Daniel W. Brown & Chas A. Campbell.

Improvement in

Automatic Signaling Apparatus on Railroads.

Fig. 1

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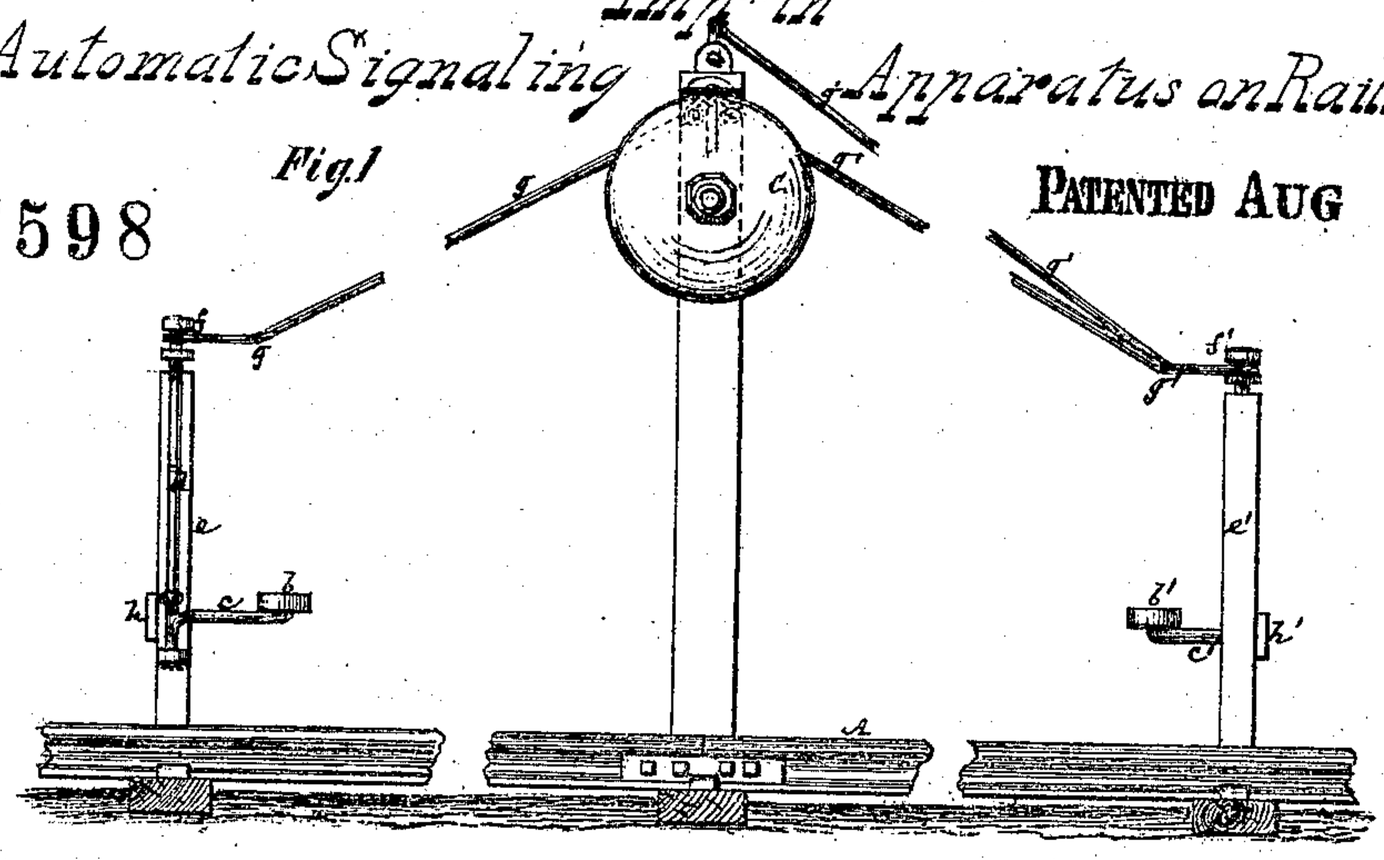


Fig. 2.

