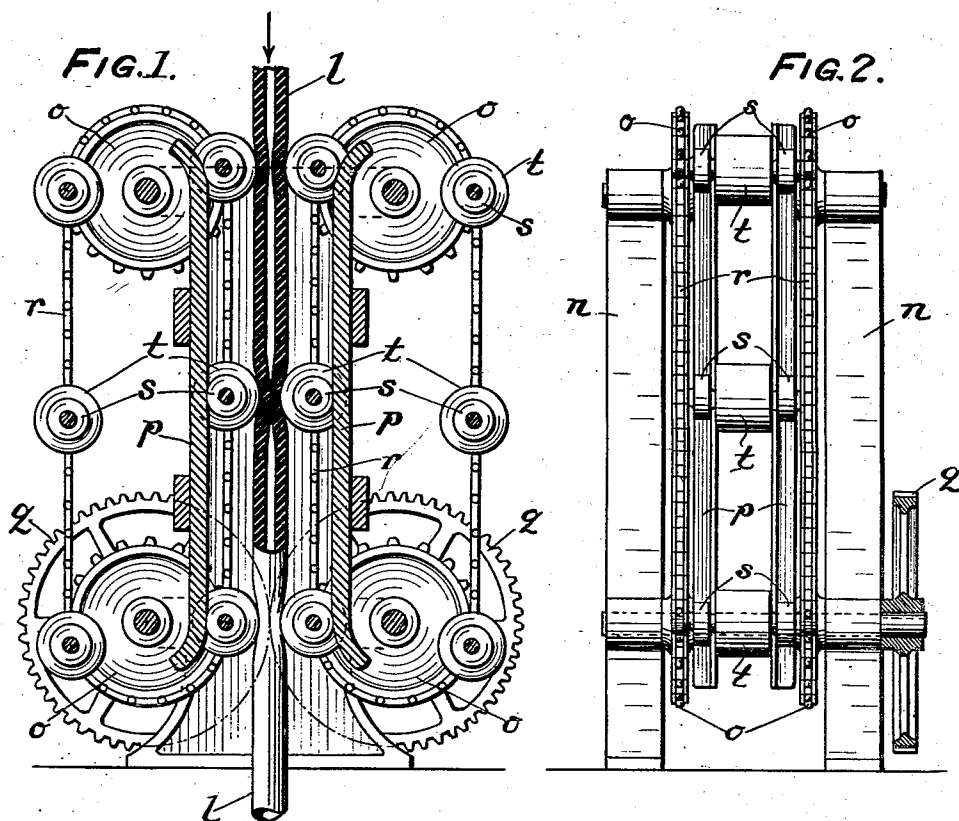


PUMP.

968,599.

Patented Aug. 30, 1910.



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PUMP.

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To all whom it may concern:

Be it known that I, FRANCIS I. DU PONT, a citizen of the United States, residing at Wilmington, county of Newcastle, and State of Delaware, have invented a new and useful Improvement in Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to a novel pump construction.

I will first describe the embodiment of my invention illustrated in the accompanying drawings, and then point out the invention in the claims.

In the drawings: Figure 1 is a detail section view of an embodiment of my invention. Fig. 2 is a side elevation of the same. The pump consists of the tube *l*, the walls of which are quite thick. This tube is made of rubber, or a composition of rubber and canvas. It is supported vertically.

n are frames carrying the sprocket wheels *o* and the guide rails *p*. These sprocket wheels *o o* are interconnected to revolve at the same speed by means of the gearing *q q*. *r* are the sprocket chains, to which chains are connected the rollers *t* carrying the guide rollers *s*, which bear against the guide rails *p*. As may be seen, these rollers *t* bear against the opposite sides of the tube *l*, and, in the movement of the sprocket chain deflate and release said tube, causing the material which is then in a liquid condition to be rapidly drawn through said tube.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:—

1. A pump comprising in combination a flexible tube, and means to apply rolling pressure intermittently upon opposite sides of said tube.

2. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, and means to cause said rollers to travel along said tube.

3. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, means to determine the pressure of said rollers on said tube, and means to cause said rollers to travel along said tube.

4. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, guide rollers connected to said pressing rollers, and guides extending parallel with and adjacent to said tube on which said guide rollers travel, and means to cause said rollers to travel along said tube.

5. A pump, comprising in combination a flexible tube, revolving pressing rollers in pairs on opposite sides of said tube, the tube being pressed between a pair of rollers on opposite sides of the tube, and means to cause said rollers to travel along said tube.

6. A pump, comprising in combination a flexible tube, revolving pressing rollers in pairs on opposite sides of said tube, the tube being pressed between a pair of rollers on opposite sides of the tube, means to determine the pressure of said rollers on said tube, and means to cause said rollers to travel along said tube.

