

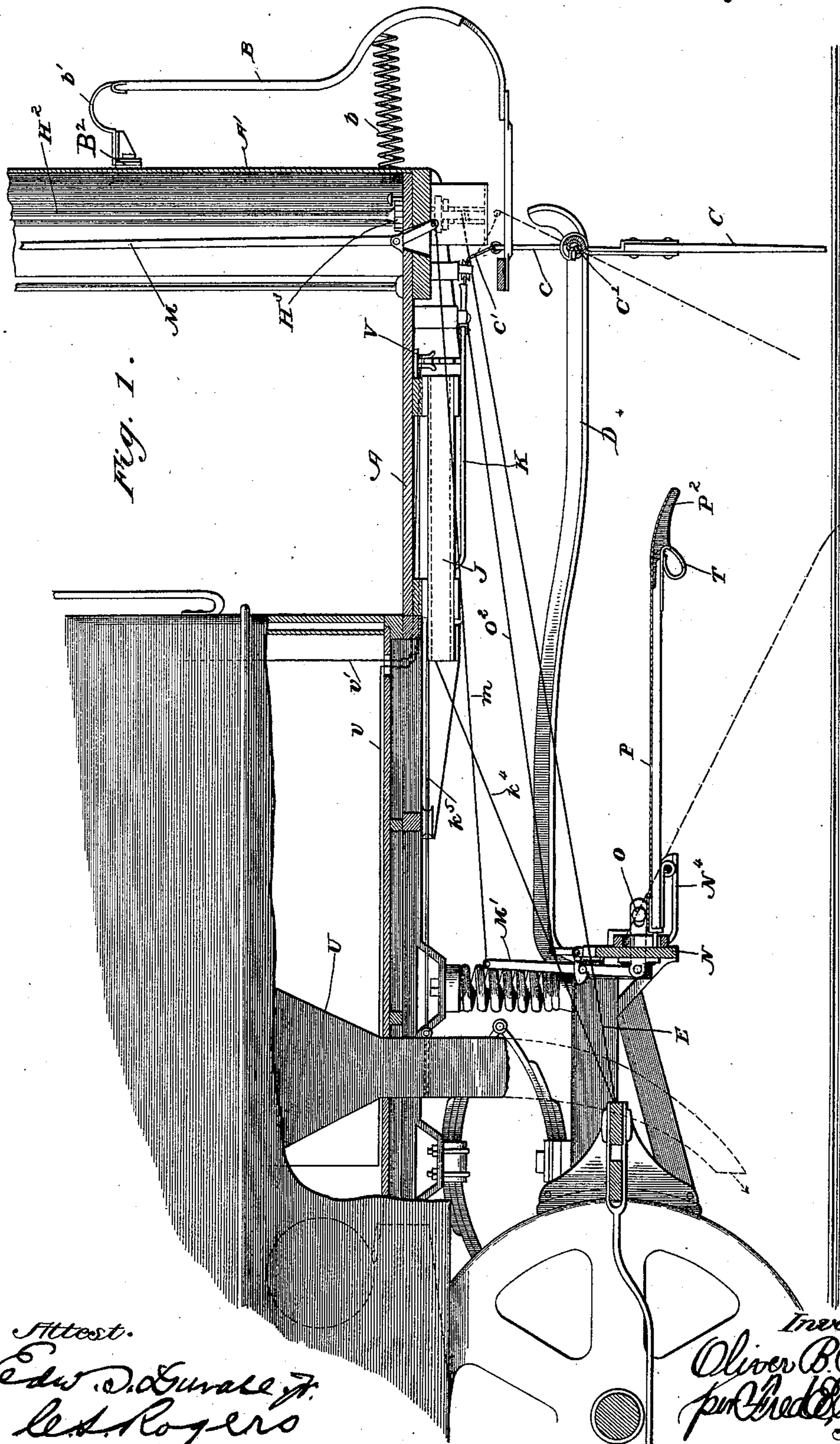
(No Model.)

4 Sheets—Sheet 1.

O. B. FINN.
CAR FENDER.

No. 563,951.

Patented July 14, 1896.



Attest.
Edw. D. Gurah Jr.
Chas. Rogers

Inventor:
Oliver B. Finn
per Fred Wasker,
Att'y.

(No Model.)

