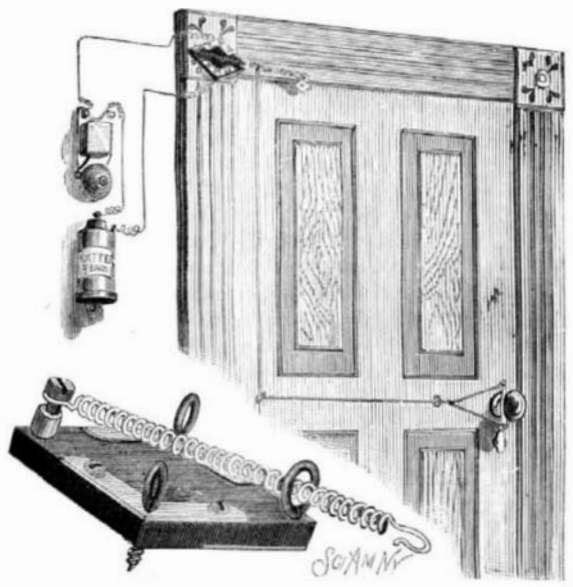
A READILY APPLIED BURGLAR ALARM.

The device shown in the picture may be conveniently applied to a door or window, trunk or bureau drawer, etc. It has been patented by Mr. Charles J. Fisher, of No. 90 Evergreen Avenue, Chicago, Ill. A diamond-shaped base plate of insulating material has on its opposite sides conducting plates, as shown in



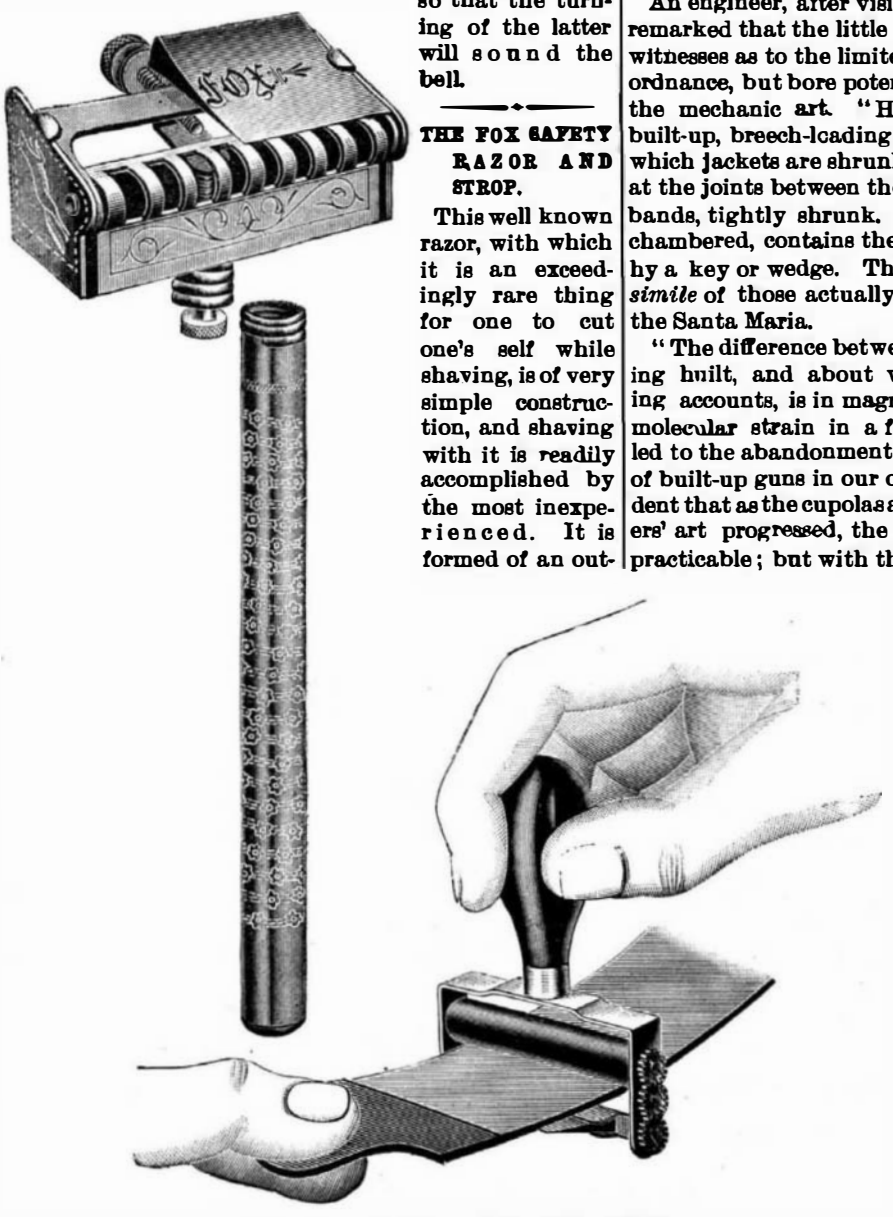
FISHER'S BURGLAR ALARM.

