

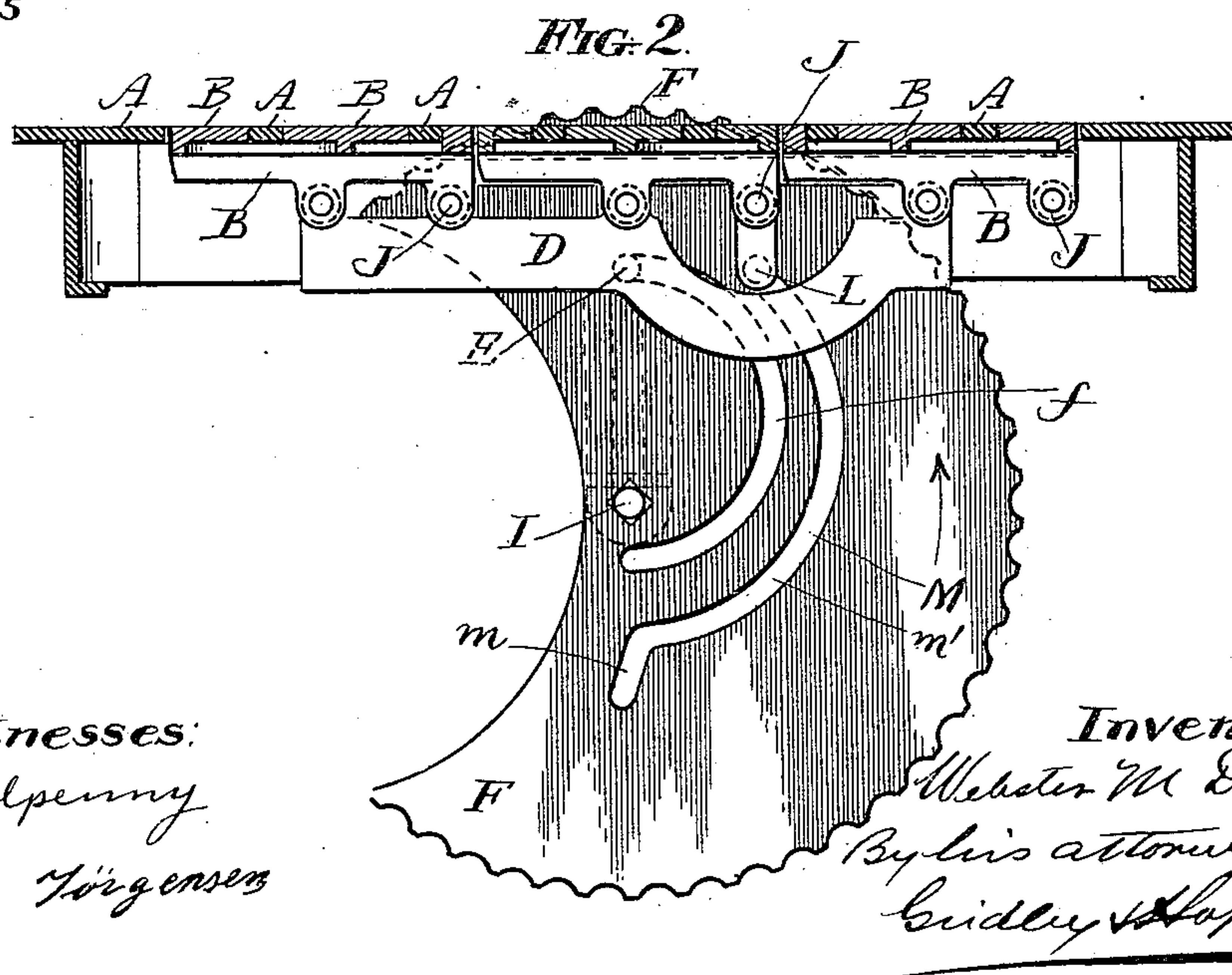
