4 Sheets—Sheet 1.

F. W. TIESING.

MAGAZINE FIRE-ARMS.

No. 191,196. Patented May 22, 1877.

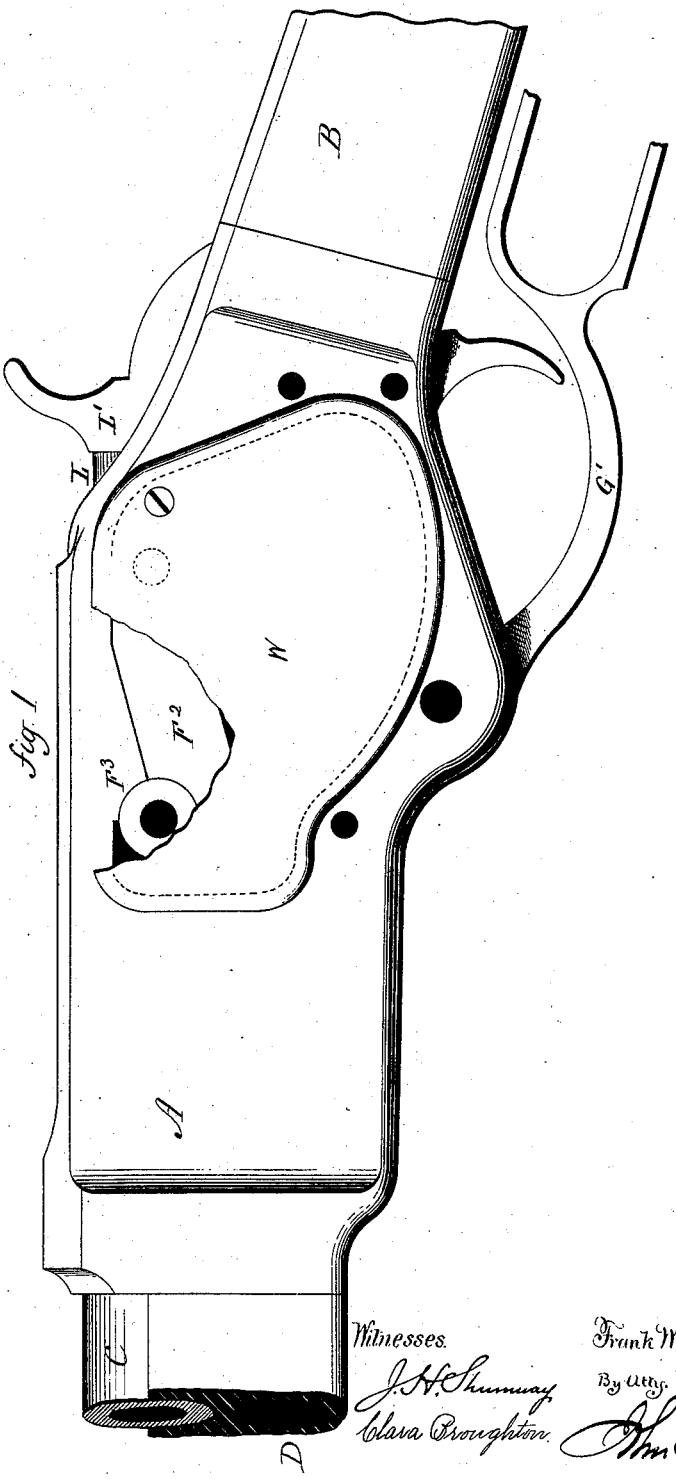

Fig. 1

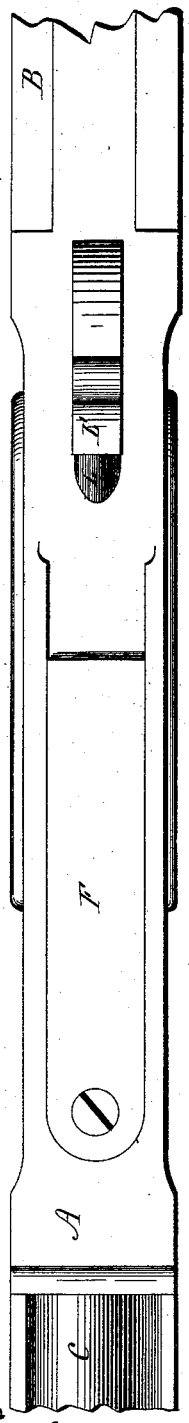

Fig. 2

Witnesses.
J. H. Shumway
