

BRİK-TOR

by Jacques Pitrat

BRİK-TOR, an architectural outfit manufactured by A.C.Gilbert, can be used as an autonomous system, it is possible to build models using only its parts; however, for large models it must be complemented by an ERECTOR set, or any other suitable steel building toy.

For this account I have mainly used information from my own set, and from a few sets offered on eBay. Besides, there are five pages of the manual in MCS, notes & documents by David Hobson & Tony Knowles, two pages written by Jay Smith in Volume 6, No. 2 of the A.C. Gilbert Society Newsletter, and several ERECTOR ads mentioning BRİK-TOR in Klon Smith's Illustrated Guide to Gilbert ERECTOR Advertising. In his autobiography, The man who lives in Paradise, A.C.Gilbert explains why he had decided to produce BRİK-TOR, 'which we called the missing link in toydom, the younger brother of ERECTOR. We were aiming for what I called the pre-screw driver set, the boys who wanted to build things, but who were too young for ERECTOR.'

From MCS, BRİK-TOR was marketed in 1916-17. This is likely, some 1916 ads mention it, I have not seen any Gilbert U.S. advertising published after 1917.

BUILDING the MODELS The walls of the buildings are made of Bricks pushed down Rods. These Rods are held in Fundaments, U-girders on their sides with holes in both arms.

A row of larger holes along the base of the U is used to Bolt the part to an internal structure, built from a non-BRİK-TOR metal construction system. BRİK-TOR Strips & Plates, with holes for Rods, may also be used to stiff-

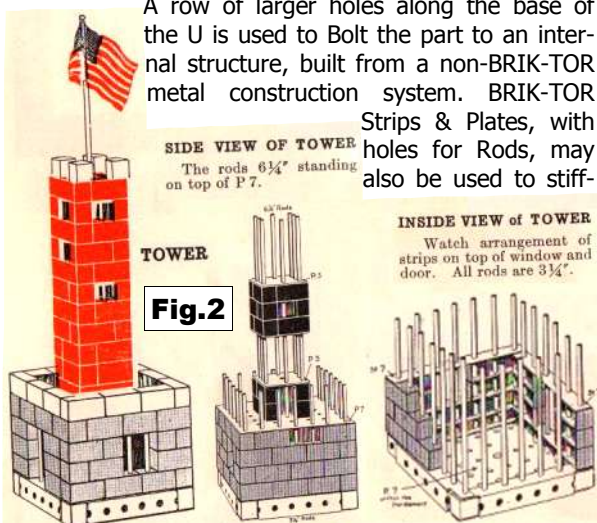


Fig.2

en buildings, as in the Tower above. The walls are built layer upon layer: 'lay the first row around the structure, and then the second one – but – do not forget to shift this row one-half a brick to get the right brick effect.'

Gable roofs are made in the same way, with Fundaments at both ends; Bricks pushed onto horizontal Rods fill the space in between the end Fundaments. It is not very easy to attach the roof to the structure: 'for connecting the roof with the structure, we use 5 and 9 hole strips from our Construction Toy.' (Fig.3, in black & white for clarity). To do this one has to pass the hand through the structure's base, the only opening in the completed model; better to have a small hand!

The PARTS Parts (Figs.4,11,12) are stamped steel. After the part name, I indicate the quantities in Sets A, B, & C (at first A was called the BRİK-TOR Unit, and C the BRİK-TOR Set).

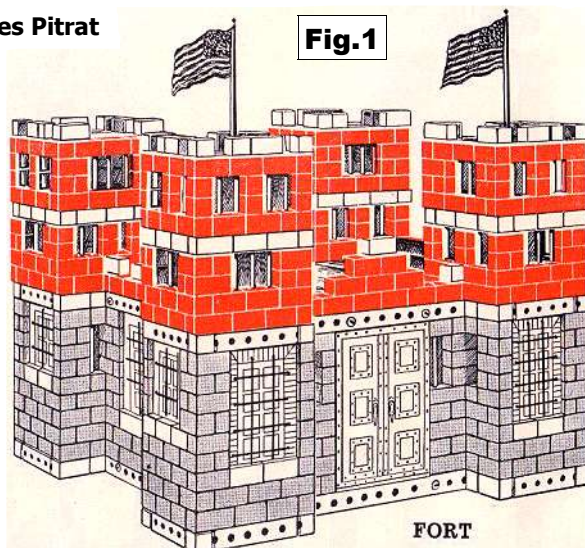


Fig.1

FORT

Holes for Bolts are 4.7mm diameter; for Rods there are 2 sizes: 3.1 in the Bricks & in one arm of the Fundaments, 2.7mm otherwise. For all, the pitch is 1/2".

