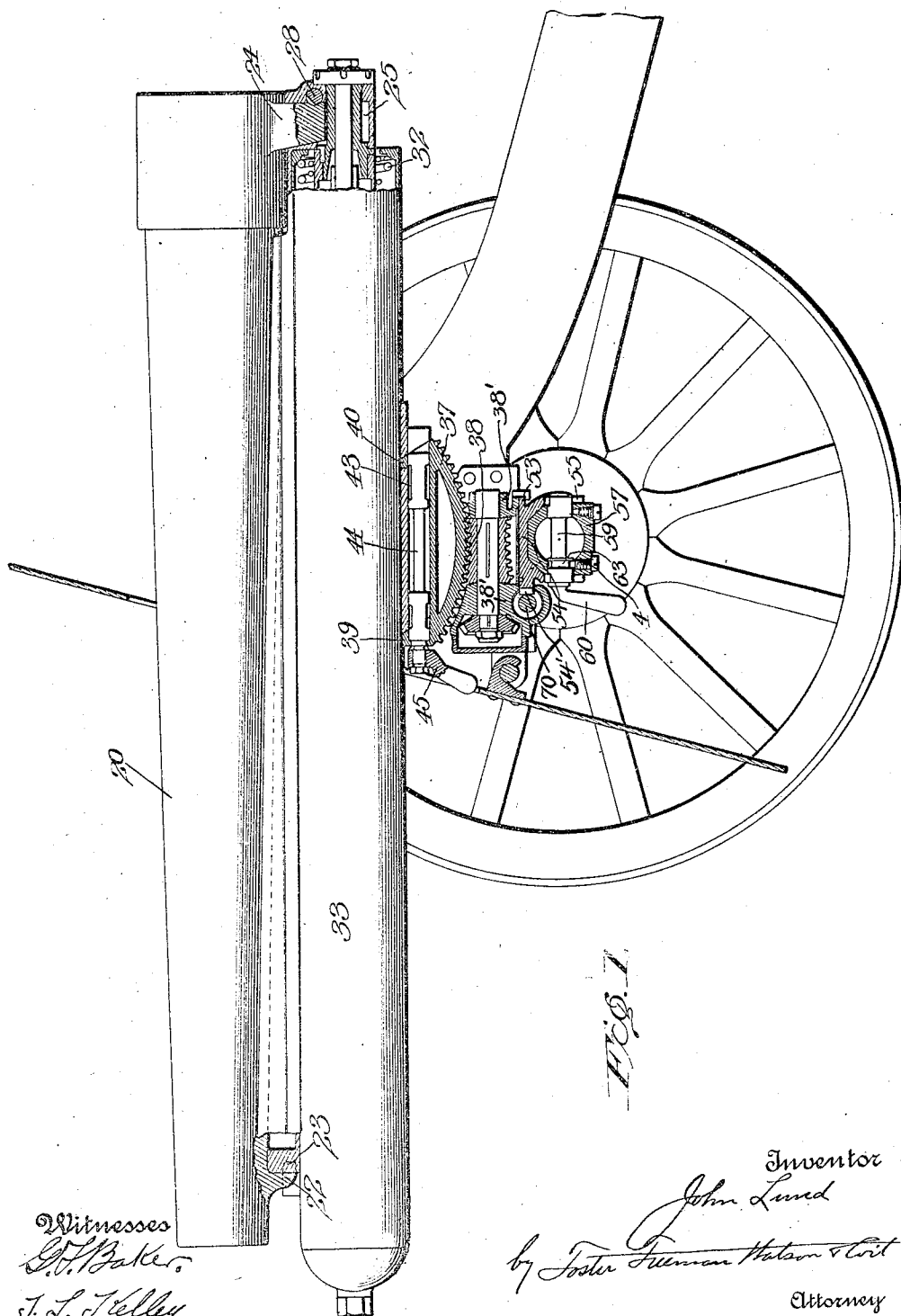


Jan. 2, 1923.

