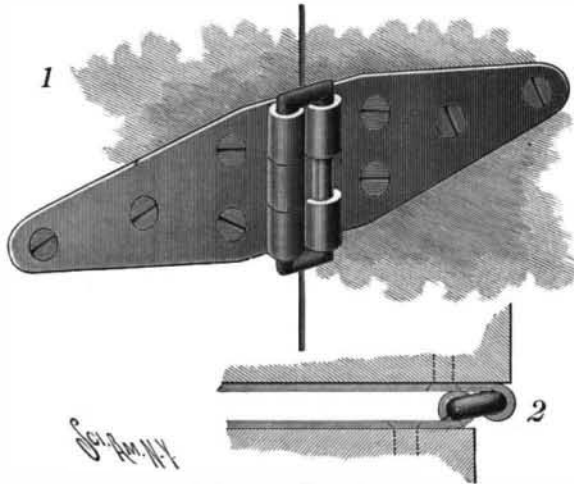


**A NOVEL HINGE.**

Of the accompanying illustrations, Fig. 1 represents a perspective view and Fig. 2 a broken plan view of a recently patented improvement in strap or butt hinges which embodies an advantage in the direction of strength while preserving simplicity of construction without appreciably increasing the cost. By this invention each strap or butt has a plurality of knuckles, a double pin being employed, each leg of which has its complement of aligning knuckles. The cut shows a strap hinge embodying the improvement. One strap



FARRAR'S HINGE.

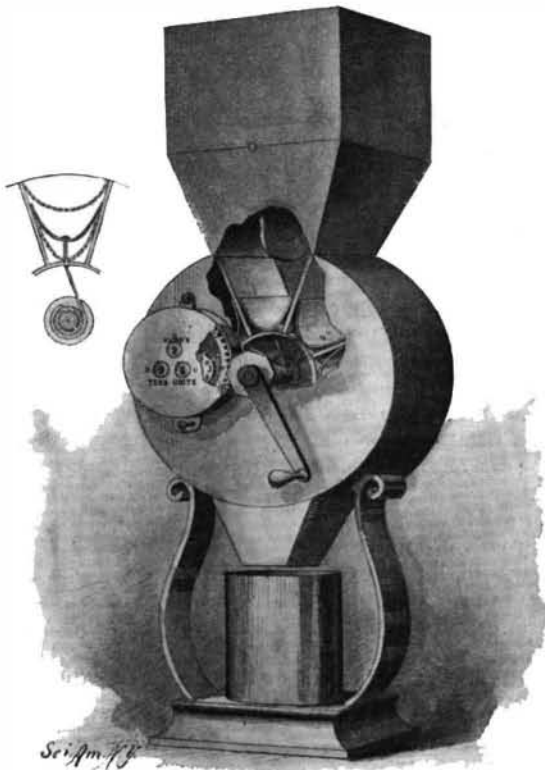
is provided with three knuckles, the middle one extending beyond the other two. The companion strap has an upper and a lower knuckle, which, when the parts of the hinge are assembled, receive between them and align with the central projecting knuckle of the other strap. The legs of a double or link-pintle pass through the registering knuckles of both straps or butts. With this construction each strap has virtually an independent pintle and a plurality of knuckles; yet both straps are so connected by the same pintle that they will work freely. By thus distributing the strain at the knuckles, it is claimed, greater strength will result without increasing the bulk or cost. The center of the hinge shifts around when the door swings, and by making the knuckles perfectly round, the straps can fold back closely together.

The invention has been patented by John J. Farrar, of Rapid City, South Dakota.

**A NOVEL WEIGHING AND DELIVERING MACHINE.**

An ingenious weighing machine, designed to weigh and deliver accurately and automatically powdered, granular or similar material, such as flour, sugar, coffee and the like, and, at the same time, to register the amount thus weighed, has been devised and patented by Prof. Shanker Abaji Bhise, F.S.Sc., President of the Bombay Scientific Club, of 2 and 4 Cathedral Street, Ramwadi Market Post, Bombay, India.

