New Inventions.

Improvement in Billiard Tables.

The accompanying engravings illustrate an improvement in Billiard Tables, invented by Michael Phelan, No. 39 Chambers St., this city, who has taken measures to secure a patent.

Fig. 1 is a perspective view of the model table and combination cushions, partly showing the improvements—their construction, and the shape of the pocket irons—"jaws"—and sights, and the inventor would take this opportunity of calling the attention of all disciples of the beautiful and scientific game of billiards to the inspection of these diagrams and the brief explanations accompanying them. He feels confident that he has accomplished that which has occupied the attention of billiard table manufacturers, on the one hand, and all scientific players on the other—an improved model for the table, with cushions possessing the requisite elasticity to produce correct angles when played on.

Fig. 2 is a diagram, showing a top view of the bed, cushions, and pockets of a billiard table; this diagram illustrates the angles produced by a "stroke" of equal strength when played on the "combination" cloth and india rubber cushions. Theexample is, a ball played from the center of the side pocket over line *a* to the point on the opposite cushion with sufficient strength to make it rebound to the side from which it started, and back again. On the combination cushions it will describe the angles marked A A A, on the diagram, which evidently are correct angles, the base of both being equal. But on the india rubber cushions, the ball, if played with the same force, produces angles to correspond with the dotted lines marked B B, and if played with an increased force it will finally return in a direct line parallel with the end cushions, when, if correct angles had been produced, the ball would have returned to the corner pocket opposite to the ball marked *a* at the termination of the line, A.

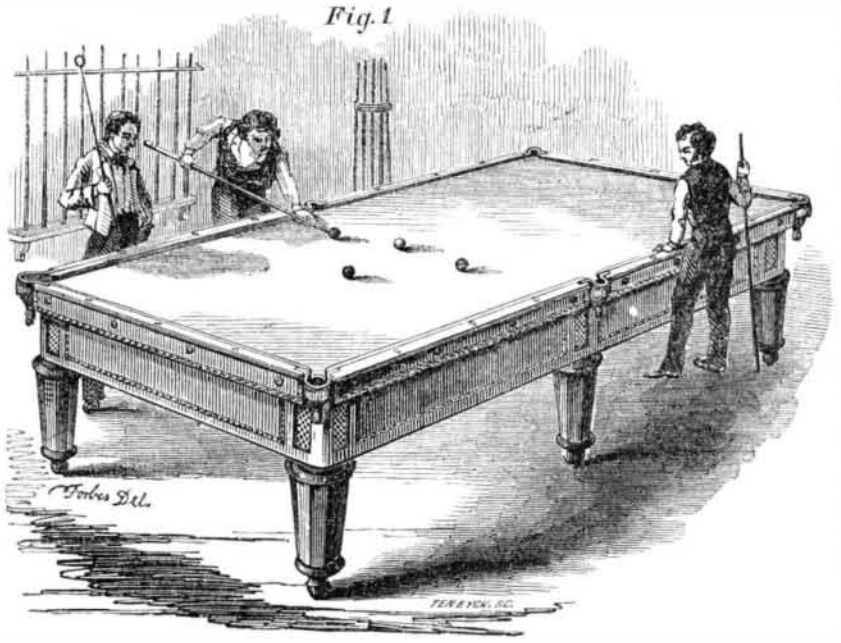
The second example is intended to illustrate the difference of the angles produced by a stroke on the cloth combination and india rubber cushions; play ball *a* against the cushion as represented in diagram, with a moderate degree of strength and the angles produced on the different cushions named will correspond with those lines marked "cloth," "combination," and "india rubber," the cloth cushion will produce an angle too obtuse, the india rubber an angle too acute, while the combination cushion will produce a correct right angle; this can can be proved by actual demonstration on the different tables. For the purpose of illustrating the cause of this, the reader is referred to figs. 4, 5, and 6 which are sectional views of the different cushions named.

Fig. 3 is a view of one corner of the model table, showing the improvements introduced in the shape of pockets, pocket irons, and "sights" or "nails" by which the great inconvenience of the "old school" tables are entirely obviated; also the improvements in the shape of cushions. *a* shows the shape of the jaws. *b* is the cue in a horizontal position, and *c* shows the shape of the jaws in old style. In fig. 4, *a* shows the manner the cue has to be elevated on the old style of cushions; *b* is the sight; *c* the india rubber tube, and *d* the ball. *a*, fig 5, is the cue in a horizontal position. *b* is the sight inserted level with the cushion. *c* exhibits the manner in which the cushion is secured; *e* is the ball.

