

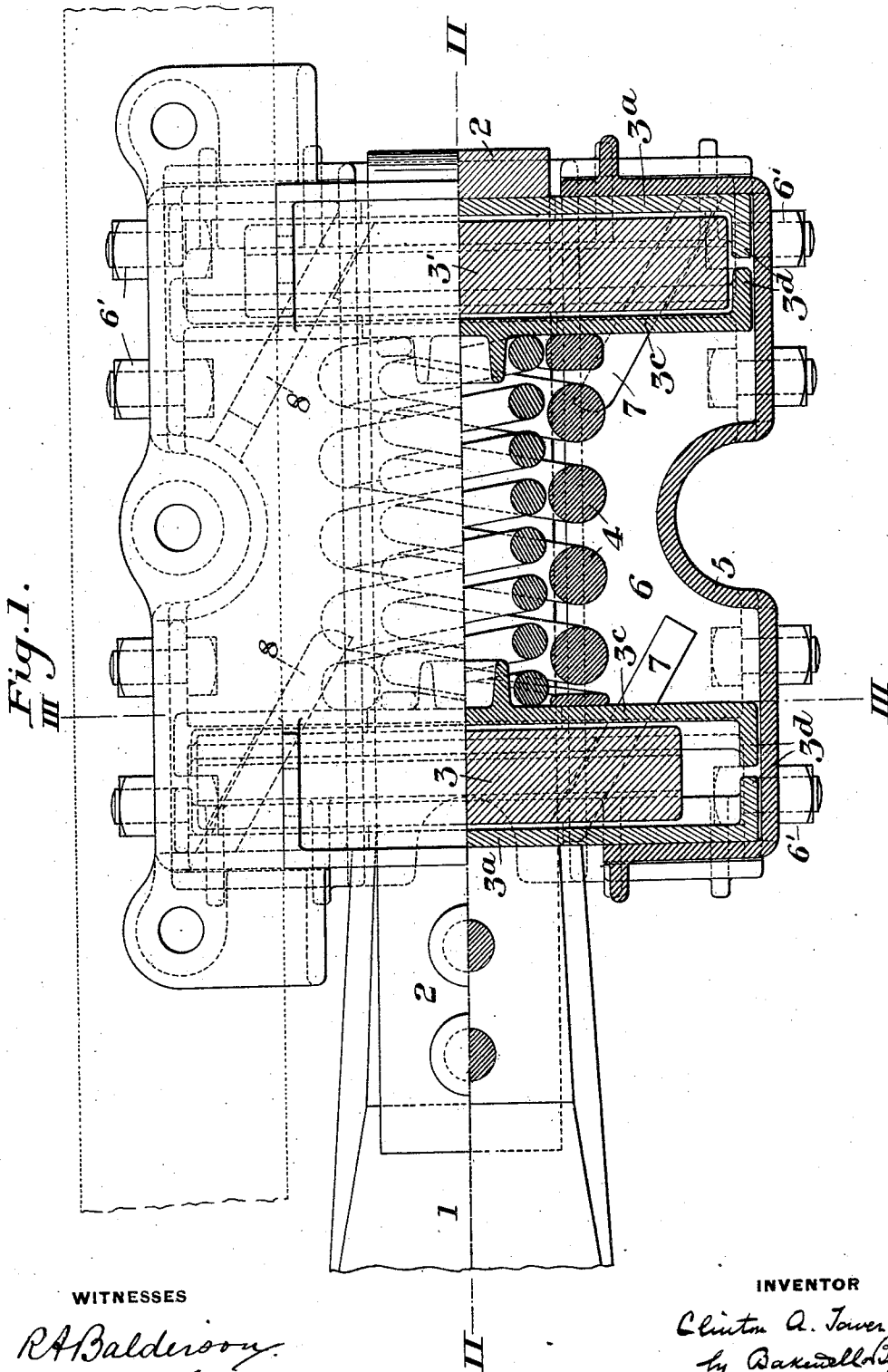
C. A. TOWER.
FRICTIONAL DRAFT RIGGING.