Clara Broughton

Frank W. Tiesing
Inventor
By Attys.
Wm. E. Earle

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F. W. TIESING.

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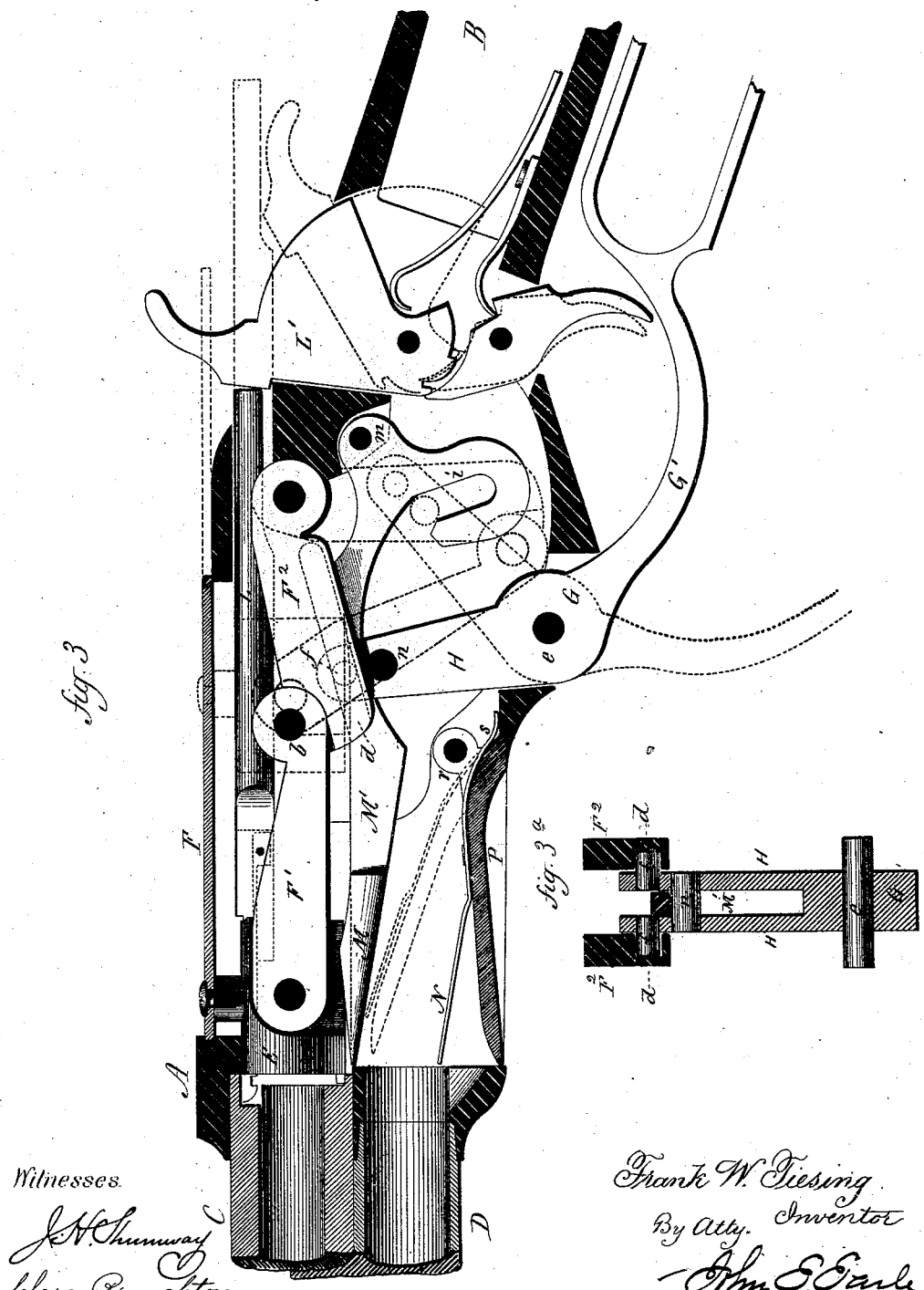