4 Sheets—Sheet 2.

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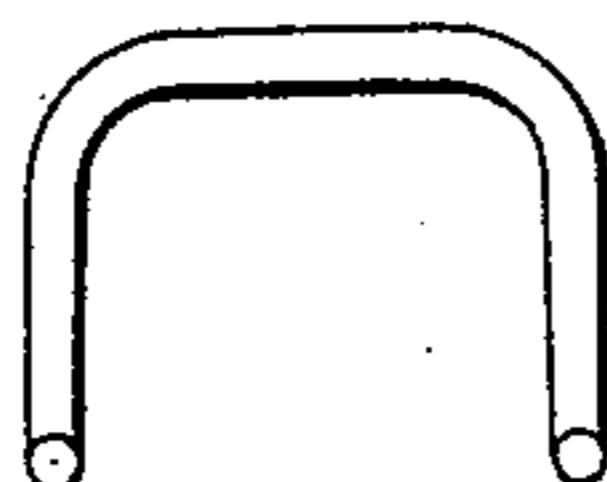
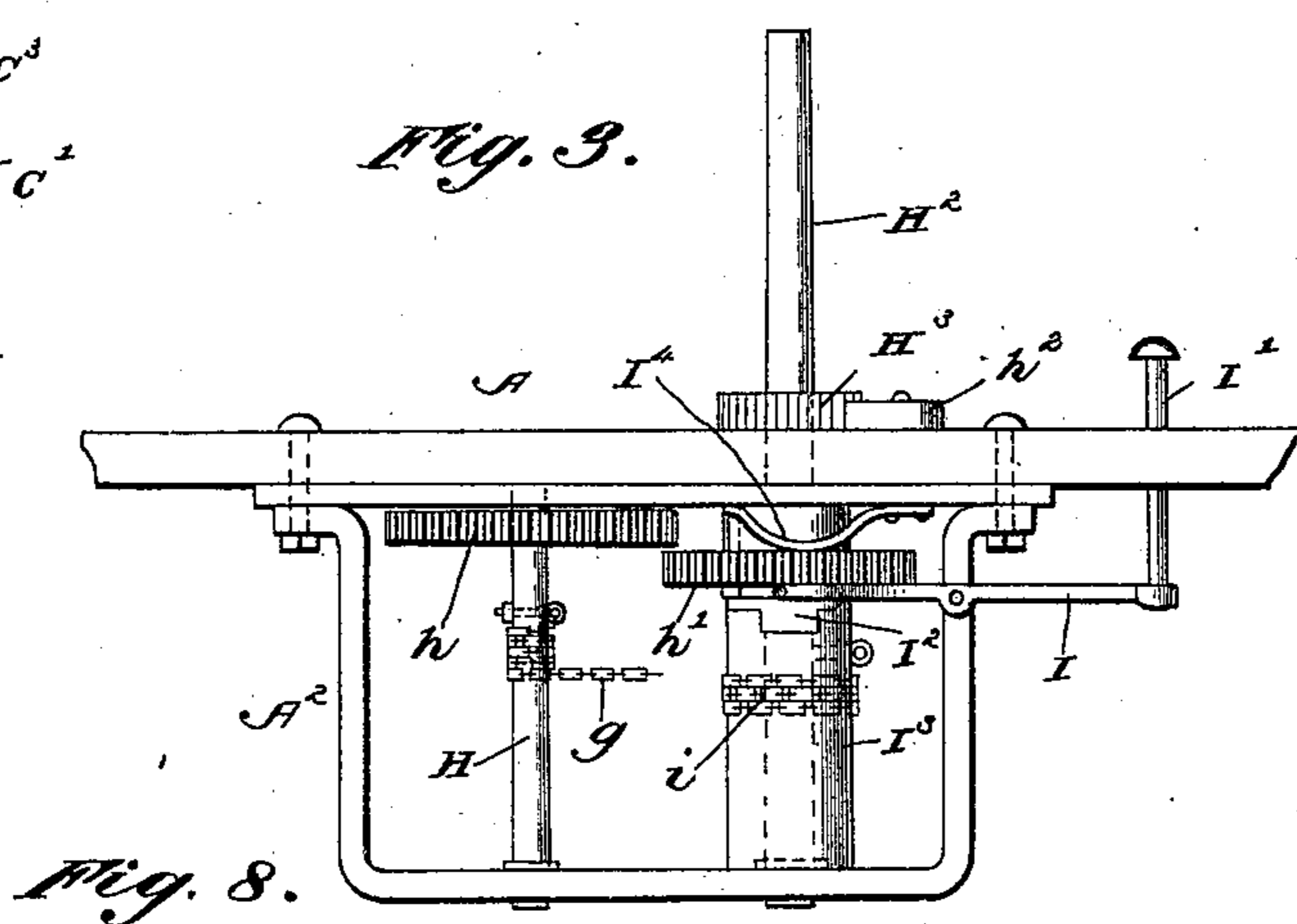
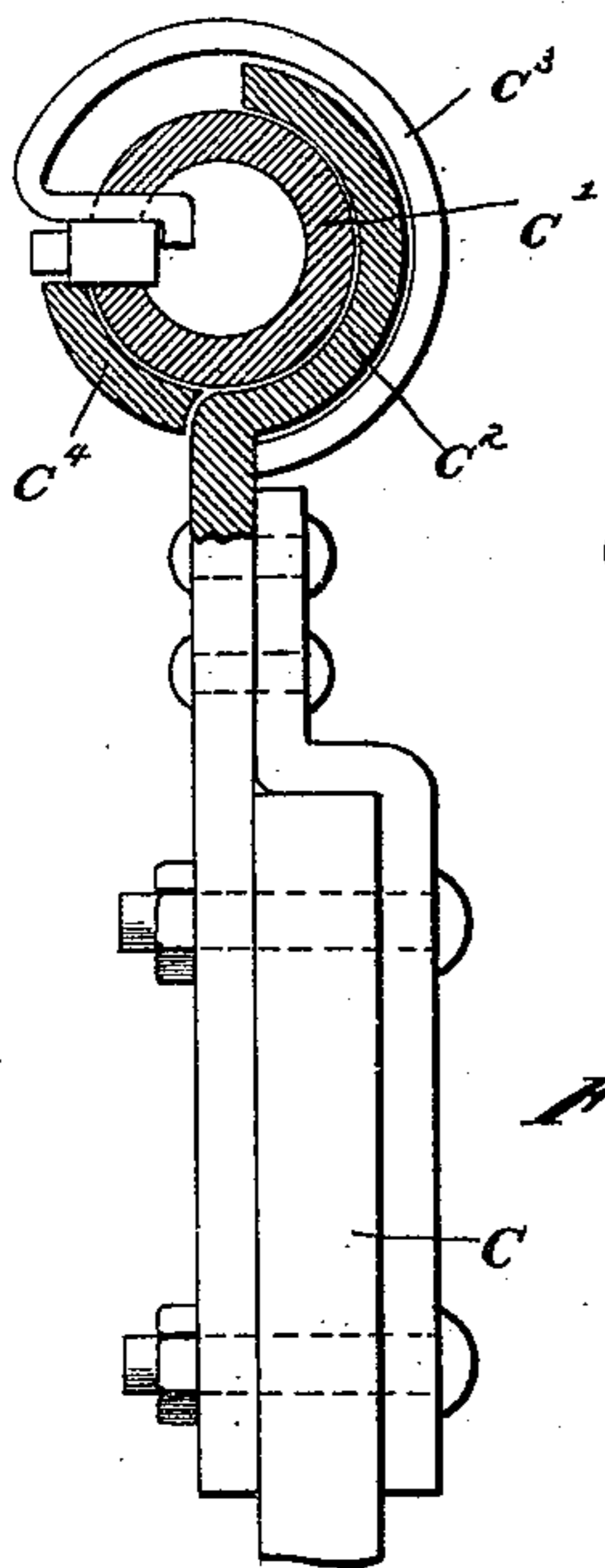
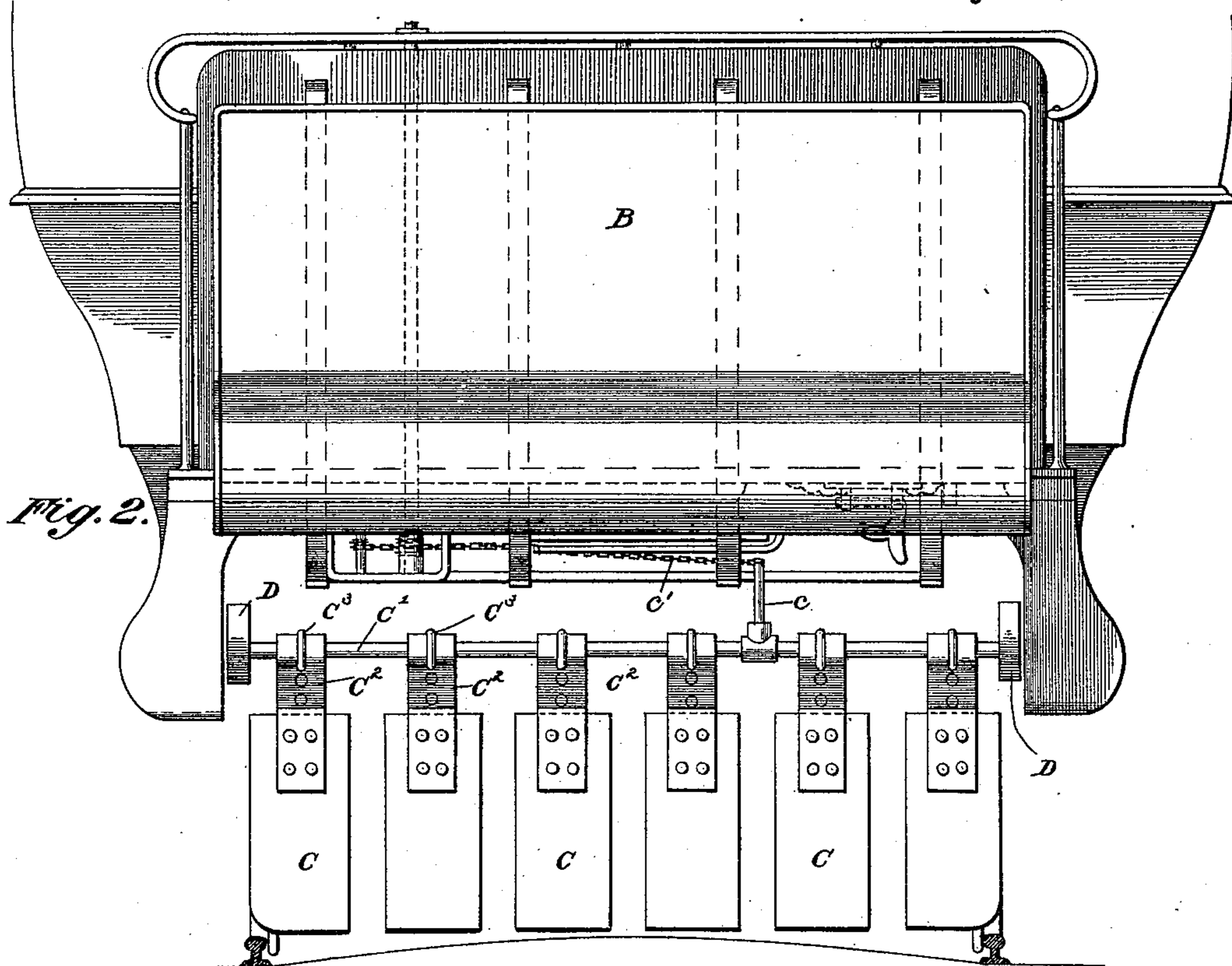


Fig. 12.