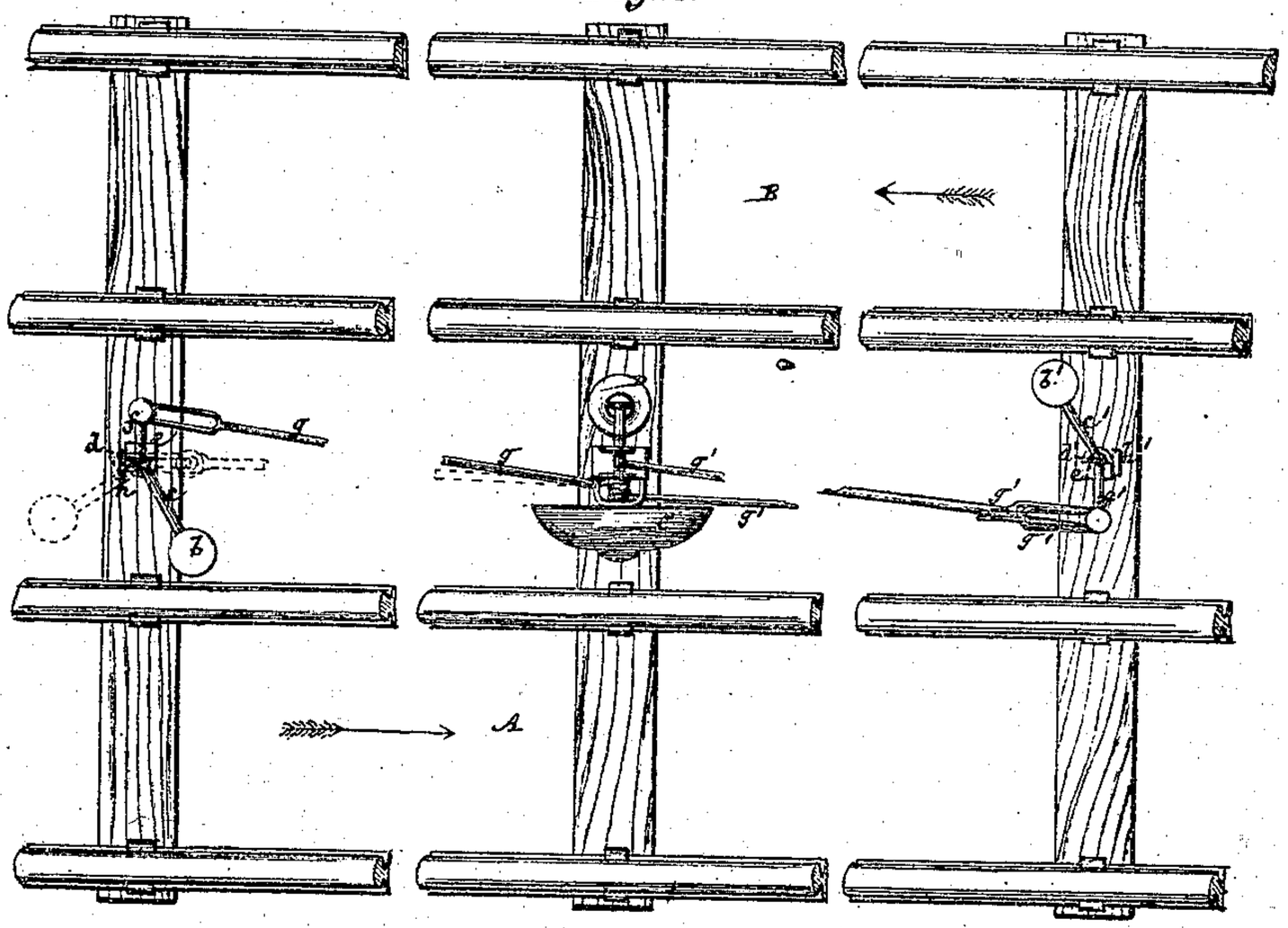
