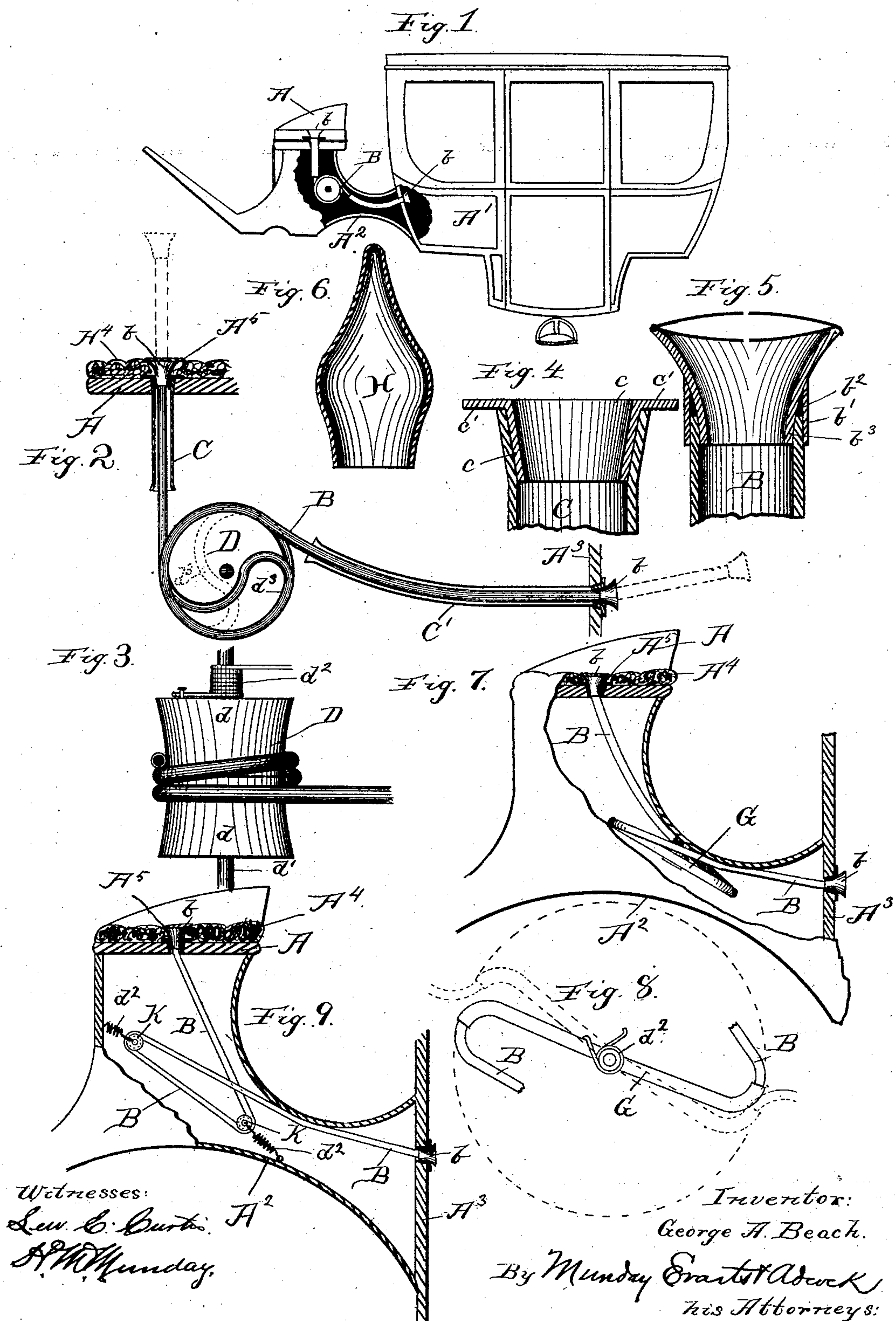


(No Model.)

G. A. BEACH.
CARRIAGE SPEAKING TUBE.

No. 363,979.

Patented May 31, 1887.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE A. BEACH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JAMES F. SOMES, OF SAME PLACE.

CARRIAGE SPEAKING-TUBE.

SPECIFICATION forming part of Letters Patent No. 363,979, dated May 31, 1887.

Application filed February 24, 1887. Serial No. 223,647. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. BEACH, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Carriage Speaking-Tubes, of which the following is a specification.

