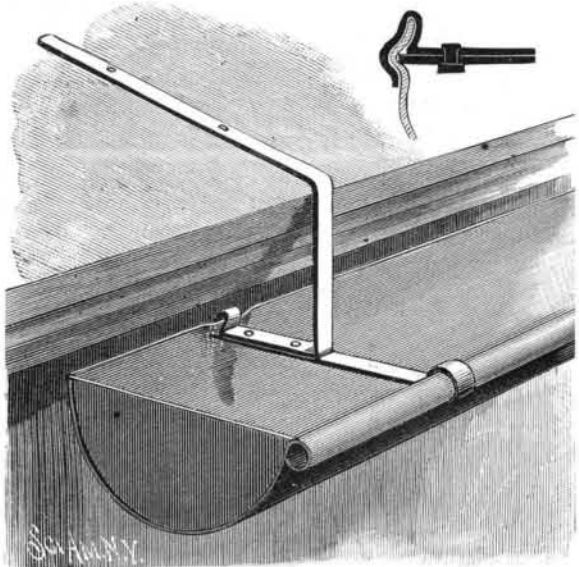


## EAVES-TROUGH HANGER.

This invention, which has been recently patented by Mr. Henry J. Hoepfner, of Nelsonville, O., provides a simple and durable eave-strough hanger, by the use of which the usual wired edging of the trough may be dispensed with. The trough is a simple length of tin or other suitable metal, bent so as to be semicircular in cross section. The outer edge is stiffened and strengthened by being bent over upon itself to form a small circle. The hanger consists of a suspending strip, by which the device is secured to the roof, and a cross piece riveted to the strip, which is bent at right angles near its lower

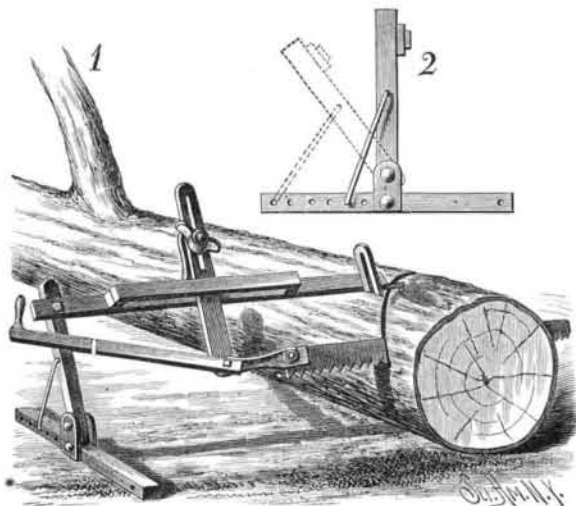


HOEPFNER'S EAVES-TROUGH HANGER.

end. The end of the bent arm of the strip is shaped as clearly shown in the small view, and the end of the cross piece projects so as to force the metal of the trough within the hollow, and firmly clinch it. The opposite end of the cross piece is turned up at a right angle and then bent down and around, to form a partial circle, slightly larger in proportion than the one formed in the trough. The suspending strip is made of soft, pliable metal, so that it can be bent at any point, in order that the operator can regulate the distance from the eaves to the trough. To place the hanger in position, the beaded edge of the trough is inserted within the circular portion of the cross piece and the straight inner edge within the loop, which is then pressed together by means of a pair of pinchers. The trough is then secured to the roof by nails passed through holes punched in the suspending strip.

## DRAG SAW.

This drag saw is light and strong, and may be used for light or heavy cutting, both vertically and horizontally and at intermediate angles. The saw blade is connected by a bolt with the lower end of a pendulum bar, through a long slot in the upper part of which passes a bolt having a wing nut, the bolt also passing through an upright lug on the main bar of the frame. The pendulum bar may thus be held at any desired height, and will be free to swing on the bolt as the saw blade is reciprocated. The side-



GRISWOLD'S DRAG SAW.

