

(No Model.)

2 Sheets—Sheet 1.

C. G. INGALLS.  
CAR PROTECTOR.

No. 541,327.

Patented June 18, 1895.

Fig. 1.

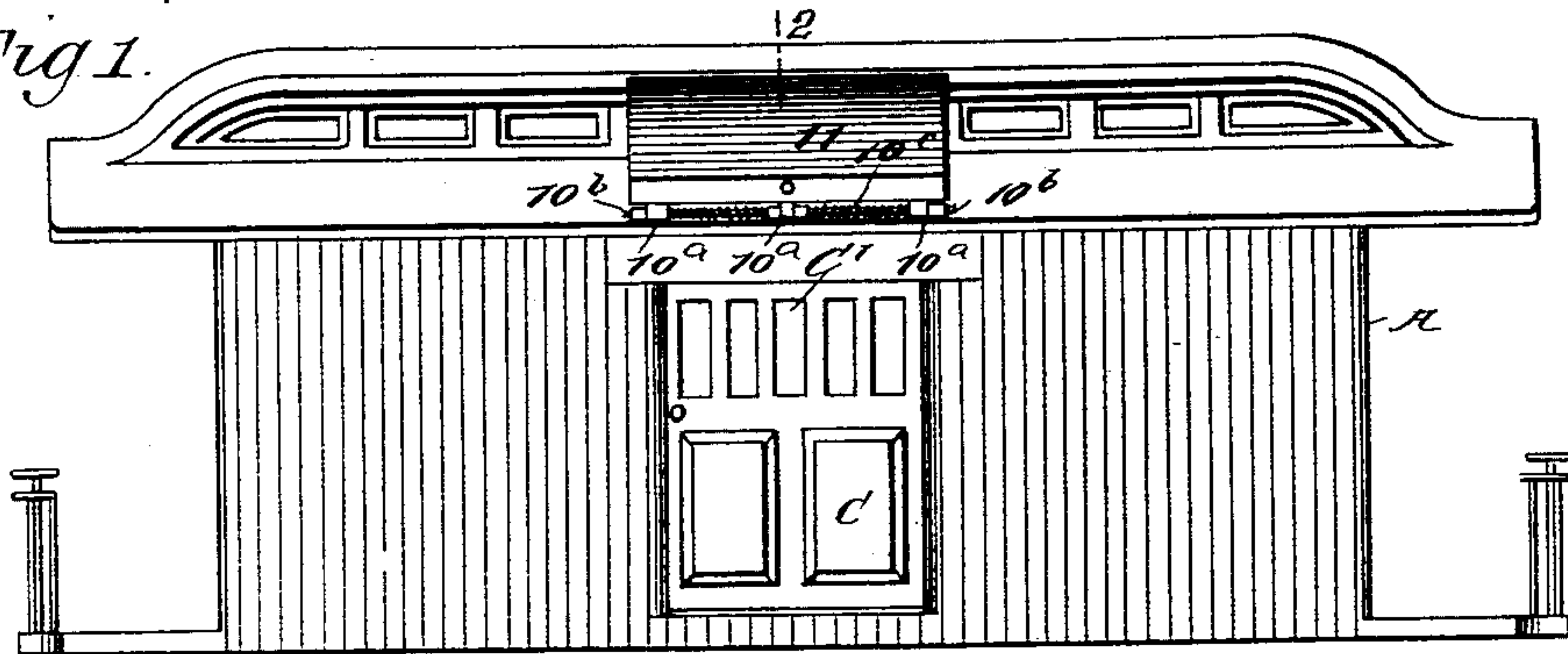
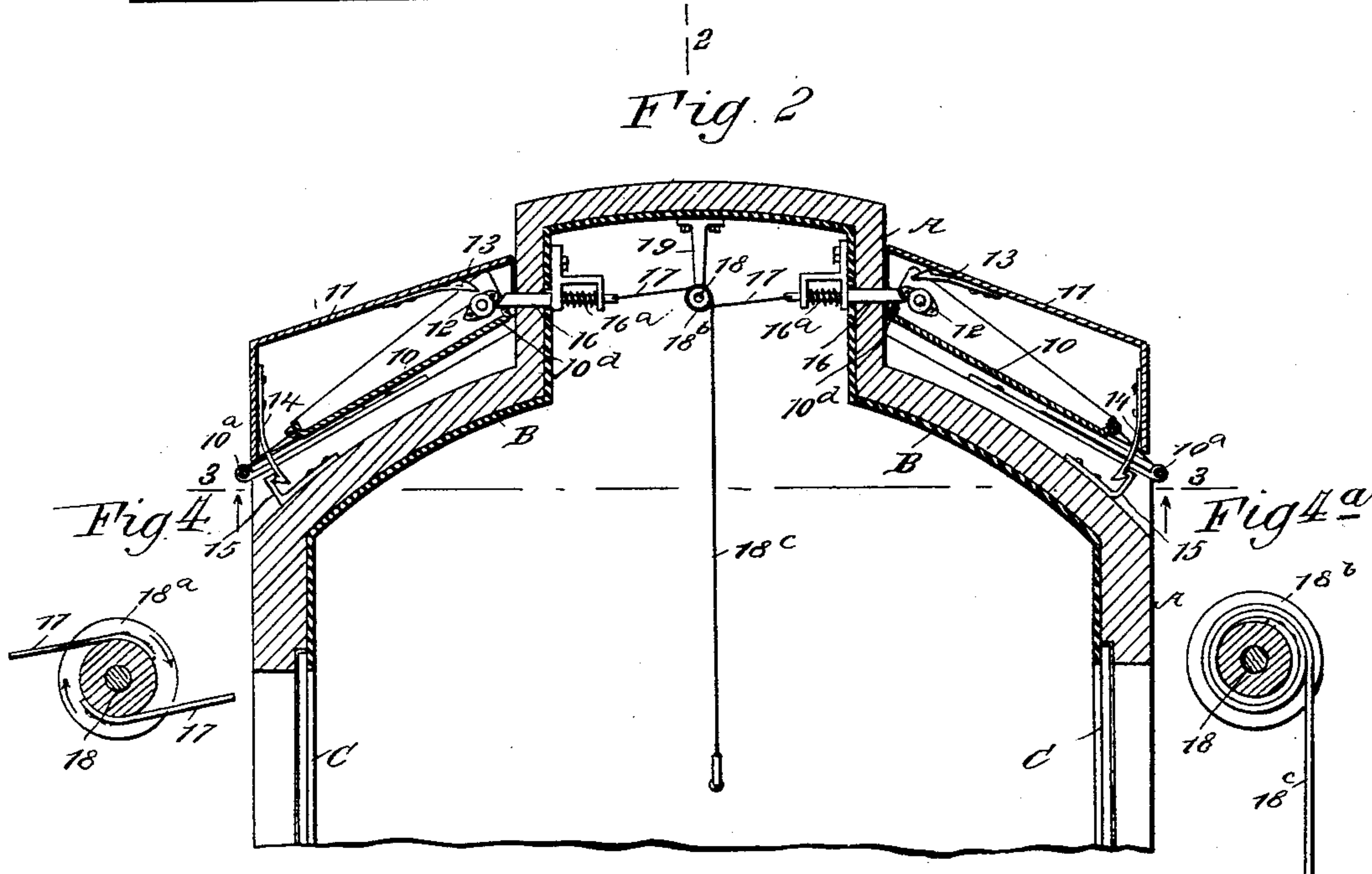


