

P. SCHAEFER.
Draw-Bridge Gate.

No. 203,296.

Patented May 7, 1878.

Fig. 1.

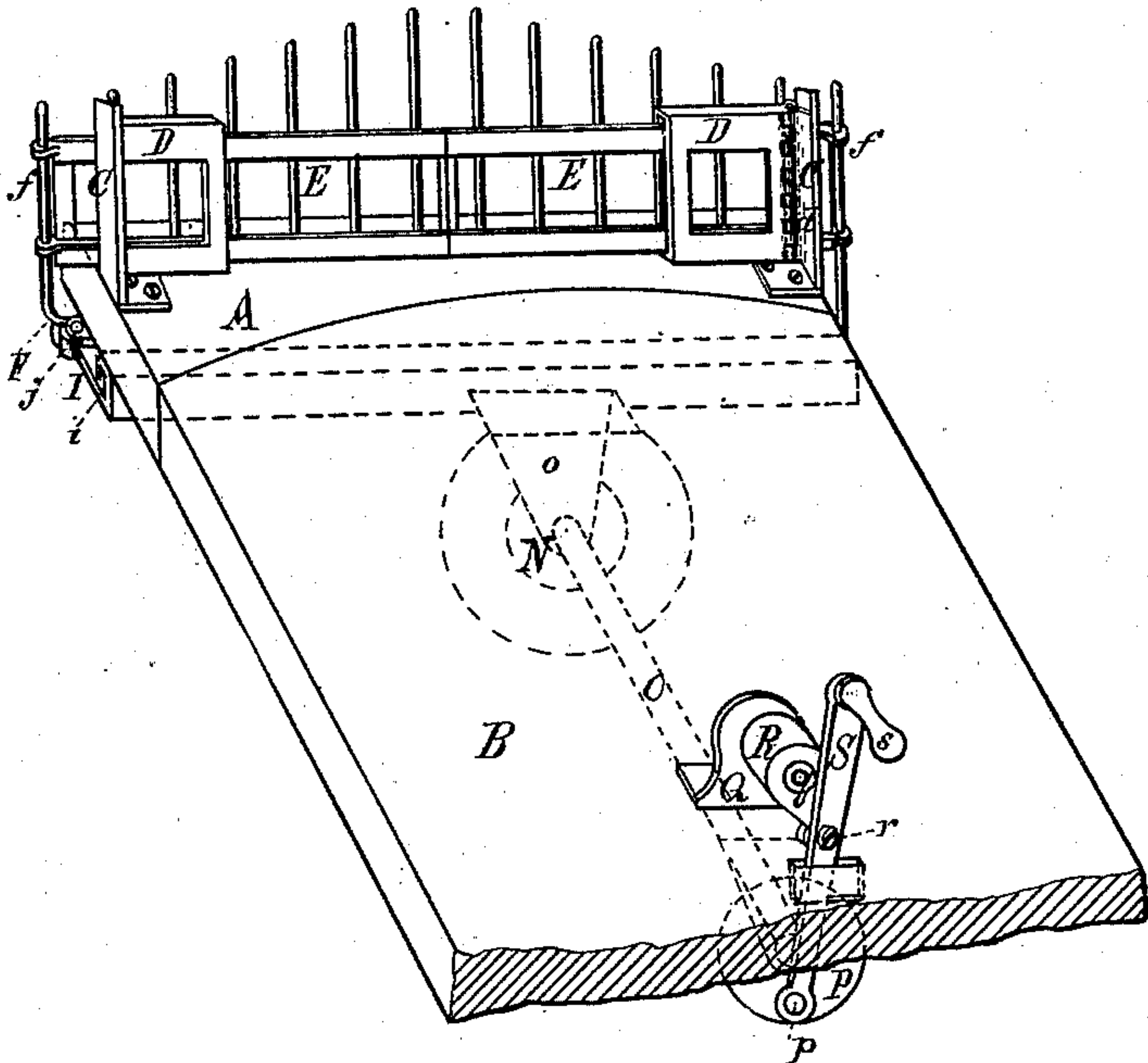


Fig. 4.

