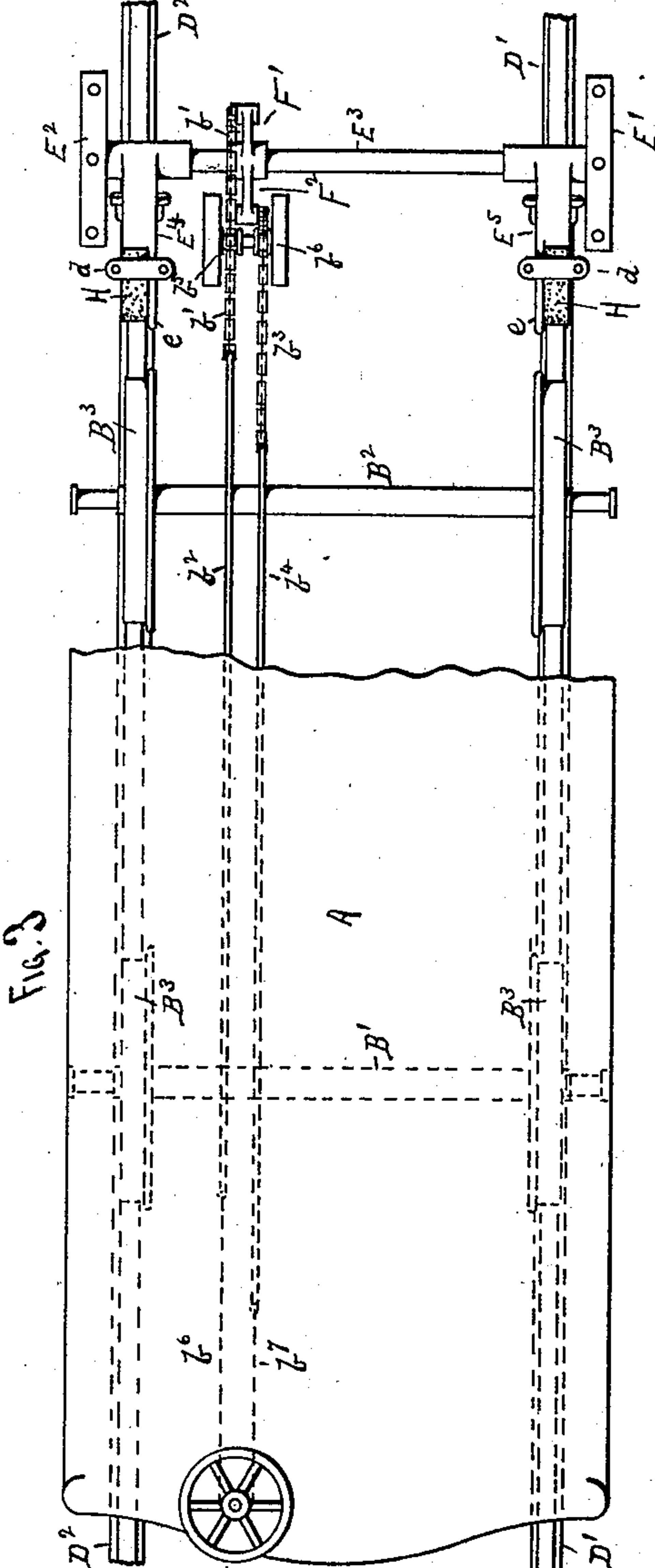