The machine, as shown in our illustration, comprises



BHISE'S IMPROVED WEIGHING AND DELIVERING MACHINE.

a suitably supported cylindrical casing having a feed hopper adapted to receive the material to be weighed. The measurer is carried in the casing and consists of a series of radially arranged receivers mounted on a suitably driven horizontal shaft. While the material is pouring into the uppermost receiver, the lowermost receiver is discharging. Means are provided whereby differences of weight per cubic inch are compensated for. This is accomplished by providing each compart-

ment with a false elastic bottom bent so as to enable it to be introduced in the receiver, which bottom, owing to its resilience, normally tends to rise and expand at its ends to reduce the size of the receiver. Each elastic bottom has a flexible strand or chain secured to its center and extending to a rotatably adjustable sleeve on the shaft. A rotatable movement of the sleeve thus adjusts the positions of all the bottoms simultaneously.

A registering mechanism is provided, whereby the amount of material weighed may be quickly ascertained. A pinion on the shaft of the measuring cylinder meshes with a main spur gear, and a series of registering wheels are provided with spaced radial projections which are engaged by a series of changeable, spaced, radial pins projectable from the spur gear. The frequency of the impulses given to the unit wheel, and by it to the other registering wheels, may be increased or diminished by increasing or diminishing the number of projecting pins.

Prof. Bhise informs us that he invented the machine in response to a call in *The Inventor's Review and Scientific Record*, London, and in competition with several inventors won the prize which was offered.

**Railroad Mileage of Europe.**

At the beginning of the year 1897, there were, in all Europe, 159,025 miles of railroads in operation, this being an increase during the year 1896 of 3,144 miles, says Consul Du Bois, of St. Gall. Of this increase, Austria-Hungary had 806 miles, of which Hungary had 579 miles. In Russia, there was an increase of 555 miles. This, of course, does not include the great transsiberian and transcaucasian lines, with their 2,883 miles, a large portion of which has recently been opened to traffic. Germany increased her railroad mileage 579 miles—the same as Hungary—the kingdom of Prussia receiving 387 miles.

The countries of Europe now having the most railroads in operation, according to their areas, are, in their order: Belgium, 3,582 miles; Great Britain and Ireland, 21,217 miles; Germany, 29,355 miles; Switzerland, 2,209 miles; Holland, 1,608 miles; France, 25,089 miles. The other countries of Europe have the following railroad mileages: Austria, 18,951; Denmark, 1,605; Spain, 7,615; Greece, 590; Italy, 9,349; Luxemburg, 269; Portugal, 1,451; Roumania, 1,784; Russia proper, 22,455; Finland, 1,484; Servia, 335; Sweden, 6,073; Norway, 1,201; Turkey and Bulgaria, 1,507; the islands of Jersey, Malta and Man, 68 miles.

**THE "OLIVE" BICYCLE.**

We present herewith sectional views of the crank hanger arrangement and seat-post adjusting devices which, in conjunction with other features, are distinguishing characteristics of the "Olive" wheel, manufactured by the Olive Wheel Co., of Syracuse, N. Y.

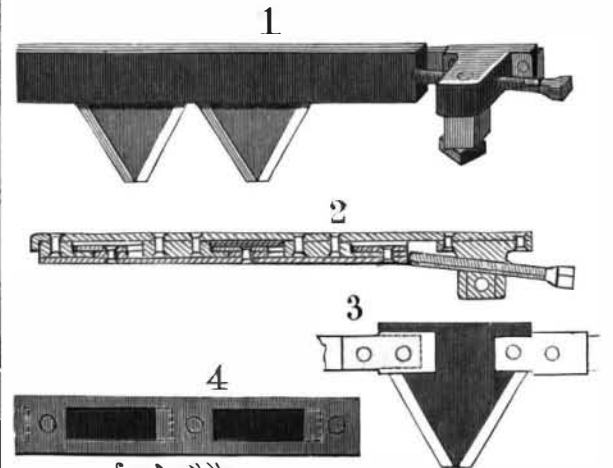
Referring to our illustration, it will be seen that the V-shaped end of a boss formed integrally with the sprocket-wheel fits into a similarly shaped recess in the axle, on the opposite end of which is integrally formed one of the pedal cranks. The other pedal crank is placed against the outer face of the sprocket wheel. A threaded bolt passes through this separately formed pedal crank into the sprocket wheel and its boss, and enters the axle at its recessed end. A collar fitting over the boss inwardly from its V-shaped end forms the cone bearing at the sprocket-wheel side of the hanger. The other cone bearing is formed by a threaded sleeve on the opposite end of the axle. The simplicity of this construction readily permits the various parts to be removed and cleaned, merely by unscrewing the connecting bolt.