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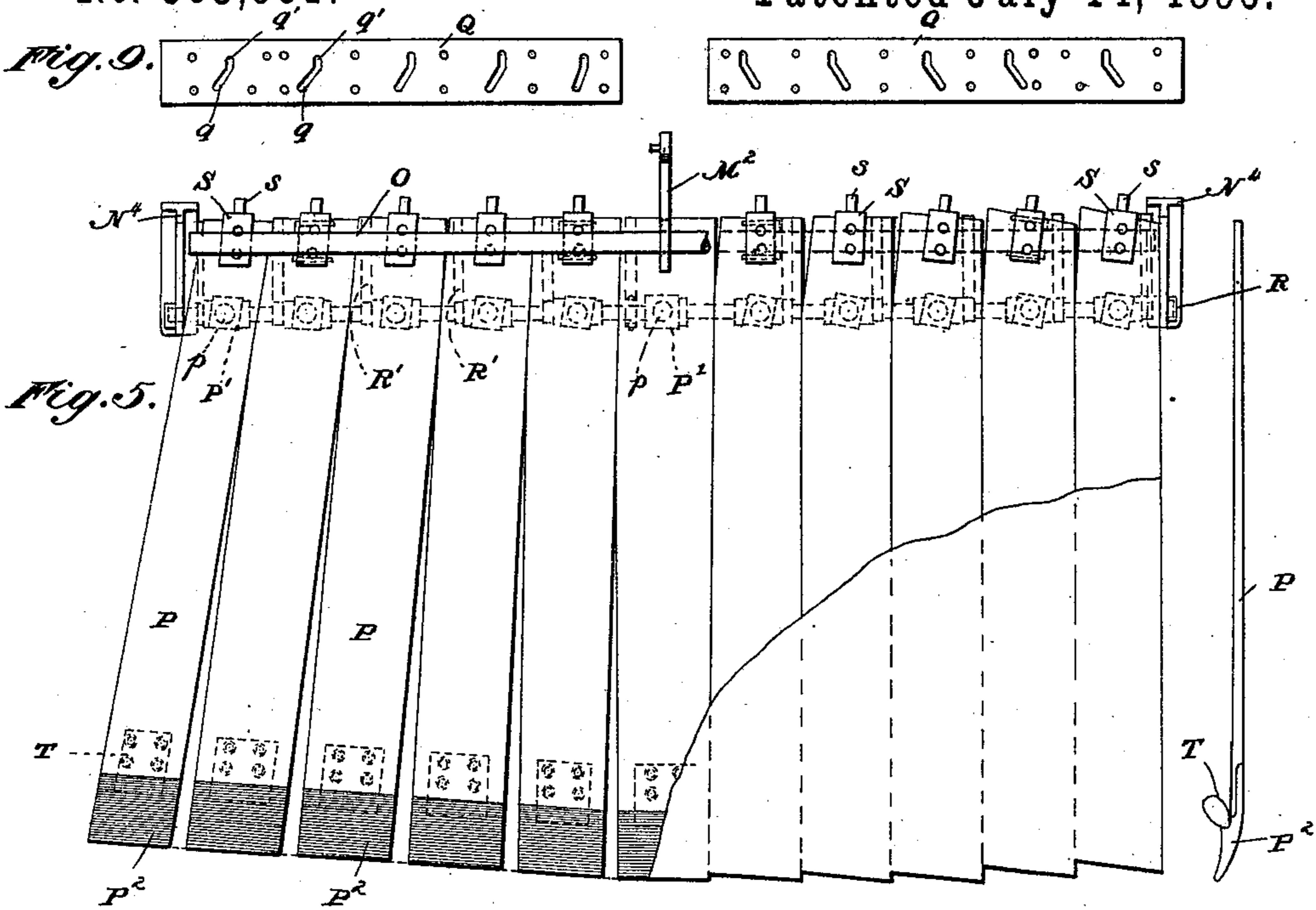


Fig. 6.

Fig. 10. Fig. 11.