APPLICATION FILED FEB. 16, 1906. RENEWED APR. 16, 1907.

933,601.

Patented Sept. 7, 1909.

4 SHEETS—SHEET 1.



WITNESSES

R. A. Baldersey
Warren W. Swartz

INVENTOR

Clinton A. Tower
by Baxendale & Lyman
his Attorneys

C. A. TOWER.

FRICTIONAL DRAFT RIGGING.

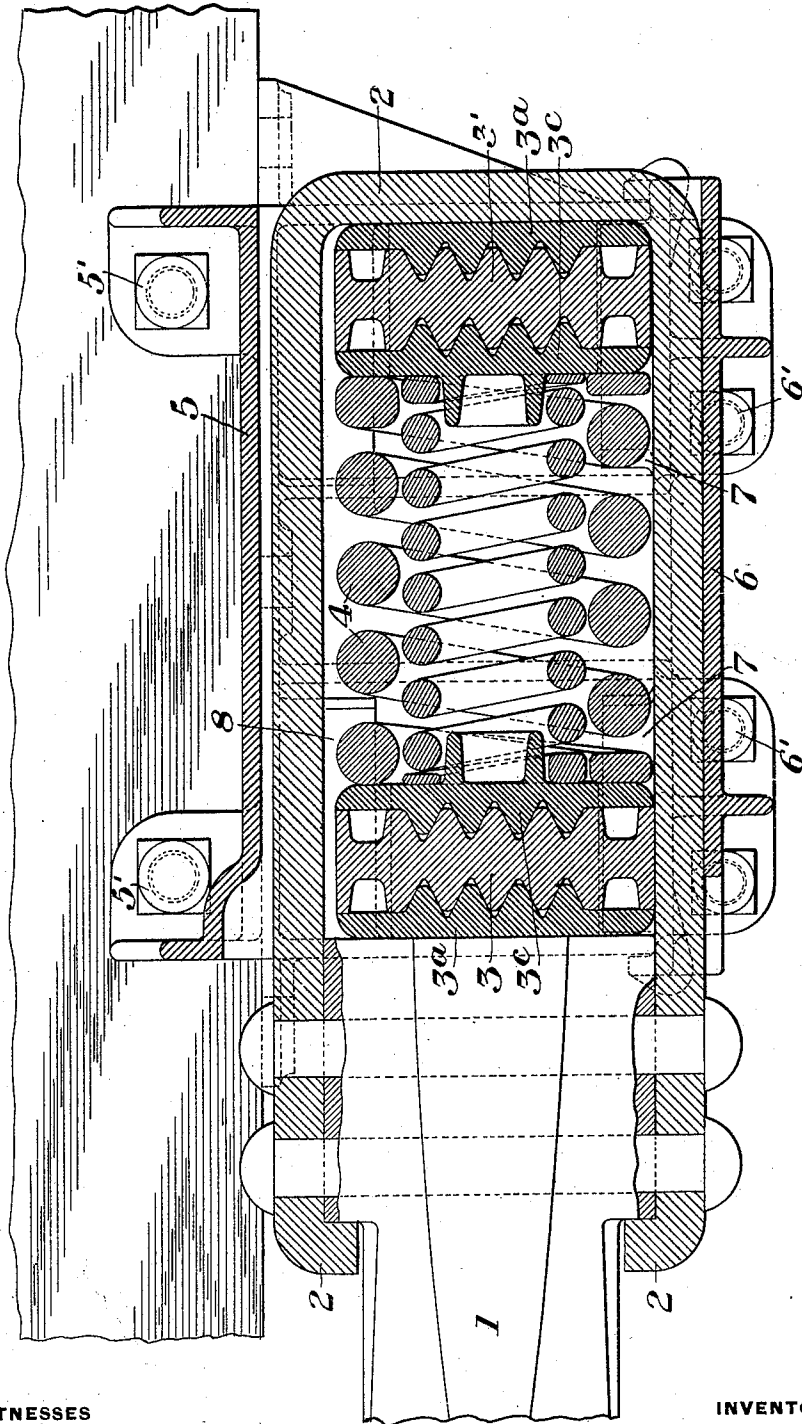
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4 SHEETS—SHEET 2.