My invention relates to carriage speaking-tubes, and more particularly to certain improvements upon the carriage speaking-tube heretofore patented to me in Letters Patent No. 356,740, dated February 1, 1887. In my said Patent No. 356,740 the speaking-tube extends from and through the driver's seat to the interior of the carriage, being provided with telescoping sections and springs for contracting the said sections together. In my present improvement the speaking-tube consists of one continuous flexible tube provided with mouth-pieces at each end, and it is contracted or folded out of the way within the boot of the carriage by means of a spring winding-drum, folding lever, or pulleys located within the boot. By this means I am enabled to materially simplify and cheapen the construction of my carriage speaking-tube, and at the same time increase its durability and render its operation more easy and effective.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is an enlarged side view of the speaking-tube, showing one half or part of the winding-drum removed. Fig. 3 is a detail plan view of the winding-drum. Fig. 4 is a detail sectional view of the socket for the guide-tube. Fig. 5 is a detail section of the mouth-piece. Fig. 6 is a detail section of the removable ear-piece. Fig. 7 is a sectional view of the carriage, showing a modification in which an S-shape lever is substituted for the winding-drum. Fig. 8 is a detail plan view of said S-shaped lever, and Fig. 9 shows another slight modification, in which spring-pulleys are substituted for the winding-drum, as the spring take-up device.

In said drawings, A represents the driver's seat of the carriage, A' the carriage body or interior, and A² the hollow frame or boot ex-

tending from the driver's seat to the carriage-body.

B is a flexible speaking-tube, consisting, preferably, of rubber hose, and provided at each end with a bell-shaped mouth-piece, *b*. The length of this flexible tube is considerably greater than the distance from the driver's seat A to the front shell or wall, A³, of the carriage-body, so as to permit the driver's mouth-piece *b* to be raised into position for use, while the other mouth-piece is at the same time drawn out. The surplus length of hose or tube is wound or folded up by means of a spring-folder, D. This folder consists of a drum, which is made in two parts, *d d*, mounted on a suitable axis, *d'*, which is provided with a spring, *d''*, to cause the hose to wind around the drum. The parts *d d* of the drum are each provided with a semicircular S-shaped groove, *d³*, extending almost diametrically across the adjoining ends of the parts *d d* of the drum. These two half-grooves *d³ d³* register with each other, and together form a round S-shaped hole through the drum for the tube B to lie in or pass through. The parts *d d* of the drum are secured together by the shaft *d'*, or by other suitable means. To insert the hose B in place, as shown in Figs. 2 and 3, the parts *d d* of the drum are first slightly separated from each other, when the hose may be laid in the semicircular S-shaped groove in one of the parts *d*, and then the other part *d* slipped into place and secured. By giving the groove *d³* an S form, as indicated in the drawings, sharp bends or kinks are avoided in the tube, which might otherwise interfere with communication through the same.

The flexible tube B is provided with a guide-tube, C, extending vertically downward from the driver's seat A, and a similar guide-tube, C', which is secured to the front wall, A³, of the carriage-body. The bell *b* of the speaking-tube is provided with a flange, *b'*, thus forming an annular space, *b²*, between said flange and the neck *b³* of the bell. Into this annular space the end of the speaking-tube is inserted and readily secured by suitable cement. The guide-tube C is secured in a suitable hole in the driver's seat A by means of the flaring thimble or socket-piece *c*, which wedges the

guide-tube between the same and the wall of the hole in the seat A. The thimble or socket *c* is provided with a flange, *c'*, which fits against the upper surface of the seat. The guide-tube C is also preferably cemented in place. The guide-tubes are preferably made of stiff two or three ply rubber hose. The thimble *c* also serves as a socket or seat for the mouth-piece or bell *b* of the speaking-tube. The cushion A⁴ of the driver's seat is furnished with a suitable hole or recess, A⁵, so that the rim of the bell will extend up only about flush with the upper surface of the cushion, and thus be completely concealed from view. H represents an ear-piece for confining the sound, which may be inserted in the end of the mouth-piece or bell *b* when necessary. This ear-piece may be kept in a suitable pocket or receptacle in the cushion in the driver's seat. It is a matter of convenience where there is a great deal of noise, as in driving over the stones of the street or pavement.

In Figs. 7 and 8 I have shown as an equivalent for the drum D an S-shaped hollow lever, G, through which the speaking-tube is inserted the same as through the S-groove in the two parts *d d* of the drum. The hole or groove *d* in this lever corresponds to the similar hole or groove *d'* in the two parts *d d* of the drum D. The axis or pivot of the lever G is furnished with a spring, *d*², the same as the spring on the shaft of the drum.

In Fig. 9, as a further equivalent, I have shown a pair of grooved spring-pulleys, K K, around which the speaking-tube passes, and which draw toward each other when the speaking-tube is drawn out for use. In this case a pair of springs, *d*², is preferably employed, one for each of the pulleys.

The operation of my tube-folding take-up is obviously the same, whether the said take-up be made in the form of a drum, a lever, or a pair of pulleys. Where the tube-folding take-up is made in the form of a drum, as first described, the fold or folds produced thereby in the flexible speaking-tube will of course be circular in form, and where the tube-folding take-up is made in the form of a lever or pair of pulleys the folds in the speaking-tube will of course be oblong instead of circular folds or coils. In case, however, the drum should not be a circular drum, the folds produced by the drum would of course in that case not be circular; and it should also be observed that as the flexible tube B passes through the drum the first folds produced by the drum are oblong folds, similar to those produced by the lever and by the pulleys, and are not, in fact, coils, as is clearly shown in Fig. 2.

