

(No Model.)

2 Sheets—Sheet 1.

J. NORD.
WRITING APPARATUS.

No. 547,800.

Patented Oct. 15, 1895.

Fig-1.

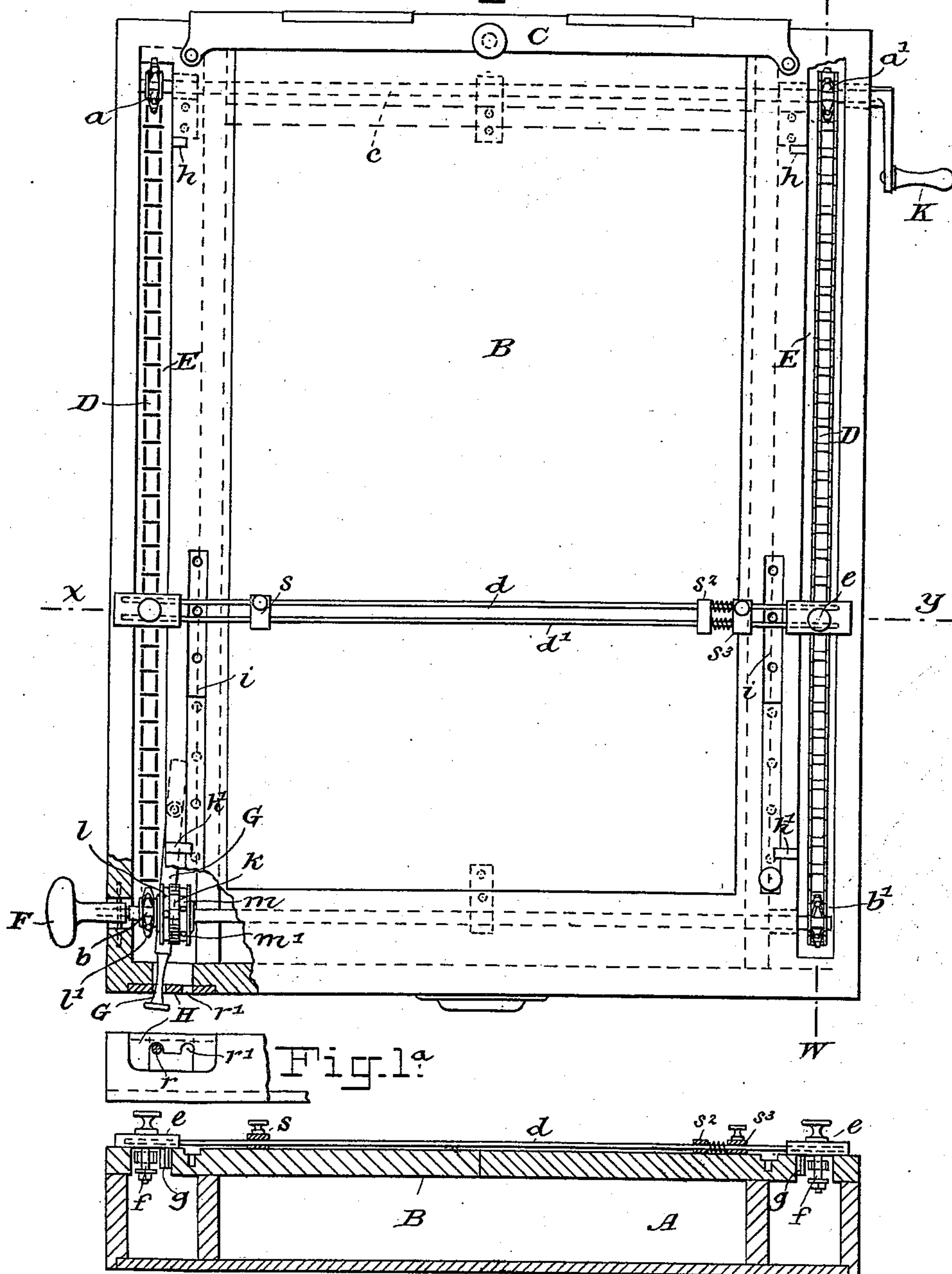


Fig. 3.

