Sept. 6, 1938. E. L. BALLEW 2,129,368

ADVERTISING DEVICE

Original Filed June 1, 1936 5 Sheets-Sheet 1

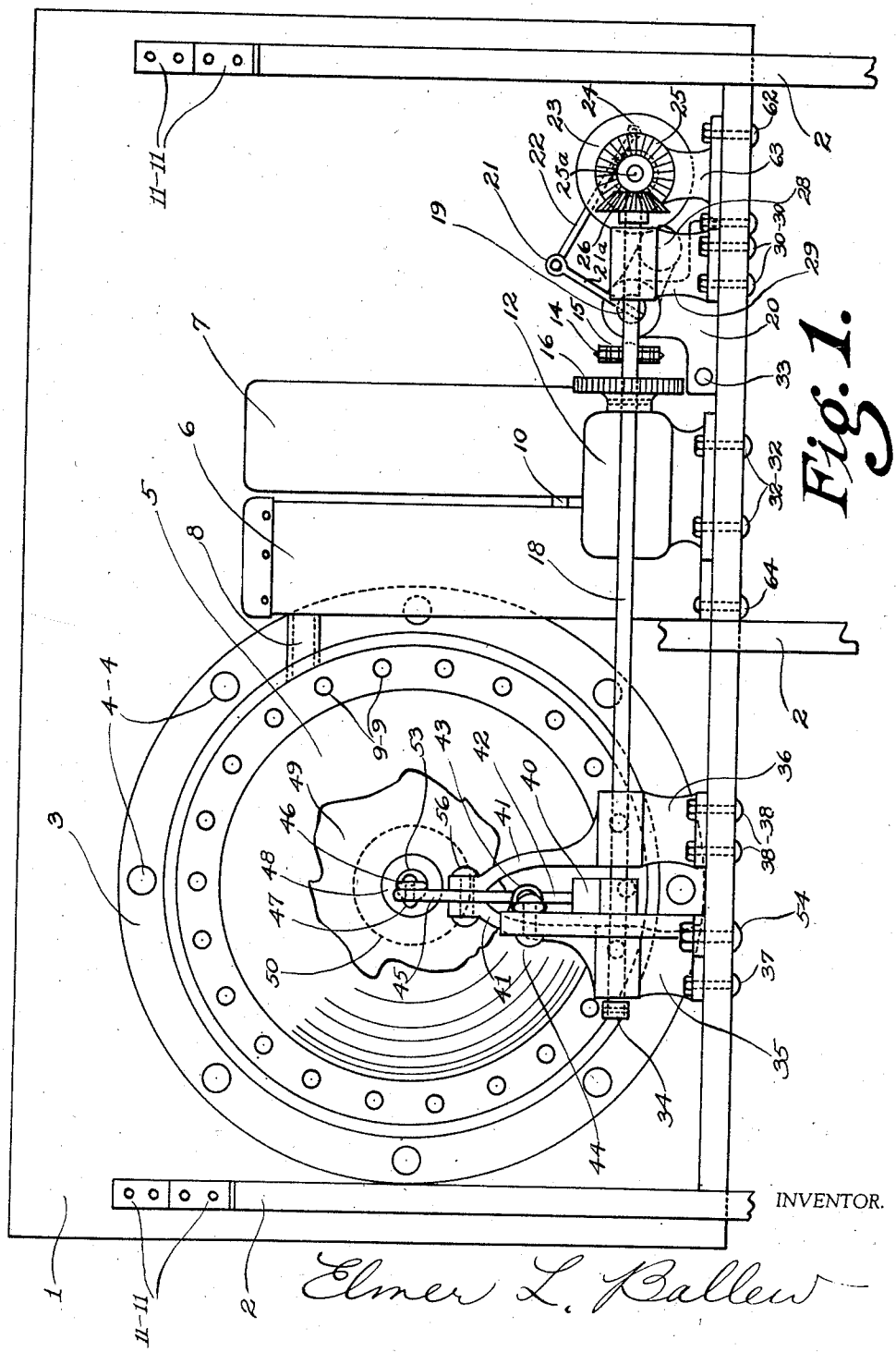


Fig. 1.