Fig. 2.



WITNESSES

R. A. Baldino
Warren W. Swartz

INVENTOR

Clinton A. Tower
by Cassell Rogers
his Attorney

C. A. TOWER.

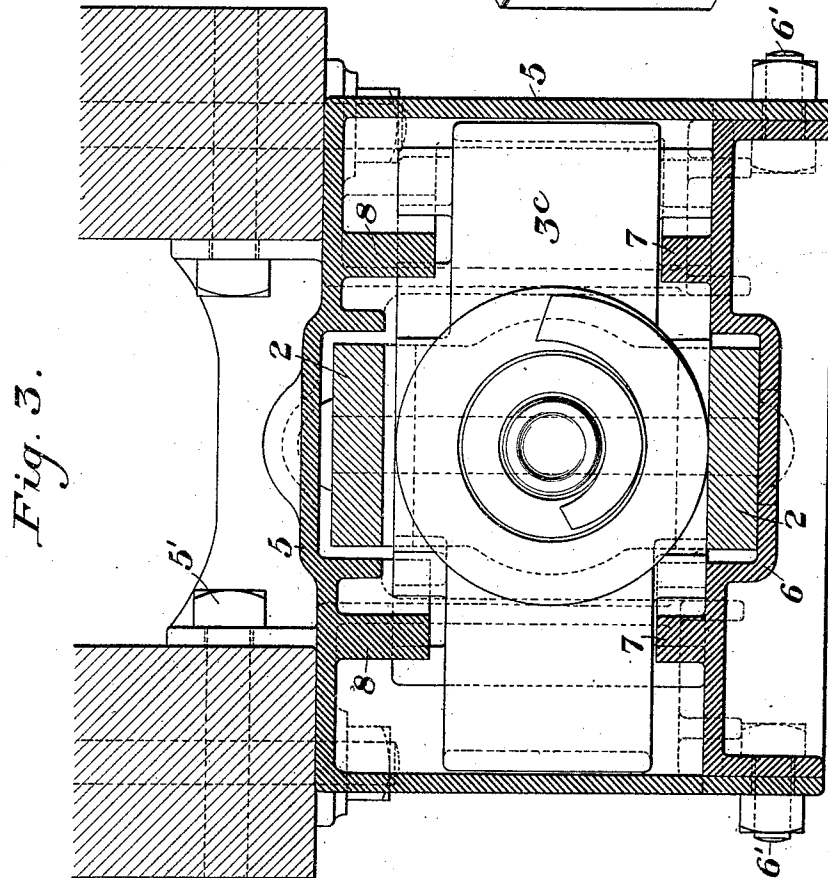
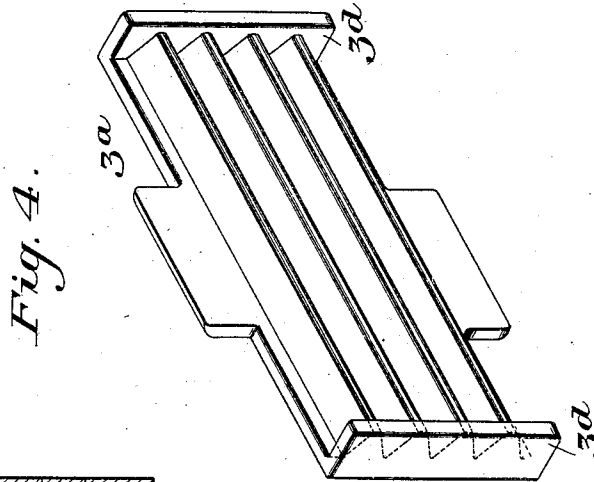
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4 SHEETS—SHEET 3.



