Feb. 13, 1940. F. P. C. BENOIT 2,190,326

APPARATUS FOR PROJECTION OF MOLTEN PULVERIZED BODIES

Filed July 15, 1936

Fig. 1

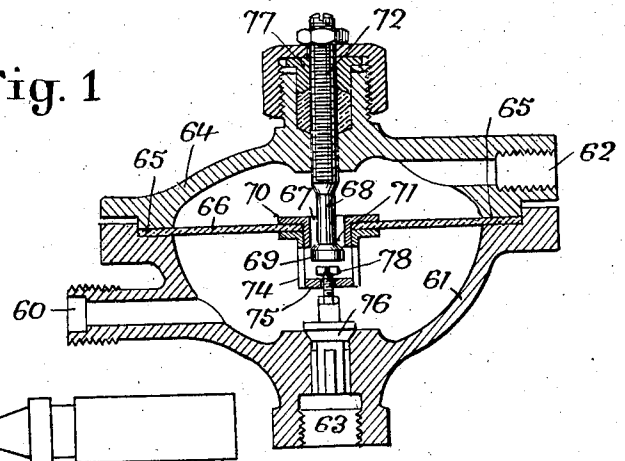
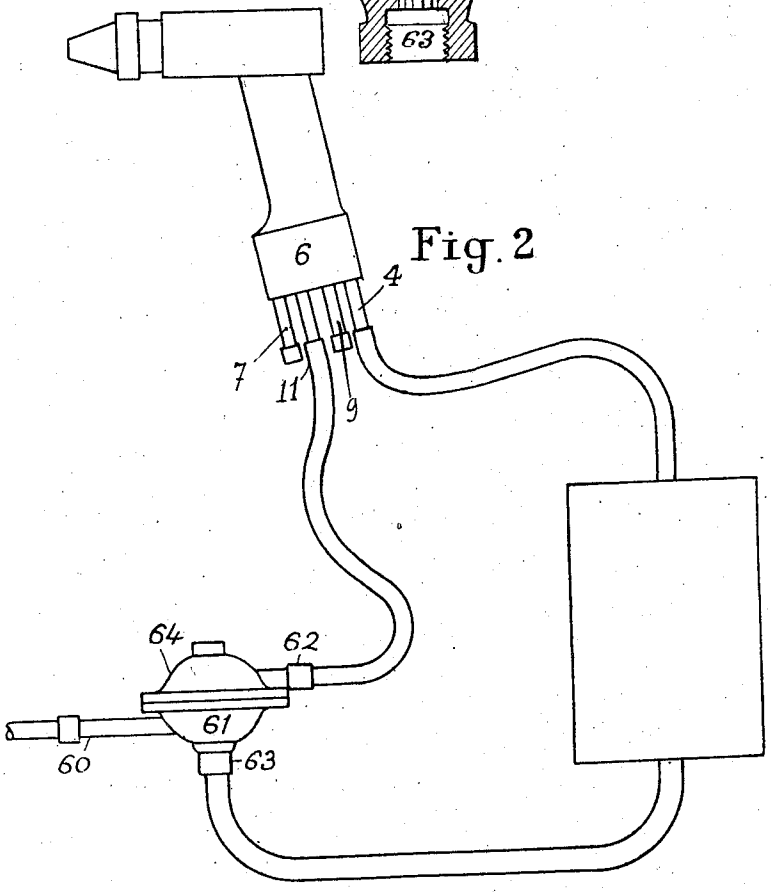


Fig. 2



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Patented Feb. 13, 1940 2,190,326

UNITED STATES PATENT OFFICE

2,190,326

APPARATUS FOR PROJECTION OF MOLTEN PULVERIZED BODIES

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Application July 15, 1936, Serial No. 90,661
In France February 19, 1936

1 Claim. (Cl. 91—12.2)

The present invention relates to apparatus for the projection of matters in the atomized and molten state of the type described in the U. S. Patents No. 1,998,217 and No. 2,072,845 and the U. S. patent application Ser. No. 45,772 of October 19, 1935.

The object of the present invention is to provide an apparatus of the type above described in which the inflow of compressed air is automatically controlled and this air is distributed in the proper manner.

A preferred embodiment of the present invention will be hereinafter described, with reference to the accompanying drawing, given merely by way of example, and in which:

Fig. 1 is an axial sectional view of the device for controlling the distribution of the fluid under pressure, and

Fig. 2 is a diagrammatical view illustrating the combination of a spray gun and an operating apparatus associated therewith.

