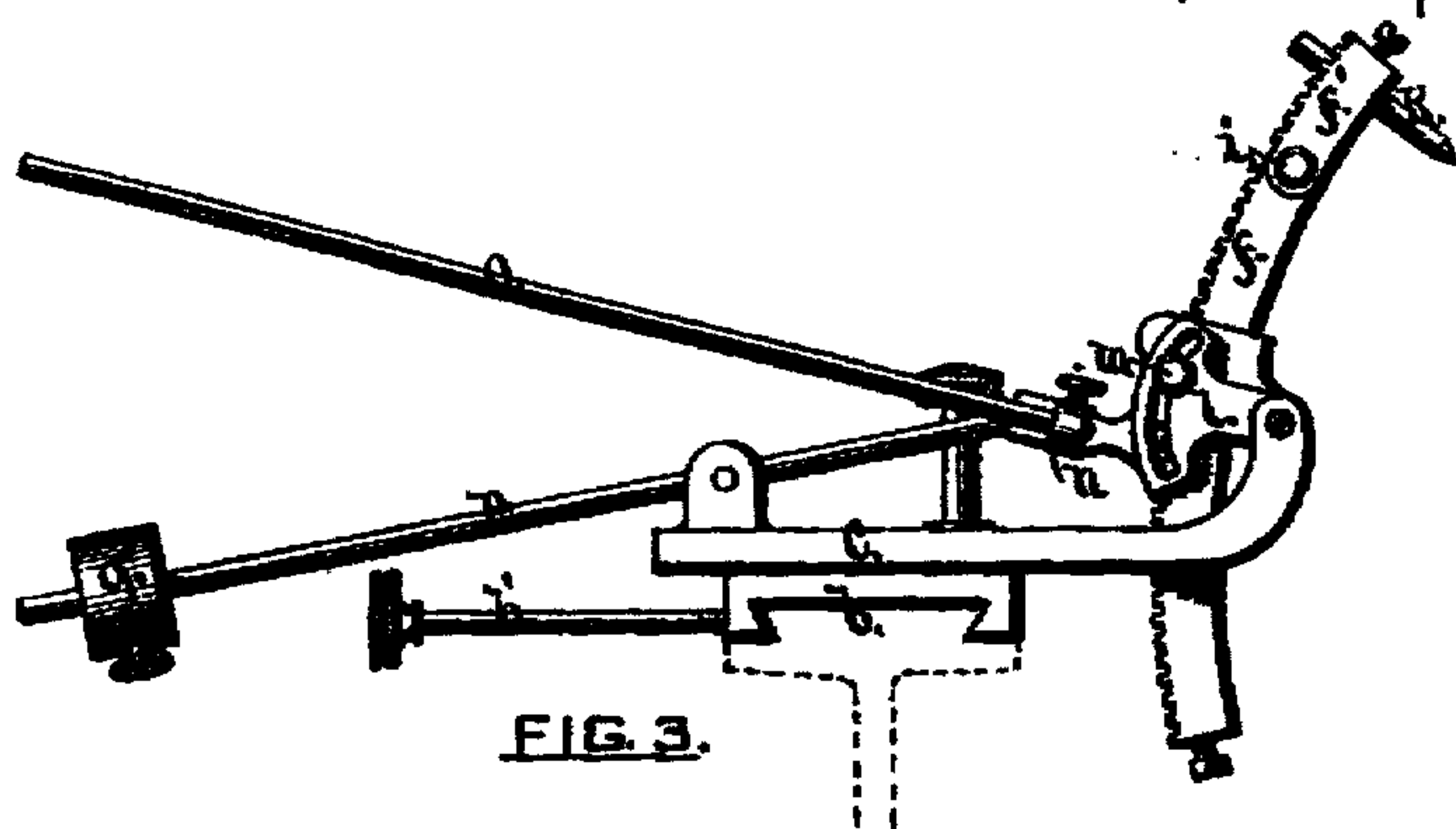
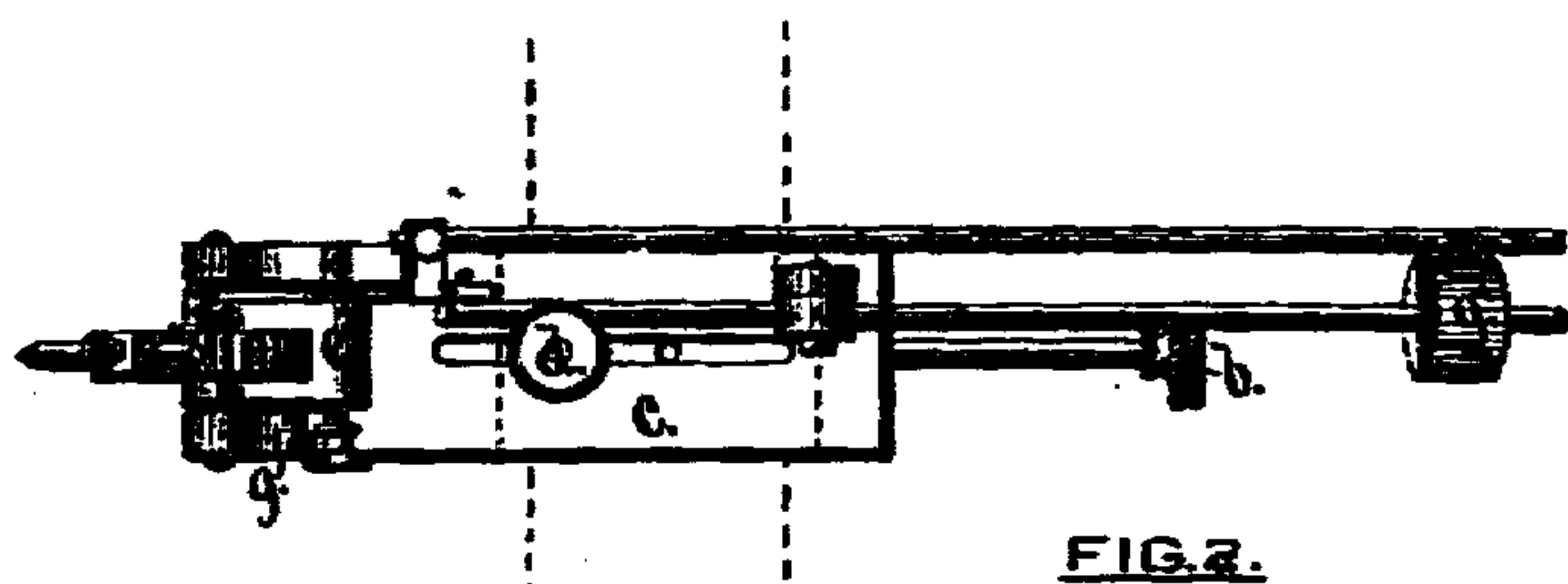
