

DOBBIN'S IMPROVED HARROW.

The advantages claimed for the improved harrow illustrated in the accompanying engravings are as follows: It is easily portable, and need not be placed upon a wagon to transport it to and from the field; the construction of the teeth enables work to be done equally well at the sides as at the middle; the parts being hinged, the harrow can be folded into small space; the teeth are especially adapted to sod ground, and work well whether the soil be rough or smooth; by removing two or three teeth for each row, three rows of corn can be cultivated at once, and this can be carried on until the plants are several inches high.

The frame is made in two sections, each consisting of five parallel crossbars with transverse pieces, as shown in Fig. 1. The sections are hinged by the long bolt, A, passing through the overlapping ends of the bars. The ends of the transverse bars, B, are rounded to adapt them to serve as runners when the harrow is turned over to enable it to be drawn from place to place. The teeth are separately shown in Fig. 2, and are made wedge-shaped so that they will cut sods, etc., clear themselves of rubbish, pass through the ground easily, and enter it to greater depth. The shanks of these teeth are passed through holes in the bars and secured by nuts. Projections, C, on said shanks prevent the teeth from turning. To the front and rear bars are attached hooks, so that the harrow may be drawn with the inclined or the straight edges of the teeth forward, as may be desired. By means of the hook, D, the draught may be applied to the lower section when the two sections are folded together.

Patented through the Scientific American Patent Agency, January 22, 1878. For further information address the inventor, Mr. Melvin M. Dobbin, Box 216, Aurora, Ill.

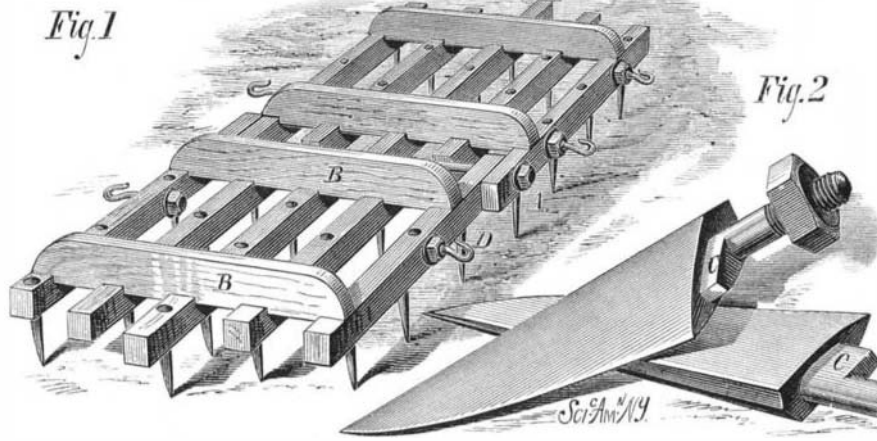
Fish Hatching by Steam Power.

At the meeting of the American Fish Culturists' Association, recently, Professor Milner gave an account of the process of hatching shad eggs by machinery, in operation at Havre de Grace, Md., where over eight million shad were hatched last year. The eggs to be hatched are placed in sheet iron cylinders, with wire netting bottoms, and half submerged in the river. The cylinders are suspended from the short arms of levers, and given a slow up and down movement by means of shafting carrying eccentrics acting on the long arms of the levers; the whole set in motion by a ten horse power steam engine. The engine and other machinery are carried by a large scow, anchored in the stream. The fish

so hatched proved hardy, bearing transportation well, even as far as California.

Dangerous Kerosene.

At an inquest in Jersey city, a few days ago, in the case of a woman killed by the explosion of a kerosene lamp, Professor Cornwall of Princeton College testified that he examined five samples of oil that had caused explosions in different parts of the State, and all gave off inflammable vapor below 100° Fah. One sample took fire itself at 85°, one at 99°, one at 105°, one at 106°, and one at 111°, the last being better than the standard adopted by the Produce Exchange. The flashing test he believed to be the only safe



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guide, his observations showing that oil standing a fire test of 110° will not stand a flashing test of 100°. Any oil flashing below 100° is dangerous.

Out of fourteen oils tested in one small town only four withstood this test. The oil causing the accident in question fell 16° below the lowest safe test. It is the naphtha or benzine left in the oil by refiners or put in by retail dealers that does the mischief. At the present price of kerosene in barrels the difference in cost is less than one cent a gallon between a safe oil standing 100° flashing test and an average oil of 110° fire test, even if the naphtha removed in refining were thrown away. A retail dealer can add ten per cent of benzine to kerosene having a reasonably safe flashing point without making the oil worse than the average oil that Professor Cornwall has tested. More than half the explosions he has met with have taken place when the lamp was burning quietly.

Spontaneous Explosion of Toughened Glass.