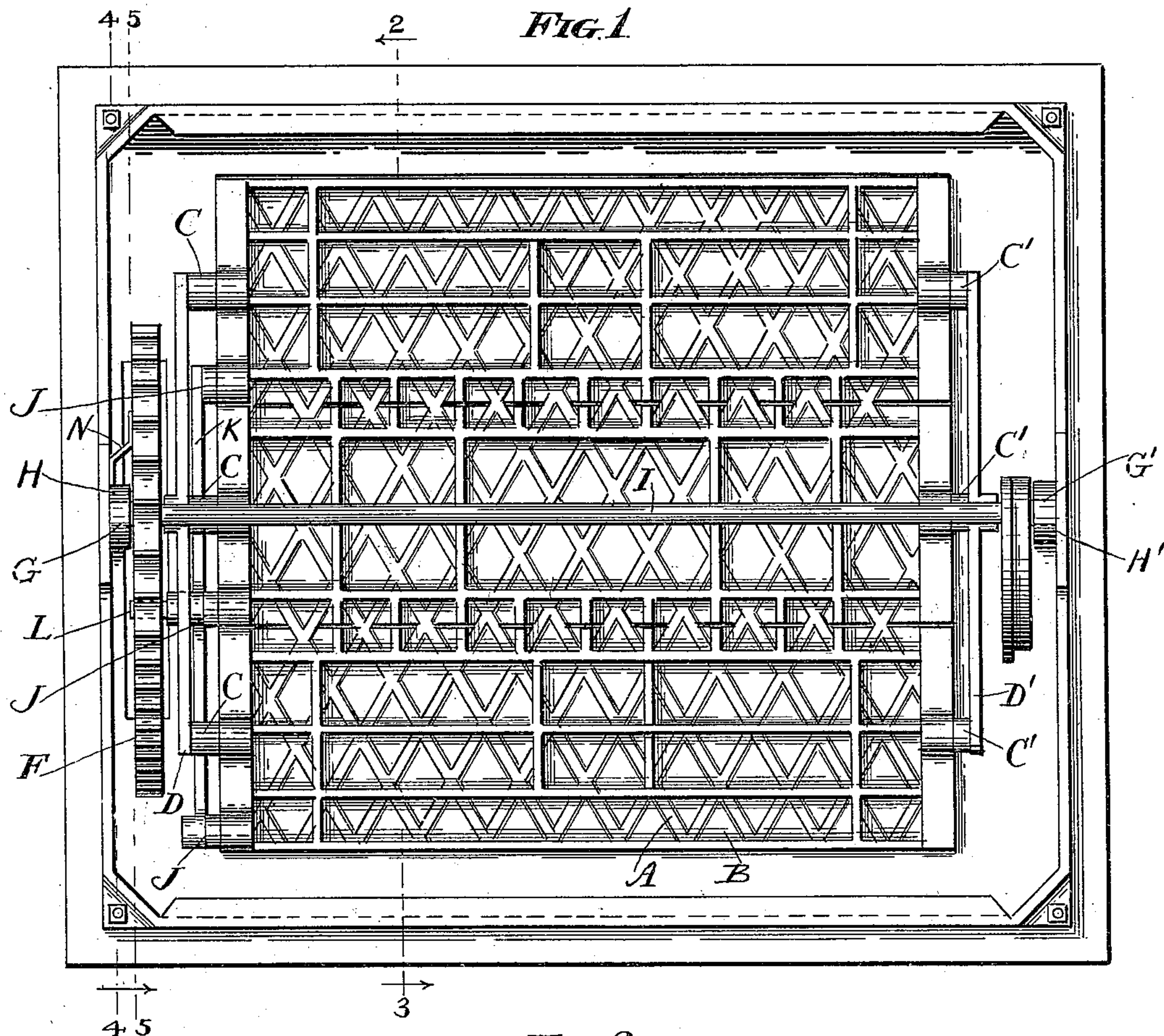
(No Model.)

