No. 882,387. PATENTED MAR. 17, 1908.

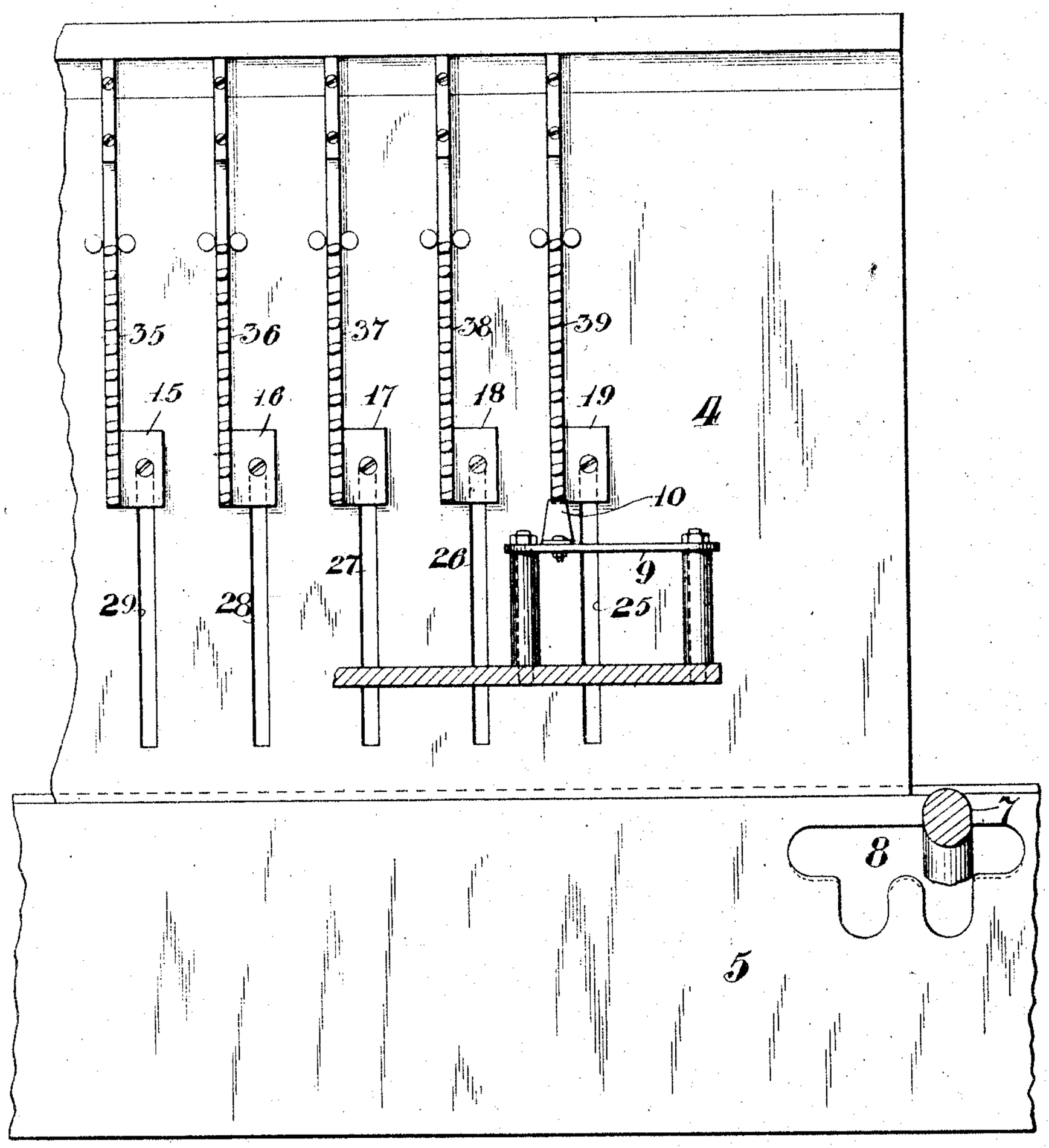
W. F. HAUSSTEIN.

CALCULATING MACHINE.

APPLICATION FILED NOV. 22, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Alan McDonnell.
Herman Meyer

William F. Hausstein Inventor
By His Attorney William R. Baird

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2 SHEETS—SHEET 2.

Fig. 2.

