

IV.

AUTOMATA OF MESSRS. MASKELYNE AND
COOKE—PSYCHO AND ITS IMITATORS—
ZOE—FANFARE.

WE now come to our own time, and to a description of the various automatic exhibitions of the present day. The most notable and successful, because the most original, exhibitors and inventors of automatic figures at the present day are Messrs. Maskelyne and Cooke, now located at that old "home of mystery," the Egyptian Hall, London.

Their first and, in my opinion, their best piece of mechanism was *Psycho*, the celebrated Whist Player, which they produced in 1865. A description of this interesting figure is scarcely needed. For years they contrived to keep the motive

power and mechanical arrangements of this automaton an entire secret, while the public, the press, and the scientific world, saw, wondered, and were puzzled. Many and various were the solutions offered to account for the working of the Whist Player; but the secret of the sinews and muscles, so to speak, of *Psycho* mystified every one. So thoroughly successful was the figure that, as a natural consequence, mechanics set about producing something similar.

One of these imitations was exhibited under the name of Hankey. This was but a poor and clumsy representation of the original. It consisted of a rudely-constructed figure of a man seated on an octagonally shaped box, in which a boy was concealed, who worked the arms and head. The exhibitor was compelled to indicate the cards to be played by certain signs and motions, which often led to complications and mistakes. This revival of *Psycho* eventually came into the possession

of Signor Boz, and was exhibited in Liverpool and various other towns under the new name of Yorick.

Professor Pepper likewise constructed an imitation of Psycho, under the *nom de théâtre* of Scynthia. This figure, though very ingeniously contrived, did not confessedly fulfil all the conditions of Psycho.

Cremer also introduced a whist player, which was a huge, complicated mass of wheels, levers, and elaborate mechanical contrivances, and necessitated a most careful supervision for a successful exhibition. It could never be relied on for a smooth and uninterrupted performance.

A French firm also constructed a whist player for Mr. Everett, and this eventually went to America. In this figure the boy was much better concealed than in the one I mentioned before.

One very ingenious solution of the construction of Psycho was offered in November, 1877. I partly reproduce it—not because it is a solution, but because it

will enable the practical and ingenious reader to construct a figure something similar, although not at all equal, to the

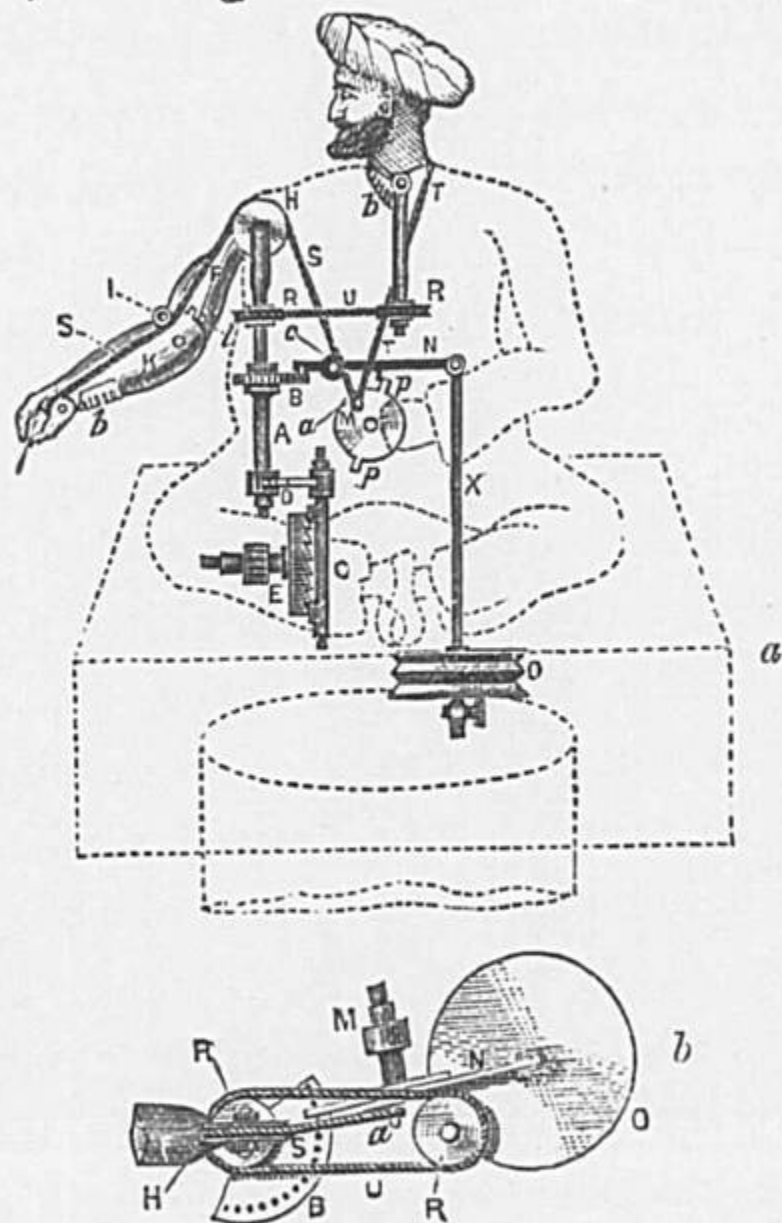


FIG. 1.