Rods are 2.65mm diameter. Their name is P507 followed by their length in inches: 2 1/4 (12-24-18), 2 3/4 (6-12-24), 3 1/4 (12-24-12), 3 3/4 (6-12-12), 4 1/4 (12-24-24), 4 3/4 (6-12-18), 5 1/4 (6-12-4), 5 3/4 (0-0-24), 6 1/4 (6-12-4), 6 3/4 (0-0-4), 7 1/4 (0-0-8), 7 3/4 (0-0-4), 8 1/4 (0-0-4), 8 3/4 (0-0-0), 9 1/4 (0-0-28), 10 3/4 (0-0-0). All have 4 small pressed-out wings near one end.

Bricks are in three colours: Red, Slate (also called grey in the manual, but black for me), and

White (rather blueish for me). The dimensions of large bricks, P502 R (30-60-144), S (24-48-144), W (6-12-30), are 1" long, 1/2" high, & 3/8" wide (the wall thickness), with 2 holes for Rods in both the top & bottom faces. One of the end sides is 1 5/32" long; this fills the space between the Bricks on the corners. The Small Brick, P501 R (8-16-60), S (6-12-36), W (6-12-24), is similar but 1/2" long, with one hole in each face.

The red Triangle Brick (0-0-30) is a right-angled isosceles triangle with a Bolt hole on the hypotenuse, and a Rod hole on the other sides. The large hole is not used for Bolts, it is large only so that Rods protruding from any adjacent structure can go through it. This part is necessary for completing the rows of Bricks in gable ends, as one can see in the Church (Fig 18).

Plates Nickelled, square save the smallest: P508, 3*3h, 1 3/8*1 1/2" (4-8-8); P509, 5*5h, 2 3/8*2 3/8" (2-4-8); & P510 7*7h (its centre hole is Bolt hole size), 3 3/8*3 3/8" (1-2-4).

Fig.3

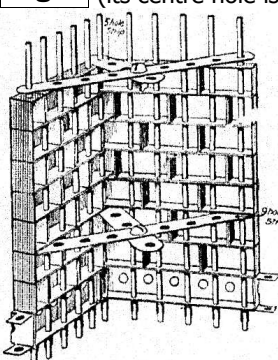


FIG. 7. INSIDE VIEW OF ROOF

Strips Nickelled, width 5/16": P511 3h (6-12-12), P512 5h (3-6-6), P513 7h (2-4-8), & P518 14h (0-0-2). Their small holes & square ends make them very different from the ERECTOR Strips.

Fundaments are U-girders with Bolt holes on the base of the U, and Rod holes along both arms. The base holes are staggered relative to those in the arms so that a Bolt can be inserted between two Rods. The holes in the upper arm are 3.1mm Ø to allow the 'wings' on the end on the Rods to pass through, and the ends of the Rods then engage with the 2.7mm

