W. H. Beach,

Rotary Steam Engine.

No. 42,428. Patented Apr. 19, 1864.

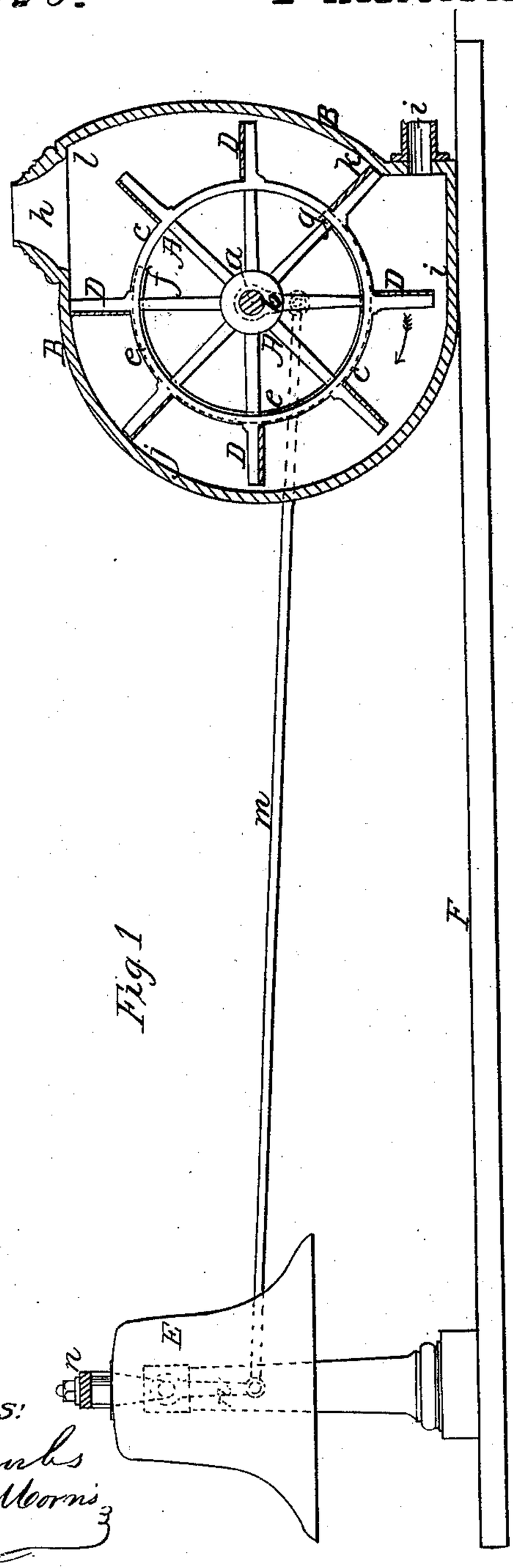

Fig. 1

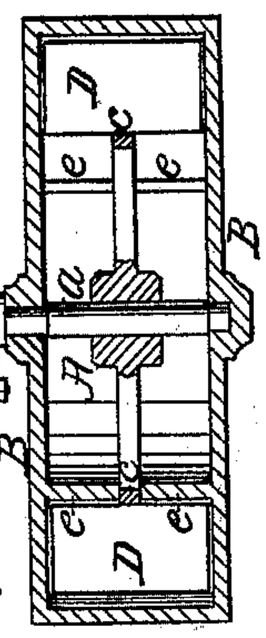

Fig. 2

Fig. 3.

Witnesses:
J. W. Coombs
Henry Morris

Inventor:
W. H. Beach,
per Munn & Co
attorney

UNITED STATES PATENT OFFICE.

WILLIAM H. BEACH, OF CHICAGO, ILLINOIS, ASSIGNOR TO J. S. BEACH, OF BALLSTON SPA, NEW YORK.

IMPROVEMENT IN STEAM BELL-RINGERS.

Specification forming part of Letters Patent No. **42,428**, dated April 19, 1864.