Turning now to our other illustrations, it is seen that the saddle-post telescopes into the usual seat-mast and is provided at its front portion with orifices. The triangular space left between the post and the top tube receives a wedge-shaped block having projections adapted to fit into the orifices of the post. When it is desired to alter the position of the saddle, the post and its block are raised and the block made to engage the desired orifices to give the required adjustment; the post is then lowered until the block meets the frame. A transverse fastening device engages the block and frame and prevents the accidental displacement of the several parts. By this simple adjustment, the use of nuts, screws, bolts and wrenches is dispensed with so far as this portion of the bicycle is concerned.

The University of Paris has been authorized to borrow \$340,000 for the construction on the Rue Cuvier of buildings and laboratories for instruction in the sciences preparatory to the study of medicine, and for the completion of the laboratory of physiological botany at Fontainebleau.

**AN IMPROVED CUTTER BAR.**

The illustrations which we present herewith represent an improvement in cutter bars recently patented by Charles E. Frye, of Wilton, New Hampshire. Mr. Frye's cutter bar is so constructed that each blade will be contained in an independent pocket, means being provided by which a single cap will lock all the blades in position. Of our illustrations, Fig. 1 is a perspective view showing a short portion of the cutter bar, Fig. 2 presents a longitudinal vertical section, Fig. 3 a partial plan view with the cap removed, and Fig. 4 a bottom plan view of the cap. The cutter bar is provided at intervals with blocks or projections, each wider at one end than at the other to form a projecting flange at the back and front edges. The under side of the wide end of the block is recessed to produce an overhanging lip which projects toward the inner end of the cutter bar. Blades formed with T shanks are so proportioned as to enable the shanks to enter the spaces between opposing blocks and to lie partly beneath the previously mentioned flanges and lip. A



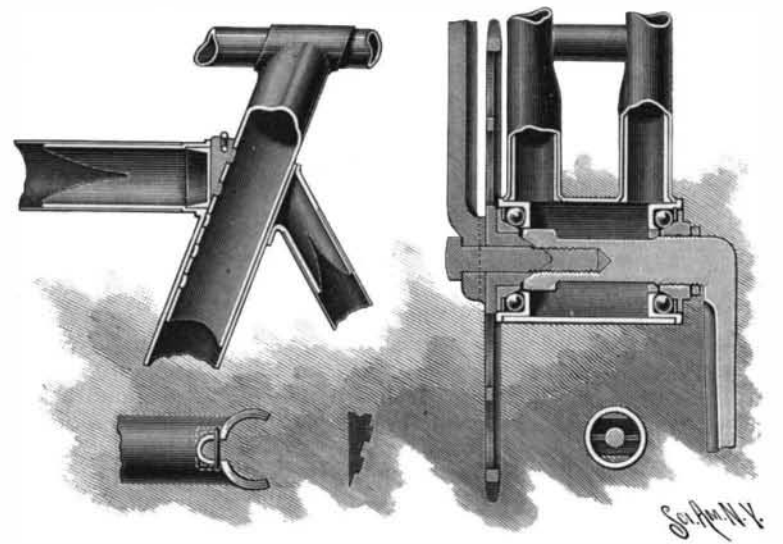
FRYE'S CUTTER BAR.

retaining cap is provided with depressions from which end recesses extend. The cap is thus made to fit over the blades, the depressions receiving the bodies of the blocks and the end recesses receiving the lips of the respective blocks.

In assembling the parts, one edge of a blade is entered beneath the lip of a block until the blade can seat itself on the bar. The extended portions of the T shanks prevent transverse movement. The retaining cap is now fitted over the blocks so as to cause each end recess to receive the lip of the corresponding block, and the set screw shown in our first two illustrations locks the cap tightly into place, preventing all independent movement of the parts.

**Sensation of Hanging.**

A captain who was rescued from the gibbet at the intercession of Viscount Turenne, after being partially hanged, related that, having lost all pain in an instant, by being rescued he had been snatched from a glorious light, the charm of which defied all description. All victims of partial hanging agree that the uneasiness is quite momentary; that a pleasant feeling succeeds, and that various colors start before the sight, casting everything else in oblivion. The mind, averted from reality, is engaged in scenes most remote from



THE "OLIVE" BICYCLE FRAME.

that which fills the eye of the spectator—the hideous gallows and the struggling form.

