

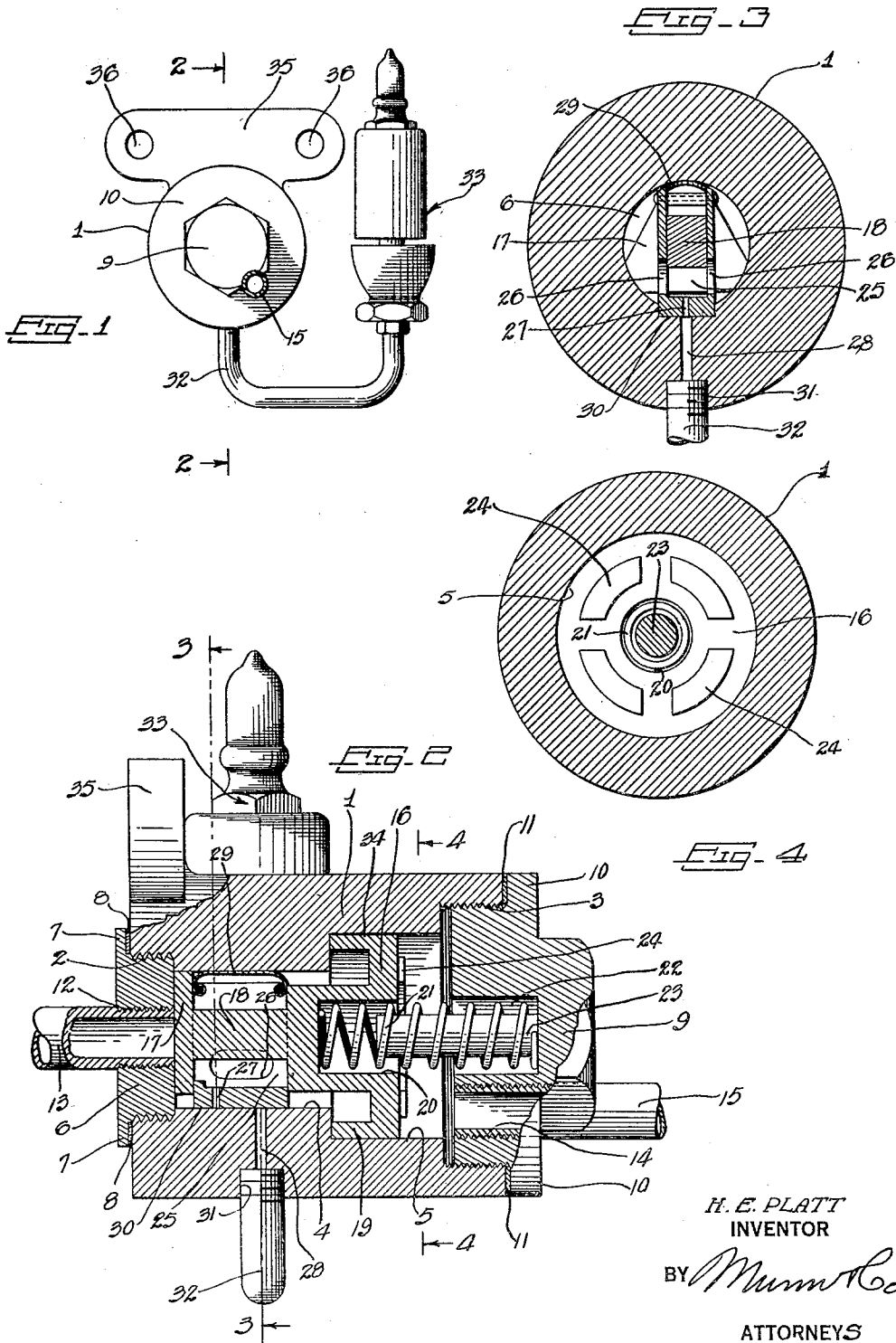
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SIGNALING DEVICE

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SIGNALING DEVICE

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My invention relates to improvements in signaling devices, and it consists in the combinations, constructions, and arrangements herein described and claimed.

5 An object of my invention is to provide a signaling device in which means is utilized whereby a fluid under compression may be controlled for signaling purposes or for establishing communication between, let us
10 say, individuals at various distances.