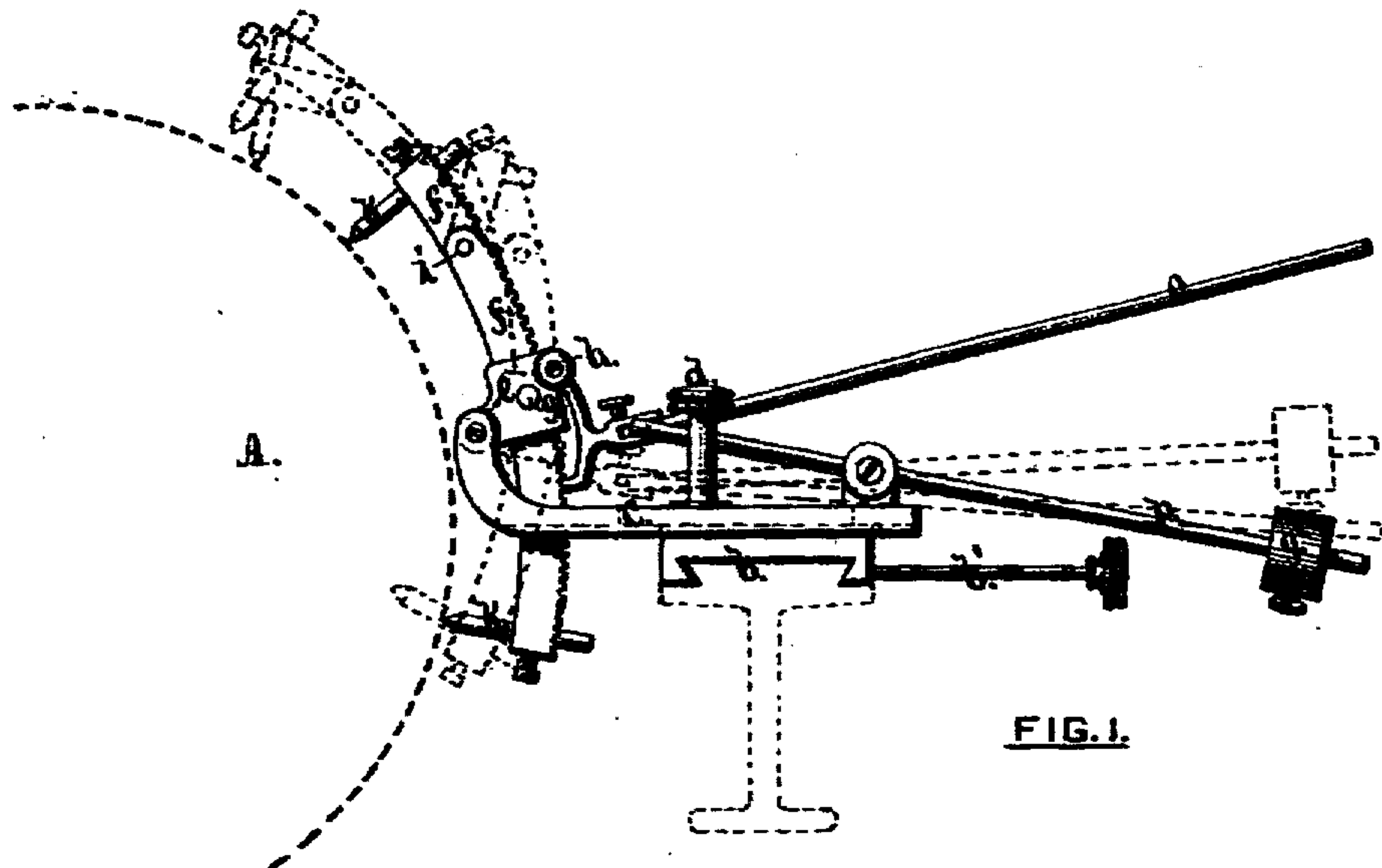


