

E. D. BANGS.
BELL RINGER FOR LOCOMOTIVES.

No. 485,445.

Patented Nov. 1, 1892.

Fig. 1.

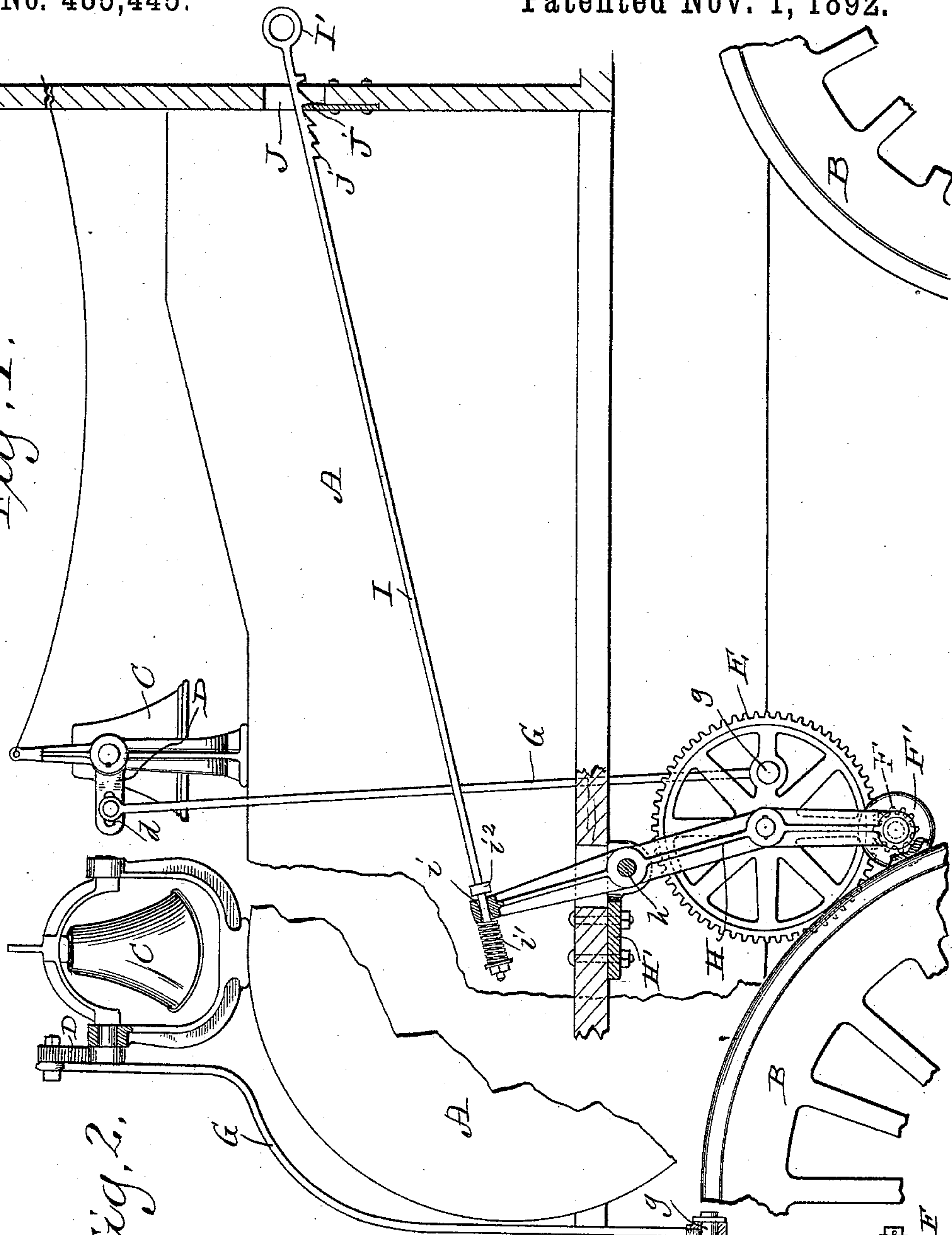
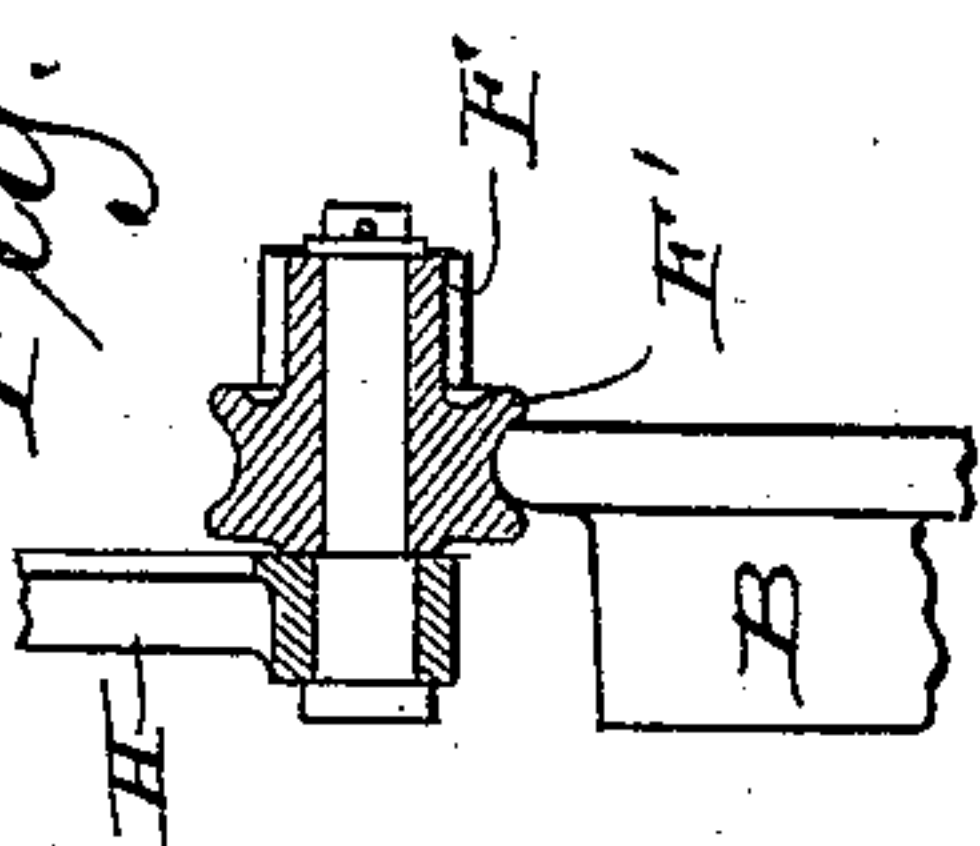


