

HOUEL & CAILLET.

Gun Carriage.

No. 98,595.

Patented Jan. 4, 1870.

Fig. 1.

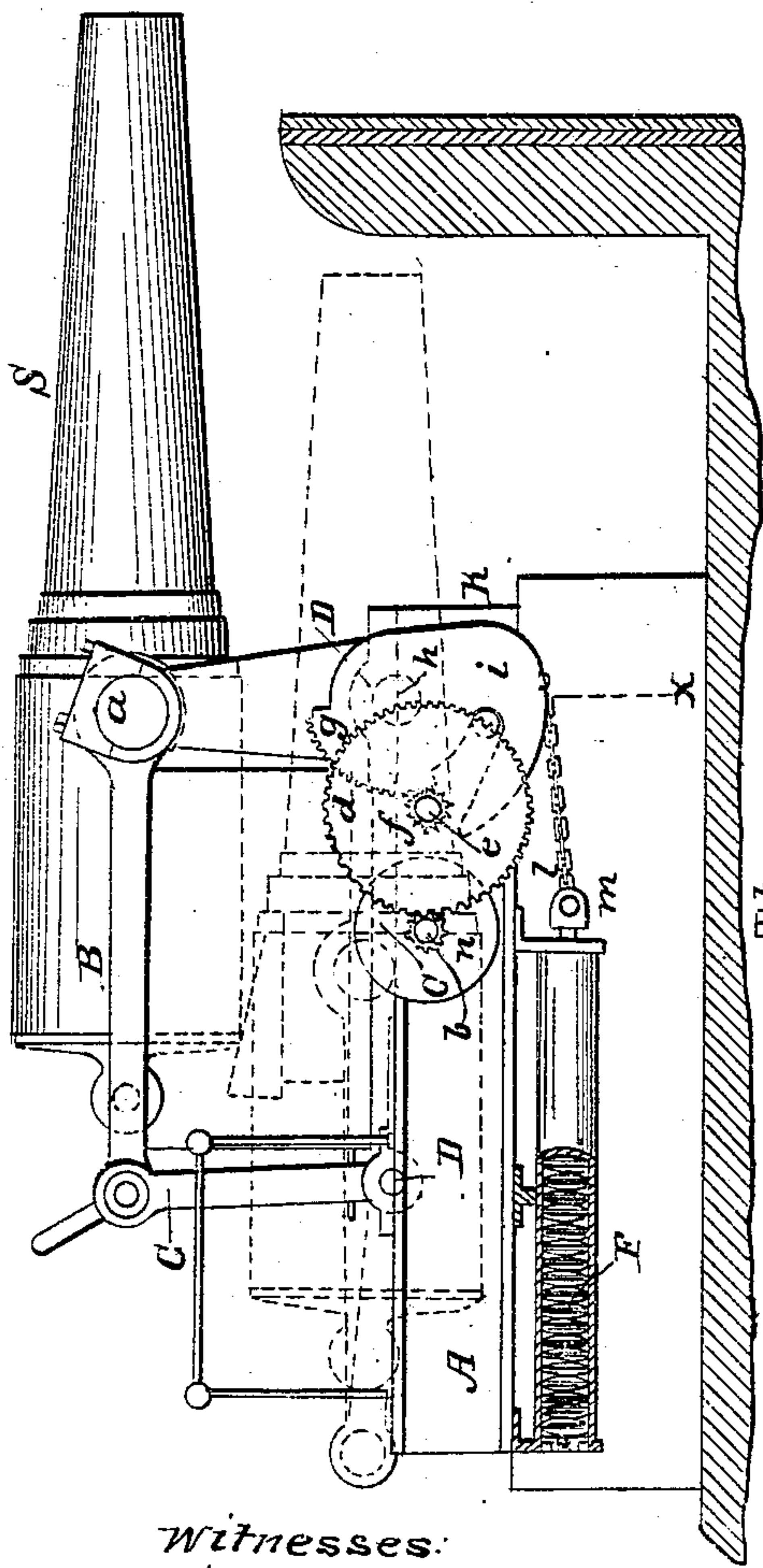


Fig. 3.