Fig. 2.



(No Model.)

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Fig. 6.

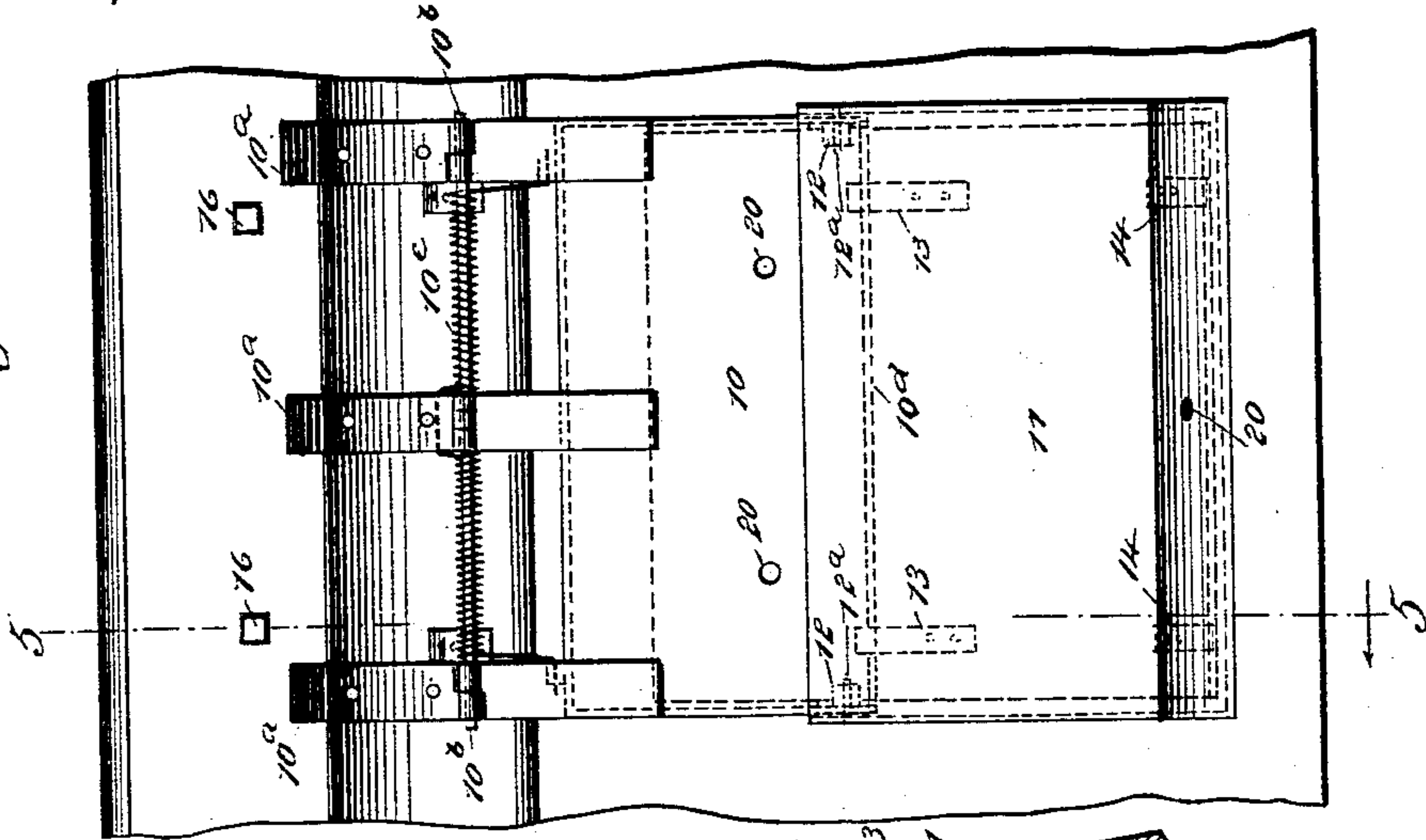


Fig. 5.

