club

fischer

NEWS MAGAZINE FOR MEMBERS
OF THE FISCHERTECHNIK-CLUB

Introduction

In the last few editions of the Club magazine we have told you about the Olympic Games, how they came into being, their general history and the preparations for this great sporting event in Munich in 1972.

On 25th May we put on a big display of fischertechnik at the Olympic sports ground, together with 50 boys and girls from two orphanages in Munich. The sky was overcast and cloudy; we were desperately hoping for dry weather for our fischertechnik show which was an event of great importance for those orphaned children. But as soon as the activities began the sky cleared and the sun did not desert us till the evening.

What fun and excitement there was. A large host of children equipped with safety helmets and rubber boots happily played with fischertechnik. The cover photograph of this edition of the Club magazine gives you a glimpse of the great event. Enthusiastic building was going on everywhere, questions were asked and answered and expert advice was given. In short, spirits were high and every-day life was forgotten.

Hard work makes one hungry and thirsty. That could be remedied. All participants in the fischertechnik Olympic event were afterwards invited to go up in the lift to the TV tower where they could refresh themselves with cocoa and cake in the fascinating revolving restaurant at a height of over 600 ft. It was a really lively crowd who, having been given presents at the end of the day, returned happily to their homes.

By the way, did you know that in our factory we also manufacture fixing elements of all kinds, the so-called Fischer plugs and sell them all over the world? At the moment, nowhere is more fixing going on in Germany than on the Olympic building sites in Munich, Kiel and Augsburg. A large number of Fischer plugs are used there for a great variety of purposes. In this edition we will tell you something about it.

Yours,

The winner of the last Club puzzle visits the Fischer factory

"Daddy, look, just look, I've won, you've got to take me, you really must take me!"

All excited, Club member Reinhard Dietel, 11, showed the letter from the Fischer factory telling him that the "fairy queen" of the Fischer factory – it was Miss Seebich who always answers your letters so kindly – had "blindly" drawn out his card from the big pile of cards which had the correct solutions to the last Club puzzle.

Norbert, Reinhard's twin brother, had to come along as well, as a matter of course, and on Monday, 7th June, the two boys and their father were able to visit the main factory in Tumlingen: the casting shop with its many automatic die-casting machines, the machine shop with the automatic lathes, the toolmaker's shop, the department for electronic data processing, the research & development department including electronics, the control department and the many, many other parts of the works. The longest time,

Dietel related how keen both of them are on their fischertechnik constructions — he has to watch carefully that school is not neglected over them — but also how conscientiously the boys always tidied away their sets afterwards. How did Mr. Fischer start his business? Mr. Fischer tells them how he began after the German post-war currency reform, without funds and in tiny accommodation which he rented for 15 German Marks (less than £2) per month.

Richly laden with presents — above all the new static construction set had to be included — Reinhard and Norbert set out on their journey home.

of course, was spent in the model building shop where the two boys had a chance to play with various models themselves: there was an electronically controlled lift, an electronically controlled car washing installation (see photograph), a machine which manufactures tables automatically, a demonstration model of a car engine, a radar control tower and many other models. Reinhard and Norbert were particularly enthusiastic over the many new and bigger models which may now be built with the fischertechnik static construction kits. The day culminated in an interview with Mr. Fischer. Mr.

New from fischertechnik

Supplementary packs for the static construction kits should be available in the shops in the near future. They are designated 031 to 038 and, except for one pack, will cost the same as the supplementary sets 01 to 023. This time we should like to introduce you to the sets 023, I-e 3 and the new hobby sets. With pack 023, the basic set

023

300 can be extended to form set 100 + mot.1. It will be of interest to anyone needing a cross link or a rope winch including clips and hand crank. Universal joint or a winch drum, locking rings or crank. It also contains our fischertechnik nylon line, an axle 50 (2″ approx.), a bracket with pinion and axle, plus a half block with two red lugs.

I-e 3
(Voltmeter)

The voltmeter is intended for owners of sets I-e 1 and I-e 2, e-m 1 and e-m 2 as well as hobby 3 and hobby 4. In the handbook to set I-e 1, volume 2, you will find descriptions of interesting experiments and tests which can be performed using this instrument. This is a D.C. voltage meter; full deflection 10 Volts with an extended lower range, i.e. even extremely small voltages can be read off clearly. Should the instrument be wrongly connected you will notice this at once as the indicator will be deflected sharply to the left. The instrument is also suitable for use as a zero indicator, e.g. for Wheatstone's bridge. Further included as an integral part is a potentiometer with a maximum range of 1 kilo/Ohm. The instruction leaflet which is included carries a full description of the method of operation of the voltmeter.

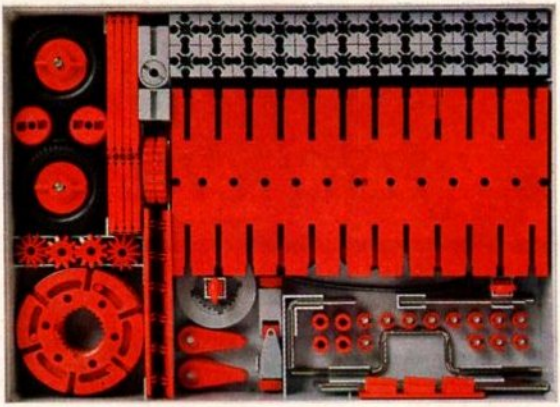
fischertechnik hobby kits — the programme of unlimited construction possibilities

This system which conforms to construction engineering has been created for the fastidious requirements and individual technical interests of young **and** older hobby-designers. An unlimited number of different models can be developed with these fischertechnik-hobby sets, either using techniques of large scale engineering or according to individual designs. In the field of experimental physics the fischertechnik hobbysystem also offers inexhaustable possibilities. Complicated and intricate technical processes may be demonstrated with the help of home-developed fischertechnik models.

The complete fischertechnik hobby programme presented here consists in all of 5 construction sets which complement one another.

hobby 1
basic set

The foundation for all hobby sets

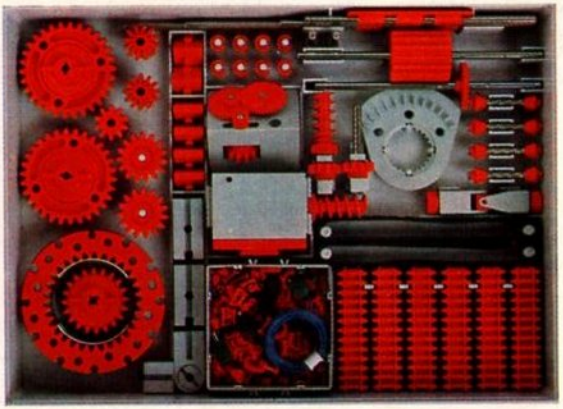


The hobby 1 is the basic set of the fischertechnik hobby programme with unlimited extension possibilities. It comprises various blocks, plates, axles, hubs, wheels, tyres, gears, cams, couplings, winches and other elements, all with a high quality finish.

With these parts a number of basic mechanical phenomena, especially kinetic ones, can be demonstrated and proved, or – according to individual wishes and interests – many fascinating models based on existing plans or original ideas may be developed.

The accompanying hobby 1 handbook contains directions for the practical use of the various construction elements as well as a detailed description of the crankshaft principle for combustion engines including experiments. Another item mentioned is the planing machine (shaping) with its variable drive.