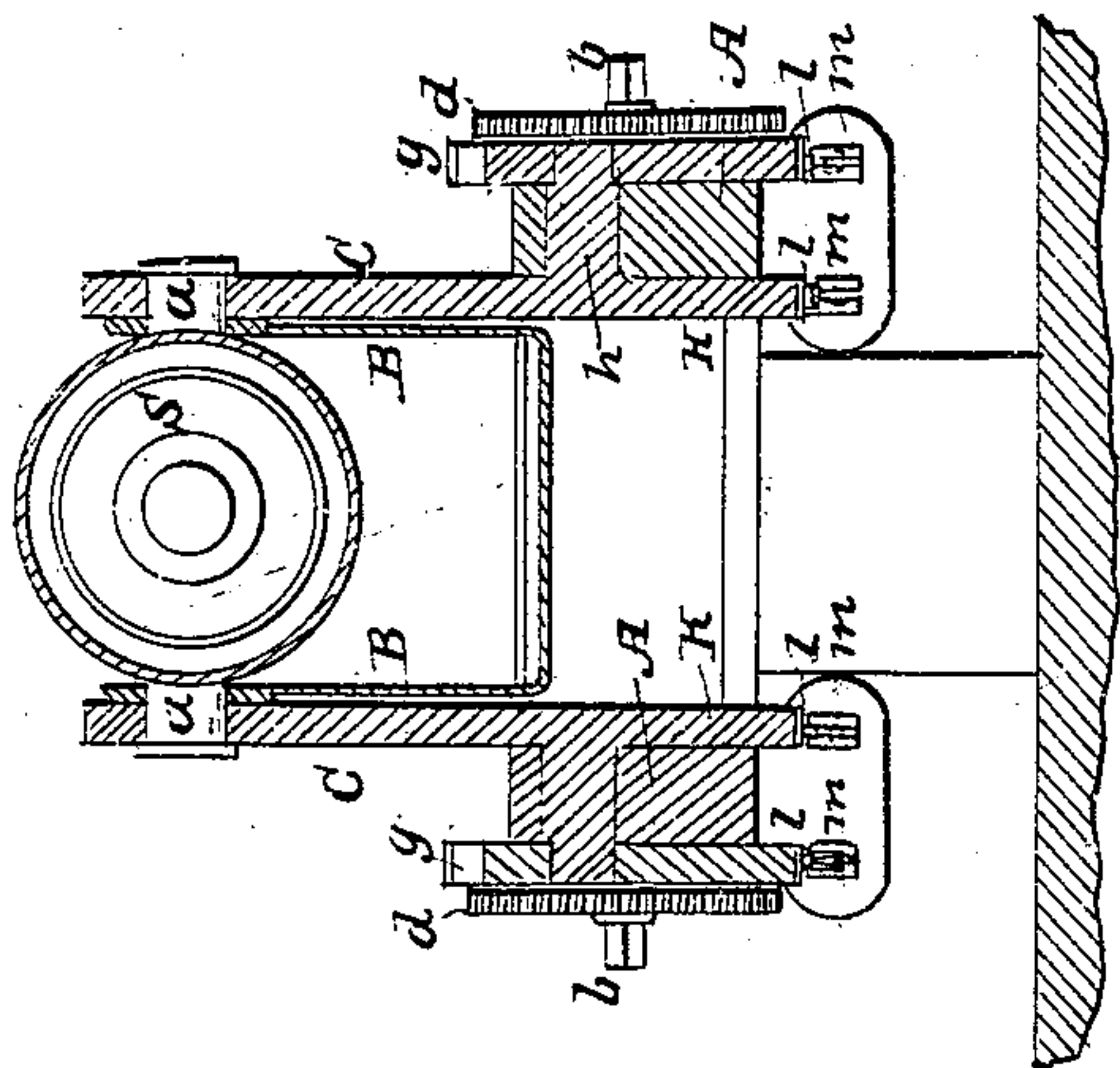


Fig. 2.

