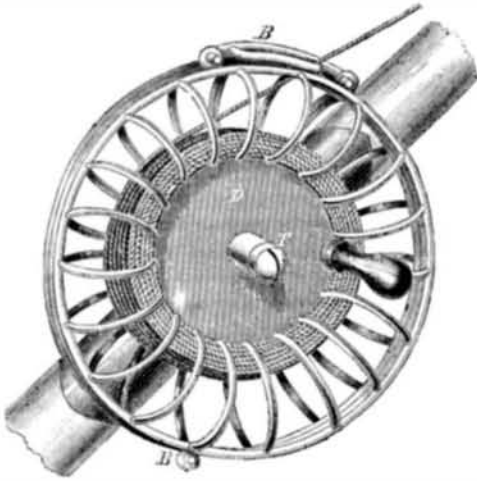


FISHING REEL.

With the increase of wealth in the nation, and the growing fashion of visiting the country every summer, more and more money is paid every year for hunting and fishing apparatus. Our summer wanderers who love to drop their artificial fly on to the surface of the deep still pool, where the spangled trout is lying in his cool recess, or who can play and weary down a 12-pound salmon with a delicate pole and line which would hardly raise a two-pound pickerel at a dead lift, will appreciate any improvement in the fishing reel.



The annexed cut represents a new reel, the principal object of which is to wind the line in a ring, so that it will dry more readily. In the center of the disk, D, the hollow thimble, T, is soldered. This thimble fits upon a pin projecting from a plate which is fastened to the pole in the usual manner. On to the periphery of the disk, D, the series of divided rings are made fast, forming a skeleton tube with a slit running around the middle of the outside of it. This slit is partly closed by a smooth ring which passes nearly around the reel, and is prevented from revolving with the reel by the braces, B B, which hold it firmly. Through a loop in one of these braces the line enters the reel, and thus comes upon the coil nearly or quite in the direction of the tangent.

The inventor claims that, besides the advantage of drying the line more readily, this reel is more portable than the old one, being nearly in the form of a flat disk, and fitting snugly into the pocket; that it is lighter and cheaper; and that the line can be wound more rapidly.

The patent for this invention was granted (August 9th, 1859) to William Rillinghurst of Rochester, N. Y.

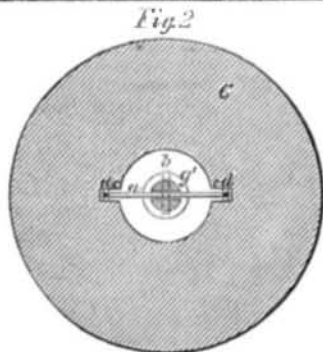
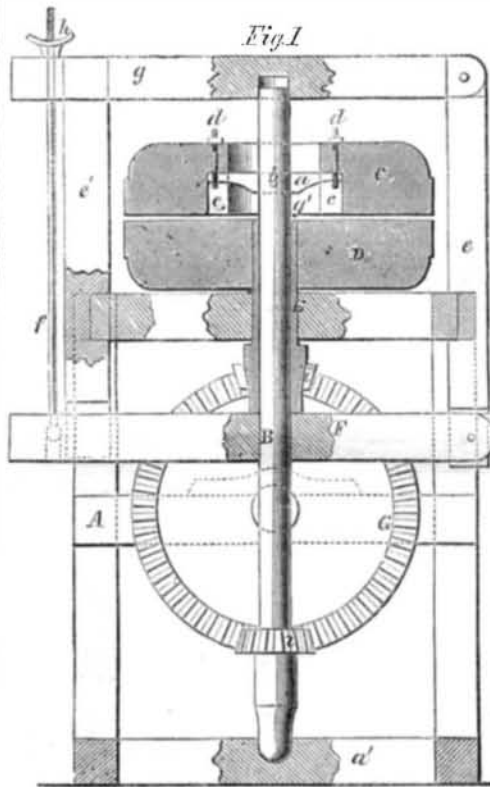
THE REAL MOTION OF THE SUN.