2 Sheets—Sheet 1.

W. M. DYAS.  
REGISTER.

No. 525,887.

Patented Sept. 11, 1894.



Witnesses:  
J. Halpenny  
Wile Jørgensen

Inventor:  
Webster M. Dyas  
By his attorneys  
Gidley & Hopkins

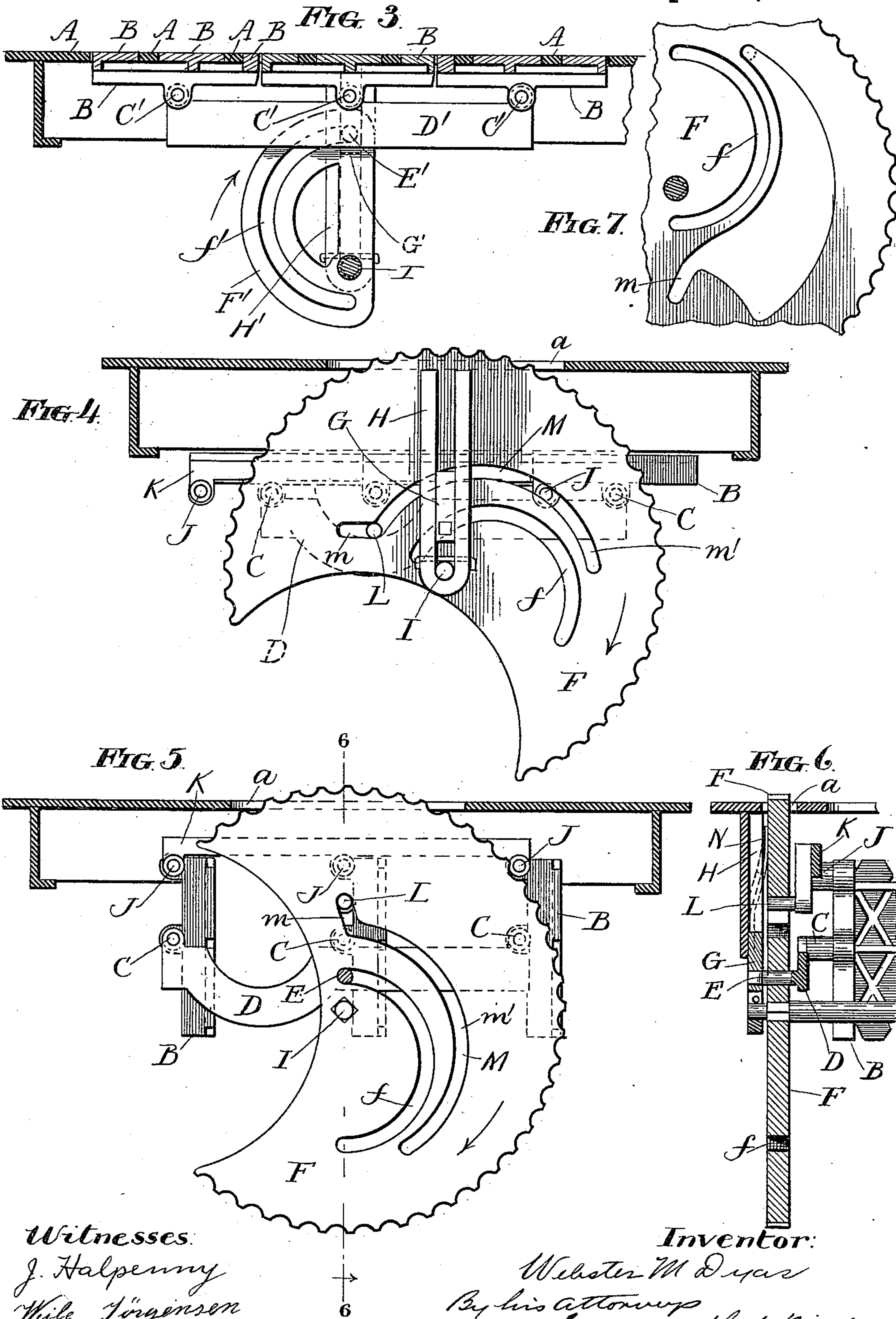
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# UNITED STATES PATENT OFFICE.

WEBSTER M. DYAS, OF ARLINGTON HEIGHTS, ILLINOIS.