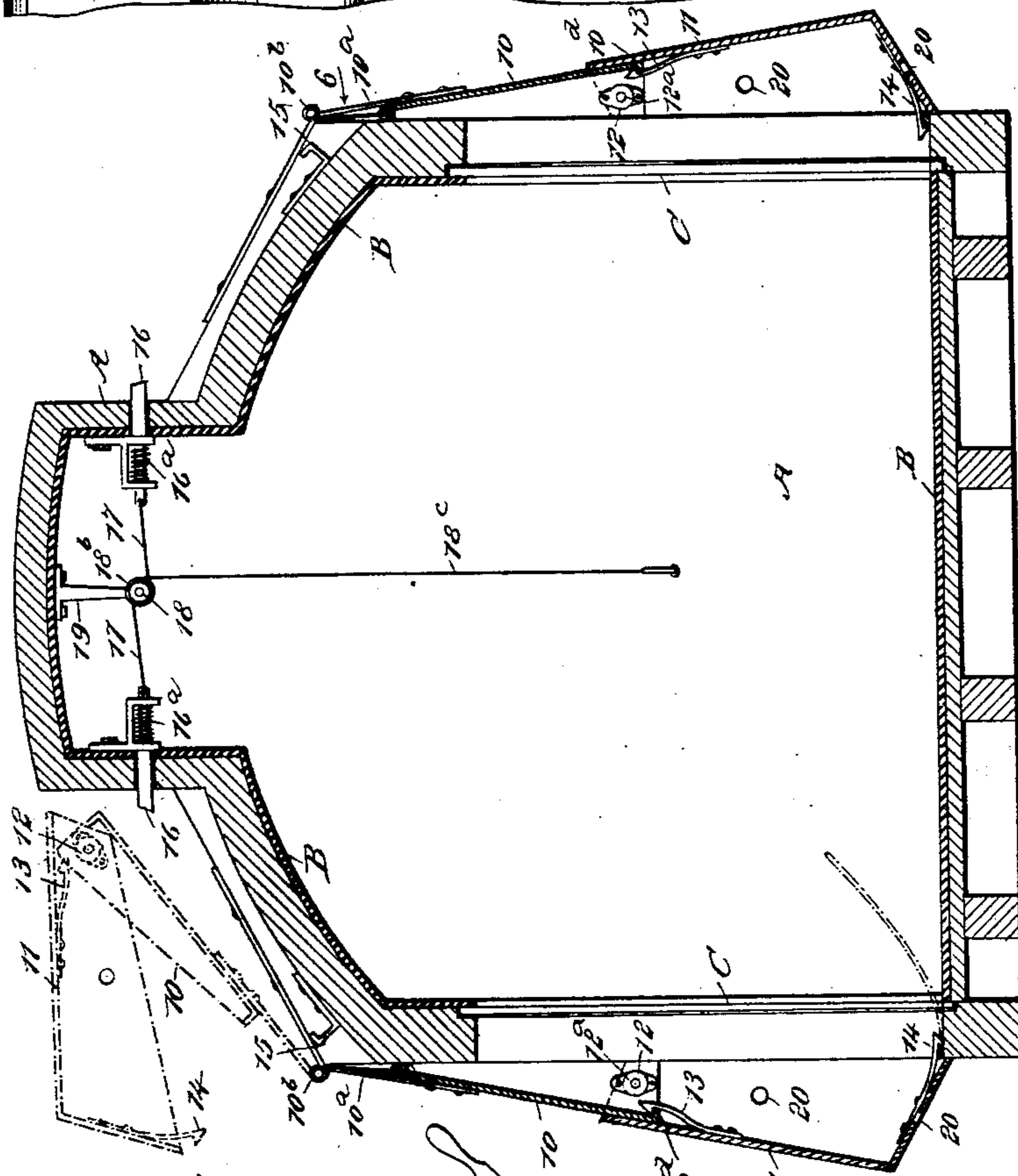


Fig. 8.

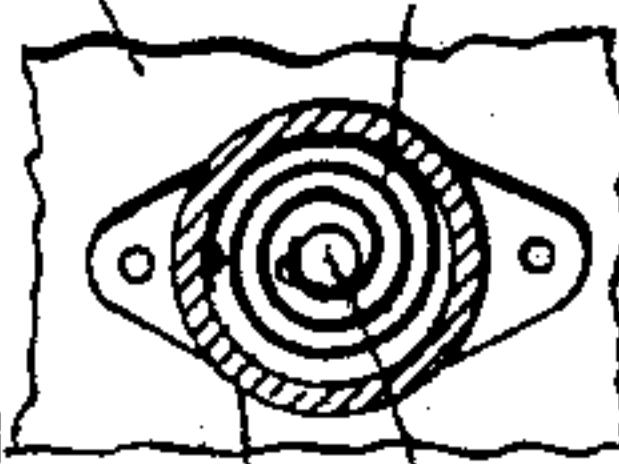


Fig. 7.

