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Improvements.—No Standing Still.

Some persons have expressed the opinion that we must soon reach the climax of invention and mechanical improvement. The reasons which they give for this opinion are in substance as follows :—"So many wants have already been supplied by inventions, that the objects on which to exercise the faculties of inventors are becoming less daily, and must soon become very limited in number."

Such reasons are not founded on correct data, observation, or reflection. It is true that the minds of inventors have been very active during the present century, and they have happily supplied a multitude of wants for the benefit of mankind, but instead of these inventions circumscribing the number of objects for exercising the inventive faculties, new objects seem to multiply, and the field for improvement has expanded with the advance of invention. No better evidence can be adduced in support of these assertions than the number of patents which continue to issue from the Patent Office—instead of decreasing in number they have rapidly augmented. And it never can be otherwise in any country where proper inducements are presented for making improvements. The mind of man is so constituted that when it is directed aright, it strives after that perfection which is the attribute of the Deity. And as the object to be attained is infinite excellence, there is room for man to advance and improve forever. Every new step which he makes in his onward progress, shows him more of his defects and incites him to do something better still. Every new object also, to which he devotes his attention, in order to make improvements, is like a new torch lighted up before him; it throws its beams over a greater area, and reveals new objects, unseen, or overlooked by him before. As the road to perfection has no ending, and as new discoveries reveal new wants and new objects, therefore the field for the exercise of inventive genius must continue to expand.

The old Greeks, no doubt, thought they had arrived at the climax of intelligence and perfection in the arts; and the Chinese have considered themselves a finished people, in all things, for centuries, but in learning and in useful science and art, the Greeks were but children to the moderns, and the conservative Chinese—once the furthest advanced in the arts—are now barbarians. A blind conservatism respecting any art, exerts a withering influence: it stops improvements and turns the wheels of industry backwards.

Whenever a want is felt, it is a good plan to let it be as publicly known as possible, and to offer a reward (if this can be done) for its supply. A short time since a prize was offered for improvements on machinery for sawing marble, and in a very short period afterwards the improvements sought were produced.—Our last week's number contained an account of movements now making in Illinois to offer a handsome prize for a useful steam plow. Such an invention—just because it is felt to be a great want—must ultimately be supplied. By such means many useful inventions have been developed, which otherwise would still have been slumbering in oblivion. No nation can stand still in the course of improvement; it must either go forward or retrograde. Every new improvement in the arts, therefore, should but incite to efforts for further progress and the attainment of a higher degree of excellence.

Does the Moon Rotate.

Since we published the article a few weeks since on the above subject, stating that the common opinion of the moon rotating on its axis once in 28 days exactly, had been questioned by an inspector of schools in England, we have received a great number of letters on the subject, all endeavoring to confirm the twenty-eight day rotating theory. To some of these letters we replied on page 334, stating that the arguments presented were not conclusive. Since that time we have again received quite a number of letters on the subject, some of them very ingenious in their demonstrations, and yet differing from one another as to the cause of the moon always presenting the same face to the earth. We have not room for the publication of these letters, even the most acute and able of them, and beside, they would not settle the mooted question. The best way to settle it would be the construction of an apparatus showing the earth and the moon's joint rotations, and the revolutions of the moon around the earth while the latter is rotating 28 times. It would be well to have 28 radii on the wheel which connects the earth with the moon, and to have beads or points on moon and earth, to show their coinciding bearings during the 28 rotations of the earth, while the moon is making one rotation and one revolution.

Testing Natural and Bent Ship Knees.

A series of interesting experiments with ship timber—as noticed by us last week—commenced at the "Novelty Works" this city, on the 16th ult., and were continued daily for six days. They were conducted under the inspection of B. F. Delano, Esq., naval constructor, Brooklyn, and Lieut. Worden, U. S. N., by order of the Secretary of the Navy, and were made at the request, we understand, of R. H. Belden, President of the American Timber Bending Co. The object of the experiments was the testing of the relative strength of natural and machine-bent ship knees; the artificial knees being bent at the factory in Greenpoint, by the machinery and according to the process patented by the well known Thomas Blanchard, Esq., of Boston.