## REGISTER.

SPECIFICATION forming part of Letters Patent No. 525,887, dated September 11, 1894.

Application filed July 14, 1894. Serial No. 517,594. (No model.)

*To all whom it may concern:*

Be it known that I, WEBSTER M. DYAS, a citizen of the United States, residing at Arlington Heights, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Registers, of which the following is a specification, reference being had to the accompanying drawings, which are made a part hereof, and in which—

Figure 1 is an under side view of a register embodying the invention. Figs. 2 and 3 are vertical sections thereof on the line 2—3, Fig. 1, looking in the directions of the arrows 2 and 3, respectively. Figs. 1, 2 and 3 show the parts in the positions that they occupy when the register is closed. Fig. 4 is a vertical section of the improved register on the line 4—4, Fig. 1, with the parts in the positions that they occupy when the register is partly open. Fig. 5 is a vertical section of the improved register on the line 5—5, Fig. 1, with the parts in the positions that they occupy when the register is completely open. Fig. 6 is a vertical section of some of the parts on the line 6—6, Fig. 5. Fig. 7 is an elevation of a portion of the cam wheel, showing a modification.

The present invention relates to that class of registers in which there is a grating, a valve for controlling the passage of air through said grating, and means for moving said valve toward or away from said grating, accordingly as the openings through the grating are to be closed or opened. In registers of this character as heretofore constructed, the valve has at all times been maintained in a plane substantially parallel with the plane of the grating and has been provided with openings for the passage of the air, the arrangement of the openings and intervening solid portions of the grating and valve being such that solid portions of one correspond in shape and position with and close the openings of the other. With this construction the passage for the air past the valve is of course limited by the capacity of the openings through it, and the object of the present invention is to provide a register of the character mentioned with a valve so constructed and operated that it may be placed in a plane or planes perpendicular to the plane of the grating so as to offer a minimum resistance to the passage of the air. In accomplishing this object I prefer to construct the valve in

sections and to use a cam wheel having suitable connections with these sections whereby, during a portion of their movement they are maintained in a common plane that is parallel with the plane of the grating and during the remainder of their movement they are being turned toward or from planes that are perpendicular to the plane of said grating. But I believe myself to be the first to move the valve of a register in this manner, and I therefore desire to have it understood that in its broadest aspect my invention is not limited to any particular means for producing this movement, but resides in the features of novelty that are generically and specifically pointed out in the claims.

In the drawings, A represents the grating which may be of customary construction, and B represents the valve, which as here shown, is formed in three separate sections, but the number of sections used is not material, and may be decreased to one or increased to any desired number without departing from the spirit of my invention.

Each of the valve-sections is provided at one end with a pivot C, and these pivots have bearings in a bar D from which projects a stud E, which passes through a cam-slot *f* in a cam-wheel F and terminates in or has rigidly affixed to it a slide G fitting between vertical guides H projecting downward from the under side of the grating. Each of the valve-sections is provided at its other end with a pivot C' and these pivots have bearings in a bar D', from which projects a stud E', which passes through a cam-slot *f'* in a cam-wheel F' and terminates in or has rigidly affixed to it a slide G' fitting between vertical guides H' projecting downward from the under side of the grating. The two cam-wheels F and F' are both rigidly fixed to a shaft I, which is journaled in suitable bearings at the ends of the guides H and H' and the cam-wheel F is of such diameter that it projects through a slot *a* in the grating and has its periphery milled or toothed so that it may be moved by contact with the sole of a shoe.

The cam-grooves *f* and *f'* are constructed upon curves—preferably circles—which are eccentric with relation to the center of motion of the wheels and so placed that when the wheels are rotated the bars D D' and the valve are raised or lowered according to the direction of rotation. Figs. 2 and 3 show the studs



at the outer extremities of the cam-slots and the valve in its highest possible position, while Fig. 4 shows the studs near the inner extremities of the cam-slots, and the valve near its lowest possible position.