As the speaking-tube C as well as the means for controlling the same are contained wholly within the interior of the hollow frame, leg, or boot A² of the carriage, and as the driver's mouth-piece *b* extends directly up through an opening in the seat, while the other mouth-piece simply extends through the front wall, A³, of the carriage-body, it will be observed that my

carriage speaking-tube is wholly concealed from view when the same is not in use, and therefore in no way injures the appearance of the carriage, while at the same time the mouth-pieces are both conveniently accessible and free from danger of injury.

I do not herein claim the telescoping speaking-tube, made in two or more parts, extending from the driver's seat to the carriage-body, as shown and described in my former patent, above referred to. In my present invention a continuous unbroken flexible tube is employed, provided with a mouth-piece at each end and extending from the driver's seat to the carriage-body, and combined with an automatic spring winding or folding device—such as a drum, lever, or pulleys, as shown in the drawings—which operates to contract the continuous tube. By means of this tube folding or coiling device I am thus enabled to employ a continuous tube, the bore of which is smooth and unbroken and operates to convey the sound-vibrations much more perfectly than broken or telescoping tubes, especially when such tubes are provided with internal springs to contract the tubes automatically.

I claim—

1. The combination, in a carriage, of the driver's seat, the carriage-body, and the hollow front frame or boot of the carriage, with a long flexible continuous speaking-tube extending through said hollow frame from the driver's seat to the interior of said carriage-body, and a tube-folding take-up connected to the speaking-tube between the ends of the same for taking up the slack by folding the tube upon itself between its ends, substantially as specified.

2. The combination, with the carriage-body and the driver's seat, of a long flexible tube, B, extending from the driver's seat to the interior of the carriage-body and provided with a mouth-piece, *b*, at each end, a spring-tube folding take-up connected to the speaking-tube between the ends of the same, for taking up the slack by folding the tube between its ends, and the guide-tubes C C', substantially as specified.

3. The combination, with a carriage-body and the driver's seat thereof, of a long flexible continuous speaking-tube, B, provided with a mouth-piece, *b*, at each end, and a drum, D, provided with a spring, *d*², for taking up the slack in said tube when the same is not in use, said tube B winding upon said drum, substantially as specified.

4. The combination, with a carriage-body and the driver's seat thereof, of a long flexible continuous speaking-tube, B, provided with a mouth-piece, *b*, at each end, and a drum, D, provided with a spring, *d*, for taking up the slack in said tube when the same is not in use, and guide-tubes C C', said tube B winding upon said drum, substantially as specified.

5. The combination, with a carriage-body and the driver's seat thereof, of a long flexible continuous speaking-tube, B, provided

with a mouth-piece, *b*, at each end, and a drum, *D*, provided with a spring, *d*², for taking up the slack in said tube when the same is not in use, said winding-drum *D* being made in two parts, *d* *d*, having registering grooves *d*³ cut in their adjoining ends and extending through the drum, through which the speaking-tube passes, substantially as specified.

6. The combination, with the carriage-body *A'* and the driver's seat *A* thereof, cushion or upholstery *A*⁴, furnished with a recess, *A*⁵, thimble or socket *c*, guide-tube *C*, long continuous flexible speaking-tube *B*, having mouth-piece *b* at each end, a spring winding-drum, *D*, and guide-tube *C'*, secured to the front wall, *A*³, of the carriage-body, substantially as specified.

7. The combination of the carriage-body and the driver's seat thereof, a long continuous flexible speaking-tube, *B*, having mouth-piece *b* at each end, said mouth-pieces being provided with flanges *b'*, for securing the same on the end of the flexible speaking-tube, a spring winding-drum, *D*, for taking up the slack, and a removable ear-piece, *H*, adapted to fit in said mouth-piece *b*, substantially as specified.

8. The combination, with a carriage-body,

its front wall, *A*³, its hollow front frame, *A*², and its driver's seat *A*, said seat and front wall having each a socket or opening for a mouth-piece, of a long continuous flexible speaking-tube, *B*, provided at each end with a mouth-piece, *b*, and a winding-drum, *D*, mounted within said hollow frame for taking up the slack in said flexible tube, substantially as specified.

9. The combination, with a carriage-body, its front wall, *A*³, its hollow front frame, *A*², and its driver's seat *A*, said seat and front wall having each a socket or opening for a mouth-piece, of a long continuous flexible speaking-tube, *B*, provided at each end with a mouth-piece, *b*, and a winding-drum, *D*, mounted within said hollow frame for taking up the slack in said flexible tube, said winding drum having an ogee or *S* shaped groove or hole extending diametrically through it to receive said speaking-tube, substantially as specified.

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Witnesses:

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