the small figure, the center of each plate having an opening for a screw, and these screws being conductors. A third screw at one end is connected with one end of a spring which extends over the base and passes through a metal eye, the body of which is carried through to the bottom of the base, on the under surface of which are oppositely disposed conducting plates, one connected with the screw to which the spring is attached, and the other with the eye. The base plate is attached to any object by passing screw eyes or like fastenings through the side apertures, the positive and negative wires of the battery being connected with the eyes, and a bell being located in the circuit. Then, as long as the spring extended over the base remains in the middle of the eye the circuit will be open, but the engagement of the eye by the spring closes the circuit, as all of the plates, the spring and the wires of the battery are in connection, and the bell will be sounded. In the application of the improvement as shown in the illustration, the door needs to be opened only slightly to force the spring into contact with the guide eye, and thus give an alarm, while the device may be also connected with the door knob, so that the turning of the latter will sound the bell.

THE FOX SAFETY RAZOR AND STROP.

This well known razor, with which it is an exceedingly rare thing for one to cut one's self while shaving, is of very simple construction, and shaving with it is readily accomplished by the most inexperienced. It is formed of an outside frame and guard in one piece, two inches long, in which is inserted the razor blade, one and seven-eighths inches long, and the removable handle. Within the outside frame is another movable frame which presses against the blade when inserted, the blade being quickly adjusted in correct position by means of two screws.

A special patented device for stropping and honing is shown in one of the views. The blade is held in the bottom of the frame holder, through which is passed the swing strop under the friction roller, and the device is then moved forward and back over the strop, on which the roller slightly presses, the blade being automatically turned on its back with each reverse motion of the device on the strop. The strokes may be short or long, quick or slow, but it is quite impossible to cut into the leather, and a fine, keen edge may be quickly obtained. M. E. Lothair Schmitz, No. 92 Reade Street, New York City, is the patentee and manufacturer of these devices.

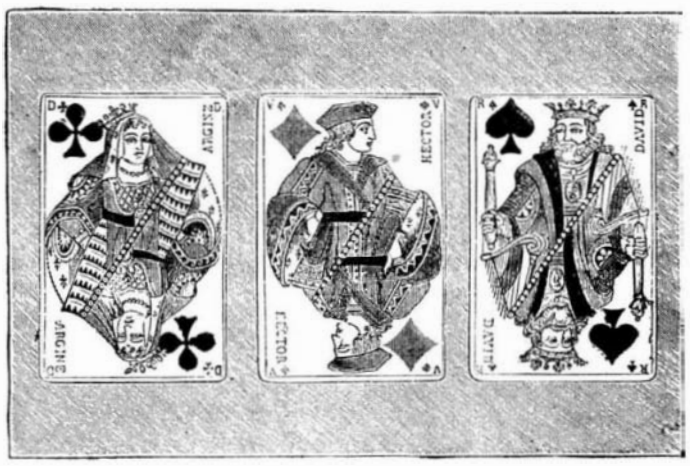


THE FOX SAFETY RAZOR AND STROP.

AN EXPERIMENT IN DIVINATION.

I place before your eyes three face cards, a queen of clubs, a jack of diamonds and a king of spades. During my absence in a neighboring room, whence it will be impossible for me to see you, you will turn one of these cards upside down. When you call me, I will tell you which of these cards you have thus inverted. It is unnecessary to say that one must operate with double-headed face cards that have absolutely the same aspect in both directions.

The following is the manner in which the operator can recognize the card inverted. He selects from the pack three cards in which the line engraved around the card is nearer the edge at one extremity than at the other. He places the three cards upon a table before the spectators in such a way that the wider margin of the card is at the bottom with respect to the spectators and the narrower at the top, as is the case with the three cards represented herewith. The three top margins are narrower than the bottom ones. This is especially perceptible in the king of spades, but is very apparent also in the two other cards, which are accurately reproduced from a photograph. When a card has been inverted, it is easy to perceive it in noticing that the wider margin is at the top with respect to the spectators. The difference in width of the two margins is very appreciable to the operator, but escapes the eyes of the spectators who are not posted. This amusing experiment never fails to excite astonishment.—*Dr. Z., in La Nature.*



A TRICK WITH CARDS.

The Ancient and the Modern Gun.