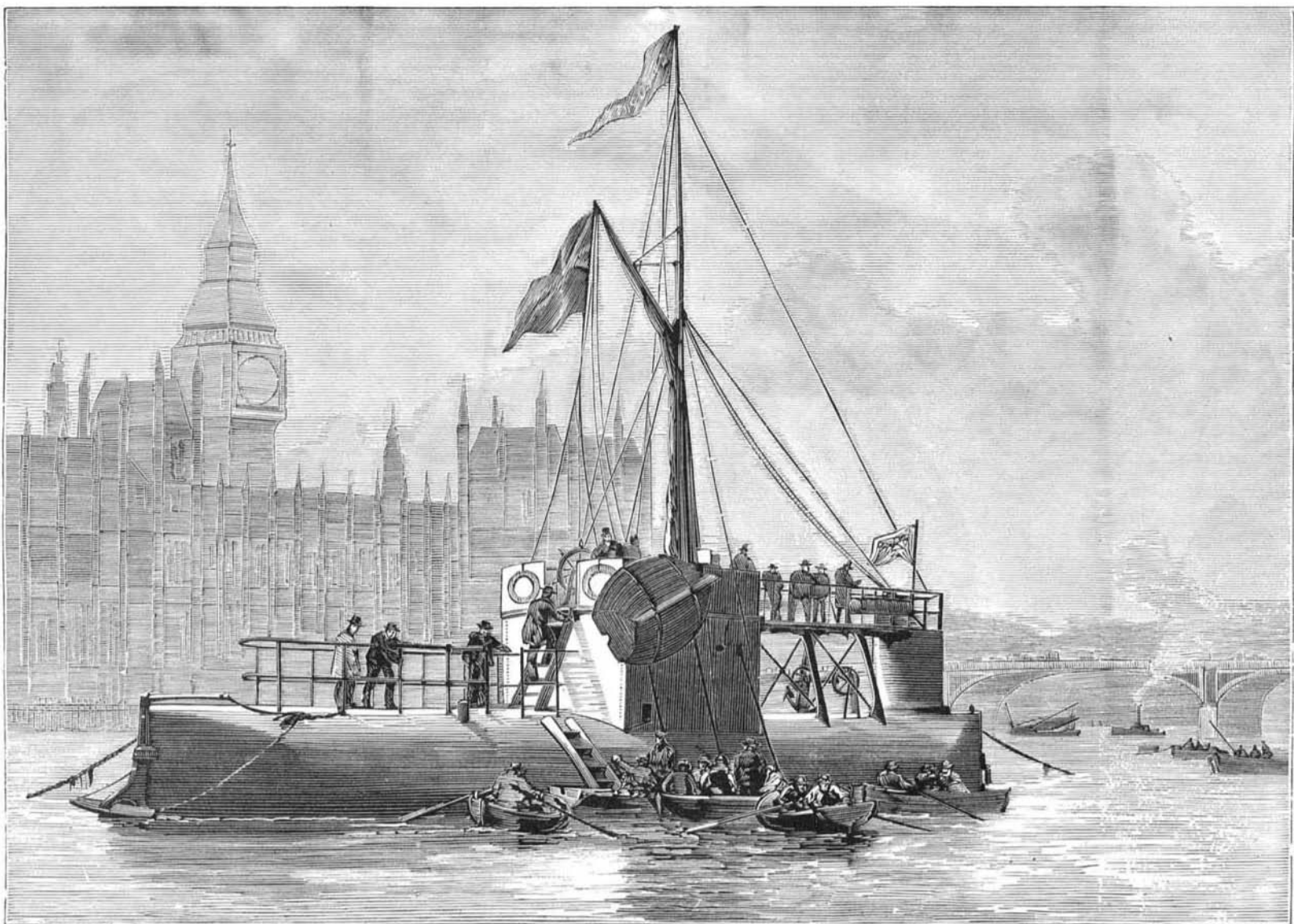
In the *Bohemia*, Professor Ricard, of Trchewan, tells the following tale:

"A child's drinking glass was bought one day, at Saaz, for about seventy kreutzers, and for six months it sustained its character of unbreakable glass. But about nine o'clock one evening in the sixth month it was used in drinking *eau sucrée*, and was then placed, with a silver spoon in it, upon a large oaken table. Suddenly I heard from my room a violent explosion like a pistol shot, and a metallic sound. I ran in, and saw the whole floor strewn with needles and splinters of glass scattered thinly and widely—and not only upon the floor, but the bed, the table, the washstand, the carpet, and the clothes hung up were covered with these shreds. I looked everywhere for the cause of this explosion, and at last remarked that the child's drinking cup was gone. The empty glass had exploded—without apparent cause, without the approach of a light, and having a spoon in it—with such extraordinary force that the whole household was frightened. I relate this story, therefore, not only for the information of chemists and natural philosophers, but also of those families who believe that in this so-called unbreakable glass they possess remarkable and unspoilable playthings or useful household goods, to show them that when such an explosion occurs it may cause not only fright but mischief."

To the foregoing the editor of the *Polytechnischen Notizblatt* adds that such explosions of toughened glass, often without any apparent cause, have been pretty frequent of late, and appear to be on the increase—a circumstance likely to prevent people from using toughened glass until the cause of this evil property has been discovered and removed by a change in the process of manufacture. The explosion is, doubtless, caused by some change in the extreme tension of the fibers of the toughened glass, and it is probable that if the tension were removed the glass would no longer be tough.

CLEOPATRA'S NEEDLE.

The Egyptian obelisk, whose stormy voyage from Egypt to England we have already chronicled, has at length safely reached the Thames and will shortly be erected in London. The history of this stone is an eventful one. It was originally hewn out of the rose-colored syenitic granite in the quarries of Syene, and transported to Heliopolis, where, with a sister shaft, it stood before the door of the Temple of the Setting Sun. In the days of Cleopatra, the monument resumed its travels and was brought to the temple of Cæsar at



THE CYLINDER SHIP CLEOPATRA.