

(No Model.)

2 Sheets—Sheet 1.

J. GROVES.

DRAW BRIDGE.

No. 322,708.

Patented July 21, 1885.

Fig. 1.

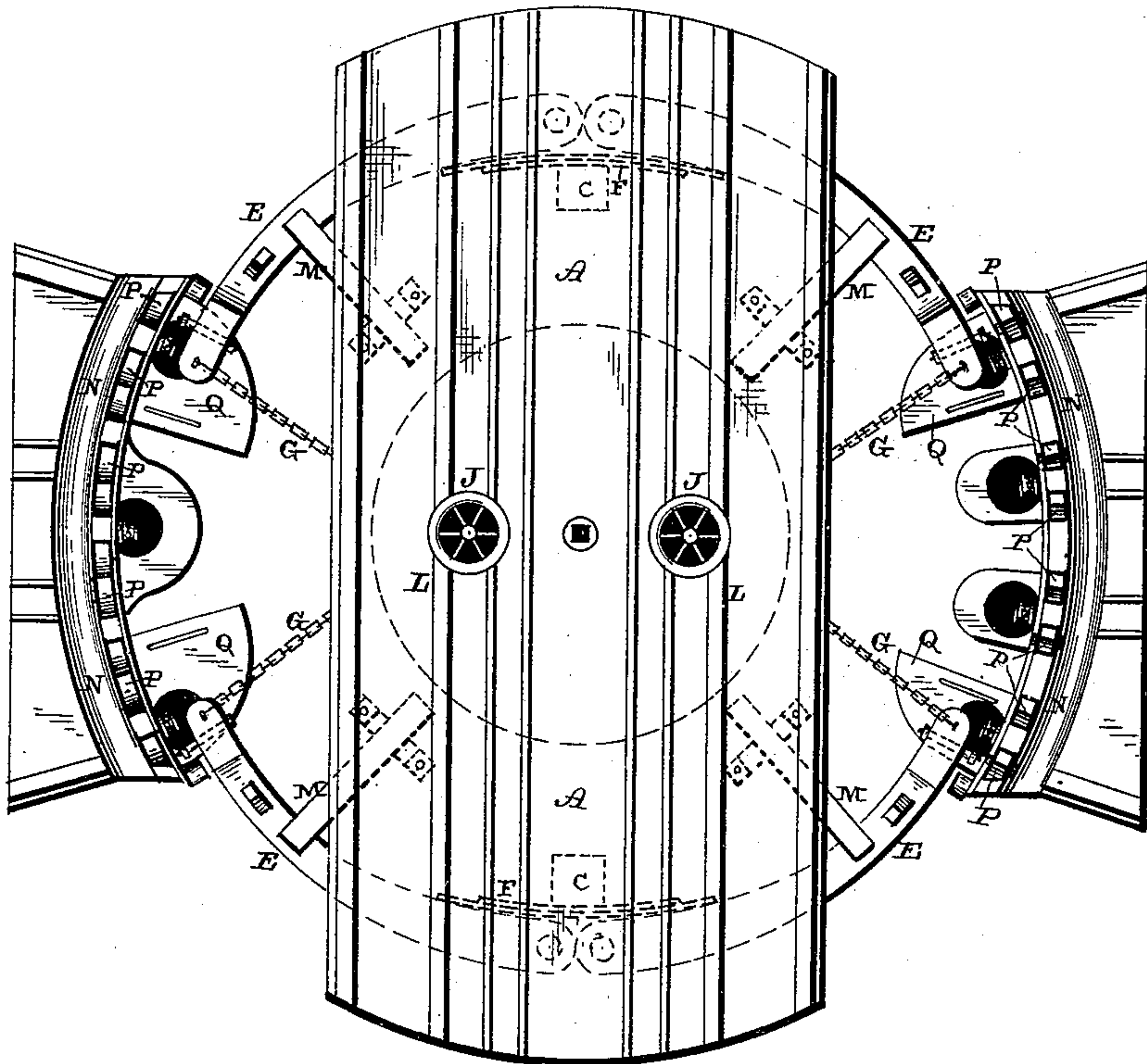
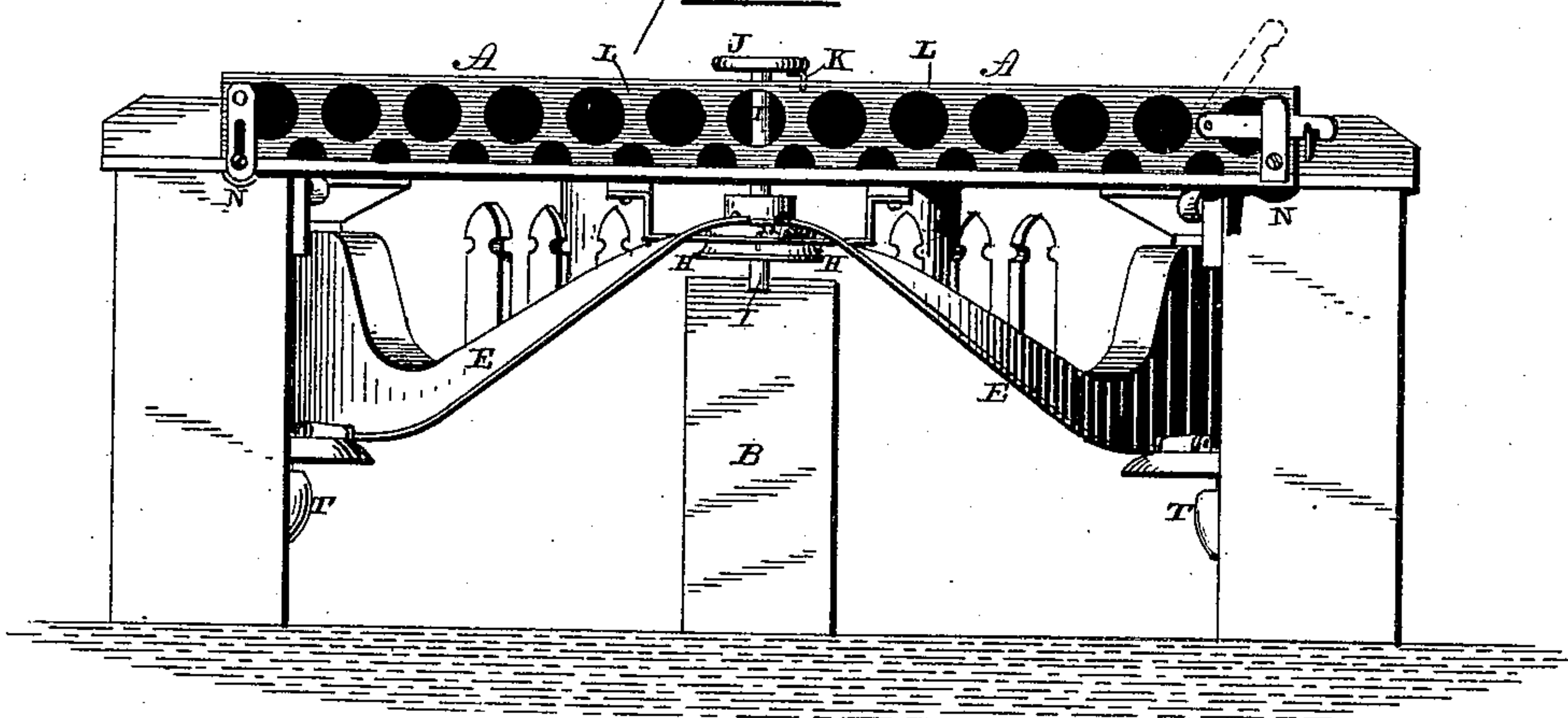


