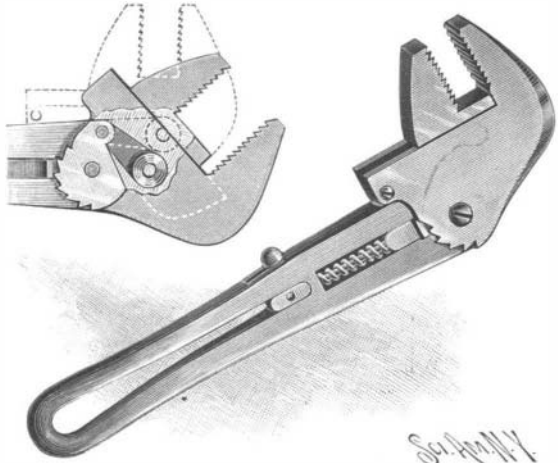


AN IMPROVEMENT IN WRENCHES.

The wrench which forms the subject of our engraving is provided with adjustable jaws which may be set to the nut merely by the movement of the wrench-handle, in contradistinction to being operated by the movement of a screw.

The handle of the wrench is formed with a slot in



KLATT AND BRODERICK'S IMPROVEMENT IN WRENCHES.

which moves a button attached to a sliding block. To the block a rod is secured which is surrounded by a coiled spring pressing against a double stop-pawl.

Pivoted on the end of the handle adjacent to the pawl is the main jaw of the wrench, on which the adjusting-jaw slides. On the main jaw, concentric with its pivot, segmental ratchets are formed which coact with the double pawl to hold the main jaw in the desired position. The adjusting-jaw is connected with the handle by means of links.

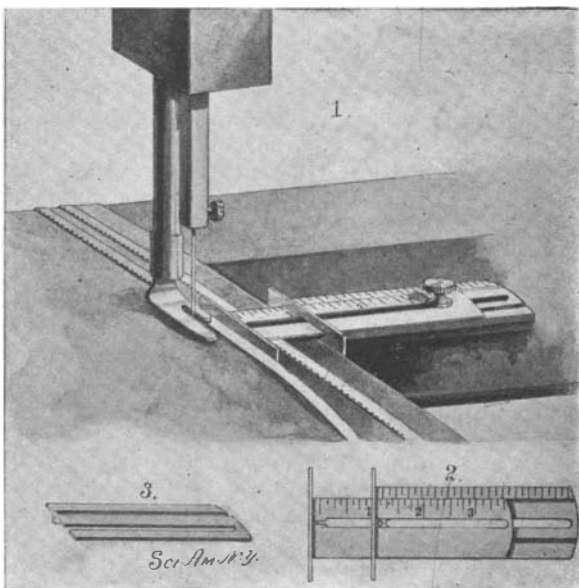
When the wrench has its parts in the position shown in the perspective view, the adjusting-jaw will be pushed by its links as near as possible to the main jaw; and the wrench will then be in position to grip the smallest sized nuts. When the wrench has its parts in the position shown in full lines in the partial sectional view, the jaws are opened to a larger capacity. In order to adjust the jaws to a nut, the wrench, when in the position shown in the sectional view, is placed on the nut and the handle turned toward the left, thus causing the adjusting-jaw to be thrown by its links toward the main jaw, and consequently closing both jaws on the nut. The spring-pressed pawl in bearing on the ratchets will hold the jaws in adjusted position. By drawing back the button sliding in the handle, the pawl may be drawn back to release the jaws.

The wrench has been patented by Reinhold Klatt and Thomas M. Broderick, of Strong City, Kansas.

A SEWING-MACHINE GAGE.

The sewing-machine gage which we illustrate herewith is a simple device designed to direct and locate trimming or braid upon a fabric.

Fig. 1 is a perspective view of the gage in operative



A NOVEL GAGE FOR SEWING-MACHINES.

position, showing the relation of the gage to the material to be guided and to the presser-foot of the machine. Fig. 2 is a plan view of the gage. Fig. 3 is a perspective view of a spacing strip or slide adapted to be used in connection with the device.

The gage consists of a base-plate and slide, both being graduated and having intermeshing ribs and slots controlling the direction of motion. The base plate is held in place on the machine by a clamping screw which is made to pass through a slot in the slide. Upon one end of the base-plate a head-plate, slotted to receive the slide, is formed, which head-plate serves to guide the outer edge of the trimming or braid. At its end, the slide is formed with a flanged

guide-plate which is carried over the inner edge of the trimming.