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ADVERTISING DEVICE

Original Filed June 1, 1936 5 Sheets-Sheet 2

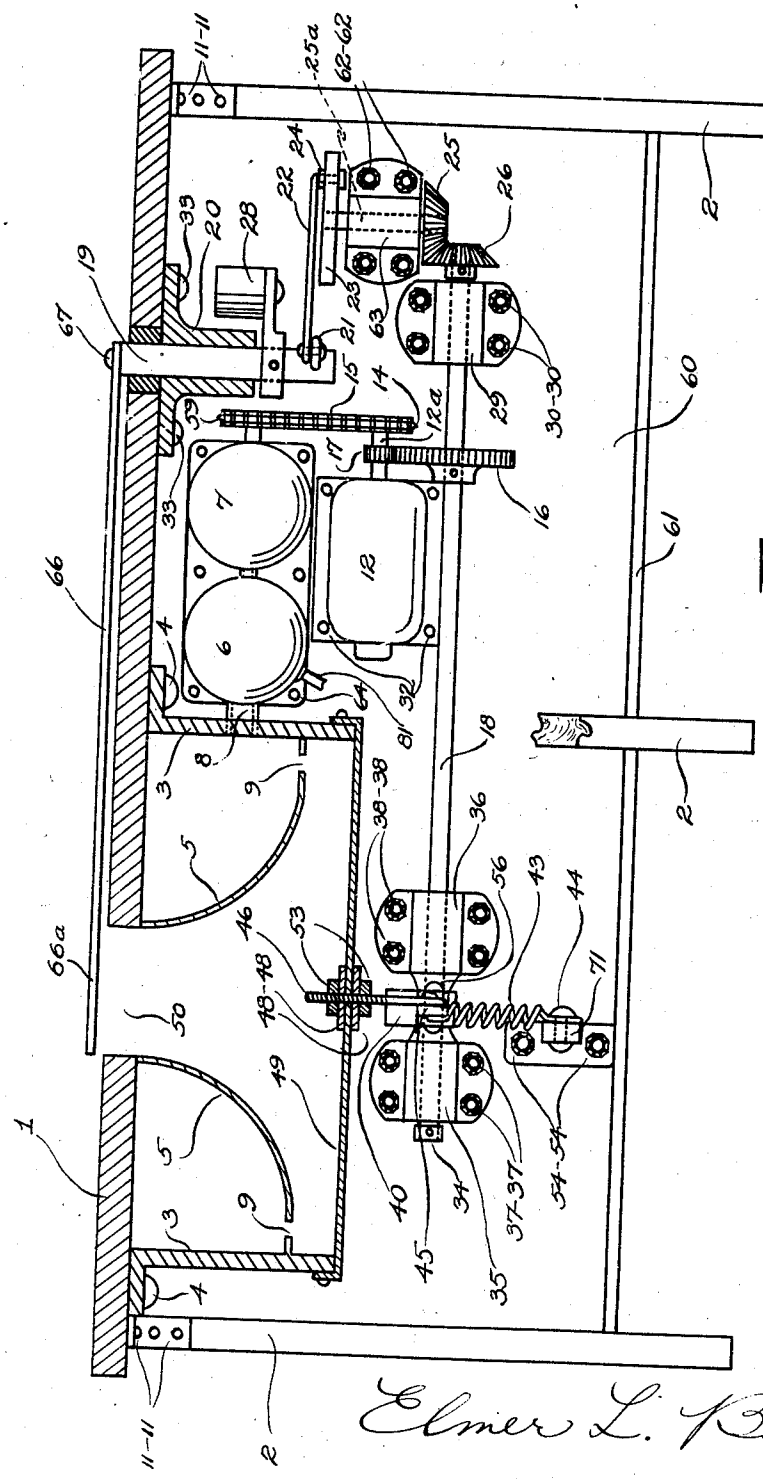


Fig. 2.

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Original Filed June 1, 1936 5 Sheets-Sheet 3

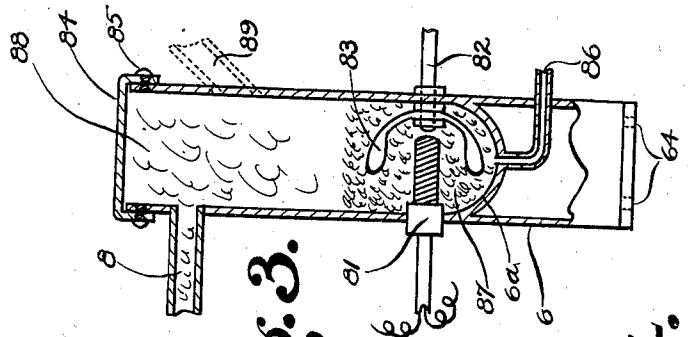


Fig. 3.

