

## RECENT AMERICAN PATENTS.

In engineering we notice an improved sectional boiler by R. Cosslett, Jr., of Bristol, England, which is composed of a number of inclined tubes having connections which alternate in position and insure a complete circulation.

An improved tube fastening for boilers, contrived so that the tubes may be readily inserted and removed, is the invention of Mr. W. H. Walsh, of Fort Worth, Texas. The device appears well calculated to strengthen the boiler.

A mining car truck, the invention of Messrs. W. McGaskill and J. Meinhard, of Virginia City, Nev., is provided with wheels which turn independently, and with self-lubricating axle boxes which exclude dust from the journals.

Among mechanical patents we find a cotton press, by Mr. J. J. Hines, of Savannah, Ga., which consists in a combination of two toggle joints, with a peculiar windlass arranged in relation to the platen, so that the power is advantageously applied to the cotton bale.

Among agricultural inventions we find an improved wheel cultivator by Mr. N. T. Remy, of Brookville, Ind., which is adjustable as to width, and is arranged so that either of the horses attached to the machine may draw in advance of the other without changing the direction of the machine.

Mr. Daniel C. Fosgate, of Rochester, Minn., has invented a sulky plow, the frame of which may be leveled and the plow adjusted by the driver while in his seat.

Another sulky plow, of novel design, devised by Mr. L. Brown, of Wartsburg, Washington Ter., has its plow supported at one side of the sulky, and is provided with a ready means of adjustment.

A new form of rotary churn, invented by Mr. John McAnespey, of Philadelphia, Pa., has its dasher bars so disposed as to render it very effective.

Mr. Thomas P. Williamson, of Golconda, Ill., has patented an Apparatus for Dividing or Colonizing Bees, consisting of two hives, each made in two sections, having vertical movable walls.

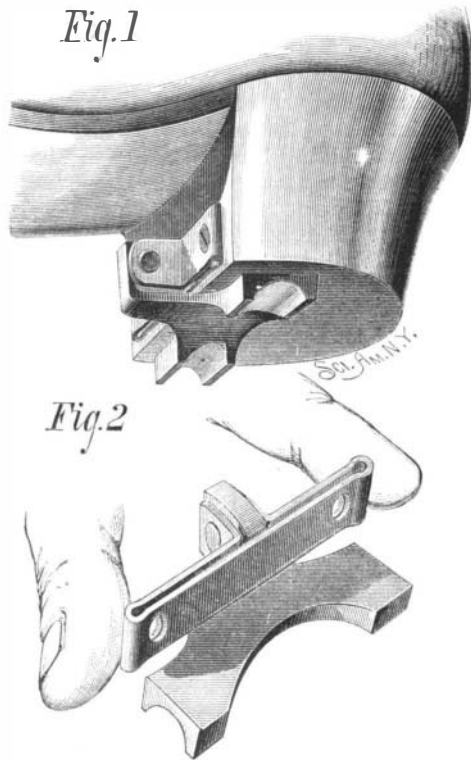
An improved Fence by Mr. Josiah H. Bailey, of Wilmington, Ohio, is cheap, strong, and durable, can be easily and quickly erected or removed. It consists partly of wood and partly of iron; wooden posts are avoided.

Mr. William A. Yeatts, of Little River, Va., has an improvement in Cutters in which the hay and straw are subjected to a shear cut by the reciprocation of the knife or knives in the arc of a circle; the knives cut at every stroke backward and forward.

Mr. J. K. Boswell, of St. Louis, Mo., has a device for heating, cooking, and for drying clothes or fruit. The apparatus has the appearance of a piece of ornamental cabinet furniture, the internal parts being made of metal and the outside of wood.

## A NEW ICE CREEPER.

The desirability of an efficient ice creeper is admitted, but the amount of time consumed in attaching and detaching



AUSTIN'S ICE CREEPER.

creepers of the ordinary form is sufficient to prevent their general use.

The accompanying engraving shows an ice creeper that may be folded up against the sole of the boot when not in use, and may be readily unfolded so as to present four points to the surface of the ice.