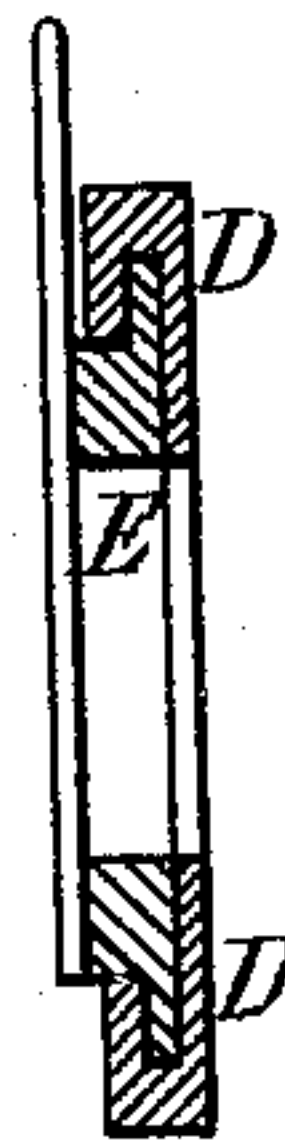


Fig. 5.

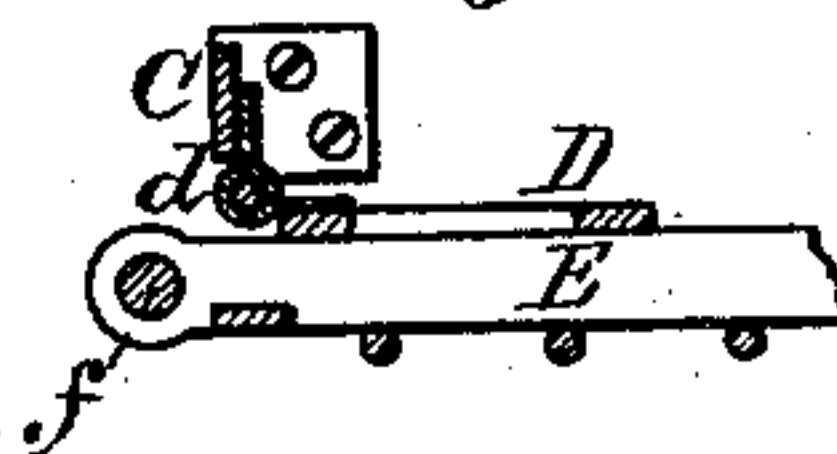


Fig. 2.

