No. 824,088. PATENTED JUNE 26, 1906.

J. BARR.

APPARATUS FOR PRODUCING LITERATURE FOR THE BLIND.

APPLICATION FILED MAR. 6, 1901.

3 SHEETS—SHEET 1.

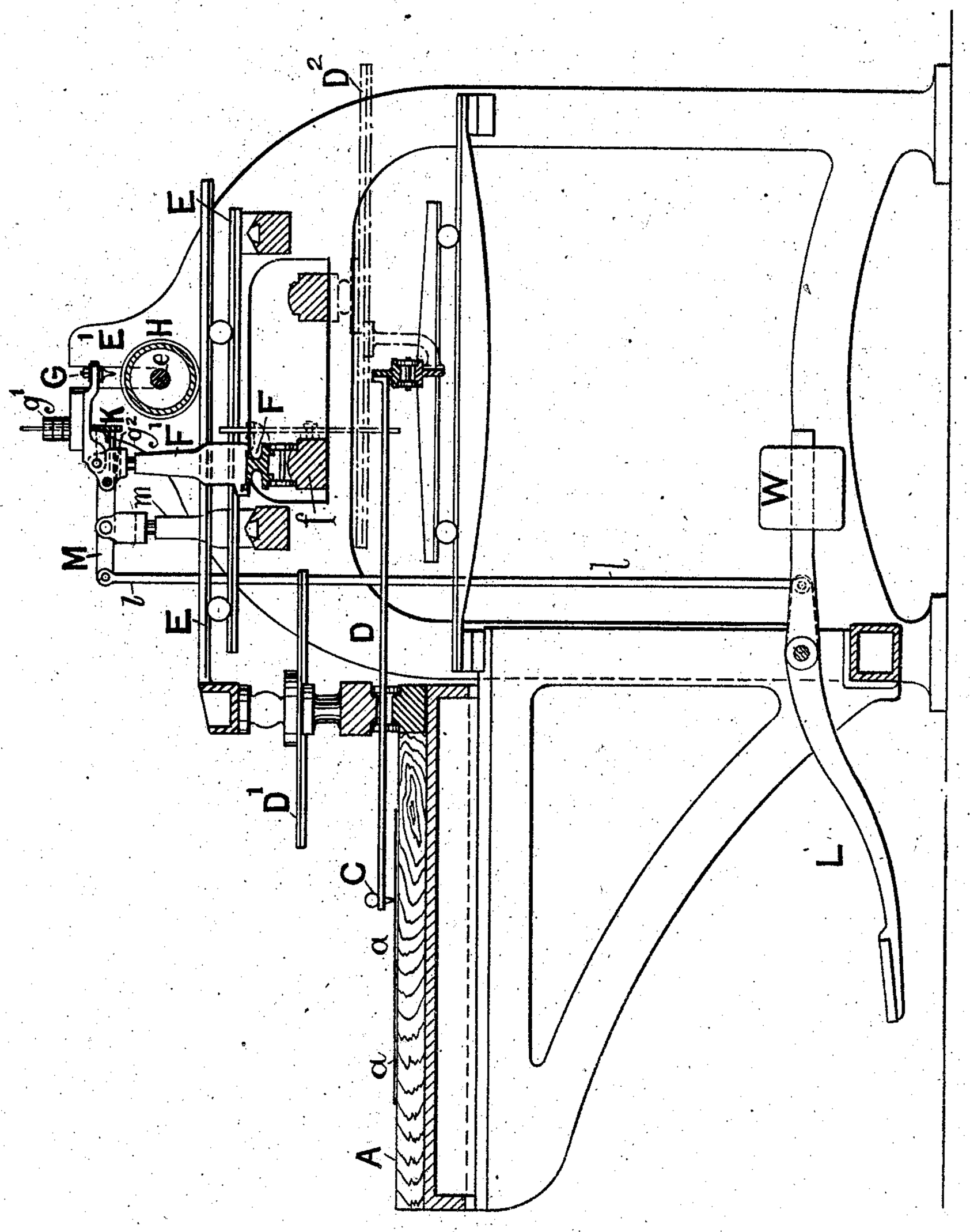

FIG. 1.

WITNESSES.
Joseph Bates.
C. W. Alexander.