An engineer, after visiting the caravel Santa Maria, remarked that the little guns of that vessel were silent witnesses as to the limited advance in the science of ordnance, but bore potent testimony of the advance in the mechanic art. "Here," said the engineer, "is a built-up, breech-loading gun; it has a central tube, on which jackets are shrunk (or forced) in short sections; at the joints between these sections there are other iron bands, tightly shrunk. The breech block, which is chambered, contains the cartridge; it is held in place by a key or wedge. This gun is certified to be a *facsimile* of those actually used by Columbus on board the Santa Maria.

"The difference between this gun and those now being built, and about which we read such interesting accounts, is in magnitude, not in principle. The molecular strain in a forging or casting of great size led to the abandonment of cast guns and the adoption of built-up guns in our own generation. It seems evident that as the cupolas advanced in size and the moulders' art progressed, the cast guns of large size became practicable; but with the increased internal pressures demanded the castings reached their limit, and built-up guns became essential.

"The gun of to-day is composed of a central tube, on which are shrunk 'hoops' in shorter sections. Its breech block is held in place by a slotted screw, which is but another form of the wedge, being a circular inclined plane.

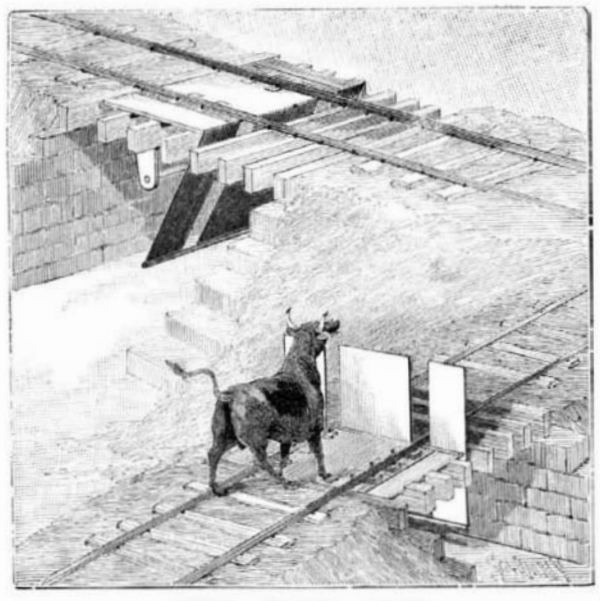
"The difference between the guns of Columbus' ships and those of to-day is due almost exclusively to the mechanic arts; to the steam engine as the power; furnaces, the cupolas, the hammers, and the lathes as the tools, and to the brawny sons of toil who work these machines. The advance has been gradual, and is wrought by mechanics and draughtsmen, and the claim that gunnery or that ordnance belongs to the occult science pales before the scrutiny of common sense observation."

A Selenite Mine.

At a recent meeting of the Royal Microscopical Society, Dr. J. E. Talmage, of Salt Lake City, Utah, exhibited and gave an account of some specimens of selenite found in the interior of a mound at South Wash, near Fremont River, Utah. As a rule, portions of selenite useful for optical purposes are measured by inches and weighed by ounces, but here he had found some which weighed 1,000 pounds. The formation around the mound was mostly sand and clay, and the region bore everywhere strong evidences of weathering, by means of which the mound had been weathered out into relief. He had removed some twenty tons of the crystals, among which were many single crystals, measuring 4 to 5 feet in length, and entirely perfect, the most regular being 4 feet long, with faces of 6 inches. One fine crystal, 5 feet long, had no less than nineteen small ones jutting out from it; twins and groups were also very common. Inclusions of sand, clay, and liquid were often present.

A RAILWAY CATTLE GUARD.

The illustration shows a simple and inexpensive apparatus for application to a cattle gap, to prevent cattle from getting their legs caught between the sleepers above the gap, and also to prevent their passing over it, and to frigbten them away. The improvement has been patented by Mr. Lorenzo Hills, of Pittsburg, Texas. The part of the gap on which the cattle are likely to approach is covered by a vertically movable platform extending beneath the rails, and hinged at one edge, the sleepers being recessed to provide for the limited up and down movement of the platform. On the under side of the platform is a cleat carrying a depending arm pivoted at its lower end between parallel tilting arms which oscillate on a shaft supported in hangers. To the inner ends of the tilting arms is fastened a depending brace whose lower end is



HILLS' CATTLE GUARD.

secured to a rod which carries the guard strips, and is adapted when swung upward to project them to the full height necessary to prevent the passage of cattle, as shown in one of the views. The guard strips are preferably of metal, painted some bright color, that they may more efficiently frighten away cattle as they are suddenly thrust upward. When the platform is depressed by an animal stepping upon it, one end of the tilting arms is swung down and the other lifted, thus carrying upward the depending brace and rod, with the attached guard strips. The latter, while of sufficient stiffness to stand upright ordinarily, are designed to bend over under heavy pressure, as in case of a stampede of cattle, when the strips may be pushed down to allow the cattle to pass without injury.