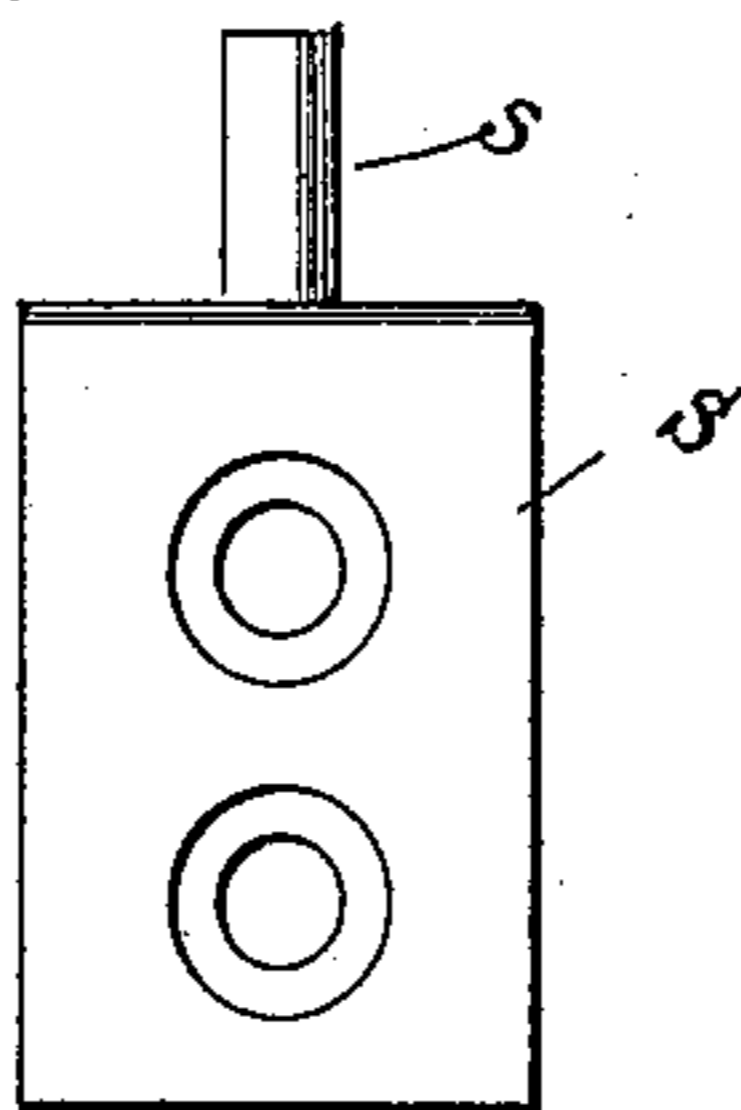
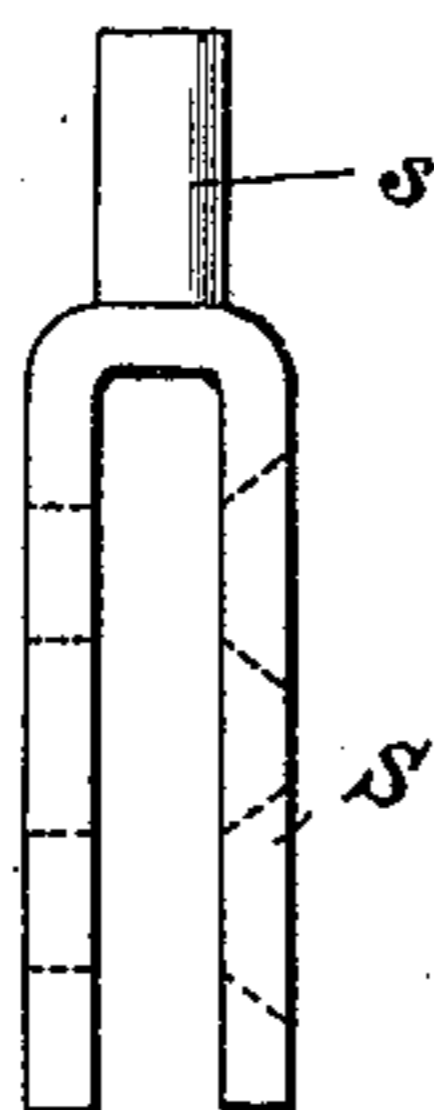
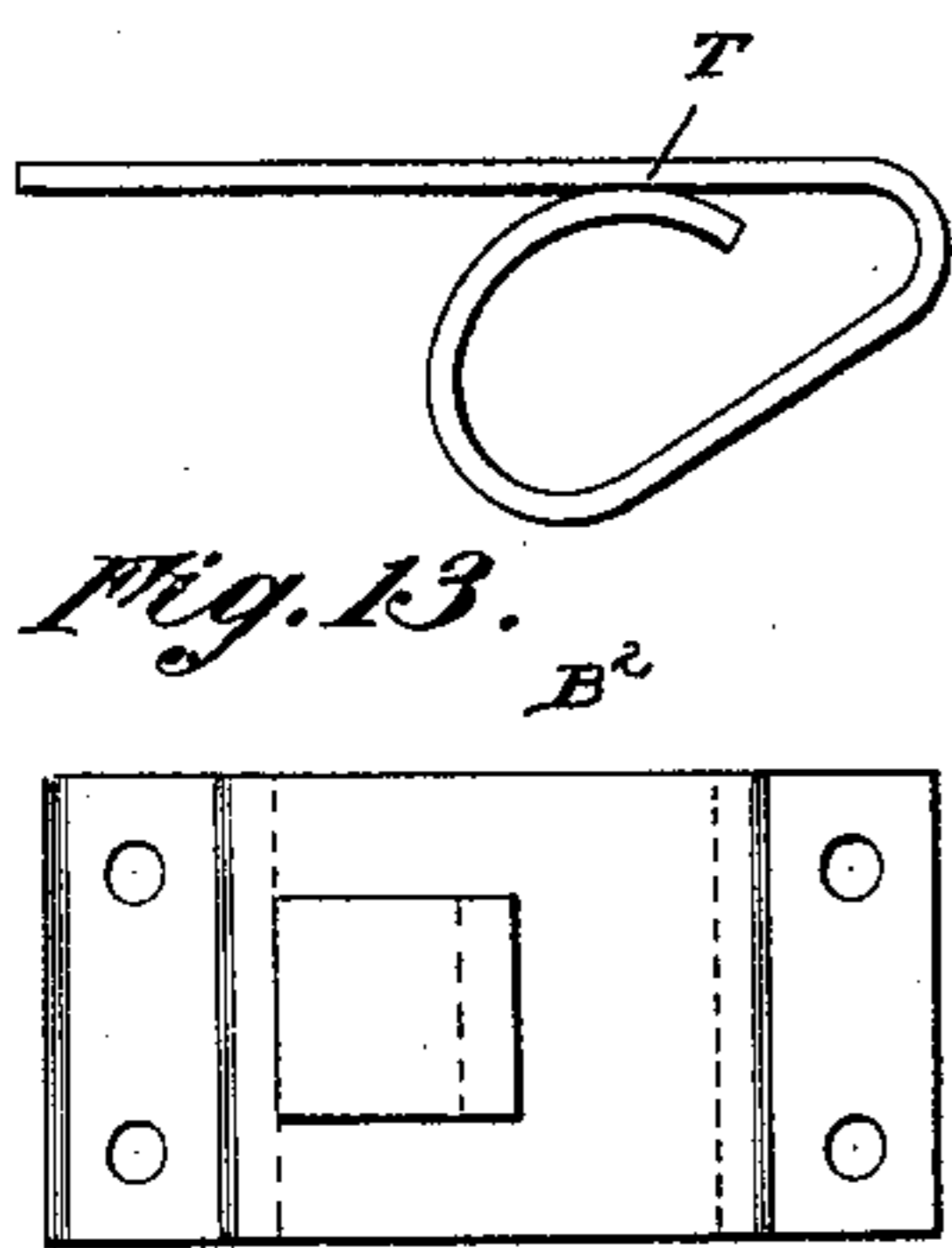


Fig. 7.

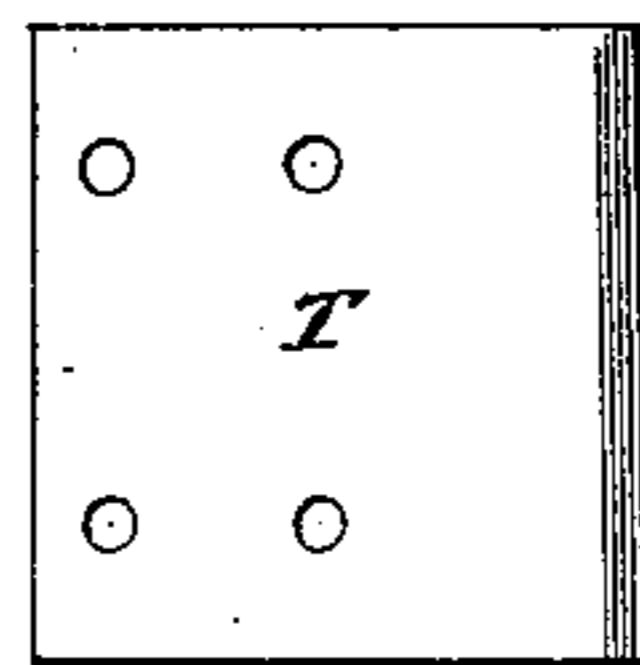


Fig. 4.