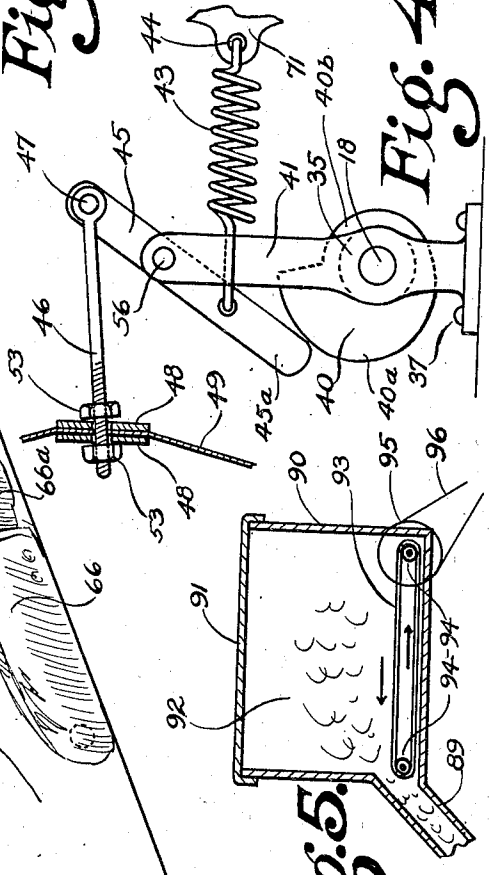


Fig. 4.

Fig. 5.

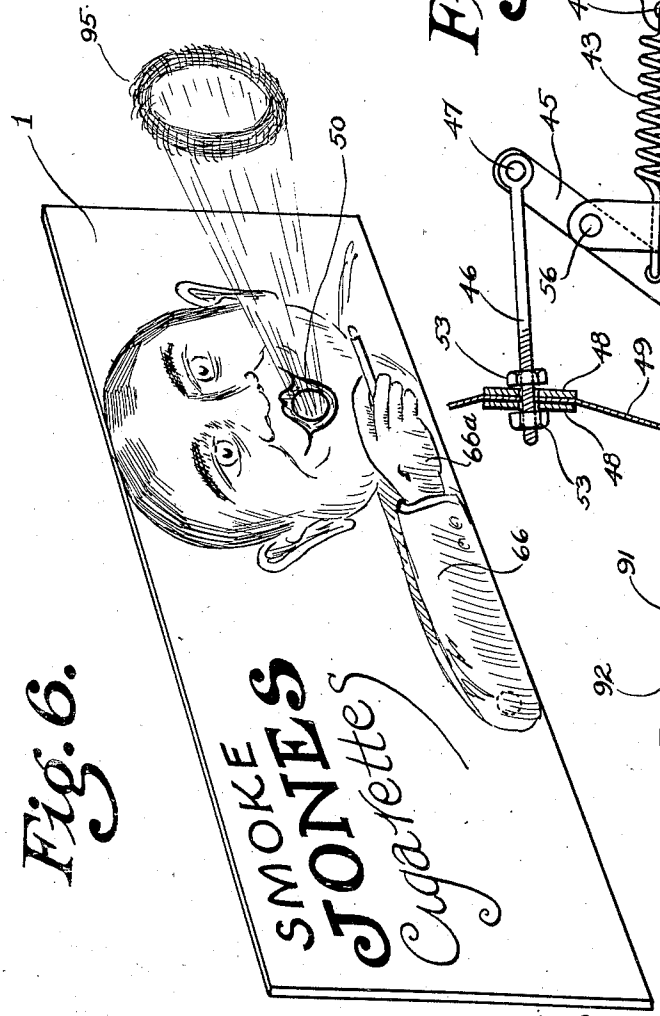


Fig. 6.

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Original Filed June 1, 1936 5 Sheets-Sheet 4

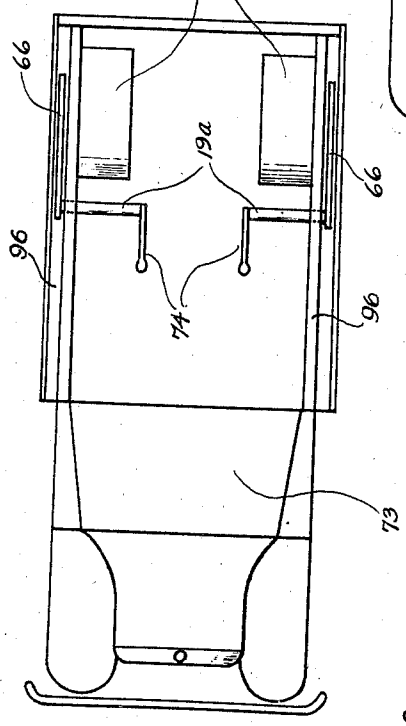


Fig. 8.

