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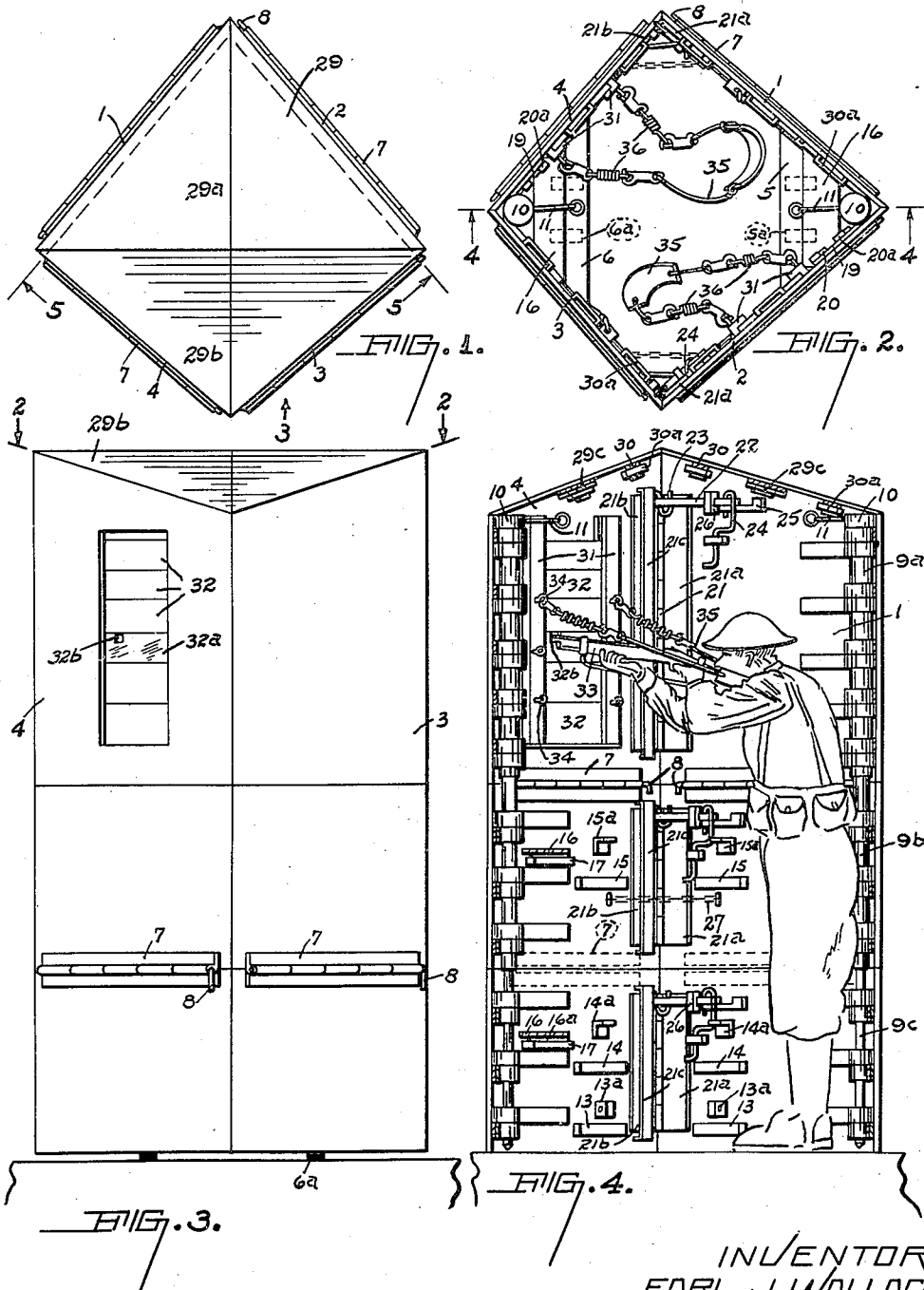
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2,370,596