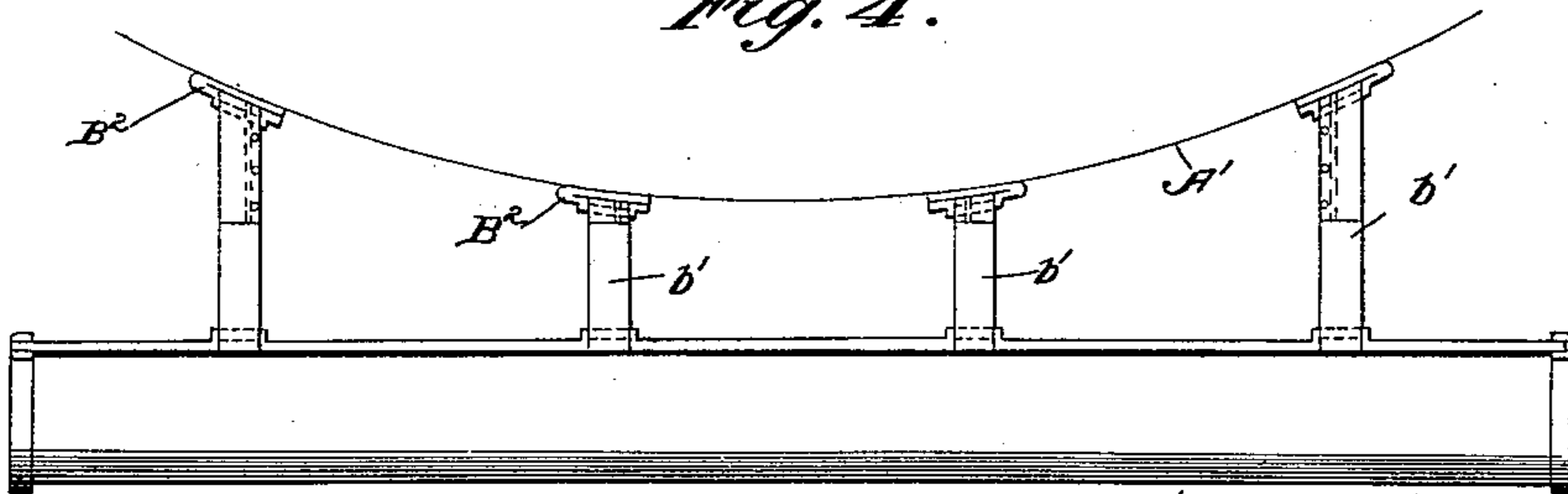
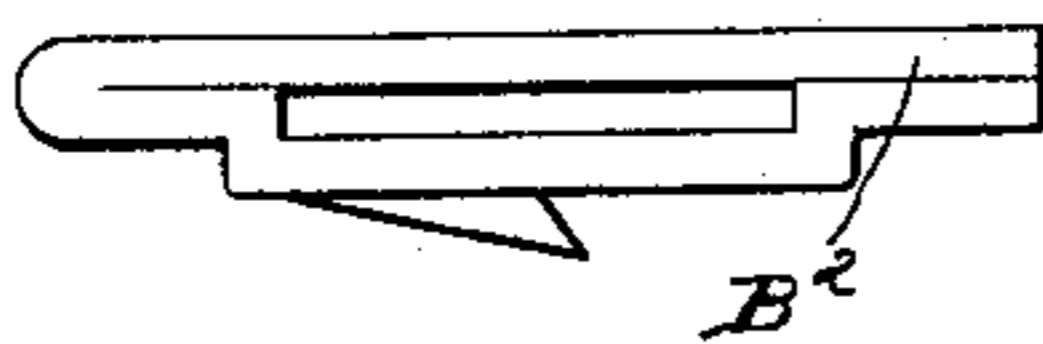


Fig. 14.

B

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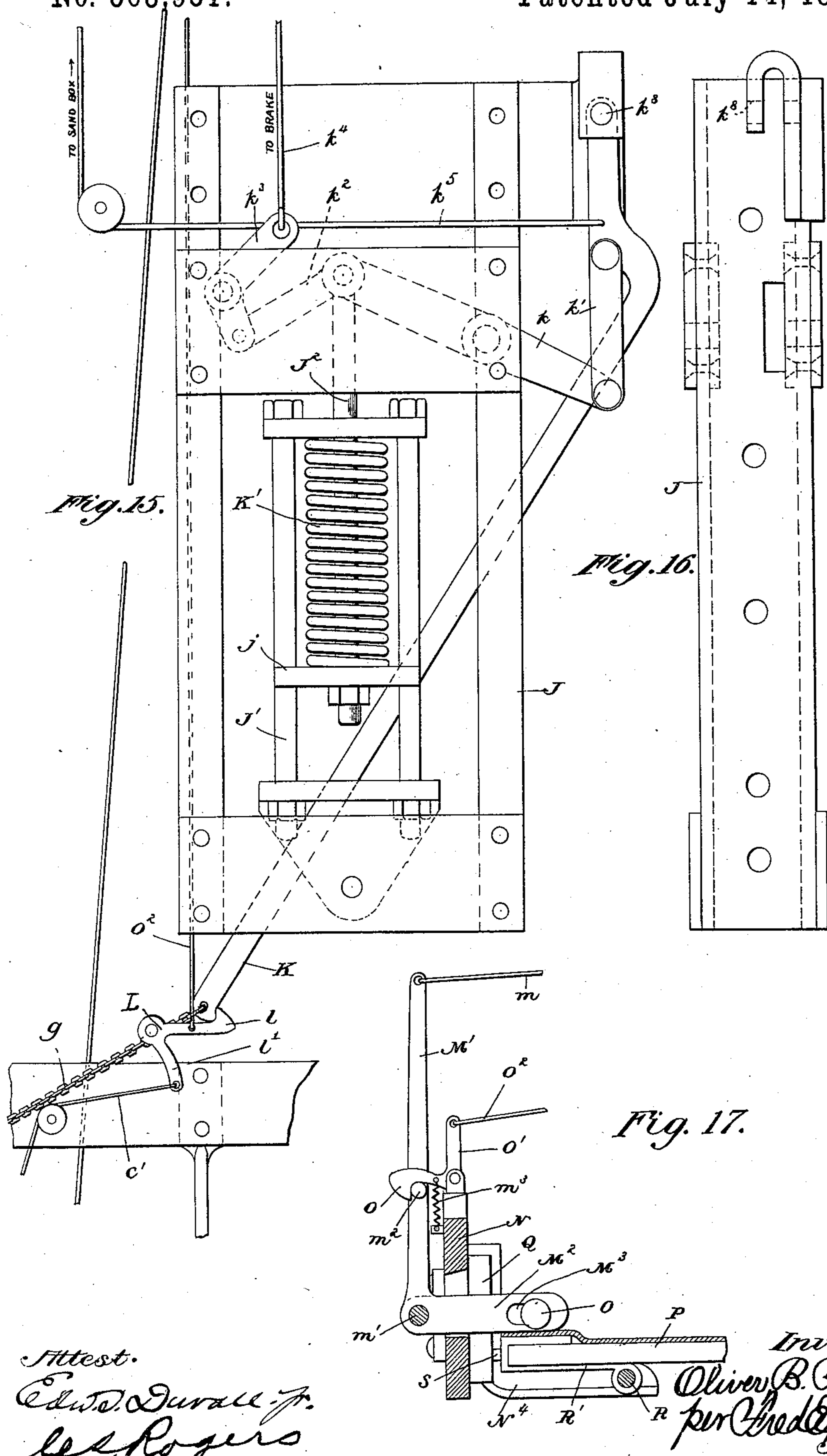
(No Model.)

4 Sheets—Sheet 4.

O. B. FINN.
CAR FENDER.

No. 563,951.

Patented July 14, 1896.



Attest.
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UNITED STATES PATENT OFFICE.

OLIVER B. FINN, OF PHILADELPHIA, PENNSYLVANIA.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 563,951, dated July 14, 1896.

Application filed August 22, 1895. Serial No. 560,135. (No model.)

To all whom it may concern:

Be it known that I, OLIVER B. FINN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Fenders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention refers to improvements in car-fenders having for their object the removal of objects on the track in advance of the moving car, which objects would otherwise be struck by the car and seriously injured or damaged, the primary object of the invention being, of course, the prevention of injury to persons who may be accidentally caught upon the track in advance of the moving car or other vehicle; and the invention therefore consists, essentially, in the novel combination and arrangement of parts for accomplishing the object in view in an easy and efficient manner, and in numerous peculiarities in the construction, combination, and arrangement of the several parts whereby, in the case of an electrically-propelled car more particularly, the electric circuit may be automatically broken, an emergency-brake may be applied, and the fender mechanism may automatically be brought into operation for the performance of its proper functions, substantially as will be hereinafter more fully described, and then particularly pointed out in the appended claims.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional side elevation of my improved wheel-fender. Fig. 2 is a front view of the same. Fig. 3 is an enlarged detail elevational view of the gearing and accompanying mechanical parts for winding up the spring of the emergency-brake. Fig. 4 is a top plan view of the auxiliary yielding dashboard or "upper fender," as it may be called. Fig. 5 is an enlarged detail plan view of the sectional wheel-guard. Fig. 6 is a detail edge view of one of the yielding devices on the outer ends of the sections of the wheel-guard. Fig. 7 is a plan view of the same. Fig. 8 is an enlarged sectional edge elevation of one of the plates of the sec-

tional trigger device. Fig. 9 is a side view of the slotted plates which are engaged by the ends of the sections of the wheel-guard. Figs. 10 and 11 represent edge and plan views, respectively, of the pin-provided castings which are fastened to the ends of the sectional wheel-guard for the purpose of effecting an engagement with the slotted plates aforesaid. Fig. 12 is a detail view of a wire loop. Fig. 13 is a plan view of one of the castings. Fig. 14 is a detail view of a fastening device employed for attaching the upper end of the auxiliary dashboard or upper fender to the regular dashboard of the car. Fig. 15 is an enlarged detail plan view of the mechanism for operating the emergency-brake. Fig. 16 is an edge elevation of the same. Fig. 17 is a sectional elevational view of the mechanism for lifting the wheel-guard from its inclined or active position into its horizontal or idle position.