1,441,102

J. LUND.
GUN.
ORIGINAL FILED JUNE 29, 1916.

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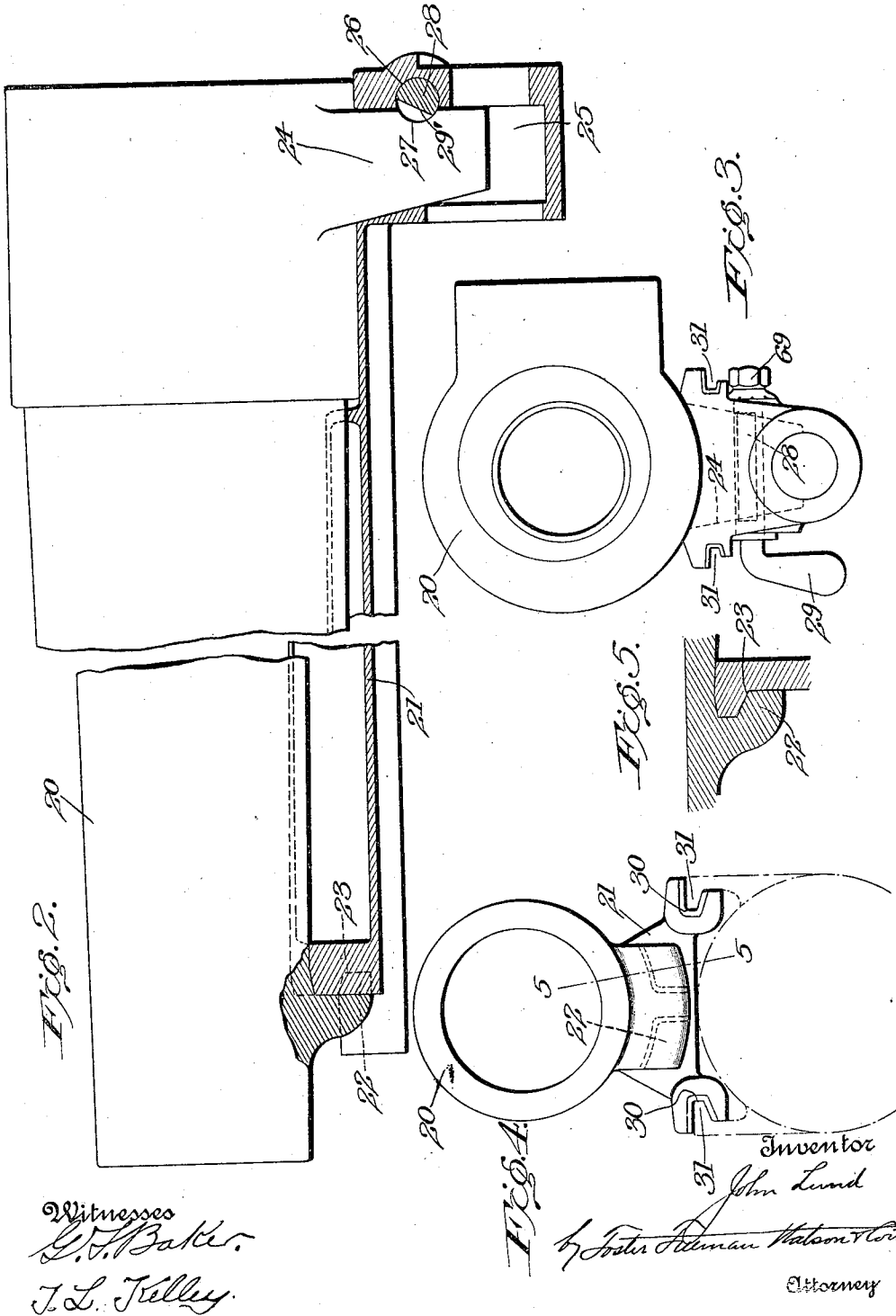


