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(54) **FOAM OF THERMOPLASTIC URETHANE ELASTOMER COMPOSITION AND PROCESS FOR PRODUCING THE FOAM**

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(58) **Field of Search** 521/130, 131, 521/170, 174

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(57) **ABSTRACT**

The method of the present invention for producing a urethane-based thermoplastic elastomer composition foam comprises the steps of:

adding and mixing 0.1 to 30 parts by weight of carbon dioxide (B) to 100 parts by weight of a urethane-based thermoplastic elastomer composition (A) in a molten state, wherein said urethane-based thermoplastic elastomer composition (A) comprises a urethane-based thermoplastic elastomer (A-1) and other thermoplastic elastomer (A-2) in an (A-1)/(A-2) ratio of 20/80 to 99/1 by weight, to form a molten urethane-based thermoplastic elastomer composition (C) which is in a state of a mixture of the urethane-based thermoplastic elastomer composition (A) and the carbon dioxide (B) (gas dissolving step); and

lowering a temperature of said molten urethane-based thermoplastic elastomer composition (C) (cooling step).

The present invention can produce the urethane-based thermoplastic elastomer foam of stable quality over a range from low foamed product to highly foamed product by adding a given quantity of carbon dioxide in the molten urethane-based thermoplastic elastomer quantitatively and stably. It can also produce the foam excellent in flexibility, thermal insulation and surface appearances. It is also excellent in safety, because of use of carbon dioxide in place of the common foaming agent of fluorochlorohydrocarbon or butane, thus causing no air pollution or destruction of the ozone layer.
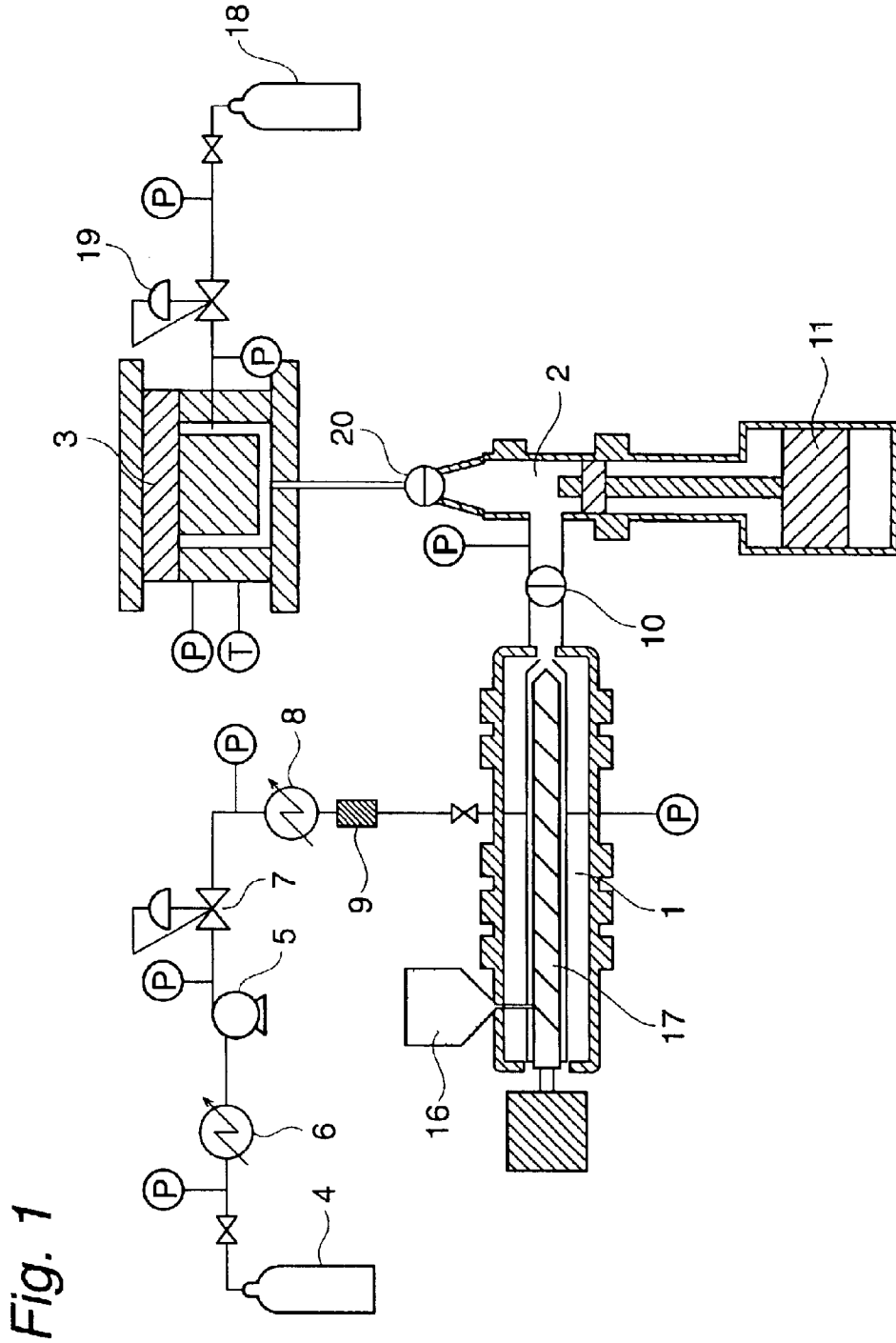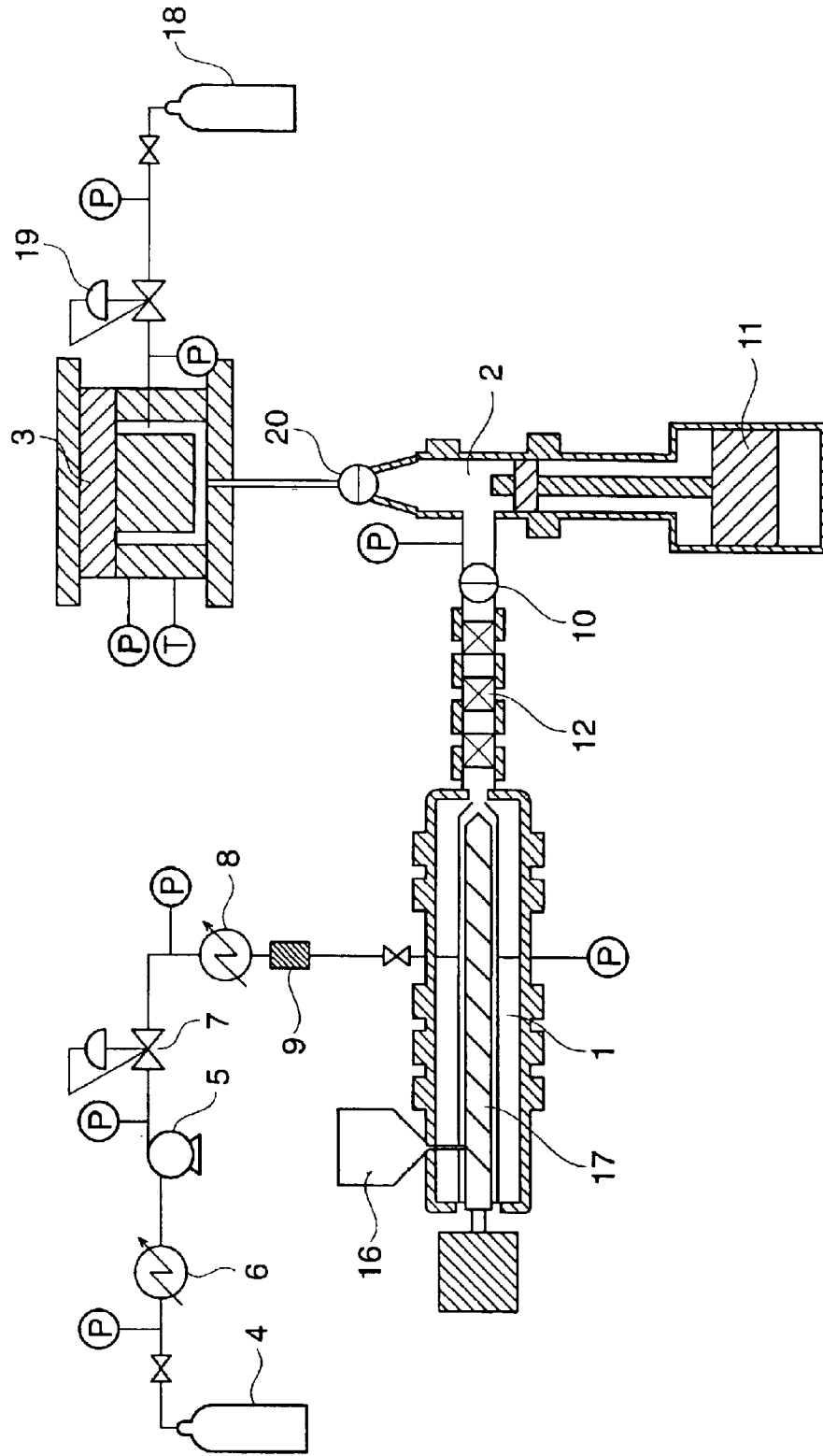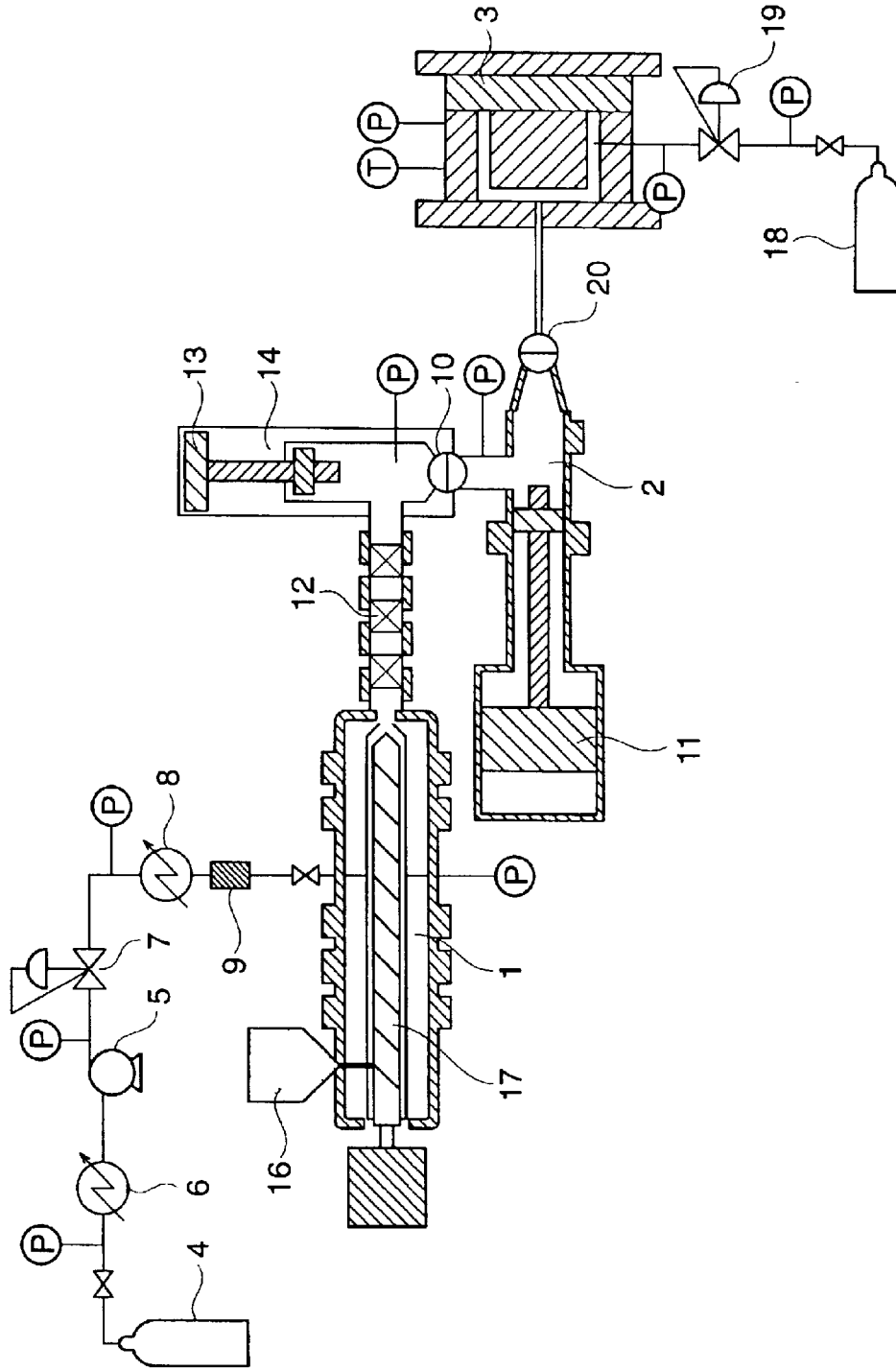
16 Claims, 7 Drawing Sheets