In the operation of the device the base-plate and slide are first adjusted to their proper positions and are then clamped in place by means of the screw, the head and guide plates being in the positions previously mentioned.

When the material to be stitched is of such thickness as to prevent its passing under the slide, it is intended either to insert between the base-plate and slide, or to substitute for the slide one or more suitably ribbed and slotted auxiliary slides of the general character shown in Fig. 3, which insertion or substitution would permit the ready passage of the material.

The device is the invention of Miss Susan Chatfield, of 105 West Sixty-fourth Street, New York city.

The Volcano of the Paris Exposition.

The Paris Exposition will abound in interesting novelties and concessions. One of the most curious will undoubtedly be the artificial volcano. We shall publish an elevation and section of the same in our SUPPLEMENT. It will be constructed at Grenelle, on the banks of the Seine. It will be 328 feet in height and 485 feet in diameter. From these figures it will be seen that the volcano will really be a mountain which visitors will have an opportunity of climbing. The sides of the mountain will be provided with shady roadways and footpaths, so as to make the trip to the top very agreeable. The framework of the volcano will require no less than 18,000,000 pounds of iron and steel for its construction. The earth which covers the framework will be real turf, in order that the mountain may present a verdant appearance. A roadway 25 feet in width will wind spirally up to a level of 240 feet, and will be decorated with climbing plants which here and there will form beautiful bowers, galleries, or simple arbors. At 120 feet from the bottom it will give access to a circular platform 30 feet wide and 1,000 feet in circumference. It will be called the "Alley of the Twentieth Century." At 240 feet the road will lead to another platform 30 feet in width, but only 328 feet in circumference. This will be named the "Franco-Russian Alley." Vegetation will be so arranged that visitors will pass from the splendid flora of the Mediterranean to the stunted shrubs found on craters. The paths will lead to the various restaurants, cafés, concert halls, etc. There will also be a reproduction of Dante's "Inferno." A cable railway will start from the base and will take passengers up to the Franco-Russian Alley. The summit will always be surmounted by a cloud of smoke in the evening, three eruptions will take place at fixed hours, and visitors will be able to see an imitation lava flow which will doubtless prove very interesting.

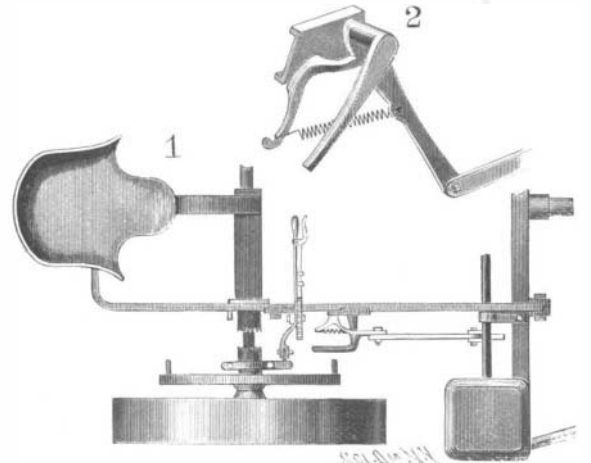
The Eclipse of 1900.

The Eclipse Committee, with Mr. Simon Newcomb as chairman, is now gathering information regarding the intended observation of the total eclipse of the sun which will occur in 1900, along the line reaching northeast from New Orleans to Norfolk, and thence across the Atlantic to Spain and Algeria. The totality is but brief in duration; still it is expected that many observers will take part, although fewer observations can be made than if a longer duration were available. Observers will, says The Nation, probably prefer the stations east of the Alleghenies, as to the west of those mountains the duration will range from 1 minute 30 seconds, near the mountains, to 1 minute 13 seconds, near New Orleans, where the sun will be much nearer the eastern horizon. The circular of the committee invites the co-operation of astronomers generally as to the measures to be taken.

A DROP-ACTUATING MECHANISM FOR SEED-PLANTERS.