INVENTOR.
John Barr
by D. Lowndes O'Brien
atty

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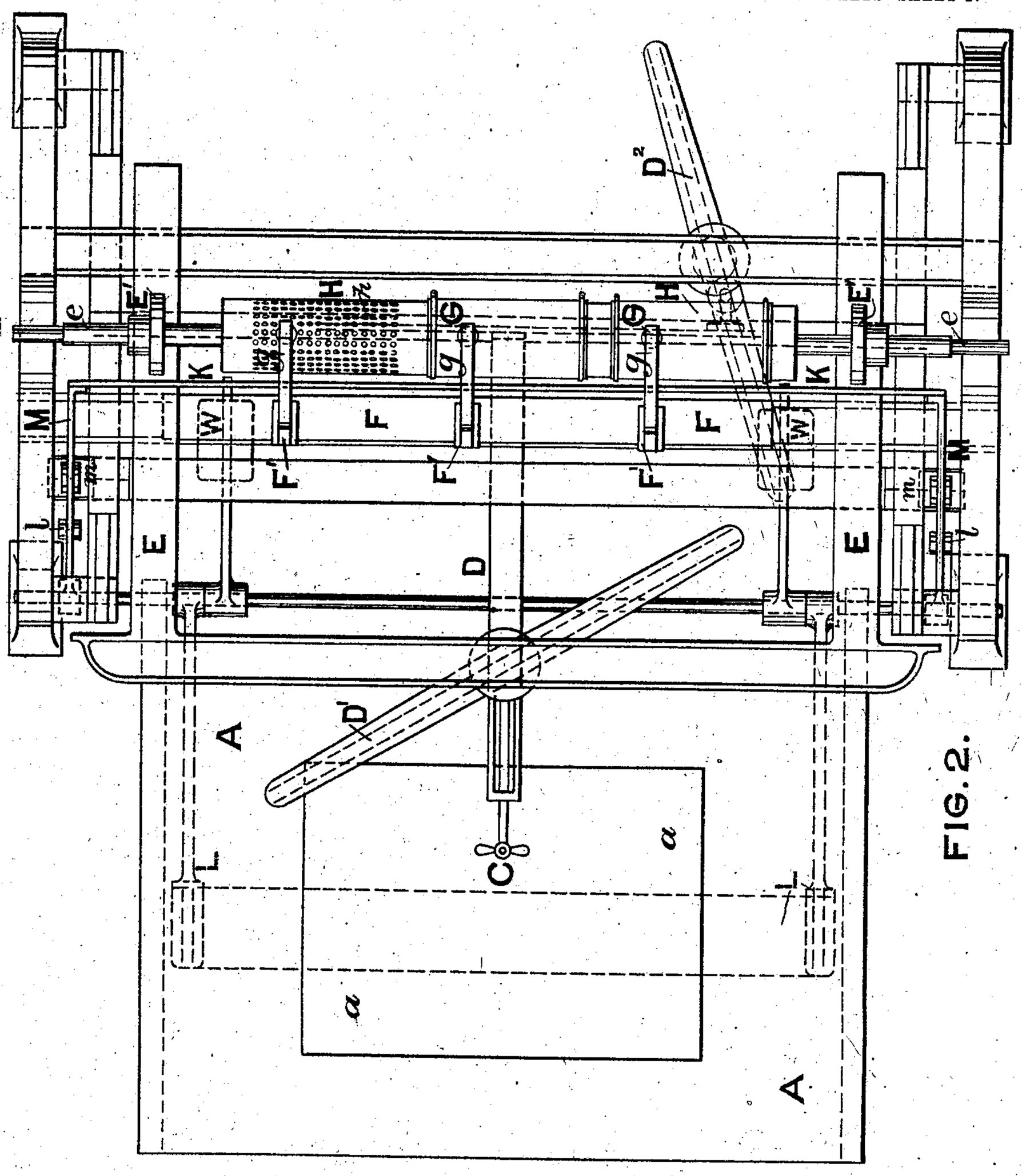

FIG. 2.

WITNESSES.