The combination cushions are half an inch lower than the old style cushions; this is of the greatest importance, for when the ball is at rest close to it, it can be struck and played with almost the same facility as if it were at any other part of the table, enabling the player to play with his cue in nearly a horizontal position, (fig. 5) and not be obliged to elevate it as the cue is represented by *a* in fig. 4. Another improvement is the nails or sights marked *b b*. In the old style (fig. 4) they project above the cushion and interfere with many strokes during the play. In fig. 5 they are inserted in, and level with the surface of the cushion; the pocket irons, also, are level with the surface of the combination cushions, thus allowing the player to strike the ball when in the position represented in fig. 3, with the cue *b* perfectly horizontal. These improvements will be obvious to all good billiard players. The most important, perhaps, of all, is the difference in the shape of the pockets. The dotted lines, *c c*, at each side of the pocket, fig. 3, are intended to show the difference between the shape on the old style, and those on the model tables. By constructing the "jaws" of the

IMPROVED BILLIARD TABLES AND CUSHIONS.

Fig. 1



tables. *c c*, fig. 3, therefore, shows the old style shape of the pocket, and *a* the new style on the combination cushion. There is at least five inches more cushion on each pocket of the new, or thirty inches on the whole. Fig. 4 is a sectional view of the india rubber cushion, known amongst the billiard table makers as the "pipe" or "tube" cushion. It is composed of a long round strip of rubber, sometimes hollow and sometimes solid, as they wish to increase or diminish the degree of elasticity. The ball, *d*, is represented in contact with it. When the ball comes in contact with the rubber it sinks in, or is embedded in it more or less, according to the degree of force with which it may be impelled; the greater the force the more the rubber is compressed, and the more the ball is embedded, and this sinking

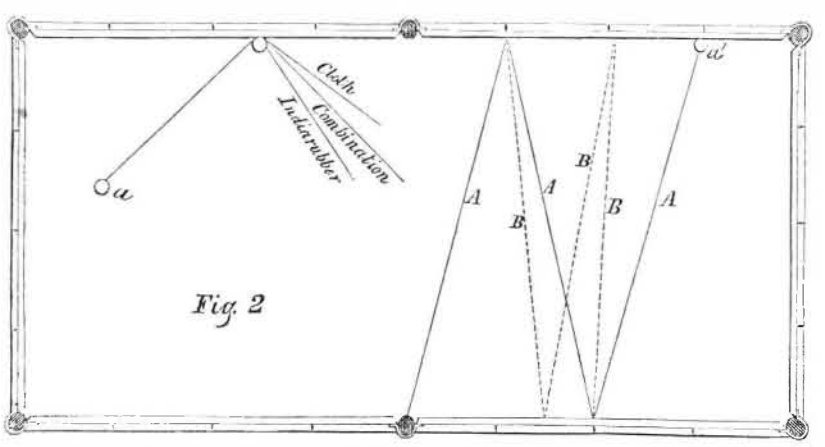
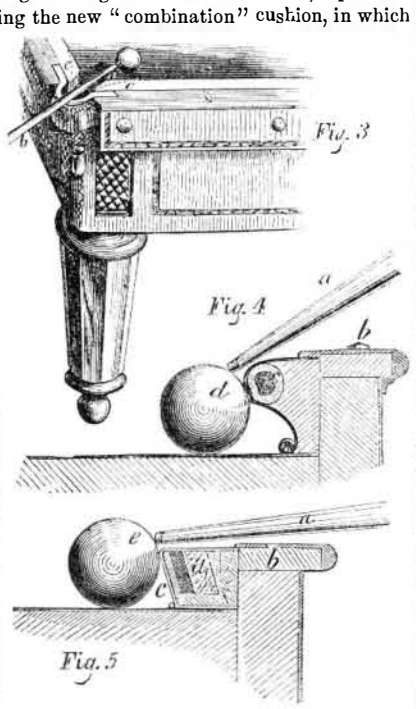