WITNESSES

R. A. Balderson.
Warren W. Swartz.

INVENTOR

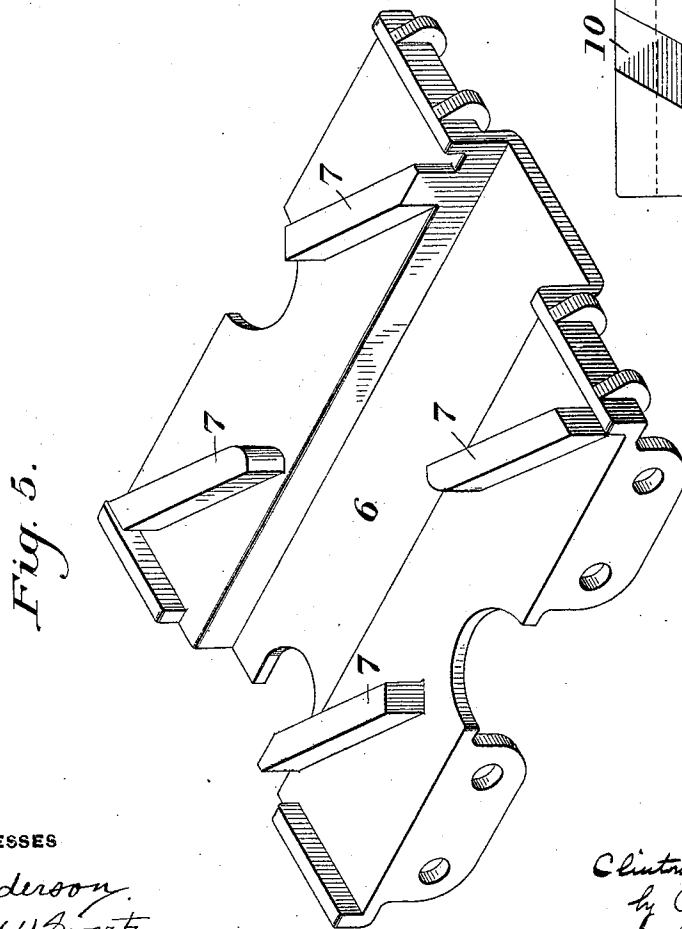
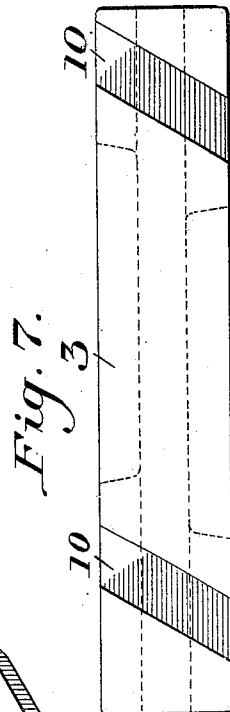
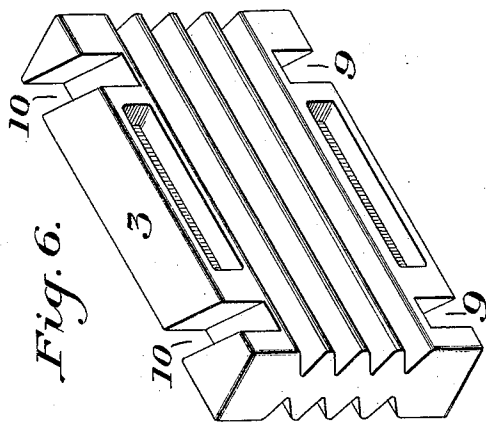
Clinton A. Tower
by Russell L. Byrnes
his Attorney

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4 SHEETS—SHEET 4.