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BY *Julius Ford*
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ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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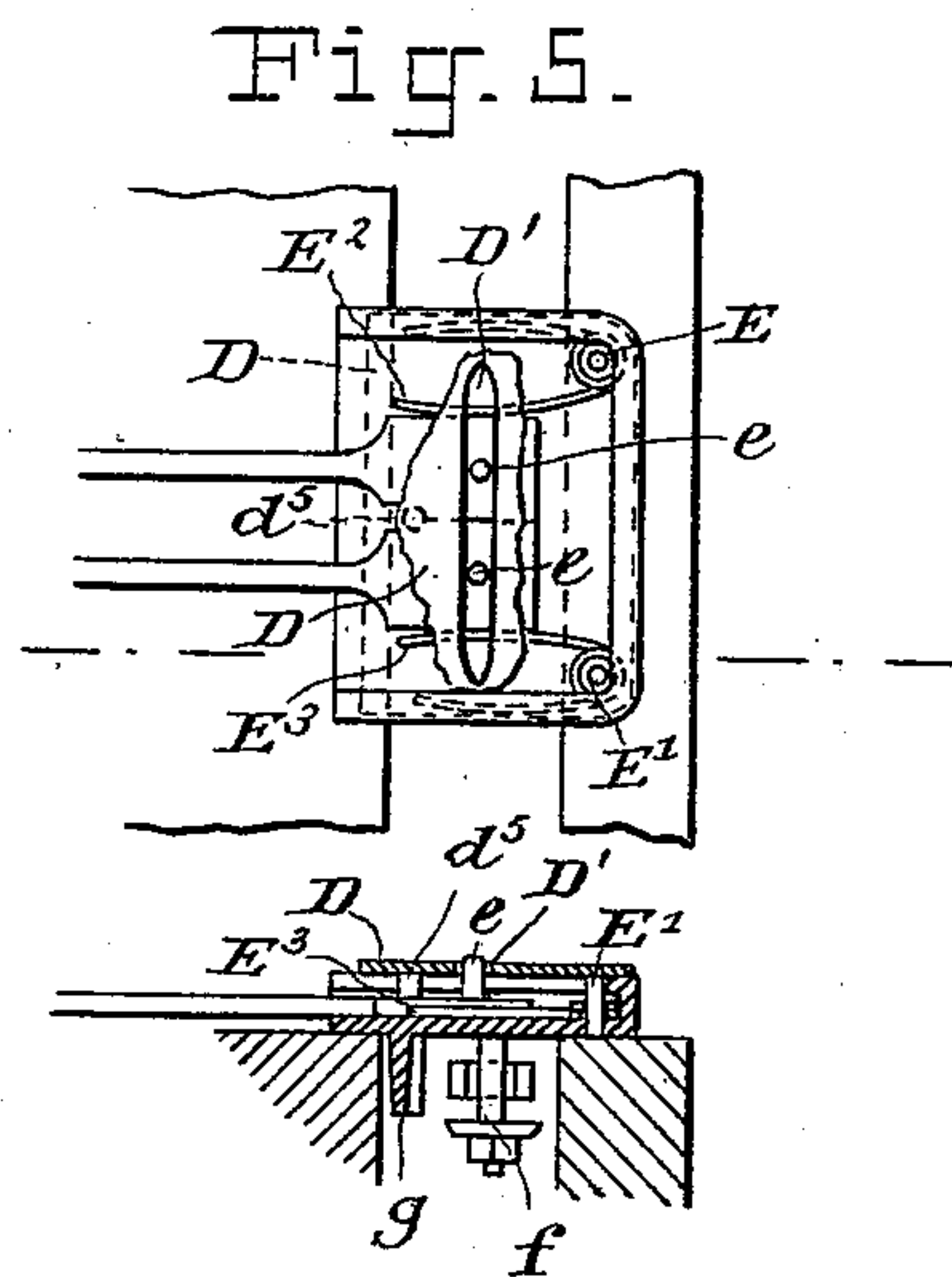
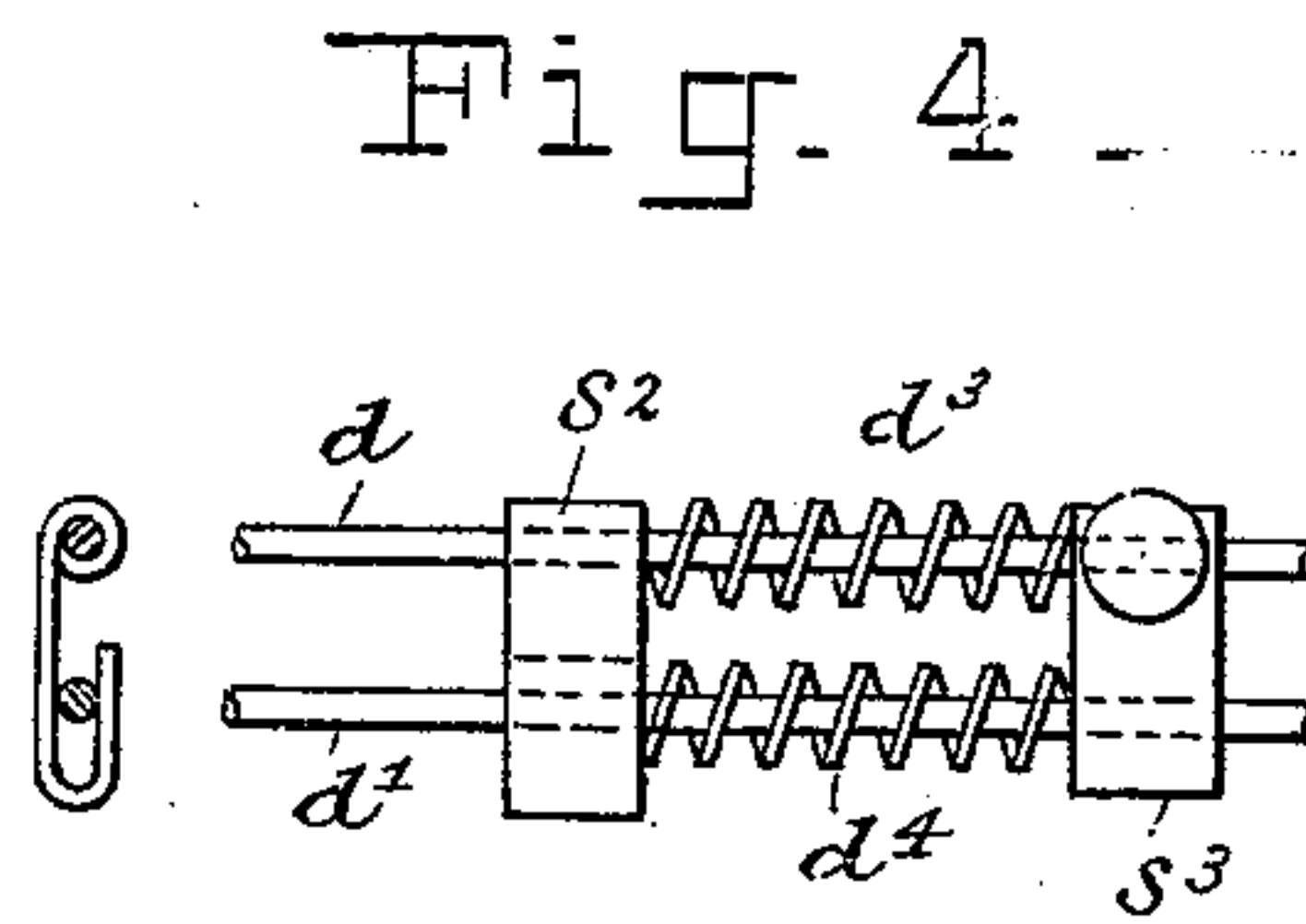
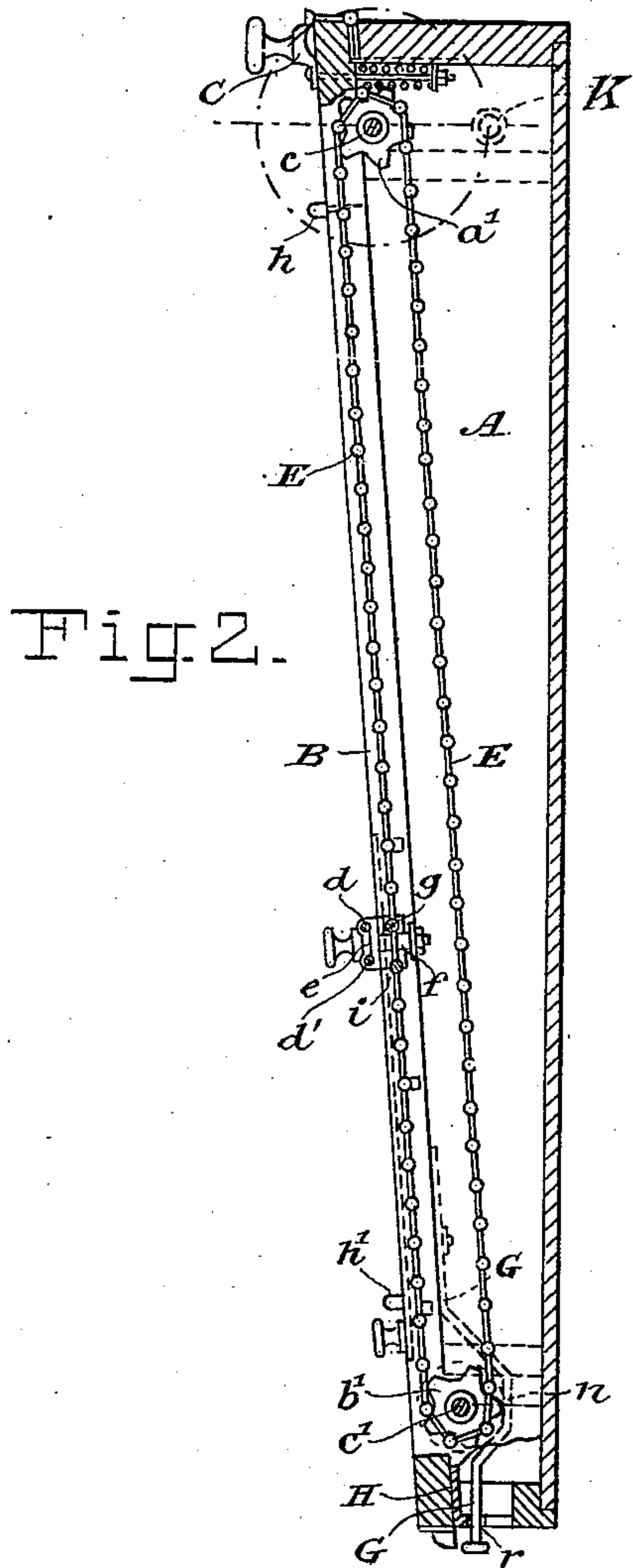