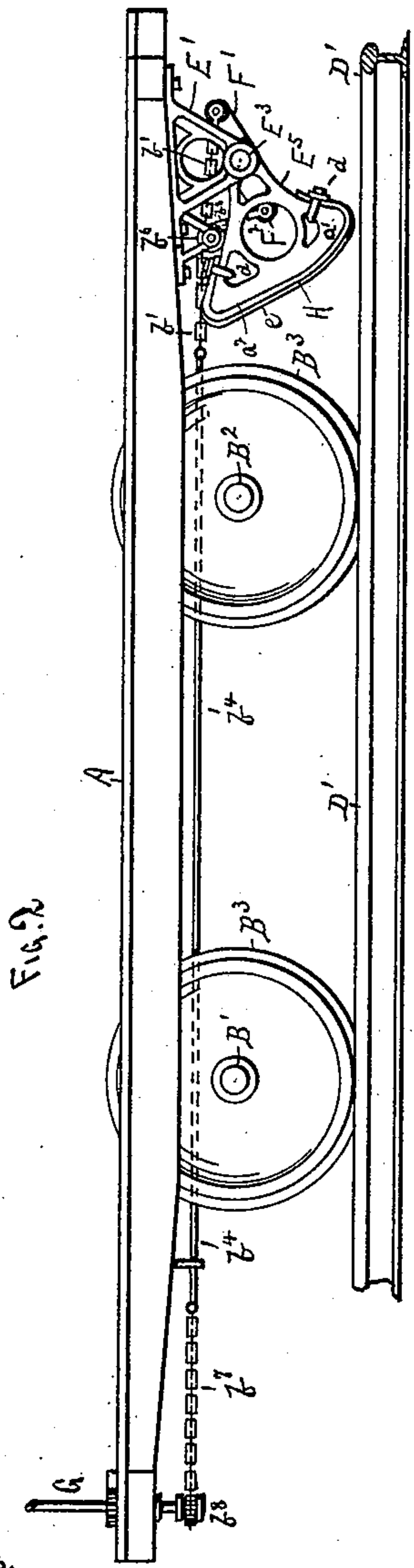
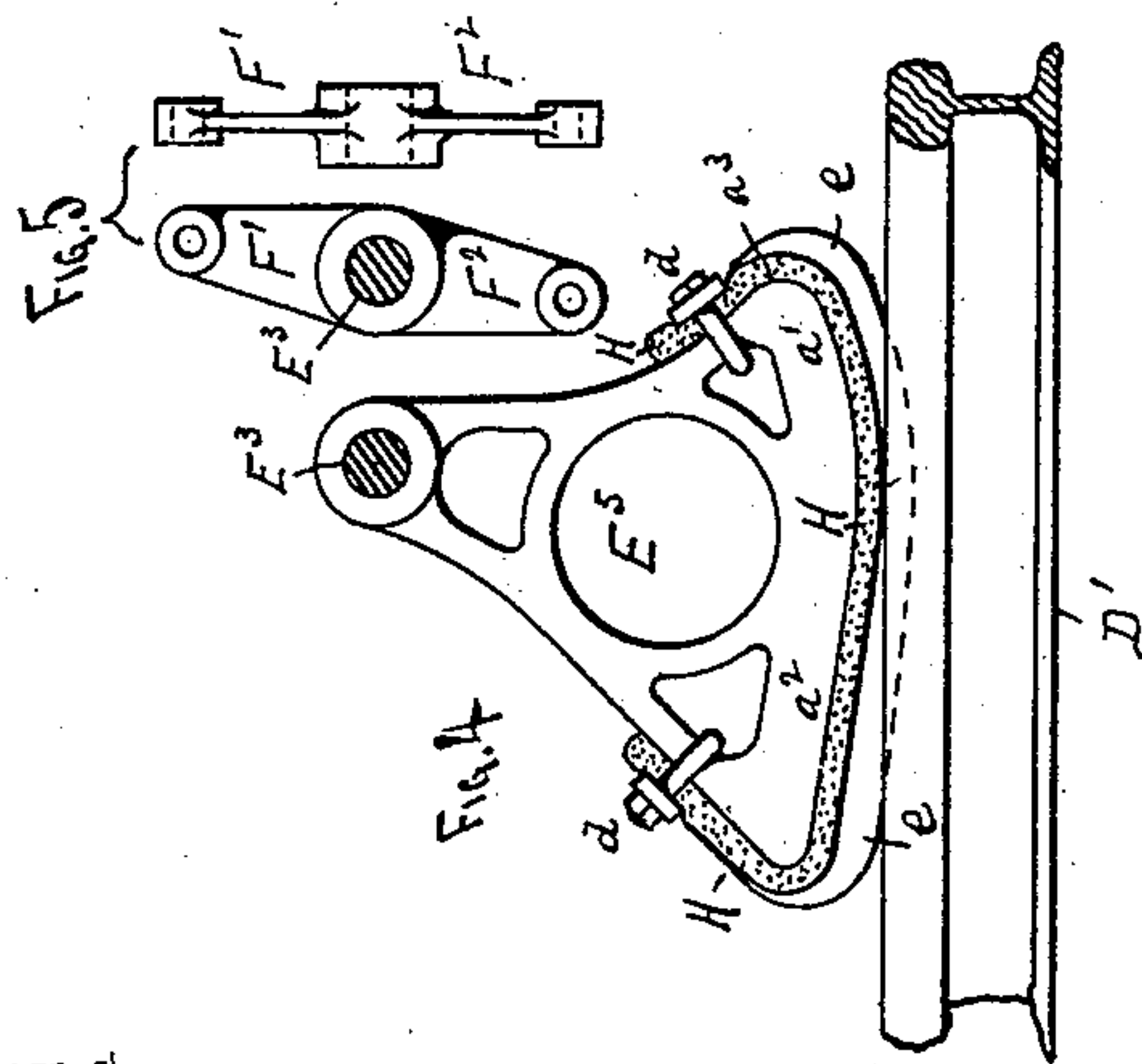
