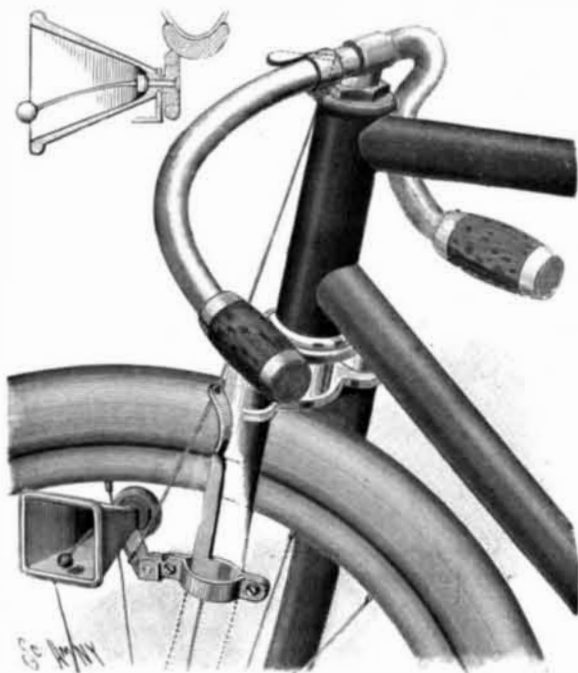


## A NEW BICYCLE BELL.

The bell has long been recognized to be one of the most important attachments to the bicycle, and the bells in use to-day are the result of a long series of laborious and costly experiments. Great attention has recently been paid to this bicycle sundry, owing to the fact that many cities and villages now require wheels to be equipped with bells. A continuous alarm bell

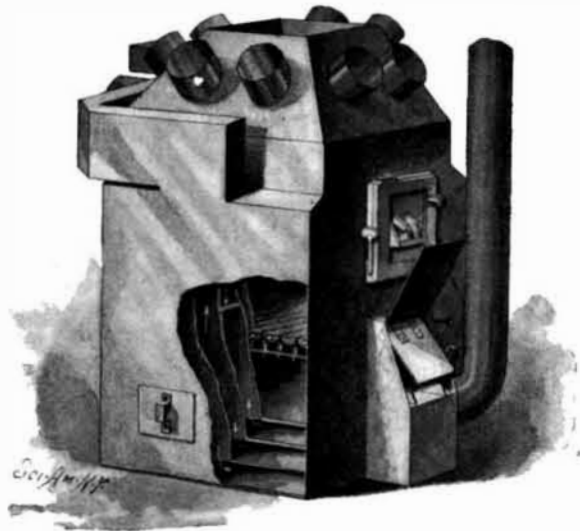


WOLHAUPTER'S BICYCLE BELL.

is now recognized to be the bicycle bell of the future; but, unfortunately, most bells of this type have been complicated by gear wheels. The subject of our illustration is a simple and gearless continuous alarm bicycle bell, invented by David P. Wolhaupter, Jr., of 1316 Twelfth Street, N. W., Washington, D. C. As will be seen by our engraving, the bell has a very positive action and at the same time is extremely simple, and is not liable to get out of order. Owing to the fewness of the parts, it can be manufactured very cheaply. The bell can be attached to any wheel. A clamp secured to one of the front fork bars has a pivoted bracket carrying the gong, and a light wire passes from this bracket to the small thumb lever supported on the handle bar. A striking feature of the bell is a gong, in the form of a pyramid, being perfectly square in cross section. A gong of this shape necessarily presents four flat striking surfaces, which are engaged in rapid succession by the clapper at one end of a single rotatable spring striker arm. The spring striker arm is housed entirely within the gong and extends out longitudinally from it, being rigidly connected at one end to a short shaft joined in a bearing at the apex of the gong and carrying a small wheel adapted to be moved against the rim of the front bicycle wheel. A slight pressure of the thumb brings the bell into action by raising the entire bell and, consequently, the small wheel against the under side of the rim. This causes the wheel to rotate, working the striker arm and causing the clapper to strike upon the four surfaces of the pyramidal bell, giving a pleasant and continuous sound. The inventor is now prepared to consider propositions looking toward the purchase and working of the invention.

## AN IMPROVED FURNACE.

Our engraving represents an improved furnace for heating purposes invented by Mr. Emory E. Starr, of



STARR'S FURNACE.