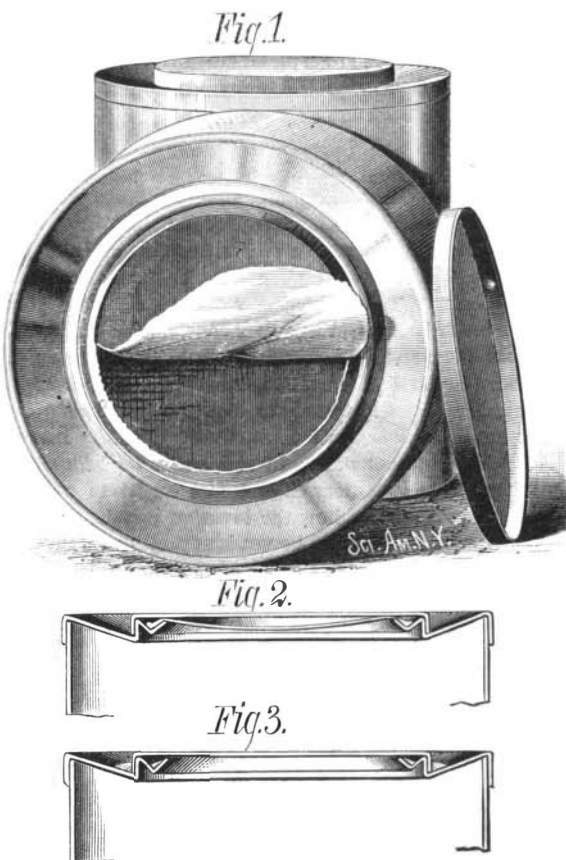
The invention consists in a strip of metal turned upon itself to form a spring, and bent outward, forming ears, between which is pivoted the right angled arm of the plate which carries the spurs.

When the device is in use it is arranged as shown in Fig. 1. When it is not in use the concave surface of the plate is folded up against the narrower portion of the shoe sole.

A patent for this invention was recently granted to Mr. Edward D. Austin, of Erie, Pa.

## AN IMPROVED FRUIT CAN.

The improved can shown in the accompanying engraving is the invention of Mr. Edwin Norton, of Chicago, Ill. It is intended for the use of packers of canned goods, and afterward to be used by families, thus saving the cost of new cans, an important item when the amount of money annually expended for the ordinary wax sealing tin cans is considered. The cans used by packers can be used but once, as they are destroyed in opening.



NORTON'S FRUIT CAN.

This can has two caps, the inside one being made of thin tin, which may be readily punctured and cut when the can is opened, and it cuts out smoothly, so that the contents may be readily removed, and the can will be left in good condition for further use. The outer cap adheres by friction, and there is the usual wax groove common to such can tops, which permits of using wax or cement in sealing in the usual way.

For further information address Messrs. Norton Brothers, Chicago, Ill.

## The St. Gothard Tunnel.

It has been held that the workings in the Nevada silver mines are the hottest in the world; nor is this remarkable, seeing that the said workings are driven in what may be termed the crust of a recent volcano. If the stories which reach us from the St. Gothard Tunnel be true, the heat in the heading must be even greater than that in the silver mines. The total length now bored is 13,500 yards from both ends. The workmen, we are told, are subjected to such a temperature that "they can wear no clothes whatever. They return to the mouth of the tunnel streaming with perspiration, their faces are yellow and ghastly, they cannot bear the light of the sun, they walk with bent shoulders, and stagger as if carrying burdens too heavy for their strength."

This seems to denote phenomena which deserve attention. In the Nevada mines the temperature is high for very good reasons. In deep mines it is high because the nearer we approach the center of the earth the hotter things get, for reasons not too well explained. But in the St. Gothard tunnel there is no approach to the center of the earth, and the constant escape of cold air from the perforators ought to make the place chilly, rather than the reverse. Can it be that a volcano may be tapped before the tunnel is finished? Speaking seriously, says the *Engineer*, there would appear to be some very great defect in the ventilating arrangements, in consequence of which the lights used exalt the temperature. If it can be shown that the heat is as great as it is said to be, the matter should be investigated by some competent authority, as the results of such an investigation may throw light on certain questions now very obscure.

## Dangerous Houses.

Houses that have been empty may become fever breeders when they come to be re-occupied. An English sanitary officer alleges that he has observed typhoid, diphtheria, or other zymotic affections to arise under these circumstances. The cause is supposed to be in the disuse of cisterns, pipes, and drains, the processes of putrefaction going on in the impure air in them, the unobstructed access of this air to the house, while the closure of windows and doors effectually shuts out fresh air. Persons moving from the city to their country homes for the summer, should see that the drains and pipes are in perfect order, that the cellar and closets are cleared of rubbish, and the whole house thoroughly aired before occupying. Carbolic acid used freely in the cellar is a good and cheap disinfectant.