Fig. 2.

Fig. 3.



Witnesses
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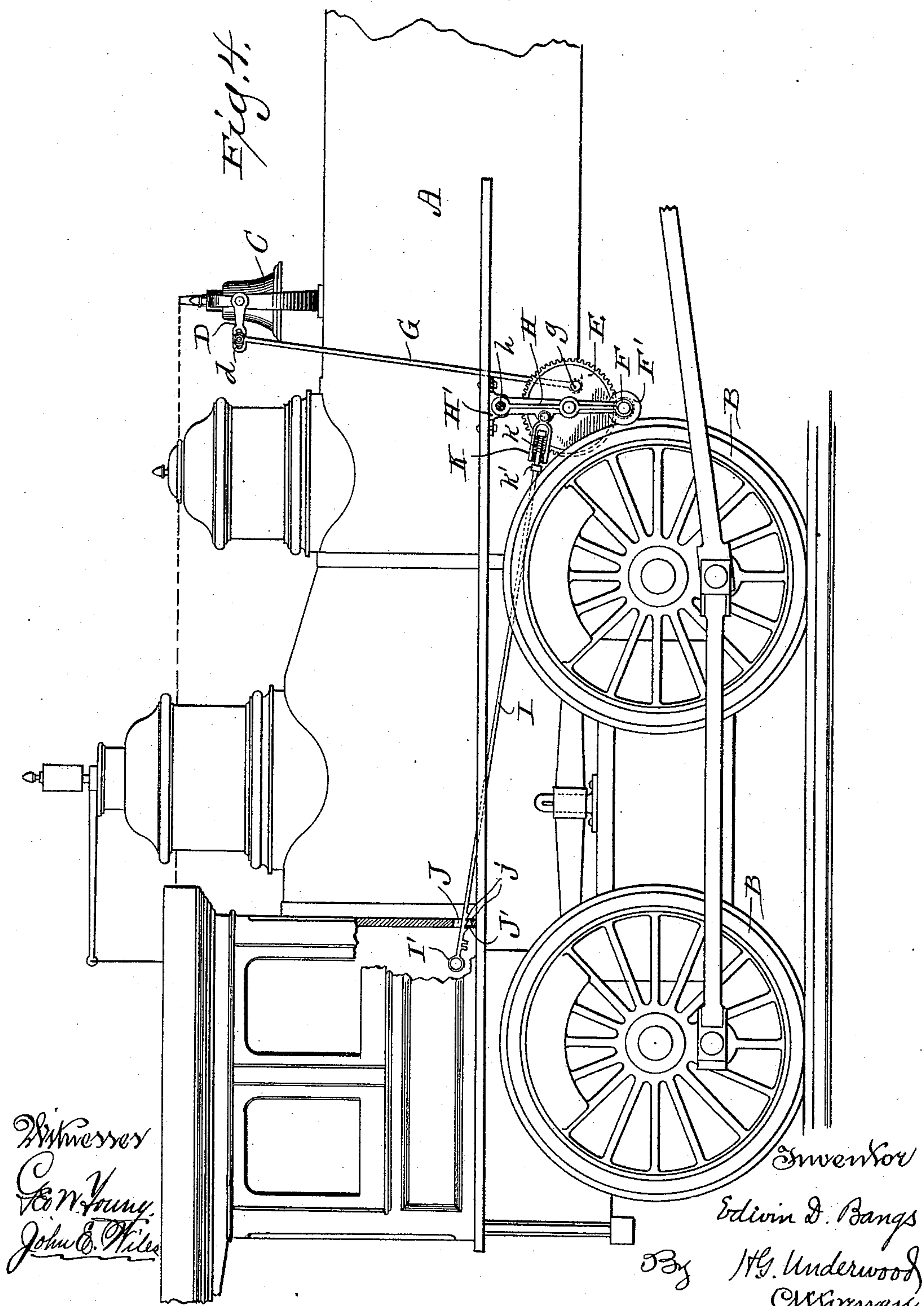
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

EDWIN D. BANGS, OF MILWAUKEE, WISCONSIN.

BELL-RINGER FOR LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 485,445, dated November 1, 1892.

Application filed September 24, 1891. Serial No. 406,712. (No model.)

To all whom it may concern:

Be it known that I, EDWIN D. BANGS, a citizen of the United States, and a resident of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Bell-Ringers for Locomotives; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to certain new and useful improvements in bell-ringers for locomotives; and it consists in the matters hereinafter described, and pointed out in the appended claims.

The object of my invention is to provide means whereby the engineer may set the bell-ringing device in operation by a simple movement of a lever or similar device, the bell-ringer being so constructed and arranged as to operate to constantly ring the bell without attention on the part of the engineer until such time as he shall again operate said lever or other device to move the bell-ringer out of operative position.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of a locomotive provided with my improvement, showing portions broken away. Fig. 2 is a view, partly in section and partly in elevation, taken at right angles to Fig. 1. Fig. 3 is a detail sectional view of one of the parts. Fig. 4 is a side elevation of a locomotive provided with a somewhat-different form of my improved device.

