

ennial year, it was known that the old landmark in the Montecito Valley was to be cut down and a portion of it removed to the exposition at Philadelphia; but it was whispered that relentless Age, who is no respecter of grapevines, was beginning to impair its vitality, and that the inevitable was only hastened a little by the intervention of man.

No record was kept of the time of planting, but from events connected with the family upon whose ground it grew, it was believed to be seventy-five or a hundred years old. The measurement of its trunk is given as three feet ten inches in circumference, and the arbor about seventy-five feet square. Its death was believed to be premature, the result of changing the course of a small stream that had flowed near its roots.

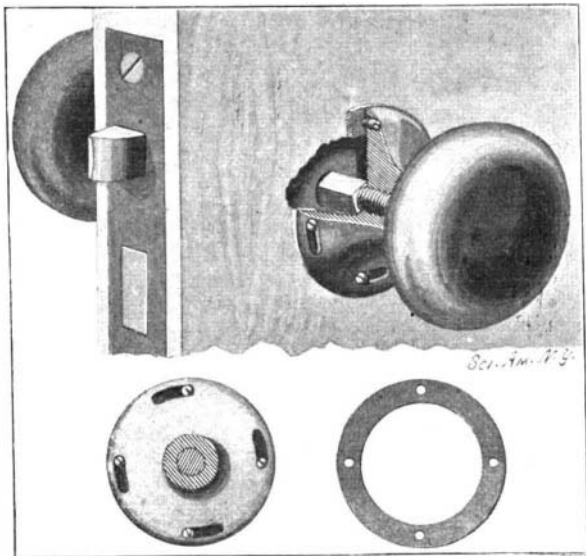
But another vine nearby, a cutting from the original, had attained to nearly this size, so Santa Barbara could still boast of having "the biggest grapevine in the world." In '99 this vine succumbed to a disease of the roots, perhaps invited by age, and its body now rests in the Santa Barbara Chamber of Commerce. Its irregular trunk attained a girth of four feet four inches at eighteen inches above ground, or five feet seven inches at forty-two inches, and its maximum yield was four tons in a season. It was believed to be seventy-five years old.

In the Carpinteria Valley, a few miles further from the city, a third vine has surpassed both of the others in size. It was planted in 1842 by Joaquina Lugo de Ayala, and has therefore just completed its three-score years. The first election in Santa Barbara County under American rule was held beneath its ample shade. This latest candidate for the world record is double from the surface of the ground up; the two parts are knit together in a David-and-Jonathan-like embrace to a height of about five feet seven inches, where they separate into huge branches, the largest having a circumference of three feet. Six inches above the ground the vine measures eight feet five and a half inches in circumference, and it covers an area one hundred and fifteen feet square (the whole back yard), sixty posts supporting the framework. The owner says that, were provision made, it would spread over a greater surface, but it is pruned every year. Fabulous tales are told of the grapes this vine produces. That it did actually yield ten tons in a recent season seems to be authentic.

An effort was made to secure a part of the original Montecito vine—taken to Ohio after the Centennial—for the Santa Barbara exhibit at the World's Fair, but terms could not be made with the owner. At the time of the succeeding Mid-Winter Fair at San Francisco, an offer of a thousand dollars for the Carpinteria vine was refused, else its lease of life would have been cut short.

#### DEVICE FOR SECURING DOOR-KNOBS.

By means of the invention described below, idle movement of the door-knob is avoided and the knob is prevented from becoming loose on the spindle or from being detached therefrom. The natural operation of the parts continually tends to tighten the knobs on the spindle, and just sufficient movement is allowed to operate the latch. Our illustration shows an ordinary door lock provided with this improved device. The spindle which operates the latch is threaded oppositely at each end to engage the door-knobs. The knobs are rigid and integral with the shanks and roses or escutcheons. Fastened to each side of the door and surrounding the spindle is a bearing-annulus. Against these annuli the roses or escutcheons bear so as to turn thereon, and this turning movement is limited by pins or screws carried rigidly on the door and projecting through the annuli into arc-shaped slots formed in the roses of the knobs. The slots are of such length that they will allow the knobs the movement necessary for throwing the bolt