Witnesses.
J. N. Shumway
Clara Broughton

Frank W. Tiesing. Inventor
By Atty.
John E. Earle

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F. W. TIESING.

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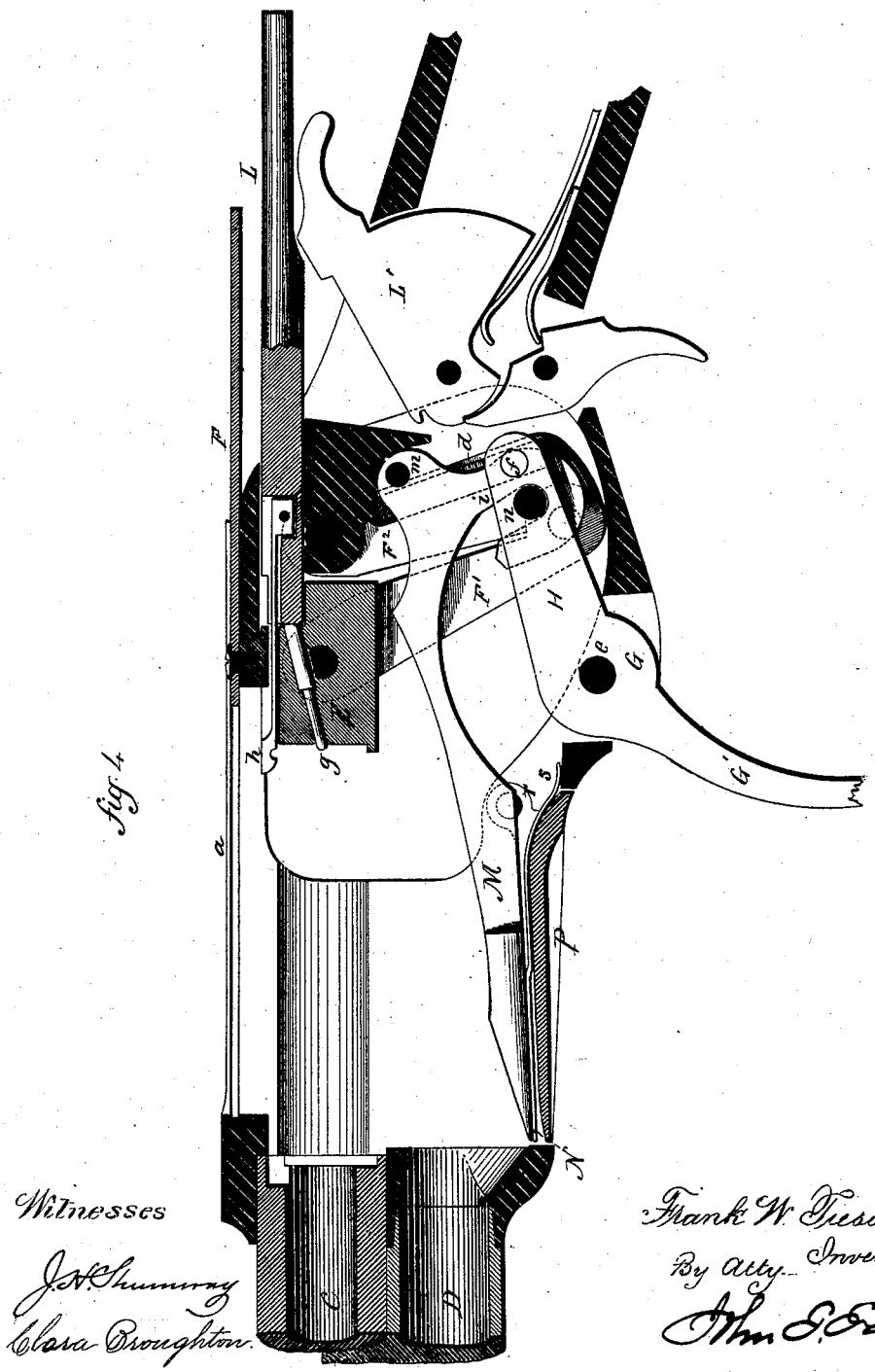