PORTABLE PROTECTIVE ARMOR DEVICE

Filed March 23, 1942

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

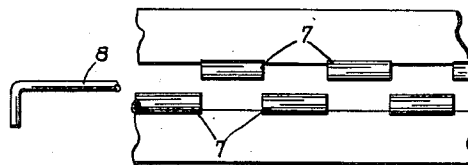
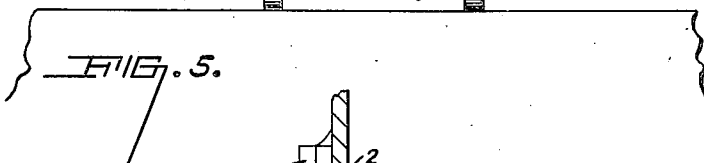
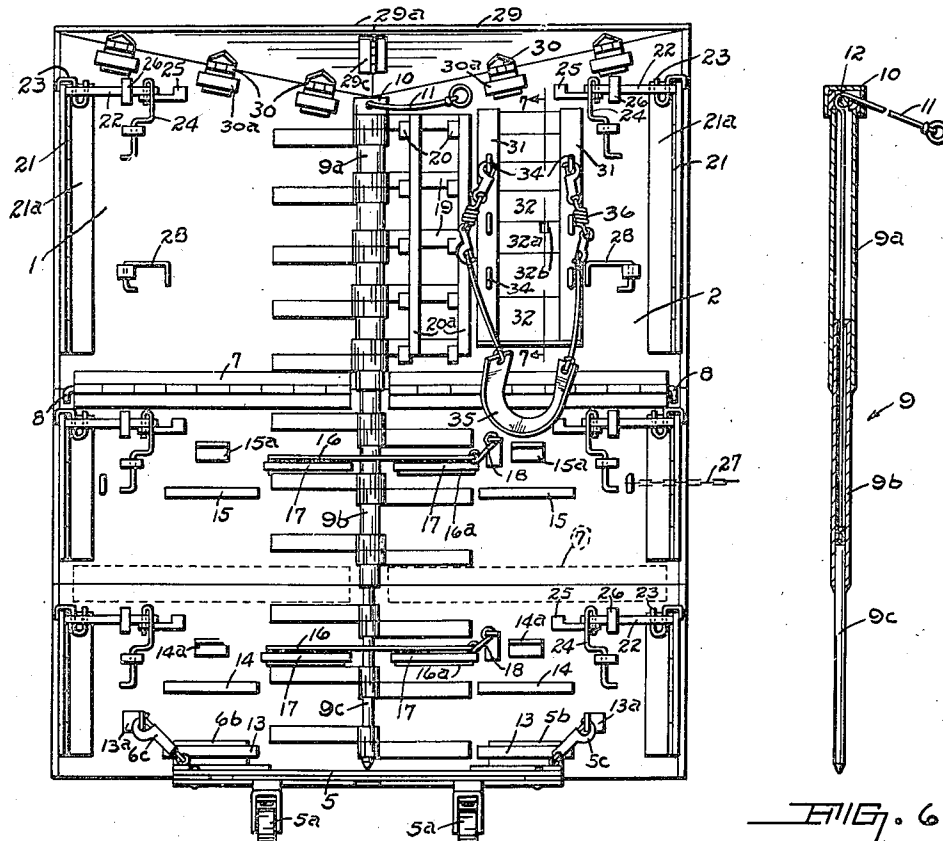


FIG. 7.

FIG. 8.

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PORTABLE PROTECTIVE ARMOR DEVICE

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2 Claims. (Cl. 109—49.5)

My invention relates to a portable protective armor device or armored shield adapted to be used in warfare, which device is adapted to protect a foot soldier in the field and is particularly useful in protecting a foot soldier using a rifle or machine gun.

At the present time it is common practice to build stationary pill boxes and other types of structures for protecting small bodies of troops in detached positions, but said devices are purely defensive in their nature and my invention is adapted to provide similar protection for individual soldiers which devices are adapted to be carried forward on offensive maneuvers.

A further object of my invention is to provide a device of this character which may be built in sections so as to vary the overall height of the protective device and is built in sections so that the device may constitute only a forwardly projecting screen or may be constructed to define a complete enclosure for one or two individual soldiers so that the latter may be protected against fire directed at them from any direction and also fire directed at them from above them.