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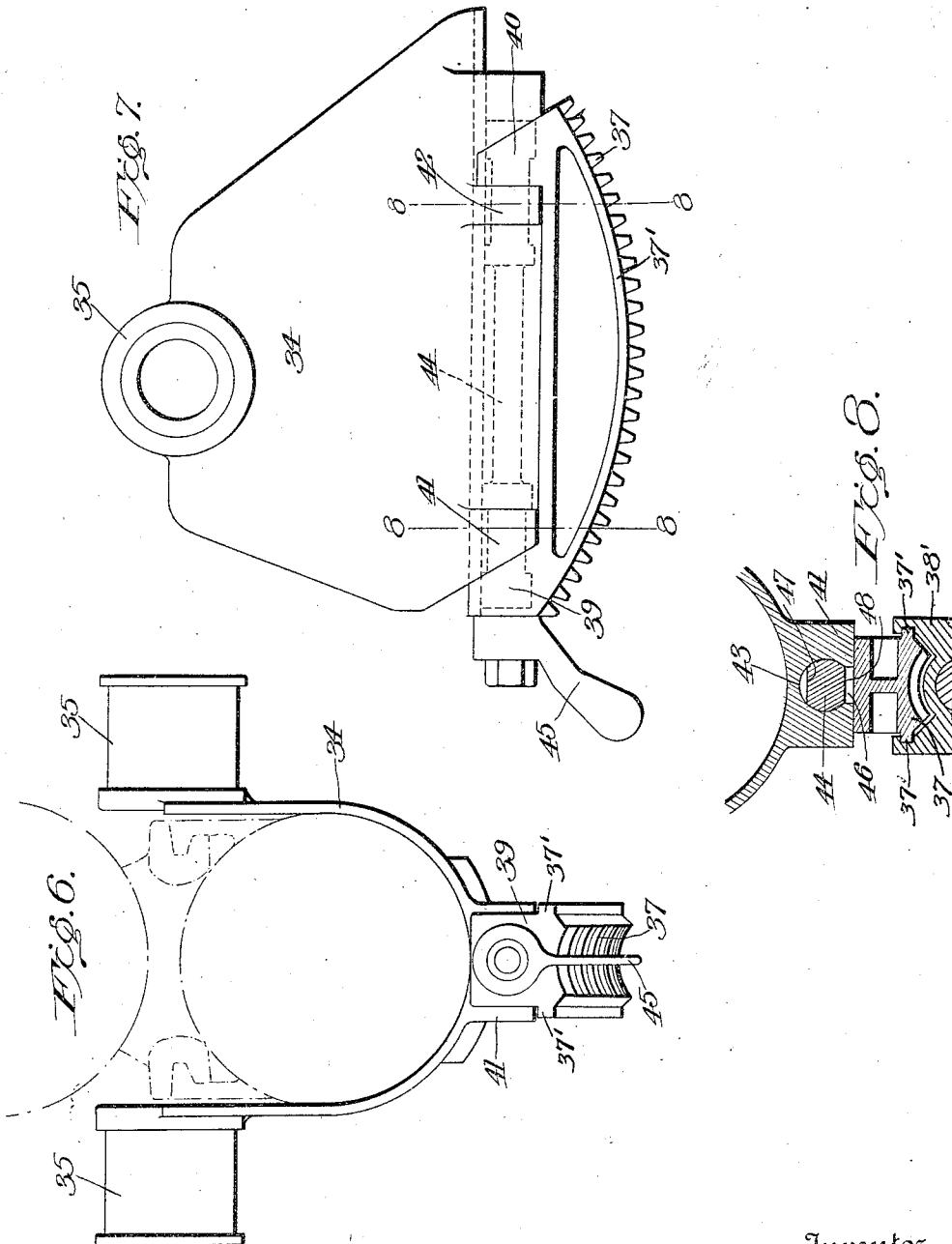


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4 SHEETS-SHEET 3



Witnesses
L. L. Baker.
J. L. Kelley.