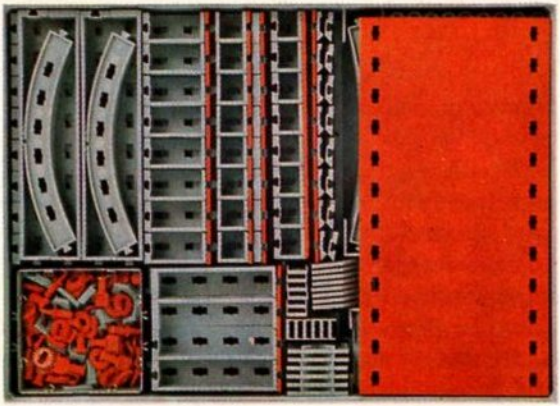
hobby 2
motor and gears



The electric motor and the various gear wheels contained in this hobby set will provide the drive for those models built with the hobby 1 set. A push-on bevel gear with stepped reducing gear train, internally and externally toothed pinions, e.g. for epicyclic gears, wheels, a further universal coupling, a link chain adjustable for length, a complete differential and further construction elements increase and enhance facilities. The hobby 2 handbook explains the use of the new elements in this set. So, for example, some of the numerous possibilities are shown of how the motor and various gear arrangements may be assembled to loadbearing structures. Based on experiments and d.i.y. models described here, in the field of automotive engineering an explanation is given of valve control for a four-stroke engine and in the field of machine tools the working principles of a dividing head and its extension to more sophisticated versions up to the differential dividing head are explained.

hobby S
statics

Bridges, cranes, towers



A further set in the fischertechnik-hobby programme range is the static construction set hobby 5. It comprises primarily girder type profile elements as used in steel construction. A great variety of steel frame structures, towers, bridges, and cranes may be built from angle girders which are assembled just like the basic modules, straight girders and curved pieces. Strengthening of these girders is achieved by the use of struts which are fixed with fast-action clips. Corner and cross junction plates, connecting shackles, joints and further interesting construction elements enable the modeller to copy real engineering.

The new static construction elements can easily be fitted to the parts of the other hobby sets. This combination of elements provides completely new construction possibilities.

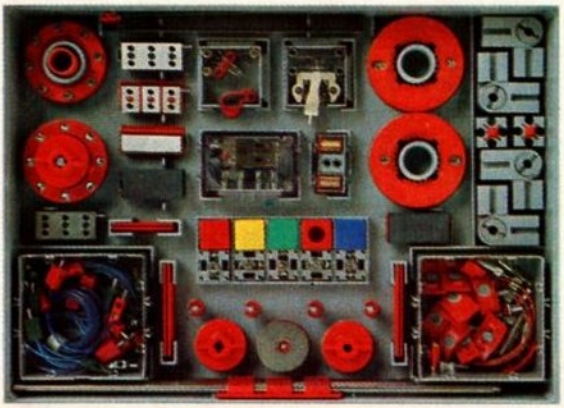
The high quality material of the various elements — exclusively Nylon in this case — ensures greatest possible protection from fracture. And yet the material possesses sufficient elasticity so that the laws of statics may be visibly demonstrated in a unique way when carrying out these model experiments.

The hobby S handbook contains instructions for the use of these new construction elements, the description of an automatic printer for wrapping materials and hints for the further sophistication of this model. Additionally, a grab operated by two ropes including a crane drive provides surprising insight into the principles of hoisting gear.

To round off these topics, the construction of a steel bridge and related problems are also described.

hobby 3
electro-mechanics

Switching and control



In the field of advanced technology, machines and work processes are often controlled by electromechanical means. The elements of the hobby 3 set have been developed to fulfil these functions. The set comprises mainly electrical construc-

tion parts. Here are the principal ones:

Lamps with different colour caps for signal and illumination purposes. One each of extremely versatile electric push buttons and switches. Permanent and electromagnets and contactors which can be made into programme transmitters by the use of push-on isolating pieces.

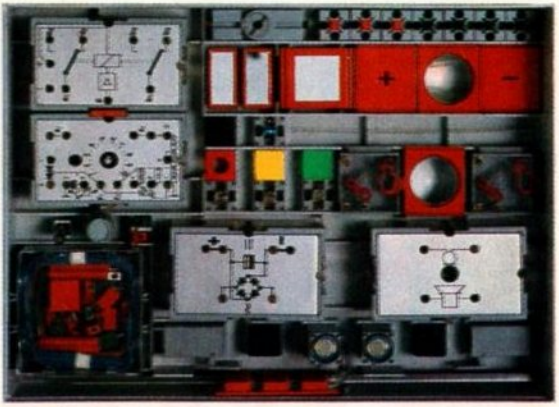
Problems of control technology may be solved with a highly temperature-sensitive bimetal strip and a quality relay. Even the principle of the D.C. electromotor can be demonstrated using the parts in this set.

The hobby 3 handbook will convey quickly and clearly the basic knowledge needed to work with electromechanics.

Apart from this, the various means of control for an inclined hoist are discussed. Also given is a description of the use of a motor-driven programme unit to control a number of electrical functions in a certain time sequence. Both these experiments may be duplicated with a self-built model.

hobby 4 electronics

Control of processes by light, heat and sound



With the hobby 4 set modern control techniques using light, heat and sound are explained and interpreted in detail by experiments. The mainstay of the hobby 4 is the electronic base module. It comprises a transistorised amplifier with multiple input and output channels. It can also be used as a transistorised switch unit, pulse generator, or delay line.

Two light barriers serve as "control sensors" – alternatively supplied with focussing lens and mirrors – together with a microphone/loudspeaker module and a NTC (= temperature-sensitive device). The supply is taken via a rectifier module from the fischertechnik transformer which has to be purchased separately. The hobby 4 handbook acquaints the user with the innumerable applications of electronic control and switching. With it models can be remotely controlled and many solutions can be found for all sorts of control problems. An example demonstrates how a sorting installation connected to a conveyor will automatically sort parts into two sizes as they pass through. Another topic deals with electronic ignition control for automotive engines. The system can be extended without limitations. Further electronics modules (e.g. logic gates and flip-flops) are available. With the aid of these modules the whole field of digital electronics on which computer technology is based may be opened up and interpreted.

Recommended for working with this hobby set is the previous acquisition of the basic kowledge of switching techniques which may be gained with the hobby 3 electromechanical set.

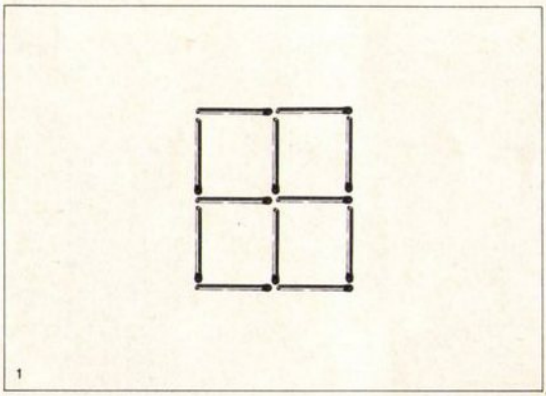
Puzzle Page

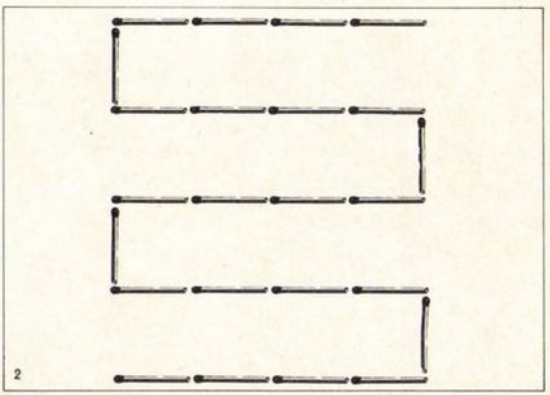
Problems using matches or fischertechnik building blocks

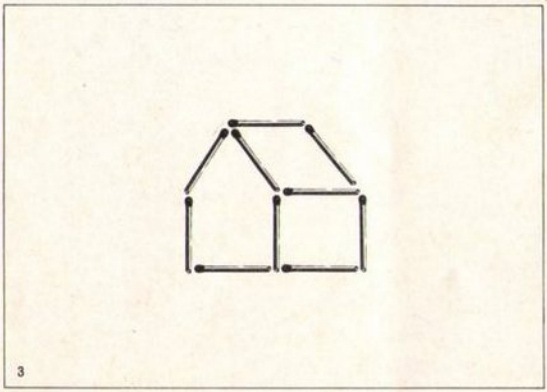
1. Re-arrange 4 matches (or blocks) and turn the four squares shown below into three squares of equal size.
2. Re-arrange 8 matches and alter the figur so that it forms 2 squares of different sizes.
3. Re-arrange 2 matches and achieve the opposite perspective of the house — looking at the right-hand gable instead of the left-hand one.
4. The scales are to be put into equilibrium by re-arranging 5 matches.