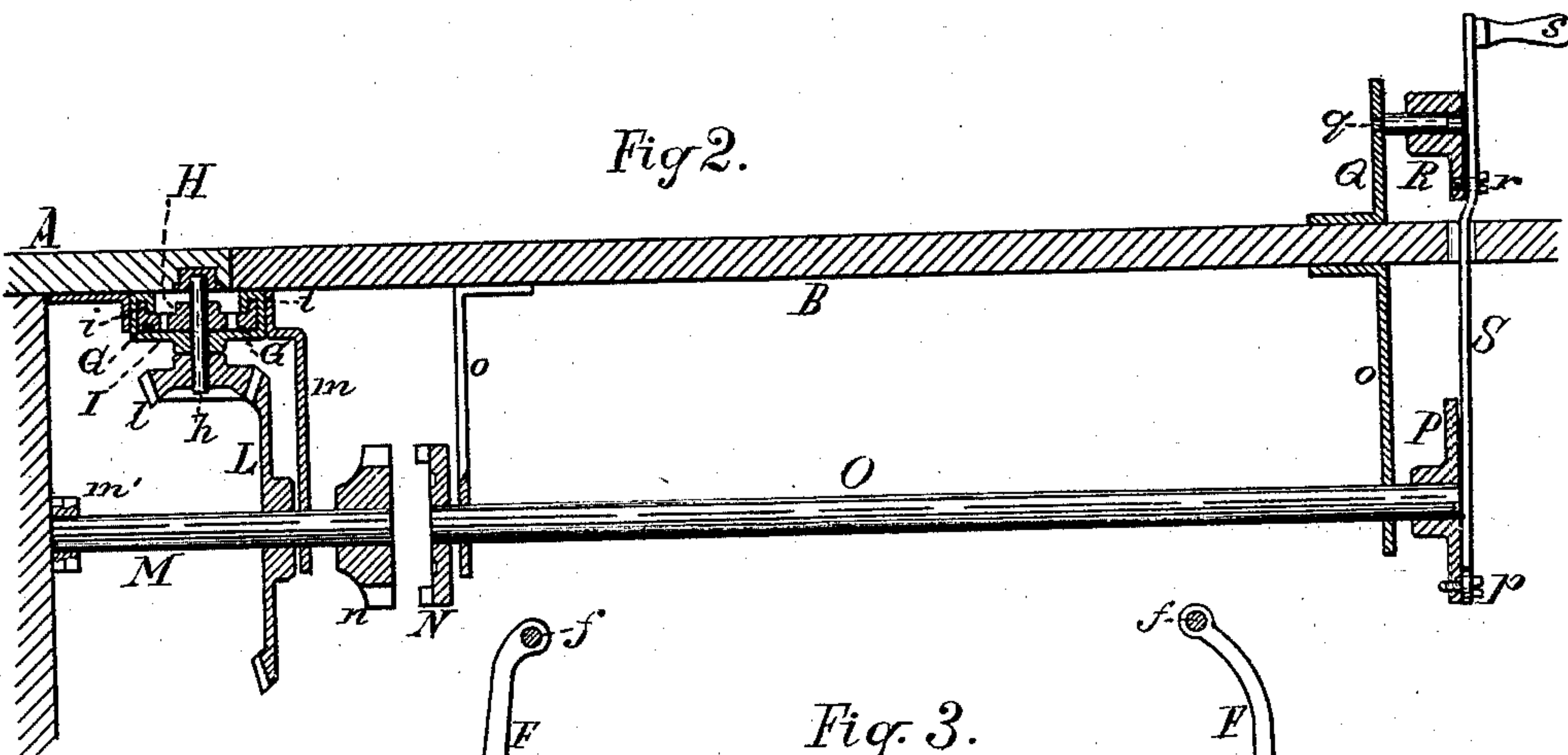
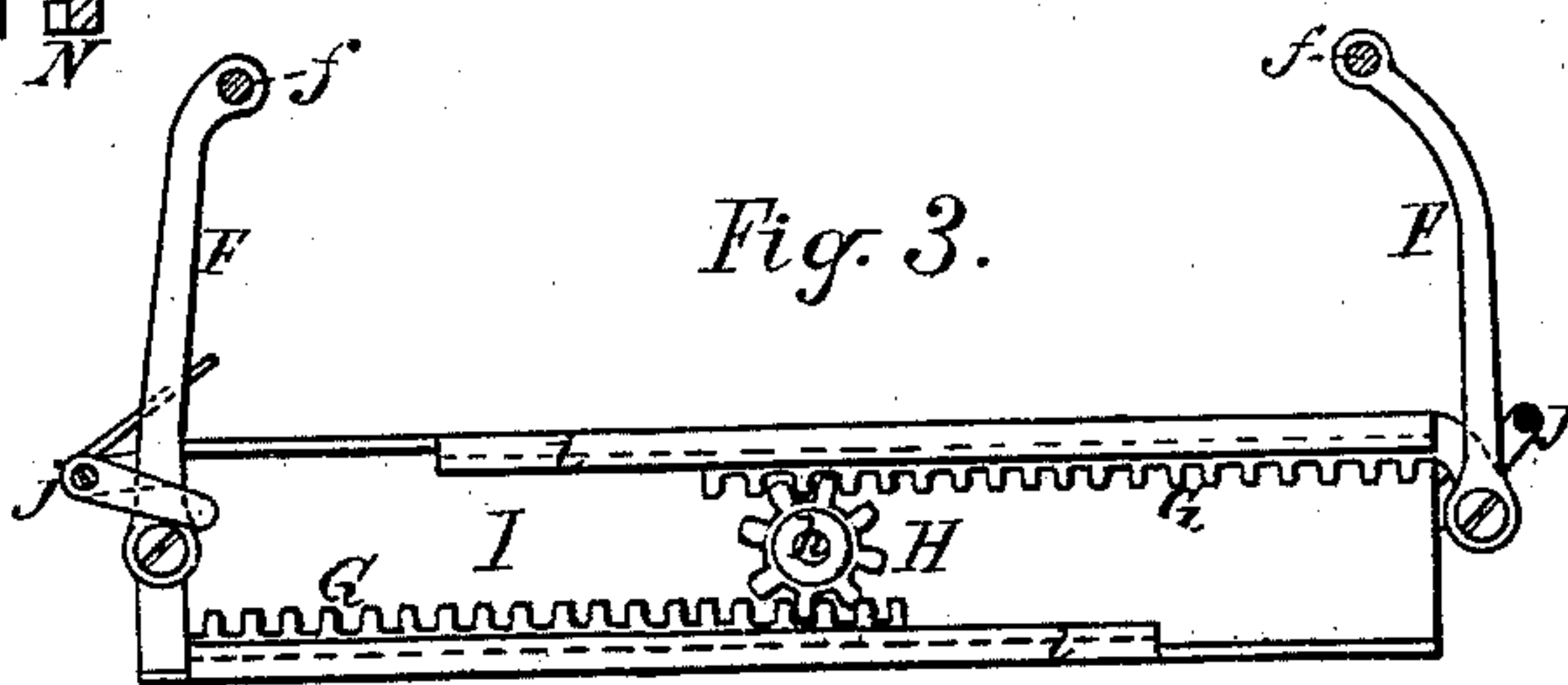