The machinery for testing the strength of the knees was got up under the charge of Mr. Davidson, of the Novelty Works, who conducted the trials. It consisted of a cast and wrought iron bed and frame, in which the ship's knees (one at a time) were secured, and the breaking force applied by a powerful hydraulic press, operating upon one end of each knee, with the fulcrum at or near the center of the throat, the other part of the knee being firmly fastened, to prevent it yielding.

The first experiment was with a machine-bent knee, of 10 1-2 inches siding. With a leverage of 5 feet 4 1-2 inches, it was sprung or squeezed inwards by the press, a distance of 1 inch, by 7,500 lbs. (total pressure) ; 2 inches by 10,000 lbs.

The experiment with a *natural* knee of 10 1-2 inches siding—same angle as the machine bent knee, and conducted in the same manner—gave a lower degree of strength. It was sprung inward 1 inch by 5,500 lbs. pressure; 2 inches by 9,500 lbs.

The next machine-bent knee of the same siding, 10 1-2 inches, was sprung 1 inch by 9,500 lbs. pressure, 2 inches by 11,000 lbs. pressure.

The next *natural* knee of same siding and angle as the bent knee, was sprung 1 inch by 7,500 lbs. pressure, 2 inches by 10,500 lbs.—These experiments were of the crushing character, operating in the direction to squeeze the ends of the knees together.

The hydraulic press was then reversed, for the purpose of forcing the knees outward—riving them apart. It was an interesting trial, as it had been supposed by many that a knee or stick of artificial bent timber could be easily brought back to its original shape, but it was found more difficult to force it outwards than inwards.

A machine-bent knee of 10 1-2 inches siding, with a leverage of 5 feet 4 1-2 inches was sprung outward 1 inch by a pressure of 14,000 lbs., 2 inches by a pressure of 22,500.

The question was then raised that the pieces of timber which were bolted on the knee to represent the deck beam and the side of the ship as they butted closely together, greatly increased the power required to spring the knee outwards. For the purpose of testing this, the end of the beam was cut off, so that the ends of the timbers were entirely open and clear of each other. The pressure was continued until the knee had sprung outward ten inches, when it was taken off, and it went back five inches. The pressure was then applied the second time, and upon reaching the point where the strain had been taken off at the first trial, it required to spring it 1 inch 28,000 lbs. of pressure, thus showing that it required more than double the power to strain outward than inward. The knee was sprung ten inches without the least break, at a pressure on the last half inch of 38,500 pounds.

The last natural knee of the same angle as the foregoing bent knee, with siding of 10 1-2 inches, was a remarkably fine specimen. With a leverage of 5 feet 4 1-2 inches, it required to spring it outward 1 inch, 22,500 lbs. pressure, 2 inches, 38,500 lbs. pressure; at this point it broke near the center of the throat.

The machine-bent knees proved to possess greater elasticity than the natural ones, and after springing them inwards or outwards some distance, and then allowing them to go back; upon the pressure being applied the second time, it was found, in one trial, that the knee sustained a slightly greater pressure, but in another about six per cent. less.

Recent American Patents.

New Repeating Pistol.—By C. S. Pettengill, of New Haven, Conn.—This invention relates to that description of repeating fire-arms, in which a chambered cylinder is arranged to rotate on an axis parallel with the barrel.—The main object of the invention is to allow the operations of rotating the breech and firing to be performed easily with a simple arrangement of mechanism operated by a single pull on one trigger. The invention consists n certain arrangements and combinations of the parts of the lock, by which the hammer is made self-cocking after every fire, and the main spring is relieved from all strain while the hammer remains cocked. Other features of the invention consist in certain novel arrangements and combination of mechanical devices, by which the rotating of the cylinder, the locking of the same at the time of firing, and the letting off of the hammer are effected. This pistol is one of the most practical and ingenious improvements of its class that we have seen.