Fig. 5^a.

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UNITED STATES PATENT OFFICE.

JULIUS NORD, OF AMSTERDAM, NETHERLANDS.

WRITING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 547,800, dated October 15, 1895.

Application filed January 11, 1895. Serial No. 534,527. (No model.)

To all whom it may concern:

Be it known that I, JULIUS NORD, a subject of the Queen of the Netherlands, and a resident of 19 Kerklaan, Amsterdam, in the Kingdom of the Netherlands, have invented a new and useful Writing Apparatus, of which the following is a specification.

The object of this invention is a writing apparatus or instrument for the blind, and also for persons suffering from pronounced myopia, its object being to enable sufferers from blindness or myopia to write in a proper manner—*i. e.*, to give each letter its normal shape and to form capitals and such letters as are usually extended above or below the line with the requisite long strokes or loops.

It is well known that the means which have existed hitherto for facilitating the process of writing by the blind have proved unsatisfactory. They consisted of a frame comprising rigid and firmly-secured parallel rods and adapted to be placed over the paper or slate. The blind person was thus enabled slowly to write with his hand moving along the said rods. He was, however, unable to shape properly those letters which have strokes extending below the line, nor was there anything to guide him in the observance of the required limits of the depth or height of the writing. It was therefore practically impossible for him to write legibly.

Now, the instrument or apparatus herein described enables blind persons to write quickly, to give each letter its proper shape, and to assign to each the exact position it should occupy among or in relation to the other letters. In addition to this the blind person using the present improved apparatus is afforded the means of knowing when a line is completed and a fresh one is to be commenced. His writing will therefore appear in regular lines arranged at equal though optionally variable distances apart. Should it be necessary for the writer to discontinue writing in the middle of a sentence, for example, facilities are provided for his marking the spot where he has left off and starting therefrom when he next resumes writing.

