(No Model.)

W. S. McMANUS.

Apparatus for Testing Pipes and Tubes.

No. 237,987. **Patented Feb. 22, 1881.**

Fig. 1.

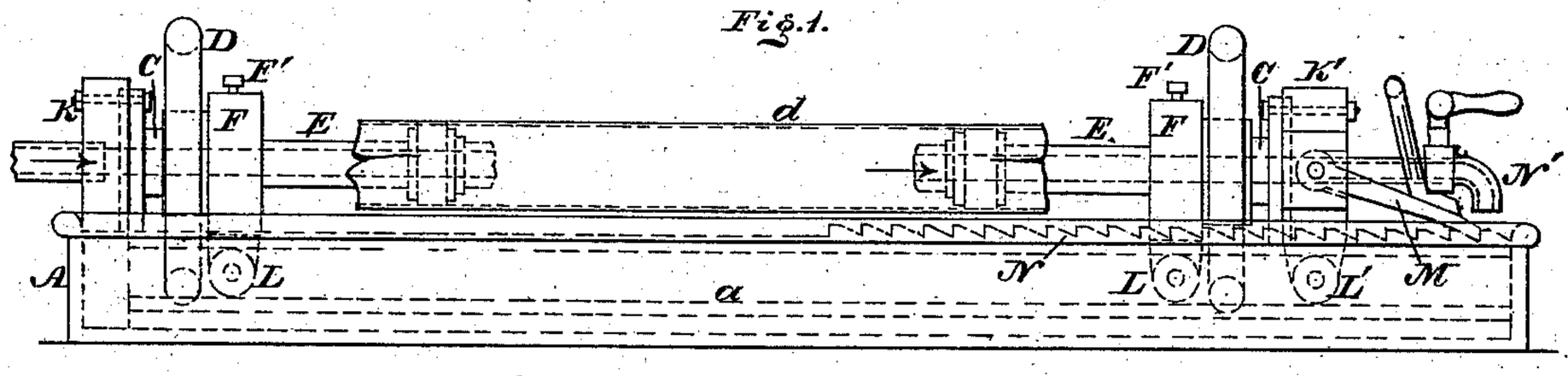


Fig. 2.

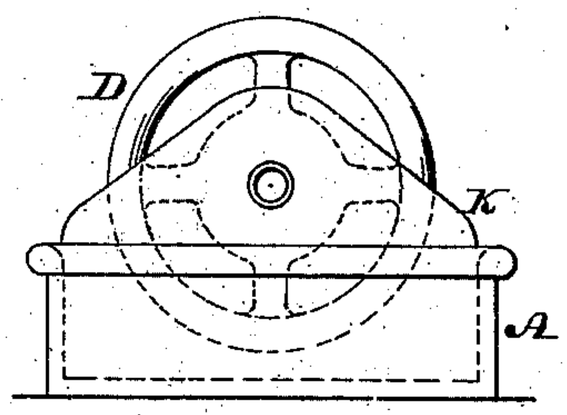


Fig. 6.

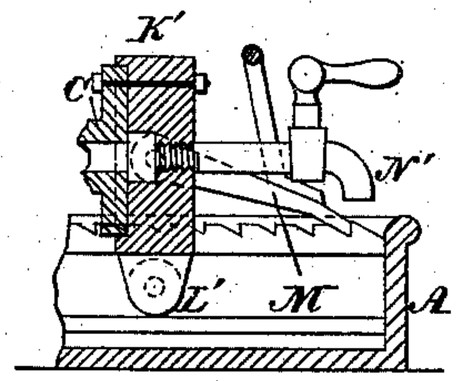


Fig. 3.

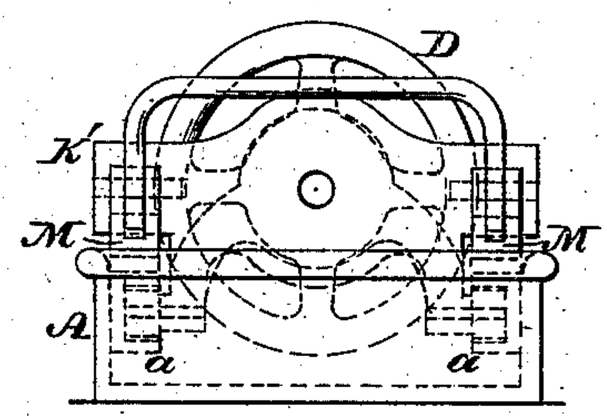


Fig. 4.

