W. BERRY.

TUNING FORK AND RESONATOR.

APPLICATION FILED JULY 10, 1914.

1,166,317.

Patented Dec. 28, 1915.

Fig. 1.

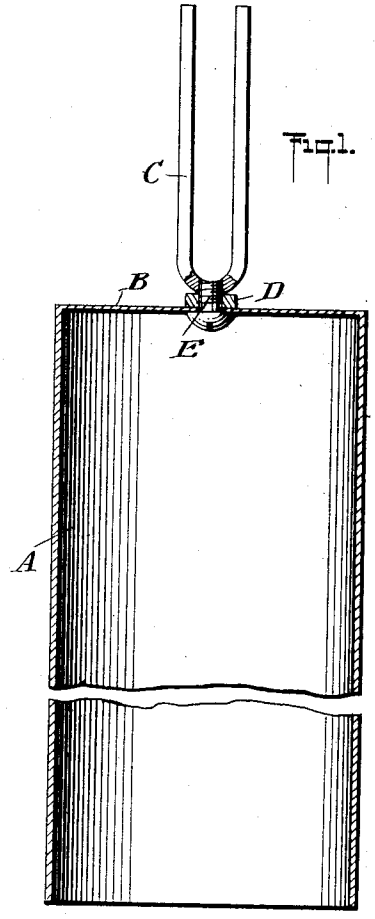
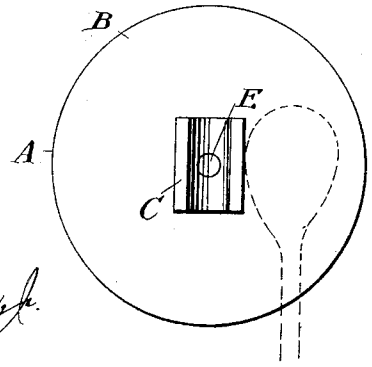



Fig. 2.




WITNESSES

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# UNITED STATES PATENT OFFICE.

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## TUNING-FORK AND RESONATOR.

1,166,317. Specification of Letters Patent. Patented Dec. 28, 1915.

Application filed July 10, 1914. Serial No. 850,167.

*To all whom it may concern:*

Be it known that I, WALTER BERRY, a subject of the King of Great Britain, and a resident of North Tonawanda, in the county of Niagara, State of New York, have invented a new and Improved Tuning-Fork and Resonator, of which the following is a full, clear, and exact description.

The invention relates to musical instruments of the percussion type, and its object is to provide certain new and useful improvements in musical instruments of this type whereby a free ejection of the sound waves is had from the resonator and the volume of the tone is increased.

In order to accomplish the desired result use is made of a resonator open at one end and closed at the other end, and a vibrator secured to the said resonator.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improved musical instrument; and Fig. 2 is a plan view of the same.

The resonator A is tubular and is open at one end and closed at the other end by a plate B of thin steel, brass, zinc or other material. The plate B acts as a diaphragm and will be hereinafter so termed. To the diaphragm B is secured a vibrator C in the form of a bent bar or fork spaced from the central portion of the diaphragm B by a washer D. The vibrator C, the washer D and the diaphragm B are fastened together by a bolt E. By the arrangement described the tuned bar C is attached to the central portion of the diaphragm B, and when one outer end of the tuned bar C is struck by a soft hammer or other tool in the hands of the player, the tuned bar C is vibrated and the vibrations are taken up by the diaphragm B amplified and transmitted to the interior of the resonator, from which the vibrations pass out by way of the open end of the resonator.

By the arrangement described practically all the sound waves produced by the tuned bar or vibrator C are transmitted to the resonator thereby increasing the volume of the tone.

The resonator is approximately one-quarter the length of the sound wave produced on striking the tuned bar or vibrator.

As many of the units may be used as the compass determined upon calls for, two octaves, three octaves, etc., and these units are suitably supported in the desired arrangement.

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

1. A unit for musical instruments of the percussion type, comprising a tubular resonator having a sound producing diaphragm closing one end of the same and open at its opposite end, and a tuned vibrator secured at its middle to the central portion of the said diaphragm.

2. A unit for musical instruments of the percussion type, comprising a tubular resonator open at one end and having a sound producing diaphragm closing the opposite end, a bent tuned vibrator bar, and means for detachably securing the bent portion of said bar to the central portion of the said diaphragm.

3. A unit for musical instruments of the percussion type, comprising a tubular resonator open at one end and having a sound producing diaphragm closing its opposite end, a U-shaped tuned vibrator, a washer interposed between the bend of the vibrator and the central portion of said diaphragm, and a screw passing through the diaphragm from the inside of the resonator and securing the vibrator, washer and diaphragm together.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER BERRY.

Witnesses:
G. W. SMITH,
CARL E. JOHNSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."