

A NEW HOUSE BICYCLE.

Is the use of the bicycle, which is now so general, an excellent thing, as some people claim? Or must we see therein a deplorable habit capable of distorting the limbs and spine of children through a vicious attitude, and of causing in woman certain local symptoms of a serious nature, due in great part to the incessant vibration that occurs even in the most perfect machines? Our conclusion will be brief. The healthiest exercise becomes injurious and dangerous by abuse. Open air sports are the dispensers of health, but on the essential condition that they be practiced with moderation. Muscular exercise carried to a feeling of slight lassitude in a healthy man quickens the elimination of the special toxins due to cerebral superactivity. Rational cycling, like hunting and horseback riding, is thus a genuine repose for men who lead a sedentary life. It excites the general phenomena of nutrition and quickens the destructive assimilation and consequently the incessant repair of our cells. It is entirely different with jading. Muscular exercise carried to fatigue is dangerous and injurious to the highest degree. In fact, jading causes such a hyperproduction of the toxic properties of destructive assimilation that the organic poisons accumulate, since the normal excretions are powerless to throw them off.

The intelligence of the jaded becomes enfeebled in the long run, the individuality disappears, and the man, trained in every sense of the word, is no longer anything but a machine, worthy of but little interest at an epoch in which machines and electricity are loading us down with so many wonderful instruments.

We can therefore counsel the use of the bicycle with moderation only, and to a degree in which it is a relaxation to a man who is habitually submitted to assiduous cerebral work. Woman will also derive benefit from such exercise if she does not allow herself to be trained for contests of speed and records of distance, which she will very quickly pay for with her beauty, shape and health. Rational and methodical cycling is likewise a great pleasure to many men of a certain age.

It permits them to maintain the dexterity and vigor of their muscles and the liberty of their joints.

Bicycle exercise has naturally led manufacturers to get up house apparatus analogous to home gymnastic apparatus, but provided with pedals and the same saddle that is used on the bicycle.

How fortunate it is that racers have the power of training themselves at home, and, at the foot of their bed, to pedal from 30 to 60 miles, to climb ascents and to exercise their muscles by means of a brake. It was with this object in view that was constructed, after other apparatus now abandoned, the veloroom, which a few years ago was presented as the type of the house bicycle. This is an excellent training apparatus; but is it adapted to the sick, to convalescents, to weak persons, to rheumatics, and to the gouty, whose joints are swollen and painful for weeks at a time? Experiment very quickly answered this question. The use of this apparatus, which necessitates a real muscular stress, could not be tolerated by the very susceptible tissues of the gouty, scarcely ever an acute attack. It was after personally experiencing the grave inconveniences of an exaggerated exercise, in the course of a convalescence from an attack of rheumatism, and after trying upon himself the advantages and disadvantages of the veloroom, that a person of great intelligence soon found that every effort, however slight, occasioned a return of his articular pains—a real aggravation.

The motion itself seemed to be beneficial, but the stress necessary to put the apparatus in action could not be tolerated for more than a minute or two. Was it not possible to devise a home apparatus that should be truly practical and capable of taking the place of those wonderful Swedish gymnastic apparatus that every one may see at the Imperial Baths of Carlsbad? The new apparatus that we have just examined, and that is constructed by the person just alluded to, is a great improvement upon everything that has been devised up to the present for the same purpose. It is simple, inexpensive, demands no appreciable expenditure of muscular strength from convalescents, and permits those who wish to get rid of fat to take a sweat or a daily spin with windows wide open. This machine, called by its inventor the "Hygienique," is therefore in every respect a medical apparatus that does away with all danger of jading.

But what makes it perfect is, before all else, its extreme simplicity. The Hygienique, in fact, is composed essentially of a saddle of variable shape and height and of sprockets connected by a chain with a double crank carrying a brake. Its rolling should be perfect. Such is the apparatus which permits any one, well or convalescent, to pedal at home without any effort and without fatigue if he desires to take a little exercise in bad weather, or else to give motion to joints made stiff by a recent attack of gout or rheumatism. The return of strength and mobility soon permits of increasing the length of the exercise and, through the motion of the arms and legs, of obtaining a moderate and salutary sweat.