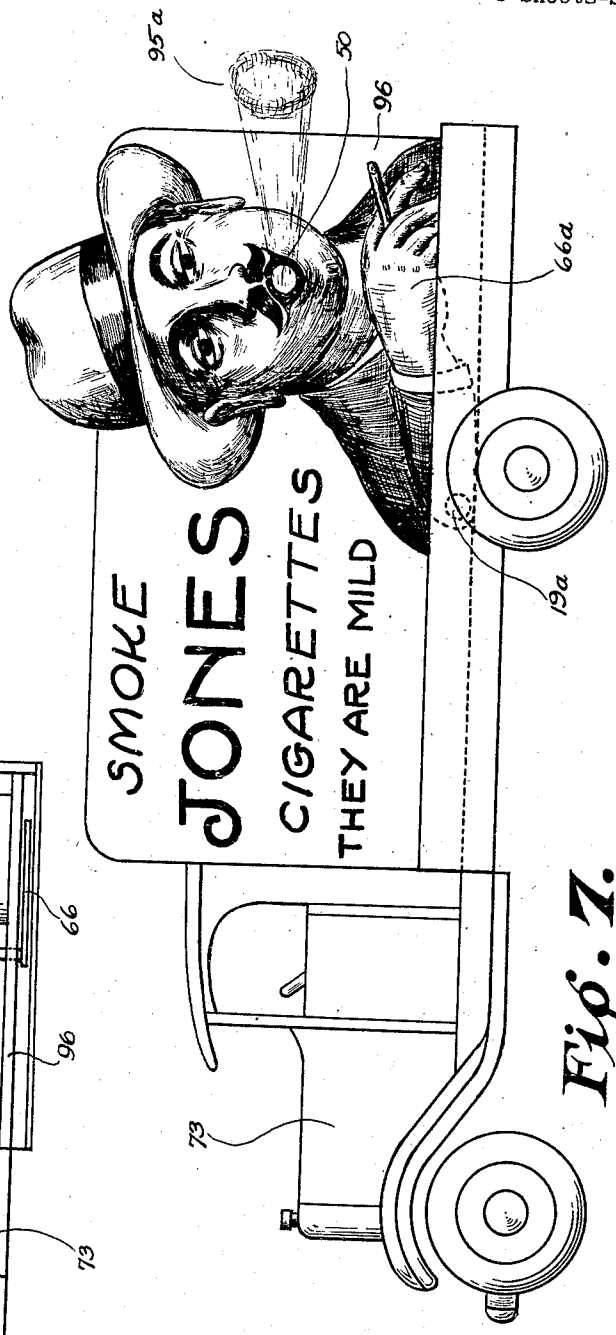


Fig. 7.