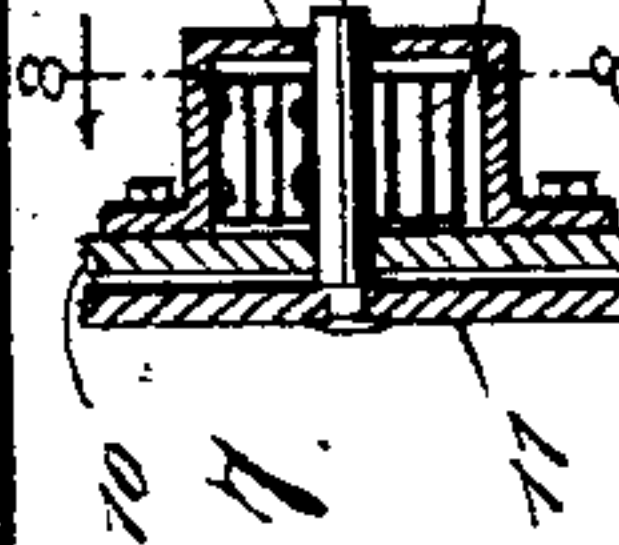
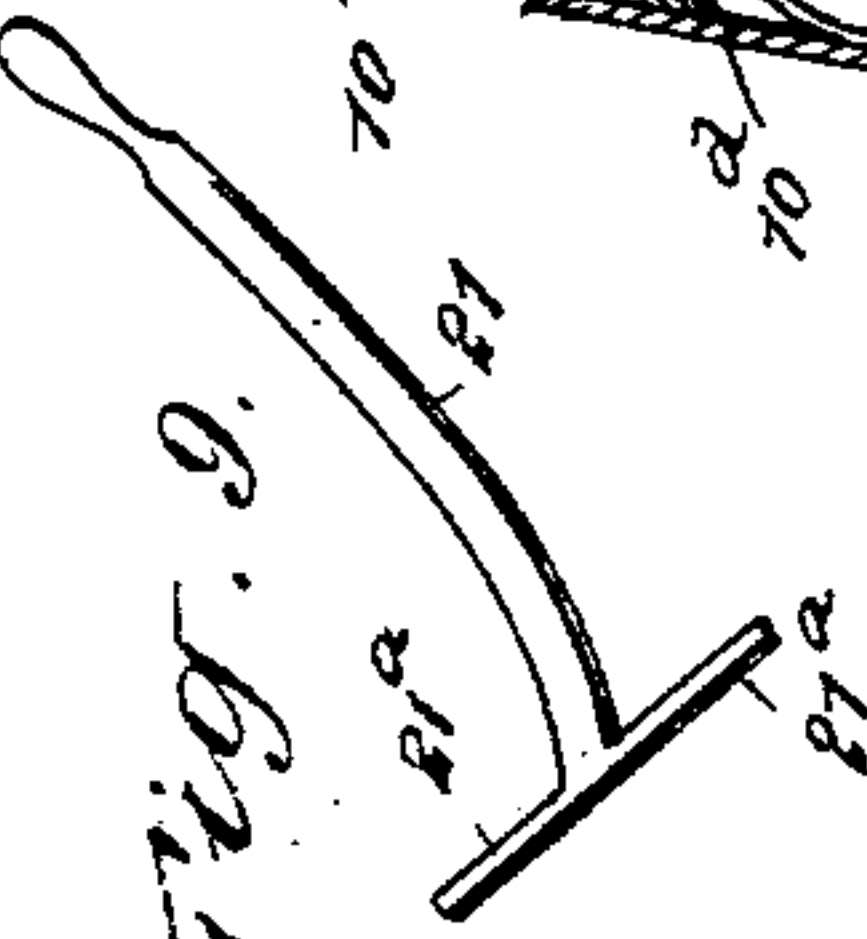


Fig. 9.



WITNESSES:

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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

CHARLES G. INGALLS, OF WAUCEDAH, MICHIGAN, ASSIGNOR OF ONE-HALF  
TO F. H. PATTERSON, OF SAME PLACE.

## CAR-PROTECTOR.

**SPECIFICATION** forming part of Letters Patent No. 541,327, dated June 18, 1895.

Application filed March 7, 1895. Serial No. 540,890. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES G. INGALLS, of Waucedah, in the county of Dickinson and State of Michigan, have invented a new and  
5 Improved Car-Protector, of which the following is a full, clear, and exact description.

This invention relates to improved means for affording protection to doors and windows of mail and express cars, to prevent the felonious entrance of train robbers who may attack the car or train of cars.

The invention consists of a bullet and fire-proof shield for each door or window of the car, which shields are arranged to be folded  
15 away from the openings they are to protect, and are adapted to receive simultaneous and instant adjustment so as to project them over the doors and windows if desired, and thus afford complete protection to such points of  
20 entrance to the car. Provision is also made to enable those in the car to fire from different points through the shields, after they have been adjusted to cover the doors and windows, and thus safely attack the train robbers who  
25 may attempt to force an entrance into the protected car.