J. HOPE.
Engraving-Machine.

No. 225,705.

Patented Mar. 23, 1880.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JOHN HOPE, OF PROVIDENCE, RHODE ISLAND.

ENGRAVING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 225,705, dated March 23, 1880.

Application filed July 16, 1879.

To all whom it may concern:

Be it known that I, JOHN HOPE, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Pantograph Engraving-Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to improvements in the holders for the diamonds or other engraving-tools used on pantograph engraving-machines; and it consists in the peculiar and novel arrangement of a curved bar, provided with a rack and operated by a pinion hinged to a standard, arranged to be adjustable, and to be used at any desired part of one-half of a roll, all of which will be more fully set forth hereinafter and pointed out in the claims.

Figure 1 is a view of my improved adjustable holder shown in various positions, both in solid and in broken lines. Fig. 2 is a top view of the improved holder. Fig. 3 is a view of the improved holder, showing the reverse side from Fig. 1.

In the drawings, A represents a roll such as are used in calico-printing machines, and which are engraved with designs or patterns by means of the pantograph-machine; and when a pattern or design is to be engraved on the roll in which figures have to be reproduced many times, it becomes desirable to employ as many engraving diamonds or tools as possible, so that the operative, in tracing the pattern with the stylus on the tracer-arm of the pantograph engraving-machine, will reproduce as many of these patterns as possible.

Heretofore the diamonds or gravers were arranged on one side of the roll and on a straight line only, and the roll was turned from time to time and the same patterns reproduced at fixed intervals. With my improved holder, by means of the curved bar operated by a rack and pinion, the diamonds or gravers may be set so as to trace the patterns at any place of the one-half of the roll toward the holder—that is to say, the engraving-tool can be set at any point above or below the horizontal axis of the roll on that side of the ver-

tical axis of the roll toward the holder-rail. In some cases, therefore, one-half of the roll may be covered with the duplicates of a pattern without changing the position of the roll, and when a double-acting pantograph engraving-machine with two reciprocating rails is used the whole of a roll may be engraved at one operation with duplicates of one pattern, and thus the cost of engraving calico-printers' rolls is vastly reduced.