Fig 4.

Witnesses

J. N. Shumway

Clara Broughton.

Frank W. Tiesing. Inventor.

By Atty. Wm. G. Eaton

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F. W. TIESING.

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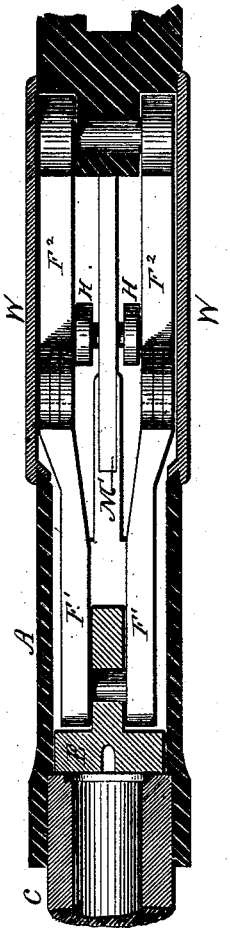

Fig 5

Witnesses.

J. H. Shumway

Clara Broughton.

Frank W. Tiesing
Inventor

By Atty.

Wm. E. Earle

UNITED STATES PATENT OFFICE.

FRANK W. TIESING, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN MAGAZINE FIRE-ARMS.

Specification forming part of Letters Patent No. **191,196**, dated May 22, 1877; application filed February 28, 1877.

To all whom it may concern:

Be it known that I, FRANK W. TIESING, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Magazine Fire-Arms; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which drawings constitute part of this specification, and represent, in—

Figure 1, a side view; Fig. 2, a top view; Figs. 3 and 4, sectional side views; Fig. 3ª, a vertical section; and in Fig. 5, a horizontal central section.

This invention relates to an improvement in what are commonly termed "magazine fire-arms," and especially to that class in which the magazine is arranged longitudinally beneath the barrel, with mechanism in the frame to transfer the charged cartridges from the magazine to the barrel, and, also, to that general class of fire-arms distinguished as "breech sliding backward, operated by a lever;" and the invention consists in the construction and combination of the parts, as shown in the accompanying drawings, hereinafter described, and more particularly recited in the several clauses of claim.

A is the frame, B the stock, C the barrel, and D the magazine, all in external form and relative arrangement substantially as in similar and well-known arms. The mechanism of the arm is arranged in the frame in the rear of the barrel, which is chambered out for that purpose. E is the breech-piece, arranged to slide longitudinally and in axial line to and from the barrel. The frame is open above the breech-piece, and in connection with the breech-piece is a slide, F, working longitudinally in suitable side guides *a*, so that when the breech-piece is closed, as in Fig. 3, the slide F closes the top of the frame, and as also seen in Fig. 2; but when the breech-piece is drawn back, as in Fig. 4, the slide, moving with it, opens a passage in rear of the open breech end of the barrel. To thus move the breech-piece and its slide F, a pair of links, F^1 F^2, are hinged, the one F^1 to the breech-piece, the other, F^2, to the frame in the rear, and the two ends of the said links intermediately connected by a common pintle, *b*. The point of connection between the said links and the connecting-point, respectively, with the breech-piece, and the frame when the breech-piece is closed, as in Fig. 3, is substantially in line with the axis of the barrel. These links are arranged in duplicate, as seen in Fig. 3ª and Fig. 5, one set upon each side of the breech-piece; and to aid in the resistance to explosion, the joint of the forward link, when the breech is closed, comes to a bearing on a seat, F^3, in the frame, as seen in Fig. 1, where a portion of the side plate is broken away to show this bearing. The inside of the rear links F^2 is constructed with a longitudinal groove, *d*. Shown in broken lines, Fig. 3.)