Whist Player of Messrs. Maskelyne and Cooke.

In Figs. 1a and 1b (elevation and plan),

the wheels E and M have each a train of clockwork (left out for the sake of clearness), which would cause them to spin round if unchecked. M, however, has two pins, *p p*, which catch on a projection on the lever, N. E is a crown-wheel escapement—like that in a bottle roasting-jack—which turns A alternately to the left and right, thus causing the hand to traverse the thirteen cards. A little higher up on A will be seen a quadrant, B (see plan), near the edge of which are set thirteen little pins. The end of the lever, N, drops between any two of them, thus causing the hand to stop at any desired card. The lever being pivoted at *c*, it is obvious that by depressing the end, N, B will be set at liberty, and the hand will move along the cards; by slightly raising it this motion will be arrested; by raising it still more the pin, *p*, is released, and M commences to revolve, and by again depressing N this wheel will, in its turn, be stopped. Near the bottom of the apparatus is a bellows,

O, which contains a spring tending to keep the lever, N, with which it is connected by a rod, X, in the position shown. This is connected with the tubular support, which may be connected by a tube through leg of stool, and another tube beneath

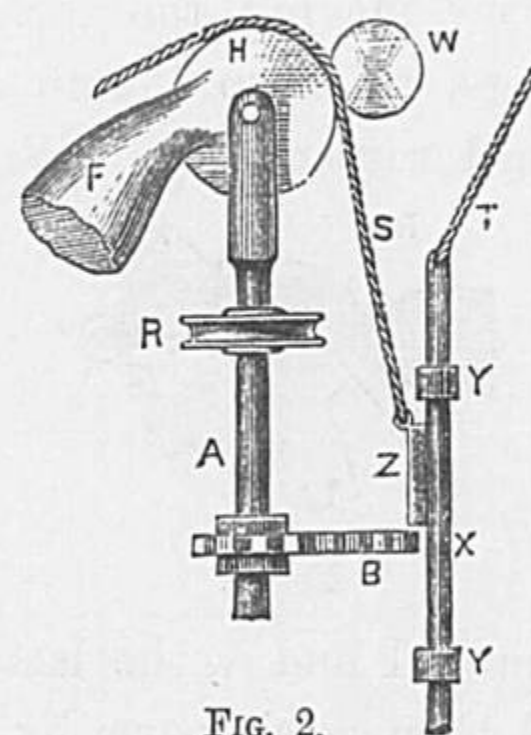


FIG. 2.

stage, with an assistant behind the scenes. By compressing or exhausting air through this tube it is obvious that the lever, N, will be raised or depressed, and the clockwork set going accordingly. *a* is a crank-pin set in M, and connected with the head by catgut, T, and with the thumb by S.

At R and R are two pulleys connected by gut. Thus if the hand moves round, the head appears to follow its motions, and when raised by pulling S, the head rises also by means of T. Further explanation seems almost unnecessary; *l* is a stop to prevent elbow moving too far, and *b b* spiral springs, to keep thumb open and head forward respectively. When N is

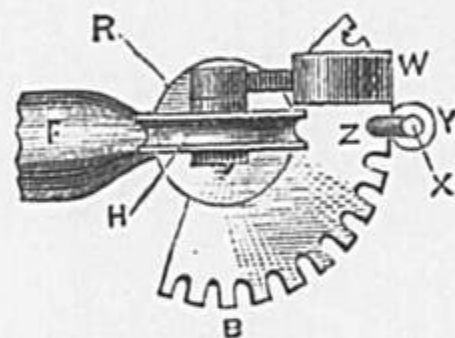


FIG. 3.

raised, M pulls T and S, the latter closing thumb, and then raising arm by pulley H. If the lever is allowed to drop, *p* will catch and keep arm up. On again raising N, the arm will descend.

In addition to the above contrivance, we have in figures 2 and 3 another and simpler arrangement, in which only one train of clockwork is used. On the same

axle as H is fixed a lever and weight, W, to balance the arm. A vertical rod, X, having a projection, Z, slides up and down in guides, Y Y, and carries the catgut, S and T. The quadrant, B, has cogs cut, between which Z slides and stops the motion of A, which is moved, as before, by clockwork. The lower part of X is connected direct with O. When X is slightly raised, as shown, A is free to move, but