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ADVERTISING DEVICE

Original Filed June 1, 1936 5 Sheets-Sheet 5

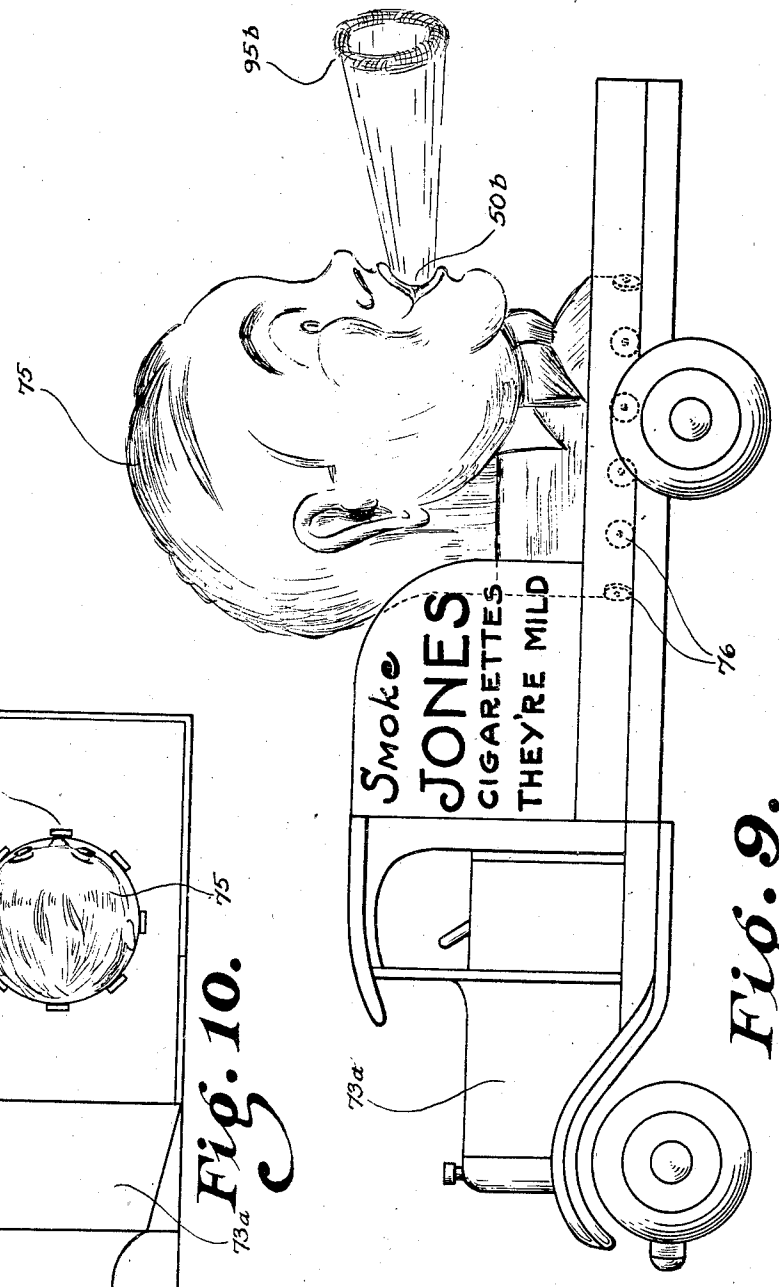


Fig. 9.

Fig. 10.

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2,129,368

UNITED STATES PATENT OFFICE

2,129,368

ADVERTISING DEVICE

Elmer L. Ballew, Chicago, Ill.

Application June 1, 1936, Serial No. 82,955
Renewed February 2, 1938

13 Claims. (Cl. 40—126)

This invention relates to an advertising device.

It is an object of this invention to provide an improved advertising device which is relatively simple and inexpensive in construction and efficient in use.

Another object of the present invention is to provide, in an advertising device a novel device for mechanically and automatically producing smoke rings so as to attract the attention of passer-by.

A further object of the present invention is to provide a novel device for use in conjunction with either a stationary sign such, for example, as a billboard or for use with automatic vehicle signs or analogous advertising devices and to which the attention of the passerby or observer is drawn by means of smoke rings mechanically and automatically produced by the device.

Other objects of the invention are: to provide a novel device for agitating the combustible material which is employed in producing the smoke rings; to provide a novel mechanism for flexing the flexible diaphragm which forms a wall of the smoke storage chamber so as to expel smoke therefrom in the form of a ring; to provide a novel device for producing the smoke in the combustion chamber; to provide a novel device for supplying the combustible material to the combustion chamber; and to provide a novel device for moving an arm or analogous object at intervals across the opening in the sign board through which the smoke is expelled in the form of rings.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a rear elevational view showing a preferred form of the new device;

Fig. 2 is a horizontal sectional view of the device shown in Fig. 1, partly in top plan;

Fig. 3 is a sectional view of the smoke-producing or combustion chamber and showing the means, embodied in the device, for agitating the combustible material which is burned to produce the smoke;

Fig. 4 is a side elevational view, partly in section, of the means embodied in the new device for mechanically flexing the diaphragm which forms the rear wall of the smoke storage chamber;

Fig. 5 is a vertical sectional view showing the storage chamber for the combustible material and the means embodied in the new device for feeding the combustible material from the storage chamber for the same into the combustion chamber;

Fig. 6 is a perspective view of a stationary sign or billboard having a preferred form of the present invention associated therewith;

Fig. 7 is an elevational view showing a modification of the invention in which the new device is embodied in a movable or vehicular sign;

Fig. 8 is a top plan view of the device shown in Fig. 7;

Fig. 9 is a side elevational view of another modified form of the invention; and

Fig. 10 is a top plan view of the device shown in Fig. 9.

A preferred form of the invention is shown in Figs. 1 to 6 inclusive and is shown as associated with a stationary sign or billboard 1 although it is to be understood that the present invention may be used in conjunction with other types of advertising or display devices than those shown in the drawings.

The new device comprises a supporting frame 2 which is shown as mounted upon or behind the stationary sign or billboard 1 and provided in the sign or billboard 1 is a circular opening or orifice 50 through which smoke is emitted in the form of rings, in a manner to be described presently. Pivotally mounted on the sign or billboard 1, as at 67, and for movement relative thereto is an object in the form of an arm 66 which has a portion 66a which is movable over the opening or orifice 50.

Mounted upon the rear side of the sign or billboard 1, as at 4, is a housing 3, which provides a smoke-storage chamber, and mounted within this housing 3 is a somewhat funnel-shaped throat 5 which opens at its smaller end into the smoke outlet 50. The larger and rear end of the housing or smoke-storage chamber has the form of a flexible diaphragm 49 and attached to this diaphragm 49, at the center thereof, by suitable attaching means 48—53, is an operating member in the form of a rod or link 46 (Figs. 2 and 4). One end portion of this rod or link 46 is pivotally connected, as at 47, to an arm 45 which is pivotally mounted, between its ends, as at 56, upon an upright support or bearing 41. Rotatably journaled in the upright support or bearing 41 is a shaft 18 and mounted on this shaft 18 is a cam 40 (Fig. 4). This cam 40 is engageable with an end portion 45a of the arm 45 and the arm 45 is urged into engagement with the peripheral surface of the cam 40 by means of a spring 43.