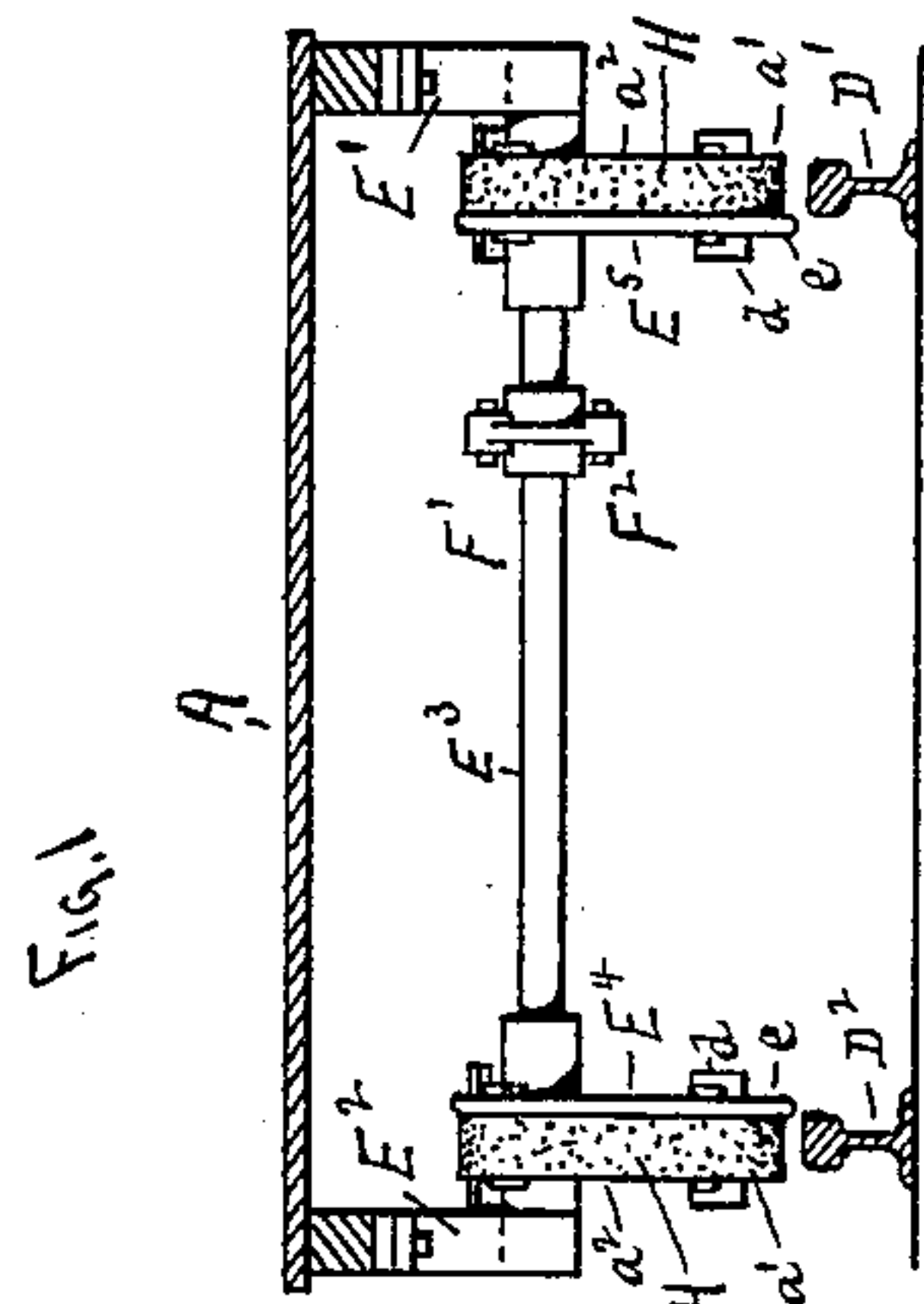