Similar letters of reference designate corresponding parts throughout all the different figures of the drawings.

A designates the platform; A', the dashboard, and E the truck-frame of any ordinary street-railway or other car.

I do not wish to be confined to any particular kind or form of car, inasmuch as my improved fender mechanism is equally applicable for use with all the various kinds of cars, electric, cable, or those propelled by other means, wherewith it is necessary to have some efficient device for the protection of human life.

In applying my fender to the car I attach certain mechanical parts to that portion of the truck-frame which is beneath the springs of the car, and hence is not subject to the changeable action of such springs.

In the example of my invention given herein it will be observed that the truck-frame to which certain of the active parts of my invention are attached is below the springs of the car; hence such attached parts maintain the same relative position with respect to the track over which the car is moving and are not subject to the same changes in vertical position that they would be if they were attached to the car-body above the springs.

In the practical application of my invention it will be found easy to attach the neces-

sary mechanical parts to the truck in the manner that I have just described for the purpose mentioned.

H^2 designates the brake-shaft, which is of any ordinary and suitable kind, it being situated close to the dashboard A' , as is customary in street-cars, and being provided with the ratchet-wheel H^3 , which is engaged by the pawl h^2 in the usual manner.

Beneath the platform A is a strap or band A^2 , which is securely bolted to the under side of the platform and which furnishes a bearing for the lower end of the brake-wheel shaft H^2 . On the lower portion of shaft H^2 is loosely placed the sleeve I^3 , which constitutes a half of an ordinary clutching mechanism, to which sleeve the ordinary brake-chain i , which actuates the common wheel-brake, is fastened, and upon which it winds when the shaft H^2 is rotated, as shown in Fig. 3. Feathered or otherwise placed on the shaft H^2 , so as to be adjustable thereon without becoming detached from the shaft, is a gear-wheel h' , which carries the other half I^2 of the clutching device, which part I^2 has lugs adapted to engage notches in the sleeve I^3 . In Fig. 3 the part I^2 of the clutch is shown in engagement with the part I^3 .

A lever I is pivoted on the side of the supporting-strap A^2 , and this lever has a forked end which engages a groove in the clutch device I^2 . The lever I is operated by a foot-pin I' , which projects up through the platform A into position in proximity to the shaft I^2 , where it can readily be depressed by the foot of the motorman.

A flat, bent spring I^4 is attached to the under side of platform A or to some other part, so as to bear on the top of the horizontal gear-wheel h' and normally press the latter downward, so that the clutch part I^2 may be in engagement normally with the sleeve I^3 for the purpose of allowing the parts to be so arranged that, by the revolution of the shaft H^2 , the brake-chain i may be wound up or released. When the motorman desires, however, he can depress the pin I' and thereby lift the gear-wheel h' , so that the clutch I^2 I^3 will be unfastened, and the purpose of so lifting the gear h' will be to bring it into engagement with another horizontal gear-wheel h , located normally in a slightly higher plane than the gear-wheel h' and secured upon the vertical shaft H , which is parallel to the shaft H^2 and is journaled at its lower end in the bottom of the strap A^2 and at its upper end in the platform A , and around which shaft is wound a chain g , which is attached to the end of the lever K , as shown in Fig. 15, the purpose of the chain g being to wind up, so to speak, or tension the mechanism which actuates the emergency-brake, so that said mechanism may be in readiness to be set in motion when emergency requires. Whenever, therefore, the motorman desires to wind up the emergency-brake, he simply depresses the pin I' with his foot, and by thus bringing

the gear h' temporarily into engagement with the gear h , after which the shaft H^2 can be rotated, the chain g is wound upon the shaft H until the lever K has been shifted sufficiently far to engage the notch l on the end of the bell-crank L , all as clearly shown in Fig. 15, after which the motorman releases his foot from the pin I' and the clutches I^2 I^3 again engage, and the regular brake mechanism is again in condition for operation.

Secured rigidly to the truck-frame E , as shown in Fig. 1, are the parallel longitudinal side bars D D , which are in a substantially horizontal position and which are located at each side of the car, as shown in Fig. 2, at a short distance below the platform A . In the outer ends of these longitudinal side bars D is journaled the horizontal transverse shaft C' , which I term a "trigger-shaft," and which is situated at a point directly below the front edge of the platform A , or as near that point as possible. From this shaft depend the sections of a trigger device, the lower ends of which sections are in close proximity to the track and the surface of the road-bed, as shown in Fig. 2, the closer the better, it being my aim to arrange these trigger-sections so that they may be kept in as close proximity as possible to the road-bed, so that any object on said bed, no matter how large or small it may be, will, by striking one or the other of the sections, actuate it, and thereby bring into operation the mechanism of my improved fender. In Figs. 1 and 2 it will be seen that I have arranged a series of these trigger-sections, which are designated by the reference-letter C , and which consist of vertical rectangular plates of wood, metal, or some other suitable material, all situated in a common vertical plane and as close together as possible, so that they constitute a shield or guard for the entire lower front of the moving vehicle, but said sections C are individually movable, so that the object on the road-bed may be struck, no matter at what point said object may lie between the two rails of the track. Securely bolted to the upper end of each of these trigger-plates C is a metal strap C^2 , having its upper end curved in semicircular form, so as to partially embrace and be rotative upon the horizontal shaft C' . Attached to the rear side of said shaft C' near each trigger-plate is a wire spring C^3 , which is curved concentrically with the shaft C' , and which receives between it the aforesaid semicircular-ended strap C^2 , projecting from the upper end of the trigger-plate C . This construction is clearly shown in Fig. 8. The connection of each trigger-plate with the shaft C' is such, therefore, that whenever such trigger-plate strikes an object behind it, it will fly forward and upwardly because all the resistance that there will be to such movement will be the action of the spring C^3 , enveloping the strap C^2 . But when any object is in advance of one or the other of the trigger-plates C , so that the trigger-plate strikes it, then such action on the front face

of the trigger-plate will cause the strap C^2 on said plate to bear firmly against the shoulder C^4 , which shoulder is formed in any desired way, being either integral with the shaft C' or as a separate stationary strap running alongside of said shaft, as shown in Fig. 8, and the result will be, therefore, that the shaft C' will be rotated to a greater or less extent. Such rotation will deflect the rigid arm c , which is attached to said shaft, from its normally vertical position and will draw upon the chain c' , which is attached to the upper end of the trigger-arm c . The opposite end of this chain c' is attached to the arm l' of the bell-crank L, as shown in Fig. 15.