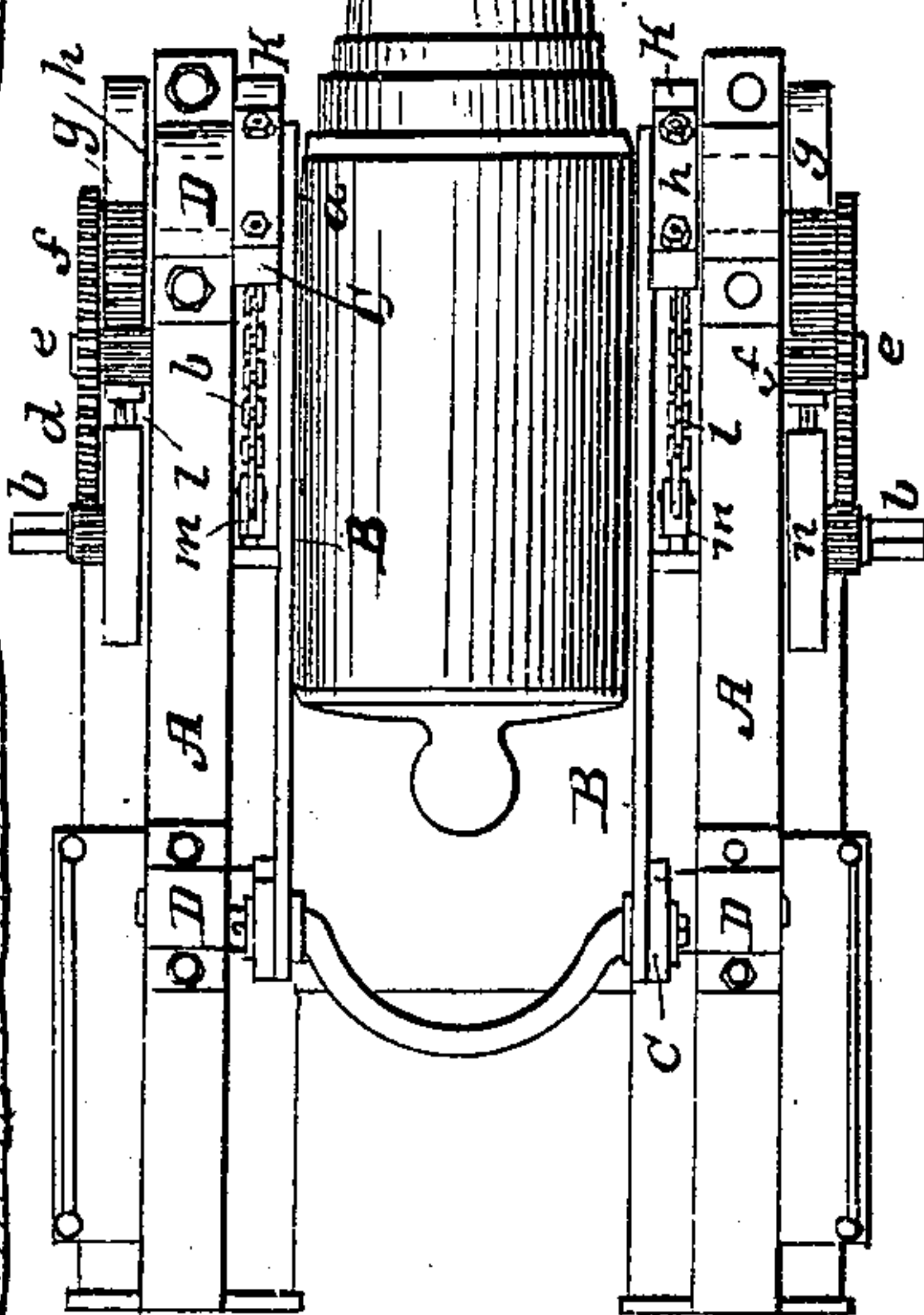
