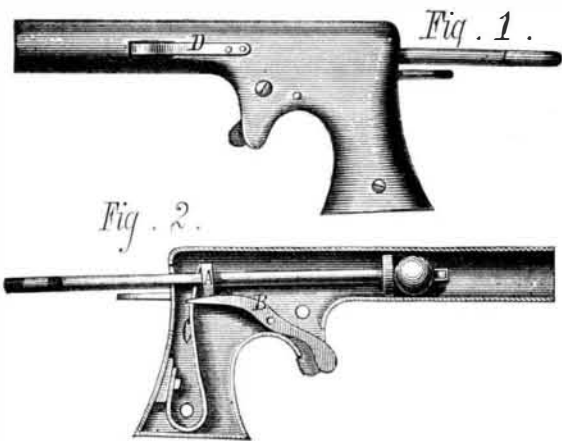


**IMPROVED TOY PISTOL—MECHANICAL MARBLE PLAYING.**

This is a new way of playing marbles, which we have no doubt will greatly please the boys. Instead of holding the marble between thumb and finger, and propelling it in the somewhat disadvantageous position of "knuckling down," the inventor of the present device proposes to shoot it out of a spring pistol. This change, he thinks, will increase the sport and add to the enjoyment of the game.

The construction of the pistol is represented in the annexed engravings, Fig. 1 showing an exterior, and Fig. 2 a sectional view. The stock is made of metal, in two sections, and is held together by screws. The piston rod carries a disk, A, which rests against the trigger, B. Also on the



piston rod is a shoulder which, when the rod is drawn back against the spring, C, which bears against disk, A, catches on the handle plate, as shown in Fig. 2. The marble is prevented from rolling out when the pistol is aimed downward by the side spring, D. By pressing on the trigger the piston rod is raised so that its shoulder no longer engages with the handle plate, when it is pushed forward by the spring, C, thus throwing out the marble.

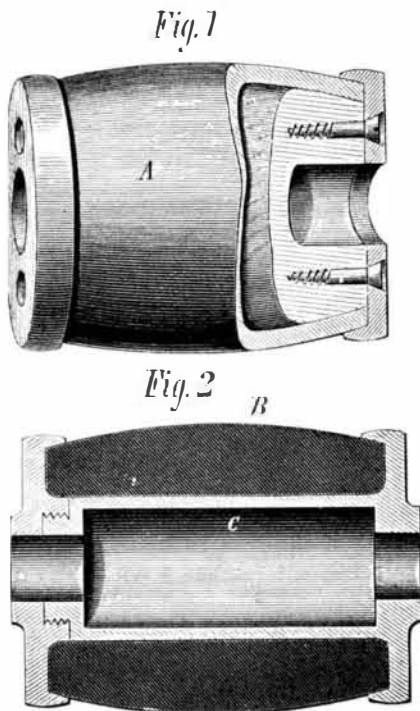
Patented through the Scientific American Patent Agency, February 29, 1876. For further information relative to sale of rights, royalties, etc., address (until May 20 next) the inventor, Mr. O. C. Butterweck, Newcastle, Lawrence county, Pa.

**HEER'S DRIVING PULLEY.**

The invention represented in the annexed engravings is a new driving pulley, provided with an india rubber surface, the object being to gain lightness in weight and effectually to prevent the belt from slipping or leaving the pulley. It is claimed to be especially adapted to the spindles of circular saws and lathes, to the shafts of planing machine cutters, and to other shafts which have to revolve at a high rate of speed. The engravings represent two different forms of the invention.

In Fig. 1 a block of wood is turned nearly to the size of the required pulley, and larger at the diameter at the middle. To this is fitted a short rubber tube, A, which very tightly embraces it. The ends of the tube are confined to the block by flanges of the end plates, which are secured by ordinary wood screws, as shown. A hole is then bored through the block for the shaft, and a slot is formed for the securing key.

