

clutch; in the same year, with Philo M. Beers, an improvement on a former invention of Beers' for polishing needle eyes. In 1878, a refrigerator. In 1883, a ventilating arrangement for railroad cars; also a system of heating and ventilating houses. In 1885, with Wilbur F. Dial, the eccentrically-centered loop taker; also the feed regulator for the No. 12 machine, two patents. In 1890, the barred hook used in the No. 2 machine, two patents for tension release, and one for combination of parts in the No. 9 machine. He also patented a design for cabinets.

We are indebted to the *Sewing Machine Times* for the engraving and for some of the data contained in the sketch.

COLUMBIA BICYCLES FOR 1894.

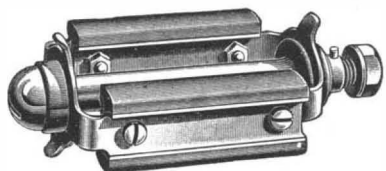
The Pope Manufacturing Company announce a number of new wheels for 1894, and we illustrate model



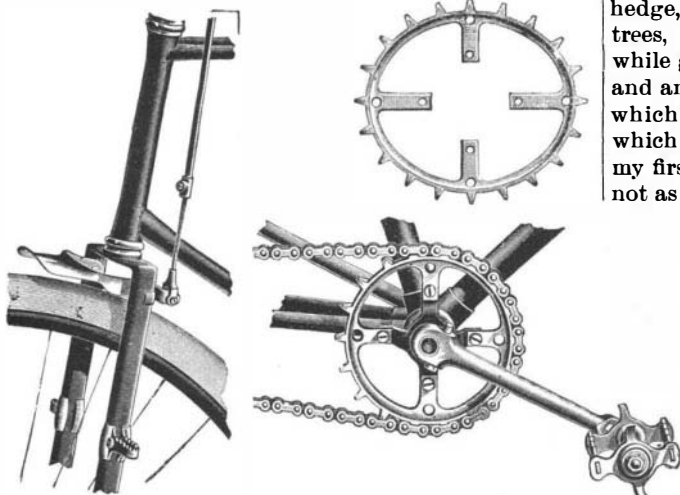
COLUMBIA BICYCLE, MODEL 34.

34. This, while a new machine in many important points of design and construction, retains also the best features of their former light wheels. It weighs 30 pounds with or 29 pounds without brake. It is made for expert and intelligent riders, who take good care of their cycles, and if used as any finely constructed piece of mechanism should be, will give the highest satisfaction. It is furnished with Columbia single tube pneumatic tire, but Hartford double tube tire will be supplied, without additional charge, when desired.

We show in this connection the new front wheel



NEW PEDAL.



FRONT WHEEL BRAKE. SPROCKET WHEEL WITH DETACHABLE RIMS.

brake, which is used with this model. The newly designed forged spoon will be found strong and effective, while so acting on the tire as to reduce to a minimum any danger of wearing or cutting.

A novel feature of all models is the new front sprocket wheel, shown in illustration, the rim of which is easily and quickly detached without removing the pedal. By providing himself with one or more extra rims, either round or elliptical, and detachable chain links, any rider may effect a change of gear as required with little labor or delay.

A new pedal will also attract attention on account of a great saving in weight as well as additional neatness in appearance. These pedals are made in three widths, 3¼, 3½, and 4 inches. The great elasticity of the

pneumatic tire admits of doing away with some of the rubber used in the old style pedal, making a saving in weight in this as well as in the frame.

Among other specialties announced for this year are the new Hartford double tube tire and the adoption of wood rims in some of the lighter wheels. The Columbia seamless tube is used in the construction of the frames. This is the strongest for its weight ever used by the Pope Company and the most uniform in gauge and tensile strength, as not only established by their own tests, but by those of the government testing department at Watertown, Mass.

The steady advance made by this company, the pioneer in the cycle industry in this country, is well known, and the great interest aroused on the subject of good roads is due to the persistent work of Col. A. A. Pope.

The reduction in price announced will be welcome in-

telligence to the great number interested in bicycling, and will cause these wheels to be used more widely than heretofore.

The forty-eight page catalogue issued by this company is profusely illustrated and beautifully printed. It will repay careful examination by any one interested in bicycling. All of the different wheels and parts are fully described. These catalogues may be had, free of charge, at any office or agency of the company, or will be mailed on receipt of four cents in stamps from their offices in Boston, New York, Chicago or Hartford.

The Humming Bird at Home.