A further object is to provide a device of the type described incorporating a minimum number of moving parts, in which the parts may be lubricated, and in which the parts
15 are further arranged to permit the passage of a fluid therethrough under compression in an efficient manner.

A further object is to provide a device of the type described in which the necessity
20 for packing has been entirely eliminated.

A further object is to provide a device of the type described in which the danger of accidental operation is eliminated.

A further object is to provide a device of
25 the type described in which the parts are so arranged that should a small leak develop, the device would nevertheless function effectively.

Other objects and advantages will appear
30 in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this
35 application, in which

Figure 1 is an end elevation of my invention,

Figure 2 is a longitudinal sectional view of the invention,

40 Figure 3 is a sectional view taken along the line 3—3 of Figure 2, and

Figure 4 is a sectional view taken along the line 4—4 of Figure 2.

In carrying out my invention, I make use
45 of a body portion 1 having a threaded opening 2 in one end and a threaded opening 3 in the opposite end. The body portion is provided with a pair of bores 4 and 5 of different diameters communicating with
50 each other and aligned with the openings 2

and 3. The opening 2 is arranged to be partly closed by means of a plug 6 having flanges 7 whereby a suitable gasket or packing 8 may be placed between the flanges and the end of the body portion.

Similarly, the opening 3 may be closed
55 by means of a plug 9. The latter is also provided with flanges as indicated at 10. I preferably provide a gasket or packing
60 11 between the flanges and the end of the body portion 1. The plug 6 is provided with a central threaded opening 12 for receiving the threaded end of a pipe 13. The latter leads to a source of fluid under compression, preferably compressed air. The
65 device may be situated within the cab of a locomotive for giving warnings and transmitting communications to the engineer. The device may of course be employed in
70 other arts and located at various positions and localities for conveying the information, as will be more fully explained later. I am merely defining the device in connection with signaling to the operator of a
75 locomotive as a matter of illustration and do not intend that this shall imply any limitations in the scope of my invention.

The plug 9 is provided with a threaded
80 opening 14 for receiving the threaded end of a pipe 15. The pipe 15 may extend to any desired location and in the present instance preferably to the rear of the train. The pipe 15 communicates with the bore 5, while the pipe 13 communicates with the bore 4. A
85 valve member 16 is disposed within the bores 4 and 5. The valve member is provided with a triangularly shaped end portion 17 which normally abuts against the inner end of the plug 6. The valve member is provided with a reduced portion 18 which is
90 rectangular in cross section. The valve member is further provided with an enlarged end portion 19 which is arranged to bear against the shoulder provided by the bores 4 and 5. This end of the valve member is provided with an opening 20 for receiving one end of a coil spring 21. The
95 plug 9 is similarly provided with a bore 22 for receiving the opposite end of the coil spring. The plug is provided with a pin 100

23 about which a portion of the spring is disposed. The end of the enlarged portion 16 is provided with a plurality of raised portions 24, see Figures 2 and 4.

A companion valve member 25 is disposed upon the rectangular portion 18. The companion valve member is provided with openings 26 in its sides and an opening 27 which is arranged to align with an opening 28 when the valve mechanism is moved, as will be defined later. The companion valve member is provided with a spring 29 which tends to hold the companion valve member snugly within its seat 30, see Figure 3, and also for compensating for any wear due to the operation of the device. The body portion is provided with a threaded opening 31 for receiving one end of a threaded pipe 32 associated with a whistle 33. The whistle may of course be any one of the many types of constructions well known in the art and the whistle therefore required no detailed description.

I shall now define the operation of the device. Normally, the spring 21 holds the valve mechanism in the position shown in Figure 2. A certain amount of fluid under compression may pass between the walls of the enlarged portion 16 and the bore 5 as at 34 by reason of the fact that the diameter of the portion 16 is slightly smaller than the bore 5. The fluid under pressure will of course be balanced upon each side of the valve mechanism. In other words, the fluid or, let us say, the air under compression is normally balanced upon the two sides. It will be readily seen in referring to Figure 2 that should any of the air under compression in the pipe 15 be freed, let us say, to the atmosphere, the pressure upon this side of the valve mechanism will of course be reduced. Simultaneously, the pressure upon the opposite side of the valve mechanism will move the latter suddenly so that the opening 27 is brought into alignment with the opening 28. At this time, the air under compression in passing through the pipe 32 will cause the whistle to function.