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

PETER SCHAEFER, OF LAKE, (CHICAGO P. O.,) ILLINOIS.

IMPROVEMENT IN DRAW-BRIDGE GATES.

Specification forming part of Letters Patent No. **203,296**, dated May 7, 1878; application filed April 1, 1878.

To all whom it may concern:

Be it known that I, PETER SCHAEFER, of the town of Lake, (Chicago P. O.,) in the county of Cook and State of Illinois, have invented a new and Improved Bridge-Gate, as fully set forth and described in the following specification:

The nature of my invention relates to an improvement in that class of gates which are placed on the approaches of a draw-bridge, in order to prevent accidents; and it consists of gates which have a sliding and swinging motion combined, and which are operated by the bridge-tender while the bridge is closed, and independently of the swinging of the draw-span, by means of a crank and shifting-clutch, as more fully hereinafter explained.

In the drawing, Figure 1 represents a sectional perspective view of the draw-span end and the abutment with the gate while closed. Fig. 2 represents a longitudinal vertical section through the center of the draw-span and abutment, showing the operating-gearing. Fig. 3 represents a sectional plan of the gate-moving mechanism; Fig. 4, a transverse section through the gate and its supporting-frame, and Fig. 5 a horizontal section of the same.

A is the abutment, and B the draw-span end of the bridge. C C are two posts, rigidly mounted upon the sides of the abutment, to which are hung, by hinges *d*, the frames D, so as to swing a quarter-circle thereon. These frames D are provided with top and bottom guide-bars for the gates E to be supported and to slide forward and back therein, which guides may be arranged with rollers, to make the motion of the gates therein as frictionless as possible. One end of each gate E is pivoted on a standard, *f*, welded upon the extreme end of a lever, F, the opposite end of which is pivoted to the end of a rack-bar, G, so as to horizontally swing thereon.