A further object of my invention is to provide a device of this character built in sections so that said sections may be quickly and easily detached one from the other and arranged in flat sections adapted to be stacked one upon the other to accommodate compact storage or transportation.

A further object of my invention is to provide a protective armor device of this character which is simply constructed, easily and quickly assembled and knocked down, one which is adapted to be adjusted for the convenience of soldiers of different heights and one in which supporting wheels can be quickly and easily attached and detached without interfering with the operation of the remainder of said device.

Further and other details of my invention are hereinafter described with reference to the accompanying drawings in which:

Fig. 1 is a plan view of my improved portable protective armor device;

Fig. 2 is a view taken substantially upon the line 2—2 in Fig. 3, but with said device shown rotated clockwise 90°;

Fig. 3 is a side elevation of said device taken in the direction of the arrow 3 in Fig. 1;

Fig. 4 is a vertical section through said device taken on a line 4—4 in Fig. 2 and portraying a soldier standing within said device with a rifle extending through the firing notch thus illus-

trating the manner in which said device is used;

Fig. 5 is an expanded view taken substantially on the line 5—5 in Fig. 1 looking at the interior of two of the side sections constituting one-half of my protective armor device, some portions of the devices are shown slightly out of scale to permit said parts to be shown expanded in said figure;

Fig. 6 is a longitudinal sectional view of one of the pintle pins joining two vertical courses, said figure illustrates the structure by which the horizontal courses can be selectively disengaged from adjacent courses;

Fig. 7 is an enlarged sectional view taken on the line 7—7 in Fig. 5 illustrating the manner in which the firing notch may be adjusted vertically; and

Fig. 8 is an enlarged detailed view illustrating the manner in which horizontal courses may be detachably secured by hinge joints.

A portable protective armor device embodying my invention preferably is made up of four plane sides detachably secured together and a roof section detachably secured to the sections constituting the side walls thereof. As viewed in Figs. 1 and 2 it will be noted that the side wall sections 1 and 2 are slightly wider than side wall sections 3 and 4. Thus if the device is separated on a plane normal to the sectional line 4—4 in Fig. 2, the half comprising sections 3 and 4 may be nested within the half comprising sections 1 and 2. The sections 1 and 2 are adapted to be supported by a bracket 5 carrying wheels 5a and the wall sections 3 and 4 are adapted to be joined and supported by bracket 6 carrying wheels 6a. Except for the width of said sections, as has heretofore been pointed out, said halves thus disjoined are identical and if they are not nested one within the other they may be used as shields adapted to protect individual soldiers. Thus because said halves are identical and carry identical devices thereon only one half will be described and similar letters of reference will be given to the parts whether they are arranged on one of the halves or on the other.

Each of the side sections 1 to 4, inclusive, are preferably made in three horizontal courses and the courses are joined together by hinges 7 having removable pintle pins 8 so as to prevent the physical separation of said horizontal courses one from the other. Said hinges are preferably arranged at opposite sides in joining alternate courses so that the separate plates making up

the side sections may be folded alternately back on each other to permit flat stacking.

Joining the side sections 1 and 2 and the side sections 3 and 4, respectively, are telescopic pintle pins 9, one being shown in detail in Fig. 6. Said pintle pin preferably comprises three sections 9a, 9b and 9c. The sections 9a and 9b are tubular and the section 9c preferably is solid. The diameters of said sections in said order are made in decreasing succession so that telescoping is permitted. A cap 10 extends over the top of section 9a and a pull cord 11 extending about a pin or roller 12 is secured to the section 9c. Thus, when tension is applied to said cord the two lower sections of the telescopic pintle pin are adapted to be retracted into the bore of the section 9a. When the pintle pin is thus retracted it enables the side sections 1 and 2 and the side sections 3 and 4, respectively, to be separated from each other. Said sections also are joined by the brackets 5 and 6, respectively. Said brackets are secured to the side plates by upstanding flanges 5b and 6b, respectively, which engage any pair of loops 13, 14, or 15. Said flanges are held in said loops by snap connections 5c and 6c, respectively, which are adapted to reasonably engage eyes 13a, 14a and 15a, respectively, dependent upon which of the loops 13, 14 or 15 the flanges of the bracket engage. Also extending across the two lowermost sections of the side sections 1 and 2, and 3 and 4, respectively, are horizontal braces 16 having downwardly turned flanges 16a adapted to engage socket 17 on the lower two courses of each side section. Said braces are flexibly secured to side sections 2 and 4, respectively, by links 18. Said links permit the disengagement of said sections, but prevent the detachment of said braces therefrom. Said braces thus are always adjacent, and adapted to be engaged with their respective sockets and thus cannot become misplaced.

