

## THE JENSEN ELECTRIC BELLS.

The special object of our visit to the show rooms of the Jensen Electric Bell and Signal Company, at No. 2 Gray's Inn Road, London, was to inspect a large consignment of bells on the Jensen system, for America, and which are designed for railway, telegraph, hotel, and private use. This system we now illustrate, and from our engravings it will be seen that the unsightly magnet box is dispensed with, and the hemispherical bell replaced by a bell of the church type, as at Fig. 1, inside of which is the electro magnet. This is a single solenoidal magnet of special construction, as seen at Fig. 2, and by it the armature is attracted by both poles simultaneously. By this means less than half the usual quantity of wire is required, thus reducing the external resistance of the circuit one half. Moreover, the armature, besides being magnetized by induction, as acted on in the ordinary method of making electric bells, is directly polarized by being in actual magnetic contact by the connection of the gimbal (which is in one piece with the armature) with the core iron of the magnet. It is thus induced to perform the largest amount of work with the smallest electromotive force. Instead of the armature and clapper being in a straight line attached to a rigid spring, which necessitates a considerable attractive power to primarily give it momentum, in the Jensen bell the armature and hammer are in the form of an inverted U, and, being perfectly balanced from the point of suspension, the lines of force from a comparatively small magnetic field suffice to set this improved form of armature into instant regular vibration.

By using a flexible break and make arrangement instead of the usual armature spring and set screw, a better result is attained, and the armature can be set nearer the poles of the magnet with sufficient traverse of the hammer. The reason why these bells require so little battery power to ring them is, first, because the armature and hammer are so perfectly balanced as to offer but little resistance; secondly, because the external resistance to the current is reduced; and, thirdly, because the best possible use is made of the electro-magnetic force at disposal. The bells are of elegant appearance, very sonorous, and can be fixed in any position, as exemplified by Figs. 3 and 4, the artistic mountings serving to show their symmetrical forms to advantage. Fig. 6 of our engravings is a sectional view of the bell and movement, showing the whole arrangement as already described.

Fig. 5 illustrates more clearly the insulator which acts as a collet for holding the movement securely in the bell, and at the same time effectually insulates it, so that by taking one end of the coil wire to the bell, as shown in our engravings, the bell, and consequently the bracket or hook it hangs on, forms one contact, and the terminal of the movement, as seen projecting through the top of bell, the other. For trembling bells, the other end of coil wire is fastened to the contact spring, for single strokes to the movement itself. An important feature is that by a simple arrangement the hours can be simultaneous-

ly struck on a number of bells, so that, if desired in a public building, large factory, an office, or for domestic use, the exact time can be synchronously rung out on as many bells as may be mounted in various places. Fig. 7 shows an arrangement for fixing the bell rigidly on board ship, or in any other circumstances where it is subject to oscillation.

The eye for suspending the bell on a hook will be seen to have been unscrewed and the bell placed in position for screwing on to the horizontal arm, or it can

panying engraving shows clearly how the knob was moulded, the method pursued being similar to that used in moulding intricate figures for casting in bronze. The sand was packed closely around one-half of the knob and its shank, and was then scraped entirely away from the top, while the rim was left covered for about one-third of its circumference and the shank for about one-half. The sand was then dusted, to prevent the next addition from adhering. Sand was then packed against about one-sixth of the rim at each side,

so that up to this point two-thirds of the rim had been covered. These two pieces were then dusted, when the entire top was moulded in one piece, as shown. The final operation was forming the cope or uppermost piece, which received the impress of the upper third of the rim and upper half of the shank. The five pieces comprising the mould were then separated, the knob removed, when the parts were re-assembled, baked, and the metal poured in through suitable gates in the usual way. The casting was sharp, clear, and a perfect copy of the original, to which it was decidedly superior, as it was made of one solid piece of metal. This specimen of moulding was done by Mr. James Kane at the brass foundry of Mr. James Reynolds, New Haven.

## On Sugar in the Blood.

A series of scientific and profound researches has been completed by Prof. Seegen, of Vienna, which has as its result the establishment of the fact that

the sugar formed by the liver is derived from albumen and fat.