The teeth of both rack-bars G are geared with a pinion, H, placed between them, so that to both racks will be transmitted thereby a simultaneous reciprocating motion in opposite directions, these racks moving in guides *i*, forming part of a plate, I. Each end of said plate I is provided with a short arm, carrying a stop, *j*, between which and the end of guide *i* the longitudinal movement of the lever F is

limited, whereby the reciprocating motion of the racks G will transmit a partly-sliding and partly-swinging motion to said lever F, so that the gates, when opening, will first slide apart and then swing open, thus occupying but little space for their rotating movement.

The pinion H is secured to the upper end of a spindle, *h*, projected through the plate I, and placed in suitable journal-boxes therein, the lower end of which spindle *h* carries a bevel-pinion, *l*, the teeth of which engage with a bevel-wheel, L, secured upon a shaft, M. This shaft M is supported in a hanger, *m*, and a wall-bearing, *m'*, under the bridge-approach, and carries upon its end one section, *n*, of a clutch-coupling.

The shaft O is suspended under the draw-span of the bridge in hanger-bearing *o o*, so as to have a free lateral motion therein, and has secured upon its exterior end a clutch-section, N, which has projecting lugs, to engage with corresponding slots of clutch-section *n*, while the opposite or inward end of said shaft carries a disk, P, having crank-pin *p*.

To the top of the draw-span, in a position where it will not interfere with the travel over the bridge, and yet in easy reach of the man tending the bridge, is rigidly placed a stand, Q, having a stud, *q*, which forms the fulcrum-pin for a crank, R, having a crank-pin, *r*, and both crank-pins *p* and *r* are connected by a bar, S, the upper extremity of which is provided with a handle, *s*. By this bar S the shaft O is laterally moved, so as to engage or disengage the clutches N *n*, and, by a vertical pressure to the same in one direction or another, said shaft is rotated about one-third of a revolution, which furnishes a sufficient motion for opening or closing the gates.

The operation of this gate is as follows, to wit: The bridge-tender, having coupled the clutches N *n* by a side pressure against the upper end of bar S, now, by means of the handle S, pulls said bar upward, whereby a rotating motion is transmitted to pinion H, which will cause the rack-bars G to slide toward each other, when the gate will open in the manner already described, and vice versa when the gate is to be closed.

This gate is simple and durable in its construction, and has the advantage over others

for a similar purpose, that its operation is independent from the motion of the draw-span, so that it can be closed instantly before the draw-span of the bridge begins to open, and can be opened with equal speed after the bridge is in position again for public travel.

What I claim as my invention is—

1. A draw-bridge gate consisting of frame D, hinged to posts C, of sliding gates E, pivoted to levers F, racks G, guide-plate I, having stops j, and pinion H, in combination with a suitable operating mechanism, all of which is to operate substantially in the manner herein set forth.

2. A bridge-gate actuated from a shaft, M, having clutch n, in combination with the clutch N attached to the laterally-moving shaft O, having crank-disk P, and being suspended in suitable journal-boxes under the draw-span of

the bridge, in connection with the crank R, stand Q, and bar S, all of which to be constructed and arranged substantially as herein described, and to operate as specified.

3. The gate herein described and arranged upon the approaches of a draw-bridge, consisting of the posts C, swinging frames D, sliding gates E, levers F, racks G, guide-plate I, pinion H, spindle h, bevel-gears l and L, shaft M, and clutch n, in combination with the draw-span B, having clutch N, shaft O, cranks P and R, and connecting-bar S, all of which to be constructed, arranged, and operating substantially as herein set forth.

PETER SCHAEFER.

Witnesses:

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