Bowling Green, Ohio. The object of this new improvement in furnaces is to make a furnace which shall be simple in construction, so that it can be manufactured at a minimum of cost, and to assemble the various parts of the furnace so that the air intended for heating pur-

poses cannot be brought into contact with the products of combustion, and whereby the products of combustion are utilized to the greatest possible extent. In this furnace all the heating surfaces are brought into more or less direct contact with the air which is to be heated and supplied to the rooms or apartments. It will be readily seen that this arrangement tends to great economy in the consumption of fuel. The general arrangement of the furnace may be seen by reference to our engraving.

In operation, the fire door being closed, the air for combustion is conducted by a pipe and is admitted by a box on the front and passes by means of proper passages through the ashpit door or the slides therein, up through the bed of coals. The smoke and the products of combustion rise to the upper part of the fire-pot, which is closed with the exception of a damper in the middle, which normally closes a circular aperture. Near the top of the fire-pot are lateral openings into sub-flues which are connected at the bottom with other sub-flues. The waste products of combustion in a highly heated condition enter the sub-flues, pass through the said flues downward to the bottom of the fire-pot proper at one side of the fire-pot, and through the connecting flues to the opposite side of the fire-pot, where they pass out of the sub-flues through the off-take pipes under the dome by the medium of the upper branch pipe flues. The damper over the fire-pot is opened automatically when the fire-door is opened; the gases then proceed into the off-take flue without their being forced to follow the tortuous course described, so that the offensive smell of the gas when the door is open to attend to the fire is eliminated. The course of the products of combustion is shown by the arrows nearest the fire-pot, the vertical partition being broken to disclose the downward and upward travel of said products.

The air to be heated is taken in by a supply pipe at the back of the furnace near the top; the air is drawn down the outer flue, as shown by the outer arrow in our engraving. The air then enters the lower or base flue and then passes up through the vertical connecting flues, as shown by our second arrow, to the dome and thence to the supply pipe of the house or building. Thus it will be observed that the air to be heated is passed entirely around the cast portion of the furnace, for the fire-pot and the spaced outer wall should preferably be cast in one piece. This is the portion which is provided to absorb and radiate the heat, and finds an exit from the furnace in a highly heated condition.

## A LATH CARRYING DEVICE FOR WALL PAPER AND OTHER MACHINES.

In manufacturing wall paper and other articles of a similar nature, it is customary to hang the paper or other articles upon laths in festoons to dry. In many cases the drying rooms are of great extent and it is necessary to return the laths after the paper has become dry to the point where the paper passes from the printing machine onto the sticking machine to be hung in festoons. This labor is usually performed by boys, who carry great piles of laths back to the front end of the striking machine. In doing this work they often break the laths, so that the festoons of paper are irregularly supported. The object of the machine shown in our engraving is to provide a new and improved lath carrying device, arranged in such a manner that the laths after leaving the sticking machine are automatically returned and fed again to the front end of the sticking machine to take up new folds of the paper. The sticking-machine delivers a lath to the inclined chain carrier seen at the lower part of Fig. 1. This chain carrier takes a lath at certain regular intervals and carries it upward to the point where the paper from the printing machine falls on the lath, forming long festoons, as shown in Fig. 2, the horizontal conveyor chain then carrying both the lath and festoon forward toward the reels.