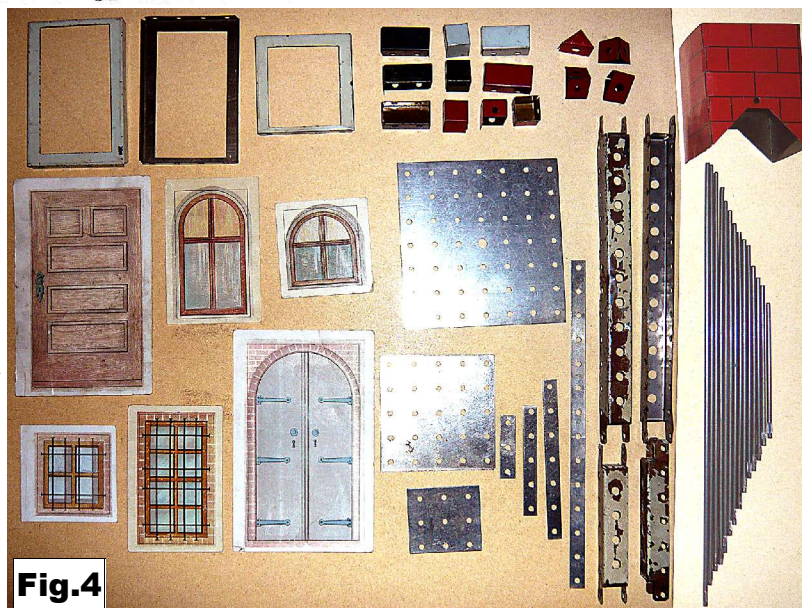


Fig.4

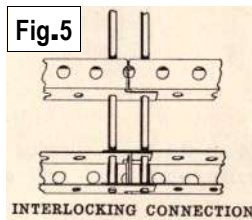


Fig.5

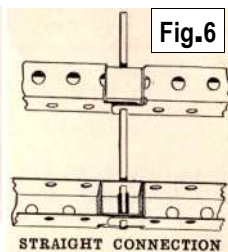


Fig.6

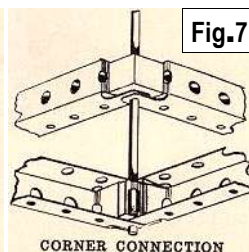


Fig.7

holes in the other arm. Thus the Rods don't fall out when a model is picked up. The Manual says, 'You can put only the end of the rod through the small holes on the bottom of the fundement by reason of their winged part.'

As can be seen from Figs.5-7 above the Fundements ends are forked, with the base of the 'U' folded over, and a Small Brick can be inserted into the fork. Figs.5 & 6 show two ways for joining Fundaments in-line, and Fig.7 shows a corner connection (for linking two walls, or two side of a roof).

There are 2 lengths: P505, Large Fundement (0-0-8) with 14 Rod holes & 11 Bolt holes, length 6 $\frac{3}{4}$ " o/a, and P504, Small Fundement (4-8-8), 3 $\frac{1}{4}$ " o/a, with 7 Rod holes & 4 Bolt holes.

Chimney, P514 (0-0-1), 2 $\frac{1}{2}$ " high, has a 2*1 $\frac{1}{2}$ " rectangular section. Its sides are cut to fit the form of the roof. Two Rod holes opposite each other just above the inverted vee cut-out allow it to be fastened by the highest Rod of the roof.

Frames In order to build more realistic models, white Frames are used in door & window openings; they are not included in the Unit/Set A. They have Rod holes in only their top & bottom flanges and so can be placed in only one direction: rectangular ones must have their long side vertical. P516, Door Frame, 4 $\frac{5}{8}$ *2 $\frac{7}{8}$ " (0-0-1) with 6 holes for Rods. P515, Large Window Frame 3 $\frac{1}{16}$ *2" (0-1-5) with 4 holes. P517, Small Window Frame 2 $\frac{1}{16}$ *2" (0-2-2) also with 4 holes.

Lithographed Cards There are 5 sets with Cards which push into the Frames; each one contains one Door, five Large Windows, and two Small Windows. The sets are: the Green set for houses, the Brown set for houses, the Office building set, the Armory set, and the Church set. Also listed are 'Factory windows' & 'Factory doors'.

The Door Frame would be too large for the models that could be built with Set B, and therefore, for this set, the Large Window Frame is called 'Door Frame'. This set has only one Card for each Frame, with a suitable Card to represent a door.

The manual claims: 'Real houses with doors that will open, windows to look through!' However, this is not true: the Doors do not open, & we can't see through the cardboard Windows.

ERECTOR Parts 3 are listed: P25L Long Screw, P26 Nut, P29S Small Washer. None of them are in BRIK-TOR sets.

BRIK-TOR and OTHER METAL CONSTRUCTION SYSTEMS

Other metal construction sets are used with BRIK-TOR for two reasons. First, Bricks are ideally suited for building walls, but not for bridges, windmill blades, or any mechanism. Therefore, for some models, such as the Well right, one can see ERECTOR Strips etc used with BRIK-TOR parts.

