JOHN. G. BUTLER'S

IMPROVED LIFTING STUD PROJECTILE.

112121

PATENTED FEB. 28, 1871.

2 Sheets-Sheet 1.

Fig. II.

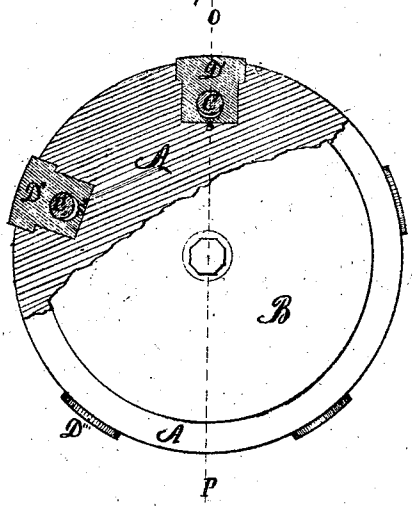
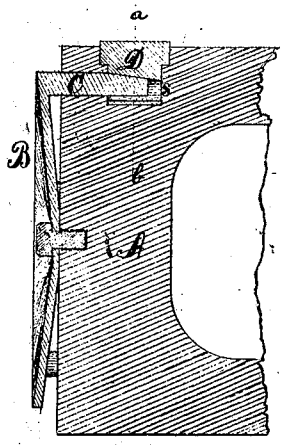


Fig. I.



Through O-P.

Fig. III.

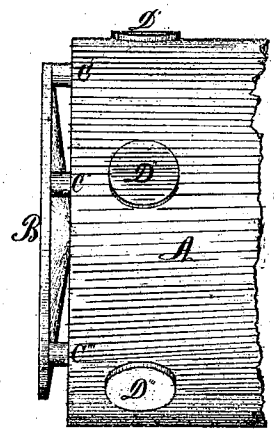


Fig. V.

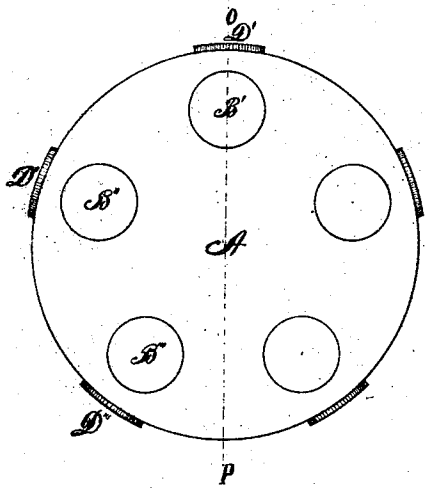
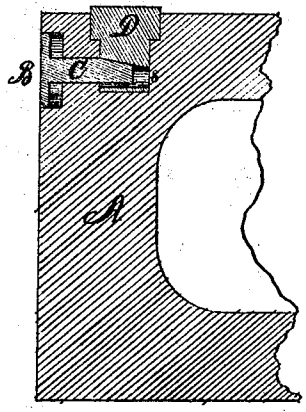
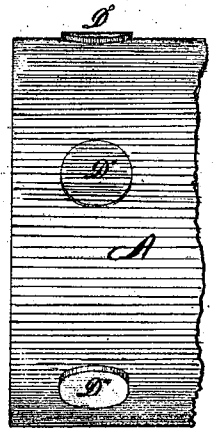


Fig. IV.



Through O-P.

Fig. VI.



WITNESSES,

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INVENTOR,

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JOHN. G. BUTLER'S

PROJECTILE CONTINUED.

112121

PATENTED FEB. 28, 1871.

2 Sheets-Sheet 2

Fig. VIII.