The valve mechanism will of course move until the raised portions 24 strike the inner end of the plug 9. The raised portions permit the air under compression to flow into the pipe line 15 when the valve mechanism is disposed adjacent the plug 9. This construction permits the air upon both sides of the valve mechanism to assume a common pressure and also provides a construction in which a slow leak in the pipe line 15 will not necessarily cause the whistle to function. The spring 21 of course insures the positioning of the valve mechanism as shown in Figure 2 whenever the air pressure is balanced.

An important feature in connection with my invention is the fact that few moving

parts are required and also the fact that the construction is such that I have entirely eliminated the necessity for internal packing and the like.

This construction permits the lubrication of the various parts. The body portion is provided with a flange 35 having openings 36 for receiving bolts or screws whereby the device may be mounted upon a suitable supporting structure.

I claim:

1. A signaling device comprising a body portion having a valve mechanism slidably disposed therein, an auditory signal communicating with said valve mechanism, and means for conveying fluid under pressure to the valve mechanism whereby the fluid may assume a common pressure upon both sides of the valve mechanism, said valve mechanism being operable by releasing the fluid under pressure upon one side of the valve mechanism, whereby said auditory signal will be operated, and comprising a spring-pressed valve body portion and a spring-pressed U-shaped portion, said valve body portion having a cylindrical end portion and a triangular end portion, said end portion being connected by a rectangular portion, said U-shaped portion being mounted on said rectangular portion, said hollow body portion and said U-shaped portion having fluid conduits adapted to become aligned with each other and release said fluid for operating said signal.

2. A device of the type described comprising a hollow body portion, a valve mechanism, slidably disposed within said hollow body portion and arranged to be moved by fluid under compression, fluid-conveying means communicating with the interior of the body portion and disposed upon opposite sides of the valve mechanism, and an auditory signal communicating with the interior of said body portion, said valve mechanism being arranged to be moved when the fluid on one side of the valve mechanism is partly freed for placing the auditory signal in communication with said fluid under compression, and comprising a spring-pressed valve body portion and a spring-pressed U-shaped portion, said U-shaped member being slidably mounted on said valve body portion, said hollow body portion and said U-shaped portion having fluid conduits adapted to become aligned with each other and release said fluid for operating said signal.

3. A device of the type described comprising a hollow body portion, a valve mechanism slidably disposed within said hollow body portion comprising a spring-pressed valve body portion and a spring-pressed U-shaped portion and arranged to be moved by fluid under compression, fluid-conveying means communicating with the

interior of the body portion and disposed upon opposite sides of the valve mechanism, and an auditory signal communicating with the interior of said body portion, said valve mechanism being arranged to be moved when the fluid on one side of the valve mechanism is partly freed for placing the auditory signal in communication with said fluid under compression, said valve mechanism being arranged to assume a predetermined position when the fluid pressure is balanced upon the opposite sides of the valve mechanism said hollow body portion and said U-shaped portion having fluid conduits adapted to become aligned with each other and release said fluid for operating said signal.

4. A device of the type described comprising a hollow body portion, a valve mechanism slidably disposed within said hollow body portion and arranged to be moved by fluid under compression, fluid-conveying means communicating with the interior of the body portion and disposed upon opposite sides of the valve mechanism, an auditory signal communicating with the interior of said body portion, said valve mechanism being arranged to be moved when the fluid on one side of the valve mechanism is partly freed for placing the auditory signal in communication with said fluid under compression, said valve mechanism being arranged to assume a predetermined position when the fluid pressure is balanced upon the opposite sides of the valve mechanism, and means for returning said valve mechanism to said predetermined position when the fluid pressure upon both sides of the same is equalized, said valve mechanism comprising a spring-pressed valve body portion and a spring-pressed U-shaped portion, said valve body portion having a cylindrical end portion, a triangular end portion, and a rectangular portion connecting the end portions, said U-shaped portion being slidably mounted on said rectangular portion, said hollow portion and said U-shaped portion having fluid conduits adapted to become aligned with each other and release said fluid for operating said signal when the fluid is partly freed from one side of said mechanism.

Signed at Ottumwa, in the county of Wapello and State of Iowa, this 3rd day of May, A. D. 1930.

HARRY E. PLATT.