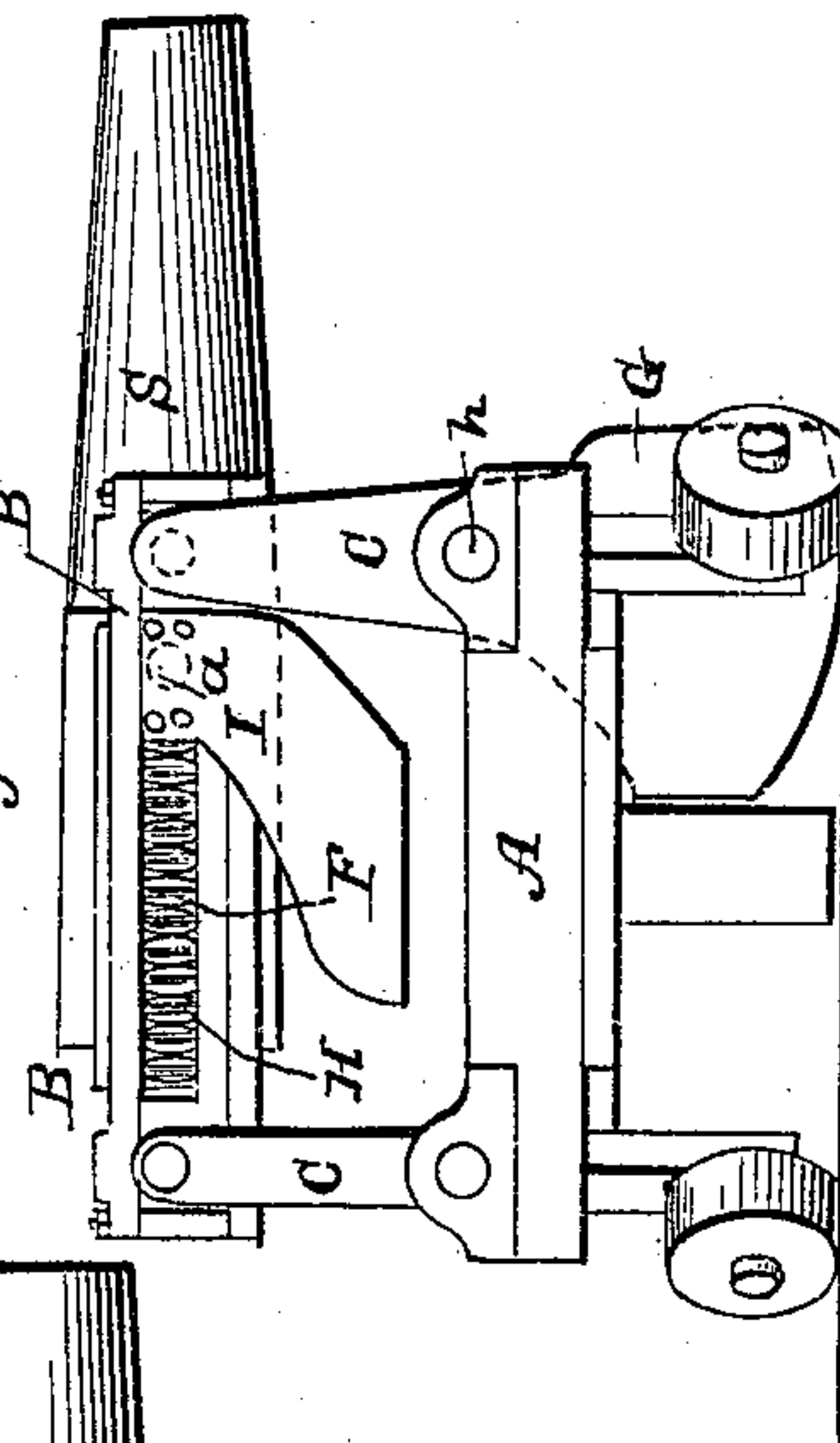


