It will be seen that the adjustment is perfect.

Ball bearings to the front wheel will be furnished as an extra. Our ball bearing adjusts the same as our cone bearing. The balls are secured in the hub by a ring that is grooved to receive a packing, and is dust-proof. A single screw when removed will let the balls all out for cleaning or replacing defective ones.

The hub is of steel, drop-forged and hardened for wear. Our ball-bearing is conceded to be the best where known. We use the best drop-forged balls, ground accurately to size, and carefully hardened.

Patents.

We have not procured a long array of patents, but those we have secured are right to the point and secure to us the exclusive right to manufacture the Star in its various forms, and we have set aside a respectable sum of money for the protection of our just rights. The following patents will give an idea of what we claim, and there are a number of applications pending for improvements developed during the past few years:

Patent No. 233,640.	Oct. 26, 1880	Patent No. 328,510,	Oct. 20, 1885.
" " 234,722,	Nov 23, 1880.	" " 331,199,	Nov. 24, 1885.
" " 258,559,	May 30, 1882.	" " 350,994,	Oct. 19, 1886.
" " 292,562,	Jan. 29, 1884.	" " 350,995,	Oct. 19, 1886.
" " 293,284,	Feb. 12, 1884.	" " 358,494,	March 1, 1887.
" " 304,827,	Sept. 9, 1884.	" " 362,514,	May 10, 1887.
" " 320,917,	Jan 30, 1885.	" " 369,864,	Sept. 13, 1887.
" " 321,819,	July 7, 1885.	" " 398,548,	Feb. 26, 1889.
" " 321,932,	July 7, 1885.		

And a number pending.

Records and Meritorious Performances.

$\frac{1}{4}$ mile, in 36 sec., at Niagara Falls, Aug. 23, 1890.

$\frac{1}{2}$ mile, in 1m. 12 3-5 sec., at Peoria, Ill., Sept. 15, 1890.

$\frac{1}{2}$ mile, in 1m. 14 $\frac{1}{2}$ sec., at Syracuse, N. Y., Sept. 1, 1890;
fastest $\frac{1}{2}$ mile ever made in a race.

1 mile 2m. 33 $\frac{1}{3}$ sec., at Peoria, Ill., Sept. 13 1890.

This is best mile on record in a race on any style of Bicycle. Arthur A. Zimmerman's records. He rode a 51-inch Racing Star; weight 40 pounds.

One mile in 2m. 38 2-5 sec., by Charles Frazier, on a 54-inch Racing Star.

Two miles in 5m. 36 1-5 sec., by Geo. E. Weber, on a 54-inch, 45 pound Star.

Three miles in 8m. 31 1-5 sec., by Joseph Powell, on a 44 pound Star.

Hands Off.

One-half mile in 1m. 29 sec; one mile in 3m. 3-5 sec., by Chas. H. Chickering, on a 54-inch, 60 pound Star.

Ride and Run.

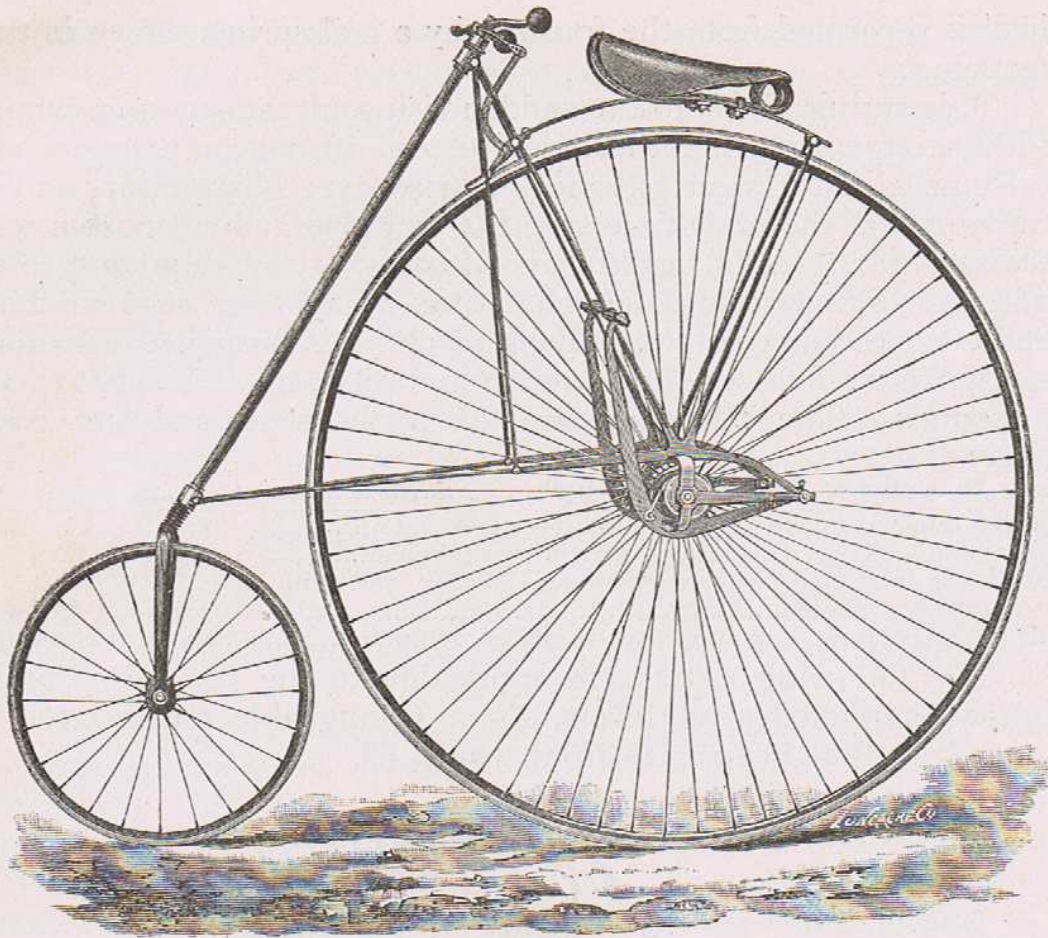
One-half mile in 2m. $\frac{1}{2}$ sec.; one mile in 4m. 23 sec., by C. B. Ripley, on a 51-inch, 55 pound Star.

The Road.

The World's Record for 50 and 100 miles in open contest. 50 miles, 3 hours 7m. 38 $\frac{3}{4}$ seconds. 100 miles, 6 hours 57 minutes, by Geo. E. Weber.

The Hill.

All hill climbing contests at Corey Hill have been won on the Star. First in 1883 by Burt Pressey. Second in 1885 by W. W. Stall. Third by Geo. E. Weber in 1886.



THE AMERICAN STAR BICYCLE.