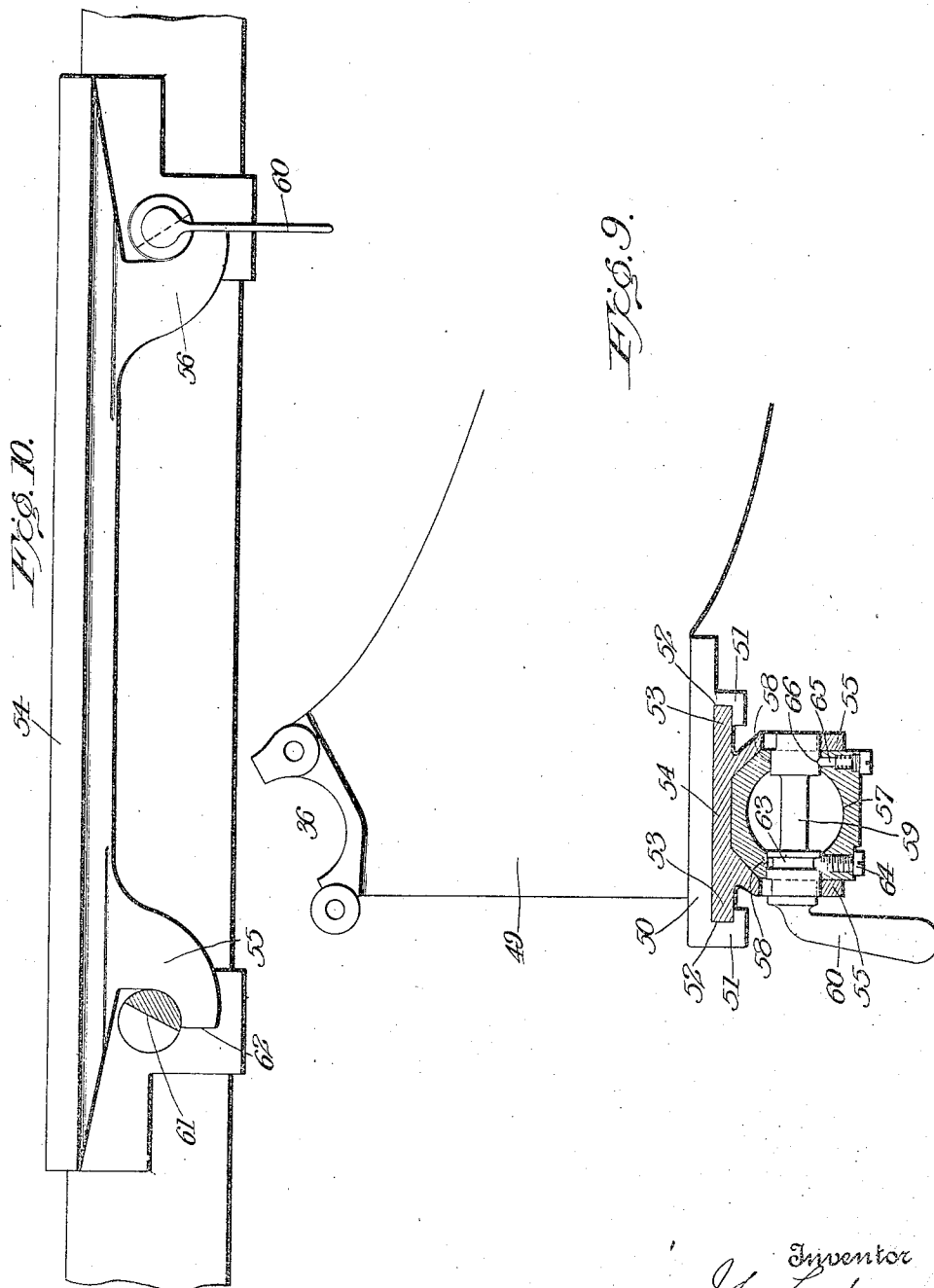
Inventor
John Lund
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Attorneys

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4 SHEETS-SHEET 4



Witnesses
G. F. Baker
J. L. Kelley.

Inventor
John Lund
by Foster Sherman Watson & Co.
Attorney

UNITED STATES PATENT OFFICE.

JOHN LUND, OF BETHLEHEM, PENNSYLVANIA.