Secondly, though BRIK-TOR may be used alone for small buildings, such as the Tower in Fig.2, when the model is too large, the construction method, putting Bricks on Rods, leads to wobbly models: the Rod diameter is much smaller than the holes in the Bricks and in the Fundement's upper arm. For this reason the model must be strengthened by an internal structure, which is hidden. The Fundaments are fastened to

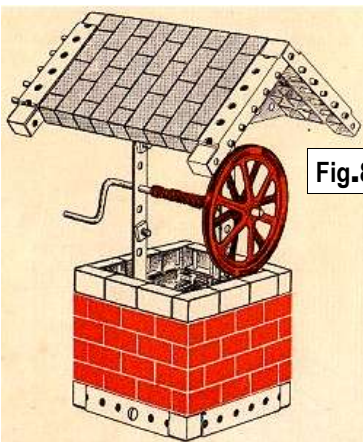


Fig.8

FIG. 1. THE OLD WELL

this structure by long Bolts. When such a structure is necessary, it is described in the manual.

We could think that BRIK-TOR would be used only with its big brother, ERECTOR. And actually the structures in the manual are always made with ERECTOR parts: Girders and the three then existing sizes of ERECTOR strips: 3, 5, & 9 holes. However, the manual indicates that one can use 'some other steel construction set'. Nevertheless, it wouldn't be possible to use a system such as STRUCTATOR: the other system must have Strips etc with holes for Bolts. This is the case for most of the systems that existed at that time in the States: MECCANO, AMERICAN MODEL BUILDER, STRUCTO, MASTER BUILDER, MODELIT, etc. Curiously enough, none of them included the long Bolts necessary to link the Fundaments and the structure, Meccano introduced their $\frac{3}{4}$ " Bolt #111 in 1919. This is probably why long Bolts etc are the only ERECTOR parts included in the BRIK-TOR parts list.

The SETS 2 sets, the Unit & the Set, were described in the manual, a third appeared in 1917 ads; no known manual or advertisement ever mentioned the 4th, and the 5th was probably never produced. The contents of the first 3 sets were given earlier in the description of the parts. In a few cases, the Unit/Set A, & Set B, contain more Rods of a particular length than the Set/Set C.

The Unit (called A in 1917) cost \$1.50. Only a few models could be built with this set, such as a Police Booth right. Most models required at least 2 BRIK-TOR Units, the Tower in Fig.2 for example.

Set B appeared in 1917 advertisements, with a price of \$3; Gilbert had inserted an intermediary set between the earlier ones. This was sensible, given that most manual models required 2 BRIK-TOR Units. Set B had the cost and the contents of two A sets, plus 3 Frames & Cards as a rather stingy premium. It is in a cardboard box with two levels, each an A set. The Frames etc are added to the upper level.

The BRIK-TOR Set (called C in 1917) is in a 12 $\frac{1}{2}$ *8 $\frac{1}{2}$ *2" cardboard box (right) and cost \$5.00, the price of an ERECTOR No.4. The parts list is glued inside

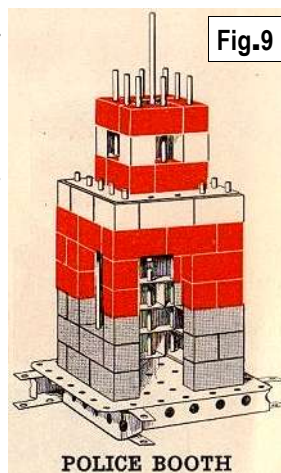


Fig.9



Fig.10



Fig.11



Fig. 12

the lid. Like the Unit, it includes no ERECTOR parts, not even long Bolts. It has 2 layers of parts and the shallow tray has the parts organized to form the side of a building (Fig.11); this is beautiful, but a labour-intensive practice, compared with the T-clips used for ERECTOR sets. In the base, above, two cardboard inserts, $7\frac{3}{4} \times 3\frac{1}{2} \times 1\frac{1}{2}$ ", contain Bricks; the other parts occupy the remaining space. We have seen that there were five sets of Lithographed Cards. The BRIK-TOR set only contains three of these, in my set the last three. This can be a problem for some models: if the Armory set is not included in a box, it is difficult to make a realistic model of the Jail or of the Fort – they would look weird with windows showing angels, or flowers with lovely little curtains! The Cards are printed on only one side; printing them double-sided, as were the 1935 Skyscraper Panels, would have overcome this disadvantage, giving effectively 6 Card sets in the Outfit.