The late machines of this pattern have given the highest of satisfaction. It may briefly be described as follows:

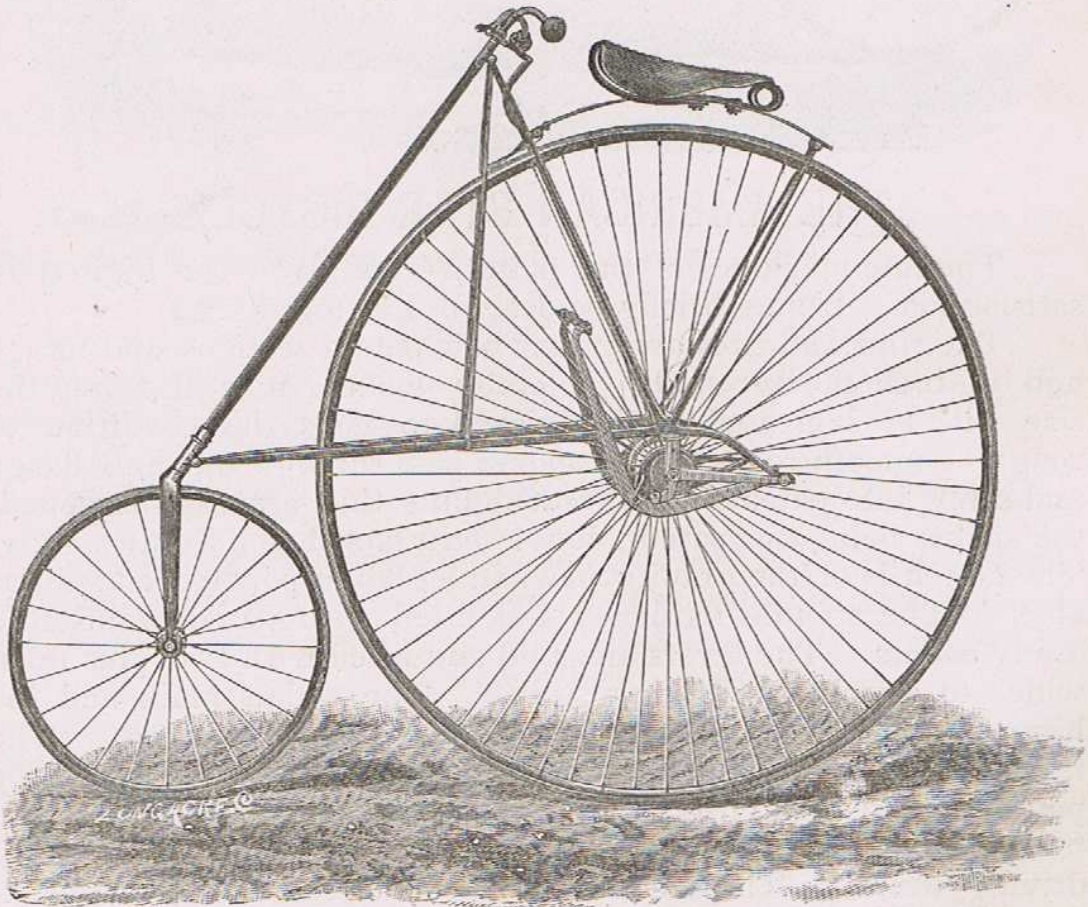
The rims and tires are of our new patent sections and for 48 and 51 inch machines are preferably made No. 2 size, but the size will be increased or diminished to meet the condition of rough or smooth roads. The spokes pass through the hub flange and screw into patent, round-seated nuts that are case-hardened, the spokes being our patent, double butt-ended, solid drawn style. The clutch is of the gravity pawl style, being positive and durable. The spindle hardened and fitted with patent adjustable safety collets. The levers are solid and fitted with two pins upon which to attach the driving straps. The pedals plain and the hinged end of lever secured by adjustable cone bearings. The framing is in solid halves and secured to the front bone sheath by patent compression clips. A stay-rod from the upper connection to the lower rod braces the triangular framing so as to resist the driving strain. The machine is surmounted with a long flexible spring saddle. The small front wheel has direct spoke screwed into the hub and adjustable cone-bearings. The front fork and steering rod are continuous, the latter passing through the framing tube to the handle bar and by this means the front

wheel is separated from the framing by a coil spring shown in the engraving.

This spring yields to the sudden rising of the steering wheel and hence prevents the otherwise fore and aft motion to the rider. It also permits the steering wheel to rise over obstructions more readily and at the same time save the machine and rider from unnecessary jar. The machine is fitted with the regular special brake as before described, which admits of a lower head. The handle bar cow-horn style. Each machine is furnished with tool bag, spoke wrench, monkey wrench and oil can. Weight 55 to 60 pounds. The following are the styles, sizes and net cash prices:

Size—Diameter of large wheel, in inches.....	42, 45, 48	51	54
Plainly finished machine, painted and striped.....	\$75	\$80	\$85
Full enamel, except trimmings, which are nickeled.....	85	90	95
Two-thirds nickeled, wheels enameled, frame and trimmings nickeled.....	90	95	100
Full nickeled, including rim, unless ordered enameled.....	95	100	105

The following extras are applicable to the American Star: Hollow hardened steel levers, \$5. Changeable power attachment, \$5. Ball Bearing to front wheel, \$8.



SEMI-RACING STAR BICYCLE.

The machine differs from the regular American Star, mainly in dispensing with the jacket covering on the steering bar, and in

omitting the coil spring over the front steering wheel, besides some other details and special fittings. As it is intended for use on suburban roads, park avenues and smooth tracks, special provision is made to have it meet such requirements. It is fitted with a long flexible seat spring. The bearings for the spring and brake spoon are bushed in a manner that stiffen the framing and admit of lateral adjustment for wear. The framing of the machine is of steel and of solid halves and is connected together at the hub by a hardened steel spindle, ground true and smooth—back end of the saddle support by a steel bush bearing, through which a bolt passes, making the connection rigid in one direction—and connected to fine bronze bearings at the steering bar. Noiseless bumpers prevent any rattle in these bearings. As before stated the steering bar is not covered with a pipe or jacket, but hardened and finished in any style desired. The machines are made "low head" style and handle bars dropped to a convenient position and fitted with the regular special brake, as before described.

It is fitted with our patent silent ratchet, which is practically positive and noiseless, and will admit of running the machine backwards. The tires are of the improved flat seated kind and the rims also flat grooved and provided with a deep rib to increase the vertical strength. The spokes are the patent, solid drawn, double butt-ended, headed under a heat, and screwed into case hardened nuts which are encased within the hub flanges. These nuts are held within a groove so they will not turn and at the same time present a line contact in the hub so that the driving strain of the wheel will not break the spokes. The nuts admit of any vertical motion due to the suspension action of the wheel which prevents the spokes from getting loose, as they remain stationary in the rim. The hub is made solid and of steel, drop forged.

Wheels will be fitted with tangential spokes only to order and of course hollow rims are required in such cases.