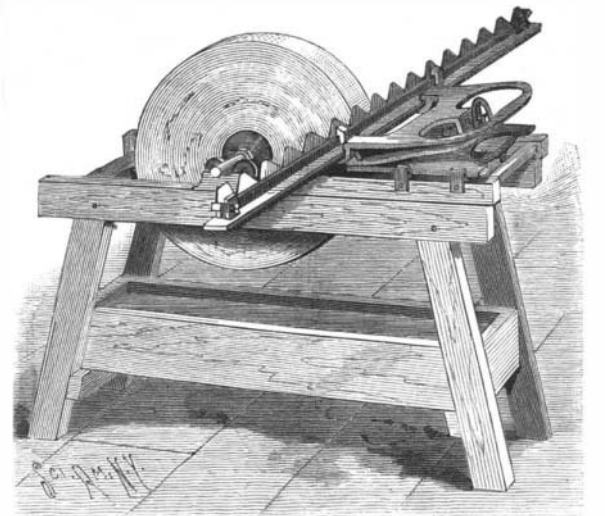
While spending the winter in California, I made my first acquaintance with Madam Hummingbird "at home." In the first place the location could not have been improved on. Just picture in your mind a lawn dotted with orange, lemon, fig, and palm trees, with here and there a giant century plant, or bunch of pampas grass and no end of flowers. While a cypress hedge, overshadowed by stately eucalyptus and pepper trees, separated the lawn from the street. One day while gathering oranges, I was startled by the rapid and angry darting of a humming bird near my face, which led me to look closely in that part of the tree, which resulted after a little search in the discovery of my first humming bird's nest. It was placed on a twig not as large as a lead pencil, on one of the lower limbs of the orange tree, and it was so covered with lichens the same color as the bark of the tree that it was difficult to find it again even after I knew about where it was. The nest is about the size of the burr oak acorn cup, built almost entirely of the feathery plumes of the pampas grass, covered with green lichens, and all held together, and to the limb, with something greatly resembling spider web. Within this "marvel of construction" were two semi-transparent eggs, almost too small to describe, and my efforts to use the blowpipe on them blew them all to smithereens.

Before taking the nest, I visited Madam Hummingbird several times, and nearly always found her at home. She never left the nest but a few minutes at a time.—*Frank Ford, Mag. of Nat. Sci.*

AN IMPROVED SICKLE GRINDER.

This is a device which may be attached to the frame of an ordinary grindstone, to support the sickle in the proper position against the stone in grinding, preserving each section of the sickle uniformly true from heel to top. The improvement has been patented by Mr. Thomas Gordon, of South Bend, Wyoming. The base plate of the adjusting frame slides in guide cleats secured upon the beams of the grindstone frame, and on the base plate is a bed adjustably connected with the plate by means of a set screw serving

as a pivot and another set screw in a segmental slot, the slot having at one side a scale to indicate how far to the right or left the bed is to be moved to give the proper beveled settings to different sized sections of the sickles. Pivotaly connected with the bed is an adjusting frame having an outer handle section and opposite extensions in which are slideways adapted to receive a sickle-carrying bar, for holding in position the sickle to be ground. Near each end of the carrying bar is a post with pivoted yokes

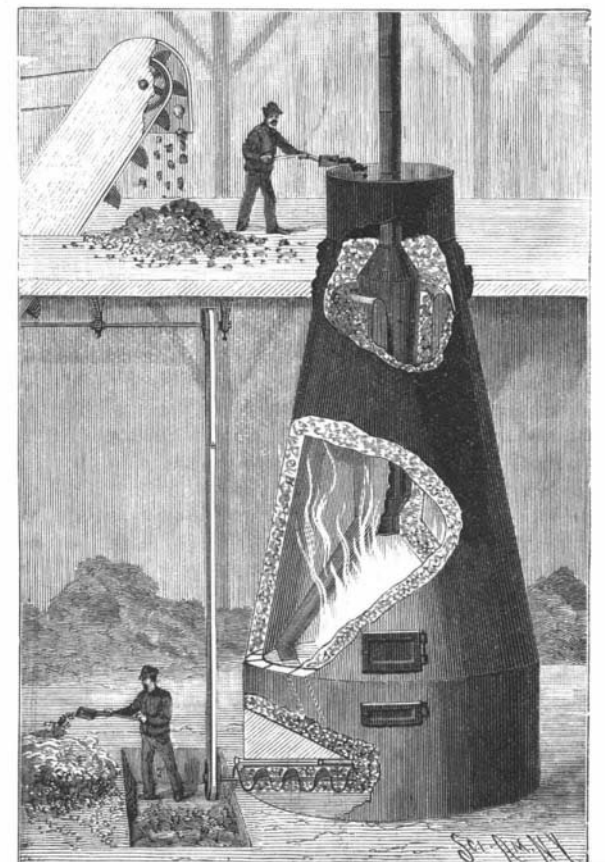


GORDON'S SICKLE GRINDER.

adapted to be clamped in any position they may be set, while intermediate posts are adapted to support the sickle bar to prevent its springing away from the stone during the process of grinding. The base is kept fed to the grindstone by a spring connected with a bracket, and the carrying bar may be manipulated by a shaft on whose outer end is a hand wheel, its inner end carrying a pinion meshing with teeth on the under face of the bar, the latter being carried either to the right or left by turning the hand wheel, it being designed that one revolution of the shaft shall carry the sickle to the right or left the length of one section. Instead of operating the sickle-carrying bar by means of this shaft, it is in many cases slid by hand either to the right or left. In use the stone is maintained perfectly square across its full face, the sickle sections passing over and across the entire face surface of the stone. The machine may also be adapted to the uses of an ordinary grindstone. Further information relative to this invention may be obtained of Mr. J. G. Pratte, Cheyenne, Wyoming.

AN EFFICIENT AND CONTINUOUS DRIER.

This improved drier, patented by Mr. William Harmon, of Bartow, Fla., is designed to save all the heat, the material to be dried being fed directly over the fire, while large quantities may be continuously treated, the material being carried down through the drier by gravity. Within the shell is a grate, beneath which is an ashpit, secured to a horizontal partition, suitable doors and air inlet apertures being provided, and within the conical part of the exterior shell is an interior concentric shell forming an outer annular space for the passage of part of the material to be dried, the lower end of this space being adapted to be closed by a series



HARMON'S DRIER.