The hands that hold the double crank can, in fact,

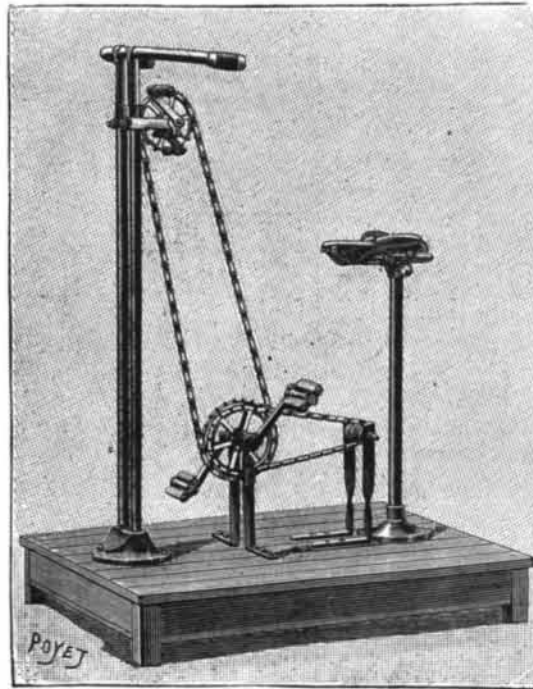
either simply follow the motion of the feet or cause the motion thereof, the legs remaining passive, or else obtain a great muscular output from the latter through a contrary stress.

This apparatus is therefore destined to render the greatest services to those who may have need of a moderate daily exercise.

What is there better for reducing flesh, if it is impossible to take a spin every day after a meal, than to pedal for a half hour or an hour at home without excessive fatigue and protected against rain and snow? Open the window, and you will be in the open air. A gouty or a rheumatic person can thus, every day in the year, take all the exercise that is necessary to keep his momentarily ankylosed joints in condition, and through sudation prevent a recurrence of those acute crises that are so justly dreaded.

The common action of the arms and legs permits an active person, in being his own brake, to proportion the strength that he wishes to exert. Even those who wish to combat obesity ought to know by experience how injurious jading is to them, and what profit, on the contrary, they can derive from a regular regimen and a daily muscular exercise after every meal.

The apparatus just described permits any one to effect, at home and in bad weather, such cures as are



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usually due to out of door exercise. We therefore believe it destined to give physical vigor and youth to a host of persons of all ages.—La Nature.

NOTES AND SKETCHES AT THE ANNUAL BICYCLE SHOW, NEW YORK CITY.

Riders of the wheel whose experience dates back to the early eighties will remember that the first ball bearings were provided with an annular separator which prevented contact between adjoining balls. In course of time this device was discarded, and the races were filled up with balls whose adjacent surfaces were free to touch one another. This contact, unlike that between the balls and the cones, is not a rolling but a rubbing contact, the adjacent surfaces of the balls moving in contrary directions, and it must develop a certain amount of friction, which will increase in proportion to the pressure upon the bearing. In a few of the machines at the show the old time separator has made its appearance. The Sartus hub, shown by G. E. Strauss, of New York City, is provided with a retainer which rotates with the balls and keeps them from frictional contact. The Comet cycles are fitted throughout with a three-ball bearing, shown in Fig. 1, which is provided with a separator, the pockets being equidistant around its periphery. The separation of the balls, however, is not the chief point aimed at in this construction. Mr. F. L. Howe, the inventor, claims that just three balls are necessary to give an even distribution of pressure at all periods of the revolution, and that this will be secured, even if the balls vary in size. The bearing is designed broadly upon the principle by which a three-legged stool will take a stable bearing when one with four legs will not. The machine fitted with these bearings appears to run with remarkable smoothness and silence.

A notable device for reducing friction in the bearings is that adopted by the manufacturers of the Racycle machine, Fig. 6, who seek to lessen the pressure upon the crank-hanger balls by placing the bearings outside the sprocket and about the same distance apart as the crank centers. In the Racycle the bearings are $3\frac{1}{4}$ inches apart as against about $2\frac{1}{4}$ inches in the other machines. The increased width is obtained by enlarging and dishing out the hubs of the cranks and extending the barrel of the crank hanger within them. It

is claimed that on the principles of the lever the pressure transmitted to the bearings through the joint action of the cranks and the sprocket is less the farther the bearings are removed from the center of the crank hanger. The increased distance between the bearings enables a narrow tread to be used, and the Miami Cycle and Manufacturing Company, of Middletown, Ohio, show a Racycle machine with the exceptionally narrow tread of $3\frac{1}{4}$ inches.

