2 Sheets—Sheet 1.

J. B. TARR.

Fog and Alarm Horn.

No. 212,635. Patented Feb. 25, 1879.

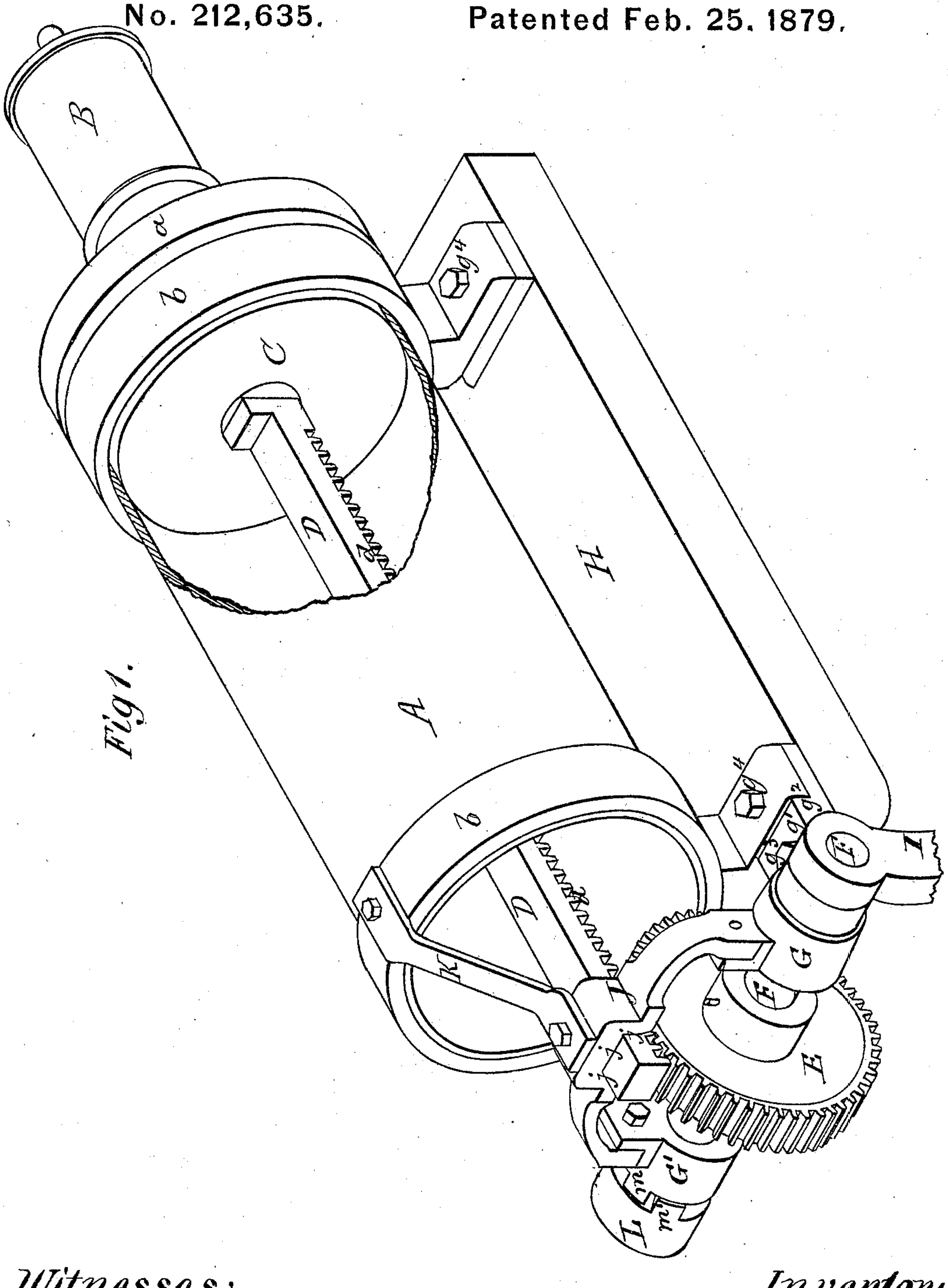

Fig 1.

Witnesses:

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J. P. Th. Lang

Inventor:

John Blake Tarr

by

Mason Fenwick & Lawrence

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2 Sheets—Sheet 2.