A CANNISTER Set in a cardboard tube (right), 6" high, diameter $3\frac{3}{4}$ ", was offered on eBay with its probably incomplete content; unfortunately both the list of parts and the manual were missing. It could have contained a Set A but the parts would have been packed like sardines; moreover, one cannot see the interest in a new packaging for this set. It is more likely that Gilbert wanted to introduce a cheap beginners set, which would be sold for less than one dollar. For example, its content could be half of Set A, which would lead to a price of around 80 cents. This agrees with the remaining contents, which compared with Set A are: Bricks 29/60, Small Bricks 9/20, Plates 3/7, Strips 9/11, Rods 27/66, Small Fundaments 4/4 (it is difficult to build something with less than four Fundaments). Its Brick content corresponds to one BRIK-TOR Brick Box, with only two missing Bricks; this suggests that this set is almost complete. The models, built with so few parts, must be very straightforward. These sets are extremely rare: for the seller, it was the only



Fig. 13

one he had seen in 40 years of collecting Gilbert toys.

The SPECIAL BRIK-TOR Set allows a $16\frac{1}{2}$ ft long model of the Brooklyn Bridge (Fig.14) to be built, with piers 32" high. Or a model of the 2-storey ERECTOR Factory, 46×28 " in plan & 15" high. The set includes all the ERECTOR parts necessary for these models. It was said that the initial price, \$50, was reduced to \$25 'to encourage the young builder to make these instructive and splendid models.' It was necessary to decrease the price significantly: \$25 was also the price of the largest No.8 ERECTOR set. It is unclear whether this set was ever marketed, Jay Smith wrote: 'I don't believe that any examples of this set have surfaced.' Probably, it is in the museum of the announced, but never produced, sets where it preceded, among others, the No.12 ERECTOR and Meccano's Mechanised Army No.3.

SEPARATE PARTS

Toy dealers had a cabinet (right) which contained the full range of parts. The Bricks, short Rods and Strips were sold by the dozen, by the half dozen for long Rods, and per unit for the others.

There was also a BRIK-TOR Brick Box which sold for 35 cents and contained only Bricks: Large (15R, 12S, 3W) & Small (4R, 3S, 3W). No model could be built with this box, which contained no Rods.

The MANUAL The BRIK-TOR set manual (Fig.17) has 32 pages about $10\frac{1}{2} \times 7$ ", plus covers; It is one of the best Gilbert manuals that I know, printed in black & red on good quality paper.

It begins with a general presentation of the system, written by A.C.Gilbert, then three pages explain how to build with BRIK-TOR, describing step by step the construction of an Old Well (Fig.8). Two pages show three models built with one BRIK-TOR Unit (Fig.9 for example), while the four following pages have eight models built with two BRIK-TOR Units, including Fig.2. After introducing Frames, seven pages show eight models built with the BRIK-TOR Set. With every model, the Church in Fig.18 for instance, a drawing is present of every vertical wall with the size of the Rods indicated; there are also



Fig. 15



Fig. 16

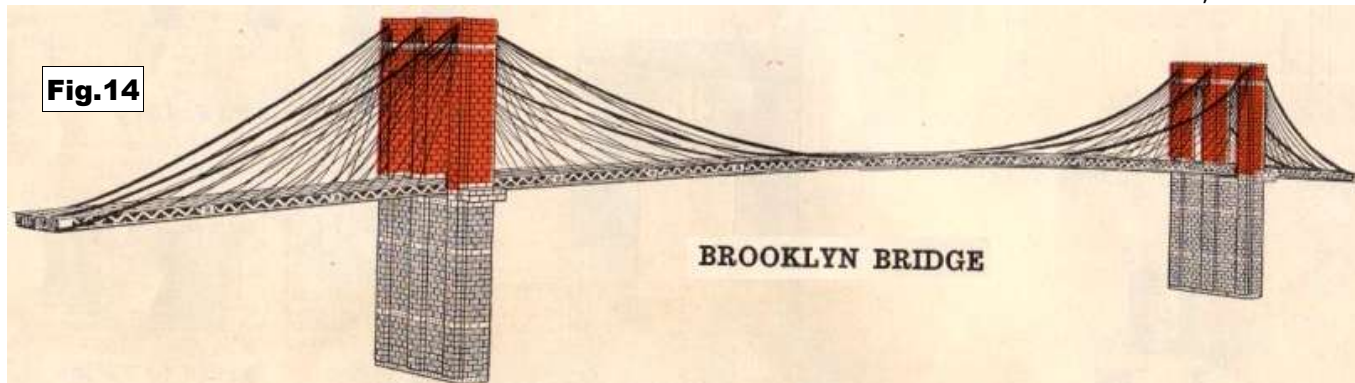
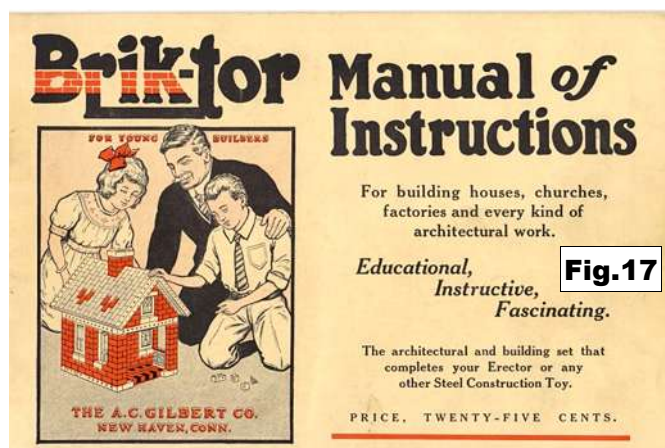