Fig. 2.



WITNESSES.

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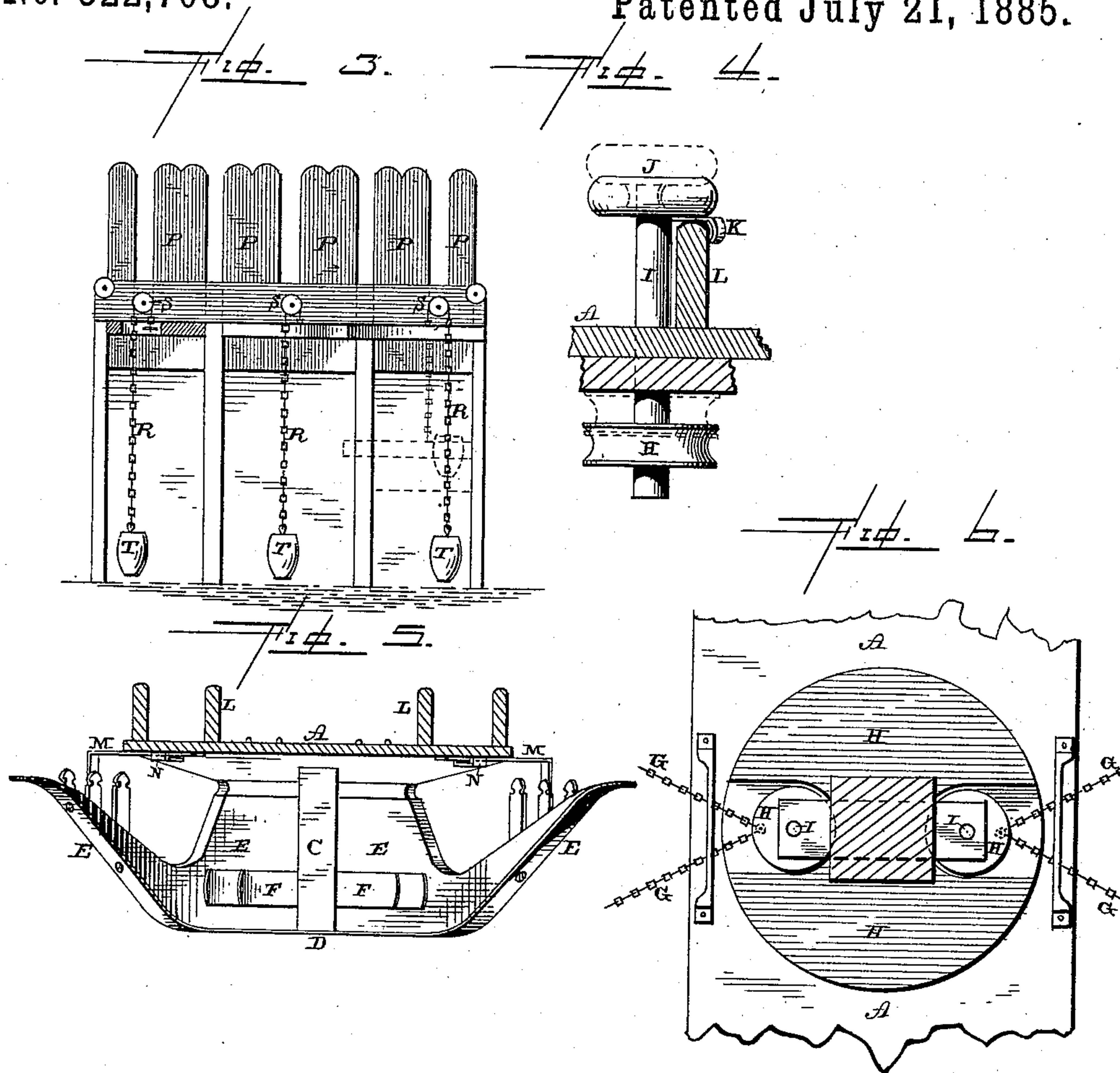
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UNITED STATES PATENT OFFICE.

JOSIAH GROVES, OF PULLMAN, ILLINOIS.

DRAW-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 322,708, dated July 21, 1885.

Application filed June 1, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH GROVES, of Pullman, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Draw-Bridges; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being
10 had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in draw-bridges; and it consists in, first, the combination of a pivoted bridge provided with
15 inclined arms at each end with automatically-acting sections of a gate or fence which rise vertically upward, so as to close the roadway when the gate is turned so as to allow vessels to pass, and which sections are provided with
20 horizontal projections over which the inclined arms catch for the purpose of depressing the sections when the gate is returned to position; second, the combination of a pivoted bridge having scrapers applied to opposite ends with
25 gutters which are formed at the ends of the roadway, where the ends of the bridge overlap, whereby all of the dirt that drops into the gutters at the ends of the bridge is swept out each time that the gate is opened and closed;
30 third, the combination of the pivoted bridge with the spring-actuated arms, which are inclined on their under sides with the pulleys and chains, and the operating-shaft for closing them, so that they will be out of the way of
35 passing vessels; fourth, the arrangement and combination of the devices, which will be more fully described hereinafter.

The object of my invention is to close the roadway at each end of the bridge by auto-
40 matically-acting sections of a gate or fence, which rise upward and form barriers to prevent persons and animals from falling into the water below while the bridge is open, and which automatically sink out of view as the
45 bridge is again closed.

Figure 1 is a plan view of a draw-bridge in an open position embodying my invention complete. Fig. 2 is a side elevation of the same. Fig. 3 is a detached view of the sec-
50 tions of the gate or fence. Figs. 4, 5, 6 are detail views.

A represents the draw-bridge, which may be of any construction that may be preferred. A bridge of ordinary construction having a roadway through its center and a passage for
55 pedestrians at each side thereof is here shown; but I do not limit myself to any details of construction in this respect. This bridge is pivoted upon a suitable pier or other support, B, at its center, and turns horizontally around
60 when opened for the purpose of allowing vessels to pass through.