WITNESSES

R. A. Balderson.
Warren W. Swartz

INVENTOR

Clinton A. Tower
by Russell L. Byrnes
his Attorney

UNITED STATES PATENT OFFICE.

CLINTON A. TOWER, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FRICTIONAL DRAFT-RIGGING.

933,601.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed February 15, 1906, Serial No. 301,200. Renewed April 16, 1907. Serial No. 368,586.

To all whom it may concern:

Be it known that I, CLINTON A. TOWER, of Cleveland, Cuyahoga county, Ohio, have invented a new and useful Frictional Draft-Rigging, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view partly in section showing my frictional draft rigging. Fig. 2 is a vertical section on the line II—II of Fig. 1; Fig. 3 is a vertical cross section on the line III—III of Fig. 1; Fig. 4 is a perspective view of one of the friction-shoes; Fig. 5 is a perspective view of the plate for supporting the followers and the yoke; Fig. 6 is a perspective view of the follower 3, and Fig. 7 is a side view thereof.

In the drawings, 1 represents the draw-bar; 2 is a yoke extending rearwardly therefrom; and 3, 3' are the front and rear follower plates, each being set between shoes 3^a and 3^c, which, as shown in Figs. 2 and 4 are preferably grooved and fit correspondingly grooved surfaces on the follower. The contact surfaces of the followers and shoes are substantially perpendicular to the line of draft. The inner shoes 3^c are adapted to receive between them the draft springs 4, and all the shoes have preferably marginal flanges 3^a which fit against the case 5. This case is secured to the draft timbers by bolts 5' or otherwise. It incloses the draft rigging and is preferably cast open at the bottom where it is closed by a plate 6 which is secured to the case by bolts 6' or otherwise and supports the followers and yoke and is preferably depressed at the middle to accommodate the yoke. Inclined guides 7, 7, and 8, 8 are formed respectively on the bottom plate 6 and the top of the case and fit in grooves 9 and 10 on the top and bottom of the followers 3, 3', (Figs. 5 and 6).

When a pulling force is exerted upon the coupler it is transmitted by the yoke to the rear shoe 3^a of the follower 3' which is pulled forwardly thereby against the pressure of the spring 4. The shoes 3^a and 3^c are confined by the case so that they can not move laterally therein, but the followers have lateral clearance between their ends and the sides of the case, (Fig. 1) so that

as the follower 3' moves forwardly it is compelled by the inclined guides 7, 8, to move laterally between the shoes and in frictional contact with the grooved faces of the latter. These parts are kept in close frictional contact, and the follower is tightly clamped between the shoes by reason of the resistance of the spring. There is also some friction between the follower and the inclined guides of the case and between the ends of the shoes and the sides of the case, and the degree of friction may be varied according to the nature of the use to which the device is to be put by properly determining the number and form of the grooves on the faces of the follower and shoes, and the inclination of the guides.

When a buffing force is applied to the draft rigging the follower 3' and its shoes are held stationary by the end of the case while the front follower is forced rearwardly against the spring, and moves laterally in frictional contact with its shoes in like manner as above explained with reference to the follower 3'. In buffing and in draft the clamping action and the consequent frictional resistance increase proportionately to the stress exerted upon the parts.

A novel and valuable feature of my invention consists in the use of laterally moving followers which are acted upon by inclined guides and serve as friction members to afford resistance to buffing and draft. The followers 3, 3', together with their shoes 3^a, 3^c, constitute virtually compound followers, the middle part of each compound follower being adapted to move laterally in frictional contact with the other part or parts which are held from lateral movement. These devices serve not only to afford the desired friction but also to keep the surfaces which are in contact with the coupler, spring and yoke in constant position relatively to these parts. There is therefore no tendency to objectionable canting of the spring or lateral displacement of the yoke or coupler.

As the friction is caused by lateral movement of the follower, very little longitudinal movement will suffice to secure the required frictional resistance. I can thus use yokes of convenient and reasonable length, and by thus enabling springs of ordinary diameter

and capacity to be used with friction devices without using a yoke of undue length, I obtain new and very useful advantages.