In Fig. 2 the block B, is made wholly of rubber, and one of the end plates has a hub, C, extending entirely through. On the end of the hub a thread is cut, and on this the opposite plate screws, so as to confine the rubber tightly. In this case the hub may be furnished with ribs adapted to recesses in the rubber block to prevent the latter turning; in the pre-



ceding form this precaution is unnecessary, as the rubber tube adheres with sufficient firmness to the wood. The device, we learn, has been successfully tested.

Patented February 29, 1876 For further information address the inventor, Mr. David Heer, care of H. D. Hirst, 1,126 Charlotte street, Philadelphia, Pa.

**Mechanics should Read and Reflect.**

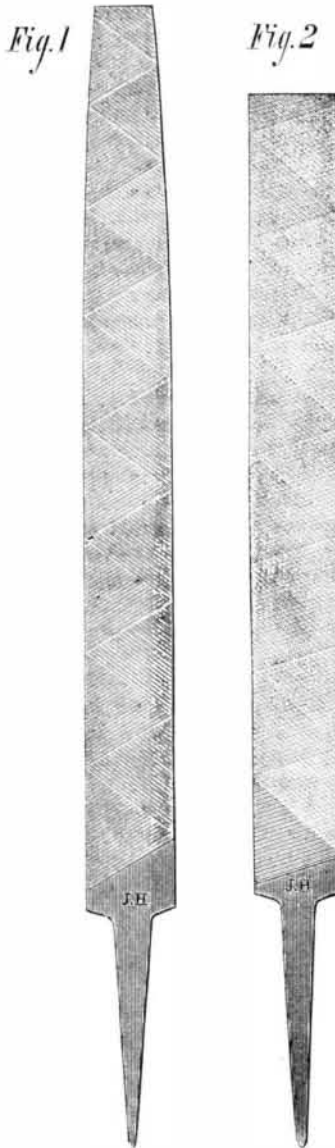
The young mechanic of the present day should be an earnest reader. Whether learning a trade, operating a machine, or drafting designs for the builder, he should be a lover of useful books. They will serve as an adjunct to his success. They will make him a broader and happier man, giving him continually fresh themes for thought and pleasing topics for meditation. Books are to the mind what food is to the body. They fill and strengthen it. They add vim, force, and vitality to its every function. They furnish that life blood which is the main spring of all action; and benefit their admirer in manifold ways. Do not then neglect so rich a boon. But read much and read carefully.

We cannot all be rich, or great, or powerful; but we can all build for ourselves inviting palaces of wisdom, where the noblest and best of every age may come through the silent but immortal agency of books, to store our minds with the rarest samples of their genius. These choice legacies, too, will stand by us, and remain with us, when trades, fortunes, and friends fail, to comfort and satisfy our drooping spirits. Who then would think of living without the association of interesting books? No young man should.

The world is full of reading matter, and it is utterly impossible to peruse all; still every apprentice and tradesman can find leisure enough to acquaint himself with so much as is necessary to perfect him as a mechanic and broaden him out as a citizen. Read, then, by all means. Read slowly; read carefully; read with reflection; and reflect with reading.—Northwestern Lumberman.

**HAPTONSTALL'S DIAMOND FILE.**

The annexed illustrations represent a new mode of cutting files, Fig. 1 being a single cut, and Fig. 2 a double cut tool.



The abrading surface is formed by two series of diagonal teeth arranged in alternate sections and at relatively opposite angles. This is clearly shown in the engravings. The advantages claimed are that both single and double files cut much smoother than those made in the usual way, and that they are not liable to choke, so that they operate faster and last much longer than is commonly the case. The files run square across the stock and are intended to be used in that way. The inventor states that the single cut file is especially adapted to woodwork, as the reversed angles allow the escape of the dust in both directions. A gun file is made on the same principle, oval in form to suit the inside of the gun barrel.

Patented August 17, 1875. For further information relative to sale of patent or of rights, address J. & J. S. Haptonstall, Adel, Iowa.