The main feature of the improved instrument or apparatus is a guide for the pencil or pen interposed between two thin flexible rods arranged parallel to each other, the bend-

ing capacity of such rods enabling the blind person to form the capitals and the long-stroke letters, such as "g" and "f," as easily as the others. The space between the two parallel rods serves to determine the height or depth of the small letters of uniform size. The flexible rods are connected on each side and are movably and adjustably arranged upon the writing-frame, the parallelogram or line-guide formed by the pair of rods being moved over the paper by means of a feeding device provided for the purpose through a predetermined uniform space for each new line.

One form of the improved writing instrument or apparatus is illustrated, by way of example, in the accompanying drawings, in which—

Figure 1 is a plan or top view of the improved instrument. Figs. 2 and 3 are vertical sections thereof on the lines *vw* and *xy*, respectively; and Figs. 1^a, 4, 5, and 5^a are detail views of the writing mechanism and line-guide.

The apparatus A in the present example is supposed to have the shape of a desk, provided with a lid B and with a spring-clamp C for retaining the paper in position on the desk. Upon the two longitudinal sides of the lid are provided elongated slots D, through each of which a feeding-chain E is passed. The feeding-chains E gear with small chain-wheels *a a' b b'*, of corresponding shape, mounted upon spindles *c c'*, arranged, respectively, close to the upper and lower sides of the desk. These spindles are parallel to each other and are situated below and in connection with the lid, so that when the lid is raised the whole of the mechanism is lifted along with it. The parallelogram or line-guide is formed of a pair of parallel flexible rods *d d'*, extending a considerable distance beyond the edges of the paper on either side, their ends being secured in slides or runners *e e*. The runners *e e* are adapted to slide over the surface of the lid immediately over the slots D, and are connected with the feeding-chains E E therein by means of the pins or studs *f* in their under sides. Each stud *f* fits into one of the spaces or interstices between the links or teeth of the corresponding chain; or they may be retained in the chains by other well-known means. By the movement of the said feed-

ing-chains the parallelogram or line-guide is slowly moved step by step or from line to line along the desk, and in order to prevent any lateral displacement thereof suitable projections or stops g are provided on the lower sides of the runners $e e$. Stops h are furthermore provided close to the upper edge of the lid in order to limit the extent of motion or adjustability of the line-guide in the upward direction. In notches i , provided in the lower edge of the lid, are fitted adjustable pegs h' , similar in shape to the fixed stops h . These are adjusted according to the varying lengths of the paper and when placed in the proper position serve to limit the downward movement of the line-guide.

As before mentioned, the feeding-chains pass over chain-wheels mounted on the spindles $c c'$, and as these wheels turn the line-guide moves along the paper with the said chains. A handle or key F is fitted to the left end of the spindle c' , and the peripheries and pitch of the chain-wheels are so proportioned that a quarter of a revolution of the spindle is sufficient to provide for the necessary distance between two successive lines. Upon the shaft c' there is also mounted a roller k , provided with two grooves l and m , and a spring-rod G , pivoted to the lid, Figs. 1 and 2, by means of a pin or stud n , Fig. 2, engages in the apertures $l' m'$ of the said grooves l and m , respectively. The groove l is provided with four apertures l' , so that according as the handle or key is turned into its horizontal or into its vertical position the said pin n will enter one or other of the apertures of the groove l , thereby arresting the spindle. As the spindle turns, the resistance of the spring controlling the rod G , as aforesaid, is overcome. By moving such rod G to the right the pin n is made to engage in the groove m , and as this groove has five or more openings m' a narrower spacing between the lines may be provided for, if required. The rod G is extended beyond the desk, and its position in the right or left notch or slot $r r'$ (as the case may be) in the plate H , secured to the lid B , Figs. 1^a and 2, corresponds to either one or the other of the two-line spacings for which the apparatus is arranged. The audible click with which the pin n springs into one of the openings of the grooves l and m notifies the blind writer in each case that the apparatus is so adjusted as to permit another line to be started at the proper distance from the preceding one.

In order to enable the line-guide to be moved back in the upward direction, a crank-handle k is fitted to the right-hand end of the spindle c . The rod G is then brought to an intermediate position between r and r' and consequently thrown out of gear.