wise motion of the pendulum bar is prevented by a guide bar, attached to the main bar as shown. The back end of the main bar is connected by a bolt with the upper end of a post, whose lower end is pivoted to a yoke held to the base. By placing the lower end of a brace rod attached to the post in one of a series of holes in the base, the frame may be inclined to cause the saw to cut at any angle, as shown by the dotted lines in Fig. 2; and, by shifting the yoke toward one end of the base bar, the post may be swung down flat upon the top of the base, when the saw blade will be made to cut in a horizontal plane,

for felling trees or similar work. When starting a cut, the blade is guided by a slotted block, fixed to the forward end of the main bar, which is also provided with a dog, which may be driven into the log or tree, to steady the machine while at work. The saw is operated by means of a handle bar, pivoted to the end of the saw stock by the same bolt that holds the stock to the pendulum bar. A spring, secured to the forward end of the handle, bears upon a pin held to the saw stock in front of the pivot bolt, so that, by raising the rear end of the handle, the spring may be made to force the saw downward and cause it to do effective work for the whole length of its stroke. This machine can be easily folded into a small space for storage or transportation.

This invention has been patented by Mr. E. H. Griswold, of Marthasville, Mo.

## Heat-Indicating Paint.

The London *Electrical Review* says: "We have just had brought to our notice a new paint, invented by Mr. Henry Crookes, which seems destined to play an important part in machine operations. This paint, which is a brilliant red, has the property of gradually becoming darker when heated, until, at about 160° F., it attains a very dark brown color, and when allowed to cool for a few minutes, it regains its original red. This change of color is not affected by age or use, the paint being as good after one hundred changes backward and forward as when freshly made. The property of indicating a rise of temperature in such a striking manner renders this paint exceedingly valuable to engineers, for, if applied to the bearings of any machine or engine, it will act as a tell-tale of the temperature. As long as the paint remains red, the man in charge knows that the bearings are all right, without having constantly to go round and try them with his hand, while a change of color will warn him that the bearing is getting hot and requires attention. Any of our friends desirous of seeing this property demonstrated may do so by giving us a call, Mr. Crookes having left with us a piece of metal covered with the paint. The change which takes place would, we think, be still more noticeable if a portion of the surface were painted with, say, stripes of ordinary paint of the same tint as the heat-indicating paint when cold. The juxtaposition of the bright red and brown colors would be very prominent."

For the information of our contemporary, we would say that the above invention is not exactly new. It was patented in this country August 26, 1873, by Professors G. F. Barker and Alfred M. Mayer.

The double iodides of mercury and copper, or of mercury and silver, or of similar compounds having the property of temporarily changing their color when exposed to a certain temperature, are painted on cards or suitable strips, and applied to places where it is desirable that a definite limit of temperature should be readily ascertained.

The claim of the patent is as follows: A thermoscope consisting of the application to points where excessive or required heat is desired to be detected or indicated of a substance or compound which will by heat change its color, and immediately on the reduction of the temperature return to its original color, either with or without intervening material, substantially as set forth.

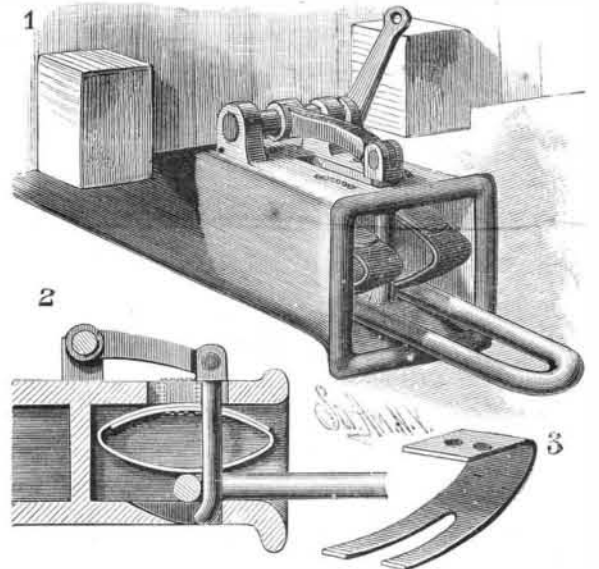
## The Artificial Manufacture of Quinine.

A remarkable discovery, by which the price of quinine may be reduced to something like six cents per ounce, says the London *Lancet*, has been made by Mr. Cresswell Hewett. The synthetical manufacture of quinine was first suggested to Mr. Hewett, in 1869, by the late Dr. Mattheson, of St. Bartholomew's Hospital, while giving his assistance in a course of experiments in connection with apomorphia. Subsequently, Professor Parkes, of Netley, aided with his advice, and to these gentlemen, rather than to himself, Mr. Cresswell Hewett modestly explains that the process is due. The importance of this discovery is rendered greater by the fact that while hitherto we have been depending for our quinine on the cultivation of the cinchona tree, from whose bark only about 2 per cent of good quinine can be extracted, 98 per cent being valueless, the drug can now be manufactured without limit by a very simple process from an article which can always be got in abundance in any part of the world.