Joseph Bates

C. W. Alexander.

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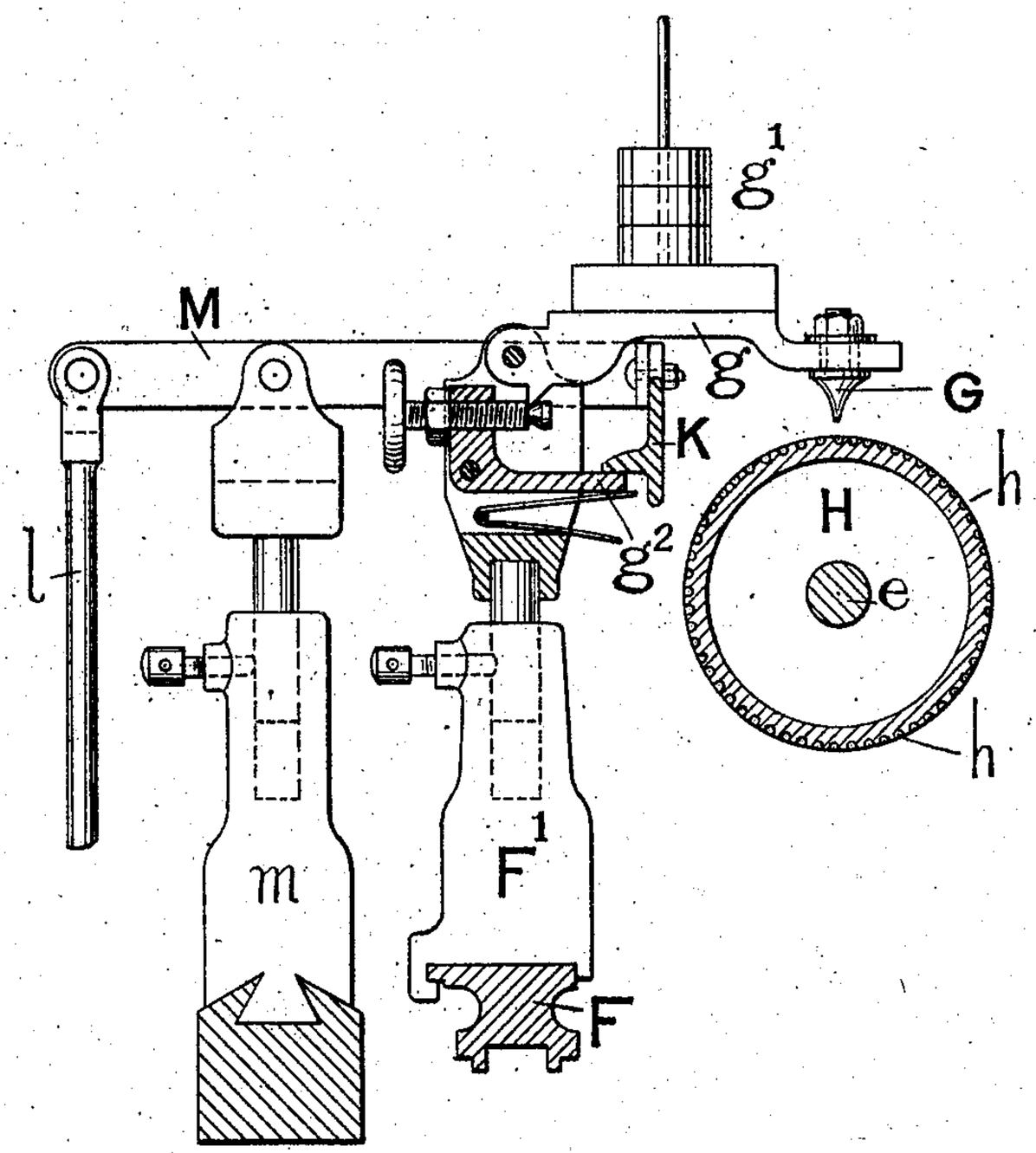

FIG. 3.

WITNESSES.

Joseph Bates.

E. Howard.

INVENTOR.

John Barr

by Dewey & Prime

atty.

UNITED STATES PATENT OFFICE.

JOHN BARR, OF DINTING, ENGLAND.

APPARATUS FOR PRODUCING LITERATURE FOR THE BLIND.

No. 824,088. Specification of Letters Patent. Patented June 26, 1906.

Application filed March 6, 1901. Serial No. 50,131.

To all whom it may concern:

Be it known that I, JOHN BARR, a subject of the King of Great Britain, residing at Dinting, in the county of Derby, England, have invented certain new and useful Improvements in Apparatus for Producing Literature for the Blind, of which the following is a specification.

This invention consists of a machine constructed on the principle of Shield's pantograph engraving-machines, United States Patent No. 28,332, of 1860, and Crossland's English Patent No. 341 of 1896, and is designed to adapt such machine for printing or reproducing literature for the blind in the Braille or similar characters.

The invention will be fully described with reference to the accompanying drawings.

Figure 1 is a side elevation, partly in section; and Fig. 2 is a plan of sufficient of the machine to illustrate the invention. Fig. 3 is an enlarged sectional elevation of the moving bed F, the punches G, the indented roller H, and the several parts adjacent thereto.

The machine is constructed with a table A, upon which is placed a plate *a*, punched or marked with the whole set of Braille points or with a literary production written with Braille points or indentations. Over the table A a pointer C is mounted, capable of being moved in either direction over the table and of being lifted and lowered to cause it to engage with any of the Braille points of the plate *a*. The pointer C is connected with slotted guides or cams D D′ D², common to a pantograph engraving-machine, by which the movements of the pointer are transferred to and reproduced in the slides E. The slides E move to and fro as the pointer C is moved backward and forward over the plate *a* on the table A, and upon these slides rest the driving-disks E′, fixed to the ends of the driving-shaft *e*, and as the slides E are moved to and fro the disks E′ and the shaft *e* are rotated. The bed F is moved to and fro transversely as the pointer C is moved to one side or the other across the plate *a* on the table A. Upon the transversely-moving bed F are mounted one, two, or more stands or brackets F′, carrying punches G, by which the work of reproduction is performed, as described in the specifications of Shield's Patent No. 28,332, of 1860, and Crossland's English Patent No. 341 of 1896.