GUN.

Application filed June 29, 1916, Serial No. 106,675. Renewed November 22, 1922.

To all whom it may concern:

Be it known that I, JOHN LUND, a citizen of the United States, residing at Bethlehem, Northampton County, State of Pennsylvania, have invented certain new and useful Improvements in Guns, of which the following is a specification.

This invention relates to guns and more particularly to guns and carriages which are separable into convenient parts, for transportation.

The main object of the invention is to provide a gun so constructed that it may be quickly and easily knocked-down or set-up without in any way separating the delicate moving parts such as the recoil mechanism, elevating mechanism and traversing mechanism.

These and other features of the invention will be described in connection with the drawings and pointed out in the appended claims.

In the drawings, in which like reference characters indicate the same part,

Figure 1 is a side elevation of the gun and carriage, certain parts being broken away to show other and hidden parts in section;

Figure 2 is a side elevation of the gun barrel and sleigh for supporting the same, the latter appearing in section;

Figure 3 is an end elevation of the parts shown in Figure 2 as seen from the right;

Figure 4 is an elevation of the opposite end;

Figure 5 is a sectional view on the line 5—5 of Figure 4 showing the manner of connecting the front end of the gun barrel and the sleigh;

Figure 6 is an end elevation of the cradle and part of the elevating mechanism;

Figure 7 is a side elevation of the cradle and part of the elevating mechanism;

Figure 8 is a sectional view taken on either of the lines 8—8 of Figure 7;

Figure 9 is a side elevation of the top carriage, the axle and plate locked to the same being shown in section;

Figure 10 is a front elevation of the axle and plate, showing the manner of locking the latter to the axle.

Mountain guns are generally knocked-down for transportation, by separating the parts of the gun which move relative to each other in firing or adjusting the gun. Thus, in removing the gun barrel, the guides on

the cradle on which the gun barrel slides are exposed, and also the ways on the gun barrel.

In removing the cradle from the top carriage the parts of the elevating mechanism are separated and exposed. Again in removing the top carriage from the axle, the division is made between parts of the traversing mechanism, thus exposing more delicate members of the gun construction.

This invention overcomes the objection of exposing delicate parts to damage and dirt with the consequent injury to the gun, by providing means whereby the gun may be dismantled or knocked-down without separating any of the parts which move on each other when firing or adjusting the gun.

As shown in Figures 1 and 2, the gun barrel 20 is adapted to be attached to a sleigh 21. This sleigh reciprocates on guides 31 provided on the cradle. The gun barrel is connected to the sleigh 21 by means at the front and rear ends thereof. At the front end the gun barrel is provided with two prongs 22, which are adapted to fit in corresponding recesses 23 formed near the end of the sleigh. While two prongs are shown, it is obvious that a greater or less number might be used. At the breech end of the gun a downwardly extending lug 24 is provided which is adapted to extend into a hollow or recess 25 formed in the corresponding end of the sleigh. As shown, the rear face of the lug 24 is substantially perpendicular to the axis of the barrel. The opposite face, however, is inclined so that the lug has the form of a wedge. The straight side of the lug is adapted to contact with a corresponding straight surface in the recess 25 and the inclined side of the lug cooperates with a similarly inclined surface in the recess 25 so that when the lug is introduced into the recess it will fit tightly therein because of the inclined side. The sleigh is formed with a substantially semi-cylindrical seat 26 and the lug 24 is provided with a corresponding seat 27 which is adapted to register with the first seat, the two seats when in register forming a complete cylindrical surface. A pin 28 is rotatively mounted and adapted to fit in the seat 26 and is provided with a handle 29 whereby it may be rotated. At the opposite end from the handle it is threaded and a nut 29 fitted thereon so that the pin may be held in proper position. On one side for a distance substantially equal to the breadth of the lug 24 the pin is