In said drawings, A represents the boiler, B B the drive-wheels, and C the bell, of a locomotive of any one of the ordinary forms of construction. A crank-arm D is provided upon one of the trunnions in which the bell is suspended.

E is a gear-wheel suitably supported upon the frame of a locomotive and arranged to mesh with a driving-pinion F, upon the axis of which is located a friction-roller F', adapted to be engaged with the periphery of one of the drive-wheels B.

G is a pitman-rod adjustably connected with the slotted end *d* of the crank-arm D in any suitable manner and connected at its other end with a wrist-pin *g* on the wheel E, so that a rotary motion of said wheel will communicate an oscillating or vibrating move-

ment to said crank, thereby operating to ring the bell.

I provide any suitable mechanism for moving the friction-wheel F' into or out of engagement with the periphery of the drive-wheel B.

In the particular form of construction illustrated in Figs. 1 to 3, inclusive, a hanger-arm H is pivotally supported upon the running-board by means of any suitable hanger H', within which said arm is journaled, as at *h*. The upper end of said hanger-arm H is arranged to extend upwardly through a suitable aperture in the running-board, and a pull-rod I is engaged therewith, as shown at *i*, and extends rearwardly through an aperture J in the front wall of the cab, where it is provided with an operating-handle I', located within reach of the engineer or fireman. A stop J' is provided upon the side of the aperture J, and teeth *j j* are provided on the rod I and arranged to engage with the stop J', so as to hold the rod from forward movement. A spring *i'* is located upon the forward end of the rod I and is arranged between the extremity of the hanger-arm H and a nut on the end of the rod I, and a stop *i''* is arranged upon said rod in position to engage the opposite side of the arm H.

The form of construction illustrated in Fig. 4 differs from that shown in the first figures of the drawings in the fact that the connection between the rod I and the arm H is made below the running-board, and said arm does not extend above said running-board. In this form of construction, also, the rod I is connected with the hanger-arm by means of a stirrup K, a spring *k* being arranged upon the end of said rod within said stirrup, and a stop *k'* being provided on said rod and adapted to engage with the outside of said stirrup. In this form of construction the rod I extends rearwardly for almost its entire length beneath the running-board, so as to be entirely out of the way.

The operation of my improved device is as follows: When it is desired to ring the bell, it is only necessary for the operator in the cab to draw the rod I backward and engage one of the teeth *j j* with the stop J', thereby swinging the hanger-arm H about its pivotal connection *h* and bringing the friction-roller

F' into engagement with the flange of the driving-wheel B, when it will begin to rotate in contact therewith, thus causing the wheel E to rotate and impart a vibrating motion to the bell through the medium of the pitman G and crank-arm D. The spring connection between the hanger H and the rod I operates to hold the roller F' constantly in engagement with the flange of the drive-wheel and also permits a yielding movement of said hanger-arm, so as to accommodate any unevenness in the periphery of the wheel B. This spring connection also serves to take up the wear upon the operating parts, so as to insure a positive operation of the device. By the adjustable connection of the pitman G with the crank-arm D the amount of vibration of the said arm and of the bell may be regulated as desired.

When it is desired to stop the bell from ringing, it is only necessary for the engineer or the fireman to disengage the rod I from the stop J' and move said rod forwardly, so as to swing the hanger H, with the friction-roller F', away from the drive-wheel.

When the bell-ringing device is out of engagement with the drive-wheel, the bell may be operated by means of the usual bell-cord, if desired.