[The above from *The Medical Council* may be comforting to some one. An acquaintance related to the writer similar pleasant sensations he experienced when so near drowning he had lost all consciousness, and was, with great difficulty, resuscitated.—ED.]

DR. JULES MARCOU, the geologist, died on April 17, at the age of seventy-five years.

**Work of a Scientific Expedition in the Gallapagos Archipelago.**

Dr. W. H. Harris, of Augusta, Maine, recently received an interesting letter from his brother Charles M. Harris, who is now at the head of the Rothschild expedition to the Gallapagos Archipelago after flora and fauna. Mr. Harris sailed from New York on March 20, for Panama, with a party of five. At Panama they expected to charter a schooner for the trip, but yellow fever was contracted, from which three of the party died. Mr. Harris proceeded to San Francisco, reorganized the party, and sailed on June 21 in the schooner Lila and Mattie, arriving at the islands after a forty-day passage. So far as is known, no such collection as he has gathered has been made since that of Darwin, in 1836.

"As to our success, I think, barring accident, it is assured," says the letter. "We have now on board thirty live tortoises of two species, and two prepared skins. About two thousand birds have been saved so far. Besides the tortoises and birds, we have a large number of two species of iguanas, and numbers of lizards, snakes, birds' eggs, turtles, etc. We have covered about half our ground, having visited the following islands in the order named: Culpeper, Wenman, Abingdon, Bindloe, Indefatigable, Duncan, Jervis, James and Chatham. From here we will go to Hood, Charles, Brattle, Albemarle, Marlborough, Tower and Cocos, and then start for San Francisco, which we expect to reach about the middle of March next. We have so far succeeded in getting about all the species of birds recorded for the different islands visited, and undoubtedly some new ones.

"On James Island is an enormous volcano in a state of great activity. This is the first active volcano on the island since 1855. Twenty-nine of our tortoises were taken from Duncan Island, where it was supposed they were extinct. They were at the top of the island and in the bottom of an immense crater."

**AN EFFICIENT FENCE POST DRIVER.**

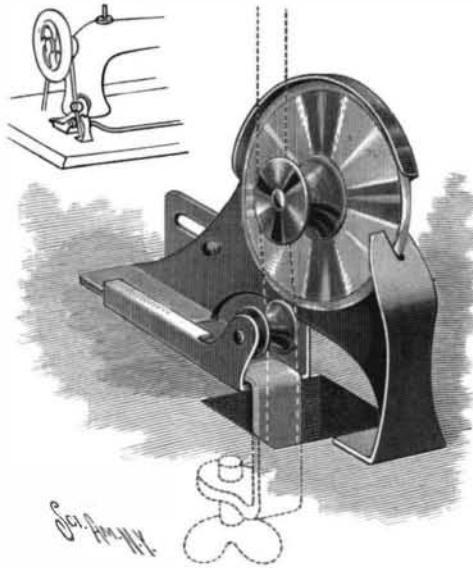
A fence post driver, simple in construction and effective in operation, has been patented by Lincoln H. Ketcham, of Corning, Ohio. In Mr. Ketcham's machine, of which we present a perspective view, a hinged mast is mounted upon a portable truck-frame and is adapted to be raised in a vertical position, or lowered to lie lengthwise of the truck. Drums and guy ropes are provided for raising and lowering the mast to the desired position, and a plumb bob located within a longitudinal groove in the mast enables the operator to adjust the position of the mast and to drive his posts vertically, notwithstanding the roughness or unevenness of the soil. A heavy hammer-block slides vertically on the mast and is operated by a pair of tongs carried by a bracket sliding above the hammer. A device at the upper ends of the tong members, consisting of a link pivoted to one of the members and striding the other, a pivoted wedge carried by the link, and a cord attached to the link, enables the operator to control the tongs, opening and closing them at pleasure, and causing them to grasp or release the lifting eye of the hammer.

In operation the mast is elevated, the hoisting rope is attached to a horse, and the hammer lifted half way up the mast. In this position a transversely movable finger controlled by a pivoted operating lever is made to slide through an orifice in the rear face of the mast and located in the longitudinal groove, thus holding the hammer in a raised position. A pointed post is now put in place, and the finger withdrawn. The hammer glides down and starts the post in the ground. The hammer is now raised to its utmost height until the previously mentioned pivoted wedge touches the head block of the mast, thus acting on the tong members and releasing the hammer. By backing the horse the tongs are lowered until they again reach and engage the lifting eye on the hammer. The operation is repeated until the post has been driven to the required depth. The machine is now moved forward in the line in which the posts are to be driven until an adjustable bar or gage arm which extends rearwardly from the truck comes into contact with the last driven post.