A fine exhibit of non-splitable built-up rims is shown by the Keene Wood Rim Company. The rim, Figs. 2 and 3, is built up of five layers of wood. The two outer layers and the center layer have their grain running in the length of the rim, and the grain of the two intermediate layers runs across the rim, the whole material being specially prepared so that it will absorb the glue freely and form a thoroughly compact piece. The alternation in the direction of the grain serves effectually to prevent warping and splitting, and the value of the device is shown by several short lengths of rim which are exhibited with half a dozen six inch wire nails driven through them an inch apart. The outer and inner layers are usually of rock elm, with maple or birch for the inside longitudinal layer, and the two crosswise layers are of walnut or birch. The tendency of the upsetting is to cause the ends of the joint to open, and to prevent this the form of joint shown in the cut is adopted. A diagonal sawtooth lap joint is made, and each tooth is curved in cross section to give a more intimate overlapping of the fibers. It is cut by special machinery, and the work is so perfectly done that when the ends are brought together and glued the point of contact is scarcely discernible. The design and workmanship are admirable and will commend themselves to the practical mechanic. The makers are old established furniture manufacturers and their experience has been used in turning out one of the most useful exhibits in this year's show.

A pneumatic whistle, Fig. 5, the invention of a locomotive engineer, is shown attached to the head of a bicycle. A small roller provided with an upwardly projecting connecting rod is pivotally attached by means of a short lever to the crown of the front forks of a bicycle just above the tire. The roller is carried at the end of a vertical rod, and, when not in use, is held out of contact by a coil spring. Attached to the rod is a single acting air cylinder containing a plunger which is worked by the connecting rod above mentioned. The device is operated by pressing upon the button at the top of the rod, thereby forcing the roller in contact with the front tire, when the air is forced through the curved pipe and down through the whistle, which is of the ordinary steam whistle type. By varying the pressure the note may be made intermittent or loud and continuous. It is shown by the Leibe, Hall & Droege Company, of Newark, New Jersey.

The Circle Cycle Company, of New York, shows the greatest novelty in frames, the diamond being replaced by a complete circle of tubing, Fig. 7. The method of making the joints is peculiar, and it is claimed that a stronger and more reliable construction is secured than is possible with the common drop forgings and brazed joints. The ends of the tubing are brought together and the larger tube of the joint piece is slipped over it and double pinned. Plugs are inserted each side of the joint and a molten aluminum alloy is run in. The connections with the head, post, and crank hanger are made of the same alloy, and it is claimed that a lighter and specially strong and tough frame is the result, the ladies' wheel for the road weighing only 21 pounds.

The Saturnalia bicycle, Fig. 10, shown by Crittenden & Rollo, New York, is provided with an interchangeable gear in the form of four sprockets—two on the crank axle and two on the rear axle. The larger sprocket on the crank axle is in alignment with the smaller sprocket on the rear axle and vice versa. To change the gear the chain is shifted from one pair of sprockets to the other, the change being made, of course, when the machine is at rest.

Electricity is brought into the service of the wheelman by the Acme Electric Light Company, which shows a compact and beautifully finished electric lamp, Fig. 4, which is claimed to be the only absolutely dry battery lamp of its kind. The body of the lamp contains a charge of four cells, sufficient to run the lamp for from 10 to 14 hours. The recharge of four cells is put up in a cardboard case, and can be slipped bodily into the lamp when the other is withdrawn. Attached to the front face of the body is a cornucopia reflector, into the base of which is screwed the small incandescent bulb, connection with the battery being made when the bulb is screwed home. The front of the reflector is closed by a hinged glass; the effective power of the light and reflector is rated at three candle power. The body of the lamp is provided with a hinged cover in which is a switch for regulating the volume of the light.

The greatest novelty in lamps is shown by the Wizard Manufacturing Company of Chicago and New York, who exhibited the Wizard gas lamp, Figs. 8 and 9. It looks like the very refinement of ingenuity that a bicyclist should carry his own gas-making plant with him

on the wheel, yet this is what this lamp involves, the acetylene gas being produced by the dropping of water from an upper tank in the lamp upon a block of calcium carbide contained in a gas-generating compartment below. By reference to Fig. 8, which is a sectional view of the lower half of the lamp, it will be seen that the metal case is divided by a horizontal plate into two compartments, the upper one being filled with water by means of one of the vertical tubes seen at the back of the lamp, the lower one containing the block of carbide. Water is allowed to drop upon the carbide by shifting over the small lever on the top of the tank,

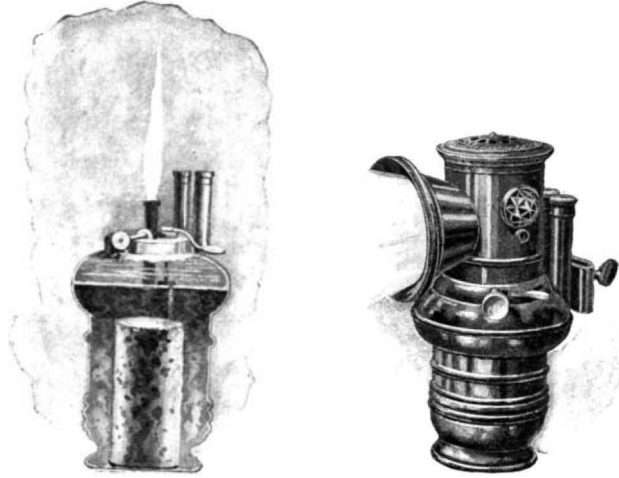
Washington Railway Terminals.