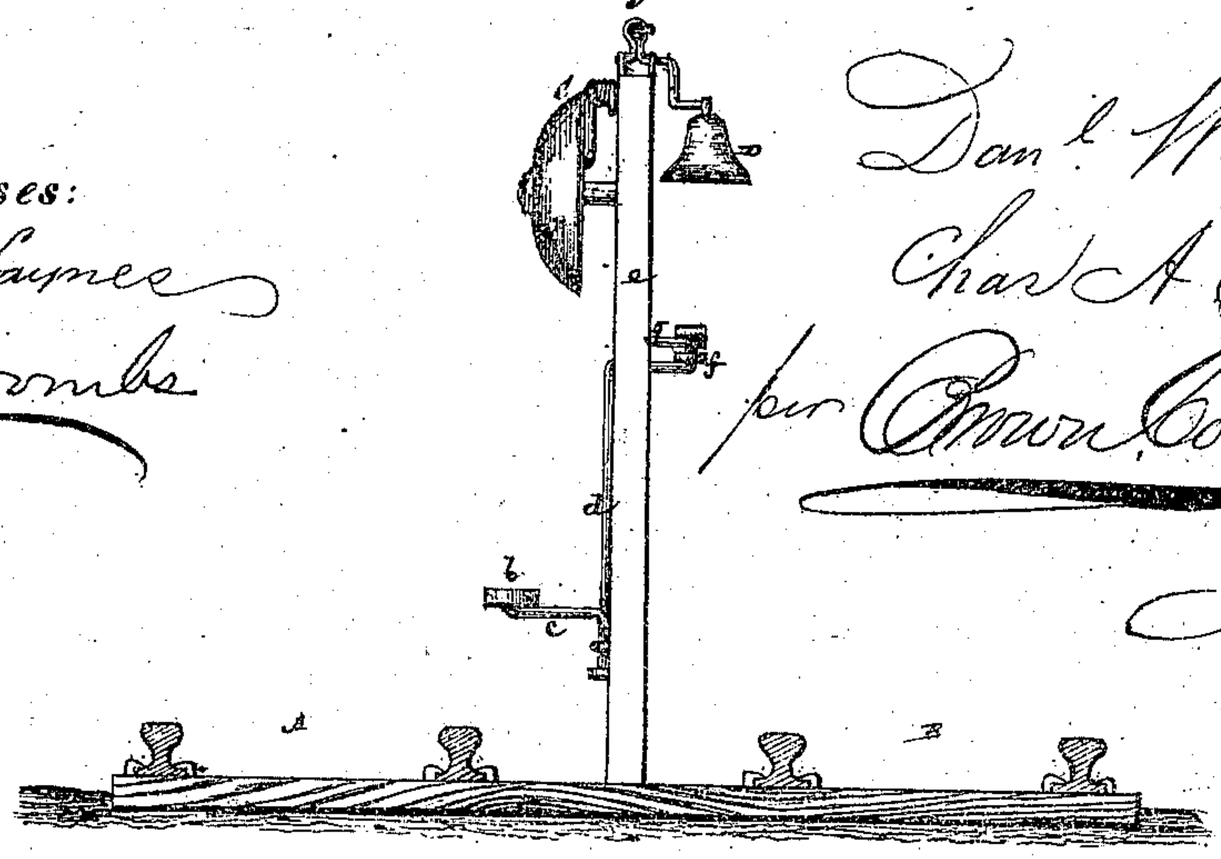