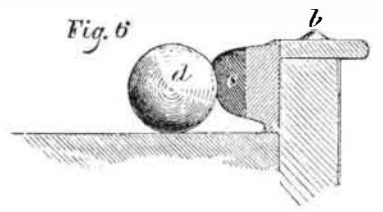
Fig. 2

in or embedding of the ball, together with the extreme elasticity of the rubber is the cause of the angle produced by the rebound, being acute, and so much at variance with correct angles. Fig. 5 is a sectional view, representing the new "combination" cushion, in which



the inventor, after a series of experiments, has succeeded in producing an article in which the objections referred to in the old table are entirely obviated, and in which other important improvements are introduced. The "combination" cushion, that is, the portion of it which causes the rebound of the ball after contact with it, is composed of three different materials, (not including the cloths for covers) by which a cushion elastic at its back and comparatively solid, yet pliable at its face, is produced, thus preventing the ball sinking in, and yet retaining the elasticity of the substance marked *d*. These three substances are of different degrees of elasticity, and are so combined and graduated as to produce angles in accordance with scientific principles. Fig. 6 is a sectional view of another india rubber cushion called the "English pattern." *d* is the ball, *c* the india rubber, and *b* the sight. Some persons engaged in the manufacture of what they call billiard tables are using it, and talk about correct angles without well knowing what they mean. This cushion is simply a strip of rubber of the shape represented; and the same objections exist in this as in the "pipe" or "tube" cushion, viz., an embedding of the ball, and too much elasticity; at all events, the test is the angles, and they are found to give angles at variance with all known geometrical principles. This figure also serves to illustrate the shape of the old-fashioned cloth cushion, composed of long strips or layers of cloth stretched parallel with the cushion rail; they are now nearly out of use, as the "pipe," "tube," and English pattern will be as soon as the advantages of the "combination cushions" become generally known.

Fig. 6



It is a well-known fact among scientific billiard players, that speed and truth cannot be obtained in a cushion. Beyond a certain degree of elasticity in a cushion, the more incorrect it becomes. When we say speed, we mean the ridiculous railroad pace lately brought into use in public billiard rooms, and which meet the approval of those only who are advocates for chance hazards or canon; while to the player who calculates upon, and who is accustomed to geometrical demonstration, it is painful to see the beautiful and scientific properties of the game disgraced.

The "combination cushions" are fast enough for every purpose of scientific play, and by playing on a table constructed as just described a knowledge of the game would be more easily acquired, whilst a greater number of points could be made from the balls; by using them, the proprietors of billiard rooms, would, we think, find players of merit more anxious to contend and test the strength of their games.

More information may be obtained by letter adressed to Mr. Phelan, who is a distinguished billiard player.

Colt's Pistols.

At the trial of Baker in this city, last week, Edward N. Dickerson, attorney and counsellor at law, gave some valuable testimony relative to the manufacture of Colt's pistols. He was at one time a practical mechanic, and is Col. Colt's counsellor. He stated that he was familiar with every part of the manufacture of such pistols. The average number of men employed in Colt's factory at Hartford, Conn., from 1848 till the present time has been about 200. The whole number manufactured up to the 1st of last February, was 200,000. These pistols are all made by machinery, all the parts of one size are alike, and fit one another. The number marked on each is the only way to distinguish one from another. He stated that the expanded gas of the powder rushed out of a pistol with a velocity of 7,000 feet per second.

Explosion of a Steam Fire Engine

The new steam fire engine *Joe Ross*, constructed by A. B. Latta, exploded its boiler on the 6th inst., at Cincinnati, while its powers were being tested. The engineer, John Winterbottom, we are sorry to say, was killed, and a number of others standing around were severely wounded. While the engine was working rapidly the hose-pipe burst; some person called to the engineer to stop the engine, which he did, although not instantly; almost as soon as it stopped working the explosion took place. The steam was at 180 lbs. pressure.

Sugar Crust in Pans.

A correspondent writing from Donaldsville, La., states that one of the greatest troubles experienced in sugar boiling is the crust which forms on the copper worm or pipe in the pan. It takes from three to four hours labor to scrape it off, and during this time the "dunder" in the mill, and the juice should at once, when pressed out of the cane, be run into the boiling pan, become rapidly sour, and entails a considerable loss. If there were any way to keep the steam pipe or worm perfectly free of crust in sugar boiling, so that the expressed cane juice could always be run rapidly into the pan, a great benefit would be conferred on sugar planters.

Death of A. H. Simmons, of the Philadelphia Ledger.

Azariah A. Simmons, one of the proprietors of the *Ledger*, died, after a short illness, on the morning of the 9th inst. He was distinguished for his genial social qualities, strict business integrity and enterprise. In connection with his surviving partners, he, twenty years since, commenced the publication of the first successful penny paper in Philadelphia. The deceased was 49 years of age, a native of Norwich, Conn., and was extensively and favorably known in this and other cities of the Union.

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