The distance between the posts is thus automatically regulated, and the machine is now in position for driving another post. With this machine posts up to eight feet in length may be rapidly and effectively driven.

**A NOVEL RIPPING ATTACHMENT FOR SEWING MACHINES.**

A ripping device of simple and practical form, to be used in connection with sewing machines, has been re-



**TALLEN & CROFT'S RIPPING ATTACHMENT FOR SEWING MACHINES.**

cently patented by Maurice Talen and George H. Croft, of Geneseo, Illinois. As shown by our engraving, the device is intended for attachment to the table of a sewing machine at the point where the belt passes upward through the table. The ripping is done by a rapidly rotating cutting disk driven by friction pulleys in connection with the driving belt of the machine. The cutting disk and its pulley revolve on a stud projecting from a vertical supporting plate which slides upon a base clamped to the table. At its upper edge the plate rounds over to form a guard-flange for the disk. To expose a section of the cutting disk, the plate is recessed at one edge, and a slitted guide flange at the recessed portion receives the disk and keeps the work in position. The base upon which the plate is mounted is provided with a shorter and a longer upwardly extending flange. The shorter flange is situated on the same side as the pulley of the cutting disk and in it a roller is journaled coacting with the pulley of the cut-

means a larger or smaller arc of contact is obtained, thus increasing the tension of the belt. The ripping is rapidly effected by presenting the seam to the sharpened edge of the rotating disk. The device forms a desirable addition to the auxiliary adjuncts of a sewing machine.

**Are Canned Goods Fit to Use?**

The so-called canning industry has made such vast strides all over the world, and notably in America, that it is not surprising that this method of preserving foods should form the subject of inquiry at the hands of the bacteriologist. When we learn that in Baltimore alone 1,250,000 bushels of oysters are annually canned and that the United States is responsible for 120,000,000 cans of tomatoes, and of other articles, such as fish of various kinds, and fruits, etc., in similarly large numbers, it is remarkable that Messrs. Prescott's and Underwood's paper, "Micro-organisms and sterilizing processes in the canning industry," published in The Technology Quarterly, should be the first contribution to so important a subject. These gentlemen have specially studied the bacterial flora of canned clams and lobsters, which have broken down, or, in other words, been imperfectly preserved. In every case where "spoiling" had occurred, bacteria were present in large numbers, while in no instance were any discovered in sound cans. Sometimes only a single variety, or a pure culture of a particular microbe, was found in unsound cans, but usually the latter contained a mixture of several species. Nine different bacteria were selected and isolated for subsequent study, both as regards their macroscopic and microscopic appearances; two of these were cocci, the remainder bacilli forms. These bacteria were afterward inoculated into the contents of sound cans, with the result that the latter invariably decomposed, while experiments were also made to test the method of applying heat to canned articles which would most effectually destroy the chances of these micro-organisms surviving and spoiling the contents. An account of the numerous experiments carried out by the authors on this highly important commercial side of the inquiry will be published later; meanwhile their investigations go to show that, given a proper control of the temperature, it is possible to preserve clams and lobsters with absolute certainty, and in a more perfect condition than has hitherto been possible.

