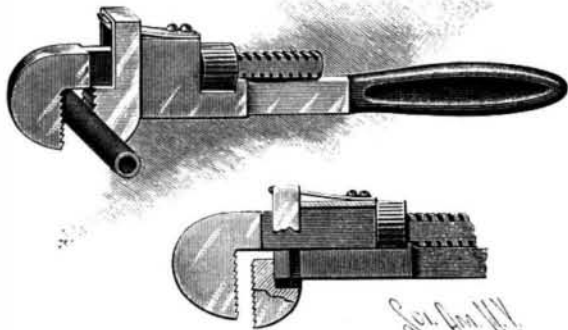


**AN IMPROVED PIPE WRENCH.**

The illustration represents a strong and convenient wrench, consisting of but few parts, which can be quickly and readily separated, and any one part duplicated if necessary. It has been patented by Mr. John Ryan, of No. 347 East Thirtieth Street, New York City. The body part of the wrench has an integral strap with a rectangular opening in which slides an adjusting bar, on the outer end of which is formed the outer jaw of the wrench. The inner end of the adjusting bar is provided with teeth engaged by a nut located on the bar and entering a recess of the handle bar, the turning of the nut moving the adjusting bar out or in to bring the outer jaw in the desired position relative to the inner jaw. The inner jaw is formed upon the



**RYAN'S PIPE WRENCH.**

lower outer edge of the projecting portion of a separate piece or strap having a slight vertical movement on the outer end of the handle bar, to which it is attached by means of shallow side tongues on the handle bar fitting similar grooves in the sides of the strap. The strap extends above the strap of the handle bar, and a spring attached to the latter, engaging the under side of the top portion of the strap carrying the lower jaw, limits the movement of the latter, returning it to normal position when any applied strain ceases. When the jaws are adjusted upon and the wrench is operated to turn a pipe, the inner jaw has a slight sliding movement designed to increase its hold, the jaw being restored to its normal position as the wrench is carried backward to obtain another hold.

**Mobile as a Coal Port.**

There is soon to be a great demand for coal shipments from Southern ports, and all the indications point to Mobile as the chief supplying port, owing to its proximity to the great coal fields of Alabama.

Competition between Mobile's three railroads, and eventually between the rivers and railroads, will give Mobile the cheapest coal.

The rivers are obstructed just below the coal measures, and while boats of coal are run down occasionally during high water, this method of freighting the coal is not yet safe or reliable. By the construction of a short independent railroad of about twenty miles length, from the coal fields to the Alabama or Warrior river, good safe boat navigation could be had for ten months in the year; then, with suitable coal barges, coal could be loaded near the mines and brought down to Mobile and carried on to Cuba and all Gulf ports without transfer if desired. By this method coal could be brought to Mobile to cost not exceeding \$1.50 per ton.

**"Sorrel Sue."**

At Batesville, Ark., a recent shooting affray brought into notice a woman known as "Sorrel Sue." She always appeared in public riding a sorrel horse. It was believed she belonged to a gang who stole horses.

A surgeon who was summoned to attend one of her admirers, who had been wounded in the row, mistook his way and wandered into Sue's cabin. Before he could be hustled out he saw things which roused his suspicions. These he reported to Sheriff Timcoe, who, with a posse, managed to surround the den of horse thieves, capturing Sue and two of her gang. He found that Sue had applied the means of bleaching her own hair to that of her horses. When the posse entered, they found a horse enveloped in a jacket made of rubber coats, being treated to a sulphur vapor bath. The appliances were very ingenious, and worked very well. A black or bay horse would be stolen and run into the bleachery. After its color was changed and its mane and tail trimmed, the disguise became so pronounced that without any great risk the animal could be taken in daylight through the very district from which it had been stolen. It was Sue's business to not only superintend the bleaching, but also to ride the animal out of the country.—*The Spokesman.*

**Crystals in Sugar Cane.**

It has often been said, and in some instances by those who were considered good authority, that sugar cane at times contained actual sugar crystals. As in plant life, ordinarily, no crystals are discovered, even where the juices, by subsequent concentration, will yield crystals, it seems fair to infer that normal sugar cane never contains any crystals of sugar. Mr. J. B. Avequin, a French chemist, resident in New Orleans some forty years ago, was one of the first careful investigators of sugar cane, and he seems to have arrived at the conclusion that sugar contained actual crystals of sugar. The literature of sugar, and especially of sugar cane, was very limited at that time, and Mr. Avequin reported his analyses of normal cane juice, indicating that it contained about 14 per cent of sugar, he not then being, seemingly, aware of the fact that the sugar content of sound sugar cane might vary from 10 to 20 per cent.