The invention further consists in the construction and combination of parts, as is hereinafter described and indicated in the claims.

30 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

35 Figure 1 is a side view of a car-body having the improvement, the latter being shown folded up from a car-door it is adapted to protect when lowered. Fig. 2 is an enlarged transverse sectional view on the line 2 2 in Fig. 1, showing the upper portion of the car-body and the improvement thereon in duplicate and folded up to remove them from the opposite door-apertures. Fig. 3 is a partly-sectional reverse plan view of the upper portion  
45 of the car-body and features of the improvement thereon, the section being taken substantially on the line 3 3 in Fig. 2. Fig. 4 is an enlarged transverse sectional view on the line 4 4 in Fig. 3. Fig. 4<sup>a</sup> is an enlarged transverse  
50 sectional view on the line 4<sup>a</sup> 4<sup>a</sup> in Fig. 3. Fig. 5 is a transverse sectional view on the line 5 5

in Fig. 6. Fig. 6 is a side view, in part, of the car at one door, showing the improvement thereon in closed adjustment over the door, the view being taken in direction of the arrow  
55 6 in Fig. 5. Fig. 7 is an enlarged transverse sectional view on the line 7 7 in Fig. 3. Fig. 8 is a sectional face view on the line 8 8 in Figs. 3 and 7; and Fig. 9 is a perspective view of an implement for releasing the fastenings of the  
60 improved shields, so that they may be removed from over the doors or windows they have been adjusted to cover and protect.

The car body A may be of any approved construction, and have the usual number of doors  
65 at the ends and sides of the same, and to avoid unnecessary detail the doors at the ends of the car body, as well as the windows, are omitted from the drawings. The car body is preferably lined with plate metal, as shown at B  
70 in Figs. 2, 3 and 5, the said lining having sufficient thickness to resist its perforation by bullets.

It is contemplated to provide the improvements for the protection of any opening in  
75 the car body, be it a door or window, but for the purposes of illustration of the novel protector, it is represented as arranged to guard the opposite doors C, which are provided to close the main side door apertures, such as  
80 are usually furnished for the introduction and removal of freight or mail matter to and from the car.

Preferably the doors C are formed of steel plate, and they may have a glazed window C'  
85 in each one at the upper part, as is clearly represented in Fig. 1, these windows, if provided, obviating the necessity for other windows to light the interior of the car. As the improved protecting shields are of similar  
90 construction, and are attached in a like manner to the car body A, the description of one shield and its connections will suffice for both of said appliances.

Each shield comprises two main sections  
95 10, 11, of such area that together they are of an ample size to cover the door C that they may be arranged to guard. The upper section 10 of the two part shield is strongly hinged to the side of the car body A, so as to permit  
100 said section to hang pendent from a point directly above the car door C, and for effective



service the hinges  $10^a$  have their joint portions all connected by a single pintle rod  $10^b$ , as indicated in Figs. 1 and 6.

There is a coiled spring  $10^c$  mounted on the pintle rod  $10^b$  and said spring is arranged to exert torsional recoil at its ends for the depression of the shield section, so as to effect an assured and quick descent of the latter when occasion requires it.

The side edges of the shield sections 10, 11, are flanged in the same direction, and preferably said flanges are tapered to regularly reduce their breadth from the lower edge of the lower section 11 to the top edge of the section 10, as clearly represented in Fig. 5, and on the lower edge of the lower section a flange is produced that joins the side flanges of said section, the shields being inclined outwardly and downwardly when in lowered adjustment. Such a proportionate width and length is afforded each shield section, that said parts 10, 11 may be slid together where they meet, and the lower section have an overlapping contact with the adjacent portion of the upper section. There is a duplicate spring-jointed connection produced between the lapped portions of the shield sections 10, 11, which connections are preferably formed as shown in Figs. 5, 6, 7 and 8.

It will be seen that each of the duplicate spring joints for the shield sections 10, 11, comprises a spring-box 12, which boxes are oppositely attached to the inner surface of said flanges on the upper section 10 near its transverse lower edge. The spring-boxes are centrally perforated to loosely receive the cylindrical bodies of the pintle studs  $12^a$ , secured to and projecting inwardly from the overlapping portions of the side flanges on the lower shield section 11. As clearly shown in Figs. 7 and 8, a volute spring  $12^b$  is located in each spring-box 12, the inner end of the spring being secured to the stud  $12^a$  it encircles, the outer end of the spring being affixed to the inner side of the spring box.

