

G. R. BIMM.
 SUCTION CLEANING APPARATUS.
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944,714.

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Fig. 1.

Fig. 2.

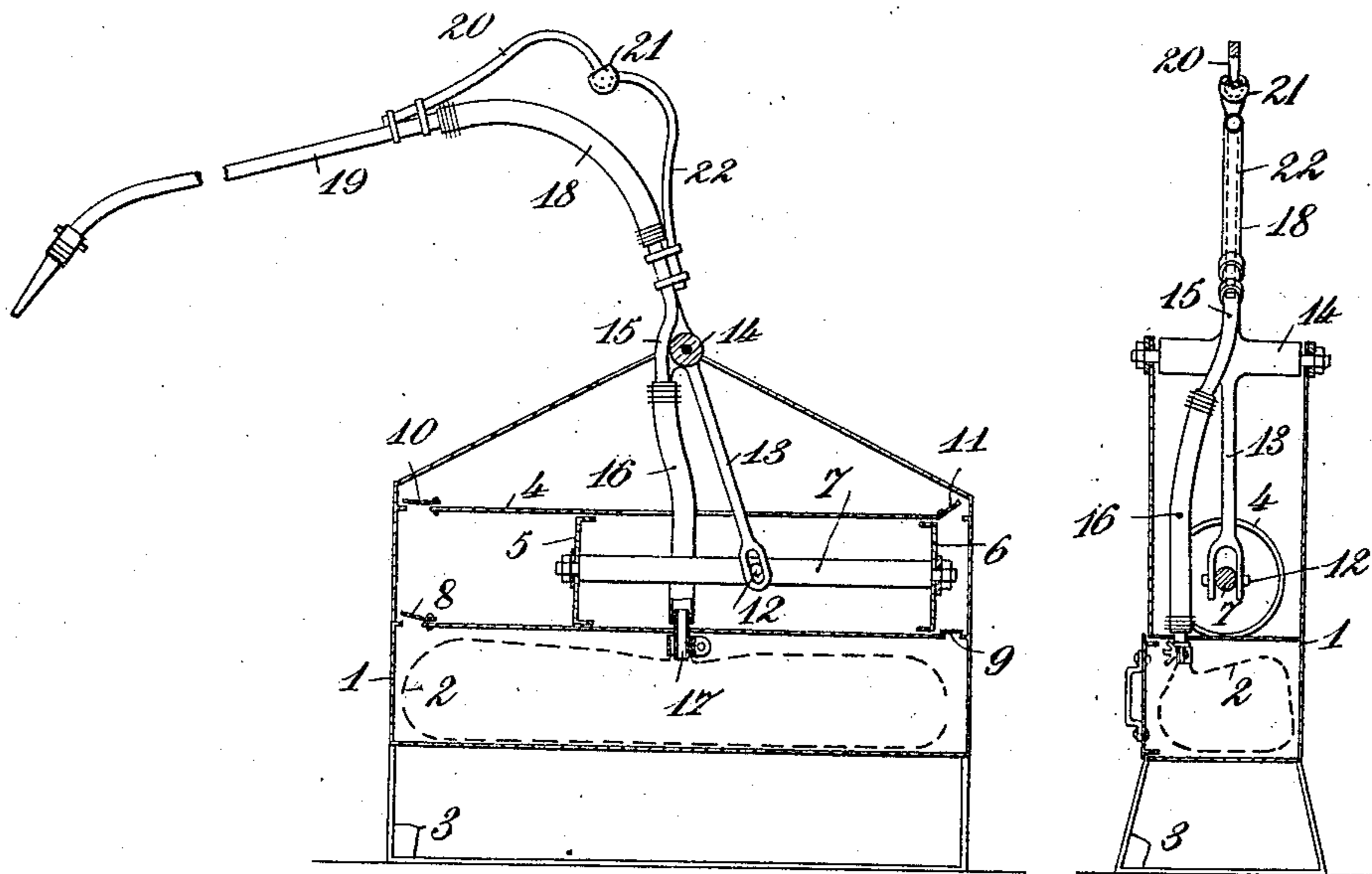
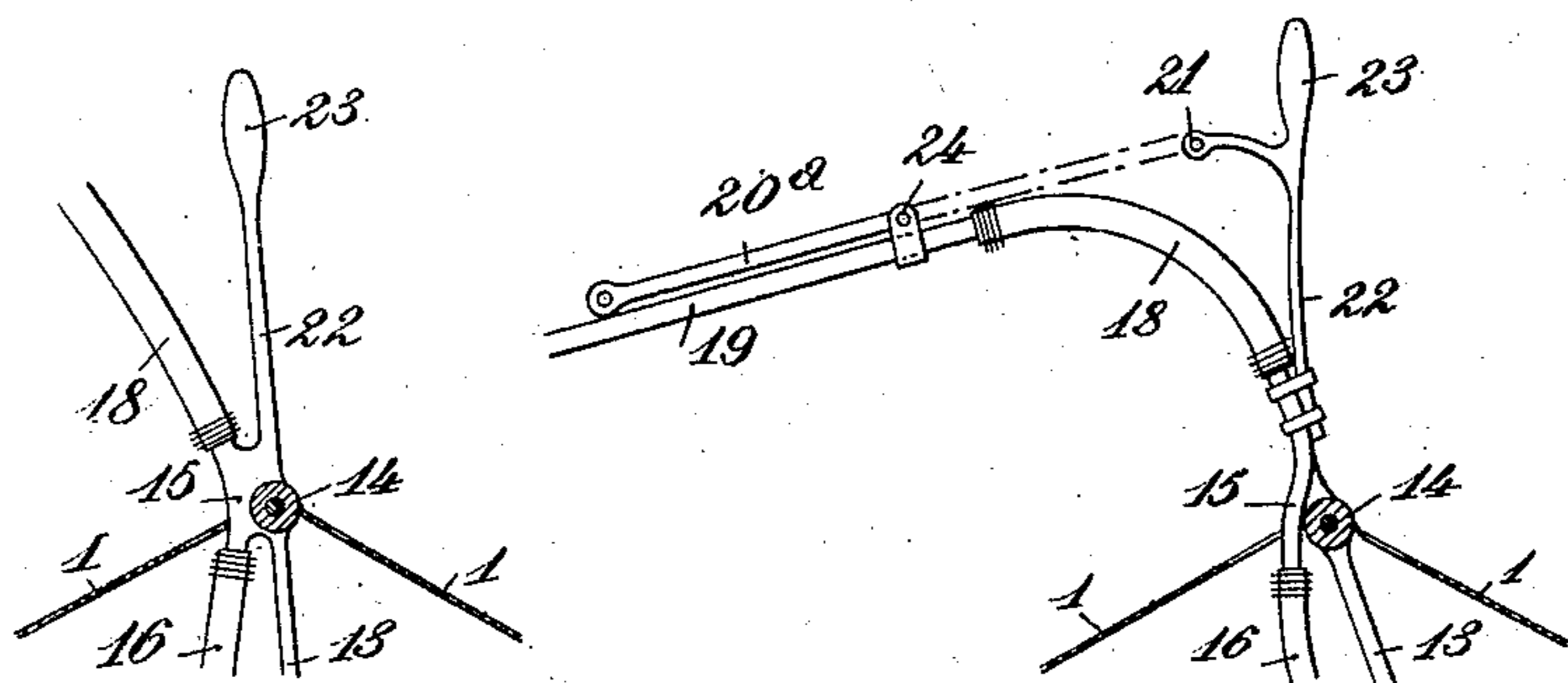