Mounted on the shaft 18 is a gear 16 (Fig. 2) and this gear 16 meshes with a gear 17 which is mounted on the shaft 12a of a motor 12.

Likewise mounted on the shaft 18, at one end thereof (Fig. 2), is a beveled gear 26 and this gear 26 meshes with a beveled gear 25 which is mounted on a shaft 25a. Likewise mounted on this shaft 25a is a disc 23 and eccentrically connected to the disc 23, as at 24, is an arm 22, this eccentric arm 22 being pivotally connected at one end, as at 21, to a link 21a, which, in turn, is operatively connected to a shaft 19 which is journaled in a bearing 20 which is attached to the sign or billboard 1 at the rear side of the latter. Mounted on the shaft 19, as at 67, is an object in the form of an arm 66 of a character which is painted or otherwise inscribed on the billboard 1, this arm 66 having a hand portion 66a which is movable across the smoke outlet or orifice 50.

Mounted on the supporting frame 2 is a combustion chamber 6, and likewise mounted on the supporting frame 2, adjacent the combustion chamber 6, is an air storage chamber or cylinder 7 in which air may be stored under pressure. Leading from the air storage chamber 7 into the combustion chamber 6 is an air tube 86 (Fig. 3) and leading from the combustion chamber 6 into the smoke storage chamber 3 is a conduit 8, while provided in the throat 5, so as to establish communication between the latter and the smoke-storage chamber 3, is an annular row of openings 9 (Figs. 1 and 2).

Arranged in the combustion chamber 6 is an electrical igniting element 81, the inner end portion of which projects into a combustible mixture of suitable smoke-producing material such, for example, as sawdust, which is arranged in the combustion chamber 6 and is supported therein upon a suitable support 6a, the combustible material 87 being fed from a storage container 91 into the combustion chamber 9 by way of a chute 89, (Fig. 5), and the combustible material 87 being fed from the storage container 90—91 into the chute 89 by a conveyor or belt 93 which is arranged at the bottom of the storage chamber or hopper 91 and which belt or conveyor 93 may be operated by a suitable power-transmitting device or belt 96 which may be operatively connected, in any suitable manner, to the drive shaft 18.

Projecting into the combustion chamber 6 (Fig. 3) is an end portion of a shaft 82 and mounted on this shaft 82, within the combustion chamber 6, is an agitator 83, the combustible material being urged toward the agitator 83 by gravity or in any other suitable manner.

Operation of the device shown in Figs. 1 to 6, inclusive

In the use of the device shown in Figs. 1 to 6, inclusive, a suitable quantity of combustible material such, for example, as sawdust or other smoke-producing material, may be introduced into the storage box or container 90, (first removing the top or closure member 91), whereupon the drive shaft 18 may be set in operation by closing a suitable control switch (not shown) for the motor 12 and which control switch may be mounted at any suitable point upon the supporting frame 2 or upon the sign or billboard 1; another suitable control switch (not shown) being mounted at any convenient point on the sign or billboard 1 or upon the supporting frame 2 for closing circuit to the igniting element 81 or, if desired, both the motor 12 and the igniting element 81 may be arranged in the same circuit and controlled by a single switch.

When the circuit to the igniting element 81 is closed and the motor 12 is set in operation so as to operate the drive shaft 18, through the medium of the shaft 12a and gears 16—17, the combustible material will be fed from the storage box or compartment 90, by the conveyor 93, into the chute 89 whence it will drop, by gravity, into the combustion chamber 6 wherein it will be urged downwardly, by gravity or in any other suitable manner, into engagement with the igniting element 81. At the same time, that is, when the motor 12 and the shaft 18 are set in operation, power will be transmitted from the shaft 12a of the motor 12, by way of the sprocket and gear arrangement 14—15—59, to the shaft 82 so as to operate the agitator 83 which, when thus operated, will agitate the combustible material in the combustion chamber 6—6a so as to move the same relative to and around the igniting element 81.

At the same time, that is, when the agitator 82 is set in operation and the circuit to the igniting element 81 is closed, air will be forced from the air storage tank 7 through the tube 86 into the combustion chamber 6a so as to mix with and oxidize the combustible material therein, and in this manner the combustible material in the combustion chamber will be ignited so as to produce smoke, and the smoke produced thereby will travel out of the combustion chamber, by way of the conduit 8, into the smoke storage chamber 3 (Fig. 2) whence it will pass, by way of the openings 9, into the throat 5 and in front of the flexible diaphragm 49 which forms the rear wall of the smoke storage chamber 3.