The described arrangement of parts furnishes pivotal connections between the lapped portions of the shield sections 10, 11, at their flanges, and also adapts the volute springs to coact with the gravity of the lower shield section for a speedy descent of the latter to occupy the position shown in Fig. 5, the trend of the spring coils and their connection as stated, serving to effect the result mentioned.

As the shield sections 10, 11 are formed of the plate metal and have considerable breadth, it is essential that provision be made to retain the overlapping portions of said sections in close contact when the shield is lowered for service. To this end a suitable number of spring latch hooks 13 are provided, which have plate form and have one end of each fastened to the inner surface of the lower shield section, at such a distance from the transverse lower edge of the upper shield section that the free hooks on the upper ends of the latches 13 will be adapted to have a

latching engagement with an inwardly projecting rib  $10^d$ , that is formed on said transverse edge of the upper section, as clearly shown in Fig. 5. As the hooked connection just described is produced below the pivotal connections of the shield sections, it will be evident that the latter will be held in close contact, and that the inward flexure of the joints will be prevented when such a contact of parts is had, so that in effect the two shield sections become as one body when in completely lowered condition.

In order to secure the shields in position over the doors C and prevent their elevation from the outside of the car by an attacking party, one or more spring latch hooks 14 are provided, which are secured by one end of each latch hook, on the lower transverse flanges of the lower shield sections 11, so that the free hooked ends of these securing devices will project inwardly when the shields are in a lowered condition, and be adapted to interlock with suitable detent notches or projections in or on the floor of the car, or thresholds of the car door apertures, which will retain the shields in a locked condition until the spring hooks 14 are released by use of a suitable implement, as will be hereinafter explained.

When the door protecting appliances that have been described are not in service as shields for the doors C, they are folded upwardly, so that the sections 10, 11 of each shield will relatively occupy the positions indicated in Figs. 1 and 2, and are so retained against the stress of the coiled springs  $10^c$ ,  $12^b$ , by a latched engagement of the latch hooks 14, with the detent hooks 15, which latter are located on the exterior of the car roof at proper points for such an interlocking engagement.

As the joints  $10^a$  are centers of motion for the section 10, and the hooks 14 are on a radial line therefrom, it will be seen that when the other fastenings to be described, are released, the folded section 10 will by its outward rocking movement carry the hooks 14 away from the detent hooks 15 and so release their latching engagement.

The hooked connection of the detents 15 and latch hooks 14, serves to insure the folding engagement of the shield sections near the joints of the hinges  $10^a$ ; and to hold their upper edges in a folded condition on the car roof, as shown in Fig. 2, it is preferred to employ the mechanism represented in said figure and in Fig. 3, which will retain the lower shield section imposed on the upper sections of the same, and permit the simultaneous release of both sections of each shield, so that the recoil of the springs  $10^c$ ,  $12^b$ , will instantly throw the shields into a depending and locked condition, as shown in Fig. 5.

The shield locking mechanism just mentioned, comprises duplicate devices, one for each shield, each locking device consisting of the following described parts:



Two slide bolts 16 are held on bracket frames so as to slide through the upright wall of the car body, or as shown may have a sliding engagement with the perforated side walls of a longitudinally extending ventilator, such as is usually provided for railroad cars, and the said bolts are sufficiently projected by springs 16<sup>a</sup> to permit their outer ends to extend over the rib 10<sup>d</sup>, that is, by the folding of the shield sections disposed near to the ventilator wall, so that the projection of the slide bolts as stated will retain the opposite shields in a folded condition on the roof of the car body A.

The inner ends of each set of slide bolts 16 are secured to flexible bands 17 or like connections, which bands that are opposite in pairs have a secured engagement at the inner ends of each pair, with one of two similar pulleys 18<sup>a</sup>. The pulleys on which the ends of the bands 17 are secured are fixed on a horizontal shaft 18, that is supported to rotate by its loose engagement with two depending bracket arms 19, which hang from the roof of the car or ventilator thereon.

