G. B. SNOW.

RINGING BELLS BY STEAM.

No. 11,307. Patented July 11, 1854.

Fig. 1

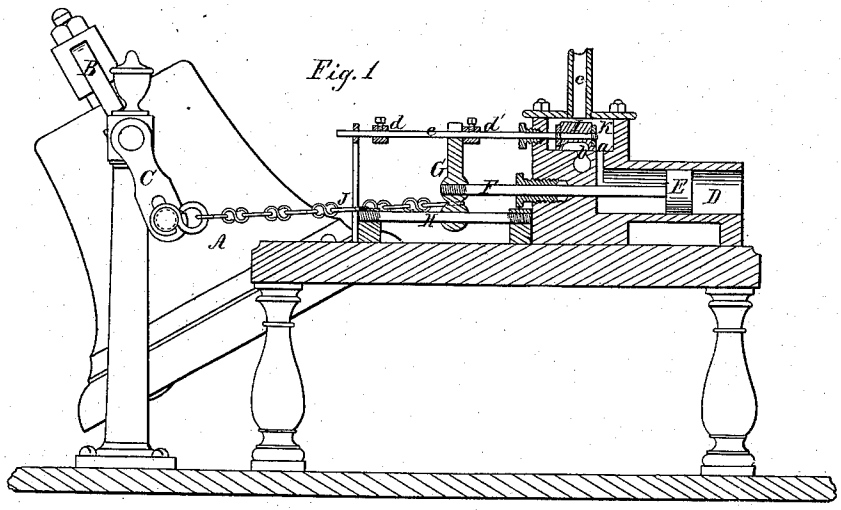
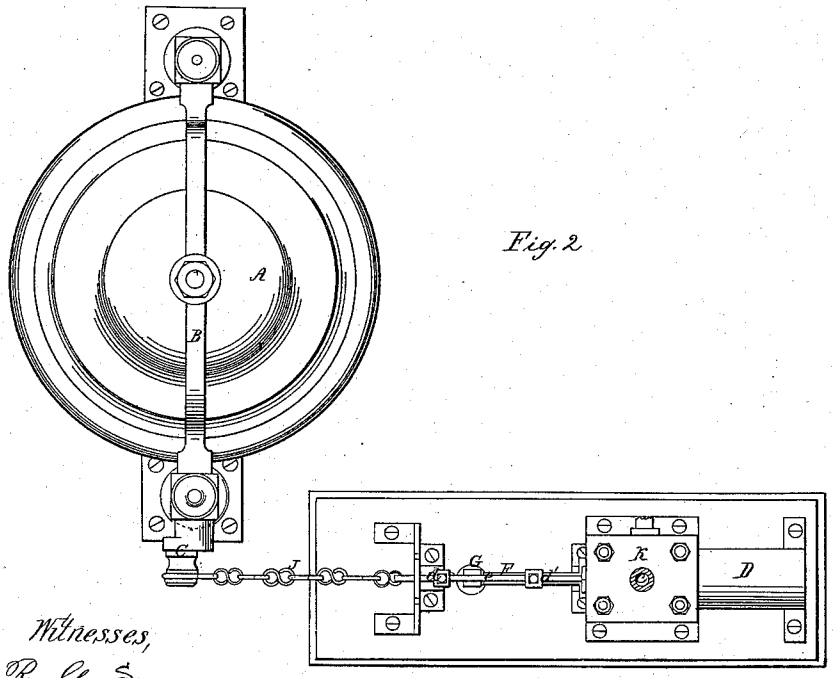


Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGE B. SNOW, OF BUFFALO, NEW YORK.

MODE OF RINGING BELLS BY STEAM.

Specification of Letters Patent No. 11,307, dated July 11, 1854.

To all whom it may concern:

Be it known that I, G. B. SNOW, of Buffalo, in the county of Erie and State of New York, have invented a new and useful Method of Employing Steam to Ring the Bells of Locomotives and other Bells; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a longitudinal vertical section of the apparatus I employ, applied to a bell. Fig. 2, is a plan of the same.

Similar letters of reference indicate corresponding parts in both figures.

My invention relates to the application of steam power to the ringing of the bell, and it consists of a novel combination and arrangement of a direct acting engine with the bell in such a manner that, the bell, being swung by the engine in one direction, is allowed to swing in the opposite direction by its own gravity and momentum and is caused thus, continuously, automatically to work with the same freedom, but greater regularity and consequent increased clearness of note, as is obtained by the ordinary manual process of ringing.

To enable others to make and use my invention, I will proceed to describe its construction and operation.

A, in the drawing is the bell which is suspended by a yoke, B, of the usual kind, furnished with a lever, C, for the purpose of ringing it.

D, is the steam cylinder which is placed in a suitable position for its piston, E, to connect with the yoke, and by its movement, to swing the bell. The bore of the cylinder for a locomotive engine would require to be of a diameter about one and a quarter ($1\frac{1}{4}$) inches, and of a length about four and a half ($4\frac{1}{2}$) inches. The piston rod, F, works through a stuffing box at one end of the cylinder which is closed, and it carries a cross-head, G, which works on a fixed guide rod, H. The other end of the cylinder is open to the atmosphere. At the closed end of the cylinder, there is a valve box or steam chest, K, which receives a steam pipe, *c*, from the boiler, and has a steam port, *a*, leading to the cylinder, and an exhaust port, *b*, leading to the atmosphere. The slide valve, I, which this valve box contains, has a rod, *e*, passing through a stuffing box, and furnished with two tappets, *d*, *d'*, between which it is embraced by a fork on the cross-head, G. These tappets are adjusted so that the fork shall come in contact with them to open or close the steam port at the proper time, and thus regulate the movement of the piston. The cross-head is connected with the lever, C, of the bell yoke, B, by a chain, J.

Fig. 1, of the drawing represents the steam port, *a*, open, and the steam acting on the piston, which has nearly terminated its stroke, owing to the cross-head having come in contact with the tappet, *d'*, and being about to move the valve to close the steam port and open the exhaust port. As soon as the steam is shut off and the momentum of the bell is spent, the latter will swing back, drawing with it the piston, until the cross-head strikes the tappet, *d*, and moves the valve far enough to open the steam port, and close the exhaust port, when the motion of the bell will be again reversed. The motion which is thus given to the bell is precisely similar to that produced in ringing by hand, and could not be produced by the direct application of steam power to swing it in both directions, which must produce too positive a motion, and could not allow it to swing with the same freedom as when the power is only applied in one direction, and the bell is allowed to return under the influence of gravitation alone.

I do not claim, of itself, as new, ringing bells by the application of steam power, as such, in a positive manner, by rigidly connecting the engine with the bell in both directions of the swing of the latter, has before been done, nor do I claim the several devices herein named, individually, as new; but

I do claim as new and useful, and desire to secure by Letters Patent,

The manner herein described of ringing the bell by the application of steam power and the gravity and momentum of the bell combined, by means of the direct acting engine attached by chain, or other equivalent mechanical device, to the bell, and arranged, combined and operating with the bell as specified and so that, the bell is swung in one direction by the engine and then let loose or free to swing back in the opposite direction by its own gravity and momentum to produce the ring or sound, and the steam alternately admitted to and exhausted from

the engine by the action of the engine and movement of the bell combined, substantially as specified, and whereby the same freedom in the swing of the bell to produce a long and clear sound as is produced by the ordinary manual process, but with greater regularity and consequent increased clearness of note, is automatically obtained, as herein set forth.

GEORGE B. SNOW.

Witnesses:
REUBEN G. SNOW,
GEO. E. NEWMAN.