

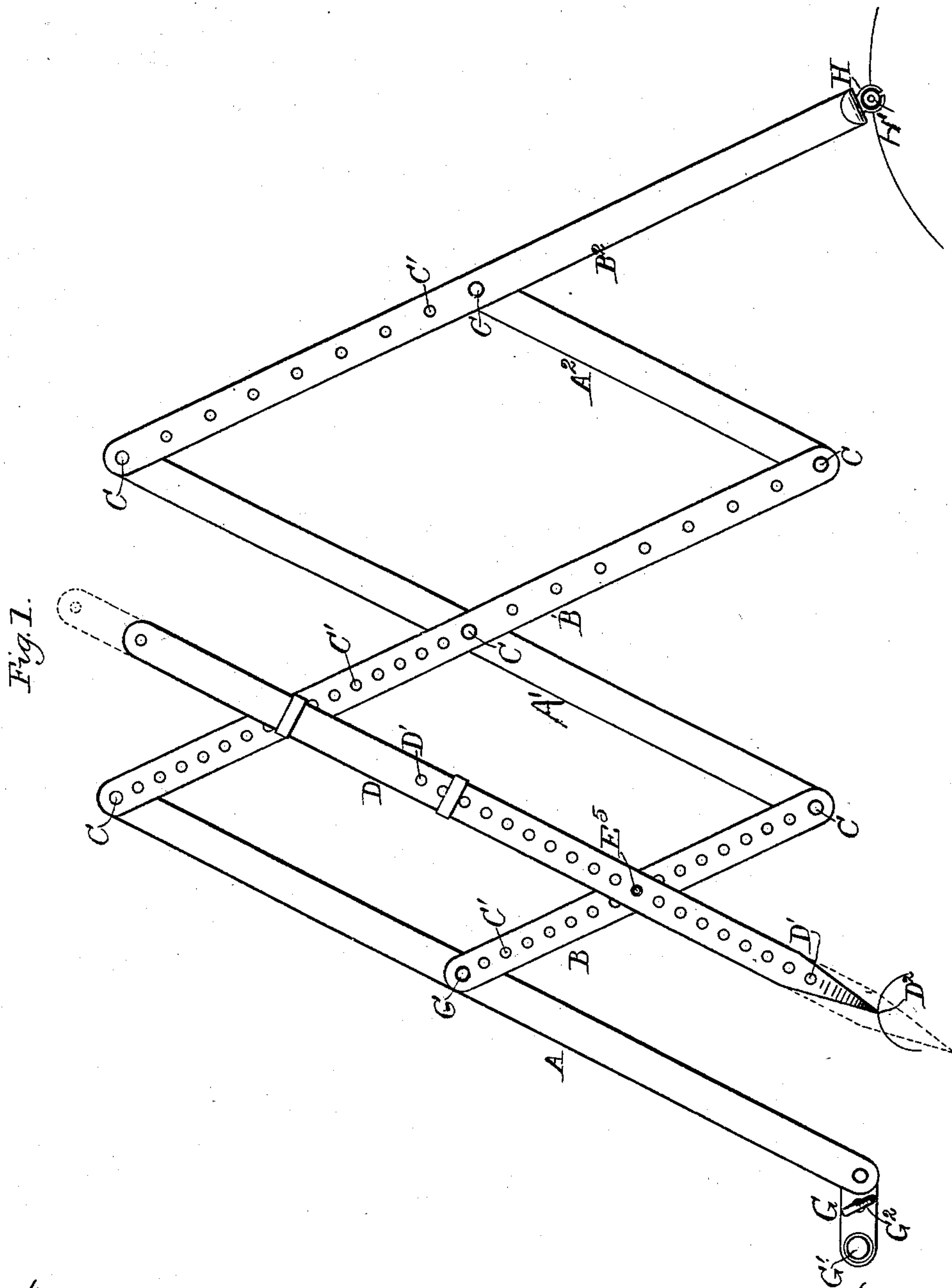
(No Model.)

2 Sheets—Sheet 1.

L. WALKUP.
PANTOGRAPH.

No. 441,909.

Patented Dec. 2, 1890.



Witnesses:

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UNITED STATES PATENT OFFICE.

LIBERTY WALKUP, OF ROCKFORD, ILLINOIS.

PANTOGRAPH.

SPECIFICATION forming part of Letters Patent No. 441,909, dated December 2, 1890.

Application filed March 3, 1890. Serial No. 342,490. (No model.)