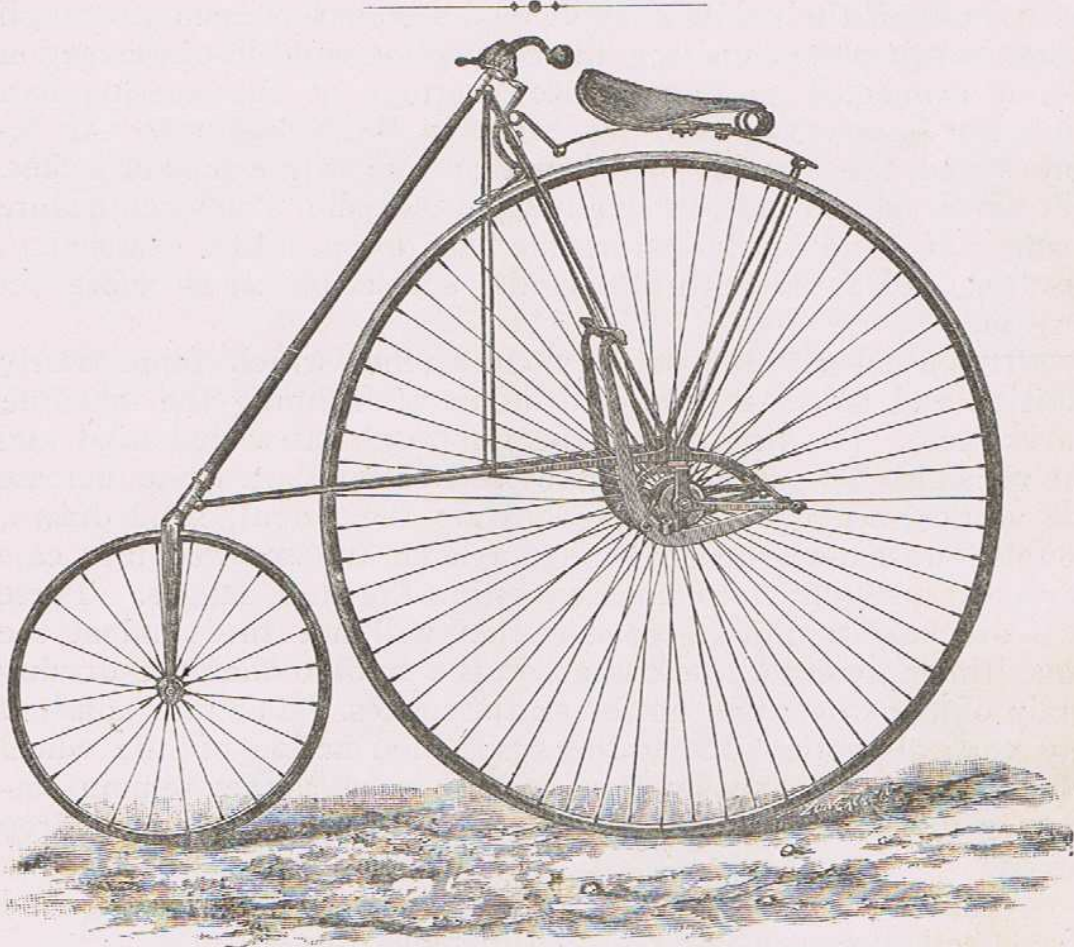
The levers are of seamless hollow tubing and hardened, with plain pedals and two pins for straps, and the hinged ends are secured by adjustable cone bearings. Large wheel has plain bearings; small wheel adjustable cone bearing, but can be fitted as per extras below.

The machine is furnished with vulcanite handles, pear shape or spade style, a Kelley spring saddle, tool bag, spoke and monkey wrench, an oil can, and all the parts are finished with great accuracy, and especial pains are exercised in getting a fine finish and making in every respect a high class machine. Weight from 45 to 50 pounds.

The following are the styles, sizes, and net cash prices:

Sizes.—Diameter of large wheel, in inches.....	48	51
Full enamel, except trimmings, which are nickeled.....	\$102	\$107
Two-thirds nickeled, wheels enameled, frame and trimmings nick- eled	107	112
Full nickeled, including rim, unless ordered enameled	112	117

EXTRAS:—Roller bearings for large wheel \$10; ball bearing to front wheel \$8; changeable power attachment \$5; hollow framing and handle bar \$10; hollow rims \$5.



THE SPECIAL STAR BICYCLE.

This machine is on the lines of the Semi-Racing Star, differing only in the fact that the seat spring is provided with an oscillating spring at the front end, while the back end is hinged on a hardened steel bush or bearing that will admit of a fore and aft motion. The bearing on the front end of seat spring is also on a steel bushing, while the oscillating spring is clamped firmly to the upper framing of the machine. It will be understood that the front wheel in passing over an obstruction will produce a fore and aft motion to the rider, which not only consumes power, but is uncomfortable to the rider and straining to the machine. The rider being thus suspended between springs which admit of this compensating motion, can go over the roughest of roads as if sitting

in a swing cradle—or rather the rider sits still while the machine oscillates under him. It is medium weight and strength and has not been sacrificed for lightness, durability nor cheapness.

The machine has our new "special brake" as before described, and is fitted with a long easy seat spring. It is supplied with an improved Kelley spring saddle. The handles are of vulcanite black rubber, pear shape or spade, as may be ordered. The steering bar is made of the best weldless steel tubing carefully tempered. The bearings above and below are of fine bronze, the lower one adjustable, and provided with noiseless bumper. The front fork is semi-hollow, being forged from solid steel and brazed to the steering bar; and is very strong and stiff.

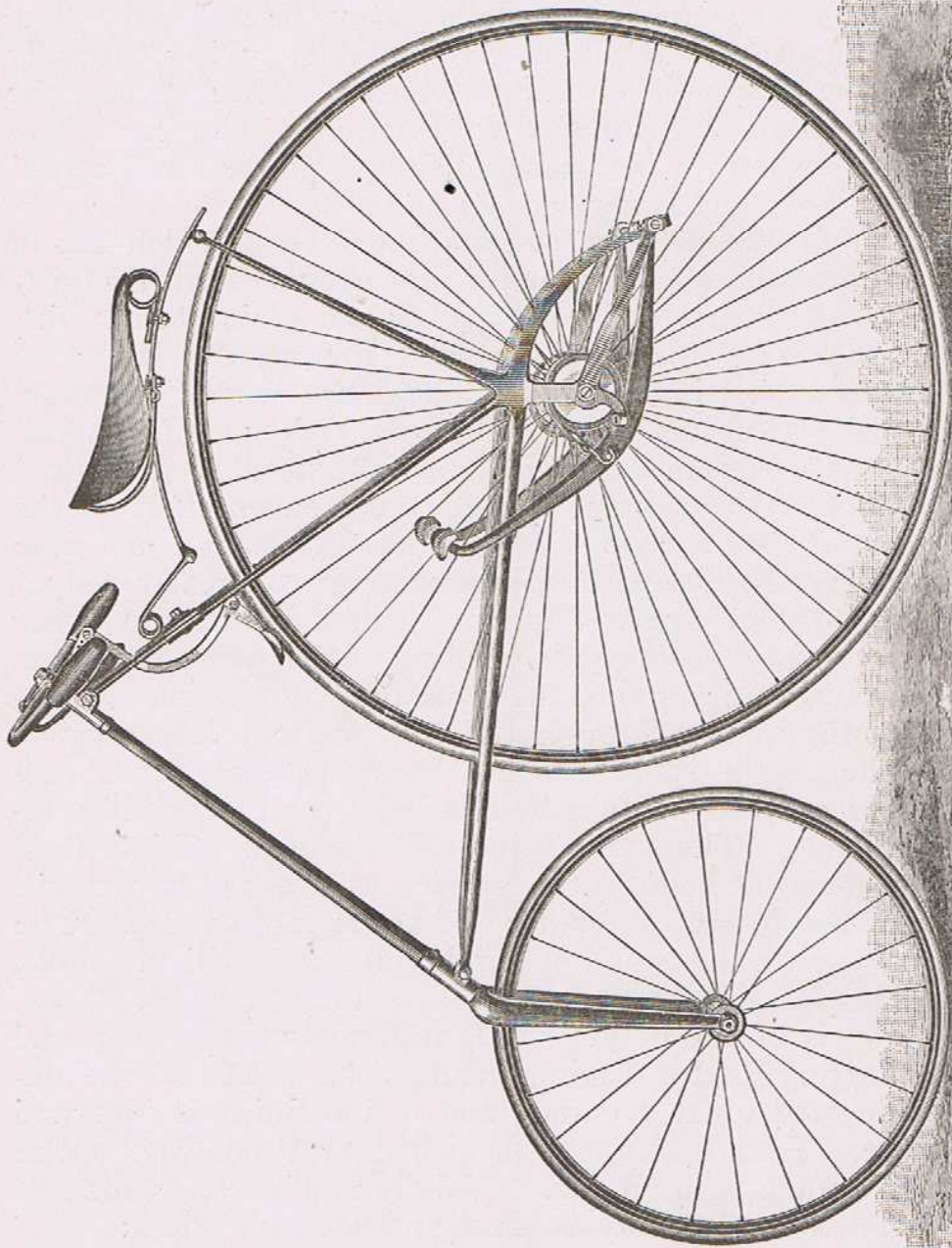
The framing is in solid halves, and the levers, which are of seamless, hollow tubing and hardened, are provided with adjustable cones at the hinged ends; the pedals are plain, faced with corrugated rubber. The rims are solid and usually No. 2 in section, unless otherwise ordered. The large wheel has plain bearings; small wheel has cones, and provision is made for lateral adjustment, and therefore the wheel can be adjusted to a "hair." The wheels are of the "direct spoke" type, except that in the large wheel the spokes pass through the hub flange and into round-seated, case hardened nuts, in a manner to greatly reduce the percentage of breakage. The line contact of the nut being parallel with the spindle prevents bending of the spoke due from the usual driving strain, and at the same time allows the suspension action of the spokes through the hub without loosening in the rim and hence the spokes do not become loose. True tangential spokes are used only when ordered, and of course require hollow rims. The main spindle is made of mild centred steel and is made as hard on the surface as fire and water will make it, and then ground smoothly and accurately to size. The spindle is secured in the frame by jamb nuts that will not work loose.