To permit the detachment of the telescopic pintle pin 9 from side sections 2 and 4, I preferably secure the hinges 19 to the upper course of sections 2 and 4 by open-mouthed clips 20. Thus such hinges 19 can be lifted out of said clips to effect the disengagement of said upper courses of side sections 2 and 4 from the telescopic pintle pin and thus disengagement with the uppermost courses of side sections 1 and 3. Said clips preferably are all joined by common vertically extending bars 20a.

The two halves of said portable protective armor device comprising the side sections 1 and 2 as one half, and the other half, comprising side sections 3 and 4, are joined together by hinges 21, one-half 21a of each hinge being secured to a vertical side section 1 or 2, the other hinge half 21b being detachably secured under loops 21c to side sections 3 or 4, respectively, depending upon which halves are to be joined by said hinges. Adjustable latches 22 extend across said hinges 21 and said latches may be detachably secured to either of the two side sections which said hinges 21 join. One end of each latch is secured to a side section by an S-shaped catch 23, shown most clearly in Fig. 5, and the other end of said latch may be secured by a releasable catch 24 which engages one end of each of said latches to an offstanding perforated lug 25.

I find that engagement and disengagement of either end of latches 22 is convenient in setting up and knocking down a portable protective armor particularly in the field where said operations frequently have to be performed quickly and under trying conditions. Said optional arrange-

ment thus permits any slight binding or lack of adjustment to be corrected quickly and easily. That is, said latches 22 are slidably mounted in guides 26 and are free to be slid lengthwise through said guides except for the engagement of the said latches 23 and catches 24. If the parts should not fit together quickly, any of said latches 23 or catches 24 may be released to permit the parts to be adjusted within limited ranges. I also find that it is desirable to provide chain 27 to hold the middle courses together temporarily and pivoted catches 28 perform a similar function.

The roof structure 29 for my portable protective armor device preferably is made in two detachable sections, one section 29a being secured to side sections 1 and 2, and the other section 29b being secured to side sections 3 and 4. Each of said sections comprises two pieces joined together by hinges 29c. Each of said sections of the roof is secured to a side section by hinges 30 fixed to the roof section and adapted to slide under engaging loops 30a on the side sections, as is most clearly shown in Fig. 5. Thus said roof is fastened in place by arranging the free hinge halves of hinges 30 in loops 30a. This prevents the roof structure from being dislodged laterally, but permits said roof halves to be lifted vertically to permit the rapid disengagement of the roof structure from the side sections if it is necessary to fire directly overhead. It is to be noted that the roof sections 29a and 29b join each other at oblique angles and are not joined to each other. Because of said angularity any object falling directly upon said roof will strike a glancing blow. The separation of said sections of the roof also permits said roof sections to be removed separately. Thus if it is desired to fire upwardly only one half of the roof will have to be removed at a time and the remaining half or section can be left in place to afford protection for soldiers within said protective armor device.