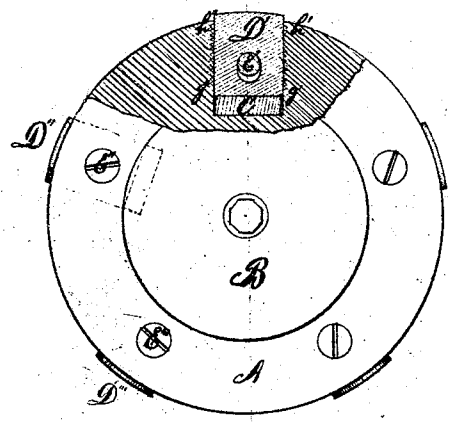


Fig. VII

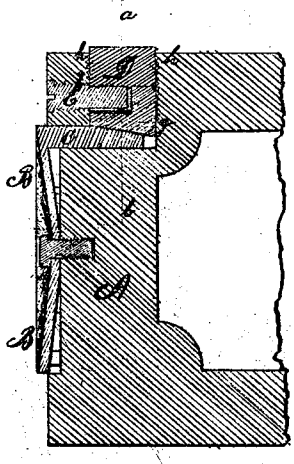


Fig. IX.

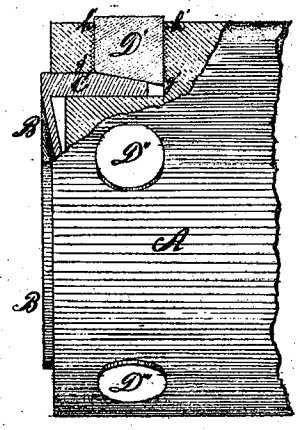


Fig. XI.

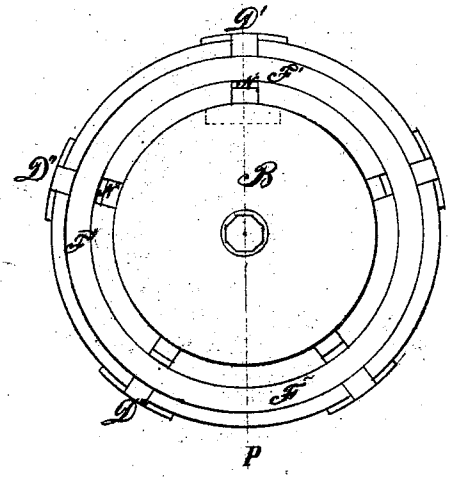


Fig. X.

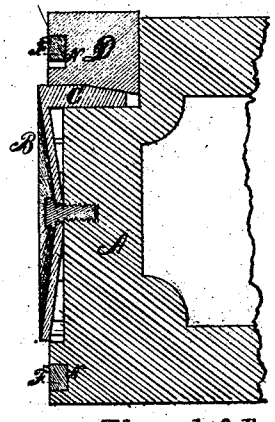
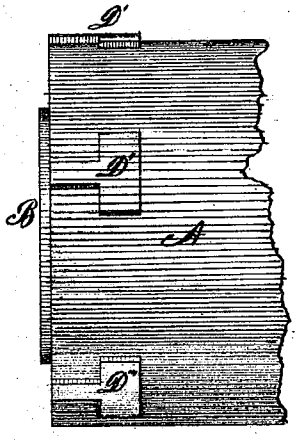


Fig. XII.



WITNESSES

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United States Patent Office.

JOHN G. BUTLER, OF UNITED STATES ARMY.

Letters Patent No. 112,121, dated February 28, 1871.

IMPROVEMENT IN PROJECTILES FOR ORDNANCE.

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

To all whom it may concern:

Be it known that I, JOHN G. BUTLER, of the United States Army, have invented a new and improved Projectile for Rifled Ordnance, of which the following is a specification.

The Object of the Invention

Is to secure the infallible rotation of the projectile by a series of studs or buttons, which is forced into the grooves of the gun by a corresponding series of wedges, either independent of or attached to a common metallic disk, and which may combine in themselves, or be combined with certain keys, consisting of pins or a ring inserted in certain offsets or slots in the studs, the purpose of which is to prevent said studs or buttons from being thrown from their sockets, by centrifugal or other force, when the projectile has left the gun.