The collet is of the hollow type, thus allowing a long and substantial bearing to the driving mechanism. All of the details are made with great accuracy and a fine finish is imparted to every piece. Each machine is furnished with tool bag, spoke and monkey wrench, and oil can. Weight from 50 to 55 lbs.

The following are the styles, sizes and net cash prices:

Size—Diameter of large wheel in inches.....	48	51
Full enamel except handle-bar, spring and trimmings, which are nicked unless otherwise ordered.....	\$107	\$112
Two-thirds nicked, that is, the wheel is enameled, frame and trimmings nicked.....	\$112	\$117
Full nicked including rim, unless ordered enameled.....	\$117	\$122

The following extras are more or less applicable to the machine: Roller bearings for large wheel, \$10. Balls to front wheel, \$8. Changeable power attachment, \$5. Hollow Framing and handle-bar, \$10. Hollow rims, \$5.



THE SPECIAL PONY STAR BICYCLE.

THE SPECIAL PONY STAR BICYCLE.

This machine belongs to the Dwarf family, and was first brought out by us in 1881. The Star being a complete *safety machine* and having met with such popular favor, other manufacturers have been induced to make attempts in the same direction with the results of what might be termed "Semi-Safety" bicycles. Comparatively safe because they are dwarf in size, and secondly because the rider either sits back on the small wheel or between the two wheels. The organization of the Star fortunately admits of the rider sitting back and directly over the driver with no weight on the small front wheel—the weight of the latter being sufficient to steer the machine. Our plans include small drivers, 39, 42 and 45 inch diameter, and small wheels 24, 21 and 22 inches. Besides the difference in size of machine the Pony Star has the hinged ends of the levers dropped or lowered so as to place the arc movement of the foot just right—this of course varies when a large man rides a small machine. If we know length of leg can always send machine with suitable levers. As hill climbers they have no superiors.

The Special Pony Star is fitted with our patent silent ratchet, oscillating seat spring, special Star brake, and direct nutted spokes. Tangential spokes are used only when ordered, and of course require hollow rims, which are extra. Spade handles are put on only when ordered.

It is fitted with No. 2 or No. 3 tires and has ram or cow-horn handle-bar, either will admit of the limbs coming up for a full stroke or for convenience in mounting without striking the bar. The machine is furnished with vulcanite handles, a Kelley spring saddle, tool bag, spoke and monkey wrench and oil can. Weight from 45 to 50 lbs. The following are the prices in the different styles:

Sizes. —Diameter of large wheel in inches, 39, 42, and 45.	
Full enamel except trimmings, which are nicked.....	\$107
Two-thirds nicked, wheels enameled, frame and trimming nicked.....	112
Full nicked, including rim, unless ordered enameled.....	117

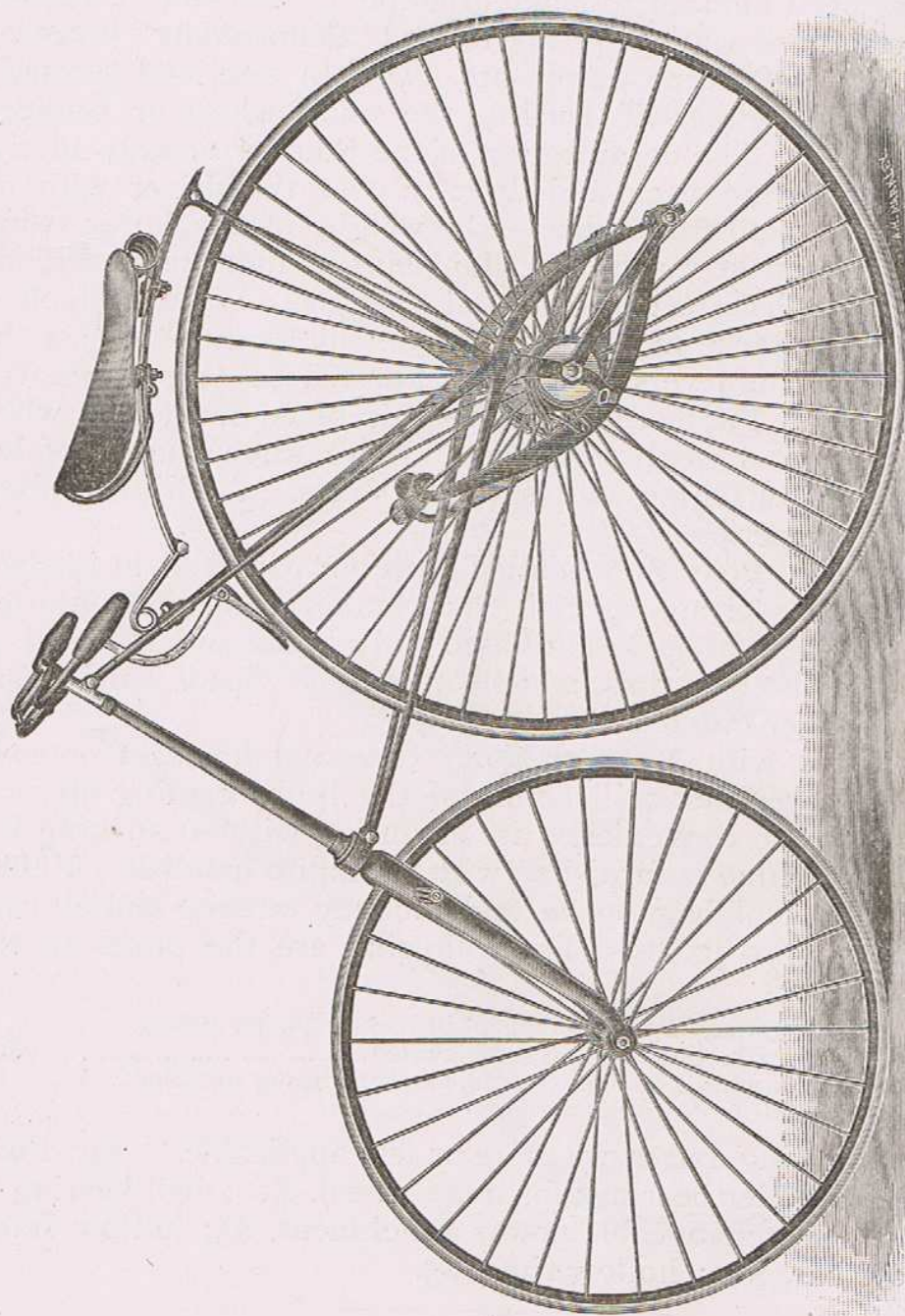
The following extras are more or less applicable to the Pony Special Star: Roller bearings for large wheel, \$10; ball bearing to front wheel, \$8; changeable power attachment, \$5; hollow framing, handle bar, \$10; hollow rims, \$5.