A simple device has been invented by Peter W. Jeppesen, of Bloomfield, Neb., which is designed to operate automatically the dropping mechanism of corn-planters and similar agricultural machines, by the rotation of the wheels which carry the planter. Of our illustrations, Fig. 1 is a top plan view of one side of a corn-planter, showing the mechanism attached to the machine, and Fig. 2 is a perspective view of a bell-crank lever used to actuate the drop mechanism. On the planter-axle a wheel is mounted, which is provided with removable pins, upon the number of which the frequency of the seed-drop depends. This actuating-wheel may be mounted to turn with the axle; or it may be loosely held and rotated whenever desired by means of a clutch. In either construction the actuating wheel is grooved to receive a ring connected by a link with an operating-lever in reach of the driver's hand. The operating-lever is directly pivoted to a block bolted on the planter-frame—a construction which readily adapts the parts to most machines. The block has an arm terminating in a notched segment, capable of being engaged by a catch mounted on the operating-lever and controlled by a handle in the usual manner. By means of this arrangement the actuating-wheel may be shifted in and out of operative position. Mounted upon the frame is a bell-crank lever (Fig. 2).

One arm of the bell-crank is held in the path of the pins on the actuating-wheel; and the other arm is connected with the oscillating or reciprocating bar of the drop mechanism. When one of the pins on the actuating-wheel engages the arm of the bell-crank, the other arm will be caused to operate the seed-drop. To return the bell-crank to its operative position after having been thrown aside by a pin, a coiled spring is used as shown in Fig. 2. The seed-dropping mechanism may be of any desired form, the particular type employed not materially affecting the general construction of the actuating parts. The devices described may be attached to any planter already constructed; they are simple in form, are readily controlled by the



JEPPESSEN'S DROP-ACTUATING MECHANISM FOR SEED-PLANTERS.

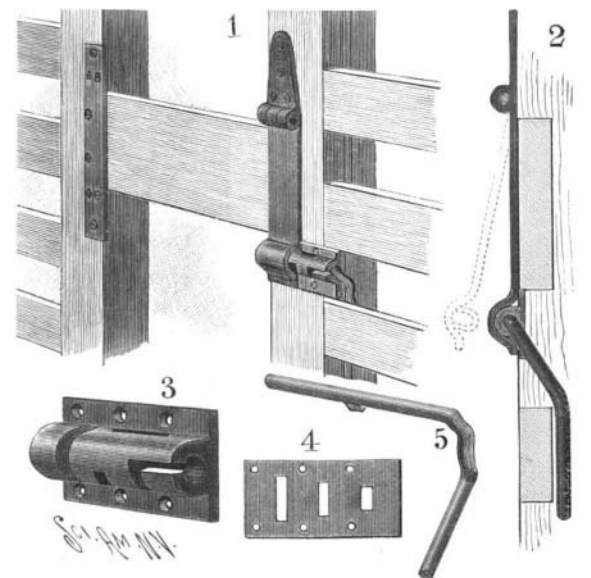
driver, and are adjustable to permit a regular dropping of the seed at any desired interval.

AN EFFICIENT FASTENER FOR STOCK-CARS.

The invention illustrated in the annexed engraving is a fastener for stock-cars, by means of which the entrance for the cattle may be effectively closed. The fastener consists particularly of an improved bolt and keeper for holding the hasp which confines the usual cattle-barrier or "bull-bar," as it is technically termed.

Fig. 1 shows the fastener in use. Fig. 2 is an elevation view of the hasp and keeper, with the bull-bar in section. Fig. 3 is a perspective view of the keeper. Fig. 4 is a rear view of the keeper. Fig. 5 is a perspective view of the locking-bolt. The bull-bar, as illustrated in Fig. 1, is received at one end by a socket formed in a plate carried by one stanchion, and is removably held at the other end by a hasp on the other stanchion, the hasp being bent to conform with the shape of the keeper, as shown in Fig. 2.

Referring to Figs. 3 and 4, it will be observed that the keeper comprises a base formed with a tubular portion. The base and tubular portion are provided with longitudinal and transverse slots communicating with the bore of the tubular portion and with a gap adapted to receive a staple on the hasp. The bolt, which coacts with the keeper to lock the bull-bar, consists of a main part and of a handle, by means of which it is operated. The main part slides in the bore of the tubular portion of the keeper, the end of the part serving to cross the gap in the tubular portion, to hold the staple. A lug is formed on the main part of the bolt, and is capable of being worked through the irregular passage formed by the longitudinal and transverse slots of the keeper in order to lock and release the bolt. The peculiar forms



PEARSON'S FASTENER FOR STOCK-CARS.

of the keeper and of the bolt render it impossible for the bull-bar to become accidentally unlocked after the bolt has been once turned and shifted in place. The fastener has been patented by the inventor, Mr. John C. Pearson, Pocatello, Idaho.