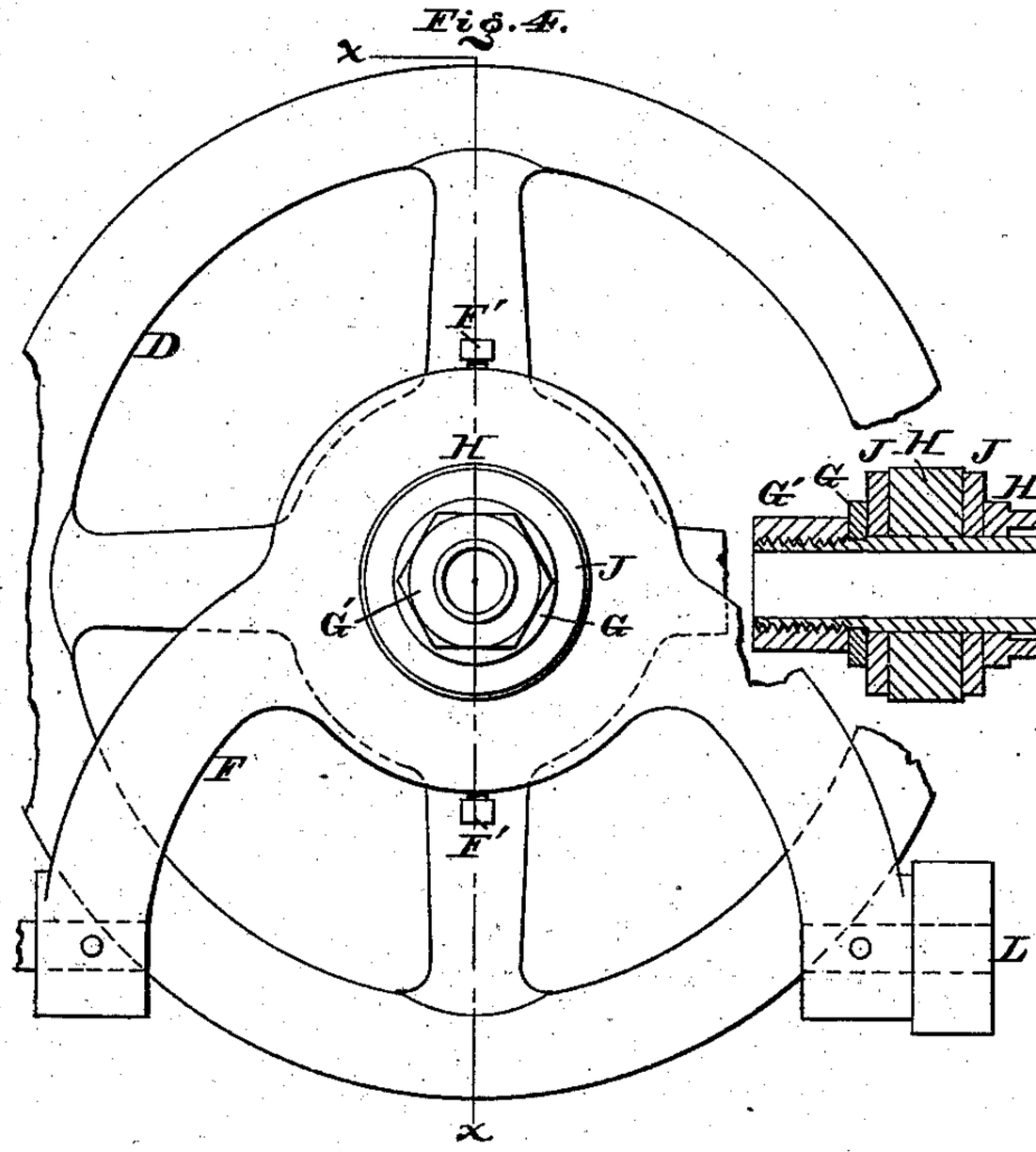