H. B. SMITH MACHINE CO., Smithville, N. J.

Gents: Have been riding the Star since March, '82, my first wheel being a 48-inch American (which is still running), and have been descending in size until I now run a 39x24, which I consider the best wheel made. I have no trouble to stay with our best road riders, and on hills easily beat them. I would not trade for any other mount, as I consider it the best wheel in the world for all round use.

Truly yours,

W. H. CANNIFF, Topeka, Kan.



:: THE ROVER-STAR ::

THE ROVER-STAR.

This new bicycle we call the *Rover-Star*, because it is a combination of two well-known machines of those names. It is a product resulting from ten years' experience in the manufacture of Star Bicycles, New Lever Safeties, and other modifications of bicycles and tricycles, and embodies the valuable features of each.

The *steering wheel* is in front, of 30 inches diameter, and is of the Rover style, or the same as on the New Lever Safety, and being of proper angle, commands the wheel perfectly.

The *driving wheel* is in the rear, and driven by levers and clutches, as in the case of the well-known Special Star. The power being continuous insures economy in propulsion and makes the machine a Hill Climber.

The *spokes* are preferably double-butt-ended and solid drawn and direct screwing into case-hardened nuts secured within the hub, and so arranged as to provide for the suspension action of the wheel, and also to prevent breakage from the driving strain of the wheel.

The *rims* are of solid steel and usually of No. 3 section, having a flat groove and fitted with D shaped best Para rubber tires—a form best suited to withstand buckling strains. No. 2 section can be furnished if preferred.

The *levers* are made of weldless steel tubing and provided with two pins for different speeds. The *pedals* are of the usual Star style and come up so as to allow a full stroke in propelling.

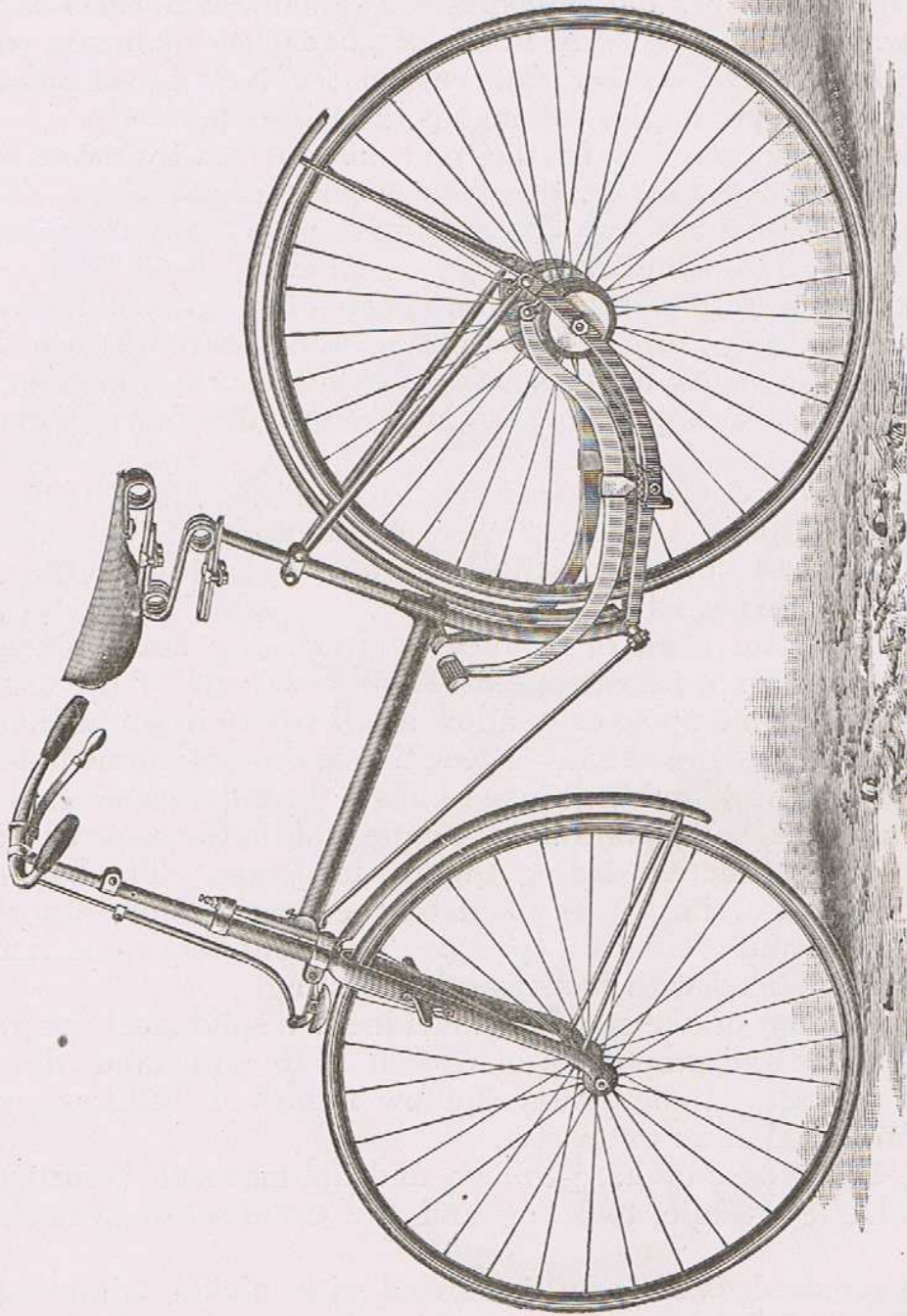
The *bearings* to the steering wheel, the steering bar immediately over the front wheel, and the hinged ends of levers are *balls*, that of the driving wheel being plain and of ample length, the same having given perfect satisfaction during the last ten years. The handle-bar and brake are similar to those on the Special Star; also the saddle support and oscillating spring. The front forks are semi-hollow and provided with foot rests for coasting.

The *framing* of the standard machine is a solid steel forging of such quality and proportion of carbon as to withstand almost any kind of use. As heretofore, hollow frames of weldless steel will be furnished at an extra cost.