There are good grounds for believing that several million dollars will be spent by the railroad companies entering Washington in improvements within the next few years. At present, says the Manufacturer's Record, three different plans are being considered. One is by the Baltimore & Ohio Railroad Company for terminals, which will be either above or below the grades of the principal streets, and which will necessitate the construction of an extensive viaduct of masonry or steel and the probable enlargement of its present depot. A bill is now pending in Congress providing for a new

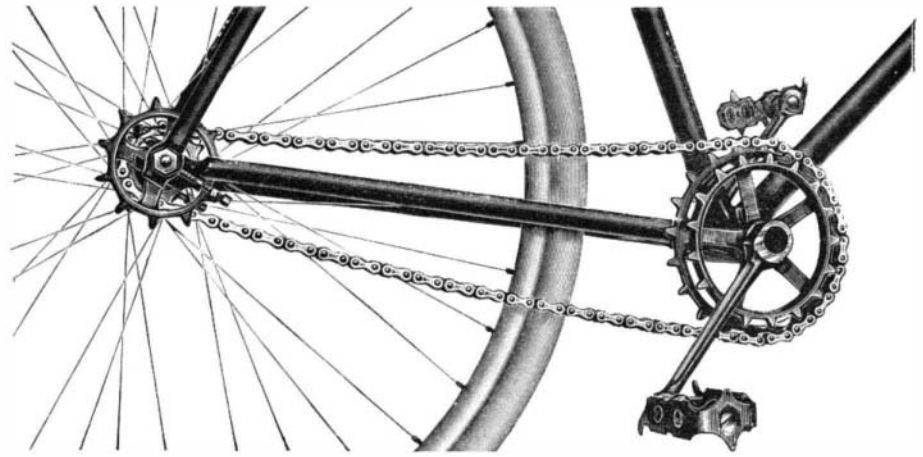
stood that the several railroad companies which now use the Pennsylvania depot will be interested, and that it will be a union station for the Southern, the Chesapeake & Ohio, possibly the Atlantic Coast Line, and the Norfolk & Western, as well as the Pennsylvania lines.

Tests for Government Crockery Ware.

The United States government tests of crockery ware, as required by Philadelphia depot of the quartermaster's department, Schuylkill Arsenal, Major Charles W. Williams, quartermaster, U. S. A., is boil-



8 and 9. Acetylene bicycle lamp.



10 Two-speed gear.



1. Three-ball bearing. 2. Non-splittable rim. 3. Joint for non-splittable rim. 4. Electric bicycle lamp. 5. Automatic whistle. 6. A device to reduce friction. 7. The circle cycle.

BICYCLE NOVELTIES AT THE ANNUAL EXHIBITION, NEW YORK

which controls a valve in the bottom of the tank. The gas is led to the pinhole burner by a vertical pipe passing through the tank, the size of the jet being regulated by a thumb screw. A safety valve opens from the gas chamber into a vertical pipe at the back of the machine. The light may be varied from a small bead just discernible to a 3/4 inch flame. If water is fed at the rate of four drops per minute, the lamp will burn for ten hours. It is recharged by inserting a fresh block of carbide. Apparently the light cannot be jarred out, the exhibitor dropping it on the floor and giving it other rough usage to show its good "staying" qualities. We defer to a future issue further mention of other novelties observed at this comprehensive show.

system of terminals for the Pennsylvania Railroad Company, by which the tracks of the system are to be depressed from a point in the suburbs to the present depot. The bill also provides for the construction of a new bridge across the Potomac River in place of the present wooden structure. It is understood this measure is not favored by the railroad company, but that it is considering a plan for a union station, which will be a very elaborate affair, and which will be located in a different part of the city from the present depot. To construct this building and the necessary tracks leading to it, it is understood, will require an outlay of several million dollars. While no details of the plan have been made public as yet, it is under-

ing from ten to fifteen minutes and then being transferred to water at as near the freezing point as can be obtained. The crockery must not craze nor crack in this test. For tumblers they are placed in water at about 192-4° for one minute, and then transferred to water at 42-44° Fah. If they crack under this test, they are rejected.

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