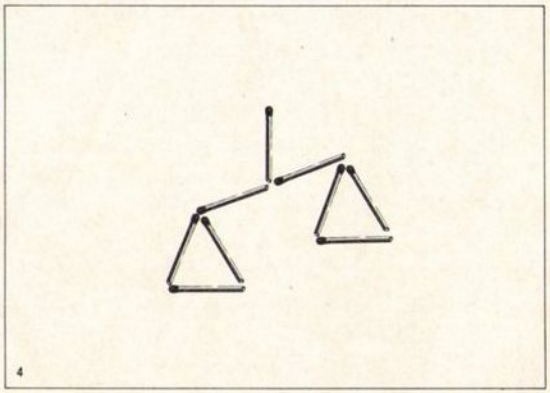
When you have found all four correct solutions draw them on a postcard (a simple line-drawing will do) and post it to Fischer-Werke, Abt. fischertechnik-Club, 7241 Tumlingen, W. Germany.

From the correct solutions reaching us we shall draw the winner who, together with a companion, will be invited for a free visit to the Fischer factory.



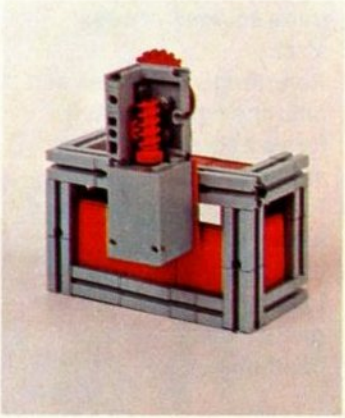


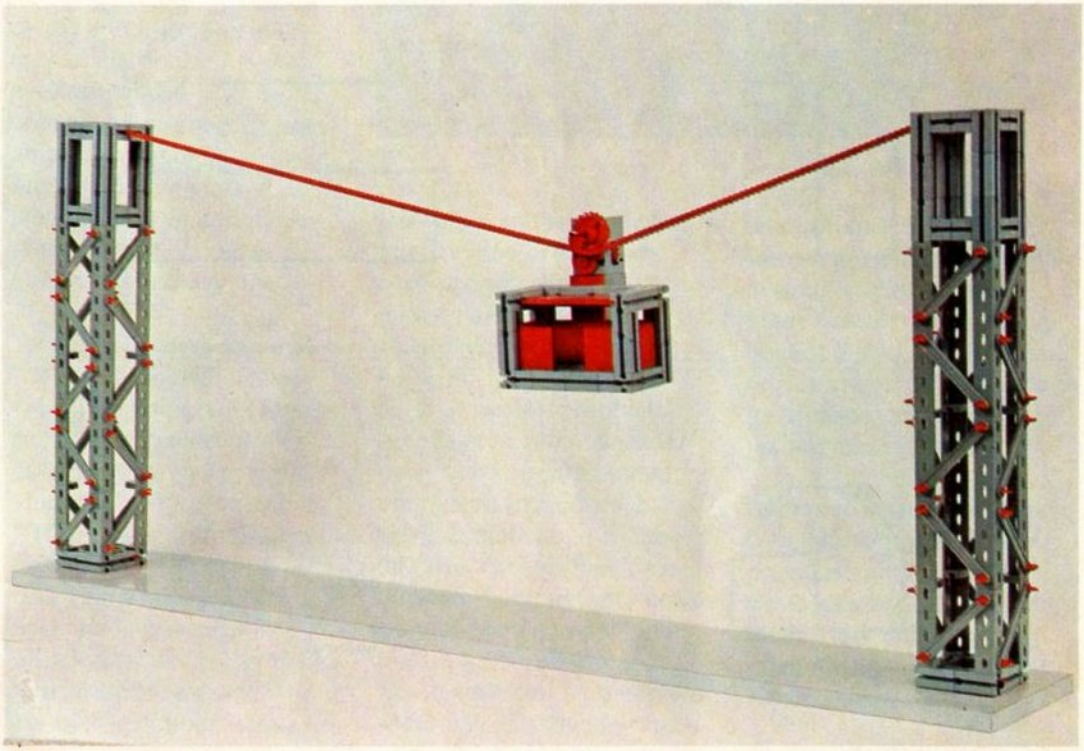




News from the fischer-technik Club

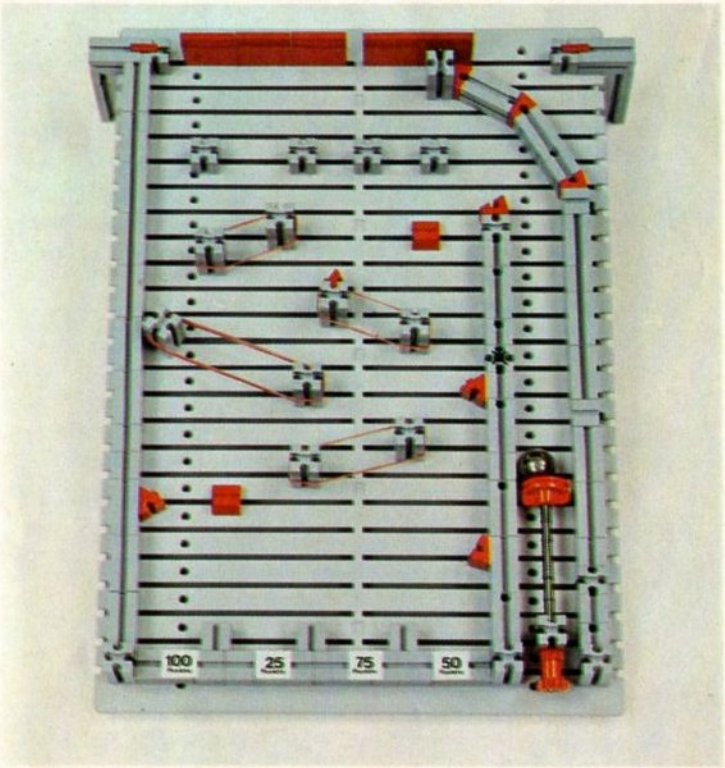
Dear Club Members,
We have
taken great care as always with the choice of articles and we hope that there will be something of interest for everybody . Please drop us a line if you have any suggestions for the Club magazine and we shall try as far as possible to grant everybody's wishes.





Many of you will have seen our big fischertechnik model exhibition in the cities of Munich, Dusseldorf, Recklinghausen, Siegen and Bielefeld. You will have a letter from us to notify you when the exhibition comes to your town. The models we are presenting today are particularly suited for playing outdoors. The first contribution has been sent in by Club member Olaf Szepanski of Wuppertal-Barmen. It is a cable car travelling shuttle-fashion on our special chain. The travelling speed of the car is determined by the choice of the gearwheel which engaged with the chain. The length of the chain may be chosen at will.
The next contribution was sent us by Kurt Herrera of Augsburg. Our Club member describes the model (a bagatelle board) as a "marble shooter with various score points". This means that by releasing the ball with more or less force a higher or lower score may be achieved.
We hope you will have lots of fun with your self-constructed "games automat".

By the way, the four springs which the shaft passes through can simply be taken from some old spring-loaded ball-point pens or you can buy them in a hobby shop or a do-it-yourself shop.