The *handles* are of hard rubber, and the machine is furnished with Kelley saddle, tool bag and the usual set of necessary tools.

The standard *finish* is full enameled with nickel trimmings. Other styles of finish made to order. *Pneumatic* and *Cushion* tires being as yet more or less experimental, will be furnished at cost, and at the risk of the purchaser.

Price of the Rover-Star, complete, as described,	\$125
Extra for Hollow Frame, if wanted,	10
Extra for Roller Bearings to driver, if wanted,	10



THE NEW LEVER SAFETY BICYCLE.

THE NEW LEVER SAFETY BICYCLE.

This New Safety Bicycle is the result of several years' experience in the manufacture and use of bicycles, and comprehends nearly all of the salient data gathered during that period. It possesses all of the advantages of rear driving wheels and utilizes the advantages of the lever and clutch driving mechanism, thus dispensing with cranks and chain connections. The natural position of the rider is maintained while the levers extend to within six inches of the ground, thus making the mount or dismount very easy, which alone gives so much confidence to the rider, that the machine can be ridden with very little practice.

The machine is easily controlled, and safe from "headers" and other dangerous falls. The steering is of the Rover style, very easy, and may be ridden with very little practice without hands. The machine is comfortable to ride upon, as it is provided with large double coil springs and an easy spring saddle. The saddle may be adjusted forward or backward or up and down to suit any size of rider. The handle bar also adjusts up and down to suit, hence is suited for small boys or large men.

The brake is preferably applied to the front wheel, where it will not throw mud, and the machine can be stopped while descending the steepest hill.

It is fitted with our well-known patent two-way silent ratchet, and as the levers pivot nearly in the middle they almost balance, hence only a very limber spring is required to bring them back to position, which makes less resistance to the foot and insures greater durability to the spring. It will be seen that the machine is driven from both sides instead of one side, as in the case where a chain is used, and we also preserve the independent action of the levers.

The framing is made very rigid and braced in the direction of the driving strain, because any spring in this direction must be lost power. The head is mounted with compensating cones, and the rear framing is connected by jamb bolts. The lower frame bars are divided so as to support on both sides the pivotal bearings for levers—these bearings having balls and are adjustable, and well covered from dirt or grit.

Both wheels are provided with mud guards or shields. The rear or driving wheel is 32 inches diameter and provided with the usual plain bearings of hardened steel, which in the last eight years have proven so valuable. The front wheel is 30 inches diameter and is provided with our dust-proof ball bearing.

The front steering fork is semi-hollow and made from a solid steel forging, the head also being solid, except the upper portion in which the handle bar adjusts. The brake connections also

adjust up and down and the principal wearing parts are coned for adjustment to prevent rattle.

The wheels are direct spoke of our patent drawn, double butt-ended style. The screw direct into the hub of the front wheel, but the rear wheel is provided with the patent nut. The rims are of solid steel, flat seated, and the rubber of best Para, No. 2 or 3 section as may be desired.

Roller bearings could be furnished for the rear wheels at an additional cost of \$10, but are not considered necessary.

The machines will be finished in black enamel with some nickel trimmings.

Price of machine complete, including saddle, tool bag, wrench, etc., \$135.

We have in our office a 45 inch Pony Star, used by Chas. Clayton, of this place, for the past three years in Europe. The wheel is in good condition, considering the very hard use it has had. Mr. Clayton says that he has ridden his machine several thousand miles and the only break he had was a spoke, which he claims was broken by a baggageman. This gives the Star quite an ad. in this place.

GEO. S. WEBB & CO., Aurora, Ill.

H. B. SMITH MACHINE CO.,

Gentlemen: I am very highly pleased thus far with the 39 inch, as a road machine. It is a better hill climber than any machine I have ever before ridden. For all I can see it is just about as speedy as the larger sizes, and I am astonished to find so slight a difference, if any, in the jar on rough roads.

Very cordially yours,

DR. J. HOWARD MORGAN, Westerly, R. I.

H. B. SMITH MACHINE CO.

Gentlemen: The 39x24 is a perfect beauty. I myself am rather a poor rider and prefer to jog along and take my ease, and that is where the beauty of a small Star comes in. There is no other machine so comfortable and so easy for a moderate rider. I have ridden nearly every make of machine, and the fact is I had just about given up the idea of country riding when I struck the Star. Now I go everywhere. It means dollars and cents to me in the way of health and exhilaration.

Sincerely yours,

L. C. CROSSMAN, Muscatine, Iowa.

Bordentown, N. J., Sept. 26th, 1890.

H. B. SMITH MACHINE CO., Smithville, N. J.

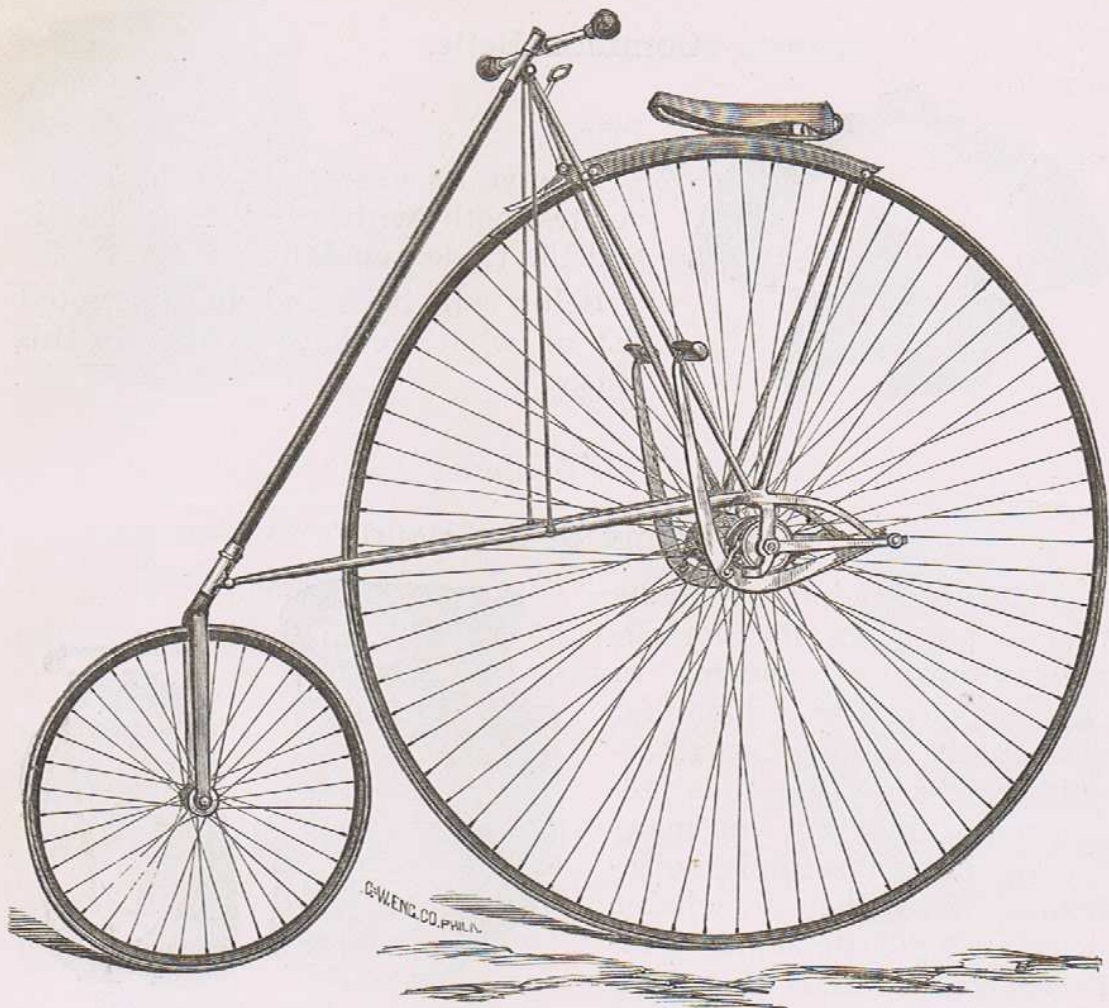
Gentlemen: I have been so highly pleased with the 39x24 I got this season that I have determined to write and tell you what a good thing you have in the new wheel and how immeasurably superior it is to chain safeties for road riding. The chain-gear wheels are good enough for the path or sand-papered roads, but for our Jersey sand they simply are "not in it" with the 39x24.