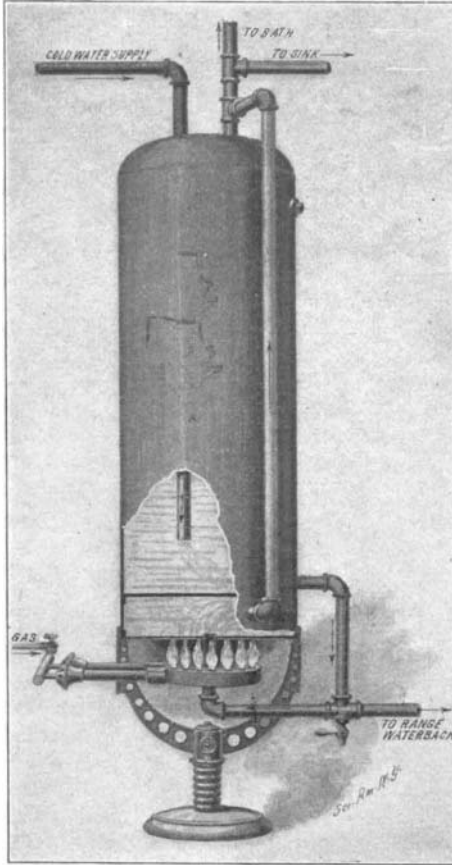


DEVICE FOR SECURING DOOR-KNOBS.

of a lock. In assembling the parts the knobs are screwed up on the ends of the spindle until the roses or escutcheons bear snugly against the annuli, and the pins are projected respectively through the slots and through the holes in the annuli, thus holding the latter in position. It is evident that this arrangement securely holds the knobs, prevents idle movement, and permits just sufficient movement for operating the latch. Patents for this invention have recently been granted to Mr. Thomas G. Leslie, of East Melbourne, Victoria, Australia.

#### A SUMMER WEATHER WATER BOILER.

Probably every housewife who has perspired through a hot summer's day in the small kitchen of a small



A SUMMER WEATHER WATER BOILER.

city apartment, will appreciate at its true worth the simple arrangement shown in the accompanying engraving. Rather than keep up a hot fire during the summer months, many housekeepers do their cooking on small oil stoves and gas ranges. The convenience of this arrangement is, however, offset by a serious objection, namely, the lack of a ready supply of hot water; for the water has to be heated in kettles or pails on the limited surface of the gas range. J. P. B. Sattler & Co., of 231 Park Avenue, Baltimore, Md., are the makers of a boiler and heater particularly adapted for hot weather service.

As illustrated, the boiler is supported on a suitable standard and is heated by a small gas heater. The heater is provided with adjustable valves for the admission of air and consists of a perforated chamber through which the mixed air and gas flow so as to produce a hot blue flame. This provides a very intense heat of limited distribution, so that its energy is confined to the boiler and does not appreciably affect the general temperature of the room. The heater is absolutely odorless and, being situated under the boiler, takes up no room. There are no coils nor complicated mechanism to get out of order and its simplicity should appeal to all. But aside from this an important feature of the apparatus may be found in the construction of the boiler. It will be seen that the boiler is divided into two sections by a false bottom. The lower section being very shallow will be rapidly heated by the burner. Water from the upper section passes out through a pipe near the false bottom, and passing through the center of the burner enters the lower section from below. In this section the water is thoroughly heated and passes through a pipe into the upper section at the top, thus keeping a constant circulation. Bath room and sink connections are made directly to the latter pipe, so that a dozen gallons of hot water can be had in 15 minutes or the entire contents of the 32-gallon boiler may be heated in 45 minutes. The internal arrangement of the boiler prevents the accumulation of mud which so often causes slow heating of the water, and the heater stirs up the water to such an extent as to loosen the sediment, when it may be drawn off

through a stop-cock shown at the right of the boiler. It will be seen that connection may be made to the water-back of a range whenever desired and equally as good results obtained; though it is claimed that the gas burner will do its work at a much smaller expense. Where a great quantity of hot water is wanted the water-back of the range and the gas burner can be used at the same time and a continuous flow of hot water can be had.