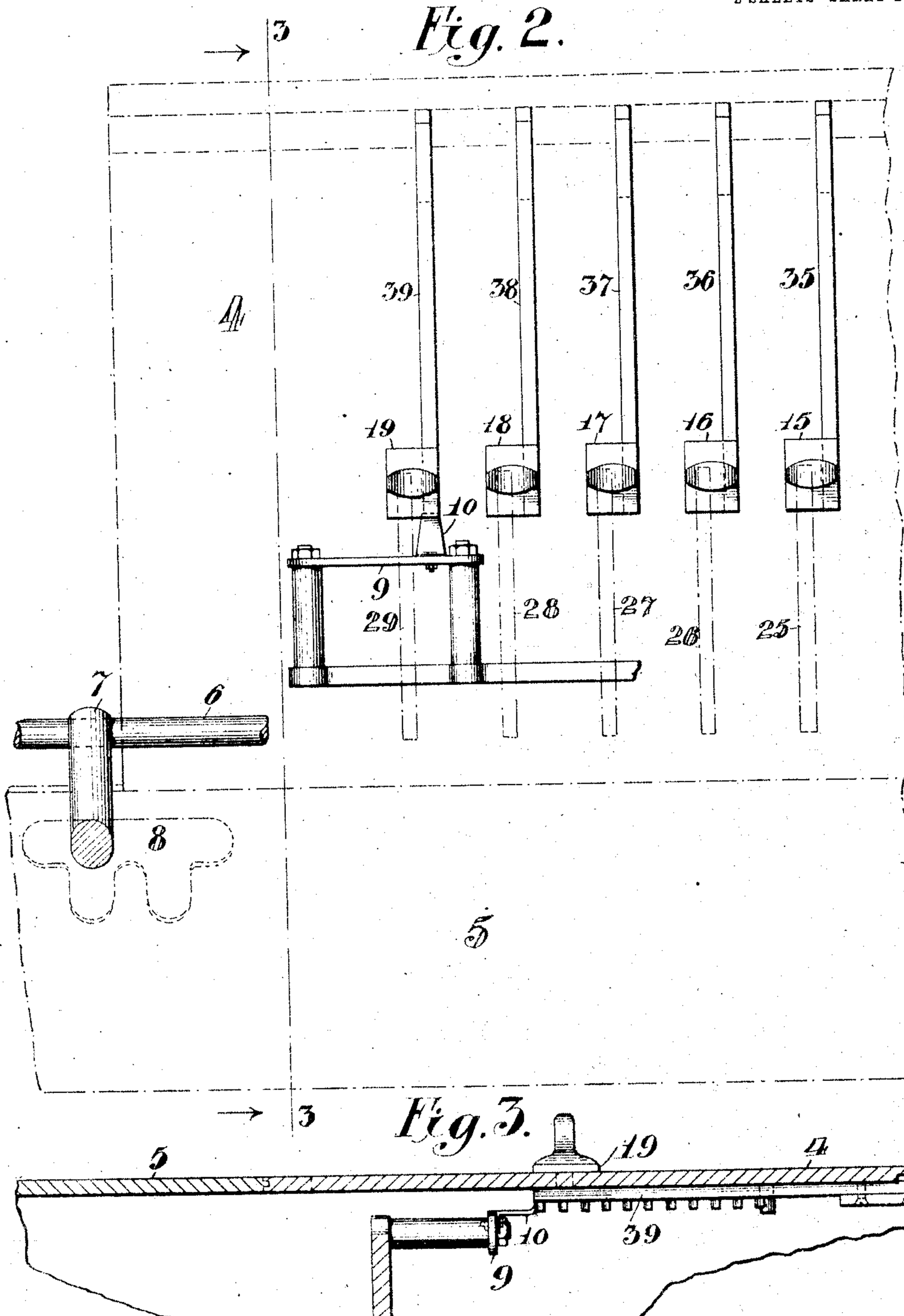

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM F. HAUSSTEIN, OF LYNDHURST, NEW JERSEY, ASSIGNOR TO THE KEUFFEL & ESSER COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CALCULATING-MACHINE.

No. 882,387. Specification of Letters Patent. Patented March 17, 1908.

Application filed November 22, 1904. Serial No. 233,883.

To all whom it may concern:

Be it known that I, WILLIAM F. HAUSSTEIN, a citizen of the United States, residing at Lyndhurst, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Calculating-Machines, of which the following is a specification.

This invention relates to calculating machines such as that which forms the subject-matter of U. S. Patent #809,075, granted to Alexander Rechnitzer, January 8, 1906.

In that machine the various operations of addition, subtraction, multiplication and division may be performed. In the operation of multiplication the figures of the multiplier to be used are set up by indicators or numeral slides in a series of graduated slots and the figures of the multiplicand by a second series of numeral slides in a similar series of slots, while the product is indicated on a series of numeral wheels which may be observed through suitable sight holes.