Olympia

Fischer factory and the Olympic Games 1972

As we have already mentioned in the foreword, the Fischer factory is connected closely with the preparations for the Olympic Games 1972 in Munich! That is because we not only manufacture the fischertechnik construction sets but also the world famous Fischer plugs made of Nylon.

Perhaps you already know what expanding plugs are. If somebody wants to hang a heavy picture or a mirror on a wall it is not sufficient simply to nail a hook into the wall – it would not stay in and in concrete it is impossible anyway. One drills a hole in the wall for the Fischer plug and then screws the hook or bolt, or one simply hammers a nail into the opening of the plug. The bottom part of the plug will expand and the hook is fastened securely – firm as a rock. The plug therefore is a fixing element – our picture shows it. Our plugs are taking part invisibly in the Olym-

Olympic stadium with TV tower

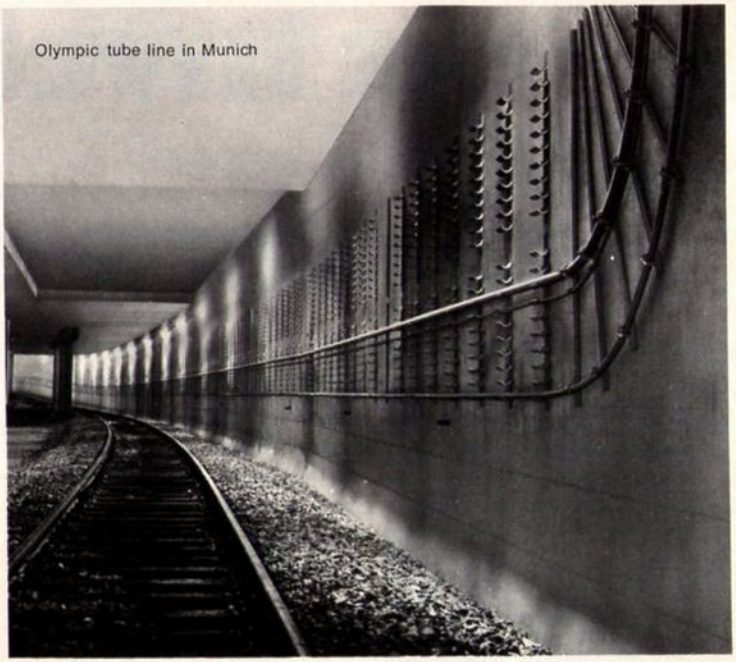
pic Games 1972. They are holding, so to speak, the world record in holding tight!

Just a few examples of the things they are holding:

- the wash basins and the flower boxes for the balconies in the Olympic village,
- the current supply installations for the TV and radio transmissions from the Olympic press centre,
- the wall cladding in Munich's tube stations, as well as
- the supports for low tension current installations on the Olympic line of the Munich tube system,
- the planking along the regatta route in Augsburg, and
- the window frames in the housing units for VIP's (very important persons) at the Olympic sailing centre in Kiel.

Whether expanding plugs or fischertechnik building blocks, both of them are fixing elements and both are made — mostly — of Nylon. As you can see: the material will really stand a lot! And with regard to the fixing properties of a plug or of your robust fischertechnik models: it will take some doing to surpass our records in this field, no matter whether before, during or after the Olympic Games 1972!

By the way: you might be interested to know how the Fischer factory came into being. We shall therefore give you a short report on this in the next edition of the Club magazine.



Olympic tube line in Munich

Olympic village

Sailing centre in Kiel

Great Inventors and Discoverers

Almost daily one of us uses a sentence like this:
"Switch the light on, will you?"
"Why don't you put on a nice record."
"Will you answer the phone, please?"
"Let's go to the cinema."
We use these expressions as a matter of course, without thinking. But a mere hundred years ago these terms were still all technical wonders. The man who made them possible was Thomas A. Edison. He was born 124 years ago, on 11th February 1847, in Milan, Ohio, the son of a grain broker.

Thomas A. Edison did not think much of school. He gained almost all this knowledge from his mother who had been working as a teacher for a long time. In her books young Edison found the inspiration for many of his experiments. He did not get much pocket money and it was not sufficient to fulfil the many unusual wishes he had, such as chemicals, retorts, burners, jars and specialised books. He therefore decided to earn money himself.

At the age of twelve he persuaded his father to let him have a piece of land which he cultivated himself. Then he sold the produce. Soon he discovered another source of earnings. He distributed newspapers on railway stations and in trains. With the money he earned he established a vegetable stand. Part of the necessary work was done by another boy to whom he gave a share of the profits. Parallel with his newspaper trade on the trains Edison bought up vegetables cheaply along the line and transported them to his shop.

When he was 13 he bought a scrapped printing press from a printer's. This he erected in a hired railway carriage. By and by he purchased a set of printing-letters to set up a paper in type, and only a short time afterwards he published, aided by a press agency which telegraphed news to him at the stations which the train called at, his own newspaper: the "Grand Trunk Herald". Even the venerable old London "Times" made mention of this paper. For about two years everything went well with Edison's various undertakings until at the age of 15 he had installed in his railway carriage not only a printing shop but a travelling laboratory as well. This started to burn on the journey one day and the railway authorities threw out Thomas Edison and his printing shop. Edison started to wonder whether he had not better find himself a proper job with a regular income. But of course only a job which would leave him plenty of time to experiment and to read books on the side. Who in those days had that much time? Only the telegraph

Thomas A. Edison

operators along the railway routes. Thomas trained to be a telegraph operator and was soon so perfect that he could do better than his instructor. But as he could only rise as far as assistant telegraph operator he soon started to go on travels throughout the vastness of the United States. He finally settled down in Boston and became a press telegraph operator. When the gold rush started after the Civil War he found a job with the 'Gold Reporting Company', which was a lucky chance. There he thought up crucial improvements for the telegraph business. The company purchased these from him for the enormous sum of $ 40,000.

This is the turning point in Edison's life. He establishes himself as an independent inventor. On the 1st October 1869, Thomas Alva Edison builds his first workshop in Newark, aged 23. Soon he is employing a labour force of 50 who translated his ideas into reality. A few years later he moves to Menlo Park, not far from New York. In the field of communications Edison devises a number of inventions. Best known are the telegram repeater and the quadruple telegraph for sending more than one message over the wire at the same time, and a telegraph with letter print-out, the teleprinter. Altogether Edison holds 63 patents in this particular field. A contract with Western Union & Co. opens new scope for him. He is to improve the telephone.
The German Philipp Reis had invented the telephone in 1861. The first to improve it further was Graham Bell who also introduced it into practice. But this telephone was not yet the instrument as we know it today and could only be used for the transmission of calls within the same house or the immediate neighbourhood. The magnets used in the metal membranes were not sufficient for more demanding uses. Their capacity was sufficient for receivers but they failed as transmitters. Edison finds the solution for the problem. He fills the ear-piece with fine carbon granules and according to the pressure of sound waves when speaking onto it the voltage is modulated. This is a revolutionary invention. At first people laugh at Edison and the seemingly simple solution to the problem. But when Edison turns a foil-covered cylinder and the words "Mary had a little lamb . . ." come from the loudspeaker in hoarse, but nevertheless clearly distinguishable, squeak, even these sceptics are convinced. Since that day Edison is called "the magician of Menlo Park". On 19th February 1878 Edison obtains the patent for the phonograph. During the same year he sets himself a new task. He himself calls it the greatest task of his life. He intends to replace kerosene lamps and gas lighting with electric light and he wants to make it so that everybody will be able to buy