In Fig. 2, reference character 1 designates the spray gun including the burner, and 4 is the tube for the feed of the fluid serving to convey the powdery matters. The three-way cock shown at 6 at the lower part of the handle of the spray gun permits, through a single control member, of admitting, in the desired order: (1) the gas for supporting combustion, oxygen for instance, which is fed through connection 7; (2) the combustible gas, acetylene for instance, which is fed through coupling 9; and, (3) the compressed fluid, which is fed through coupling 11, and flows through the aperture of the dome of cock 6, as described in the U. S. Patent 2,072,845 and is led to the burner through tube 12.

The cock for controlling the fluids admitted into the burner, visible at 6 in Fig. 1, does not differ, in its construction, from that described in U. S. patent application No. 2,072,845, but, in this case, it is fitted in such manner that the compressed fluid for cooling the head of the burner, for producing a supplementary suction and for projecting the powdery matters passes directly through the dome of the cock, while in the construction disclosed in this prior application it was the fluid serving to convey the powdery matters that flew through this dome.

This last mentioned fluid is fed through tube 4 (Fig. 2), but the same source of compressed fluid supplies directly, on the one hand coupling 11 and, on the other hand the apparatus for placing the powdery matters into suspension in said fluid. After issuing from this last mentioned apparatus, the mixture of fluid and powder is admitted through 4 into the spray gun.

In order to control the flow of this compressed fluid through cock 6 itself, I make use of the arrangement shown in axial section in Fig. 1. The single source of compressed fluid is connected to the coupling 60 of the body 61 of the apparatus, which constitutes a distributing device. The fluid for cooling the burner, exerting a supplementary suction action and projecting the powdery matters escapes at 62 through a conduit which leads at 11 to the cock 6 of the spray gun. The fluid necessary for bringing the powdery matters into suspension therein and conveying them to the burner flows out through coupling 63. Therefore coupling 63 is connected with the powder reservoir. After mixture with the powder in said reservoir, the fluid is fed to the spray gun through conduit 4.

The body 61 (Fig. 1) is closed by a lid 64 through which an elastic membrane 66 is fixed at 65. This flexible partition is provided, in its central part, with a hole 67 through which extends a cylindrical rod 68, the lower part 69 of which is of conical shape. Between this conical part 69 and the metallic fitting 70 of the aperture 67, there is left a slight play 71. This play or clearance space can be adjusted by screwing rod 72 in lid 64.

On the other hand, the elastic membrane 66 supports, through rods 74 and cross member 75, a valve 76 which stops the passage toward coupling 63.

If it is supposed that the cock 6 of the spray gun is in the closed position, fluid cannot flow out through coupling 62. The pressure of conduit 60 is transmitted to the space below membrane 66 and also to the space above said membrane, owing to the leakage through space 71. This pressure applies valve 76 against its seat and fluid cannot flow out toward the powder reservoir.

But if the cock 6 of the spray gun is opened, the fluid under pressure can escape through 62. Passage 71 is not sufficient for keeping the pressure above the membrane, so that the latter is deformed, its central part being lifted, so as to open valve 76 through rods 74. Fluid can then flow out toward the powder reservoir through coupling 63.

It will be noted that the various parts of the device are adjustable, the area of passage 71 being variable owing to the threaded part of rod 72, which passes, on the other hand, through a

packing system 77, and the upward movement of valve 76 being variable through screw 78.

Owing to this device, cock 6 controls the flow of all the fluids that are called into play in the working of the spray gun. It ensures the opening or the closing of their conduits automatically in the desired order.

In a general way, while I have, in the above description, disclosed what I deem to be a practical and efficient embodiment of the present invention, it should be well understood that I do not wish to be limited thereto as there might be changes made in the arrangement, disposition and form of the parts without departing from the principle of the present invention as comprehended within the scope of the appended claim.

What I claim is:

In combination with a spray gun for melting powder and spraying the resulting molten matter in an atomized state, a casing, an elastic partition in said casing for dividing it into two chambers, an inlet for said fluid under pressure opening into one of said chambers, an outlet for said fluid connected with said last mentioned chamber, said elastic partition being provided with an adjustable aperture of restricted section, means carried by said partition for controlling said outlet so as to open it when the pressure in said last mentioned chamber is higher than in the other chamber, and an outlet connected with said other chamber adapted to be connected with said means for feeding a fluid under pressure to said burner, the first mentioned outlet serving to the outflow of the fluid intended to hold the powder in suspension therein.

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