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

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SUCTION CLEANING APPARATUS.

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To all whom it may concern:

Be it known that I, GEORGES ROBERT BIMM, citizen of the Republic of France, residing at Paris, in France, have invented new and useful Improvements in or Relating to Suction Cleaning Apparatus, of which the following is a specification.

This invention relates to suction cleaning apparatus and has for its object to improve and simplify the pump actuating mechanism of apparatus of the manually operated type of domestic apparatus used for vacuum cleaning.

According to this invention the reciprocating movement of the suction nozzle and its pipe is utilized to operate the pump to which the nozzle is suitably connected, so that the nozzle or its pipe can be held in both hands and a better result be obtained with less fatigue, more particularly where the suction nozzle is provided with a brush on which some pressure has to be exerted and consequently where a certain resistance has to be overcome.

In the accompanying drawings which show three constructions of apparatus according to this invention, Figure 1 is a diagrammatic sectional elevation of a suction cleaning apparatus. Fig. 2 is a cross-section thereof, and Figs. 3 and 4 show modified constructions of a part of the suction device.

The body 1 of the apparatus is provided in its lower portion with a filtering chamber 2 which separates the air from the dust, and the body or casing is mounted on a foot or stirrup 3 which enables the apparatus to be held in position by the foot of the operator. In the upper portion of the casing is arranged a cylinder 4 in which work two pistons 5 and 6 connected together by a rod 7. The ends of the cylinder 4 are provided respectively with suction valves 8 and 9 and discharge valves 10 and 11. The rod 7 is provided with transverse projections 12 or trunnions which engage the forked end of a lever 13 pivoted to a pin 14 secured to the upper portion of the body 1 of the apparatus. A pipe section 15 is secured to the lever 13 and connected at its lower end by means of a flexible tube 16 to the union 17 of the filtering chamber 2. The upper end of the pipe 15 is connected by a flexible tube 18 to one end of the pipe 19 on the other end of which is mounted the suction nozzle. The pipe 19 is secured to a lever 20 con-

nected by means of a ball and socket joint 21 to an arm 22 secured to or formed in one with the lever 13, and connected with the pipe 15.

It will be understood that owing to the method of connecting the pipe 19 to the other rigid pipe 15, the suction nozzle can be inclined in a suitable manner to reach the articles to be cleaned, and that by imparting to the pipe 19 and consequently to the suction nozzle which it carries, a reciprocating movement, this movement is imparted to the pistons 5 and 6 through the levers 20 and 22. Suction is therefore produced alternatively at each of the ends of the cylinder 4 and consequently a practically continuous suction through the pipes 19, 18, 15, 16, and filtering chamber 2. A single reciprocating movement being thus required for carrying the suction nozzle over the articles to be cleaned and for operating the double-acting pump, the result is that the operator can put both his hands on the pipe 19, and so work the apparatus in a very convenient manner and with little fatigue.

In the cases where it is only necessary to employ one hand to work the apparatus the upper end of the lever 13 may be extended to form a handle 23 (Fig. 3); in this case the flexible tube 18 and the nozzle pipe can be moved by the other hand of the operator over the articles to be cleaned. The apparatus can also be arranged in such a manner that the pump is actuated either directly with one hand only, or indirectly, both hands being applied to the nozzle pipe 19. Such a construction is shown in Fig. 4 where the rigid arm 22 is provided with an operating handle 23, and the pipe 19 has pivoted to it a link 20^a which can be turned about its pivot 24, and connected to the end of the arm 22. The apparatus can then be used in the manner described in connection with Fig. 1 while, when the link 20^a is disconnected as shown in full lines in Fig. 4, the apparatus can be used as though constructed in accordance with Fig. 3. When the link 20^a is folded back out of operation on to the pipe 19, as shown in Fig. 4, it can be held in position thereon by means of an elastic collar (not shown in the drawing) or clip of any convenient construction.

It will be appreciated that the reciprocating pump may be of any construction, and that other details of construction may be

varied, within the limitations of the claims, without departing from this invention.

Having now particularly described and ascertained the nature of my said invention 5 and in what manner the same is to be performed, I declare that what I claim is:—

1. The combination with a vacuum pump, of a nozzle, flexible means establishing communication between said pump and nozzle, 10 and mechanisms connecting said nozzle with said pump and serving to operate the latter upon movement of the former.

2. The combination with a vacuum pump, of a nozzle, flexible means establishing communication between said nozzle and pump, 15 and articulated mechanism connecting said nozzle with said pump and serving to operate the latter upon movement of the former.

3. The combination with a vacuum pump, 20 of a nozzle, a pivotally mounted lever connected with said pump, a pipe secured to said lever adjacent the pivotal mounting thereof, a flexible connection establishing communication between one end of said pipe 25 and said pump, a flexible connection establishing communication between the other end of said pipe and said nozzle, and mechanism connecting the nozzle with said lever and serving to operate the same and said 30 pump upon movement of said nozzle.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGES ROBERT BIMM.

Witnesses:

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