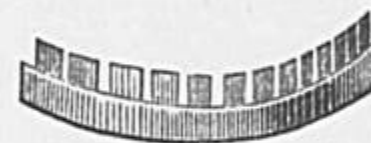
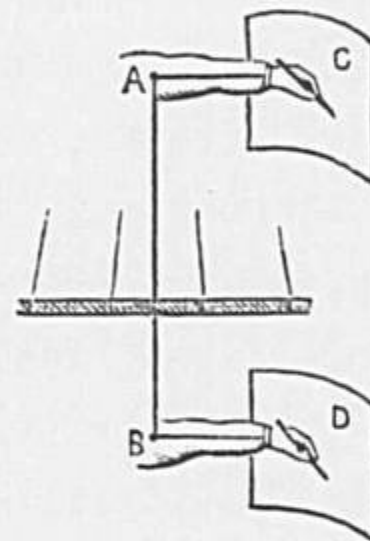


FIG. 4.

on exhausting air and drawing X down, Z enters the cogs and stops the hand over a card; continuing to exhaust, the thumb closes and the card is lifted up. The details of the clockwork the originator of this solution omits to give. He says there should be a fan on each train to regulate the speed. The figure should be so placed that an assistant can see the cards in the semi-circular rack fig. 4.

The next remarkable automatic figure exhibited by the dual mystifiers at the Egyptian Hall is that called Zoe. It represents a female figure seated upon a stand. Before her is placed a semi-circular drawing board, which is attached to the seat upon which the figure rests. Zoe writes figures and draws portraits of popular characters. To all appearance there is no motive power off the stage, and the exhibitor has no physical connection with the figure, whose movements and skill are apparently spontaneous. This is one of the most simple mechanical contrivances of the kind that has ever been produced. A thin steel rod runs through the seat in which the figure is fixed. The body and the arms of Zoe are above the stage, beneath which another arm and drawing-board are placed exactly in the same position as those above the platform. The mechanism is made to work so that the hand above is moved precisely as the hand below is guided by the artist. Thus, when

Zoe is told to draw a portrait, say, of the Earl of Beaconsfield, the artist below guides the unseen hand, while the hand above follows the movements of its guide below. The reader may see from the annexed plan at a glance the principles of the movement; but it must be understood that this



is not the only mechanism employed. It will, however, fully explain the principles of its motion.

It will be seen that whatever movement be given to the arm at B, the arm at A must have the same movement simultaneously. As the figure is brought on to the stage, and then fixed on to the seat, all

suspicion of complicity with persons below the stage is removed; but a rod is pushed through the pedestal and secured through the upper half while the exhibitor is seating the figure.

Another, and I think the latest production of note—no pun is here intended—brought before the public by Messrs. Maskelyne and Cooke is Fanfare, the cornet player. This is the figure of a gentleman dressed in modern costume, holding in his hand a cornet, which he places to his mouth and plays in a most professional manner. The whole performance of this mechanical marvel, however bewildering it may appear to the observer, consists of nothing more or less than remarkable clever “lipping” on the part of a living musician, who really plays the instrument in the lonely solitude of the regions beneath the stage. The sound emitted from a brass instrument is altered in tone and pitch, according to the length and breadth of the tubes through which the wind is blown.

For a bass tone wide and long tubes must be used, while for a treble tone much shorter and narrower tubes must be employed. The principles of construction are exactly similar in the cornet as in the euphonium and saxehorn, the difference of tone being produced merely by the different dimensions of the tubes. The direction of the tubes—that is, whether they be twisted or straight, or in different folds—makes very slight, if any, difference in the tone of the instrument. A cornet could be so constructed as to admit a much longer and straighter tube immediately in front of the piston tubes, and still have the tone of an ordinary cornet. It must have been this principle which first suggested to the minds of Messrs. Maskelyne and Cooke the construction of an automaton cornet player. The extra long tube of which I have made mention passes through the body of the figure into its mouth, where it meets the mouth of the cornet when it is placed against the lips. This tube is passed

through one of the legs of the chair on which the cornet player is seated, and thence beneath the stage, where a living cornet player manipulates the instrument in the hands of the figure by means of three strings or wires attached to the fingers of the figure. Thus while he is blowing through the tube he has the string of the first piston on his forefinger, that of the middle piston on the middle finger, and that of the third piston on the third finger. As he mouths his instrument he moves his fingers in precisely the same manner as he would had he an instrument instead of only a tube to play upon; and as he moves his fingers so he pulls the wires joined to the three fingers of the figure, and thus produces the change of notes which the exigencies of the tune require.

V.

THE CELEBRATED INDIAN BASKET TRICK—
HOW IT IS DONE — TAKING A MAN TO
PIECES—THE LIVING MARIONETTES.

IN perusing these articles the reader must have observed, ere this, that a great deal of the success of mechanical, and, in fact, all kinds of conjuring, consists as much in the credulity and ignorance of the audience as in the perfection of the trick itself.

It is not at all surprising that, centuries ago, the performer of a few juggling tricks, or the man slightly in advance of his age in science, should have been looked upon by the vulgar crowd as a person having dealings with another world, and that his Infernal Majesty himself should have been called in to father all his supernatural