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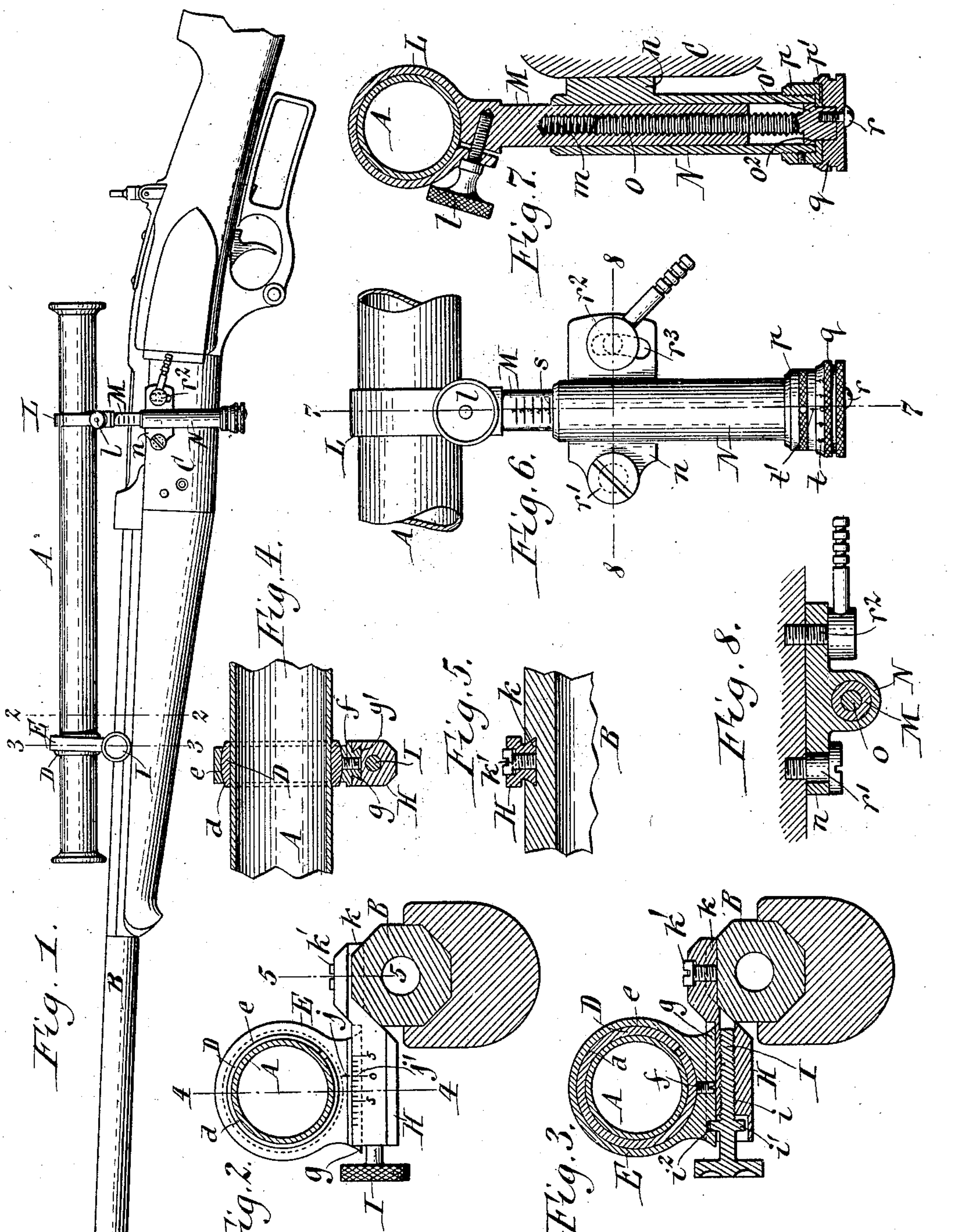
H. L. DE ZENG, Jr.

TELESCOPE MOUNTING FOR GUNS.

(Application filed May 28, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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TELESCOPE-MOUNTING FOR GUNS.

SPECIFICATION forming part of Letters Patent No. 691,248, dated January 14, 1902.

Application filed May 28, 1900. Serial No. 18,182. (No model.)

To all whom it may concern:

Be it known that I, HENRY L. DE ZENG, Jr., a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Telescope-Mountings for Guns, of which the following is a specification.

This invention relates to telescope-mountings for guns.

The devices whereby telescopes have heretofore been adjustably mounted on guns were of such construction that the parts were cramped more or less when adjusting the position of the telescope, and the mountings also became loose after repeated firing of the gun, and therefore required frequent readjustment.

My invention has the object to provide mountings for supporting telescopes on guns which permit of readily and accurately adjusting the telescope within certain limits upon the gun without cramping the parts and which securely hold the telescope against displacement by the firing shocks of the gun.

