

### The Autarith.

Although our readers are continually dealing, directly or indirectly, with machinery in some form or other, we think that the greater number are not very familiar with the development which has been reached in the line of calculating machines, and we present herewith some pictures showing an exceedingly elaborate and highly refined mechanism of this class. This machine is of particular interest because of its "automatic" character, meaning thereby that it is only necessary to set the pointers to the given num-

formed in the cover of the sliding carriage, are indicated dividends or products; the nine pointers in front of them indicate quotients, or one factor in the case of multiplication; while the eight pointers in the foreground indicate divisors, or the other factor in the case of multiplication. The small crank at the left of the first row of figures mentioned is for the purpose of setting that row back to zero before commencing any operation.

Fig. 2 is a view of the machine with the covers removed, and Fig. 3 a similar view looking down on it from above. The motor can be seen at the right-hand end of the illustration; it is about 1-16 horsepower. The sixteen wheels in the background bear numbers from zero to nine,

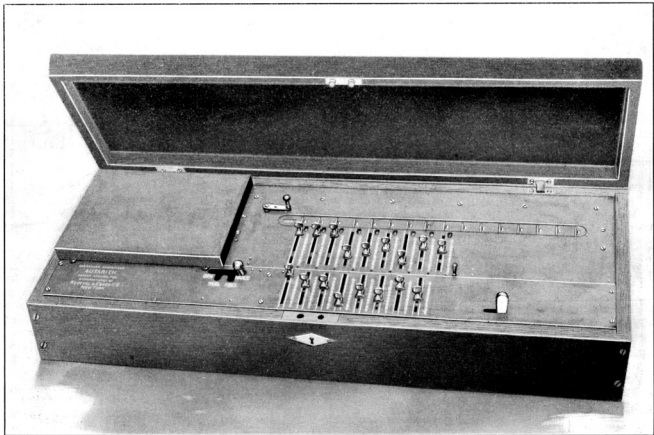


FIG. 1. THE AUTARITH.

bers, press a lever into the slot denoting the operation desired, and the electric motor which supplies the vital energy for this "mechanical brain" immediately starts and does not stop until the mathematical operation is completed and the result shown in figures through the openings in the face of the machine, no turning of a crank by hand being necessary.

Fig. 1 is an exterior view, the approximate dimensions of the case being  $8\frac{1}{2} \times 24 \times 4\frac{1}{2}$  inches high; the slots for the four operations—division, multiplication, addition and subtraction—with the controlling lever, can be seen near the left end of the machine. Through the row of sixteen openings in the background, which are

the other sets of numbers being inscribed on the case and indicated by the position of the pointers in the slots. The pinions seen in the interior views, below the location of the slots in the cover, slide along the square shafts according to the position of these pointers; in the different positions they mesh with segmental gears beneath them, having varying numbers of teeth.

We will not attempt an exposition of the construction and workings of this complicated machine, as to make this plain would require a very extensive amount of space. It is sufficient to say here that the basic principle underlying the design is that of the famous Leibnitz