In side sections 2 and 4 of said device an adjustable firing notch is provided which may be moved substantially the entire height of the upper courses, respectively, of said side sections. This is accomplished by arranging two spaced vertical cleats 31 on said uppermost course of said side sections 2 and 4 and stacking between said cleats a number of removable sections 32. Said sections may be transparent or opaque, but should be of sufficient thickness so as to be bullet resisting. In any event, I am of the opinion that removable section 32a should be transparent because it is in such section that the firing notch 32b is arranged. The reason that I am of the opinion that said section 32a should be transparent is that it will thus permit a relatively wide field to be observed and said field may be observed even when the muzzle of a gun 33 extends through said firing notch. I do not feel that all of said sections should be transparent in the majority of cases because although it would provide a wide field of vision for the soldier within the protective armor device, it would also permit others to look into said device through the large window thus provided.

Extending at spaced intervals along the exterior of the vertical cleats 31 are eyes 34 to which the ends of a gun support or saddle may be releasably secured. I provide a plurality of said eyes so that when the transparent section 32a is moved upwardly and downwardly a gun support or saddle 35 may be similarly moved. Said gun support or saddle 35 preferably is provided with springs or other resilient members 36 so as to accommodate

movement of the butt of the gun and yet provide substantial support for said gun and resistance against the recoil thereof.

I provide a relatively wide range of adjustability for the wheeled supports of said portable armor device. In Fig. 4 I illustrate how said wheel supports can be removed entirely and the device be mounted directly upon its lowermost courses. In Fig. 3 I illustrate how the wheels can support said lowermost courses slightly above the ground so as to promote portability but provide maximum protection against any bullets which might strike the shield close to the ground line. In Fig. 5 I illustrate the manner in which the wheeled support may be arranged to lift said lowermost courses substantially from the ground as in traversing rough country. Said wheel supports may be secured to said lowermost courses or if it is desirable to provide only two courses then when said lowermost course is removed said wheeled supports may engage loops in the middle course in the same manner that said wheeled supports may engage loops in the lowermost course. If only the upper course is provided, as it might be to protect a soldier lying prone, said wheeled supports have little utility because only one half of said upper course may be thus used and it is sufficiently light to be lifted bodily and be moved into position. It is to be noted that said protective armor device comprises side sections joined together at substantial angles. It is preferable that this device be arranged so that a corner faces the anticipated direction of fire. Thus any bullets which strike one of the side sections will strike only glancing blows. As I have pointed out, said protective armor device may be used with one, two, or three horizontal courses, and said number of courses is not to be considered by way of limitation but only by way of illustration, or may be used as a shield only; that is, with but two side sections. If said device is arranged with but two side sections, they may be arranged on end, as is shown in the figures, or may be arranged horizontally as might be desirable in directing anti-aircraft fire. If said two sections are used in the latter manner, then I deem it desirable that said two joined side sections be arranged over a pit or trench to provide sufficient depth for accommodating efficiently a rifle or a machine gun.

As is apparent, said device is usable over a wide field of use and when it is desired to knock said device down, the various sections may be easily and quickly detached one from the other and stacked flatwise in a space of small compass. The various sections should be made of relatively light plate of sufficient strength to present some bullet piercing resistance, but of light mass so that the portability of said device is not greatly impeded.

It may be necessary to provide handles and other securing devices for convenience in operation and transporting, but said devices will readily suggest themselves to persons skilled in the art and thus I have not illustrated said devices. The specific attaching means illustrated are also shown for the purpose of illustration and I do not wish my invention construed to be limited thereto except in the manner which I provided in the claims appended hereto.

I claim:

1. A portable protective armor device comprising two shields, each shield having a roof, and an open back, each of said shields having two plane sides pivotally joined one with the other, one of said shields being of smaller size than the other thereby adapting said smaller shield to nest within the other shield when said shields are arranged to face in the same direction, and means arranged along the margins defining said open back of said shields for releasably securing the latter together to form said shields into a fully enclosed structure.

2. A portable protective shield having a roof and an open back, said shield comprising two plane side members, pivotal joining means between said side members, including a pintle pin, each side member of said shield comprising a plurality of horizontal courses, hinges releasably securing each course to an adjacent course, said pintle pin forming a stiff member extending laterally across the several horizontal courses, said pintle pin being longitudinally extensible, thereby being selectively adapted to join one or more of said courses together and to permit detachment of other courses from the shield without disturbing the pivotal connection between the remaining courses.

EARL J. WALLACE.