To all whom it may concern:

Be it known that I, LIBERTY WALKUP, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Pantographs, of which the following is a specification.

The object of my invention is the production of a pantograph having a detachable and adjustable tracing-finger; and it consists of certain new and useful features of construction and combinations of parts hereinafter described, and pointed out in the claims.

Referring to the accompanying drawings, which form a part of this specification, Figure 1 is a plan view of a pantograph provided with my improvements. Fig. 2 is a side elevation of the tracing-finger and its support. Fig. 3 is an enlarged detail fragmental view of the same, the connection of the finger-support with the bars of the pantograph being clearly shown. Fig. 4 is also a view of the same as the last, showing the inception of the mode of detaching the tracing-finger and its support from the pantograph. Fig. 5 is a plan view of the parts that support the tracing-finger, the latter being removed. Figs. 6 and 7 are enlarged end views of the slides that support the tracing-finger.

Like letters of reference indicate corresponding parts throughout the several views.

A A' A² and B B' B² are crossed parallel bars hinge-jointed together by means of pintles C, which are inserted through holes therein and headed down on both ends to retain them in their places. The parts just described constitute the frame of the pantograph.

C' are holes, arranged in regular series, extending through the bars A A' A², B B' B², and having countersinks C² in the lower ends thereof. The functions of the holes and countersinks will be fully explained hereinafter.

D is a tracing-finger having holes D' extending therethrough to afford means of adjusting the same, and being provided with a downwardly-curved point D² for tracing the lines to be reproduced by the pantograph.

E is a base. E' is a slide-holder rigidly connected therewith.

E² E³ are slides which support the tracing-finger D and afford means of adjusting the same.

E⁴ is a stud produced at its upper end E⁵ to adapt it to pass through a hole D' in and engage with and be disengaged from the tracing-finger D, and having a head E⁶ at its lower end adapted to engage with and be disengaged from the countersink C² in the bar B.

E⁷ is a bolt mounted in the ways E⁸ E⁹, which are fast to the base E.

E¹⁰ is a spring for actuating all the parts shown in Fig. 3, except the bolt E⁷, bars B B', and part E¹¹.

E¹¹ is a stud projecting transversely downward from the bolt E⁷, and having a head E¹² at its lower end adapted to engage with and be disengaged from the countersink C² in the bar B'.

The parts from E to E¹², inclusive, taken together, will, for convenience, be hereinafter denominated the "finger-support," and will be designated by the letter E¹³.

G is a hinge-plate pivotally connected with the bar A, and may be secured to a drawing-board or table by means of a thumb-tack and screw-eye G' G².

H is a pencil-holder.

H' is a pencil.

The tracing-finger D and finger-support E¹³ may be detached from the pantograph-frame in the following manner, (see Fig. 3:) The operator grasps the tracing-finger and finger-support with the thumb and forefinger of one hand at any desired point between the bars B B', pressing the pantograph-frame with the other hand against a drawing-board or the like and pushing all the parts there shown, except B B' E⁷ and E¹¹, over to the position indicated by dotted lines, and lifts the stud-head E⁶ out of connection with the bar B, and the endwise pressure being withdrawn therefrom the parts will assume the positions shown in Fig. 4. The stud-head E¹² may then be readily disengaged from the bar B'. To attach the finger-support and finger to the pantograph-frame, reverse the mode of operating just detailed. Obviously the finger-support with its finger may be attached to the bars B B' C at any desired point within the limits imposed by the holes C' therein between the

bars A B². The tracing-finger D may be raised and adjusted lengthwise in the slides E² E³, as indicated by the dotted lines in Fig. 2, to any extent desired within the limits of the instrument. Thus it will be seen that a pantograph of the construction herein shown and described has a much wider operative scope than the instruments of that genus now in use.

I claim—

1. In combination, the finger-support consisting of a base, the slide-holder attached thereto and provided with slides, the stud E⁶, connected with the base, the bolt mounted in ways supported by the base, the actuating-spring, the stud E¹¹, projecting from the bolt, and the tracing-finger adapted to operate in

said slides, substantially as and for the purpose set forth.

2. In combination, the pantograph-frame having holes therein provided with countersinks C², the finger-support having the studs E⁴ E¹¹, provided with heads E⁶ E¹², adapted to engage with and be disengaged from said pantograph-frame through the media of said holes and countersinks, and the tracing-finger adapted for adjustment in slides on the finger-support, substantially as and for the purpose set forth.

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Witnesses:

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