Each of the valve-sections has one of its ends pivotally connected, as at J, to a rod K carrying a stud L that projects through a second cam-slot M of the wheel F. The pivot points J are located near the edges of the valve-sections, and the shape of the cam-slot M is such that the valve-sections are allowed to remain in a common plane parallel with the plane of the grating until the parts reach the positions shown in Fig. 4. When these positions are reached, a further movement of the wheel in the direction of the arrow will cause each of the valve-sections to move about its own pivot, and when the wheel has reached the limit of its movement in this direction the parts will all be in the positions shown by Fig. 5. In moving from the position shown by Fig. 4 to that shown by Fig. 5, the abrupt portion *m* of the cam M comes in contact with the stud L and moves it (and of course the rod K), in a substantially circular direction about the center of movement of the cam-wheel, and it is this movement of the bar that shifts the valve-sections from the positions shown in Fig. 4 to the positions shown in Fig. 5, and vice versa. The only function that the other portion (*m'*) of the cam can have is the restraining of possible random movements of the valve-sections about their respective pivots, but as there is really no tendency to any such movement the wheel may as well be cut away as shown in Fig. 7, in order to lessen its weight. In order to restrain the random movement of the cam-wheel, I apply to it a brake which consists of a plate spring N secured at one end to the frame of the grating and at the other bearing against the wheel.

What I claim is—

1. In a register, the combination with a grating, and a valve of means for moving the valve toward or away from the grating and means for turning the valve toward or away from a plane perpendicular to the plane of the grating, substantially as set forth.

2. In a register, the combination with a grating of a pivoted valve, means for maintaining the valve in a plane substantially parallel with the plane of the grating and moving it toward or away from the grating, and means for turning said valve upon its pivots to move it toward or away from a plane perpendicular to the plane of the grating, substantially as set forth.

3. In a register, the combination with a grating, of a valve formed in sections, means for maintaining said valve-sections in a common plane substantially parallel with the plane of the grating and moving them, while in this plane, toward or from the grating, and means for moving each of said sections out of the common plane aforesaid and toward a plane

perpendicular to the plane of the grating, substantially as set forth.

4. In a register, the combination with a grating, of a valve formed in sections, pivots about which said sections are independently movable, means for moving the valve-sections toward or from the grating, and means for turning each of the valve-sections about its pivot to move it toward or away from a plane perpendicular to the plane of the grating, substantially as set forth.

5. In a register, the combination with a grating, of a valve formed in sections, bars to which the valve-sections are pivoted, means for moving said bars toward or from the grating, and means for turning the valve-sections about their pivots, substantially as set forth.

6. In a register, the combination with a grating, of a valve formed in sections, bars to which the valve-sections are pivoted, means for maintaining the bars substantially parallel with the grating, means for moving the bars toward or from the grating and means for turning the valve-sections about their pivots, substantially as set forth.

7. In a register, the combination with a grating, of a valve formed in sections, bars to which the valve sections are pivoted, means for moving the bars toward or from the grating, a rod pivotally connected to each of the valve-sections, and means for moving said rod and thereby moving the valve-sections about their pivots, substantially as set forth.

8. In a register, the combination with a grating, of a valve formed in sections, bars to which said sections are pivoted, a cam for moving said bar toward and from the grating, a rod pivotally connected to all of said sections, and a cam for moving said rod and thereby turning each of the valve-sections about its pivot, substantially as set forth.

9. In a register, the combination with a grating, of a valve formed in sections, bars to which all of said sections are pivoted, guides for maintaining the bars substantially parallel with the grating, means for moving the bars toward and from the grating, and means for turning the several valve-sections upon their pivots, substantially as set forth.

10. In a register, the combination with a grating, of a valve formed in sections, bars to which all of said sections are pivoted, studs projecting from said bars, cams engaging said studs, a shaft connecting said cams, a rod pivotally connected to all of said valve-sections, a stud projecting from said rod, and a cam engaging said stud, said cams being so disposed that they move the valve-sections toward and from the grating and turn them upon their pivots, maintaining them during a portion of their movement in a common plane that is substantially parallel with the grating, substantially as set forth.

WEBSTER M. DYAS.

Witnesses:

L. M. HOPKINS,  
J. HALPENNY.