E. WILSON.

Telegraphic Sounder.

No. 57,032. Patented Aug. 7, 1866.

Fig. 1.

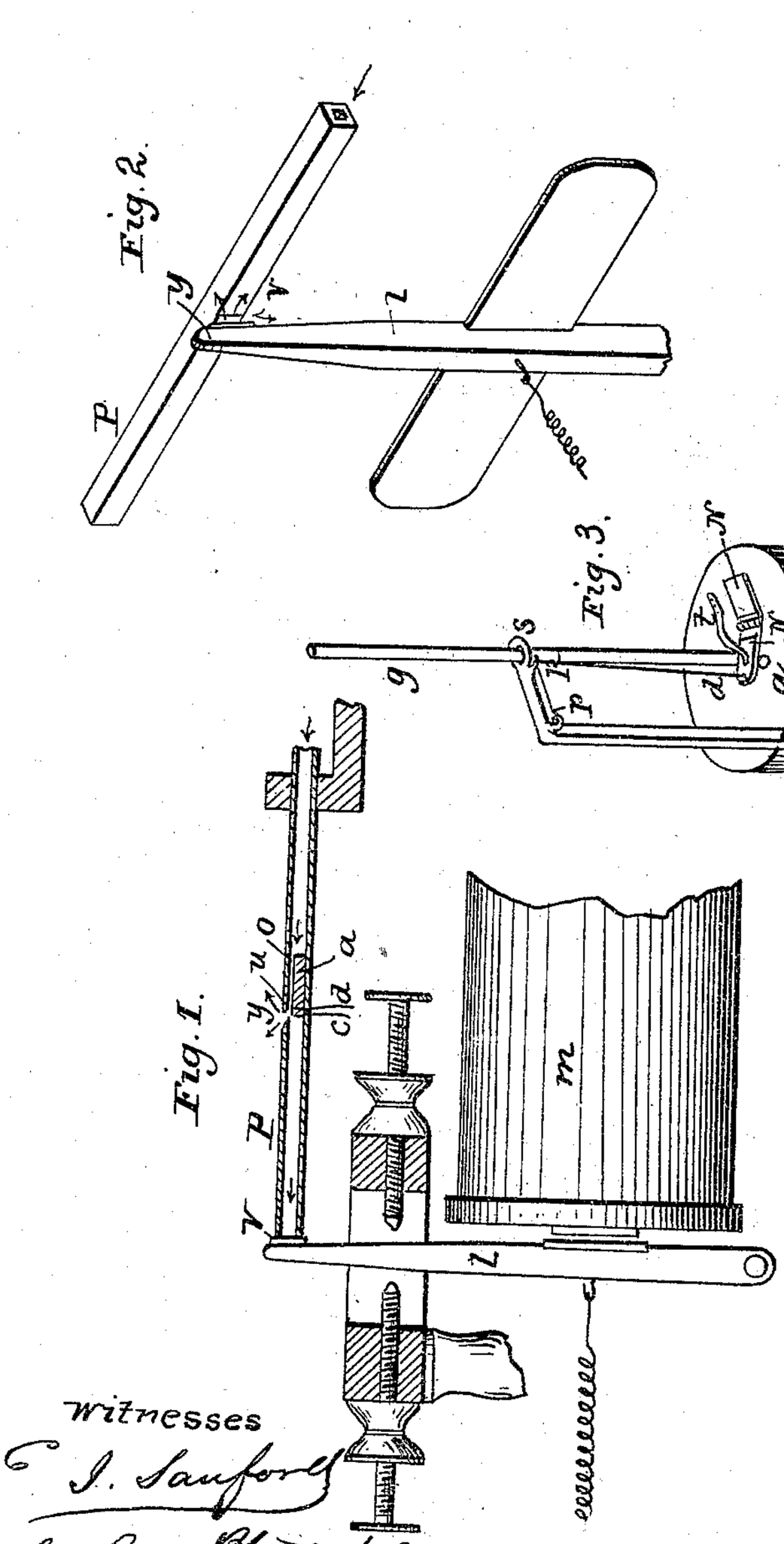

Fig. 2.

Fig. 3.