A great disadvantage found in the use of the various forms of steam or pneumatically-operated bell-ringing devices is the liability of leakage of the steam or air, the improper operation of the valves, or the clogging or freezing up of the device in cold weather. In case the device becomes inoperative from freezing it is obviously impossible to operate it by means of the bell-cord and the bell cannot be rung at all. Another disadvantage found in the use of this class of devices is that the steam or air frequently fails to start the bell to ringing, and it is then necessary to start the bell by means of the bell-cord, and this is liable to distract the attention of the engineer or fireman from his other duties. With my improved device, however, these objections are entirely obviated, and when the bell-ringer is set in operation it will continue to operate as long as the locomotive is in motion, stopping when the train comes to a standstill at a station and recommencing when the locomotive is started, when it will continue to operate until another stopping-place is reached or until it is thrown out of operative engagement with the drive-wheel. It will thus be seen that my improved device is very effective in its operation, while requiring but very little attention from the engineer or fireman, and is at the same time very simple, cheap, and durable in its construction and not liable to get out of order.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bell-ringing apparatus for locomotives, comprising a pitman engaged at one end with the crank-arm of the bell, a hanger pivotally

connected with the locomotive and carrying at its free end a friction-roller and a pinion keyed to a common shaft, a gear-wheel loosely journaled upon a stud carried by said hanger and meshing with said pinion, a wrist-pin carried by said gear-wheel and operatively connected with the other end of said pitman, and a rod engaged with said hanger and extending into the cab and adapted to be operated to move said hanger, so as to carry said roller into or out of engagement with the periphery of the locomotive drive-wheel, substantially as described.

2. A bell-ringing apparatus for locomotives, comprising a pitman engaged at one end with the crank-arm of the bell, a hanger pivotally connected with the locomotive and carrying at its free end a friction-roller and a pinion keyed to the same shaft, a gear-wheel loosely journaled upon a stud carried by said hanger and meshing with said pinion, a wrist-pin carried by said gear-wheel and operatively engaged with the other end of said pitman, and a rod having an elastic connection with said hanger and extending into the cab and adapted to be operated to move said hanger, so as to carry said roller into or out of engagement with the periphery of the locomotive drive-wheel, substantially as described.

3. A bell-ringing apparatus for locomotives, comprising a pitman having an adjustable connection with the crank-arm of the bell, a hanger pivotally connected with the locomotive and carrying at its free end a friction-roller and a pinion keyed to the same shaft, a gear-wheel loosely mounted upon a stud-shaft carried by said hanger and meshing with said pinion, a wrist-pin carried by said gear-wheel and operatively engaged with the other end of the pitman, and a rod engaged with said hanger and extending into the cab and adapted to be operated to move said hanger, so as to carry said roller into or out of engagement with the periphery of the locomotive drive-wheel, substantially as described.

4. A bell-ringing apparatus for locomotives, comprising a pitman adjustably engaged with the crank-arm of the bell, a hanger pivotally engaged with the locomotive and carrying at its free end a friction-roller and a pinion keyed upon a common shaft, a gear-wheel loosely journaled upon a stud carried by said hanger and meshing with said pinion, a wrist-pin carried by said gear-wheel and operatively engaged with the other end of said pitman, and a rod having an elastic connection with the hanger and extending into the cab and adapted to be operated to move the hanger, so as to carry said friction-roller into or out of engagement with the periphery of the locomotive drive-wheel, substantially as described.

5. A bell-ringing apparatus for locomotives, comprising a pitman adjustably engaged with the crank-arm of the bell at one end, a hanger pivotally connected with the locomotive and

carrying at its free end a friction-roller and
a pinion keyed to a common shaft, a gear-
wheel loosely journaled upon a stud carried
by said hanger and meshing with said pinion,
5 a wrist-pin carried by said gear-wheel and
operatively engaged with the other end of
said pitman, and a rod having an elastic con-
nection with said hanger and extending into
the cab and adapted to be operated to move
10 said hanger, so as to carry said roller into or
out of engagement with the periphery of the
locomotive drive-wheel, and provided with

notches adapted for engagement with a stop
in the cab to retain the device in its adjusted
positions, substantially as described.

In testimony that I claim the foregoing I
have hereunto set my hand, at Milwaukee, in
the county of Milwaukee and State of Wis-
consin, in the presence of two witnesses.

EDWIN D. BANGS.

Witnesses:

JOHN E. WILES,
N. E. OLIPHANT.