When I first began riding, away back in '82, I rode a 51 and have come down to a 48, then a 45, thinking each one better than the one before, until this season I reached my little 39x24, and the acme of pleasure for riding. Last season I owned a chain safety, too, but I've never enjoyed my rides so much as this year on the 39x24. It beats them all for lightness, strength, speed, comfort and beauty.

It has grown to be a common thing for others to remark, "I would rather have one like that than a chain safety," especially at the tops of hills.

Yours truly,

H. B. WIESE, Owl Bicycle Club.



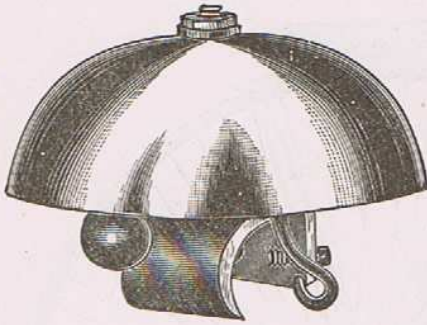
THE RACING STAR BICYCLE.

The machine is made light, consistent with strength and is very rigid. The framing, except the back stays, is hollow, the handle bar and levers hollow, the latter having cones at the hinged ends. The rims are hollow, of No. 4 section; spokes are true tangential style with nipper at rim for adjusting. The wheels are very light and strong, and the front bone of weldless steel tubing, carefully hardened. A light hood forms a seat for a light spring saddle and the brake is of simplest form.

The front wheel bearing is of balls, and rollers are fitted to the large wheel. The hub is made from a solid steel forging. Fifty-one inch machines weigh about 37 pounds and smaller machines proportionately lighter. The cut shows a straight handle bar, which some riders prefer, especially on large size racers. We furnish also the well-known Star ram bar as used by Arthur Zimmerman, W. I. Wilhelm and other well-known Star racing men. They are finished in enamel. Price, \$150.

Dear Sirs: Having bought one of your American Star Bicycles, No. 2710, from Messrs. James Fairlie & Sons, I have much pleasure in testifying to its excellent workmanship and durability. I have ridden it hundreds of miles and find it has given complete satisfaction. I am, Yours very truly,
C. W. HARVEY, Radway Department, Maryborough, Queensland, Australia.

Common Bells.



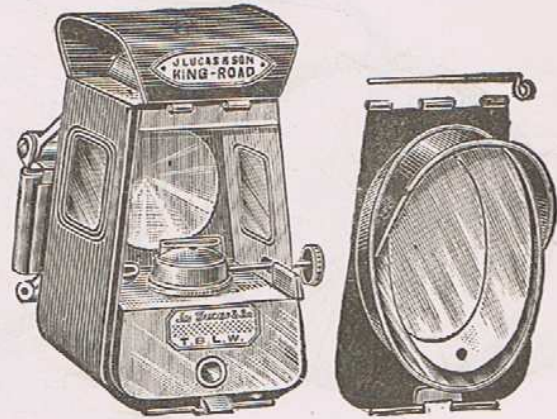
Prices, - - .50, .75, \$1.00.

Have for years past been the favorites both with the riding public and the trade generally.

Below will be found an illustrated list of what we have to offer for this season.

The "King of the Road."

The notable improvements in this lamp are the detachable front (as shown in cuts) and an improved manner of securely holding the reservoir tightly in place, thus preventing all rattling, and making the lamp absolutely noiseless. With the detachable door and the detachable reflector (illustrated) the lamp is more easily kept clean than



SHOWING DOOR REMOVED

any other lamp yet produced, and in event of damage to the lamp, the entire front is easily detached for repairs. The improved oil cup and burner, and method of holding them, are fitted in all our 1891 lamps, and greatly enhance their value. The patent spring back is fitted on this lamp, which dispenses with the coiled wire spring, and forms by far the neatest and most durable anti-vibrating arrangement yet produced.

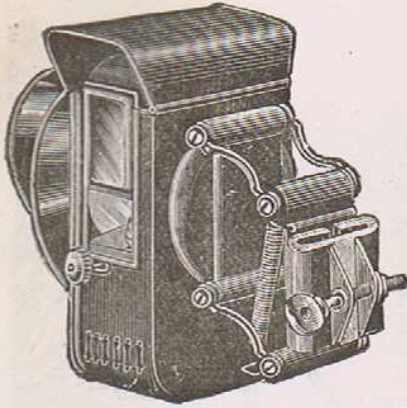
Price, Japanned, 4½ in. x 3½ in. glass,	-	\$6.00
" Nickerled, " " "	-	7.50

THE H. B. SMITH MACHINE CO., Smithville, N. J.

Gentlemen: I recently bought one of your New Lever Safeties and wish to express my entire satisfaction with it. The finish is of the best and its graceful appearance is not equaled by any safety I have seen.

Ease in hill climbing and non-sensitiveness in steering are two of its best points and the absence of the loose chain and revolving pedals makes it the "par excellence" of all safeties in coasting. Your Safety made with a drop frame would undoubtedly prove to be an exceedingly popular one with the ladies. I am delighted with my wheel and derive great pleasure from its use. Respectfully,

J. R. BLOSSOM, Brooklyn, N. Y.



The Leader.

Japanned, 3 1/2 in. glass, - \$4.50

A good, cheap lamp.

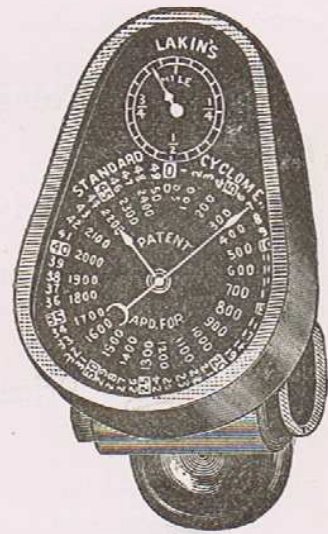
The Standard Cyclometer.

Simplest and best instrument ever invented.

The action is positive and continuous, thus making it reliable in every respect. Can be read from the saddle. Can be used with or without hub lantern. Registers 2,500 miles.

In ordering give size and make of wheel, also size of axle and length of axle between the hub shoulders inside.

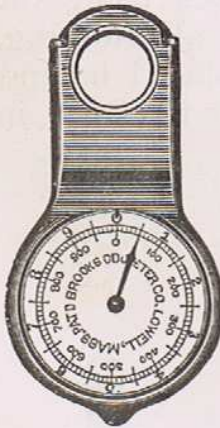
Price, - - - - \$10.