Fig. 14

BROOKLYN BRIDGE



one or two overviews of the building, the disposition of the Fundamentals at the base, and a view of the ERECTOR structure used for the model. Then five models, each one on two pages, which need two BRIK-TOR sets plus some extra parts for 3 of them (Fig.1), and two pages which display both models from the Special Set. Then two pages show the parts, the sets, and their prices, while the last three pages promote ERECTOR.

It is not easy to use the manual because of the separate description of the walls. Usually, a manual displays sub-structures that are later included in the main construction. Here, due to the staggering of the Bricks, it is impossible to build the walls separately, and then assemble them. As the manual says, one must build the model layer after layer. Therefore, one has to begin the first layer with the picture of the first wall, then put the following Bricks from the second picture, etc, then return to the first picture for the second layer, and so on. It was certainly confusing for the young child who wanted to build the Church with its six walls (Fig 18).

The BRIK-TOR Unit/Set A, and Set B, included an instruction manual but I have no information about their content. Perhaps the same manual was used for both sets.

END WORD This system did not fulfill Gilbert's hopes: its sets are rarely found. He himself considered that 'it was moderately

successful.' It did not last long: for Jay Smith, 'Brik-tor disappeared pretty quickly in the late teens.' Although Gilbert was spending a lot of money on advertising, he did not try very hard to promote BRIK-TOR. When he seriously wanted to launch a new system, such as Electrical sets, or the GILBERT NEW WHEEL TOY, he published full-page ads; it does not seem that such advertisements were ever made for BRIK-TOR. In 1916-17, a full-page ad for ERECTOR sometimes mentioned other Gilbert products; among them the information on BRIK-TOR was limited to a few lines, and a tiny picture of a Windmill. However, a Gilbert ad in a UK toy magazine of Oct. 1922 includes BRIK-TOR Sets A and C, probably to get rid of old stock.

Devising a system for young children was an excellent idea, but Gilbert acknowledged, 40 years later: 'it was a sound idea, but BRIK-TOR was not the right answer.' For this goal, it was a failure, and there are many reasons for this. It is boring to push Bricks onto rods: it is more difficult than stacking Lego Bricks. It is not easy to find the right Rod among 16 possible lengths. The child has to build a structure with parts of another system, where he must use a screwdriver while he is supposed to have a 'pre-screw driver set'. It is difficult to understand the models in the manual, described by their walls, when they must be built upwards brick course by brick course. Staggering the Bricks makes it very hard to modify what has already been made, one must destroy a large part of it. All this is not very attractive to young children, the intended users.

Nevertheless, all in all, experienced users could build interesting models with this system.

A comparable architectural system, BAYCO, appeared in 1934; it also used vertical metal Rods, but held firmly in a plastic base, and with plastic parts, impressed with a staggered brick pattern, which slid down between the Rods rather than over them. It was rather successful, since it lasted 33 years. David noted that BAYCO overcame some of the problems with BRIK-TOR, lack of stiffness for example, but it still often needed much dismantling to make changes to a model.