We have already observed that the arm l of the bell-crank L is hooked and is adapted to engage the long lever K, belonging to the emergency-brake mechanism. Therefore it will be obvious that whenever there is any object on the road-bed in advance of the moving car and such object is struck by one or the other of the trigger-plates C, the result will be to disengage the bell-crank L from the lever K and thereby release the brake mechanism, which will at once be set in motion in the manner to be hereinafter specified, so that the brakes will be applied to stop the car.

Referring to Fig. 15, it will be seen that I have therein represented the construction of the emergency-brake mechanism in detail. J denotes a rectangular or other frame which is situated beneath the platform A in the position shown in Fig. 1. Centrally within this frame J is a subframe J' , of rectangular form, which provides a guide for a sliding plate j , between which and one of the stationary ends of the frame J' is tensioned the spiral spring K' , which envelops a rod J^2 , one end of which is attached to the follower-plate j by means of a nut or other suitable attaching device, and the other end of which plays through the stationary end of the frame J' , all as clearly shown in Fig. 15. The follower-plate j has a considerable range of movement between the two ends of the subframe J' . When it moves toward the right, the spring K' is compressed, and in Fig. 15 this spring is shown in its compressed position. When the follower-plate j is released from the agency which moves it to the right, then the spring K' being released from the power that compresses it exercises its resilient action and forcibly carries the plate j toward the left. The right-hand end of the rod J^2 , as shown in Fig. 15, is pivotally attached to the end of a lever k , which is pivoted to one side of the frame J, as shown in dotted lines in Fig. 15, the other end of which lever k is pivoted to the end of the link k' , the other end of which link is pivoted to the bent portion of the long lever K, it being observed that the adjacent end of said long lever K is pivoted at k^8 on the side of the frame J. The end of the rod J^2 , in addition to being pivoted to the end of the lever k , is also pivoted to the end of a link k^2 , which is pivotally attached to one

arm of the pivoted bell-crank k^3 , the other arm of which bell-crank is connected to the brake-operating rod k^4 . Thus it will be seen that we have an arrangement of toggle-levers whereby the tension of the spiral spring operates as an emergency device for automatically setting the brake upon the wheels when there is any object upon the track in advance of the moving car.

When the lever K is drawn by means of the chain g so as to be engaged by the catch device, consisting of the bell-crank L, as already explained, it will be obvious that the link k' will act on the lever k so as to drive the lower end thereof toward the left (when it is in the position shown in Fig. 15) and the upper end thereof toward the right, and this will draw the link k^2 toward the right and likewise throw the arm of the bell-crank k^3 , to which the brake-rod is attached, toward the right, and thereby release the brake, the spring K' being simultaneously compressed in consequence of the action against the same of the plate j by means of the rod J^2 , which is attached to the lever k , as already fully explained. The parts will remain in this position until the bell-crank L is disengaged from the end of the lever K. The spring K' can then exert its power, the result of which will be to draw the rod J^2 inward. This will force the link k^2 toward the left hand and likewise vibrate the bell-crank k^3 in the same way, so that the brake-rod k^4 will pull strongly upon the brake device and set the latter firmly against the wheels.

Attached to the lever K near its pivotal point k^8 is a cable or chain k^5 , which operates the discharge-spout of the sand-box U, so that at the same time when the emergency-brake is being applied to the wheels the sand-box will be opened and sand deposited therefrom upon the rails in order to clog the action of the car-wheels and thereby assist in quickly stopping the car. Also, it is convenient and necessary at the same time when the emergency-brake is applied and when the sand-box is opened to have some means for automatically breaking the electric circuit and thereby cut the motor out of the same in order that the motive power for the car may thus cease to operate. I provide for this purpose any suitable kind of circuit-breaker V, to which the electric conductors $v v'$ are connected. This circuit-breaker V is preferably situated directly beneath the platform A, and in a position where it may be struck and operated by means of the long lever K, when said lever is set free from the bell-crank L and is forcibly thrown in a horizontal plane by means of the tension of the spring K' . When the lever thus flies away from the bell-crank L, it strikes against the mechanism of the circuit-breaking device V, and operates upon the same to break the circuit and stop the motor. It is unnecessary to describe in further detail the specific mechanism of the said breaking device, inasmuch as I can em-

ploy any convenient and well-known device for this purpose.

Of course it is presumed that the motor-man will himself break the circuit by such agency as he may have for that purpose on the front of the car; but as an additional safeguard I deem it proper to employ an automatic circuit-breaker, which is automatically operated simultaneously with the application of the emergency-brake and the opening of the sand-box.

Thus far in my description I have dealt more particularly with the means for stopping the car. I will now explain the construction and operation of the fender mechanism proper which guards the wheels and which operates to lift and protect any object which may be thrown thereon.

Referring to Fig. 5, I have shown therein a plan view of my sectional wheel guard or fender proper. It consists, essentially, of a series of longitudinal strips P , of wood, metal, or other suitable material placed alongside of each other close together, and constituting a single surface, but a surface composed of numerous parts capable of acting independently. Each section or segment is mounted independently and moves independently. The fender, therefore, being thus constituted of the series of separate parts is enabled to conform to the shape of the road-bed, either convex, concave, or irregular, and it is thus made impossible for anything to pass under the fender, since it compels anything that it may strike to pass up over the surface thereof.

The independent movement of the several segments is limited by any suitable flexible material, similar to heavy canvas, which I prefer to employ for the purpose of loosely binding the sections together. Another advantage to be considered in this connection is that the effects of a blow are minimized in consequence of the flexible character of this scoop-board kind of fender. It is also to be noted that these fender-sections P have a compound movement: first, a pivotal movement in a vertical plane, and, second, a pivotal movement in a horizontal plane, so that the fender not only moves from the surface of the ground upward into a horizontal position and then downward again until it comes into contact with the ground; but when it so moves downward its sections spread, as shown in Fig. 5, somewhat like the leaves of a fan, thereby causing the fender to be more effective, inasmuch as its area for catching an object is increased, especially at the sides or edges of the car. This is an important characteristic and valuable feature and will be referred to more fully hereinafter. The front end of the fender-sections P are made of rubber or some other suitable cushioning or flexible material P^2 P^2 in order that the effects of a blow from the fender may be lessened, and also the fender may be enabled to pass more easily over any irregu-

larity in the road-bed. In addition to having tips P^2 made flexible, I attach to the under sides of the fenders near said tips P^2 the spring devices T , which assist in giving the forward edge of the fender an easy movement.

R designates a horizontal stationary shaft which is supported at each end in the arms or projections N^4 N^4 , that project horizontally from the upright transverse beam or board N , that is attached in some suitable way to the truck-frame E below the car-springs, as explained above. The ends of the shaft R are made square and are held in bearings or sockets which prevent the shaft from rotating. The shaft is, therefore, a stationary shaft and serves as a fulcrum-bar for the several fender-segments P . On this shaft R , which shaft is round with the exception of its square end already mentioned, is a series of sleeves P' , one for each segment and located beneath the segment, said sleeves having an orifice or perforation to receive a fixed pin p on the under side of each segment P . This engagement of a pin with a perforated sleeve enables the fulcrum-point of each segment P to be of such a character that it can not only oscillate up and down upon the shaft R , but can likewise oscillate to right or left in a horizontal plane, having thereby a compound movement. (See Fig. 5.)