**Thirty Miles for an Acorn.**

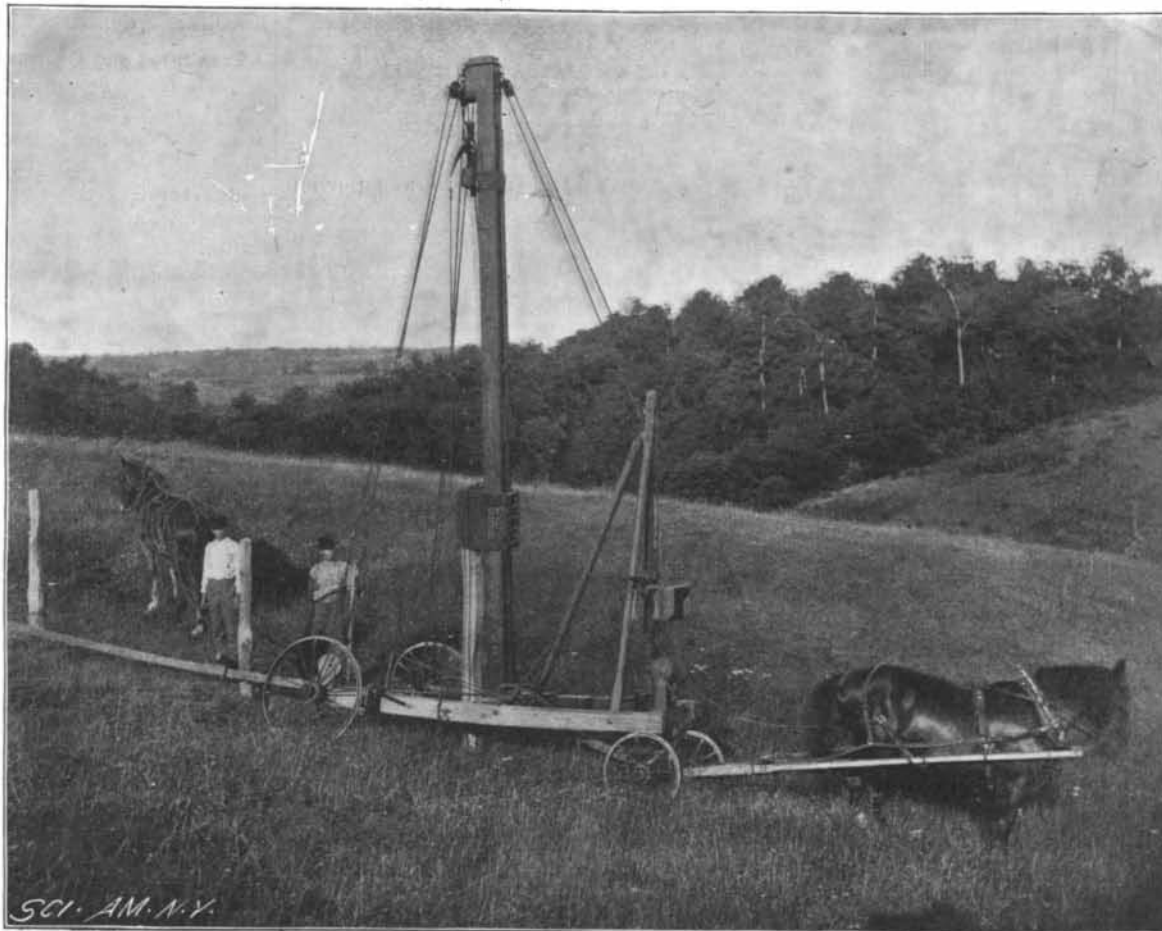
Down in Mexico there lives a woodpecker who stores his nuts and acorns in the hollow stalks of the yuccas and magueys. These hollow stalks are separated by joints into several cavities, and the sagacious bird has somehow found this out, and bores a hole at the upper end of each joint, and another at the lower, through which to extract the acorns when wanted. Then it fills up the stalks solidly and leaves its stores there until needed, safe from the depredations of any other thievish bird or four-footed animal.

The first place in which this curious habit was observed was on a hill in the midst of a desert. The hill was covered with yuccas and magueys, but the nearest oak trees were thirty miles away, and so, it was calculated, these industrious birds had to make a flight of sixty miles for each acorn stowed thus in the stalks!

An observer of birds remarks: "There are several strange features to be noticed in these facts: the provident instinct which prompts this bird to lay by stores of provisions for the winter, the great distance traversed to collect a kind of food so unusual for its race, and its seeking in a place so remote from its natural abode a storehouse so remarkable."

Can instinct alone teach, or have experience and reason taught these birds that, far better than the bark of trees or crevices in rocks or any other hiding place are these hidden cavities they make for themselves with the hollow stems of distant plants?

This we cannot answer. But we do know that one of the most remarkable birds in our country is this California woodpecker, and that he is well entitled to his Mexican name of el carpintero—the carpenter bird.—St. Nicholas.



**POST DRIVER IN OPERATION.**

ting disk. The longer flange is horizontally slotted to receive a set screw which works into the disk-carrying plate, holding the latter in adjusted position. In using the device, the clamping bracket is made fast to the table, with the belt running between the two pulleys, as indicated by dotted lines in the cut. The relative angular position of the two pulleys may be varied by shifting the disk-plate along its base and fastening it in the desired position by the set screw. By this