Fig. 3



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# UNITED STATES PATENT OFFICE.

DANIEL W. BROWN AND CHARLES A. CAMPBELL, OF WOODBRIDGE, NEW JERSEY.

## IMPROVEMENT IN AUTOMATIC SIGNALING APPARATUS FOR RAILWAYS.

Specification forming part of Letters Patent No. 117,598, dated August 1, 1871; antedated July 20, 1871.

*To all whom it may concern:*

Be it known that we, DANIEL W. BROWN and CHARLES A. CAMPBELL, both of Woodbridge, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Automatic Signaling Apparatus on Railroads, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing forming part of this specification, and in which—

Figure 1 represents a side elevation, Fig. 2 a plan, and Fig. 3 a transverse section of our improved apparatus as applied to a line of railroad.

Similar letters of reference indicate corresponding parts.

Our invention, while applicable to signaling at different points or places on a line of railroad, using for the purpose either audible or visible signals, including a gong, bell, flag, or lamp, will here, to simplify explanation, be described with reference to working a gong or bell at a railroad crossing by a train or trains when in motion to signal its or their approach to the crossing. To this end the invention consists in a certain combination and arrangement of vertical rods with arms or cranks, bumpers, springs, and slotted connections, whereby each car or truck in succession of a forwardly-moving train is caused, as it passes a bumper on an obliquely-disposed arm or crank, by striking it below the floor of the car, to actuate mechanism above and out of the way of snow and ice, to operate a signal at any desired distance from the bumper, arm, or crank, and, in case of the train moving back on the track, the signal fails to be operated and the bumper, crank, or arm is returned to its normal or working position for the train or trains when again moving in a forwardly direction.

Referring to the accompanying drawing, A represents the up-track, and B the down-track of a line of railroad. C is a double-lever gong, and D a bell supposed to be arranged at a crossing on the line between the tracks and at a suitable elevation, so as not to be interfered with by snow or ice. Said signals, or either of them, are operated by the train when in forward motion at any desired distance from the crossing by each car in succession striking, below the floor of it, a rubber or other soft and elastic bumper, *b* or *b′*, on the end of an obliquely-disposed crank or arm, *c* or *c′*, of or from a vertical rod or shaft, *d* or *d′*, suitably supported on or by a post, *e* or *e′*, arranged between the two tracks. Connected with the upper end of the shaft *d* or *d′* is a second arm or crank, *f* or *f′*, differently set or arranged relatively to the crank *c* or *c′*, and in gear with a slotted rod or looped wire, *g* or *g′*, which is connected, with or without the interposition of springs to provide for expansion and contraction, with the signal at the crossing. This arrangement places the operating-wires or connection free from being interfered with by snow or ice.

When the apparatus is not in operation the lower crank *c* or *c′*, with its bumper *b* or *b′*, occupies an oblique position, inclining or jutting outward in a forwardly direction, and the end of the upper crank *f* or *f′* rests against or nearly touches the back end of the slot in the wire or rod *g* or *g′*, so that as each car in a forwardly-moving train passes and strikes the bumper-crank *c* or *c′* it does so in an easy or glancing manner, and sounds by a succession of strokes the gong or bell, the crank *c* or *c′* returning to its original position after each movement of it by the passing cars.

The normal oblique position of the crank *c* or *c′*, combined with the arrangement of a soft or elastic bumper, *b* or *b′*, on its end, obviates all liability of breakage or injury, even when a train is moving at its highest velocity; and, as before observed, although the apparatus is operated from below the floor of the car, which combines certainty of action with stability, the connections with the signal are all arranged above, so as not to be interfered with by snow or ice. When a train moves back on the track the bumper-crank *c* or *c′* is struck and moved in a reverse direction by the cars against a spring, *h* or *h′*, which, after the train has passed, serves to throw or adjust said crank back to its normal position. In this back action of the bumper-crank *c* or *c′* the upper crank *f* or *f′* is caused to slide in a free manner along the slotted wire or rod *g* or *g′*, and hence no operation of the signal, which then is unnecessary, takes place.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination and arrangement of the obliquely-set crank or arm $c$ or $c'$ with its bumper $b$ or $b'$, the vertical shaft $d$ or $d'$, the upper crank or arm $f$ or $f'$, the slotted wire or rod $g$ or $g'$, and the spring $h$ or $h'$, relatively with the track and floor of the cars, as described, whereby the gong may be sounded or the flag waved by each car in the train in succession, substantially as specified.

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Witnesses:
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