#### HARVESTER REEL.

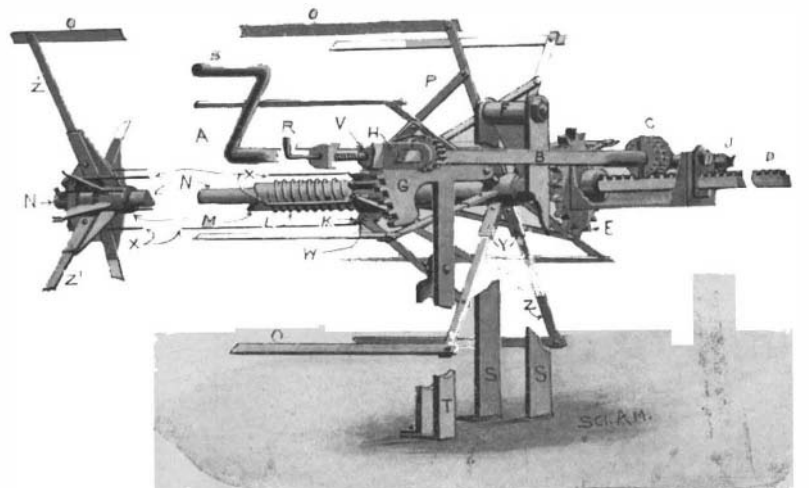
The harvester reel which is illustrated herewith possesses many advantages over those in common use. The reel is so constructed as to permit any desired variation in its diameter, the parts being held firmly in any position to which it may be adjusted. The reel may, therefore, be quickly reduced in diameter to avoid obstacles, and thus prevent breakage. It may also be quickly folded into small space for housing or to permit easy access to the sickle bar and other parts of the machine which often need attention. Being foldable, the reel may be easily moved from one field to another.

The illustration shows the mechanism partly broken away for the purpose of bringing out details. The reel-shaft, *M*, which is hollow, is provided with a driving sprocket, *E*, and is journaled in the bearing link, *F*, which swings from a rod supported by the standards, *SS*. Fixed to the hollow shaft, *M*, are the reel-hubs, having pairs of radial flanges, *Y*, in which the arms, *Z* and *Z'*, are pivoted. At their outer ends, these arms are connected by cross bars or beaters, *O*. A sleeve, *K*, is loosely mounted on the reel-shaft, and to this are pivoted the links, *P*, which connect with the arms, *Z*. By pulling the sleeve toward the outer hub, it is evident that the arms, *Z* and *Z'*, will be drawn from the vertical, thus reducing the diameter of the reel. When the sleeve is released, the spring, *L*, which is coiled between the outer hub and the sleeve, operates to return the latter to its initial position.

The mechanism for operating the sliding sleeve consists of a rod, *N*, which extends through the hollow shaft. Just beyond the outer hub this rod is reduced in diameter, and carries a disk loosely mounted thereon and abutting against the shoulder thus formed. A number of rods, *X*, connect this disk with the radial arms, *W*, of the sleeve, *K*. The opposite end of the rod, *N*, is formed into a rack, *D*, and is supported in a frame loosely mounted on the shaft, *M*. A crank-shaft, *B*, finds bearing in this frame and is provided with a barrel pinion, *C*, slidably mounted thereon. A slotted link on the end of the frame serves to hold the rack in engagement with this pinion. The near wall of the pinion forms a clutch member which normally engages a pin on the shaft, *B*. A coil spring on this shaft abuts at one end against a washer, *J*, and at the other against the frame, tending to hold the clutch members in engagement. The near end of the shaft is made vertically adjustable, and is held against rotation by a mechanism now to be described.

A standard, *T*, is secured to the harvester frame and carries a locking rack, *G*. A bracket, *H*, which is secured to this standard, carries a dog, *R*, which, under tension of spring, *V*, is held in engagement with the locking rack, *G*. The bracket also holds, between the arms of a yoke, a ratchet wheel slidably mounted on the shaft, *B*, and engaged by a spring pawl. This sliding connection permits the reel shaft to be swung on the link, *F*, to any desired position.

It will be seen that when the shaft, *B*, is rotated, the pinion, *C*, is caused to rotate, and thereby the rack, *D*, and rod, *N*, are moved outward through the hollow shaft, *M*, causing the reel to fold. The reel is held in any position of adjustment by the ratchet wheel on the shaft, *B*. When it is desired to expand the reel, the shaft, *B*, is moved backward longitudinally, thereby releasing the clutch and allowing the pinion, *C*, to rotate freely, whereupon the spring, *L*, causes the reel to expand as previously described. A



CONSTRUCTION OF THE HARVESTER REEL.