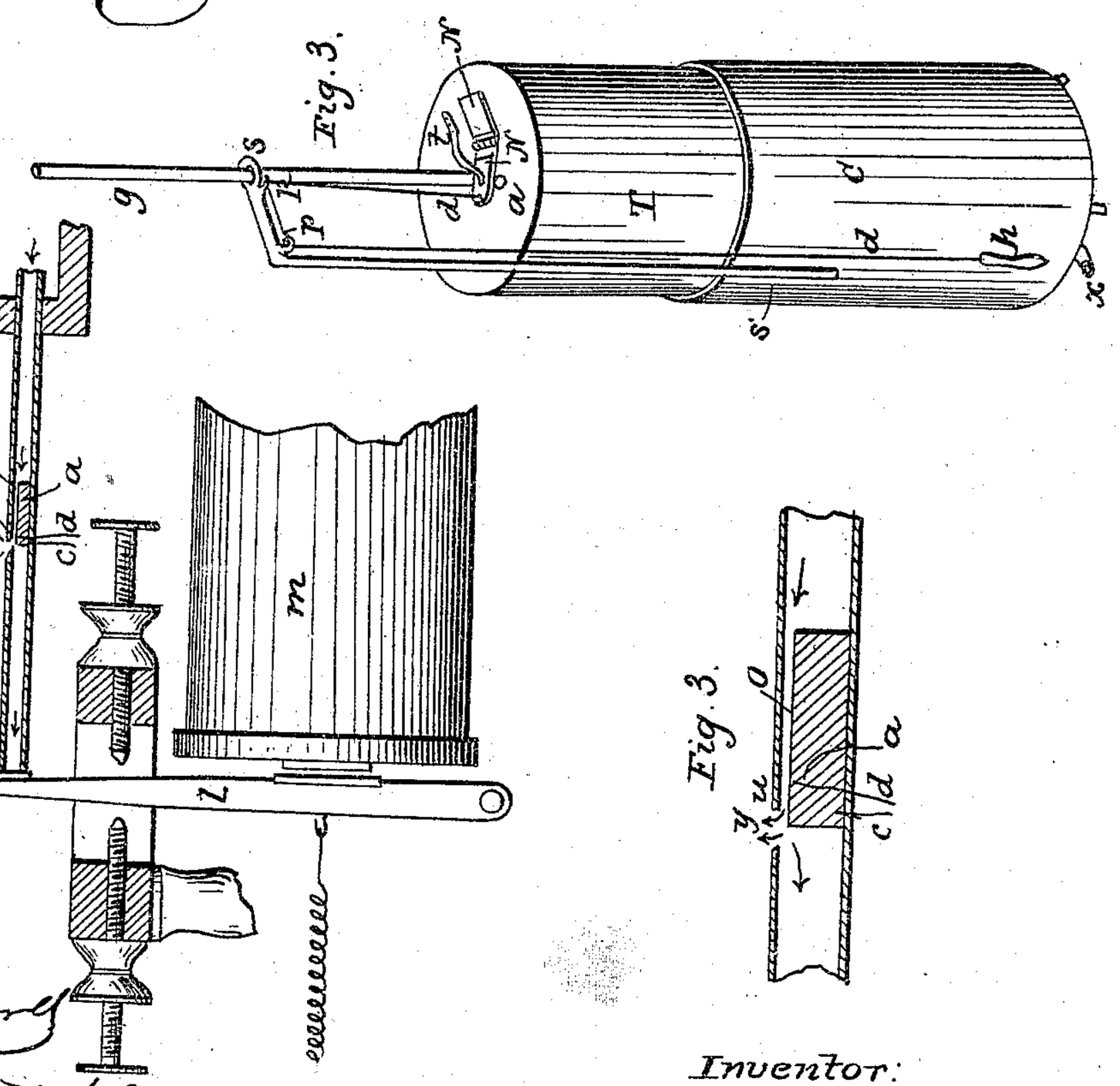

Fig. 3.

Inventor:

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UNITED STATES PATENT OFFICE.

ELISHA WILSON, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN TELEGRAPH-SOUNDERS.

Specification forming part of Letters Patent No. **57,032**, dated August 7, 1866.

To all whom it may concern:

Be it known that I, ELISHA WILSON, of the city and county of New Haven, and State of Connecticut, have invented an improvement in the application and perfection of sounders and sounds produced from pipes, tubes, or any instrument that can be made to sound by air, vapor, or gas to the purposes of electro-telegraphy; and I do hereby declare the following to be a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists, first, in reducing and modifying the size of the sounding-instrument and changing the proportions of the several parts until the least practicable amount of air or vapor is consumed to produce audible sounds, in order to obtain, first, greater economy in the expenditure of the sounding agency; second, control of the sounding in a variety of ways and with less power; third, in improving the quality of sound for telegraphic communication, having less resonance and blending of tone, and more articulation or distinctness in rapid utterance.