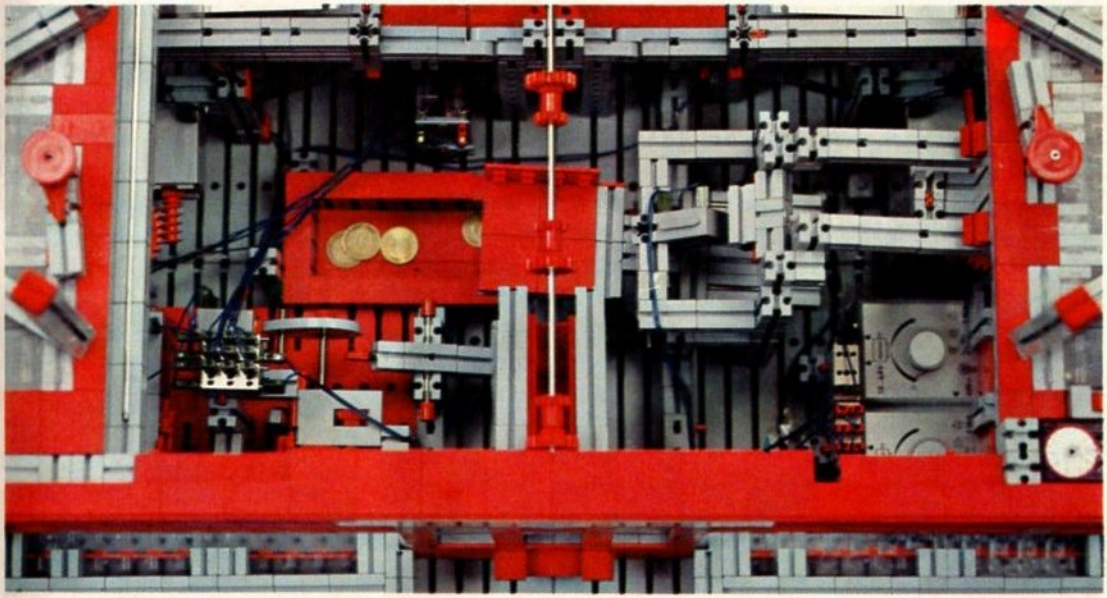
electric lighting as they can buy water, gas, coal or oil. The great German inventor Werner von Siemens at that time denies the possibility that electric light will ever be used by the general public. Soon Menlo Park resembles a madhouse. Altogether he tests approximately 3000 of the then existing theories for the utilization of electricity to generate light. Only two of the theories prove to be even remotely capable of putting into practice. Over a period of 13 months Edison spends $ 50,000 without visible results. Above all, the right filament has to be found which will glow when submitted to the voltage of an electric current but does not incinerate itself. Edison tests every conceivable material even to the hair from the beard of one of his colleagues. Finally, on 21st October 1879 and after many useless efforts and disappointments, Edison achieves success with a charred cotton thread which has the shape of a bent hair pin and is enclosed in a vacuum of 1/1,000,000 atmosphere. The world's first electric light bulb is radiating light. Edison's immortal merit will be for ever that he made possible the practical use of electric current, as a source of light in everyday life, for the small consumer and for the industrial user. The last of his total of 1328 patents he applied for at the age of 81. Among these patents were many epoch-making inventions, such as the 35 mm cine film with perforation along both edges, the improvement of the accumulator, the ferronickel storage cell, the marketable typewriter, the copying machine, the stencil, the film camera and projector, and the revolutionary invention of the first sound film in 1893. Edison laid the foundation for the first electric railway and for wireless telegraphy. He improved iron smelting and steel production and invented concrete casting which only now has reached its real importance, and even the principle of pre-fabricated houses was anticipated by him. It has been calculated that solely in the United States approximately 4 million people are occupied in the exploitation of Edison patents in industry. The total value of his inventions is estimated to be in the region of 20,000 million Dollars. When Thomas Alva Edison dies on 18th October 1931, one of the last great inventors has passed from this world. Inventions like Edison's are hardly possible anymore, because technical knowledge has grown to an extent where only teams of specialists can now make new discoveries.

The fischertechnik hockey games automat

"Shoot – goal! Watch it, another one coming – but I caught that one – boy, oh boy, what a game!"

These and similar exclamations were flying about the air when young – and young-at-heart – visitors of the Interschool Exhibition in Dortmund from 8th to 15th May called at the fischertechnik-stand, there discovered the fischertechnik hockey games automat and played with it.

Yes, what you have been reading is correct. A hockey machine constructed entirely from fischertechnik modules. Not by us, however, the two boys who achieved this were members of your Club, Gerhard and Egbert Kaufmann of Frankfurt, aged 14 and 15! This model is really beautifully built. When somebody drops two 10-Pfennig coins into the slot – the slot is labelled "Aktion Sorgenkind" (a fund for distressed children); and the proceeds have meanwhile been forwarded to the fund – then the lift arrangement automatically transports a ball to the top and rolls it onto the domed playing field in the direction of one or the other goal. Via two electric switches (push button type) on the right and left, each of the two players could move a lever = hockey player – goal keeper and "scoring ace" at the same time – to the left or right and shoot the ball into the opponent's goal. If



young visitors at the Interschul-fair-playing hockey with fischertechnik.

the other goal keeper could not hold the ball or shoot it back, and the ball went into the "net", the lift returned the ball to the field. An automatic counter in each goal registered the score so that at the end of the playing time, i.e. after three minutes, the result could be read from the indicator.

How did the idea of building a hockey games automat originate? Well, during their summer holidays in 1970 Gerhard and Egbert visited Benidorm in Spain. There they played on a hockey automat. They were so thrilled with the game that they decided to build a machine like that for themselves with fischertechnik.

First they constructed the main framework, inserted the slot mechanism and then assembled and built in the timer which was to switch off the machine after three minutes. Now the difficult problem had to be solved of controlling a fischer-motor via fischertechnik pushbuttons in such a way that the "hockey player" would turn left when pressing the left-hand pushbutton and to the right when pressing the right-hand one. But the most complicated part was the lift arrangement which was to return the ball to the top after it had passed through one of the goals. And when the whole apparatus was finally completed, it turned out that it broke down much too frequently. So they resolutely pulled the whole thing apart again und built a completely new machine. This time they were able to avoid all their initial mistakes, the machine had a clear layout and playing it was fun. Don't you agree that this was a really remarkable achievement?

Of course the two boys deserved a token of recognition: From Mr. Artur Fischer they received a diplom appointing them "Young fischertechnik engineers". You, too, can earn this diploma if you can construct an equally interesting model and will send us a detailed drawing or a very good photograph of it – and it does not have to be a games automat!
fischertechnik really is a system without limitations!

Up-to-date models for you to copy

Today, rationalization is an important requirement in every industrial undertaking. Big companies therefore have created special departments which are engaged solely in determining the most favourable processing of an order and selecting the necessary tools and appliances: the job analysis department and the jig building shop. Particularly the jig development cooperating with the job analysis department fulfils an important task in devising methods of rationalization. Jigs are used in the work process whenever the physical strength and the skill of the workman alone are not sufficient or if the number of workpieces produced per time unit can be raised without putting additional physical strain on the operator. If a very high number of workpieces per time unit is required a fully automated special machine is normally used. The decision which process (special machine or jig) is the most economical is made by the job analysis department, based on a previously made calculation. If the required number of parts is so low that it would not pay to purchase an expensive machine specially for the job then the jig design engineer is given the task of developing a jig for the required operation.

We shall set ourselves the problem here of developing such a design and building a jig with fischertechnik.

Required:
A fischertechnik building block is to be pushed onto another as shown in fig. 1. In order to push the block into the channel a shuttle movement is required. This may be created via a hydraulic or a pneumatic cylinder or with the help of the crank drive of the electromotor. If you would like to solve the problem unaided you should not read any further and should try instead to develop a design of your own.

For the solution suggested below, the following fischertechnik construction sets are required: one each of 200, 200S, mot 1, mot 2, em 2,04 and two of 01.