To all whom it may concern:

Be it known that I, WILLIAM H. BEACH, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Steam Bell-Ringer for Locomotives and other Purposes; 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 a part of this specification, in which—

Figure 1 is an elevation of my bell-ringer, partly in section. Fig. 2 is a horizontal section of the steam-wheel through which the power for ringing the bell is applied, corresponding with Fig. 1. Fig. 3 is a horizontal section of a modification of the said wheel.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a steam bell-ringer of novel and very simple construction, intended more especially to be applied to locomotives for ringing whenever desired by the engineer, whether the locomotive is running or standing still, but applicable to other purposes. It is composed of a wheel with suitable floats placed in a suitable casing, to which steam is admitted by a small pipe from the boiler to act upon the floats, and from which, after acting upon the buckets to produce a rotary motion of the wheel, it escapes by another pipe or opening to the atmosphere, the shaft of the said wheel being furnished outside of the steam-casing with a crank, which is connected by a rod either with a rocker, to which the bell is attached to produce the swinging of the bell itself, or with the clapper, so that by the rotary motion of the crank the ringing of the bell is effected.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A is the wheel, and B the steam-casing within which it is applied, the shaft *a* of the wheel being arranged horizontally and working in bearings in the sides of the casing, and one end being extended through the exterior of the casing to carry the crank *b*, which is firmly secured to it outside of the casing. To the rim *c* of the wheel are attached the floats D D, their sides fitting between the sides of the casing B, and their inner edges to two concentric rims, *e e*, (shown in Figs. 1 and 2,) which are formed upon or secured to the interiors of the sides of the casing, and which extend about three-fourths of the way round the casing, being omitted from *f* to *g*, Fig. 1, below the exhaust-opening *h*.

i is the steam-pipe from the boiler, entering the casing at the bottom in a direction tangential to the wheel. From where this pipe enters to within a distance from the exhaust-opening *h*, somewhat greater than the distance between two of the floats D D, in the direction in which the wheel is to rotate, (indicated by an arrow in Fig. 1,) the periphery of the casing is of convolute form, as shown at *i j* in Fig. 1, that the steam may pass the floats and expand in the casing, and thence to the exhaust-opening the said periphery is concentric to the axis of the wheel, so that the floats may work in close contact with it. In the opposite direction from the steam-pipe the periphery of the casing is concentric to the wheel for a short distance, that the floats may fit to it to prevent the steam from passing toward the exhaust-opening in that direction, and thence toward the exhaust-opening the said periphery is enlarged in convolute form, as shown at *k l* in Fig. 1.

m is the rod which connects the crank *b* either with the rocker *n*, to which the bell E is secured, to produce the ringing of the bell by its own oscillation, or with the clapper of the bell, to produce the ringing by the oscillation of the clapper. The bell and the steam-casing are secured to the same base or bed plate, F, which is to be secured on the top of the boiler or to any other suitable support.

The rotary motion of the wheel A, produced by the pressure of the steam against the floats as they successively pass between the point *j* and the exhaust-opening, produces the rotary movement of the crank *b*, which, by its connection with the bell or clapper by the rod *m*, produces the ringing of the bell.

The modification of the wheel and casing shown in Fig. 3 only differs from the wheel and casing shown in Fig. 1 in having the rim *c'* of the wheel of the full width of the casing, and having flanges *d d* formed upon the rim to fit between the sides of the casing and connect the floats and form buckets. In this case the rims *e e* of the casing are dispensed with.

This bell-ringer is much simpler than the

steam bell-ringers heretofore known, and, having no valves or parts which are liable to get out of order, will be no trouble to the engineer, and always in working condition.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the wheel A, steam-casing B, shaft *a*, and crank *b*, with a bel substantially as and for the purpose herei specified.

WILLIAM H. BEACH.

Witnesses:

CALVIN D. WOLF,

SAM. B. BLACKWELL.