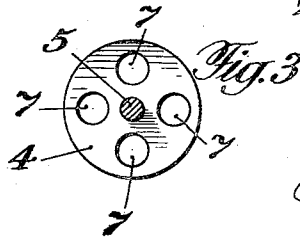
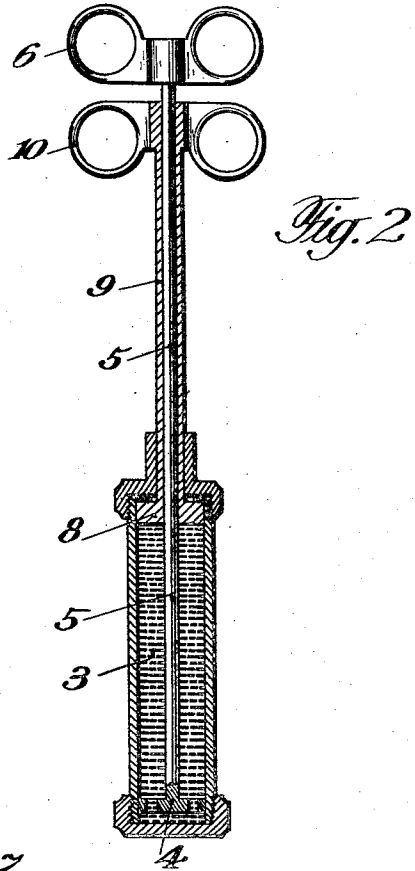
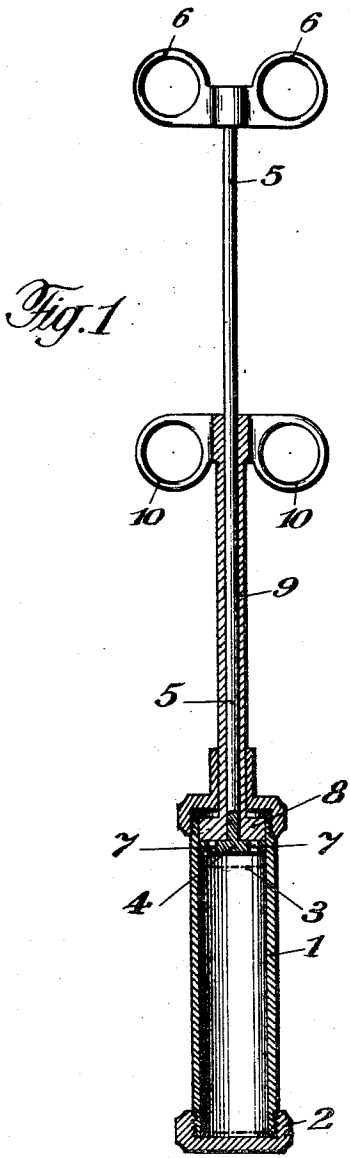


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E. DE TREY  
KNEADING DEVICE  
Filed Oct. 31, 1927



*Inventor:*  
Emanuel de Trey,  
By *[Signature]*  
att.

# UNITED STATES PATENT OFFICE.

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## KNEADING DEVICE.

Application filed October 31, 1927, Serial No. 229,977, and in Switzerland March 16, 1927.

The subject matter of the present invention is a device for treating a paste adapted for making castings for dental purposes so as to render it ready for use. The device comprises a barrel or cylinder for receiving a paste cartridge. Inside the cylinder two pistons coaxially movable relatively to each other are arranged, one of which is perforated for permitting its utilization as a kneading piston whilst the other has no perforations in order to be used as an expelling piston. Thereby the perforated piston may be fixed to a piston rod endwise displaceable in the cylinder, that piston rod being surrounded by a second tubular piston rod for the non-perforated piston and axially displaceable relatively to the first piston rod. Both piston rods may be provided at their free ends with rings adapted to be held by the fingers of the operator to facilitate the displacement of the pistons.

A constructional example of the subject matter of the present invention is illustrated on the accompanying drawing, in which:

Fig. 1 shows the non-filled device in an axial section,

Fig. 2 shows the filled device in an axial section,

Fig. 3 is a plan view on an enlarged scale of the perforated piston.

In the drawing 1 denotes a cylinder, preferably made of metal, and provided at its lower end with a screw cap 2 to permit a paste cartridge 3 to be inserted into the cylinder from below. 4 is a piston fixed to a piston rod 5 which is provided at its upper end with two rings 6 by means of which the piston can be easily moved up and down. The piston 4 is provided with perforations 7 (Fig. 3) through which the mass of the paste cartridge is forced repeatedly when the piston is reciprocated, whereby the paste is kneaded, the cylinder is preferably heated exteriorly during said operation for instance in a water bath. The paste is thereby rendered pliant and suitable for the preparation of castings for dental purposes for instance by means of the known tooth-spoon. Above the piston 4 a second piston 8 is provided which has no perforations and is fixed to a tubular piston

rod 9 which loosely surrounds the piston rod 5, and is provided at its upper end with rings 10 facilitating the upward and downward movement of the piston 8. After the mass has been rendered pliant by a repeated up and down movement of the piston 4 the screw cap 2 is removed and the piston 8 is forced in the downward direction whereby the piston 4 follows the movement of the piston 8 when the former is in its uppermost position and the treated mass is expelled from the cylinder.

I claim:

1. A device of the type described, comprising in combination, a barrel, two pistons coaxially arranged in said barrel, one of said pistons being solid and the other perforated, and means adapted to reciprocate either of said pistons and independently or simultaneously of the other.

2. A device of the type described, comprising in combination, a barrel, two pistons coaxially arranged in said barrel, one of said pistons being solid and the other perforated, a piston rod fixed to said perforated piston, and a hollow piston rod surrounding the first mentioned piston rod and fixed to said solid piston.

3. A device of the type described, comprising in combination, a barrel, two pistons coaxially arranged in said barrel, one of said pistons being perforated and the other non-perforated, a piston rod fixed to said perforated piston and a hollow piston rod surrounding the first mentioned piston rod and fixed to said non-perforated piston, and a screw cap for closing said barrel.

4. A device of the type described, comprising in combination, a barrel, two pistons coaxially arranged in said barrel, one of said pistons being perforated and the other non-perforated, a piston rod fixed to said perforated piston and a hollow piston rod surrounding the first mentioned piston rod and fixed to said non-perforated piston, and handles on said piston rods for operating said pistons.

In testimony whereof, I have signed my name to this specification.

EMANUEL DE TREY.