Fig. 2 shows the structure of the crank drive with the parallel guide for the plunger. 2 angle girders are fastened underneath the base plate to strengthen the framework. Fig. 3 shows the mounting of the limit switch which switches off the motor every time the crankshaft has completed one revolution. Figs 4 & 5 show the operating side of the jig. The drive is taken from a fischertechnik motor via a push-on bevel gear (fig. 5). The two push buttons a and b are assembled from parts in such a fashion that an air gap remains between of spring d when in a state of contact pin c and the bottom

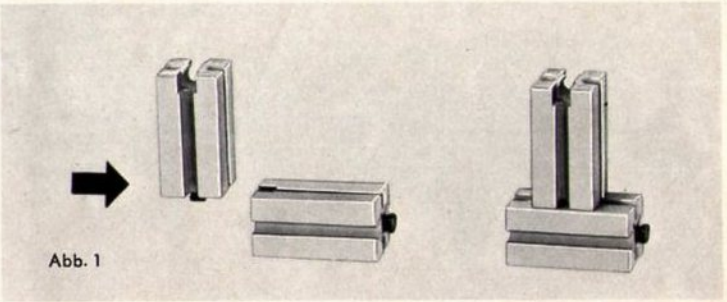


Abb. 1

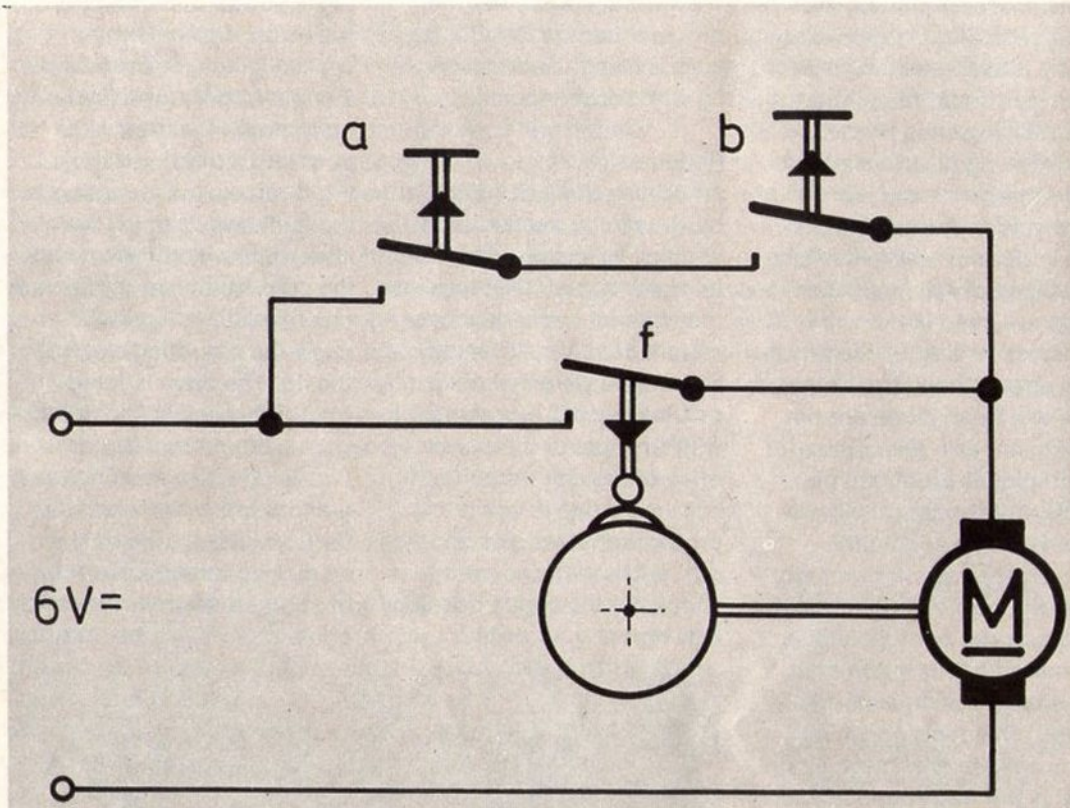
rest. The construction module e is the workpiece into which the plunger has to insert another block at right angles. The blocks to be inserted are supplied from a magazine which contains 8 blocks stacked between two guide rods (figs. 7 & 8).

Wiring diagram (fig. 6)

When bridging the limit switch f by simultaneous operation of push buttons a and b the motor will start and move the plunger forwards and backwards until the motor is switched off again by the limit switch f. The operator is thus forced to operate push button a with one hand and push button b with the other in order to start the machine. This arrangement, also called two-hand-operation, is chosen for security reasons so that the operator cannot reach into the running machine.

Operation:
1. Fill magazine with 8 blocks.
2. Insert base block.
3. Switch on.
4. Remove assembled workpiece.

The magazine will only need refilling after every 8 completed workpieces. The process could even be fully automised by the addition of another magazine for automatic supply of base blocks.



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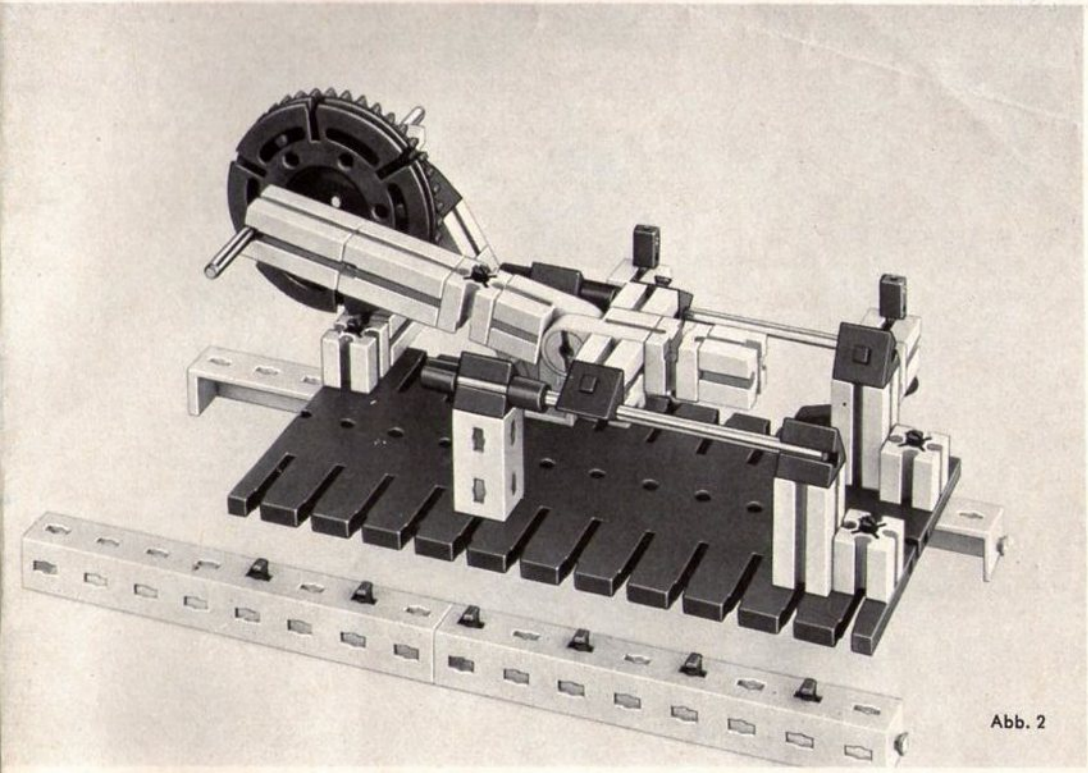