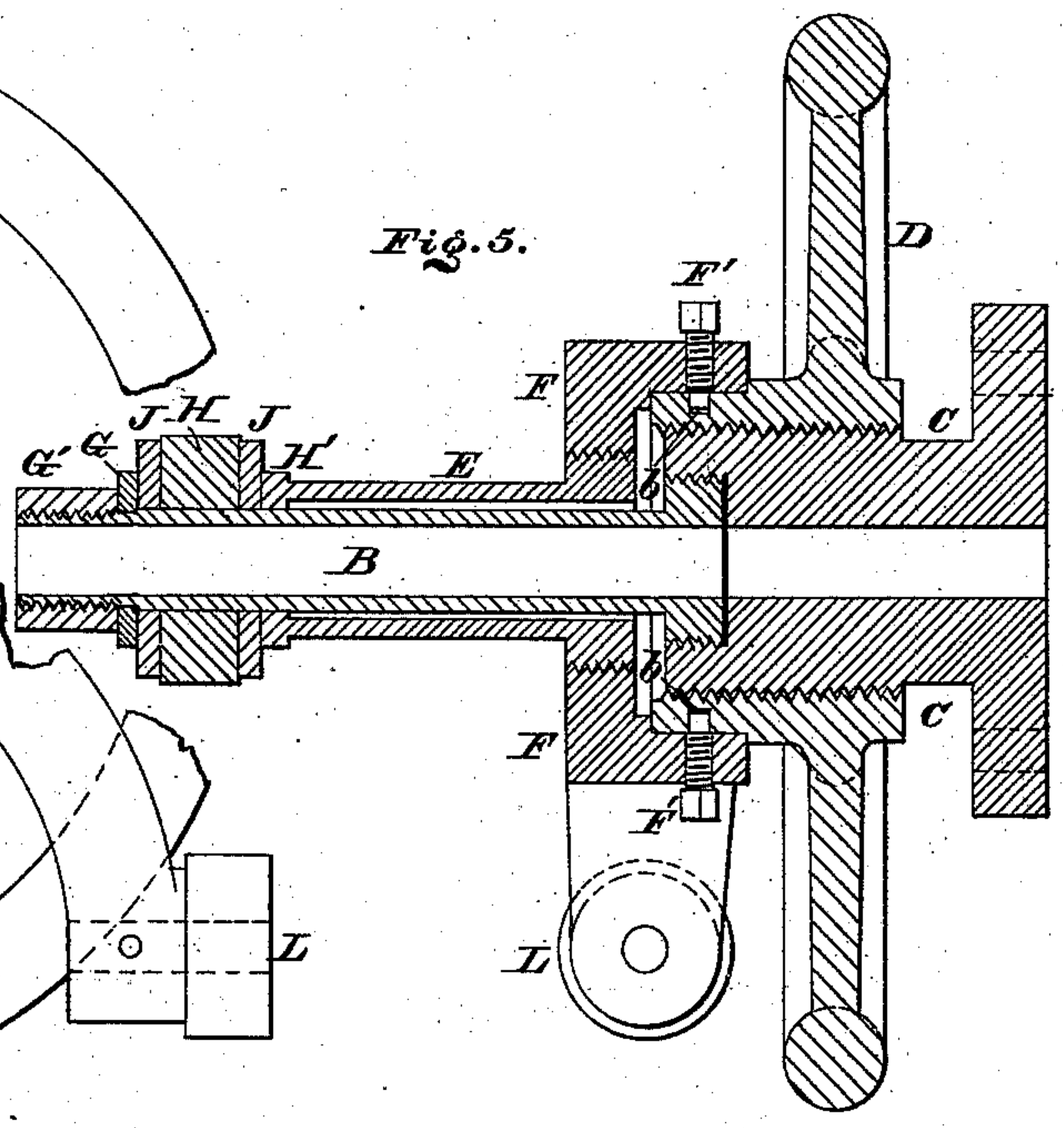