Upon the rods $d d'$ of the line-guides there are arranged two adjustable stops $s s^3$, whereby the length of the lines may be determined. Fig. 4 shows the right-hand stop s^3 drawn to an enlarged scale. This stop is made in

two parts $s^2 s^3$, with springs between the parts, as shown at $d^3 d^4$, the parts s^2 being held out by the springs, while the part s^3 is secured by a thumb-piece to the rod d and may be adjusted thereon. Should it so happen that the pencil or pen meets the stop s^2 before a syllable is completed, the said spiral springs yield to the pressure, whereby the writer is enabled to add a few more letters to finish the syllable before reaching the stop s^2 or the point of full resistance of the springs.

In making use of this apparatus for writing, the sheet of paper is first secured in position by means of the clamp or clasp C . The line-guide is moved up against the stops $h h$ and the line-adjusting stops $s s^3$ are adjusted according to the width of the paper, while the stops or pegs $h' h'$ are adjusted according to the length of the paper. In writing, the height or depth of the small letters (without any strokes or loops projecting above or below the line) is determined by the space between the rods $d d'$, and while letters of this description are being written the said rods are not bent. When, however, it is desired to write capitals or long letters, such as "f," "g," &c., having strokes or loops extending above and below the line, the upper or lower rod, or both, yields to the pressure of the pencil or pen to a sufficient extent to enable those letters to be readily formed without in any way interfering with the speed of writing. When a line is completed, the handle or key F is made to describe a quarter of a revolution, whereby the line-guide is moved one line-space lower down, and so on until the bottom of the page is reached. Should the writer be obliged to interrupt his work before completing the line, he may so adjust the stops $s s^3$ as to be able, whenever he may desire to continue writing, to readily find again the place where he last stopped.

The rods $d d'$ will bend under the action of the pencil or pen more readily and to a greater extent in the center than toward either end or either edge of the paper. It is therefore advisable to make the desk considerably wider than the paper that is employed. This circumstance is, however, also provided for by combining the rods with the casing E , as shown in Figs. 5 and 5^a. The ends of the said rods are here flattened out, so that they slide in the casing E in a slot D' , in which pins c extend, and the ends are pressed in contact with each other by springs $E^2 E^3$. In the normal or intermediate position the flat ends of the said rods lie close together. When, however, either of the rods is bent upwardly or downwardly by the pencil, tension is applied to the corresponding spring E^2 or E^3 , and the rod in question accordingly bends to a sufficient extent to permit the formation of the required capital or the small letter that should be extended above or below the line.

Having now described the invention, what I claim is—

1. A writing apparatus for blind or short-

sighted persons, consisting essentially of a desk or support for the paper, two parallel flexible or yielding rods extending across the same to form the line-guide, and runners or slides in which said flexible or yielding rods are fitted and which are movable to and fro along the sides of said desk or support respectively, the normal distance between said rods determining the height of the small letters which extend neither above nor below the line, while the flexibility or yielding of said rods permits the formation of capitals and other letters which extend above or below the line.

2. In combination the desk having the slots extending along its opposite edges, the carrier chains below the said slots, the space rod extending between the chains and the runners carrying the same and having projections extending down into the slots whereby the space rod is held against lateral displacement, said runners being carried by the chains substantially as described.

3. In a writing apparatus, the combination, with the line-guide, of a line-finishing spring stop adjustably secured to one of the rods of said line-guide, and which yields to permit the writing of a limited number of letters thereafter, substantially as, and for the purpose, set forth.

4. In a writing apparatus, the combination, with the desk or support for the paper, of the parallel rods forming the line-guide, the runners or slides movable to and fro along the sides of said desk or support respectively, and

springs connecting said rods with the runners or slides, whereby upward and downward displacement of said rods in the runners or slides is permitted during the formation of letters which extend above or below the line, substantially as described.

5. In a writing apparatus, the combination, with a desk or support for the paper having slots in its top of feeding chains or belts situated at either side of said desk or support, means for adjusting the same, runners or slides connected with said chains or belts, and parallel rods carried by said runners or slides, the said runners having projections extending down through the slots for engaging the chain and for guiding the runners, substantially as, and for the purposes, set forth.

6. In a writing apparatus, the combination, with a desk or support for the paper, of feeding chains or belts situated at either side of said desk or support, means for adjusting the same, runners or slides connected with said chains or belts, parallel rods carried by the runners or slides, and a line-finishing stop adjustably secured to one of said rods and having a readily yielding spring, substantially as, and for the purposes, set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 7th day of December, 1894.

JULIUS NORD.

Witnesses:

JONAS VAN PRAAG,
ANTONIO DOYER.