J. B. TARR.

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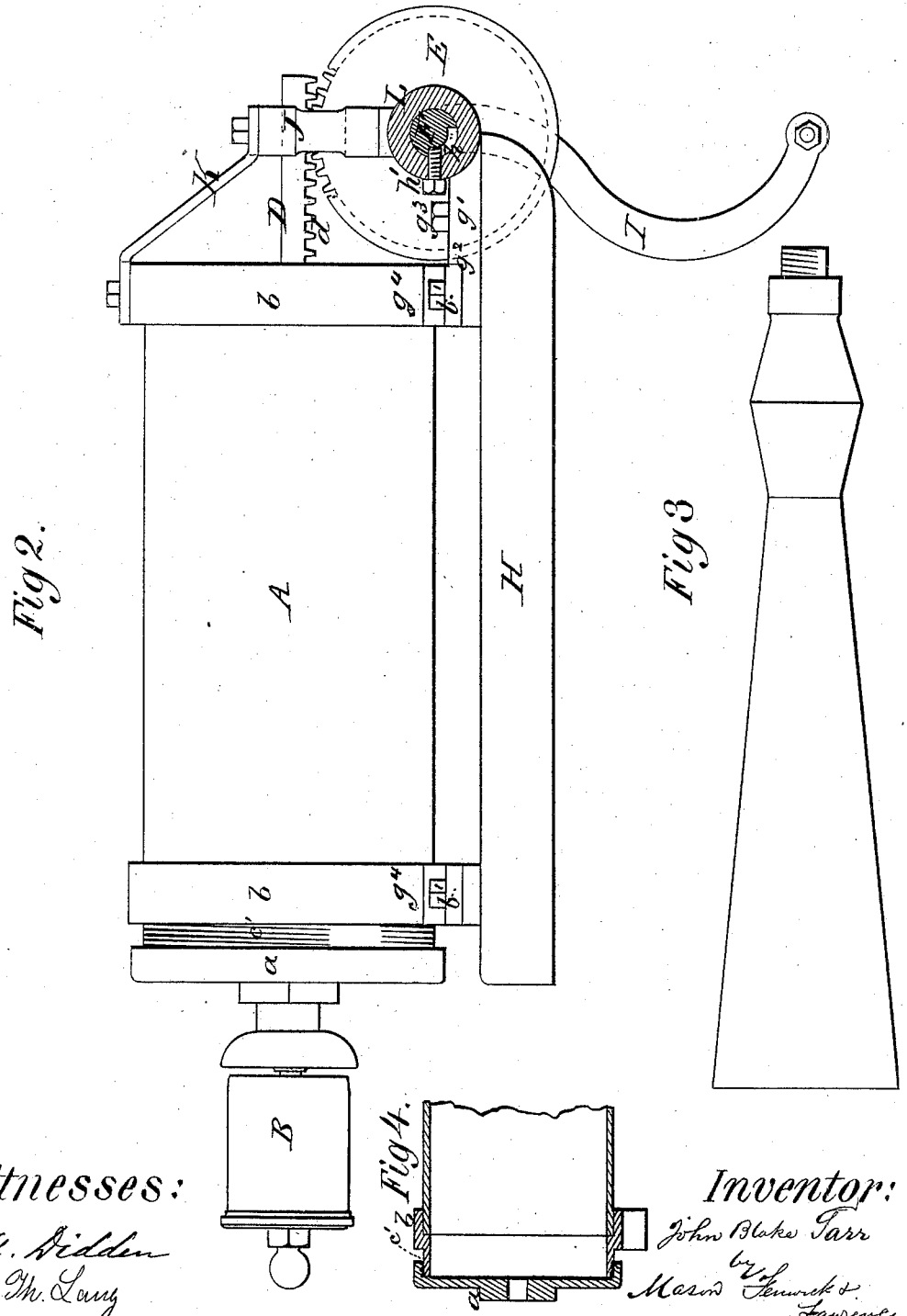

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN BLAKE TARR, OF FAIRHAVEN, MASSACHUSETTS.

IMPROVEMENT IN FOG AND ALARM HORNS.

Specification forming part of Letters Patent No. **212,635**, dated February 25, 1879; application filed December 21, 1878.

To all whom it may concern:

Be it known that I, JOHN BLAKE TARR, of Fairhaven, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Fog and Alarm Whistles or Horns; 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 a perspective view of the improved whistle. Fig. 2 is a longitudinal section, taken at right angles to the power-shaft, and showing said shaft and the device which regulates the back and forward strokes of the piston in cross-section and a portion of the other parts of the whistle in elevation. Fig. 3 is an elevation of a fog-horn which may be substituted for the whistle proper. Fig. 4 is a sectional view, showing a modification of one of the rings by which the cylinder is bolted to the platform.

The invention hereinafter described and claimed is an improvement on the fog and alarm whistle patented to me October 22, 1878; and the main object of my present invention is, first, to supply the operator with a leverage power, whereby his own strength or manual power is made far more effective for operating the piston of the air-cylinder, and by reason of which leverage power a larger cylinder can be employed and a greater volume of air utilized for sounding either a whistle proper or a horn than has heretofore been practicable in hand-power signaling-machines, and whereby a far louder sound is produced than heretofore in this class of machines, and these results are due to the employment of a toothed wheel, as hereinafter described, whereby a stroke of the piston can be effected which is three times longer than that which can be made by a crank which in length is equal to the radius of the wheel employed, and one-third longer than can be effected by a crank which is of a length equal to the diameter of the wheel employed; second, to provide a manually-operated fog and alarm signaling-machine with a moving "stop" to control the strokes of the piston, and at the same time utilize a spur-wheel of a small diameter for operating the piston, which wheel is allowed to have a movement that would equal the movement of a wheel of greater diameter to effect the same length of stroke with a fixed stop; third, to simplify the general construction of the frame-work of the machine, and at the same time give the necessary strength and afford facilities for applying the mechanism by which the increased leverage is secured.