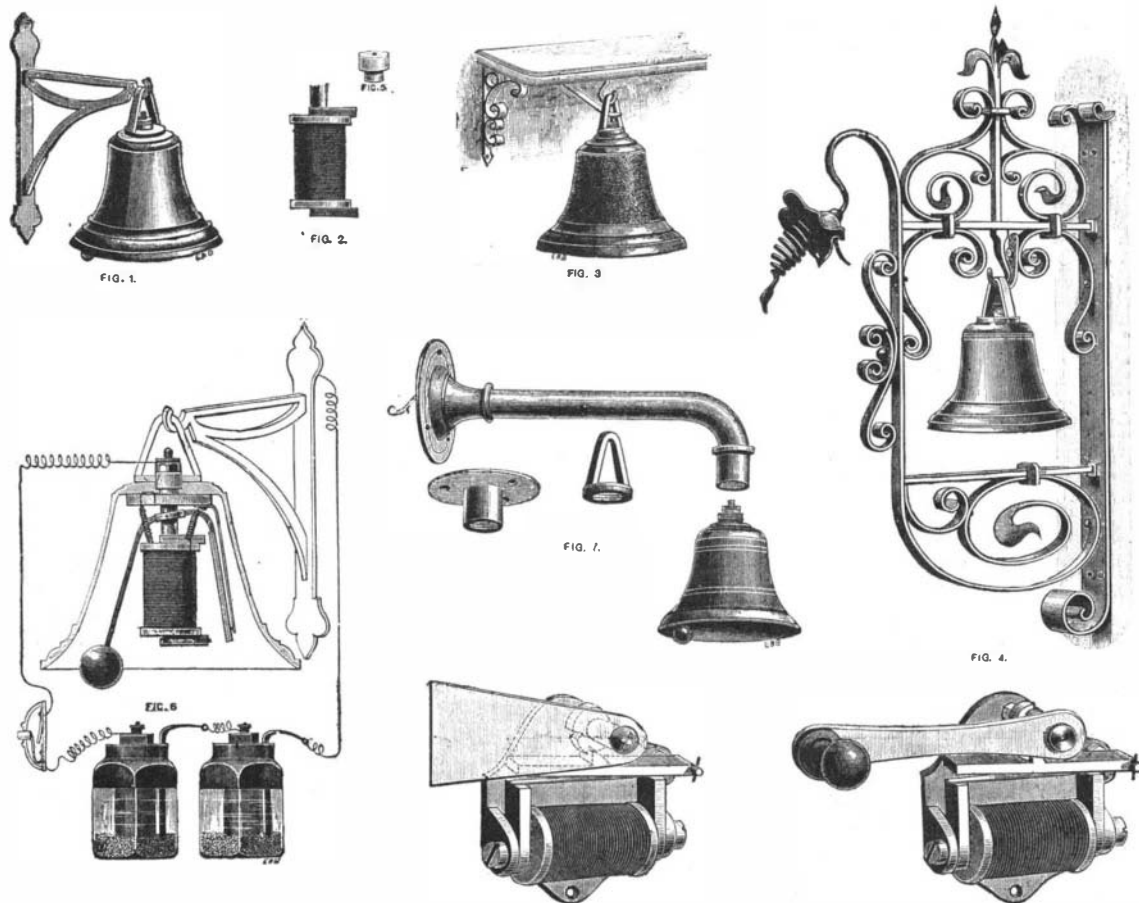
A portion of the results obtained were published some time ago, and the general conclusions of the whole work are as follows:

1. That the blood passing from the liver contains an infinitely greater quantity of sugar than that entering the organ.
2. The newly formed sugar in the liver is wholly independent of saccharine food, as well as of the carbohydrates introduced with the food.
3. Even the liver glycogen is unconcerned in the production of sugar in the liver.
4. Albumen and fat are the materials out of which the liver forms sugar.

The fact that sugar is formed from fat is a new one, and is not in accord with the previously entertained chemical and physiological ideas. It appeared to the author, therefore, of much interest to experimentally

demonstrate the conversion of fat into sugar. This was accomplished by bringing together fatty bodies and blood with finely divided liver substance. The settlement of this question, that sugar is formed from fat by the liver, seems to point to that organ as the great laboratory in which the food is changed for the purposes of life, for the performance of work and the production of heat. It has a great practical significance, inasmuch as it teaches us the full worth of fat as material for food.—*Med. Review.*

THE shafts for the three U. S. Government vessels to be built by Messrs. Cramp in America are contracted for by the English steel makers, Messrs. Whitworth & Co.