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM S. McMANUS, OF SOUTH CHESTER, PENNSYLVANIA.

APPARATUS FOR TESTING PIPES AND TUBES.

SPECIFICATION forming part of Letters Patent No. 237,987, dated February 22, 1881.

Application filed November 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. McMANUS, a citizen of the United States, residing at South Chester, in the county of Delaware and State of Pennsylvania, have invented a new and useful Improvement in Mechanism for Testing Pipes and Tubes, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the testing mechanism embodying my invention. Figs. 2 and 3 are end views thereof. Fig. 4 is an end view enlarged. Fig. 5 is a central longitudinal section thereof in line *x x*, Fig. 4. Fig. 6 is a vertical section of the portion shown at the right-hand of Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in providing the pipes through which the testing-fluid flows with packing, which is expanded by suitable means, and adapted to form tight joints between said pipes and the pipe or tube to be tested.

Referring to the drawings, A represents a trough or bed with longitudinally-extending tracks *a a* on its sides or bottom.

B represents a water or other fluid receiving pipe, one end of which is connected to a plug, C, whose exterior is threaded for engagement with an internally-threaded hand ring or wheel, D.

E represents a sleeve, which loosely encircles the pipe B, and is provided at one end with a collar, F, to which the ring or wheel D is attached by means of screws F, which, passing through the sleeve, have their points project freely into a circumferential groove, *b*, of the ring or wheel, whereby, when the ring or wheel D is rotated and receives longitudinal motions, the collar F and sleeve E are adapted to follow said motions without rotation.

On the outer surface of the pipe B, at the end opposite to the collar F, is fitted a head, G, which is held in position by a nut, G′, or other means, and also fitted on said pipe, adjacent to the head G, is an annulus or packing, H, of soft rubber or other elastic or expansible material, it being noticed that the packing is interposed between the head G and end of the sleeve E, said end acting as a follower, as at H′. Washers J embrace the sides of the packing, and are in contact with the head and sleeve G E, as more plainly shown in Fig. 5.

The mechanism thus described is duplicated and applied, one to each end of the trough or bed A, each end likewise having a perforated head, as at K K′, the head K communicating with a supply of water or other fluid under pressure, and being fixed to the trough or bed A, and the other head, K′, made movable on said trough or bed, it being noticed that the flanged end of each plug C is securely connected to one of the heads K K′, and the sleeves E are supported on wheels or rollers L, and the head K′ is supported on wheels or rollers L′.

Attached to the sides of the head K′ are outwardly-extending pawls M, which are adapted to engage with ratchet or toothed bars N on the trough or bed A, and connected to the outer end of said head K′ and communicating with the perforation or bore thereof is a faucet, N′.

The operation is as follows: The pawls M are raised, and the head K′ and adjacent sleeve E, with connected parts, are moved, in the present case, to the right. The pipe or tube, *d*, to be tested is now applied so as to receive at one end the packing of the left-hand sleeve E. Then the right-hand sleeve E and head K′ are moved inwardly, so that the packing thereof enters the right-hand end of the tube, the cock or faucet N′ being closed, and the pawls M engaging with the ratchet N, so as to prevent movement or forcing of the sleeve E and connected parts to the right. The rings or wheels D are now rotated, the effect of which is to move the sleeves E toward the packings H, and as said packings are restrained by the heads G, the packings are expanded and so pressed against the inner face of the tube to be tested as to form water or fluid joints between the pipes B and said pipe or tube. The fluid is now admitted at the head K, and passes through the pipe B and fills the pipe or tube *d* and the other pipe, B, and escapes through the faucet N′, after which the latter is closed. Should the tube be incapable of standing the pressure, it will burst, or, should it be imperfect and pierced, the fluid will escape at the existing perforations; otherwise the tube is in good and proper condition. The supply of fluid is then shut off and the cock

N′ opened. The rings or wheels D are rotated in opposite direction to that first practiced, so that the followers are moved from the packings, whereby the latter contract and leave the surface of the pipe or tube to be tested. The pawls M are raised and the right-hand mechanism is run clear of the pipe or tube, whereby the latter may be removed and another one applied, the operations stated being repeated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for testing pipes and tubes, the inlet and outlet pipes for the testing-fluid, provided with expansible packings, substantially as and for the purpose set forth.

2. The inlet and outlet pipes with expansible packings, in combination with the stops and followers, and suitable means for operating the followers, substantially as and for the purpose set forth.

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