In the accompanying drawings, A represents the air-cylinder, B the alarm-whistle proper, C the piston, and D the rack piston-rod, of the improved fog and alarm whistle or signaling-machine.

The cylinder A is constructed with a head, *a*, at only one end, being open to the atmosphere at its other end. In the head *a* a whistle proper, B, or a pipe connected with the whistle, is screwed, and the air from the cylinder passes into and through the whistle and sounds the alarm.

Instead of a whistle proper being employed, a fog-horn, Fig. 3, could be used for giving an alarm.

At each end of the cylinder rings *b b*, having bolting-flanges *b'*, are firmly applied, either by screwing the rings upon screw-threaded portions *c* of the cylinder or by brazing the rings to the cylinder, accordingly as deemed most practical and desirable. In some cases the rings might be made wide enough to have a screw-thread, *c'*, cut on their outer surface, and upon this screw-threaded surface the head could be screwed, as illustrated in Fig. 4, instead of being screwed upon the end of the cylinder, as shown in Fig. 2.

For operating the piston and making the whole apparatus firm when it is in use, cog-teeth *d* are provided on the under side of the piston-rod, and a spur-wheel, E, gears into these teeth, as shown. The wheel E is arranged and fastened on a shaft, F, which has its support in two strong flanged bearings, G G'. On the outer end of the shaft F a crank-handle, I, is fitted for the purpose of turning the shaft F and wheel E by manual power.

The bearings G G' are connected together by an arched brace, J, which is shaped at its middle to form a three-sided guideway, *j*, for the rack piston-rod, the wheel E serving to form the fourth side of such guideway, as shown. A strap or stay, K, connects the

brace J from its central or guiding portion, *j*, with the top or front of the cylinder. The arched brace is bolted to stepped or shouldered knees of the bearings G G′, and these bearings G G′ are provided with long broad bolting-flanges g^1, which are stepped or shouldered at g^2. The flanges g^1 are bolted, as at g^3, fast to a timber-platform, H, and upon the stepped portions of the flanges the cylinder A is bolted by means of bolts g^4, passed through the flanges of the rings *b*, as shown. By this construction and arrangement of the bearings, shaft F, wheel E, and strap or stay K, the whole apparatus is made very rigid when attached to the platform H, and the piston is kept true and central in its forward and back movements.

L is a loose collar on the end of the shaft F, and is connected to the shaft by means of an oblong slot, *h*, and a set-screw pin, *h′*, and in connection with this contrivance an interlocking-lug, *m*, is formed on the bearing, and a similar lug, *m′*, on the collar L, as shown. With this arrangement, when the piston has moved a distance equal to one revolution of the wheel E, less the width of the lug *m*, the lug *m* arrests the collar L by engaging with its lug *m′*, and the shaft and wheel continue to revolve until the screw stop-pin *h′* reaches the end of the slot *h*, when their movement is arrested, at which point the direction of revolution of the shaft F and wheel E must be reversed. On the return or back movement of the piston the lug *m* arrests the collar, and the shaft and wheel continue to revolve until the pin *h′* reaches the other end of the slot *h*. The length of the said slot determines the extent of movement of the piston, and it is impossible for the piston to bang against the head of the cylinder or jump out of its open end.

A stationary stop might be placed on the shaft F to arrest the strokes of the piston; but should this be done the size of the wheel E would have to be greatly increased in order to secure the full strokes of the piston and use a cylinder of the desired length, and consequently, in order to secure the proper leverage, the hand-crank would have to be so long as to be greatly in the way as well as inconvenient to operate.

The operation is as follows: Turn the crank-handle in one direction until nearly all the teeth of the rack piston-rod have passed over the wheel E. This operation fills the cylinder with air. Now reverse the crank and move the piston toward the head of the cylinder and an alarm will be sounded by the whistle proper or by the horn, as the case may be. Rapid successive alarms may be given by moving the piston quickly back and forth short distances, and a prolonged alarm by moving the piston forward its full stroke.

With a fog-alarm whistle or horn of a given size, and constructed as herein described, a boy twelve years of age can sound alarms with the same ease that a man could operate a piston moved directly by hand, as in my patent above referred to, and at the same time effect a much louder alarm.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination of the reciprocating shaft provided with an oblong slot, *h*, gear-wheel E, toothed piston-rod D, fixed bearings G G′, one of which is provided with a check-lug, *m*, and a loose collar, L, provided with a stop-pin, *h′*, and a lug, *m′*, substantially as and for the purpose described.

2. The bearings G G′, provided with bolting-flanges g^1, in combination with a ring, *b*, provided with bolting-flanges *b′*, substantially as and for the purpose described.

3. The guiding-brace J, in combination with bearings G G′, shaft F, spur-gear wheel E, and toothed piston-rod D, substantially as described.

4. The cylinder A and the piston-operating mechanism D E F, united firmly together by a guiding-brace, J, stay-strap K, flanged bearings G G′, and flanged ring *b*, substantially as described.

JOHN BLAKE TARR.

In presence of—
J. RUSSELL BARR,
H. A. HALL.