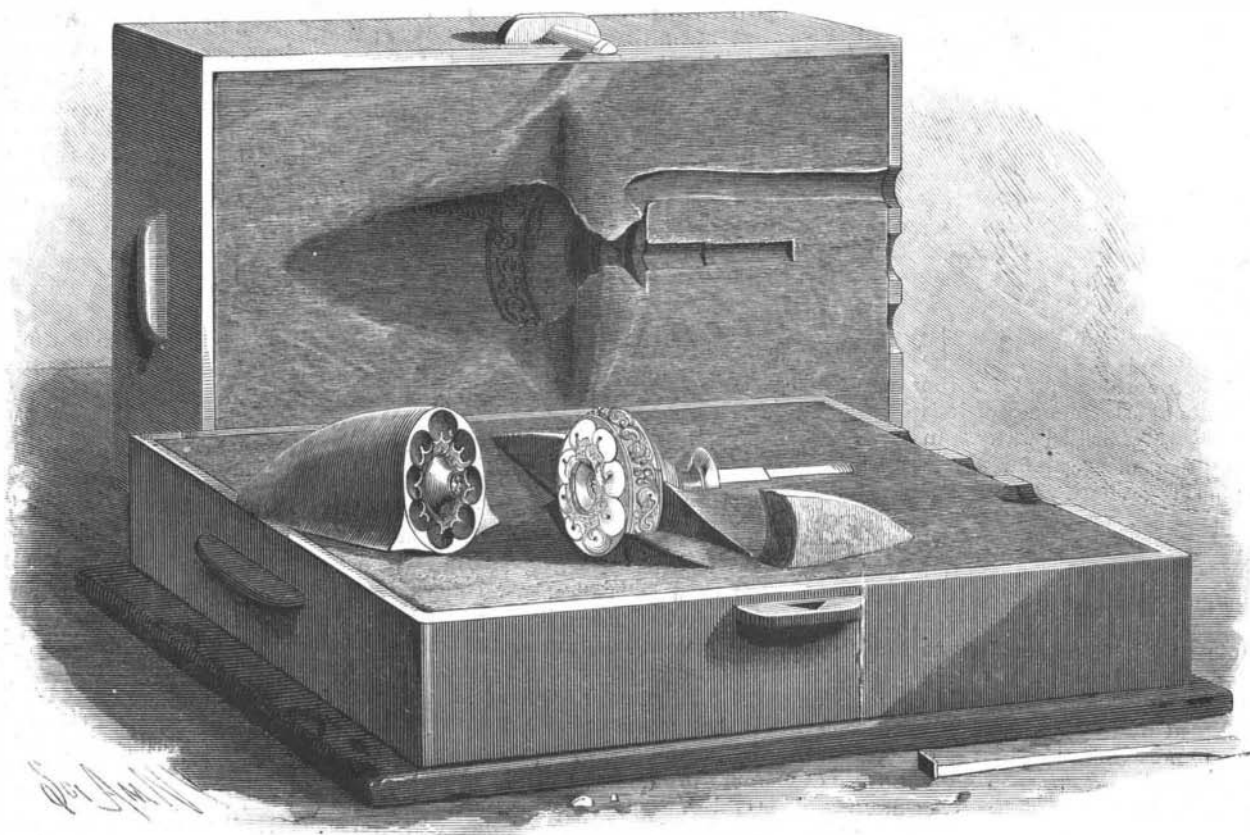


## IMPROVED ELECTRIC BELLS.

be screwed up to the vertical holder, seen to the left. Figs. 8 and 9 represent the Jensen indicators, which are exceedingly simple, there being no permanent magnet or other arrangement likely to get out of order. By a simple and inexpensive arrangement the bell can be fitted with a responding attachment, so that a person ringing to a servant can receive, by the servant pressing the button on his or her bell, an intimation that the summons has been heard and will be attended to.—*Iron.*

## MOULDING AN OLD FASHIONED KNOB.

A short time since, it became necessary to reproduce an old fashioned brass knob, which was so ornamented with raised figures as to prevent its being moulded in the ordinary way. The knob was made of hammered sheet metal, the top rim and back being in separate pieces, united by burnishing, and the shell thus formed being filled with plaster. The accom-



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