**The Effect of Cold on Milk.**

The *Lancet* says that the effects of a low temperature on milk have been carefully examined by M. Eugène Tisserand, who recently communicated his observations to the Academy of Sciences. He found that if cow's milk is, immediately or soon after being drawn, placed in vessels at various temperatures between freezing point and 90° Fah., and the initial temperature is maintained for twenty-four or thirty-six hours, it will be found that, the nearer the temperature of the milk is to freezing point, the more rapid is the collection of cream,

the more considerable is the quantity of cream, the amount of butter is greater, and the skimmed milk, the butter, and the cheese are of better quality. These facts, he believes, may be explained by Pasteur's observations on ferments and their effect on the media in which they live. It is probable that the refrigeration arrests the evolution of the living organisms which set up fermentation, and hinders the changes which are due to their growth.

**NASH'S LIFE-PRESERVING STOOL.**

The annexed engraving represents a new life-preserving stool which, if employed aboard vessels, would doubtless



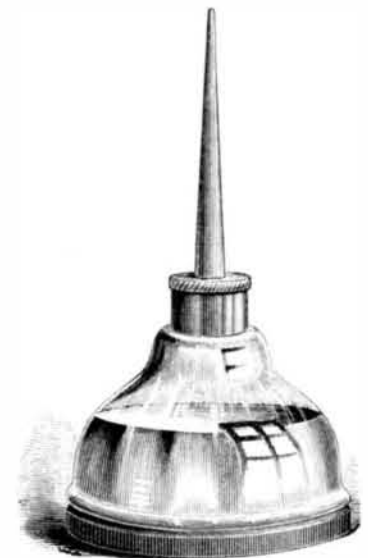
greatly add to the security of passengers. Experience has amply demonstrated that life preservers, not merely when they are stowed away, but even when prominently exhibited about decks, are too frequently overlooked in the confusion of sudden disaster; and being secured in place, in case of the ship sinking, they are carried down with her, and thus become of less use than hen coops, skylight covers, or other movable buoyant articles. The present inventor has conceived the excellent idea of converting the ordinary furniture of the vessel into life preservers. He simply provides stools with cork seats, as shown in the illustration.

Two disks of cork are fastened upon a base board, another board is placed over them, and the whole is bolted together. There is no air chamber to become punctured and therefore useless, and the cork will always float and support persons clinging to the stool. The cork seat is of course applicable to chairs and all loose pieces of furniture, and thus articles always ready at hand are converted into efficient devices for saving life. The invention might be applied to the long settees used in the cabins of ocean steamers, so that three or four of these lashed together would form an admirable raft, which could be rigged in half the time required to make one of spars. There is nothing costly about the plan. We consider it an excellent idea, and one well worth the notice of owners of vessels of all kinds.

Patented through the Scientific American Patent Agency, October 5, 1875. For further information relative to sale of rights, etc., address the inventor, Mr. Henry H. Nash, 223 South Eutaw street, Baltimore, Md.

**BACKUS' IMPROVED OIL CAN.**

The novel feature in the oil can illustrated herewith, and on which the patent is based, is the glass body, a point of advantage which can hardly fail to be appreciated. It admits of seeing exactly how much oil is contained at any time, and also of noting when the oil becomes dirty or gummy. The device is especially adapted for use with sewing machines, since it will save frequent refilling of the can by guesswork, and the consequent danger of greasing clothes and carpet. The



bottom and nozzle are of metal, the former attached around a bead and fastened by cement introduced inside, so as to form a neat and strong joint. The nozzle is a solid, durable piece of Britannia metal, easily straightened if bent, and attached to the can by a screw thread on the glass. The glass is thick and amply strong to resist breakage by any ordinary fall, and it is easily cleansed, and of course it is not subject to corrosion.

For further information address the manufacturers, Messrs. Backus & Co., cor. Wright st. and Avenue A, Newark, N. J.