slabbed off to provide a flat surface 29'. The arrangement of this flat surface is such that when the pin is rotated to a proper position the said surface will lie flush with the contacting surfaces of the lug 24 and recess 25, thus permitting the lug 24 to be withdrawn from the recess 25. It will therefore be apparent that if the pin 28 is turned to the above mentioned position that the lug 24 may be withdrawn from the recess 25 and thereafter the prongs 22 may be disengaged from the recesses 23 by moving the barrel of the gun slightly in a forward direction. Thus the gun barrel will be disconnected from the sleigh 21 and without disturbing any parts which move on each other while the gun is being fired. The sleigh 21 is provided at opposite sides with ways 30 which are adapted to slide on the guides 31 carried by the cradle. As shown in Figure 1, the end of the sleigh which has the recess 25 formed therein is connected to the recoil mechanism 32, the latter being carried in a cylinder 33.

The structure whereby the cradle may be separated from the top carriage will now be described. The trunnion plate 34 is riveted to the cradle and carries the oppositely extending trunnions 35, which are adapted to seat in the trunnion bearings 36 on the top carriage and to be held in place by hinged caps (not shown). Connected to the cradle by means presently to be described is an elevating segment 37, which is adapted to be engaged by worm 38, the latter being carried by the top carriage. Guides 37' on either side of this elevating segment engage corresponding grooves of the elevating worm bearings 38', preventing these two parts from being separated except by means of continual turning of the worm until these two members are disengaged. The upper side of the elevating segment is formed with two upwardly projecting lugs 39 and 40, which are adapted to engage corresponding lugs 41 and 42 formed on the trunnion plate. As clearly shown in Figure 7, one of the faces of the lug 40 and a corresponding face of the lug 39 are inclined and adapted to engage correspondingly inclined surfaces on the trunnion plate. The lugs 39, 40, 41 and 42 are formed with alined bores 43 in which is adapted to seat a pin 44 provided with a handle 45. The wall between the bore 43 and the bottom of each of the lugs 41 and 42 is cut away as at 46 in Figure 8. Adjacent the two lugs 41, 42 the pin 44 has its opposite sides slabbed off as at 47 and 48 so that when the pin is turned with the two slabbed surfaces substantially vertical the trunnion plate and its connected cradle may be removed from the segment, the pin 44 sliding through the openings 46. It is therefore apparent that the cradle may be separated from the top carriage without disturbing the

segment and worm, that is without disconnecting any parts of the elevating mechanism.

The structure whereby the top carriage may be disconnected from the axle will now be described. To the lower side of the top carriage 49 are attached in a suitable manner two plates 50 spaced end to end which are provided with lugs 51 forming grooves 52 adapted to fit and slide on the guides 53 provided on a traversing plate 54. Any suitable traversing mechanism is provided and operative between the plates 50 and 54 whereby these plates may be moved longitudinally with respect to each other. As shown a worm 70 carried by plates 50 engages teeth 54' on the edge of plate 54. Attached to the plate 54 and adjacent one end is a pair of downwardly extending prongs 55 and at the other end is another pair of oppositely projecting prongs 56. The two prongs of the pair 55 and likewise the pair 56 are each spaced apart so as to straddle the axle 57. The axle is formed with two transversely extending bores 58 which are located so as to register with the inside curved surfaces of the prongs 55 and 56. A pin 59 is adapted to fit in each of the bores 58 and is provided with a handle 60 for rotating the same. Adjacent the prongs 55, 56 each of the pins 59 is slabbed off as shown at 61 in Figure 10 so that when the said slabbed off portion is arranged vertically the end 62 of the prongs may pass by the pin so that the plate 54 may be disconnected from the axle. As clearly shown in Figure 9 the pins 59 are formed with a groove 63 into which is adapted to project a set screw 64, for the purpose of holding the said pins 59 longitudinally in position. A spring pressed pin 65 may be provided and adapted to engage recesses 66 in a pin 59 to hold the said pin in either a position which locks the plate 54 to the axle or one which permits it to be removed therefrom.