I will now describe my improved holder more fully.

b is a slide, by which the holder is secured to the reciprocating bar moving parallel with the axis of the roll. The slide is secured to the bar by the thumb-screw *b'*.

c is the bracket in which the holder is hinged. It is provided with a longitudinal slot, (shown in Fig. 2,) and is adjustable to and from the roll. It is secured in the desired position by the thumb-screw *d*.

e is a sleeve hinged to the bracket *c* in this sleeve *c*. The curved holder-bar *f* is secured by the clamp-screw *g* when properly adjusted.

The curved bar *f* is provided with a rack, which is operated by a pinion secured in the sleeve *e*, and provided with a milled head, *h*, so that the arm *f* can be raised or lowered by the rack and pinion. The outer or end portion of the curved bar *f* is hinged, and the hinged portion *f'* can thus be adjusted so that the graver is in contact with the roll at the desired point. This portion *f'* is then secured by means of the clamp-screw *i*, which also forms the hinge. *k k* are the diamond or other graving or tracing points, secured and adjusted in the usual manner.

So far as described we have means for adjusting the holder at any point along the roll to the reciprocating bar, means for adjusting to from the roll, means for placing the graver at any point of the periphery of the roll on one side of the vertical axis of the same, and means for adjusting the graving-tool to the roll. It is now desirable to press the tool against the roll with a certain pressure, and to release the tool or all the tools from the rolls at the will of the operative, and for this purpose the segmental slide *l* is hinged to the fulcrum in the bracket *c*, to which the sleeve *e* is hinged, and is adjusted and secured to the said sleeve

by the clamp-screw *m*. Into the bracket *n*, extending from the segmental slide *l*, the rod *o* is secured, and into a slot in the bracket *n* the bent end of the hinged rod *p* enters, and, as this rod *p* is provided with the adjustable weight *q*, the graver will be held against the roll by the weight *q* on the rod *p*, and when the rod *o* is depressed the graver will be raised off from the roll, no matter where the graver is situated on the roll, provided it is above the horizontal center of the roll or above the hinge in the bracket *c*. When, now, the graver or diamond is to be used below the hinge of the bracket *c*, or below the horizontal center of the axis of the roll, as it may readily be, then the weight *q* will be placed on the rod *o*, and the weight will press the diamond or graver against the roll, and when the rod *p* is now depressed the diamond or graver will be raised off from the roll.

In all other respects the pantograph engraving-machine will follow the motion of the stylus, and the pattern traced will be reproduced by each graver; and as the bracket *c* is firmly secured to the pantograph-machine and extends close to the roll the diamond or graver point is more firmly held and the pattern more accurately traced than with the old form of holders, in which the hinge was a considerable distance from the roll, and the slightest wear in the hinge would affect the diamonds or gravers.

Having thus described my invention, I claim

as new and desire to secure by Letters Patent—

1. In a pantograph engraving-machine, the curved holder *f*, operated by a rack and pinion, and provided with the adjustable end *f'*, substantially as and for the purpose described. 35
2. The combination, with the curved holder *f*, of the hinged sleeve *e* and rods *o* and *p*, arranged so that either of the two rods may receive a weight to hold the graver to the roll, or be used to raise the graver from the roll, as described. 40
3. The combination, with the adjustable bracket *c*, of the sleeve *e*, the curved holder *f*, and means, substantially as described, by which the graver is held against the roll and released from the same, as described. 45
4. The combination, with the sleeve *e* and adjustable slide *l*, of the curved holder *f*, secured to the slide *l*, and the rods *o* and *p*, arranged to operate substantially as and for the purpose set forth. 50
5. The combination, with the adjustable slide *b* and bracket *c*, of the hinged holder *f* and rods *o* and *p*, arranged to adjust the diamond or graver to its position, hold the same against the roll, and raise the same from the roll, as and for the purpose described. 55 60

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Witnesses:

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