In the accompanying drawings, Figure 1 is a fragmentary side elevation of a gun provided with my improved telescope-mounting. Figs. 2 and 3 are vertical cross-sections, on an enlarged scale, in lines 2 2 and 3 3, Fig. 1, respectively. Figs. 4 and 5 are fragmentary longitudinal sections in lines 4 4 and 5 5, Fig. 2, respectively. Fig. 6 is a detached side elevation, on an enlarged scale, of the rear telescope-support and a part of the telescope. Fig. 7 is a cross-section of the rear telescope-support in line 7 7, Fig. 6. Fig. 8 is a fragmentary section of the rear telescope-support in line 8 8, Fig. 6.

Like letters of reference refer to like parts in the several figures.

My improved mounting for gun-telescopes is applicable to various types of guns and may be constructed to support the telescope along the top of the gun or along one side thereof. In the drawings, the telescope A is shown arranged on the left side of the gun-barrel B, and is supported near its front end from the gun-barrel by a front support, while it is supported near its rear end from the left side of the frame C by a rear support.

The front support of the telescope is shown in Figs. 1, 2, 3, 4, and 5 and is constructed as follows: D represents a split supporting-ring or knuckle which fits closely around the main tube of the telescope near the front end thereof and which is arranged in the opening *e* of a transversely-movable carriage E. The ring D has the form of a double truncated sphere and is seated with its outer convex side *d* in a corresponding spherical socket or seat in the opening *e* of the carriage, thereby forming a ball-and-socket joint between the supporting-ring and the carriage which permits the telescope to be turned in any direction without cramping any of the parts. The supporting-ring is introduced into the socket by contracting the ring, so as to permit the largest part of the same to pass through the narrowest part of the socket, and when the ring is arranged within the socket the same is permitted to expand with its convex outer side into engagement with the concave inner side of the carriage-socket. In order to cause the supporting-ring to fit snugly around the telescope-tube and avoid any looseness between these parts, a take-up device is provided, whereby the supporting-ring may be contracted. For this purpose the ring is arranged in the socket with its split on one side of its lowermost part, and an adjusting-screw *f* is arranged in a screw-threaded opening in the lower part of the carriage and bears against the lower side of the ring. This screw is accessible when the carriage is detached from its supports and can be turned for adjusting the supporting-ring by means of a screw-driver applied to a nick in the lower end of the screw. The upper end of the adjusting-screw *f* is provided with a spherical concave bearing-face corresponding to the convex face of the ring D, which prevents the screw from indenting the ring and permits the latter to turn freely. The under side of the carriage is provided with a transverse dovetail tenon *g*, which engages with a correspondingly-shaped way or groove *g'* in the top of a bracket H, which projects from the left side of the gun-barrel. The carriage is adjusted transversely on the bracket H by a horizontal screw I, which works in a screw-threaded opening *i*, arranged in the bracket, and which is provided with a collar *i'*, engaging with a notch i^2 in the under side

of the carriage, as represented in Fig. 3. Upon turning the adjusting-screw in one direction it moves inwardly toward the barrel, and its collar engaging with the notch in the carriage carries the supporting-ring and the front end of the telescope arranged therein inwardly, while upon turning the adjusting-screw in the opposite direction the carriage and the part of the telescope supported thereon are carried outwardly. The relative transverse position of the telescope with reference to the barrel is determined by a mark j, arranged on the carriage, and traversing-graduations j', arranged on the bracket, as represented in Fig. 2. The bracket may be secured to the barrel by any suitable means, that shown in the drawings consisting of a dovetail k, arranged on the inner end of the bracket and engaging with a correspondingly-shaped groove in the barrel, and a clamping-screw k', arranged in the bracket and bearing against the barrel, as represented in Figs. 3 and 5.

The rear support of the telescope is shown in Figs. 1, 6, 7, and 8 and is constructed as follows: L represents a split clamping-ring which embraces the rear part of the telescope and which is clamped to the same by a screw l, connecting the ends of the split ring. The lower side of the clamping-ring is provided with a depending tubular adjusting-shank M, having an internal screw-thread m. The lower end of the shank slides in a vertical guide-sleeve N, which is arranged on a supporting-plate n, mounted on the left side of the frame C. O represents an adjusting-screw whereby the adjusting-shank and the parts connected therewith are raised and lowered. This screw is arranged lengthwise in the guide-sleeve and engages with its upper screw-threaded end in the internal thread of the adjusting-shank, while its lower end is connected with the lower end of the guide-sleeve, so that it is free to turn, but is held against axial movement. The rotatable connection for this purpose between the screw and guide-sleeve shown in the drawings consists of a head o', arranged on the lower part of the screw and provided with a downwardly-facing shoulder o^2, a retaining-cap p, secured to the lower end of the guide-sleeve by a screw-joint and provided with an inwardly-projecting flange or shoulder p', bearing against the shoulder of the head, a thumb-piece or button q, arranged on the lower end of the head and bearing against the under side of the screw-head and the retaining-cap, and a fastening-screw r, connecting the thumb-piece and screw-head. By this means the screw is journaled on the lower end of the guide-sleeve, but is prevented from moving lengthwise in the sleeve. The fastening-screw r is arranged eccentrically in the thumb-piece and the screw-head to prevent this screw from being loosened when turning the thumb-piece and screw. Upon turning the adjusting-screw in one direction by means of its thumb-piece or button the adjusting-shank and the rear part of the telescope mounted on the upper end thereof are raised, while upon turning the screw in the opposite direction the shank and the parts connected therewith are lowered. In order to permit the supporting-plate and the parts mounted thereon to follow the movement of the adjusting-shank as the latter tilts when being raised or lowered, one end of the supporting-plate is pivoted by a horizontal or transverse screw r' to the side of the frame C. The supporting-plate is held in position after adjustment by a clamping-screw r^2, arranged in a segmental slot r^3 in the opposite end of the supporting-plate and engaging with its inner screw-threaded end in a threaded opening in the frame C and bearing with the head at its outer end against the outer side of the supporting-plate. The elevation of the rear part of the telescope with reference to the gun-barrel is determined by graduations s, arranged on the outer side of the adjusting-shank and adapted to be read off at the upper end of the guide-sleeve. Partial turns of the screw are indicated by graduations t, arranged on the periphery of the thumb-piece and moving past a mark t' on the retaining-cap, as shown in Fig. 6.