The device is self-releasing, and it has the additional merit that when the force of pulling or buffing is relieved, the spring during the release continues its clamping action upon the follower and shoes and by maintaining their frictional contact prevents a violent recoil.

Those skilled in the art will be able to modify the construction and arrangement of the parts in many ways without departure from my invention. Thus, instead of moving laterally in a horizontal direction, the guides may be arranged so as to impart to the movable friction members lateral motion in a vertical direction; or within the scope of my broader claims the movable element may be made circular in outline and arranged to rotate in a vertical plane between the shoes, the grooves in that case being made circular.

I claim:

1. A frictional draft rigging having a spring and three friction elements, and fixed guides by which the middle one is moved between the others transversely to the line of draft under buffing or draft.

2. A frictional draft rigging having a spring and three friction elements, and fixed guides by which the middle one is moved between the others transversely to the line of draft under buffing or draft, the two outer elements being held from such motion.

3. A frictional draft rigging having a spring and a laterally movable friction follower, with inclined bearings on a fixed portion of the structure, said bearings being constituted by grooves and ribs.

4. A frictional draft rigging having a spring, a case, and a laterally movable friction follower having at its top and bottom inclined bearings on a fixed portion of the structure, said bearings being constituted by grooves and ribs.

5. A frictional draft-rigging having a spring, friction surfaces free to move endwise and held from substantial lateral motion, a follower set between the friction surfaces and in contact with both of them, and guides by which the follower is moved laterally between the surfaces.

6. A frictional draft-rigging having a spring, friction surfaces free to move endwise and held from substantial lateral motion, a follower set between the friction surfaces and in contact with both of them, and guides by which the follower is moved laterally between the surfaces, said surfaces being grooved.

7. A frictional draft-rigging having a spring, friction surfaces free to move endwise and held from substantial lateral motion, a follower set between the friction sur-

faces and in contact with both of them, and guides by which the follower is moved laterally between the surfaces, said surfaces being substantially perpendicular to the line of draft.

8. A frictional draft rigging having a case, a spring, friction shoes retained from substantial lateral motion in the case, a laterally movable friction element between the shoes, and inclined guides for the friction element.

9. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction element between the shoes, and inclined guides for the friction element, the meeting surface of the shoes and the intermediate friction element being substantially perpendicular to the line of draft.

10. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction plate between the shoes, and inclined guides on the case for the friction-plate.

11. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction element between the shoes, and inclined guides for the friction element, the shoes being flanged.

12. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction element between the shoes and inclined guides for the friction element, said guides being at the top and bottom of the case.

13. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction plate between the shoes, and inclined guides on the top and bottom of the case for the friction plate.

14. A frictional draft rigging having a case, a spring, a follower, friction shoes retained from substantial lateral motion in the case, a laterally movable friction element between the shoes, and inclined guides for the friction element, said shoes being held in constant position relatively to the spring.

15. A frictional draft rigging having a spring; a follower member 3, and shoes 3^a 3^b between which the follower member is interposed and with which it is in direct contact, said shoes being held from substantial lateral motion, and guides by which the follower member is moved laterally between the shoes.

16. A frictional draft rigging having a spring; a follower member 3 and shoes 3^a 3^b between which the follower member is in-

terposed, a case within which the shoes are held from substantial lateral motion, and guides by which the follower member is moved laterally between the shoes.

guides by which the follower member is 10 moved laterally between the shoes, said shoes being flanged at the ends.

In testimony whereof, I have hereunto set my hand.

CLINTON A. TOWER.

Witnesses:

HENRY F. POPE,
HARRY E. ORR.

5 17. A frictional draft rigging having a spring; a follower member 3 and shoes 3^a 3^c between which the follower member is interposed, a case within which the shoes are held from substantial lateral motion, and