Intermediately of the pulleys 18<sup>a</sup> another pulley 18<sup>b</sup> is mounted on the shaft 18 and secured thereto, and on said pulley a band or other flexible piece 18<sup>c</sup> is attached by one end and wrapped thereon, as clearly represented in Fig. 4<sup>a</sup>. The arrangement of the bands 17 where they are engaged in pairs with the pulleys 18<sup>a</sup>, is such that the portions of each pair of bands that are nearest the pulley they are engaged with, may be wrapped on the pulley and also over each other, in a manner which is rendered obvious by their representation in Fig. 4, so that the rotation of the shaft 18 in the direction of arrows in Fig. 4, will shorten the bands, and withdraw the slide bolts 16 from an engagement with the ribs 10<sup>d</sup>.

The wrapped condition of the band 18<sup>c</sup> is produced in the same direction as the arrows in Fig. 4, so that a pull on the pendent portion of said band will wrap up the bands 17 and consequently draw the slide bolts 16. Each of the shields has a number of perforations 20 formed in its sections, at points which will permit occupants of the car to protrude the barrels of fire arms through said holes, to aim them at robbers who are making an assault on the car or train.

As the shields are bullet proof, and by the described construction of parts are adapted to be simultaneously thrown into a position that will completely cover the doors C, it will be evident that an attempt to enter the car through the doors that are thus protected will be foiled, and that by the use of fire arms the attacking party may be driven off or killed.

In Fig. 9 is shown a lever 21 having two lateral limbs 21<sup>a</sup>, which project at one of its ends, said lever being designed to release the latch hooks which hold the shields hooked fast at their lower edges, the limbs of the lever being made to engage with the hooked ends of the spring hooks 14, so that a depression of the

lever when applied as indicated by dotted lines in Fig. 5, will simultaneously release the latch hooks and permit an upwardly folding adjustment of the sections of the shields.

To enable the engineer of a train that has been stopped by robbers to signal to a mail or express agent that there is danger, a battery and signal bell can be placed in the car, and insulated wires in open circuit be extended to the foot-board of the engine, so that the engineer, if he is made to throw up his hands, can, by stepping on a push button of ordinary make and to which the wires are connected, close the circuit and sound the bell, so that the mail agent or expressman can speedily throw the door and window protectors into position for service, as hereinbefore explained.

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

1. The combination with a car, of a shield for closing an opening thereof formed of two sections, the upper one being hinged to the car above the opening to fold upon the roof thereof and the lower one to the upper one to fold thereupon, substantially as described.

2. The combination with a car, of a shield for closing an opening thereof, said shield being formed of sections hinged together, the upper section being hinged to the car over the said opening by spring hinges, and means for holding the sections folded one upon the other above the opening, substantially as described.

3. The combination with a car, of a shield formed of two sections, the upper section being hinged to the car by spring hinges and the lower section to the upper section by spring hinges, and means for locking the two sections folded one upon the other, substantially as and for the purpose set forth.

4. The combination with a car, of a shield formed of two flanged sections, hinged together, the upper section being hinged to the car above the opening to be closed, and means for locking the sections extended over the said opening, substantially as described.

5. The combination with a car body, having opposite apertures in its sides, of fire and bullet proof shields adapted to cover said apertures, said shields being each composed of two hinged and spring pressed sections, latching devices for holding the shields in lowered adjustment, and latching mechanism for retaining the shields folded upwardly and permitting their release, substantially as described.

6. The combination with a car, of a shield formed of two sections, the upper section being hinged to the car above the opening to be closed, by spring hinges, and the lower section hinged by spring hinges to the upper section, a latch for locking the upper section folded, and a latch for locking the lower section upon the upper section, substantially as described.

7. The combination with a car, of a shield



formed of two sections hinged together by  
spring hinges, the upper section being hinged  
to the car over the opening to be closed, by  
spring hinges, a spring bolt for locking the  
5 upper section folded, means for releasing said  
bolt, and a latch for locking the lower section  
upon the upper section, substantially as de-  
scribed.

8. The combination with a car, of a shield  
10 formed of two flanged sections hinged to-  
gether by spring hinges, the upper section be-  
ing hinged to the car above the opening to be

closed, by spring hinges, a latch for locking  
the two sections in alignment, a latch for lock-  
ing the shield over the opening, a spring bolt 15  
for locking the upper section when folded  
back upon the roof and a latch carried by the  
lower section and engaging a hook on the  
roof of the car, substantially as shown and  
described.

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Witnesses:

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