The operating-lever G is hung in the lower side of the frame, upon a pivot, *e*. This lever extends back and forms the trigger-guard G′, which also serves as the handle for operating the lever. Above the pivot an arm, H, extends upward between the two links F^2, with a trunnion, *f*, upon each side, working in the grooves *d* of the said links; hence, by turning the lever, as from the position in Fig. 3 to that in Fig. 4, the link F^2 will be thrown down and backward, and at the same time the link F^1 will be correspondingly drawn down, and in so doing the breech-piece and its slide F will be drawn back to open or expose the open breech end of the barrel. This arrangement of the links in connection with the lever G is substantially that known as the Smith & Wesson patent of 1854.

In the breech-piece a firing-pin, *g*, is arranged for central or rim fire, as the case may be. Through the rear of the frame, and in line with the breech-piece, the firing-spindle L is arranged, connected to the breech-piece so as to move with it, and yet have longitudinal play independent of the breech-piece, and the rear end of the firing-pin lies directly in front of this spindle.

The hammer L′ is arranged in the frame in rear of the spindle, as seen in Fig. 3, and so that when the breech-piece is drawn back it will force the hammer back to the one-half or full cock, as the case may be, as seen in Fig. 4, and when the breech-piece moves forward,

the spindle will move with it until, reaching its closed position, the firing-pin will strike the cartridge and arrest the forward movement of the spindle before the breech-piece is completely closed, and so that when the hammer is discharged it will strike the spindle, forcing that forward, and communicating the blow to the firing-pin.

The extracting-hook *h* is attached to the spindle L in rear of the breech-piece. This hook is elastic, either in itself or by the addition of a spring, so that when the breech-piece moves forward the hook will pass over and engage the flange of the cartridge sufficiently to extract the exploded shell or cartridge, when the breech-piece is again moved back.

For the purpose of transferring cartridges from the magazine to the barrel, a carrier, M, is arranged beneath the breech-piece, and from this an arm, M′, extends back through a slot in the arm H to a point, *m*, in the rear, where it is hung upon a hinge, and through the slot in the arm H is a pin, *n*, upon which the arm M′ rests, as seen in Fig. 3 and Fig. 3ª, the upper surface of the carrier being substantially in line with the cartridge-chamber. The under surface of the carrier, where the pin *n* bears, is in the segment of a circle, of which the fulcrum *e* of the lever G is the center; hence, in turning the lever to withdraw the breech-piece, the pin *n* will pass along the curved surface, holding the carrier up, as in Fig. 3, until the breech-piece has been moved nearly to the rear, as seen in broken lines, Fig. 3; then the bearing-surface of the pin *n* on the lever turns toward the fulcrum, as at *i*, which causes the pin *n*, in the completion of the rear movement of the breech-piece, to turn the carrier M down to the position seen in Fig. 4, and below the mouth of the magazine; then a cartridge from the magazine is forced onto the carrier, and the return of the arm H first raises the carrier into the position seen in Fig. 3, then advances the breech-piece to carry the fresh cartridge into the barrel, the carrier remaining in that elevated position until the breech-piece is again drawn back, as before described.

In case of the withdrawal of an exploded shell or cartridge, by the rear movement of the breech-piece, the fresh cartridge, rising, will throw such shell out and away from the arm.