Accordingly, as the shaft 18 is revolved, by means of the motor 12, shaft 12a and gears 16—17, the cam 40 which is mounted on the shaft 18 (Fig. 4) will also be rotated and during this movement of the cam 40 the lower end portion 45a of the arm 45 will ride off from the rise or hill 40a of the cam 40 and onto the dale or recessed portion 40b of the same whereupon the spring 43 will urge the arm 45 (counterclockwise from the position in which it is shown in Fig. 4) and this movement of the arm 45 will act, through the link or rod 46, to flex the diaphragm or rear wall 49 of the smoke storage chamber 3 (right to left, Fig. 4, bottom to top, Fig. 2). When the rear wall or diaphragm 49 of the smoke storage chamber 3 is thus flexed it will force a part of the smoke contained therein out through the throat 5 and through the circular opening or orifice 50, thus producing a smoke ring 95 which thus expelled from the opening 50 in the sign or billboard 1, will attract the attention of passers-by and thus attract attention to any desired advertising matter which may be painted or otherwise inscribed thereon, and this operation will be repeated at successive intervals as the cam 40 revolves; it being noted that the flexible diaphragm 49 is returned to its initial position (as in Figs. 2 and 4) when the rise or hill 40a of the cam 40 engages the lower end portion 45a of the arm 45 and pivots the latter, at 56, (clockwise from its effective position into the position in which it is shown in Fig. 4) thus moving the link 46 and the diaphragm 49 back into their initial position (as in Fig. 2).

At the same time, that is, when the smoke ring-producing mechanism is in operation, power will be transmitted from the shaft 18, by way of the gears 26—25 and shaft 25a to the eccentric mech-

anism 24—22—21 so as to oscillate the shaft 19 in its bearing 20, thereby oscillating the arm 66, which is mounted in the shaft 19, and thus moving the hand portion 66a of the arm 66 back and forth across the smoke outlet or opening 50 in the signboard 1 so as to produce the illusion that the character shown on the sign 1 (Fig. 6) is smoking the cigarette mounted in the hand 66a and is exhaling smoke through the opening 50 which forms the mouth of the said character.

A modified form of the invention is shown in Figs. 7 and 8 and in this form of the invention the smoke-producing mechanism which is embodied in the form of the invention shown in Figs. 1 to 6 inclusive is mounted upon a vehicle which is shown as having the form of a truck 73.

In the modified form of the invention shown in Figs. 7 and 8 a pair of spaced upright signs or signboards 96 are mounted on the truck 73 and each of the same is provided with a smoke outlet or opening 50a, which corresponds to the opening 50 in the form of the invention shown in Figs. 1 to 6 inclusive and an arm 66 is pivotally mounted, as at 19a, on each of the signboards 96, these arms being operated in any suitable manner as by means of handles or cranks 74 (Fig. 8) which are attached to the shafts 19a and are arranged between the signboards 96 so that they may be operated by a person standing or seated on the truck 73 between the signs 96 or, if desired, the shafts 19 may be operated by any suitable mechanism provided therefor and mounted on the truck 73. Otherwise the form of the invention shown in Figs. 7 and 8 is substantially the same as that shown in Figs. 1 to 6 inclusive.

Another modification of the invention is shown in Figs. 9 and 10 and this form of the invention is especially adapted for use upon a vehicle such, for example, as the truck 73a.

In the modified form of the invention shown in Figs. 9 and 10, the smoke-generating and expelling mechanisms shown in Figs. 1 to 5 inclusive, are arranged in a housing 75 which is turnably or rotatably mounted upon the truck 73a by means of rollers 76, this housing 75 being made of any suitable material such, for example, as papier-mâché, and being provided with a smoke outlet or orifice 50b through which smoke rings 95b may be expelled.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. In an advertising device, the combination of a sign or billboard adapted to have advertising or display matter arranged thereon and provided with an opening, a smoke storage chamber arranged behind the said sign or billboard and having communication with said opening, said smoke storage chamber including a wall having the form of a flexible diaphragm, and means for flexing the said diaphragm so as to expel smoke from said smoke storage chamber through the said opening in said sign or billboard so as to attract attention to the latter.

2. In an advertising device, the combination of a sign or billboard adapted to have advertising or display matter arranged thereon and provided with a circular opening, a smoke storage chamber arranged behind the said sign or billboard and having communication with said opening, said smoke storage chamber including a wall having the form of a flexible diaphragm, and means for flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said circular opening so as to produce smoke rings and thus attract attention to the said sign or billboard.

3. In an advertising device, the combination of, a sign or billboard adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke storage chamber arranged behind the said sign or billboard and including a rear wall having the form of a flexible diaphragm, and means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said circular opening so as to produce smoke rings and thus attract attention to the said sign or billboard.