Each segment P is provided at its pivoted end with a spring R' , which is attached to the shaft R , but which bears against the under side of that end of the segment above the fulcrum, and operates to force said upper ends upward and thereby cause the forward ends of the segment to be normally downward. These springs R' may be of any suitable pattern and variety, and I do not wish to be restricted to the form of flat spring herein shown. Furthermore, it will be understood that the said springs may be attached and applied to the ends of the segments in any desired manner. It is quite important, however, that each segment should have its individual spring. The inner end of each of the segments P is provided with the rearwardly-projecting pin. This pin may be attached in any desired manner to the segment. I preferably employ a slotted casting S , which embraces the end of segment P , as shown, and is provided with a projecting pin s . (See Figs. 5, 10, and 11.) Secured to the transverse beam or board N is a plate or plates Q , provided with slots that are engaged by the rearwardly-projecting pins s . The slots in the plates Q are preferably of the form shown in Fig. 9, where each slot consists of a lower inclined portion q and an upper vertical portion q' . These slotted plates, therefore, act as cam-plates in their operation in connection with the pin-provided segments. When the segments P are in the horizontal position shown in Fig. 1, the pins s will rest in the bottom of the portions q of the said slots. When the segments, however, drop into the

position shown in dotted lines in Fig. 1, then these pins will ride through the inclined portions q of the slots into the vertical portions q' q' , in which vertical portions they will rest and remain stationary; and the form of the slots will cause the segments or sections P to oscillate horizontally upon their pins p and thereby spread fan-like, as shown in Fig. 5, so that the inclined fender will be longer and more completely protective than the horizontal fender, because when the segments are in their horizontal position they are kept close to each other and there is no spreading action.

On the rear ends of the segments or sections P, beyond the fulcrum-points of the latter, rests a horizontal tube, roller, or bar O, which is loosely held in place by any suitable means, such as some sort of ordinary wire fastening, and which at its central portion passes through a slot M^3 in the horizontal arm M^2 of a bell-crank having the vertical arm M' and pivoted at the point m' to some suitable portion of the framework. On the platform A is a vertical lever M, which works through a slot in the platform, and the lower end of this lever is connected by a chain, cable, or cord m with the upper end of the bell-crank arm M' . The operator who stands upon the platform A can, by manipulating the lever M, draw the arm M' forward, and this will depress the horizontal arm M^2 and force the roller O down upon the inner or rear ends of all the sections P, thereby lifting the toe ends of said sections, so that the sections will occupy the horizontal position shown in Fig. 1.

On the upper edge of the beam N is pivoted a catch O', having the catching-hook o , which is adapted to engage the pin m^2 on the vertical arm M' . A spring m^3 is attached to the catching-hook o and likewise to the beam N, and acts normally to hold said catch O in engagement with the pin m^2 . The cord or cable O^2 is attached to the catch O' and likewise to the bell-crank device L. It will be obvious that when the catch device O' is disengaged from the pins m^2 the weight of the fender-sections P, assisted by the springs R', will be sufficient to cause the fender to drop down into its inclined position, where it will be in contact with the ground, and where it will be placed operatively to receive upon it any object which it may be desirable to catch or protect. This automatic release of the sectional fender takes place whenever the sectional trigger is struck, and the emergency-brake is operated, because the same action which moves the bell-crank L so as to disengage the hook l from the lever K likewise draws upon the cable O^2 and disengages the catch device O' from the lever M' , so that the roller O can easily be lifted from the rear ends of the fender-sections. In again setting the mechanism so as to replace it in readiness for action, the operator manipulates the lever

M, thereby drawing upon the cable m and actuating the lever M' and the other parts as before.

In order to accomplish the best results I find it convenient to locate in front of the regular dashboard A', an auxiliary yielding dashboard B, which may be termed a "buffer" or "advance cushion," which will strike the opposing object in its path with as gentle a motion as possible. This may be made of some suitable thin sheet metal. At its end it is provided with the supporting-springs b' , which are fastened at their rear ends to the slotted pieces B^2 , that are fixed to the front of the dashboard A. I furthermore prefer to arrange a series of spiral springs b between the dashboard A' and the auxiliary fender B for the purpose of increasing the cushioning character of the said auxiliary fender.

I do not wish to be restricted to any precise form for the part B, but reserve the liberty of constructing it in such shape as may be found convenient, and of attaching it by such means and in such manner as may be thought best.

In the present case I have illustrated one preferred embodiment of my invention, the same being sufficient to explain the principles thereof and enable those skilled in the art to make and use the invention; and it will be understood that the details of construction and arrangement of parts may be varied to suit the exigencies of particular cases, and that parts of my invention may be used separately or in combination, or in combination with other equivalent parts, without departing from the spirit of the invention.

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

1. In a fender, the combination with the trigger having a series of independently-operating sections, of an emergency-brake, a wheel-guard, a sand-box, and a circuit-breaker, all simultaneously operated by said trigger.

2. In a fender, the combination with a trigger having a series of independently-operating sections, of a brake mechanism, a wheel guard, a sand-box, a circuit-breaker, and a lever actuated by the trigger to operate said devices, all substantially as set forth.

3. In a fender, the combination with a trigger, consisting of a series of sections journaled on a shaft and capable of independently revolving the same, of a brake, and a brake-shaft having a clutch thereon operated by the motorman to tension the brake mechanism.

4. In a fender, a wheel-guard, consisting of a series of sections having yielding tips, said sections having a horizontal and vertical movement, thereby increasing its area of effectiveness, substantially as described.

5. In a fender, a wheel-guard composed of sections having a compound movement so as

to spread fan-like when the guard is down, a bar resting on the rear ends of the sections beyond the pivotal point of the same, and a lever to depress the same and raise the sections.

6. In a fender, a sectional wheel-guard whose sections are pivoted to move vertically and likewise horizontally for the purpose of enabling them to spread fan-like when the guard is down, a bar resting on the rear ends of the sections beyond the pivotal point of the same, a lever for actuating the same, yielding tips on said sections and springs located under and at the rear of the tips, for the purpose substantially as described.

7. In a fender, the combination of a sectional wheel-guard whose sections are pivoted to move vertically and also horizontally, in combination with a slotted cam-plate for assisting in such compound movement, substantially as described.

8. In a fender, a trigger, consisting of a series of individually-movable sections, in combination with a shaft on which the sections are hung, springs to hold the sections in their normal, vertical position, said sections being free to swing when struck from behind, but operating to clutch the shaft rigidly when struck in front, in order that the shaft may be rotated, substantially as described.

9. In a fender, a trigger mechanism, consisting of a shaft, a series of sections hung thereon and adapted to individually clutch the shaft when either section is struck in front, springs adapted to normally hold the sections in a vertical position in combination with a fender mechanism which is operated by the said trigger, substantially as described.

10. In a fender, the combination of a trigger mechanism, consisting of a shaft, and a series of sections hung thereon, so that whichever section is struck by an object will clutch the shaft and rotate it, and a fender mechanism operated from said trigger-shaft, and con-

sisting of a series of sections, having yielding tips and springs located at the under rear ends of the tips, substantially as described.

11. In a fender, the combination with an operating-trigger, of an emergency-brake mechanism, consisting essentially of a spring power, a toggle mechanism connecting said spring power with the brake-rod, a leverage mechanism connecting with said toggle mechanism, and a detent engaging said leverage mechanism.

12. In a fender, the combination with an operating-trigger, of a fender mechanism, consisting of a series of sections provided with springs for depressing said sections into operative position, a depressing roller or bar for said sections, and mechanism for operating said roller or bar, and also mechanism operated from the trigger for automatically releasing said roller or bar.

13. In a fender, the combination with the wheel-guard, of a trigger mechanism situated in the path of the moving vehicle, and consisting of a series of sections, a rock-shaft on which said sections are hung, independent devices whereby said sections may individually clutch the rock-shaft, springs to hold said sections in their normal, vertical position, a sand-box, and a circuit-breaker, all operated by the said trigger, all substantially as described.

14. In a fender, the combination with the emergency-brake mechanism, of the brake-shaft, a clutch thereon, and gearing adapted to be thrown into and out of clutch for the purpose of tensioning the mechanism which operates the emergency-brake, substantially as described.

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

OLIVER B. FINN.

Witnesses:

SAMUEL MCDOWELL,

EDW. W. MAGILL.