The Brooks Ideal Cyclometer.

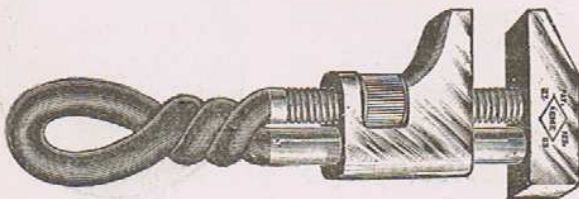
This instrument is specially designed to meet the demand for a strictly first-class cyclometer at a moderate cost. The dial, which is the size of an ordinary watch dial, records miles and tenths to 1000 before repeating; reading up to 10 miles by means of the small stationary pointer, and 10 miles for every space moved over by the hand.

Price, - - - - \$5.00



Wrench.

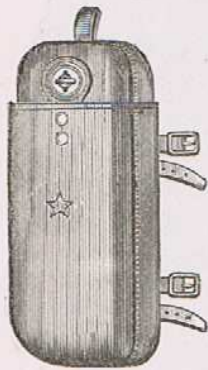
The best cheap bicycle wrench made. 50 cents.



Bundle Carrier.

It is fastened on front rod, as shown in cut. It is not in the way while riding or coasting. With this Carrier one can carry a gun, fishing rod or touring outfit.

Price,	-	-	-	\$1.25
Postage,	-	-	-	.10



Telescopic Tool Bag.

Nicely made and convenient.

Price, \$1.25.

Foot Rest.



For coasting. Can be attached to any Star. In ordering give size of steering rod. Price, \$1.



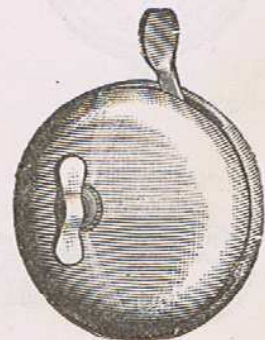
The Star Touring Bag.

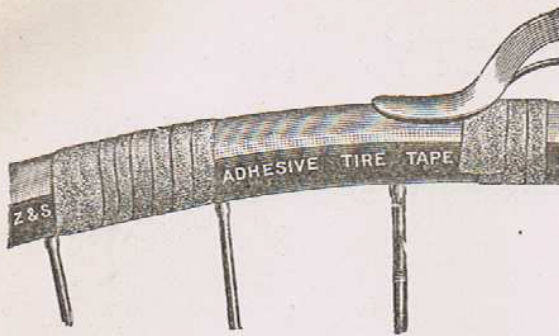
Handy and useful to carry books, papers, writing materials, lunch, etc., when using the wheel for business, or for holding all clothing, tools, etc., necessary for an extended tour. Being placed behind the saddle (see cut), it does not interfere with the rider, either in mounting or dismounting, or while in the saddle.

Price, Canvas, 9x9x3 inches,	-	-	-	\$4
" Leather, 9x6x3,	-	-	-	5
" " 9x9x3,	-	-	-	6

Perfection Alarm.

The rider can ring it without letting go of the handle. The spring to ring the alarm is contained within the bell, and is wound up by a button on outside of same. The alarm is sounded by a slight pressure on the projecting lever—a simple alarm, a succession of strokes or a continuous alarm at pleasure. Price, \$2.50. Postage, 20 cents.

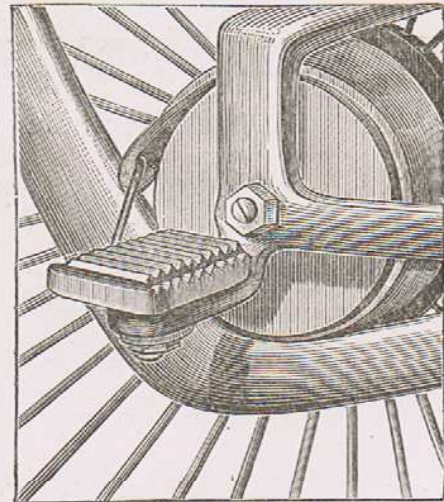




Adhesive Tire Tape.

Thin as paper, strong as leather, tough as whalebone. It is one of the essential accessories, and should be found in every cyclist's tool bag.

Price, 20 cents.



The Star Step.

Enables learners to mount more readily. Price, \$1.



Price, 50 cents.

:: ADVERTISEMENT ::

SIZES OF MACHINES IN STOCK.

Of Star Bicycles we have on hand machines up to 51 inches, but the new stock in preparation will not be larger than 45, and down to 39 inches for the driver.

THE ROVER-STAR

will be made in one size only, 39 in. driver by 30 in. steering wheel, and

THE NEW LEVER SAFETY

will be made in only one size, the drivers being 32 inches and the steering wheel 30 inches.

CUSHION TIRES.

We have prepared moulds for cushion tires for the 39x24—39x30—and the New Lever Safety, of D shape and the equivalent of an inch and a quarter round tire, which tire has been tested in the mail service of our office for a number of months, and has given high satisfaction. Experts think we have the right form and other manufacturers are considering its use. SPECIAL RIMS have been devised for this new tire, which will insure a light and strong wheel. Special prices on application.

NEW AND DURABLE SPRINGS

for the Ratchet Boxes. We have spent a great deal of time and money in experimenting on these springs, trying nearly all kinds of metals and alloys, and meeting with various success, until within the last several months, when we tried a material which under the severest tests has not failed. We have sent them to persons who had before reported weekly breakages, but the NEW SPRING stopped the breakage, and we now feel assured that this trouble is mainly at an end.

H. B. SMITH MACHINE CO.

SMITHVILLE, N. J.

PRICE LIST OF SUNDRIES.

Bag for Tools,	\$1 25
Bag for Touring, Canvas	4 00
“ “ Leather, small,	5 00
“ “ “ large,	6 00
Bell, Common,	.50, 75, 1 00
“ Perfection Automatic,	2 50
Cement for holding tires in rims, per lb.,	1 00
“ “ “ “ quarter lb.	25
Cyclometer, Brooks' Ideal,	5 00
“ Lakin,	10 00
Enamel, per bottle,	50
Handy Hooks, per pair,	12
Handles, Soft Rubber, each,	1 00
“ Solid Vulcanite Rubber, each,	75
“ “ “ for Brake, each,	25
“ “ “ for Spade, each,	50
Lanterns, Nickerled, King of the Road,	7 50
“ Japanned, “ “	6 00
“ “ Leader,	4 50
Lock and Chain,	75
Luggage Carrier,	1 25
Oil for Lubricating, qt. cans,	75
“ “ pt. “	50
Oil Can for Pocket, C & D,	50
Polishing Paste for Cleaning Nickel,	25
“ Powder,	20
Rubber Handles, soft, per pair,	1 50
Star Riders' Manual,	50
Saddle, Improved Kelley, Enameled,	4 00
“ “ “ Nickerled,	5 00
“ Corson's, Enameled,	3 50
“ “ Nickerled,	4 50
“ Cricket, Nickerled,	4 00
Step for Star	1 00
Tire Tape, per package,	20
Tourist's Delight, (Corson's Filterer)	50
Wrenches, Billings & Spencer, plain,	75
“ “ “ nickerled,	1 00
“ Spoke, Nickerled,	50
Whistle, Duplex, with chain,	50