The whole matter has been brought to our attention within a few days by observing crystals of sugar on the butt ends of the recently cut canes. A careful and repeated inspection showed the crystals to be there beyond any doubt. They glistened in the sunlight in an unmistakable manner, and suggested the truth of the old hypothesis.

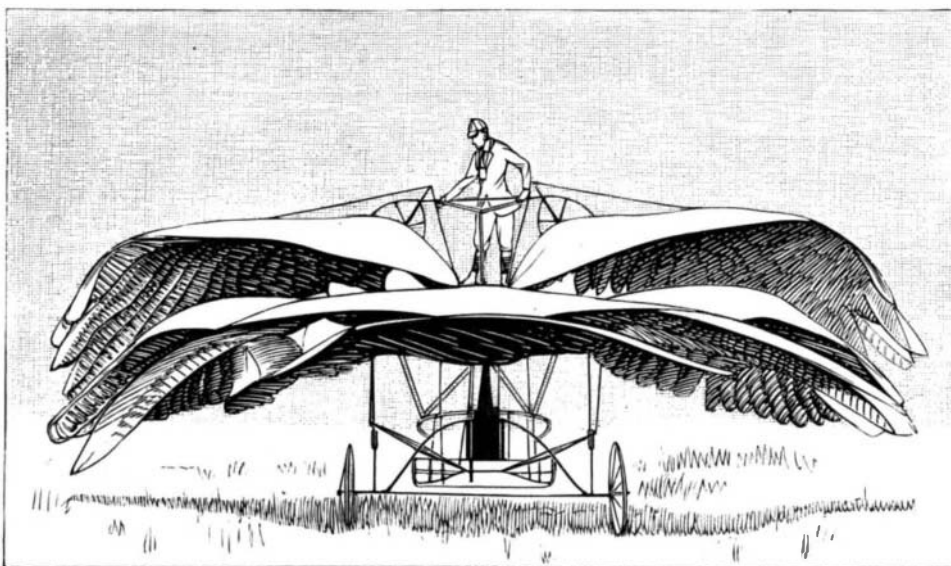
The truth, however, seems to lie in a different direction. The canes observed were of exceptionally high saccharine content, and recently cut in dry weather, the juices exuding at the cut end evaporated so quickly, owing to the dry weather, that these crystals of sugar were formed, where under ordinary circumstances fermentation would have set in and the ends of the cane have become sour.—*La. Planter.*

**Drainage of the City of Mexico.**

The drainage of the valley of Mexico has proved to be a difficult work. Messrs. Reed & Campbell have been obliged to notify the government of impossibility of carrying out the tunnel for the drainage of the valley of Mexico under the terms of the contract, in consequence of the amount of water being so far in excess of anything that was contemplated. This, however, will not interfere with the ultimate success of the undertaking. The tunnel works are still being carried vigorously forward by Messrs. Reed & Campbell as agents for the government, pending the arrangement of a new contract, the terms of which the government are at present considering. The completion of the tunnel will take longer than was anticipated, but of the ultimate success of the undertaking there is little reason to have any apprehension.

**A FLYING MACHINE.**

We give a representation of the machine intended for aerial transit which Mr. Edward P. Frost, of West Wrattling Hall, Cambridgeshire, has invented. The Council of the Aeronautical Society, including Mr. James Glaisher, recently, on the invitation of Mr. Frost, paid a visit to West Wrattling and inspected the machine. It may be said that Mr. Frost only waits for a sufficiently light engine which will supply the necessary motive power, and this Mr. Maxim has nearly invented. Mr. Frost, with about twenty-five years of study and work, found a natural material at once as tough as leather, very strong, very light, flexible, and capable of taking any form of bend required to build up the feathers. The huge "tones," so to speak, of the wings of the machine were made in the same way, and to precisely correspond to each natural tone, and the artificial feathers were fixed on to their respective tones as nearly as possible in the position of the natural feathers, which are each and all set at