7. A pump, comprising in combination a flexible tube, revolving pressing rollers in pairs on opposite sides of said tube, the tube being pressed between a pair of rollers on opposite sides of the tube, guide rollers connected to each pressing roller, and guides extending parallel with and adjacent to said tube on which said guide rollers travel, and means to cause said rollers to travel along said tube.

8. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, and means to cause the rollers on opposite sides of the tube to travel synchronously along said tube.

9. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, means to determine the pressure of said rollers on said tube, and means to cause the rollers on opposite sides of the tube to travel synchronously along said tube.

10. A pump comprising in combination a flexible tube, revolving pressing rollers on opposite sides of said tube between which the tube is pressed, guide rollers connected to said pressing rollers, and guides extending parallel with and adjacent to said tube on which said guide rollers travel, and

means to cause the rollers on opposite sides of the tube to travel synchronously along said tube.

11. A pump, comprising in combination a flexible tube, revolving pressing rollers in pairs on opposite sides of said tube, the tube being pressed between a pair of rollers on opposite sides of the tube, and means to cause the rollers on opposite sides of the tube to travel synchronously along said tube.

12. A pump, comprising in combination a flexible tube, revolving pressing rollers in pairs on opposite sides of said tube, the tube being pressed between a pair of rollers on opposite sides of the tube, means to determine the pressure of said rollers on said tube, and means to cause the rollers on opposite sides of the tube to travel synchronously along said tube.

13. A pump comprising in combination, a flexible tube, a revolving pressing device, pressing against opposite sides of said tube, and means to move said revolving pressing device longitudinally of the tube.

14. A pump comprising in combination a flexible tube, a plurality of revolving pressing devices pressing against opposite sides of said tube, and means to move said revolving pressing devices longitudinally of the tube.

15. A pump, comprising in combination a flexible tube, a carrier on each side of said tube, pressing rollers mounted on said carriers opposite each other and adapted to press the tube between them, and means to move said carriers.

16. A pump, comprising in combination a flexible tube, a carrier on each side of said tube, pressing rollers mounted on said carriers opposite each other and adapted to press the tube between them, and means to move the carriers on opposite sides of the tube synchronously.

17. A pump, comprising in combination a flexible tube, a carrier on each side of said tube, pressing rollers mounted on said carriers opposite each other and adapted to press the tube between them, a guide roller for each pressing roller, and guides adjacent to and parallel with said tubes on which said guide rollers travel and means to move the carriers.

18. A pump, comprising in combination a flexible tube, sprocket chains on opposite sides of said tube, sprocket wheels around which said chains travel, the chains between the sprocket wheels being parallel with said tube, pressing rollers mounted on said sprocket chains and opposing each other and adapted to press the tube between them, and means to rotate said sprocket wheels.

19. A pump, comprising in combination a flexible tube, sprocket chains on opposite sides of said tube, sprocket wheels around which said chains travel, the chains between the sprocket wheels being parallel with said tube, pressing rollers mounted on said sprocket chains and opposing each other and adapted to press the tube between them, and means to rotate said sprocket wheels on opposite sides of the tube synchronously.

20. A pump, comprising in combination a flexible tube, sprocket chains on opposite sides of said tube, sprocket wheels around which said chains travel, the chains between the sprocket wheels being parallel with said tube, pressing rollers mounted on said sprocket chains and opposing each other and adapted to press the tube between them, a guide roller for each pressing roller, guides adjacent to and parallel with said tube on which said guide rollers travel, and means to rotate said sprocket wheels.

21. A pump, comprising in combination a flexible tube, sprocket chains on opposite sides of said tube, sprocket wheels around which said chains travel, the chains between the sprocket wheels being parallel with said tube, pressing rollers mounted on said sprocket chains and opposing each other and adapted to press the tube between them, a guide roller for each pressing roller, guides adjacent to and parallel with said tube on which said guide rollers travel, and means to rotate the sprocket wheels on opposite sides of the tube synchronously.

22. A pump comprising in combination, a flexible tube, a plurality of pressing rollers on each side of said tube, and means to cause said pressing rollers to travel along said tube.

23. A pump comprising in combination, a flexible tube, a plurality of pressing rollers on each side of said tube, and means to determine the pressure of said rollers against said tube.

24. A pump comprising in combination, a flexible tube, a plurality of pressing rollers on one side of said tube and an opposing pressure surface on the opposite side of said tube, guide rollers carried by said pressing rollers, and a guiding surface parallel with said tube upon which said guide rollers travel.

In testimony of which invention, I have hereunto set my hand, at Wilmington, Del., on this 23d day of July, 1909.

FRANCIS I. DU PONT.

Witnesses:

WM. STANIER,
GORDON L. NAYLOR.