## Aerial Telegraphy.

Professor Loomis, of Washington, according to the *New York Tribune*, appears to be still enthusiastically carrying on his experiments in aerial telegraphy in West Virginia. Aerial telegraphy is based on the theory that at certain elevations there is a natural electric current, by taking advantage of which wires may be wholly dispensed with. It is said that he has telegraphed as far as eleven miles by means of kites flown with copper wire. When the kites reached the same altitude or got into the same current, communication by means of an instrument similar to the Morse instrument was easy and perfect, but ceased as soon as one of the kites was lowered. He has built towers on two hills about twenty miles apart, and from the tops of them run up steel rods into the region of the electric current. The Professor announces that he has recently discovered that the telephone can be used for this method of communication as well as telegraphic instruments, and that of late he has done all his talking with his assistant, twenty miles away, by telephone, the connection being aerial only. He claims that he can telegraph across the sea without other wires than those necessary to reach the elevation of the current. There seems no immediate probability, however, of our getting on without poles and wire and ocean cables.

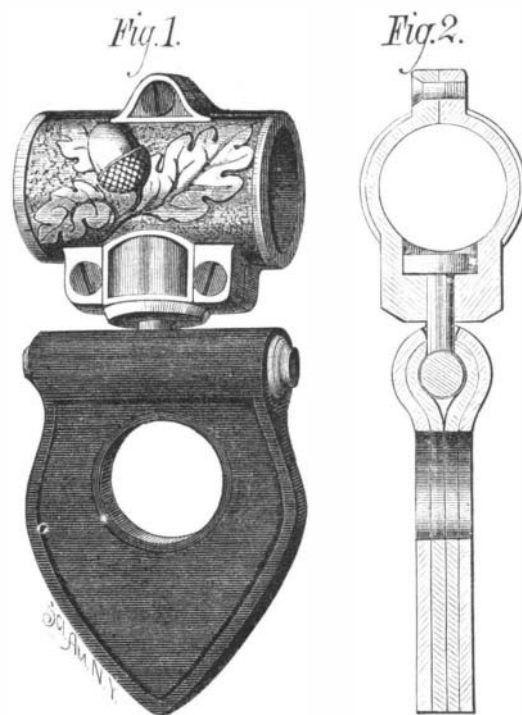
## Explosion of Deflagrating Matter.

The author examines into the causes of an explosion by which a M. Zédé had been severely wounded. The latter was endeavoring to find a compound which without exploding should be entirely resolved at the lowest possible temperature into gases and vapors, and which should serve as a motive power. For this purpose he employed a mixture of gun cotton and of nitrate of ammonia. After finding the most suitable proportions he was studying in how far the speed of combustion, very slow in the open air, might be modified under increased pressure. On one occasion, when setting fire to the mixture contained in his apparatus, there occurred a violent explosion, attended by a flash of light. The tube, which had been tested up to fifty atmospheres, was shattered to pieces, and the experimentalist was seriously wounded. It would appear that a slight decrease in the orifice through which the gases escaped had changed the nature of the process from deflagration to detonation.—*M. Dupuy de Lome, in Comptes Rendus.*

## AN IMPROVEMENT IN NECK YOKES.

The accompanying engravings represent in perspective and in section a novel neck yoke ring recently patented by Mr. Leopold Biddle, of Knoxville, Iowa.

The sleeve which encircles the neck yoke is made in two parts, fastened together by screws or rivets passed through the projecting ears. In one side of the sleeve there is a socket for receiving the head of a T-shaped iron, around which is placed the leather ring that encircles the pole; an iron or steel ring may be substituted for a leather one if desired, and the sleeve may be made of brass, bronze, or malleable iron.



BIDDLE'S NECK YOKE RING.

This device permits of all necessary movements of the neck yoke, and does not in any way detract from the strength of the yoke.

## To Make Fabrics Impermeable to Water.

The *Bavarian Industrie und Gewerbe Blatt* says that M. Von Mallmann, of Paris, has recently taken out a patent for a new process of rendering any woven fabric impermeable to water without affecting its color or impeding the free passage of the air. The process consists in immersing the cloth in a bath composed of water, acetate of alumina, and Iceland moss. The latter article is first boiled in the water and the acetate of alumina afterward added. The fabric is allowed to remain in the solution two or three hours and then taken out and dried.