As it is necessary, in drawing back the breech-piece, that the links should pass below the arm M′ of the carrier, it follows that that arm must be arranged between the links, as seen in Fig. 5, and as the arm H of the operating-lever must also stand between the rear links, the space between the rear links is much larger than is necessary for the space between the forward links; and if the links be continued straight on the same line, then the frame will necessarily be very thick throughout its length, in order to inclose the links. There is, therefore, formed in each side of the frame an opening (indicated in broken lines Fig. 1, and also seen in Fig. 5;) these openings are closed by covers W. The rear links are arranged in the frame so as to come within these recesses; then the forward links F¹, as they leave the central point *b*, turn inward, as seen in Fig. 5, thus contracting their extent transversely from what is necessary in the rear, and so that a thin frame may be employed.

The cartridge may be introduced to the magazine by any of the known methods, and in order to hold the cartridges forward away from the moving carrier, a spring, N, is arranged in the lower part of the frame, which, when free, stands in rear of the magazine, as seen in Fig. 3, so that the head of the rear cartridge will rest against the head of that spring until the carrier is depressed, as in Fig. 4, which forces down the spring N to free the cartridge and allow it to pass out, and as the carrier rises with that cartridge the spring rises to meet the next cartridge.

The method here represented of introducing the cartridge is through an aperture in the under side of the frame, closed by a cover, P, hinged to the rear, as at *r*, and held in a closed position by a spring, *s*.

When the breech is closed and the carrier-block up, as in Fig. 3, the cover P may be easily pressed inward, as indicated in broken lines, which exposes the rear end of the magazine, and the cartridges may be inserted one after another by such turning in of the cover P, this cover also forming a guide to properly conduct the cartridges to the magazine; and it also serves as a latch to hold the cartridges after they are inserted in the magazine, as the spring *s* will force the cover P outward so soon as a cartridge has passed into the magazine, so as to escape from the end of the cover.

When the parts are in the position denoted in broken lines, Fig. 3, and before the carrier descends, cartridges may be introduced directly to the barrel from above. In that case the arm operates as a breech-loader, and under such condition the parts may be adapted to breech-loading arms which have not the magazine.

I claim—

1. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, so as to have longitudinal play between the breech-piece and said spindle, a firing-pin arranged relatively to the said spindle, so as to receive the blow of the hammer through the spindle, and a cartridge-extracting hook attached to said spindle and independent of the breech-piece, substantially as described.

2. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechan-

ism for imparting a reciprocating motion to the said breech-piece, a spindle in connection with said breech-piece, so as to have longitudinal play between the breech-piece and said spindle, a firing-pin arranged relatively to the said spindle, so as to receive the blow of the hammer through the spindle, a cartridge-extracting hook attached to said spindle and independent of the breech-piece, and a covering-plate attached to said breech-piece to open and close the passage to the barrel, substantially as described.

3. The combination, in a magazine fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, mechanism for imparting a reciprocating motion to the said breech-piece, a carrier hinged in rear of said breech-piece, and in connection with the mechanism which imparts the said reciprocating movement to the breech-piece, substantially as described, and so that the said carrier, when the breech-piece is closed, is in its elevated position, and made to fall and rise again while the breech-piece is near its extreme rearward position, substantially as described.

4. The combination, in a magazine fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, and mechanism for imparting a reciprocating motion to the said breech-piece, with the carrier M, an arm from which extends through a vertical slot in the lever-arm H, and hung in the rear of said lever-arm, the lever-arm provided with a pin, *n*, to impart to the said carrier a vertical reciprocating movement, substantially as described.

5. The combination, in a fire-arm, of a breech-piece moving longitudinally in the frame to open and close the barrel, duplicate links F^1 F^2, one pair hinged to the breech-piece, the other pair to the frame in the rear, and the two pairs intermediately hinged together, the three joints being in a horizontal plane with the axis of the barrel, the frame of the arm constructed with a bearing, F^3, for the links, substantially as described.

FRANK W. TIESING.

Witnesses:
JOHN E. EARLE,
CLARA BROUGHTON.