Secured to the under side of the bridge, at each end, is a hanger, C, to the lower ends of which are pivoted suitable arms, E, having
65 bearing-plates which are inclined upon their under sides, as shown, and which, when left free to move, are forced outward by suitable springs or other equivalent devices, F.

Secured to the free end of each arm is a
70 chain, G, which is connected at its inner end to a drum, H, which is operated by means of a shaft, I, which projects above the top of the bridge, and which is provided with a hand-
75 wheel, J, upon its top.

To one side of each hand-wheel is secured a hanger, projection, or stop, K, which catches against the top edge of the railing L, and thus prevents the drum from unwinding, and keeps the springs, which are connected to the arms,
80 from moving them outward. These arms are intended to be closed inward under the edge of the bridge while the bridge is standing open, so as to leave a clear passage for vessels which are passing through the draw. When
85 the bridge is about to be closed, the shaft I is raised upward far enough to release the stop or catch from the railing, and then the springs connected to the arms throw their free ends outward for the purpose of depressing the sec-
90 tions of the gate or fence. After the bridge has been closed, and it is desired to close these arms again, the shaft I must again be raised upward and turned around, and then lowered so that the stop or catch will catch behind the
95 railing, and thus lock the arms in a closed position.

Secured to the arms near their outer ends are the guides, braces, or supports M, which extend horizontally inward through suitable
100 guiding-loops, N, which are secured to the under side of the bridge, and thus help both to

support the arms in position at their outer ends and prevent them from sagging, and at the same time guide the arms in their movements.

At each end of the roadway, where the end of the bridge connects therewith, are formed the gutters N', which form a segment of a circle, and into which the dirt from the roadway and the bridge falls. For the purpose of cleaning out these gutters, there are secured to the opposite ends of the bridge vertical adjustable scrapers O, which conform to the shape of the gutter, and which move therein as the bridge is turned upon its pivot for the purpose of cleaning the gutters out. These scrapers are made vertically adjustable, so that their lower ends can be adjusted in any desired relation to the bottom of the gutter.

Placed preferably inside of the gutter, and also forming segments of a circle, are the sections P of a gate or fence, which form a barrier across the roadway, when the bridge is open, for the purpose of preventing persons and animals from falling into the water below. These sections, of which there may be any desired number, and which may be of any suitable construction, have their upper ends pass through suitable openings or guides, which are constructed especially for them.

Upon the lower end of each section is formed a horizontal projection, Q, which extends outward over the water, and which serve for the curved arms, which are pivoted to the ends of the bridge to press upon for the purpose of depressing the sections in regular order as the gate is being closed.

Connected to each section is a chain, R, which passes up over a suitable guiding-pulley, S, and has a suitable counter-weight, T, secured to its lower end. These counter-weights, springs, or other equivalent devices, serve to instantly raise the sections upward as soon as the bridge begins to open, and thus automatically close the roadway as fast as the bridge is opened. When the bridge is being closed, the arms catch in regular succession over the tops of these projections and force them downward, thus causing the sections to sink down out of the way until the bridge is again opened. By having the arms curved on

their under sides, as here shown, each section is closed in its regular order and just before the end of the bridge reaches it. In this manner the roadway is kept closed, at all times when the bridge is not in position. Should the bridge be only partially closed there will still be sections standing across the roadway so as to stop all travel over that part of the roadway which is not closed by the bridge. By this construction the gate-keeper stands in the middle of the bridge and both operates the bridge and closes the roadway at each end at the same time, thus requiring only a single person to do all of the work that is necessary.

At each end of the roadway are placed suitable friction-rollers, upon which the ends of the bridge rest, and connected to each end of the bridge are suitable latches which lock it in position after it has been closed.

Having thus described my invention, I claim—

1. The combination of the turning bridge, the spring-actuated arms E, pivoted to each end, the guides M, chains G, the drums H, and shafts I, substantially as shown.

2. The combination of a turning draw-bridge with pivoted arms, which are connected to opposite ends thereof, with automatically and vertically moving sections of a gate or fence, which are provided with projections for the arms to catch over and depress the sections as the gate is being closed.

3. The combination of the draw-bridge, pivoted spring-actuated arms having inclined edges attached to each end, the chains connected to the ends of the arms, the drum around which the chains are passed, the shaft connected to the drum, and the stop connected to the shaft for holding the arms in a closed position, substantially as set forth.

4. The combination of the bridge, the scrapers connected thereto, and the gutters, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JOSIAH GROVES.

Witnesses:

CHARLES W. HENDRY,
WILLIAM W. STEWART.