(No Model.)

W. W. ALLEN.  
CAR BRAKE.

No. 463,695.

Patented Nov. 24, 1891.



WITNESSES.  
Wm. Graham  
H. J. Webster.

William W. Allen, INVENTOR, BY  
Charles N. Woodward Att'y.



# UNITED STATES PATENT OFFICE.

WILLIAM W. ALLEN, OF ST. PAUL, MINNESOTA.

## CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 463,695, dated November 24, 1891.

Application filed June 22, 1891. Serial No. 397,011. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM W. ALLEN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Safety-Brakes for Street and other Cars, of which the following is a specification.

This invention relates to safety-brakes for street and other cars; and it consists in the construction and arrangement of parts, as hereinafter shown and described, and specifically pointed out in the claim.

In the drawings, Figure 1 is a cross-sectional elevation, Fig. 2 is a side elevation, and Fig. 3 is a plan view, of a portion of a car frame and truck, showing my improved brake attached thereto. Fig. 4 is an enlarged detail of one of the brake-shoes. Fig. 5 represents the brake-actuating arm detached.

A represents a portion of the platform or frame of a car, B' B<sup>2</sup> the axles, B<sup>3</sup> the wheels, and D' D<sup>2</sup> the rails, all these parts being of the usual construction. Journaled by hangers or brackets E' E<sup>2</sup> across beneath the car-frame at one or both ends or between the trucks, as may be preferred, is a shaft E<sup>3</sup>, upon which are secured in line with the rails D' D<sup>2</sup> two cam-brake shoes E<sup>4</sup> E<sup>5</sup>, as shown. The lower surfaces of these cam-shoes are formed curved on one end at a' and straight for the remainder of their length, as at a<sup>2</sup>, the distance from the center of the shaft E<sup>3</sup> to the flat surface a<sup>2</sup> being greater than the distance between the center of the shaft and the rails D' D<sup>2</sup> when the wheels B<sup>3</sup> are in their normal position upon the rails, while the curve of the part a' is eccentric to the shaft, the radius of the outer end a<sup>3</sup> being about equal to the radius of the wheels, so that when the shoes are thrown downward, the part a<sup>3</sup> striking the track, the momentum of the car causes the shoes to roll forward, raising the car-body until the wheels B<sup>3</sup> are free from the rails, when the flat portions a<sup>2</sup> will slide along the rails. The flattened portions of the shoes are thus entirely on one side of the shaft E<sup>3</sup> when the shoes are in action, as shown in Fig. 4, so that the tendency

of the momentum of the car to roll the shoes over beneath it is counteracted.

Upon the shaft E<sup>3</sup>, at some convenient point between the shoes E<sup>4</sup> E<sup>5</sup>, is secured a double-sided arm F' F<sup>2</sup>, the part F' connected by a chain b' to a rod b<sup>2</sup> and the part F<sup>2</sup> connected by a chain b<sup>3</sup> to a rod b<sup>4</sup>, the two chains in their passage from the arm to the rods passing over guide-sheaves b<sup>5</sup> b<sup>6</sup>. The rods b<sup>2</sup> b<sup>4</sup> are supported loosely in hangers beneath the car-frame and are connected by chains b<sup>6</sup> b<sup>7</sup> to a chain sheave or drum b<sup>8</sup> on the lower end of a brake-staff G, the latter being of the usual construction and placed in the usual position of the ordinary brake-staff of a car. By turning the brake-staff to the right the chain b<sup>6</sup> will be wound upon the drum b<sup>8</sup> and the chain b<sup>7</sup> unwound therefrom, this action drawing the part F' upward and throwing the shoes E<sup>4</sup> E<sup>5</sup> downward to bring them into action. Then when the brake-shoes are to be released the reversing of the motion of the brake-staff will wind up the chain b<sup>7</sup> and unwind the chain b<sup>6</sup>, thus drawing the arm F<sup>2</sup> backward and releasing the shoes from the rails. The surfaces a' a<sup>2</sup> are provided with a strip of rubber H, secured at its ends by clips d to the shoes, the presence of the rubber preventing a jarring motion from being imparted to the car body or trucks by serving as springs between the shoes and rails.

The inner edges of the shoes E<sup>4</sup> E<sup>5</sup> are provided with flanges e to rest against the inner surfaces of the rails to serve the same purpose as the flanges on the wheels B<sup>3</sup> to prevent the car being thrown from the track when the brake-shoes are in action.

The curved portion a' is united to the straight portion a<sup>2</sup> without any sudden change of direction, so that no sudden jar occurs when the shoes pass from the curved to the straight portions of their surfaces.

The brackets E' E<sup>2</sup> may be braced and supported in any desired manner to render their position secure and to enable them to resist the strains to which they will be subjected.

While the means shown for actuating the brake-shoes is a practicable one and well adapted to the purpose, I do not wish to be

limited thereto, as I am aware that other suitable means may be employed to accomplish the same results.

Having thus described my invention, what I  
5 claim as new is—

In a car-brake, a shaft  $E^3$ , journaled across  
beneath the car-frame and carrying shoes  $E^4$   
 $E^5$  above the rails, said shoes having curved  
surfaces  $a'$  eccentric to said shaft and flat  
10 surfaces  $a^2$  joined thereto without abrupt  
changes in the line of surface and with said  
flat surfaces wholly upon one side of a per-

pendicular line through the center of said  
shaft, and means whereby said shoes may be  
forced downward upon the rails, substantially 15  
as and for the purpose set forth.

In testimony whereof I have hereunto set  
my hand in the presence of two subscribing  
witnesses.

WILLIAM W. ALLEN.

Witnesses:

H. S. WEBSTER,  
C. N. WOODWARD.