One of the last triumphs of Astronomy is the discovery of the translatory motion of the Solar System. If we are walking from one grove of trees to another, the trees which we are approaching will seem gradually to spread farther apart, or subtend larger angles to the eye, while those which we are leaving will seem to draw more closely together, or subtend smaller angles to the eye. By numerous and very delicate observations of the stars, it is found that those in the constellation "Hercules" appear to recede from each other, while those in the exactly opposite portion of the heavens appear to be drawing more closely together. From these changes in the apparent position of the stars, the inference is irresistible that we and, of course, the Sun and all the Solar System, are sweeping through space in the direction of the constellation "Hercules." The exact point in the heavens towards which we are moving has been calculated from observations of 797 stars, to be 259° 9', Right Ascension, 34° 36', North Declination, but it is understood that this is liable to prove slightly erroneous on further observation. The great problem on which astronomers are now engaged is to ascertain whether this motion is in a straight line, or whether the Sun is revolving in a great orbit about some immensely distant center. Already, observations seem to indicate that the motion is in a curve, and that the center will be found in the vicinity of the "Pleiades." The velocity of this motion, and the inconceivable length of time in which a single revolution will be accomplished, have not yet been ascertained, and they will no doubt be subjects of investigation for future generations. Sufficient, however, is already known to justify the assertion that the whole past history of the human race fills but an inconsiderable fraction of this long year.

CARL'S IMPROVED GRINDING-MILL.

How various have been the devices for breaking wheat! The savage pounds it in a hole in the rock; among the Hebrews, two women turned the mill, and the blind Samson did grind for the Philistines. In this busy century, innumerable ingenious devices have been made for improving this most necessary of all arts. The annexed engraving represents one for which a patent was granted to J. Carl, of Grenada, Miss., on the 23d of August, 1859.

Fig. 1 is a vertical, transverse section of the whole mill, and Fig. 2 is a horizontal view of the upper stone. A, is a frame of wood, and B, a vertical shaft which is stepped into the bottom cross bar, a. The upper stone, C, is attached to the shaft, B, by means of a hinged lever, a, which is secured to the shaft by means of a pivot, b, the stone being provided with a recess, c, which extends nearly or quite up to its middle, and is sufficiently large to receive the ends of the lever. The lever, a, is fastened to the stone, C, by means of the screw bolts, d d, and the stone is balanced on the pivot, b, which secures the lever, a, to the shaft. The lower stone, D, is attached to a tube or sleeve, E, which fits nicely on the shaft, B, of the upper stone and which rests on the bridge-tree, E. One end of the bridge-tree is pivoted to



the lower end of the standard, e, and its other end is suspended on the rod, f, which passes to the outer end of the bar, g, and is provided with a screw and nut, h, for raising and lowering the bridge-tree, F. One end of the top bar, g, is hinged to the upper end of the standard, e, and its other end rests on a corresponding standard, e', the lower end of which forms a guide to the bridge-tree, E. The shaft, B, passes freely through the bridge-tree and its upper end is guided in a cavity in the top bar, g, a collar or ring, g, being slipped over this shaft so as to prevent the dust and flour from getting between the same and the tube, E. Motion is conveyed to the two stones by means of a large bevel wheel, s, which gears in two pinions, i, and i'; the pinion, i, being firmly secured to the lower end of the shaft, B, and the pinion, i', to the lower end of the tube, or sleeve, E. As these two pinions gear into the opposite sides of the wheel, G,

the stones, C and D, are rotated in opposite directions.

The object of securing the upper stone, C, to the shaft, B, by means of the hinged lever, a, is three-fold. In the first place the upper bearing of the shaft is thereby brought into such a position that it can be easily oiled, while it is more perfectly sheltered from the dust and flour. Secondly, by attaching the same to the lever which is pivoted to the shaft, its grinding surface can always adapt itself to the surface of the lower stone; and, thirdly, when the lower stone is raised by the action of the rod, f, and nut, h, a direct pressure is exerted on the substance between the grinding surfaces of the two stones independently of the weight of the upper stone, as the said stone is secured to the shaft, B, in such a manner that it cannot slide along said shaft. From this description it will be seen that the stones can be adjusted to grind either coarse or fine, by turning the nut, h.

Any further information can be obtained by addressing the inventor as above.

WALKING UNDER WATER.—A diver in a suit of submarine armor, recently crossed the Schuylkill river, near Philadelphia, marching on its bottom with ease and safety. His suit consisted of an india-rubber dress which covered him up to the neck, and over this was a sheet-copper hood covering the head as a helmet, and extending down to the shoulders. A pipe to supply fresh air was connected with the helmet, and two men in a boat followed him pumping in the necessary quantity; the foul air escaped by a valve. A rope was suspended under the water, from one shore to the other, as a guide to the diver, who reached the western side in 25 minutes from the time of entering the water. The trip back was made in 20 minutes. His progress through the water was indicated by a slight bubbling and rippling as he passed along.

SMELL INJURED BY SNUFF.—The sensibility of the nerve of smelling is blunted and perverted by all, irritating odors and substances. Hence those who would preserve all the senses which God has given them should avoid snuff, smelling-salts, &c. A good smell is necessary to a good taste, as is manifest to those who have been troubled much with cold in the head.

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