## CAR COUPLING.

The car coupling herewith illustrated is the invention of Mr. George L. Walton, of Bougere, La. Under the bottom of the car is secured a spring drawhead, in the usual manner, and of the ordinary construction. On the interior of the drawhead are secured two elliptic springs, one on each side of the drawbolt, as shown in Figs. 1 and 2. These springs are secured to the upper side of the drawhead by chains, so that their lower sides may nearly touch or rest upon the bottom of the drawhead and be maintained in position parallel with the head and coupling link. Pivoted to studs projecting from the upper side of

the drawhead is a lever to which the bolt is pivoted, so as to be raised to uncouple the connecting link, and lowered to be in position to couple the link by its own gravity. To withdraw the bolt without entering between the cars, a handle is provided, to be operated from the car platform or from the ground. The drawhead is slotted to permit the bolt to have a longitudinal swinging movement from its pivoted end, to allow the coupling link to pass beneath its swinging end and to drop back of its own gravity to a perpendicular position to couple the link. The link is held firmly in a horizontal position by the pressure of the springs on its two sides, so as to enter a

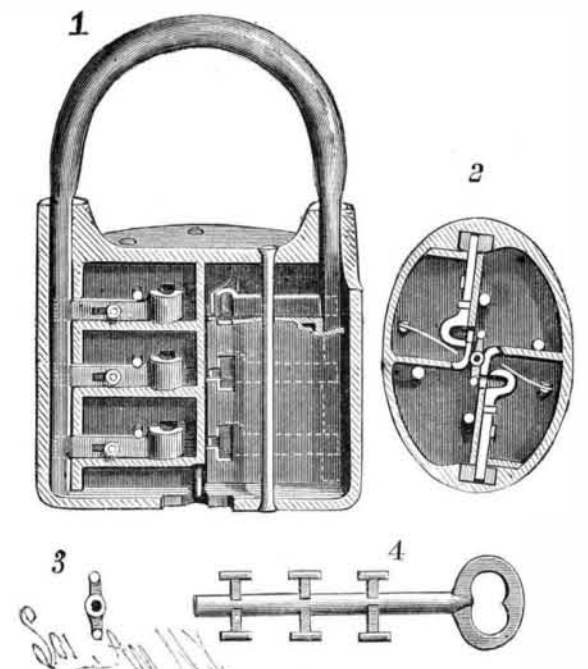


WALTON'S CAR COUPLING.

corresponding drawhead, to be coupled automatically therewith as the two cars approach each other. A single spring, slotted at its lower end and shaped as shown in Fig. 3, may be used in place of the two elliptic ones.

## IMPROVED PADLOCK.

In this padlock the shackle is entirely disconnected from the lock when the latter is open. In the bottom of the case is an opening, through which the key is inserted, and upon opposite sides of the case are formed grooves, in which the shanks of the shackle ride. Within the case are arranged two series of bolts, Fig. 1, carried by plates provided with flanges, as clearly shown in the sectional plan view, Fig. 2. Rivets that pass through the case from top to bottom serve as stops to define the positions of the plates. The bolts are formed with elongated slots, through which pass retaining pins, the bolts resting upon horizontal plates, as represented in the first figure, extending between the flanges of the main plates, any upward movement of the bolts being prevented by guiding pins. The inner end of each of the bolts is made in hook form, and the bolts are normally held forward by springs. The



RICHARDS' IMPROVED PADLOCK.

key, Figs. 3 and 4, is provided with as many bits as there are bolts. The key shank is hollow, in order that it may ride over or receive the key spindle. Just opposite the hooks of the bolts, the main plates are formed with appropriately shaped openings to admit the bits. When the key is inserted in the lock and turned, its bits pass through the openings and engage with the hooks of the bolts, which are withdrawn from the apertures in the shackle, which may then be removed.

This invention has been patented by Mr. William J. Richards, of Coaldale, Pa.