Aug. 7, 1934. A. S. JOHNSON 1,968,891

FOUNTAIN COATING IMPLEMENT

Filed Sept. 9, 1932

Fig. 1.

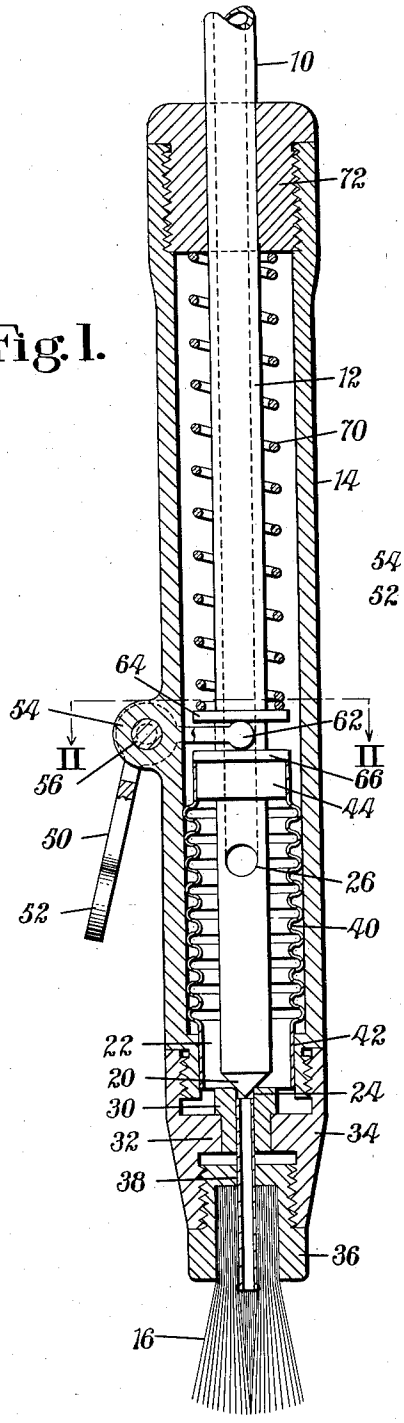
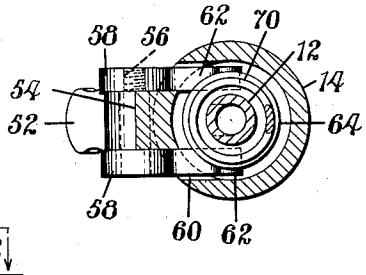


Fig. 2.



INVENTOR
Arthur S. Johnson
By his Attorney
Harlow M. Davis

Patented Aug. 7, 1934

1,968,891

UNITED STATES PATENT OFFICE

1,968,891

FOUNTAIN COATING IMPLEMENT

Arthur S. Johnson, Beverly, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application September 9, 1932, Serial No. 632,375

1 Claim. (Cl. 91—39)

This invention relates to devices for applying coating materials and is herein illustrated as embodied in a hand implement of the fountain type particularly adapted for applying cement such, for example, as pyroxylin cement.

In connection with the manufacture of compo shoes, the application of pyroxylin cement to shoe parts at a number of stages in the manufacture of the shoes has formerly, for the most part, been carried out by means of an ordinary hand brush dipped in an open cup containing cement. The quick-drying properties of the cement make cementing by the use of such an arrangement wasteful, difficult of control and generally untidy as well as relatively slow. Thus, for instance, in the preparation of compo shoes, and also shoes of certain other types, for side lasting, it has been a common practice to apply pyroxylin cement with a brush to the inner side of the lining or doubler and between the doubler and the upper, prior to the lasting operation in which the upper is stretched and overlapped upon the insole. On the other hand, in some factories this operation has been carried out with the assistance of apparatus of the general type illustrated in Letters Patent of the United States No. 278,086, granted May 22, 1883, to C. K. Bradford, in the use of which cement is delivered under pressure from a supply receptacle through a flexible hose to an applying brush, a valve being provided to contol the delivery of cement. The properties of pyroxylin cement render undesirable, however, the use in such a controlling valve of moving joints such as sliding or rotative joints, which are exposed to the cement because of the danger that the device will become clogged and the movable parts will stick.

With this in view, an object of the present invention is to provide an improved fountain cement-applying device which will be well adapted for use in the application of pyroxylin cement without clogging and without the sticking of any movable parts.

In the attainment of this object and in accordance with a feature of the invention, the control of the passage of cement between a source of supply and an applying member is effected by a valve associated with and controlling the outlet of a chamber though which cement is conducted from the source of supply to the applying member. This valve comprises a movable member passing through a flexible bellows serving as a part of the walls of the chamber and sealed to the movable valve member by a fixed cement-tight joint. This avoids the use of any sliding or movable joint which is exposed to the cement. In the illustrated construction the flexible bellows used is a corrugated inner casing which contacts with the inner wall of an outer casing or handle and guides the valve member to its seat. When this device is embodied in a portable cement-applying implement the applying member is mounted upon one end of a hollow handle in which the above-mentioned chamber and valve are enclosed and through which the cement is conducted. As illustrated, the outlet opening of this chamber is in an apertured plug having a sharp edge which forms a seat for a tapered valve member which will make substantially a line contact with the seat and thereby avoid any danger of valve sticking. Preferably, and as illustrated, the movable valve member extends through and is sealed tightly in the mid-portion of the flexible bellows the outer edge of which is secured to the surrounding handle. The illustrated applying device is a brush, to the interior of which the cement is conducted.