In the operation of the construction which has just been described the gun barrel is removed from the sleigh by turning the pin 28 through substantially 60° from its locking position, then raising the corresponding end of the gun barrel, then moving the gun barrel slightly forward to disengage the prongs 22 at the forward end of the cradle. The gun barrel is then entirely free of the sleigh. The sleigh and cradle which includes the recoil mechanism may now be removed from the top carriage by turning the pin 44 through substantially 90° and the additional operation of opening the hinged trunnion caps previously referred to. The next step is to turn the pins 59 each through substantially 180°. The plate 54, together with the assembled traversing and elevating mechanism, or in other words the top carriage, may then be removed from the axle.

It is obvious that a gun construction has been provided which permits the knocking-down or disassembling of the same for shipment without disturbing any of the parts which move on each other when the gun is being fired or adjusted.

Having thus described the invention, what is claimed and desired to be secured by Letters Patent is:

1. In a gun having a cradle and barrel, a sleigh slidably mounted on the cradle, and means for detachably connecting the barrel and sleigh including a hooked prong at one end of the barrel adapted to fit in a recess engaging it with its top and rear faces in the corresponding end of the sleigh, a downwardly projecting lug at the other end of the barrel adapted to seat in a recess at the corresponding end of the sleigh and rotative means carried by the sleigh adapted to engage said lug to lock the lug against removal from the recess.

2. In a gun having a cradle and barrel, a sleigh slidably mounted on the cradle, and means for detachably connecting the barrel and sleigh including a hooked prong at the muzzle end of the barrel adapted to engage with its rearward surface a recess in the sleigh, a downwardly projecting lug at the other end of the barrel, adapted to seat in a recess in the sleigh and engage the same with its rearward surface, and means cooperating with said lug to lock it against removal from the recess.

3. In a gun having a cradle and barrel, a sleigh slidably mounted on the cradle, and means for detachably connecting the barrel and sleigh including a prong at the front end of the barrel having a rearwardly extending hook portion adapted to engage a recess in the sleigh, a lug at the rear end of the barrel adapted to engage a recess in the sleigh, said lug and recess having cooperating inclined or wedge surfaces operative to hold the said hook in its recess, and means to lock the said lug in its recess.

4. As an article of manufacture, a barrel for a gun having a radial hooked prong at the front end and a radial lug at the other end having its surface facing the prong inclined from the tip to the base thereof so that the lug is thicker at its base than tip.

5. As an article of manufacture, a barrel for a gun having a hooked prong at one end and a radially projecting lug at the other

end having one of its radial faces formed with a semi-cylindrical recess.

6. A gun having an axle, a top carriage, a cradle removably trunnioned in said carriage, elevating mechanism carried by said carriage independently of said cradle arranged directly above the axle, and means for detachably connecting the cradle and mechanism.

7. In a gun having a cradle and top carriage, elevating mechanism interposed between said parts, and means for detachably connecting the cradle and mechanism including a lug on one part engaging in a recess in the other, said lug formed with a bore having a portion of the wall between the bore and bottom of the lug cut away, and a rotatable pin having diametrically opposite flat faces carried by the said other part.

8. In a gun having a top carriage, a cradle removably pivoted thereon, elevating mechanism carried by the carriage, means independent of the cradle pivots detachably connecting the cradle to the elevating mechanism including cooperating lugs on the cradle and an element of the mechanism, and rotative means associated with the lugs formed to lock them together in one position and unlock them in another.

9. A separable mountain gun comprising in combination, and axle, a member resting on said axle having parts straddling the same, a pin rotatively carried by the axle formed in one position to lock the parts to the axle and in another to unlock the same, a top carriage adjustably secured on top of said member, traversing mechanism operative between said carriage and member, a saddle removably supported on said carriage and above the axle, elevating mechanism operative between said saddle and carriage being secured together and supported by the carriage, rotative locking means carried by the saddle removably securing the saddle to an element of said elevating mechanism, a sleigh on the cradle, and a barrel removably locked to the sleigh, whereby the whole gun is constructed and arranged to be separated into units for transportation without disturbing any parts which move relative to each other when firing or adjusting the gun.

In testimony whereof I affix my signature.

JOHN LUND.