It consists, second, in the application of the ordinary water-cistern and inverted gas-holder, both for gathering and distributing air when air is used, and also the employment of this, in connection with other appliances, to renew the supply without interrupting the sound.

My invention is represented in the drawings.

Like letters refer to like parts.

Figure 1 represents a position of pipe P in which the sound of small pipes can be controlled at the end of the barrel with the common open valve-stop *v*. The arrangement and position of the magnet *m* and its armature *l* is also apparent in the same figure. The pipe in this case must be constructed to sound when closed.

I find it essential generally to place the lower end of block *a*, Fig. 1, which forms the passage of the throat *o*, even with the upper lip, *u*, as indicated by the blue line *c*, or in as far as the blue line *d*. If allowed to extend past line *c* into the cavity of the mouth *y*, as represented in the drawings, it is liable to sound both open and closed in many cases unless the current flows in with a very gentle and uniform pressure. The utterance is effected when valve *v* closes, and ceases when the latter opens the end of pipe P.

Fig. 2 represents a mode of controlling the sound at the mouth *y* by a valve-stop, *v*. In this case either an open or closed pipe may be employed.

To control the open valve-stop or any similar device by the electro-magnet, the dimensions of all the parts, especially of the throat *o*, must be essentially reduced until the quantity of the outflowing current becomes too diminished to significantly oppose the free movements of the armature *l*. A pipe the dimension of P in Fig. 1 is large enough for ordinary reading. A still smaller will answer, although the diameter of the barrel can be enlarged to three-sixteenths of an inch or more, provided the throat is sufficiently compressed. By reduced dimensions a diminution in the volume of sound without reference to pitch is also obtained, which, having less blending of tones, gives a voice more adapted to rapid utterance.

Fig. 3 represents an apparatus like the ordinary gas holder and cistern for gathering and supplying air to sound-instruments for telegraphic purposes.

C is the water-cistern. The air-reservoir T, with its open end inverted into C, has a guide-rod, *g*, attached and running through a support at *s*, which is fixed at *s'* on the side of the cistern.

A cord, *d d*, having a handle, *h*, runs through loops or pulleys P P, and is attached to the air-reservoir by the hinged valve *n n*, which latter covers an opening, *a*, through the holder T. To operate this, after the cistern is filled with water, raise the reservoir T nearly out of the water by the cord *d d*. This act opens the valve *n*. The air flows in at *a*, and fills the reservoir as it rises. When released the valve *n* is instantly closed by the spring *t*, and the inclosed air can escape only by an exit provided for it—viz., the tube, visible only at *x*, which extends up through the cistern above the water and opens into the holder T. Should the reservoir be too heavy for the pressure required counterbalance it by weights adjusted to the cord *d d*.

Several instruments may be supplied from a single reservoir.

The aperture *a* should be large, that the reservoir may fill rapidly.

If two reservoirs are used in connection, one can be filled while the other is in use; or if each sounding-instrument has a small expansive supply-reservoir or ordinary gas-bag attached, the supply will be maintained constant and uninterrupted during the process of raising and filling the main reservoir T.

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

1. The employment of the open valve-stop *v*, or any equivalent therefor, to control the sounding at the end, at the mouth, or at the side of air, gas, or vapor sounding-instruments for telegraphic communication.

2. Modifying the mouth and throat and generally reducing the dimensions of air, gas, or vapor sounding-instruments, in order thereby to diminish the amount and force of the current until it ceases to essentially interfere with the free action of the armature-lever *l* and valve directly or indirectly opposed to it, and also to economize the sounding medium used, and to improve the tone for rapid utterance for telegraph communication.

3. The combination of the valve *n n* and cord *d d*, to both raise and fill the reservoir in one act, for the same purpose.

4. The combined use of two or more reservoirs in connection, or with each instrument of a small expansive reservoir or gas-bag, that the supply may be continuous while the reservoir is being raised and filled to supply air for telegraphic sounders.

ELISHA WILSON.

Witnesses:
E. I. SANFORD,
C. C. BLATCHLEY.