Description of the Accompanying Drawings.

Figure I is a sectional view through the longer axis of my projectile, the part not represented being of the usual form.

Figure II is a partial cross-section through *a b* of Fig. I, and a partial view or elevation of base of projectile.

Figure III is a partial side elevation of the same projectile.

Figure IV is a partial sectional view through a projectile with independent wedges.

Figure V is the rear elevation of such a projectile.

Figure VI is a partial side elevation of the same.

The above figures are found on Sheet I of drawings.

On Sheet II of same—

Figure VII is a sectional view in part of a projectile, with wedges and keys independent of each other.

Figure VIII is a rear elevation and section in part through *a b*, Fig. VII.

Figure IX is a partial side elevation and section, the key omitted.

Figure X is a sectional view in part of a projectile, with my key applied in the form of a ring.

Figure XI is a rear elevation of this last projectile.

Figure XII is a partial side elevation of the same.

General Description.

A, Fig. I, is the body of the projectile;

B is the metallic disk; and

C is the wedge attached thereto or forming part of the same, and working in a slot in the stud D, which is made of any suitable metal, alloy, or material.

The metal disk B being flattened against the base of the projectile by the force of discharge, the attached wedge C is forced forward into the beveled slot *s*, thereby driving out the stud D.

While all of the other wedges, C′ C″ C‴, and C, Fig. III, perform each a like function, they, at the same time, fill up the slots *s*, Fig. I, and *s′ s″*, Fig. II, and thereby hold the studs firmly in their places after their limited expansion.

A, Fig. IV, is the body of the projectile.

B is the disk, at the end of wedge C.

D is the stud.

s is the slot in the same.

B′ B″ B‴, &c., Fig. V, are the disks on the bases of the other wedges, and fit into recesses in the base of the shot in order that the gas of discharge may operate only upon one side.

Sheet II—

A, Fig. VII, is the body of the projectile.

B is the disk, as before.

C is the wedge, which, in this case, is rectilinear in cross-section, and works under the beveled edge of the stud D.

E is the pin or key, screwed into the base of the slot, and having a play in the stud D equal to the intended expansion or lifting of the latter. This key may be regarded as auxiliary, as it is intended and claimed that the violent wedging out of the stud D against the bottom of the groove of the gun shall "upset" the stud, thereby forcing it to hug closely the roughened surface *g h* of its socket, thus securing said stud in its place.

E′ E″ E‴, &c., Fig. VIII, are the other keys, and *g′ h′*, *g″ h″*, &c., are the serrated or roughened surfaces of the stud-sockets.

A, Fig. X, is the body of the projectile. The studs D D′, &c., are forced out, as before explained.

F is the cross-section of the annular key, fitting snugly in a recess in the base of the projectile. The base of the studs are in this case flush with the base of the projectile. They are notched at N to admit the annular key, with just sufficient play to admit of the proper expansion of the studs.

F is this annular key in elevation, Fig. XI.

It will be observed that no part of the disk B and its connected series of wedges is forced into the grooves of the gun, whereby they might be "stripped" and distorted, but serve only to force out to a limited distance the studs D D′ D″, &c., which, being imbedded in the iron body of the projectile, are fully equal to their duty of rotating and centering it.

Claims.

I claim as my invention—

1. The combination of the metallic disk B with the wedges C C′ C″, &c., and the movable studs D D′ D″, &c., substantially as and for the purpose hereinbefore set forth.

2. The safety-pins or keys E E′ E‴, &c., or ring F, substantially as and for the purpose hereinbefore set forth.

3. The roughened or serrated surface *g h* of the stud-sockets, in combination therewith, substantially as and for the purpose hereinbefore set forth.

JOHN G. BUTLER.

Witnesses:

JNO. Z. HERMIT,

EDWARD J. MCELROY.