In the drawing Fig. 1 is a vertical longitudinal section through the axis of the device; and Fig. 2 is a transverse section on the line II—II of Fig. 1.

Cement is conducted from a source of supply (not shown), where it usually will be under pressure, through a flexible hose (not shown) and is delivered to the upper end 10 of an inlet pipe 12 of a cement-applying device. This device is shown as a portable implement comprising a tubular outer casing serving as a handle 14 and carrying at its lower end an applying device in the form of a brush 16 surrounding an outlet passage from this casing. It will be understood, however, that the invention is not limited to this or to any particular form of applying device.

Control of the passage of cement through the implement is effected by a tapered, conical valve member 20 formed integrally with and upon the lower end of the inlet pipe 12 and positioned within a chamber 22 to control the outlet opening 24 therefrom. The inlet opening of this chamber is a lateral passage 26 connecting the inside of the inlet pipe 12 with this same chamber 22. The cement is therefore free to flow into the chamber 22 but may not pass out of the chamber unless the valve 20 is lifted from the valve seat formed in a plug 30. The

valve seat is formed by drilling a cylindrical outlet passage 24 through the plug 30 so that the conical valve 20 cooperates with the sharp upper edge of this outlet and there is little danger of clogging of the valve which is self-cleaning. The plug 30 in which the valve seat is formed is of hard metal, such as steel, and is held frictionally in a transverse partition 32 formed in a sleeve 34 threaded on the lower end of the cylindrical handle. The applying brush 16 is mounted in a tip 36 threaded in the lower end of the sleeve 34 and provided with a tube 38 which enters the outlet passage 24.

The plug 30 and the partition 32, together with the sleeve 34, define a portion of the chamber 22 and the remaining wall of the chamber is closed by means of a flexible member 40 forming a tubular casing having circumferential corrugations allowing substantial longitudinal expansion and therefore acting as a diaphragm. This corrugated casing or bellows is secured at its outer edges 42 to the inside of the handle 14 adjacent to the chamber 22 to make hermetically sealed joint and is sealed at its center which is its upper end to an enlargement 44 upon the inlet tube 12. This bellows, the convolutions of which touch the inside of the handle, may be secured at its upper and lower ends as by soldering to form a cement-tight flexible wall between the handle 14 and the movable valve member 20 so that in order to secure movement of the valve member it is not necessary to provide a sliding or a rotative joint which will be cement-tight and liable to "freeze." The lower end of the inlet pipe 12 is centered by the engagement of the bellows with the inner wall of the handle.

Actuation of the movable valve member 20 may be effected by means of a bell crank lever 50 having a fingerpiece 52 and forked at its upper end to permit it to be pivoted upon a lug 54 formed upon the side of the handle 14. A screw 56 forms a pivot passing through the forked ends 58 of the bell crank and the lug 54. The forked ends of the bell crank extend through silts 60 in the handle and have rounded terminals 62 received between flanges 64 and 66 formed integrally with the inlet tube 12. A helical spring 70 encircling the inlet pipe 12 is positioned between the flange 64 and a plug 72 which is threaded in the upper end of the handle 14 and by which this inlet pipe 12 is guided as it slides freely therethrough. This spring keeps the valve normally closed.

The arrangement is such that no sliding joint is required at any point which is exposed to the cement with the likelihood that it will "freeze" and require frequent cleaning. If cleaning of the valve seat in the plug 30 or of the tube 38 is required, it can easily be accomplished by unscrewing the sleeve 34 and, if necessary, separating the tip 36, and immersing these parts in solvent. The construction requires only one sliding joint, that between the inlet pipe 12 and the plug 72 at the upper end of the handle, and this joint is not exposed to the cement, thereby permitting it to be lubricated and kept free without any difficulty. No opportunity is provided for leakage of cement through the openings 60 in which the forked ends 58 of the handle are inserted and as a consequence a simple, easily manufactured construction is provided.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

In a portable cement-applying implement, a hollow handle having a guide at one end and an applying member at the other end, an inlet pipe slidably mounted in said guide, said handle also having an outlet passage extending from the interior of said handle to said applying member, a valve member movable with said inlet pipe and controlling said outlet passage, a corrugated bellows one end of which tightly surrounds and is sealed to said inlet pipe and which is sealed at its other end to the interior of said handle to form a chamber communicating with said inlet pipe and said outlet passage, said bellows contacting with the inner wall of the handle and serving as a guide for the valve end of said inlet pipe, a spring surrounding the inlet pipe outside the bellows for moving the valve to closed position, and a finger piece pivoted on said handle and engaging said valve to open it against the tension of said spring.

ARTHUR S. JOHNSON.