Fig. 1

Fig. 2

Fig. 3

Fig. 4

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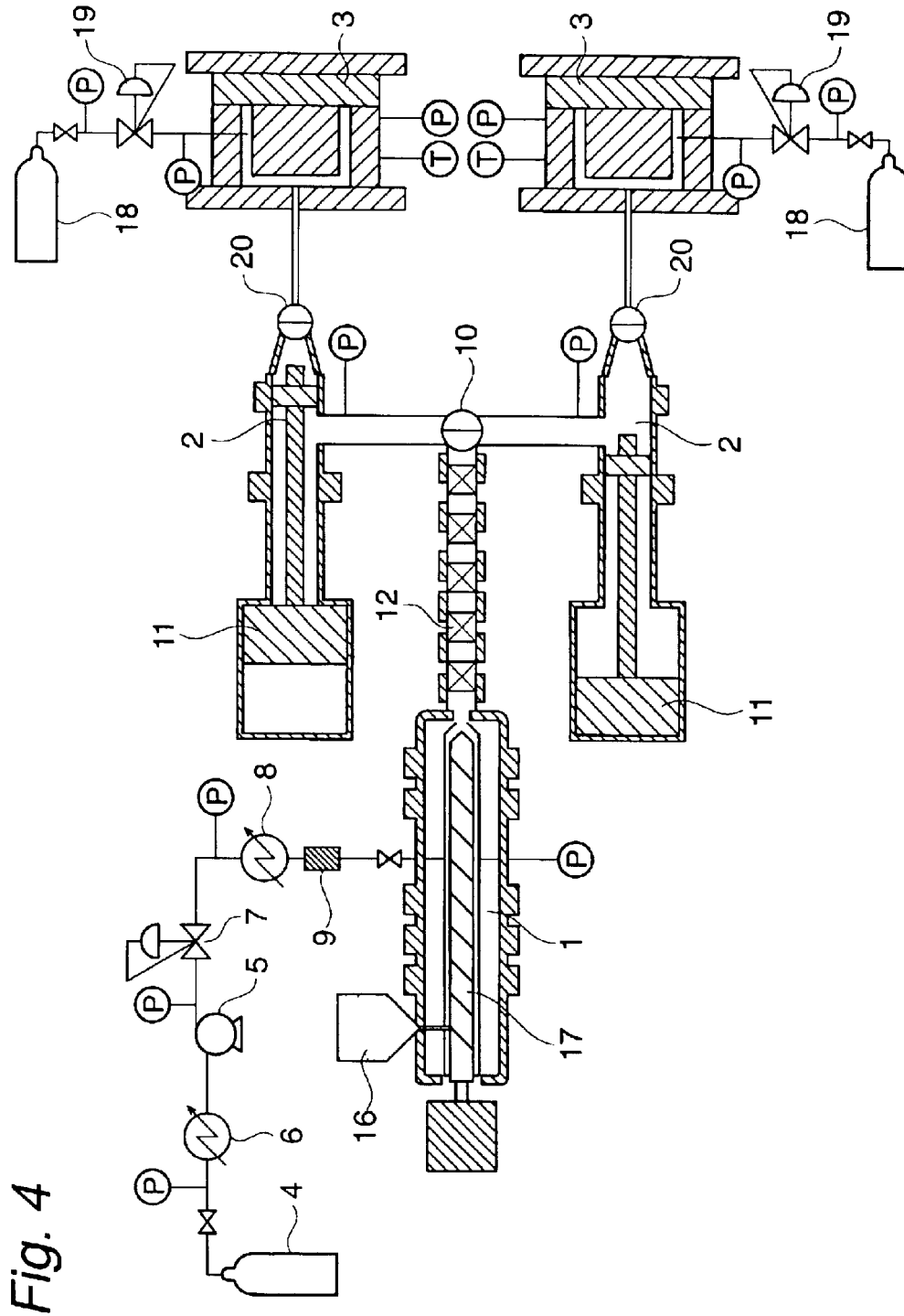
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