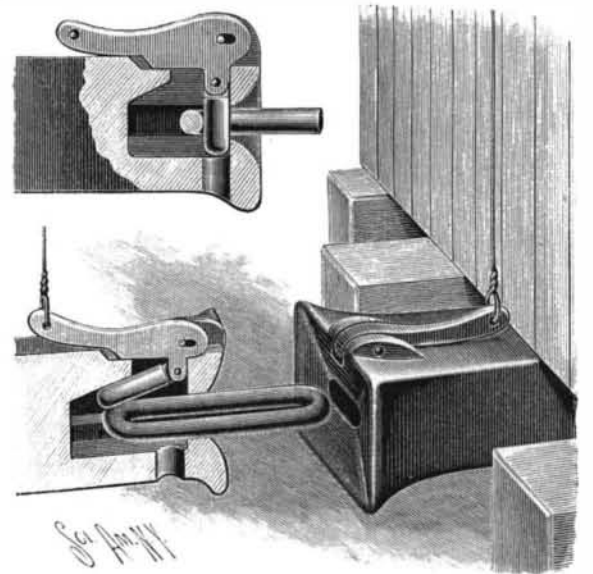


**THE FROST FLYING MACHINE.**

varying angles to the tone. The machine is devised and constructed with perfect imitation of the arrangement of every feather in the wing of a crow, the bird selected as its model. The dimensions are 30 ft. from tip to tip of the large wings. The whole weight is about 650 lb.—*London Daily Graphic.*

**AN IMPROVED CAR COUPLING.**

A simple, secure, and easily operated car coupling, one adapted to couple automatically, while the uncoupling may be effected from the platform or roof of the car, is shown in the accompanying illustration. It has been patented by Mr. Samuel G. Trine, of Pierre, South Dakota. There is a longitudinal chamber in the drawhead to allow the link to enter far enough for engagement by a pendent locking pin, shoulders being formed on the inside of the throat or entrance to the



**TRINE'S CAR COUPLING.**

chamber. At the sides of a central longitudinal slot in the top of the drawhead are ears in which is fulcrumed a lever of special form, as shown, having a jointed connection with a short locking pin. The perforation in the lever through which the fulcrum bolt is passed is slightly elongated, permitting the adjustment of the pin to hold a link projected from one drawhead, in position to enter the drawhead of an approaching car, the top of the pin then engaging a top rear portion of the chamber, and the under side of the link lying upon the lower shoulder at the throat opening. As the link thus held enters an approaching drawhead, the pendent pin therein is swung rearwardly until it slides over the link end and falls into locked connection with the shoulders and link end, provided the lever is in horizontal position, as shown in one of the views, the balancing of the link in extended position, and the latitude of motion of the pin, being so provided for that a locked engagement in both drawheads will always be effected. The lever is connected at its inner end with an upright rod extending to the car roof, to permit the ready uncoupling of cars therefrom, and grooves on the inside of the ears and an aperture in the lower wall of the drawhead, just behind the shoulders at the throat opening, permit the use of an ordinary coupling pin with the usual form of link, should the improved device be broken or in any way disabled. An automatic coupling is thus obtained substantially from the old link and pin, and the device is self-uncoupling in case of derailment of the engine or similar accident, and can be uncoupled from the engine.

**Wood Pavements in London.**

Some time ago Mr. William Weaver, chief engineer and surveyor for Kensington, published a report on the streets under his charge. These streets aggregate about 84 miles in length, and are paved with wood, asphalt, pitching flints, macadam, and gravel. Of the main streets, all, with the exception of about 1,000 square yards of asphalt, are paved with wood laid on a foundation of 6 in. of Portland cement concrete.

Upward of 200,000 square yards of wood have been laid in all, and the varieties used include fir, beech, vale, and jarrah. The best results obtained were with creosoted deal blocks 9 in. long, 3 in. wide, and 5 in. deep, laid on 6 in. of concrete. They are generally spaced with open joints 3/8 in. wide, filled with asphalt to a depth of 1/4 in. to 1/2 in., the remainder fronted with Portland cement. Sometimes the blocks are laid with close joints, and if the weather is dry when this is done, good results are obtained.

**Small Wire Manufacture.**

Referring to an article on this subject in the SCIENTIFIC AMERICAN of January 9, 1892, a correspondent writes that the Washburn & Moen Mfg. Co., of Worcester, Mass., are making absolutely perfect diamond dies producing copper wire as fine as two one-thousandths of an inch, by a special process, which is patented.