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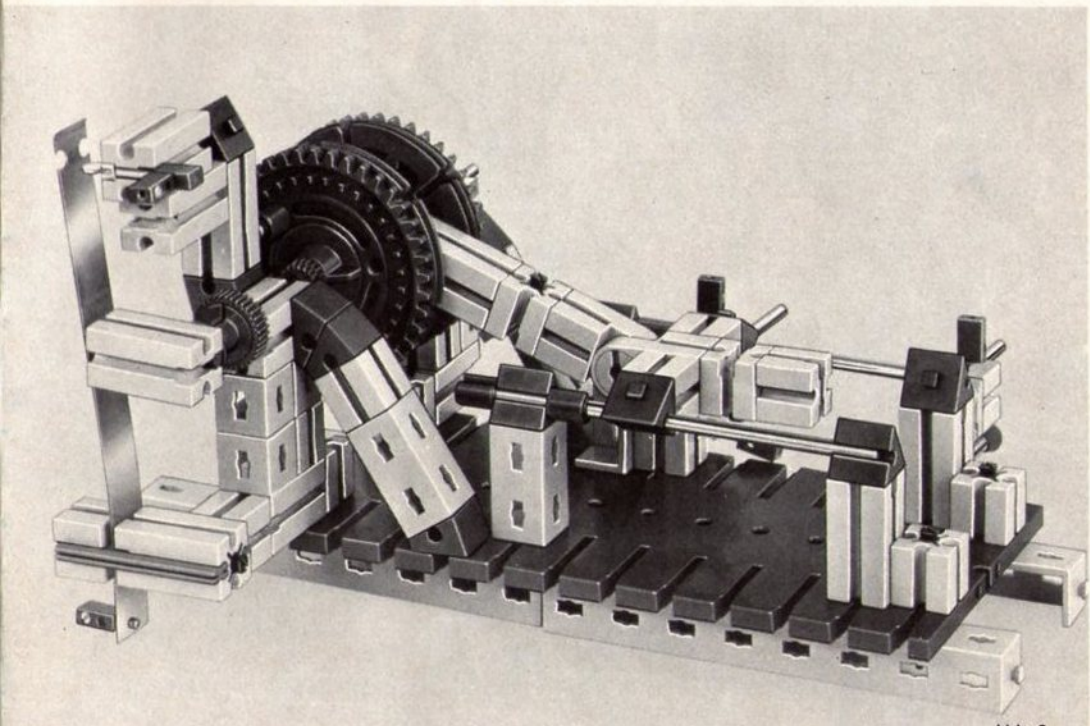

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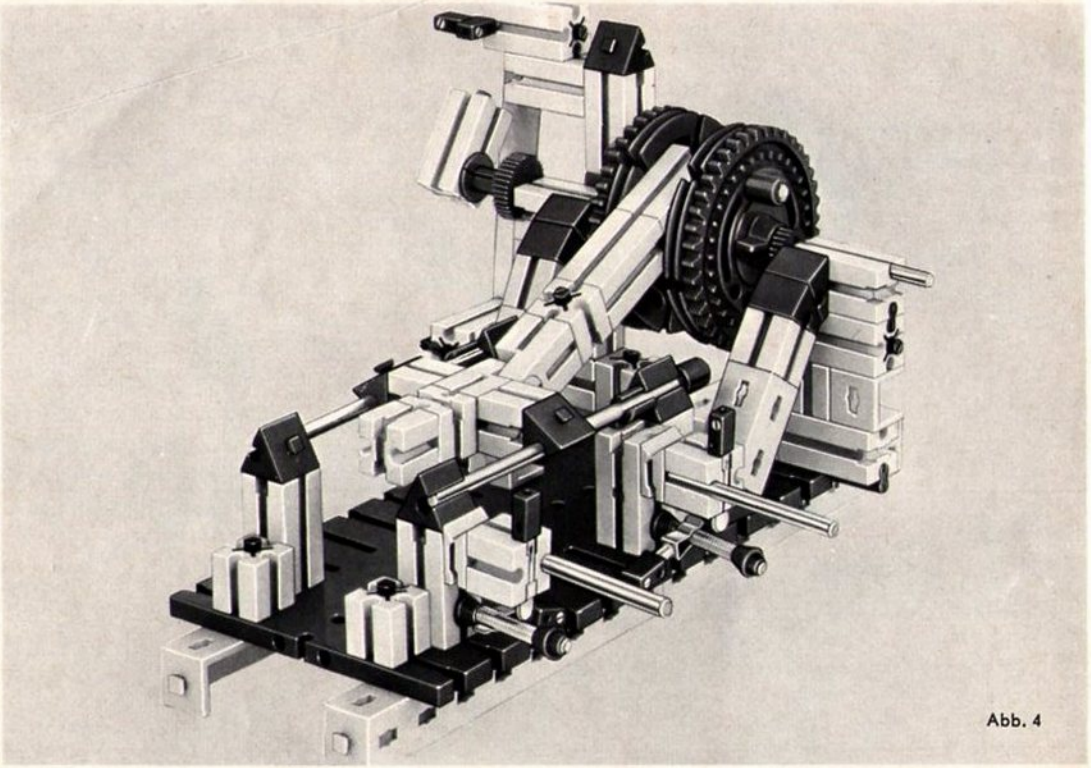

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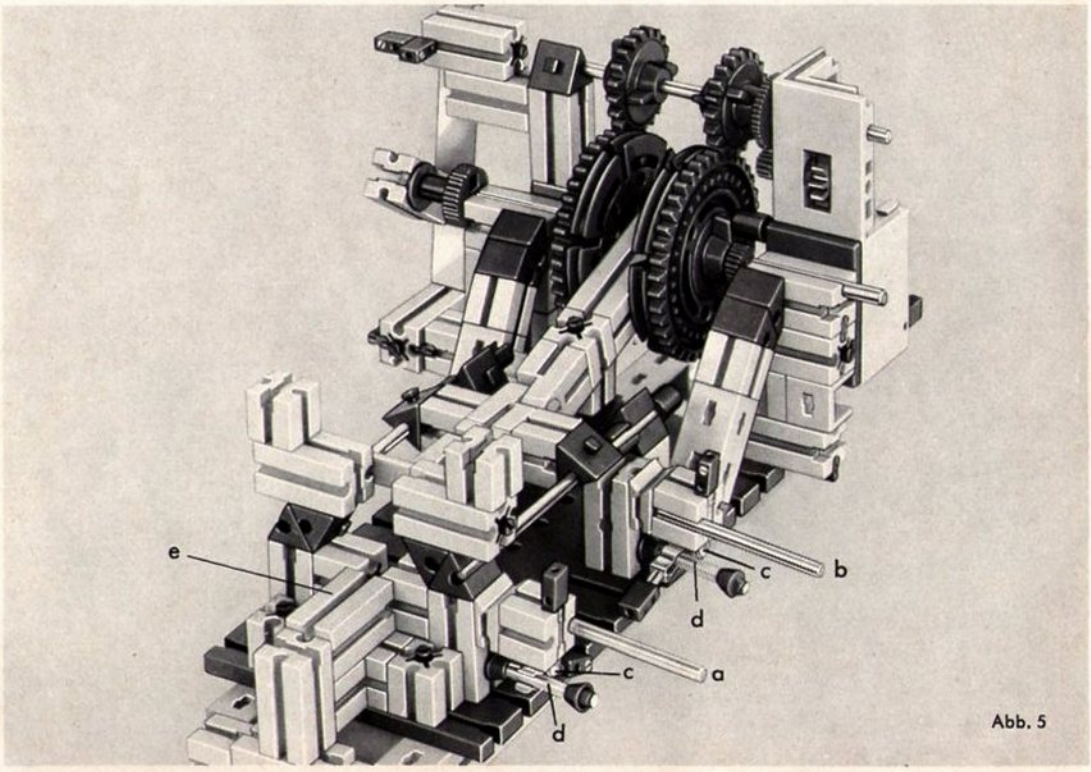