When adjusting the telescope, the same is moved backwardly or forwardly in its front and rear supports, the front support is adjusted transversely, and the rear support is adjusted vertically until the telescope is arranged at a desired angle with reference to the bore of the gun, after which the screws l and r^2 are tightened. When moving the front support of the telescope inwardly or outwardly or when moving the rear support of the same up or down, the ball-and-socket joint between the spherical ring and the carriage permits the front part of the telescope to adjust itself freely into any position within the limits of the adjusting mechanism. Upon adjusting the carriage transversely, together with the front part of the telescope mounted thereon, the shank supporting the rear part of the telescope turns freely in the guide-sleeve as a pivot, the axis of which is at right angles to the line of movement of the carriage. It will thus be seen that the adjustment of the telescope can be effected without cramping the telescope or its supports, and the same is held rigidly in position when adjusted.

I claim as my invention—

1. The combination of a gun-telescope, a spherical socket adapted to be mounted on a gun, and a spherical split ring arranged in said socket between the same and the telescope and supporting said telescope, substantially as set forth.

2. The combination of a gun-telescope, a front support, means for adjusting said support transversely, a universal connection between said telescope and said front support, a rear support capable of horizontal adjust-

ment in a horizontal plane, and means for raising and lowering said rear support, substantially as set forth.

3. The combination with an adjusting device connecting the rear part of a telescope with a gun, of a split spherical ring which receives the front part of the telescope, and a carriage mounted on the front part of the gun and provided with a correspondingly-shaped socket which receives said ring, substantially as set forth.

4. The combination with a vertical adjusting device connecting the rear parts of a telescope with a gun, of a spherical ring adapted to receive the front part of the telescope, a carriage provided with a spherical socket which receives said ring, and a transverse adjusting device connecting said carriage with the front part of the gun, substantially as set forth.

5. The combination with a vertical adjusting device connecting the rear parts of a telescope with a gun, of a spherical ring which receives the front part of the telescope, a transversely-adjustable carriage provided with a correspondingly-shaped socket which receives said ring, a bracket which is secured to the front part of the gun and which is provided with a transverse way in which said carriage is guided, and a transverse adjusting-screw engaging with a screw-threaded opening in the bracket and provided with a collar which engages with a notch in the carriage, substantially as set forth.

6. The combination of a gun-telescope, a front support capable of lateral adjustment, means for adjusting the same laterally and a rear support mounted on a vertical pivot capable of turning horizontally, substantially as set forth.

7. The combination of a gun-telescope, a front support capable of lateral adjustment and having a spherical connection with the telescope, and a rear support mounted on a vertical pivot capable of turning horizontally, substantially as set forth.

8. The combination of a gun-telescope, a front support having a movable connection with the telescope, a rear support mounted on a vertical pivot capable of turning horizontally, and an adjusting-screw for raising and lowering said rear support, substantially as set forth.

9. The combination of a gun-telescope, a front support having a movable connection with the telescope, a rear support mounted on a vertical pivot capable of turning horizontally, a pivot-socket which is supported on a transverse pivot, means for holding the pivot-socket in adjusted position, and means for raising and lowering said rear support, substantially as set forth.

10. The combination with a support movably connecting one end of a telescope with a gun, of an adjusting-shank connected with the opposite end of the telescope, a screw engaging with said shank, a supporting-plate provided with a bearing in which said screw is journaled, a pivot connecting one end of the supporting-plate with the gun, and a clamping-screw connecting the other end of said plate with the gun, substantially as set forth.

11. The combination with a support movably connecting one end of a telescope with a gun, of an adjusting-shank connected with the opposite end of the telescope, a guide-sleeve mounted on the gun and receiving said shank, a screw arranged in said sleeve and engaging with said shank, a head arranged on the screw and provided with a downwardly-facing shoulder, a retaining-cap secured to the guide-sleeve and engaging with the shoulder of the head, and a thumb-piece arranged on the head and bearing against the outer end of the retaining-cap, substantially as set forth.

Witness my hand this 18th day of May, 1900.

HENRY L. DE ZENG, JR.

Witnesses:

THEO. L. POPP,

CLAUDIA M. BENTLEY.