Fig. 4.



Witnesses:

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JULES CÉSAR HOUEL AND FERDINAND LOUIS FELIX CAILLET, OF PARIS,
FRANCE.

Letters Patent No. 98,595, dated January 4, 1870.

IMPROVEMENT IN GUN-CARRIAGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that we, JULES CÉSAR HOUEL and FERDINAND LOUIS FELIX CAILLET, of the city of Paris, in the Empire of France, have invented a new and useful Improvement in "Gun-Carriages," applicable to both land and sea-service, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1, represents a side elevation of a gun-carriage, with gun mounted thereon, in illustration of our invention under one of its applications or uses;

Figure 2, a plan of the same; and

Figure 3, a transverse section, through the line $x x$ in fig. 1.

Figure 4 represents the invention as applied to a swivel-gun.

Similar letters of reference indicate corresponding parts.

Our invention consists in an arrangement of springs applied to the gun-trunnions, for taking up the recoil and protecting the gun-trunnions from breakage.

By this, our invention, which is applicable to a variety of ordnance, both of a fixed and movable character, numerous advantages are obtained, as will be hereinafter set forth.

Referring, in the first instance, to figs. 1, 2, and 3, of the drawing, which represent our invention in one of its forms or modifications, as applied to a battery-gun, A A indicate the base portion of the carriage, and B B, a swinging frame, made up, in part, of radius-rods or arms C C, in sets of two or more, on opposite sides of the carriage, and hung to rock in pedestals or bearings D D, and otherwise so constructed and arranged as to secure a forward and backward parallel movement to the frame B B.

The one or advance pair of these radius-arms C C serves to carry the gun S, which is supported therein by its trunnions $a a$, and which may have its set, or angular position relatively to the horizon, given it by packing-blocks or pieces arranged on the table-portion of the frame B B, or said adjustment may be secured by any other suitable means.

From this description, it will be apparent, that by swinging the frame B B, a parallel movement or adjustment is obtained for the gun, which allows of its being set forward or backward, and of being raised or lowered without disturbing the sight or set of the gun relatively to the horizon. This parallel movement of the gun may be effected, either directly, by pull or thrust on the swinging frame B B, in concert with suitable stops or locking-devices, or it may be effected by the aid of mechanism, substantially as hereinafter described.

By such parallel adjustment of the gun, facility is afforded, without altering the sight of the gun relatively to the horizon, for drawing in and lowering the gun behind and below the parapet E, when requiring to reload, and for returning it to its original position above, or above and beyond the parapet, after the same has been charged and is ready for firing, which adjustment of the gun to its different positions above and below the parapet is shown by black and red lines in fig. 1.

This method of working the gun may be applied with advantage, not only to land-batteries, but also to floating batteries or vessels, whether the same be constructed with turrets or otherwise, inasmuch as it admits of a like adjustment of the gun relatively to the port-hole, and, as applied to a turret-gun, allows of a smaller and stationary turret being used. It likewise reduces weight, and admits of a cheap construction of carriage.

Such working of the gun, without altering its pitch or parallel adjustment of it, may be effected by cranks or handles applied to the ends of cross-shafts $b b$, which carry pinions $c c$, that gear into wheels $d d$, fast to cross-shafts $e e$, which carry pinions $f f$, that gear into or with toothed segmental-shaped pieces $g g$, fast to the trunnions $h h$ of the radius-arms C C, which carry the gun.

By this combination of mechanism, and accordingly as motion is imparted in reverse direction to the cross-shaft b , may the gun be set back or forward, and raised or lowered in a parallel manner, as hereinbefore described.

A stop or stops, i , for the segmental pieces $g g$, and corresponding arms or extensions $k k$, to strike or hook on to, may be furnished the carriage, for the purpose of arresting, at its proper point, the forward set of the gun, and said segmental pieces $g g$ and arms or extensions $k k$, be connected, by chains $l l$ and rods $m m$, with springs F, of any suitable description, but, preferably, of the kind shown in fig. 1, and arranged within boxes attached to the carriage, which springs serve to return or to aid in returning the gun to its forward set after it has been drawn in or back, and, further, serve to take up the recoil.

Brake-wheels $n n$ may be fitted on the shafts $b b$, and suitable brakes applied thereto, also pawls and ratchets be provided, for checking the gun in rising to its forward set, and for holding it at different elevations and advance positions.

In fig. 4, which shows the same invention, so far as the swinging frame B B is concerned, applied to a swivel-gun, instead of the springs F, a weight, G, is attached to the rocking shaft or shafts h , of the radius-arms C, against which, or the forward portion of the

swinging frame, the cheeks carrying the gun-trunnions are made to bear, by the aid of springs, as hereinafter referred to, said weight being arranged on the under side of the axis of such shaft or shafts, and otherwise being so disposed or shaped as to lift and work forward the gun through its swinging frame, and, to a certain extent, to take up the recoil; but this latter result is represented as more fully secured, and the gun-trunnions relieved of shock or liability to breakage, by springs H, carried by the swinging frame B B, and arranged to press or bear against sliding cheeks I to either gun-trunnion *a*, said cheeks being free to slide under control of the springs H, in slotted ways *r*, made in the upper portion of the swinging frame, on both or opposite sides of it.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination, with the swinging frame B B, of the springs H and sliding cheeks I, in which the trunnions of the gun are supported, essentially as described, and for the purposes herein set forth.

In testimony whereof, we have signed our names to this specification, before two subscribing witnesses.

J. HOUEL.
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Witnesses:

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