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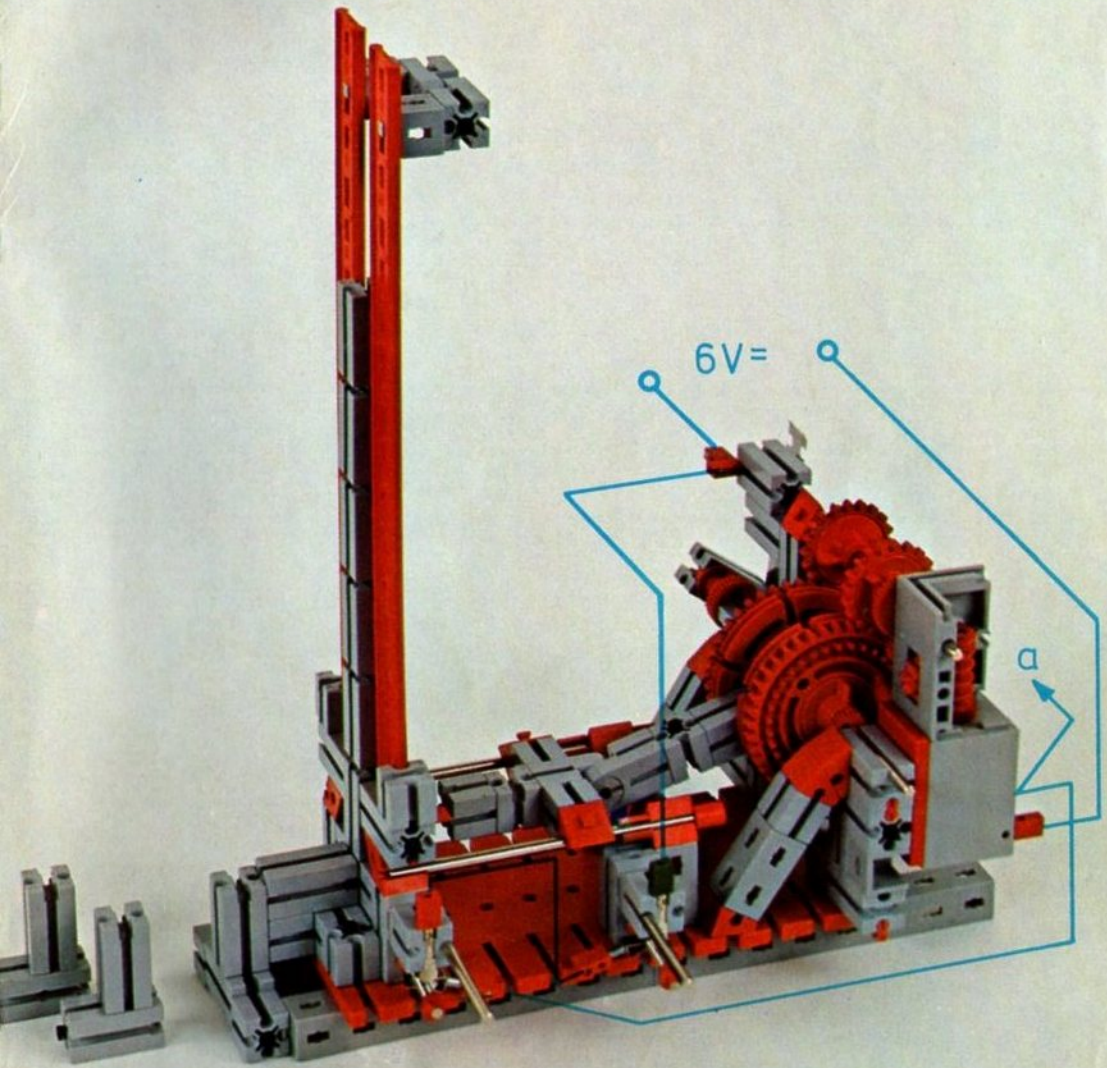

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Artur Fischer (UK) Ltd.
41 Loverock Road
Reading RG 3 IDZ/Berks.

for USA Fischer of America, Inc.
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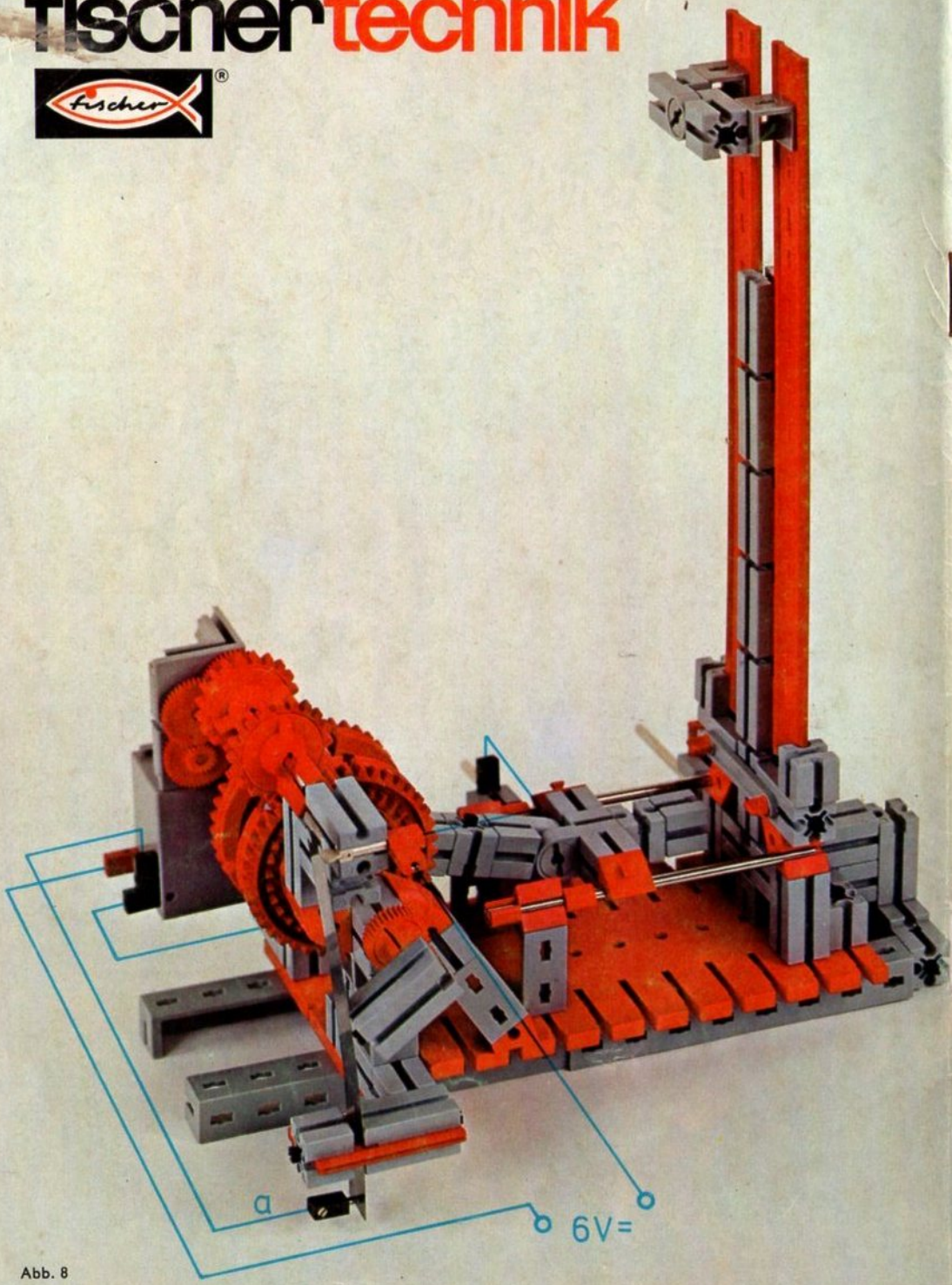

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