The numeral slides which are used in multiplication to set up the multiplier, and which, for the purposes of this specification, will be denominated "multiplier slides", are also used in the operation of division, in which case they are all left at zero at the beginning of the operation and the quotient is developed on them by the operation of the machine, the divisor being set up by the other set of slides upon which the multiplicand is set up in multiplication, the dividend being indicated at the beginning on the numeral wheels.

In the operation of multiplication, it is necessary, in the machine as now constructed, in order that an example may not be set up in which a product would be developed consisting of more digits than the numeral wheels would accommodate, that care be taken not to set up a multiplicand and multiplier which would produce such a result and for this reason it is advisable never to use a multiplier with as many digits as there are multiplier slides. Therefore the left hand multiplier slide should not be used.

The object of this invention is to absolutely prevent the operator from so doing, and with this object in view the invention consists in providing means whereby the left hand multiplier slide will be rigidly locked in the zero position when the machine is otherwise in condition to start an operation of multiplying.

In the accompanying drawing, in which I have illustrated my invention in connection with so much of the original machine as is necessary to a proper understanding of its construction and operation, Figure 1 is a bottom plan view, parts being broken away. Fig. 2 is a top plan view, with the top plates of the machine removed, said top plates being indicated in dotted lines and other parts being broken away, and Fig. 3 is a transverse sectional view.

Referring specifically to the drawing, it may be stated that the machine referred to comprises multiplier slides to the number of nine, of which the numerals 19, 18, 17, 16 and 15 indicate those of the multiplier slides to the left of the series (the others being broken away). These are illustrated as fitted to slide in corresponding graduated slots 29, 28, 27, 26, 25, formed in the top plate 4 of the sliding carriage of the machine. To each of these slides is attached one of the racks 39, 38, 37, 36, 35, which serve to connect with the calculating mechanism (not shown). The top plate of the stationary portion of the machine is indicated at 5 and all of the multiplier slides are shown in the zero position, with the carriage in the position which it is necessary for it to occupy at the beginning of the operation of multiplication.

In suitable bearings (not shown) in the stationary portion of the machine is mounted a slidable rock shaft 6 on which is secured a starting lever 7 which passes upward through a slot 8 in the top plate 5 of the stationary part, said lever being moved to various positions in the slot 8 in order to start the machine to perform the several operations of which it is capable.

To any suitable part of the stationary portion of the machine, in this instance to a plate 9 is secured a spring pawl 10 which, when the carriage is in position for starting the operation of multiplication, is in line with the numeral slide 19 at the left of the series. This pawl is so constructed and placed that when the carriage is in this position, and that numeral slide is moved to the zero position, as shown in the drawing, said pawl will spring into position behind that slide and securely lock it against any attempt to move it out of such zero position.

Should the operator carelessly start to set up a multiplier which contains as many digits as there are multiplier slides and graduated slots, he will thus be stopped when he reaches this slide and attempts to move it out of the zero position, thus warning him that his problem cannot be worked on this machine.

As soon as an operation within the capacity of the machine is started, the carriage will slide out of the position illustrated. This will also be the case when a proper operation in division is started, so that during the latter operation, the locked slide will be released from the pawl and may move in developing the quotient as before described.

What I claim as new is:—

1. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and means for locking the left hand slide in its normal position when the carriage is in its normal position.

2. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and means carried by the stationary portion for locking the left hand slide in its normal position when the carriage is in its normal position.

3. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby, in said slots, and a pawl for locking the left hand slide in its normal position when the carriage is in its normal position.

4. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and a pawl carried by the stationary portion for locking the left hand slide in normal position when the carriage is in its normal position.

5. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, slides carried thereby in said slots, and means for locking the left hand slide in its normal position when the carriage is in its normal position and releasing the same when the carriage is moved out of its normal position.

6. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and means carried by the stationary portion for locking the left hand slide in its normal position when the carriage is in its normal position, and releasing the same when the carriage is moved out of its normal position.

7. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and a pawl for locking the left hand slide in its normal position when the carriage is in its normal position, and releasing the same when the carriage is moved out of its normal position.

8. In a machine of the character described, the combination with the stationary portion thereof, of a slidable carriage having slots, a series of slides carried thereby in said slots, and a pawl carried by the stationary portion for locking the left hand slide in its normal position when the carriage is in its normal position, and releasing the same when the carriage is moved out of its normal position.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM F. HAUSSTEIN.

Witnesses:

WILLIE L. E. KRUFFEL,

CLARENCE S. HAMMELL.