4. In an advertising device, the combination of, a sign or billboard adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke storage chamber arranged behind the said sign or billboard and including a rear wall having the form of a flexible diaphragm, and means for mechanically and automatically flexing said diaphragm at predetermined intervals so as to expel smoke from the said smoke storage chamber through the said circular opening so as to produce smoke rings and thus attract attention to the said sign or billboard.

5. In an advertising device, the combination of, a sign or billboard adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke chamber arranged behind the said sign or billboard and including a rear wall having the form of a flexible diaphragm, means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening so as to produce smoke rings and thus attract attention to the said sign or billboard, a combustion chamber having communication with the said smoke storage chamber, and means for generating smoke in the said combustion chamber.

6. In an advertising device, the combination of, a sign or billboard adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke storage chamber arranged behind the said sign or billboard and including a rear wall having the form of a flexible diaphragm, means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening so as to produce smoke rings and thus attract attention to the said sign or billboard, a combustion chamber having communication with the said smoke storage chamber, and means for generating smoke in the said combustion chamber, said smoke-generating means including an igniting element arranged in the said combustion chamber, and means for agitating combustible material in the said combustion chamber so as to assure contact between the latter and the said igniting element.

7. In an advertising device, the combination of, a member adapted to have advertising or display matter arranged thereon and provided with a

substantially circular opening, a smoke storage chamber arranged behind the said member and including a rear wall having the form of a flexible diaphragm, means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening so as to produce smoke rings and thus attract attention to the said advertising or display matter, a combustion chamber with the said smoke storage chamber, means for generating smoke in the said combustion chamber, said smoke-generating means including an igniting element arranged in the said combustion chamber, means for agitating combustible material in the said casing so as to assure contact between the latter and the said igniting element, a storage chamber for the said combustible material, and means for mechanically conveying the said combustible material from the said second-named storage chamber for the same into the said combustion chamber.

8. In an advertising device, the combination of, a member adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke storage chamber arranged behind the said member and including a rear wall having the form of a flexible diaphragm, means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening so as to produce smoke rings and thus attract attention to the said advertising or display device, a member pivotally mounted upon the said first-named member and including a portion movable across the said opening, and means for intermittently moving the said second-named member relative to the said first-named member so as to move the said portion thereof relative to and across the said opening.

9. In an advertising device, the combination of, a member adapted to have advertising or display matter arranged thereon and provided with a substantially circular opening, a smoke storage chamber arranged behind the said member and including a rear wall having the form of a flexible diaphragm, and means for mechanically and automatically flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening so as to produce smoke rings and thus attract attention to the said advertising or display matter, a member pivotally mounted upon the said first-named member and including a portion movable across the said opening, and means for moving the said second-named member, relative to the said first-named member, during the operation of flexing said diaphragm, so as to move the said portion of the same relative to and across said opening.

10. The combination with a member adapted to have advertising or display matter arranged thereon and provided with an opening, of: a smoke storage chamber having communication with said opening and including a wall having the form of a flexible diaphragm, a combustion chamber having communication with the said smoke storage chamber, means for generating smoke in the said combustion chamber, and means for automatically and intermittently flexing the said diaphragm so as to expel smoke from the said smoke storage chamber through the said opening in the said member and thus attract attention to the said advertising or display matter carried by the latter.

11. The combination with a member adapted to have advertising or display matter arranged thereon and provided with an opening, of: smoke storage chamber arranged at one side of the said member and having communication with said opening, said smoke storage chamber including a wall having the form of a flexible diaphragm, and means for automatically and intermittently flexing the said diaphragm so as to expel smoke through the said opening in the said member and thus attract attention to the said advertising or display matter carried by the latter.

12. The combination with a member adapted to have advertising or display matter arranged thereon and provided with an opening, of: a smoke storage chamber arranged at one side of the said member and having communication with said opening, said smoke storage chamber including a wall having the form of a flexible diaphragm, means for automatically and intermittently flexing the said diaphragm so as to expel smoke through the said opening in the said member and thus attract attention to the said advertising or display matter carried by the latter, a second chamber having communication with the said first-named storage chamber, and means for generating smoke in the said second-named chamber.

13. An advertising device for use in vehicles, comprising an upright member having the form of the head of a human character or the like arranged upon the said vehicle and provided with an opening, a smoke storage chamber arranged upon the said vehicle and having communication with said opening, means for mechanically expelling smoke from said smoke storage chamber through said opening and in the form of smoke rings, a member pivotally mounted upon the said first-named member and including a portion movable relative to and across said opening, and means arranged upon the said vehicle for manually moving the said second-named pivotally mounted member.

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