Upon the driving-shaft *e* I mount an indented or perforated roller H, the periphery of which is covered with a number of small indents or perforations *h*, corresponding precisely with the indents of a Braille writing-plate. The indented roller H is rotated backward and forward by the driving-shaft *e* and driving-disks E′ as the reciprocating slides E, upon which the disks rest, move to and fro.

The perforated roller H of any convenient length is divided into one, two, or more, preferably three, lengths, each the length of a sheet of Braille writing-paper or other convenient size of sheet. Three lengths of roller represent, therefore, three sheets under operation at the same time.

The indented roller H is placed immediately under the punches G, one, two, or three of such punches being provided, one for each section of the roller H. Where more than one punch is employed, they operate simultaneously to each to produce a separate sheet of the printing or literature. The point of each punch G corresponds exactly in size and shape with that of a Braille punch or style and also with the indents *h* in the roller H, so that when the punch drops it enters one of the indents *h*.

The punches G are mounted upon or pivoted to the stands F′, fitted to the transversely-movable bed F, which is moved to and fro on the slide *f* by the transverse movement of the pointer or tracer C through the slotted guides or cams D and D², connected thereto.

Each punch G is attached to the end of a pivoted arm or lever *g*, provided with adjustable weights *g′* to give the necessary force or impetus to the punch when it is released or brought into operation. Each punch, lever, or arm *g* is pivoted to a spring-actuated catch or bracket *g²*, which holds it up when lifted or raised out of contact with the indented Braille roller H.

Under the punch, arms, or levers *g* across the machine is placed a bar or lever K, by which after each stroke the punches G are raised out of contact with the indented Braille roller H and the punches again released for the succeeding stroke when required. The bar is raised and lowered by the treadle L, with which it is connected by the connecting-rod *l*, and pivoted lever M, supported by the stand or bracket *m*. The bar or lever K is raised by the downward movement of the connecting-rod *l*, actuated by the counterbalance-weight W, which raises the free end of the lever M, and it is dropped by depress-

ing the treadle L, which raises the rod *l* and lowers the free end of the lever M. The upward movement of the bar or lever K lifts or raises the punches G into a position in which they are held by the springs or spring-catches g^2, fitted to them, and in its downward movement the bar or lever K strikes or engages the spring-catches g^2 and moves them so as to release the punches, allowing them to fall with a certain amount of impact into the indents of the roller H, in-pressing the surface of the sheet of paper on the roller with a corresponding indent on one side and point on the other.

The paper to be printed or embossed is placed upon or around the indented Braille roller H, and each fall of the punches produces an impression thereon.

On a table A of the machine is placed a plate *a*, punched or marked to correspond with the literature desired to be produced, or the plate *a* may be punched or marked with the whole set of Braille points or indentations, over which a slotted guide or slide, such as is commonly used with a Braille writing-plate, can be moved to indicate which of the points are to be reproduced. The operator then brings the pointer or tracer C of the pantograph into the desired indentation on plate *a*, thereby moving the Braille roller H and the punches G to their corresponding position. The treadle L is then depressed, releasing the punches G, which fall each into an indentation in the roller H, producing the required point or mark upon the paper on the roller.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. In a pantograph engraving-machine, the combination with the work-table A, the pointer C moving over same, the slotted guides D, D′, D^2, the movable slides E and rotatable disks E′ and shaft *e* of a plate *a* formed with Braille points placed upon the table A, and a Braille roller H provided with indents *h* upon which the paper to be marked is placed, mounted upon the shaft *e* and rotated by the movable slides E, and punches G to indent the paper, substantially as described.

2. In a pantograph engraving-machine the combination with the punches G, punch-lever *g*, moving bed F and movable slides E, disks E′ rotated thereby and means for actuating the same, of a Braille roller H provided with indents *h* mounted upon and rotated by the movable slides E and disks E′, and Braille plate placed upon the operating-table A, substantially as described.

3. In a pantograph engraving-machine the combination with the punches G, punch-levers *g*, brackets F′ movable bed F, movable slides E and disks E′ thereon and means for actuating the same, of a Braille roller H provided with indents *h* mounted upon the shaft *e* and rotated by the disks E′, substantially as described.

4. In a pantograph engraving-machine, the combination with the punches G, punch-levers *g* moving bed F and movable slides E and means for actuating the same, of an indented Braille roller H, mounted upon and rotated by the movable slides E, and divided into a number of sections or lengths each the length of a sheet of Braille writing-paper, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN BARR.

Witnesses:
J. OWDEN O'BRIEN,
FRANK SPARKES.