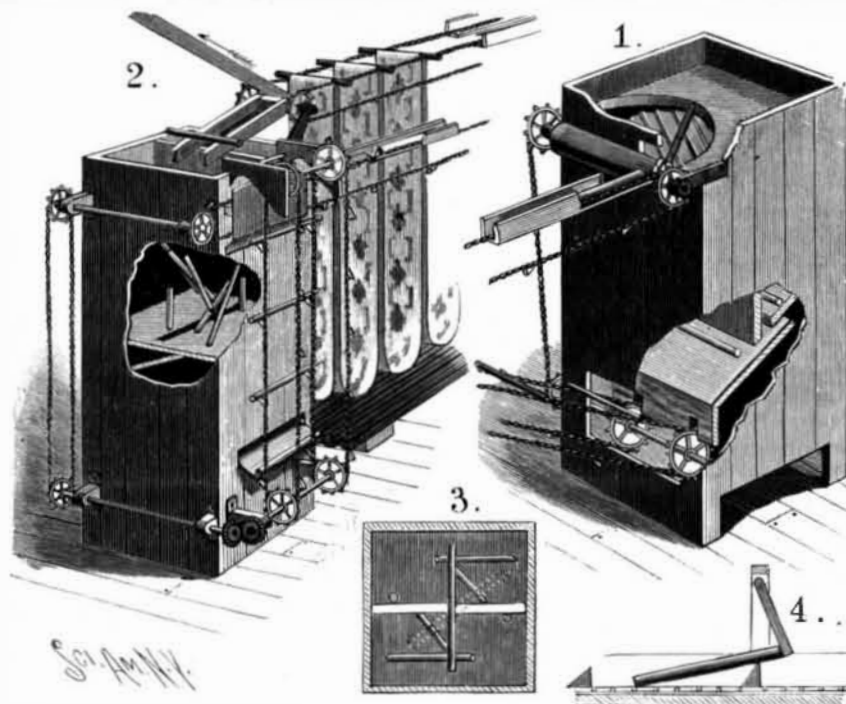
The return lath carrying device, shown in the accompanying engraving, includes a lath receiver at the rear or delivery end of the sticking machine to receive the lath from the latter. This receiver is so constructed (see Figs. 2 and 3) as to give the sticks a quarter turn while they drop downward in the end casing. The sticks then pass through a chute in the side of the casing and drop onto a chain elevator shown in Fig. 2, which carries the sticks upward and discharges the same into a horizontally disposed return carrier chain which moves the stick back to the receiving end of the

sticking machine. At the forward end of the carrier the stick must be transferred in a lateral direction, so that it has to be turned. The device for this purpose is shown on the top of Fig. 1 and consists of a block having a curved edge adapted to be engaged by the end of the stick still pushed forward by the lug on the carrier chain, so that the stick moves transversely to the path of the chain, and finally it drops over the bottom having diagonal steps to bring the lath around to a transverse position. The lath then passes between two straightening rollers and finally drops down a chute back onto the inclined carrier chain of the sticking machine. Some of the sticks, when delivered by the elevator before mentioned upon the horizontal carrier chain, may drop onto the lugs thereof. In order to move the lath down onto the chain, the device shown in Fig. 4 is provided. This device consists of a gravity arm mounted to swing and extending with its lower free end into the trough of the carrier chain, so that a stick resting on a lug strikes against the said arm and is pushed by the latter off the lug as the chain moves forward, until the forward end of the stick drops off the advancing lug and then lies horizontally on the upper run of the carrier chain.

This very interesting and ingenious device has just been patented by John H. Suydam, Sr., of New Brunswick, N. J.

## The Current Supplement.

The current SUPPLEMENT, No. 1166, contains many articles of more than usual interest. "How a Ship is



SUYDAM'S LATH CARRYING MACHINE.

Built" describes in detail the process of building a large ship in a German shipyard from the time the keel is laid down until she makes her trial trip. It is of great interest in view of the present war with Spain, as the building of some battleships and the famous liner "Kaiser Wilhelm der Grosse" are illustrated. "Spanish Naval Education" is another timely article dealing with the personnel of the Spanish naval officers and the methods by which they are educated. "The Working of Long Submarine Cables" is another article dealing with a subject of present interest, as the submarine cable is playing an important part at the present juncture. The wonderfully ingenious siphon recorder is fully described. "The Jubilee of Henrik Ibsen" deals with some of the works of this interesting personality, and is accompanied by his latest portrait. "The Psychology of Invention," by Prof. Josiah Royce, of Harvard, deals with the important and much neglected psychological side of invention. It is the second installment of a valuable paper. "The Protection of Industrial Property" is valuable to those interested in patents and trademarks. "The New Acetylene Generator" describes the latest French form, showing the application of acetylene gas for street lighting.

A PROOF that it is not always the sense of smell, but oftentimes that of sight, which directs insects to their flowers is noted by the distinguished French entomologist, M. R. Blanchard. A species of sphinx moth which entered a hotel room in the half obscurity of early morning was found to flit with direct intent to definite parts of the wall and ceiling. These were decorated with paintings of leaves and flowers, and to the latter the insect approached in repeated attacks, thrusting forward its proboscis as though intent upon intruding it into the opened cups of beguiling flowers. After repeated failures and the resulting discouragement, the effort was given up, and the moth escaped by the window. Another case of a butterfly which persisted in visiting the artificial flowers upon a lady's bonnet adds an instance to recorded facts of erring instinct among insects.