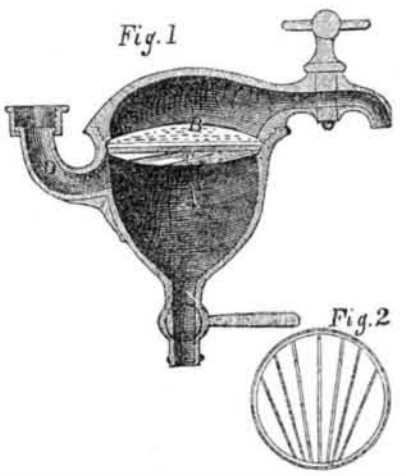
Jingle, Jingle.—Improvement in Sleigh Bells.—By Abner G. Bevin, of Chatham, Conn.—Every body knows how sleigh bells are commonly made—with shanks that are thrust through holes in the leather strap, and secured by a bent wire. The leather on which a string of bells are arranged in the ordinary way, consists, when properly finished, of five parts :—the middle strap, to which the bells are fastened, the back lining strap, which covers the fastening wires, the patent leather front strap, and the two bindings which cover the edg of the whole. The bells must be put on and fastened before the bindings can be sewed. The latter work must be done by hand slowly, because the bells cannot go through a sewing machine. In the other stages of the work the bells are also in the way, and when silvered, as all fine bells should be, become stained by frequent handling before they leave the workman.

The present improvement consists in employing bells without shanks, and attaching them by means of wire staples. Two holes are left in the base of the bell, through which the staples enter, and are then bent together in the interior, forming an effectual fastening. This arrangement does not require the attachment of the bells until after the strap is completely finished. Therefore the work is done more neatly, quicker, and cheaper. Less metal is also consumed in the casting, as the shank and thick parts near it are dispensed with. No handling of the bells is involved, so that they look neater, &c.

With the thermometer at 95°, we find the subject of sleigh bells very refreshing.

Sawing Machine.—By John Broughton, of Chicago, Ill.—Consists in placing the saw within a sliding frame, the back end of which works in ways or guides which form segments of circles, of which the driving shaft is the center. The front end of the frame works between horizontal guides, and the several parts are so arranged that a sliding saw and stationary table is obtained. The saw is pushed up against the stuff, instead of the stuff against the saw. The saw is operated with a small number of pulleys and small amount of belting. The machine is simple in construction, and, we should judge, very effective in action there are no friction pulleys, and the belts work in the simplest manner, by merely passing around the actual driving pulleys. The whole of the working parts are immediately before the eye of the operator, are very accessable for the purpose of oiling, and very likely to attract his attention in case lubrication is required, thus lessening greatly the liability to wear by the parts being concealed, and the neglect of oiling. This is a good improvement.

Improved Water Filter.—By Jas. H. Wright, of New York City.—In this improvement the filter is divided into two chambers, each having a separate stop cock, the arrangement being such that either filtered or unfiltered water may be drawn off at pleasure. The water passes slowly through the filtering machine; hence the convenience of a second stop-cock, through which the liquid may be more rapidly drawn, in case of necessity or when filtration is not required.



A is the shell of the filter. The filtering medium consists of a piece of felt or flannel, or other suitable substance placed between a perforated disk, B, and a barred ring, C. D is the induction pipe, through which the water enters. If filtered water is needed, the lower stop-cock is closed, and the water rises and passes out through the upper faucet. Unfiltered water can be had at any time by opening the lower faucet. The bars in the ring, D, serve to direct the water across and against the bottom of the felt or other filter, when the lower cock is opened, and thus to sweep off and keep the under side of the filter always clean. This is an important feature. One great objection to the use of small filters is their liability to clog up by the accumulation

of dirt on one side of the filtering material. The present improvement overcomes that difficulty, in a great degree. Fig. 3 shows the external appearance, which may be rendered highly ornamental. The invention is applicable to large cistern reservoirs, and the purification of rain water. The form here shown is chiefly intended for city use. Patented July 1, 1856. Apply to the inventor, 835 Broadway, N. Y., for further information.

Improvement in Cartridges.—By George Buckel and Edward Dorsch, M.D., Monroe, Mich.—This invention relates to cartridges for fire-arms whose bore is entirely formed of a number of circular grooves. It consists in the arrangement, side by side, with their axes on the same circle, of several balls of cylindro-conoidal or other partly cylindrical form, of a size to fit the grooves of the bore, the number of said balls being equal to the number of grooves in the bore, so that every groove may receive a separate ball. It also consists in the separation of the several balls by a partition piece of paper or other material for the purpose of preventing their union by fusion when the charge explodes, which, with-