

No. 639,431.

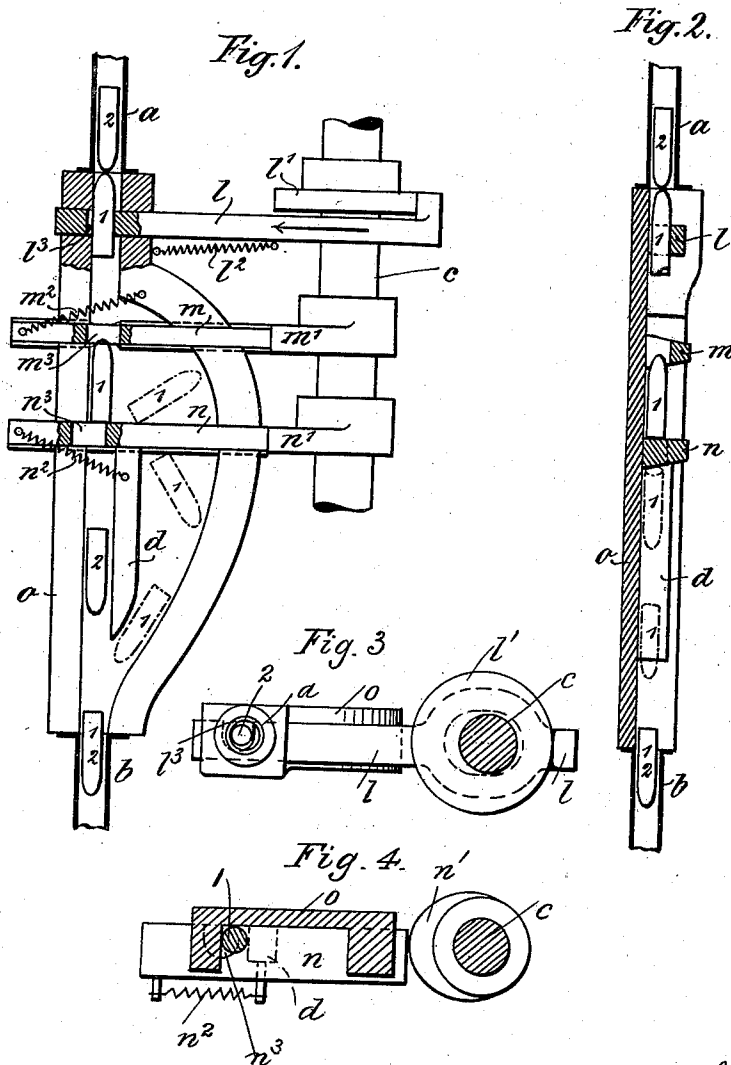
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P. PONDORF.

APPARATUS FOR ARRANGING PROJECTILES, CARTRIDGES, OR LIKE BODIES.

(Application filed Feb. 2, 1899.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR ARRANGING PROJECTILES, CARTRIDGES, OR LIKE BODIES.

SPECIFICATION forming part of Letters Patent No. 639,431, dated December 19, 1899.

Application filed February 2, 1899. Serial No. 704,269. (No model.)

To all whom it may concern:

Be it known that I, PAUL PONDORF, manufacturer, a subject of the Emperor of Germany, residing at Goessnitz, Saxe-Altenburg, German Empire, have invented certain new and useful Improvements in Apparatus for Arranging Projectiles, Cartridges, or Like Bodies; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In operating upon bodies of small size—such as bullets, projectiles, cartridges, or the like—with automatic or self-acting machines it has been necessary hitherto to place such bodies in the feeding groove or channel by hand in order in the first instance to set or adjust them in the position best suited to the particular treatment they are intended to undergo—for example, with their points or noses uniformly in one direction—and which operation is both troublesome and expensive.

Now the subject of this invention is a device the purpose of which is automatically to turn certain of the said bodies which may have been introduced into the feeding-groove without any regard to order by self-acting machinery so that they point in various directions, and thus to impart a uniform position or direction to them all. This object is attained by causing the bodies as they emerge from the feeding groove or channel to descend upon a rest or support, which is so constructed that it only intercepts and temporarily arrests those bodies which are delivered the wrong end—for example, the blunt or flat end—first and which bodies are then by means of a sliding carriage or the like turned over into the required position or direction, while those bodies presenting the other or pointed end first are allowed to pass through the apparatus without their direction or position being changed.

In the accompanying drawings, Figures 1 and 2 are respectively a front elevation and a side elevation of one form of the reversing or tilting apparatus constructed according to the present invention and shown by way of example. Fig. 3 is a plan view of the apparatus. Fig. 4 is a plan view of the slide *n* and cam *n'*, showing the frame and the driving-shaft in section.

a designates the chute of the feed-hopper, (not shown,) the projectiles or the like 1 2 emerging from which point in different directions—that is to say, some point upward and others downward. Now before the projectiles enter the reversing or sorting device proper they are detained by the slide *l*, which is constantly drawn toward the left—that is to say, in the direction of the arrow—by the spring *l*², and is only moved to the right for a short period of time by the cam *l'*, this brief interval of time being just sufficient to allow the projectile which was locked in its temporary position to drop and the projectile next following to be caught and detained in its turn. Thus two projectiles cannot enter the reversing mechanism at the same time.

Upon the cam-shaft *c*, which receives rotary motion from any convenient source of power, two more cams *m'* and *n'* are mounted, each of which cams operates a slide, such as *m* and *n*, respectively, likewise controlled by springs *m*² and *n*²; but the springs *m*² and *n*², respectively, tend to shift these slides to the right, whereas the cams *m'* *n'* move them to the left. Now after a projectile has been released by the slide *l* it drops through an aperture *m*³, provided in the slide *m*, onto the slide *n*. In this last-mentioned slide is formed a slot or aperture *n*³, which, though large enough for the projectile to pass freely through while the slide *n* is in its extreme outward or right-hand position, is normally partly received into the wall *o*, which thus forms a guard which covers about one-half of its area. Now when the projectile falls upon the slide *n* with its blunt end or base first, as is assumed to be the case with reference to projectile No. 1, such projectile will remain upon the said slide *n* in an upright position, so that its upwardly-projecting point will enter the slot *m*³ of the slide *m*, and at this juncture the revolving shaft *c* will so move the cam *m'* as to cause it to release the said slide *m* and permit the spring *m*² to act, with the result that this slide will suddenly be moved to the right by the spring *m*² and will tilt projectile No. 1 in such manner that it will be caused to occupy in succession each of the several positions in which the projectile marked No. 1 is represented in Fig. 1 of the drawings and eventually enter the channel or groove *b*. When, on the other hand,

the projectile emerges from the channel *a* point downward, as is supposed to be the case in the drawings with reference to projectile No. 2, such projectile, after passing through the aperture m^3 , will fall with its point resting in the aperture n^3 , in which position it will remain. When in this position, the rear or base of the projectile is located underneath the slide *m*, and when this slide comes to be released in the manner described above, in consequence of the rotary movement of the cam m' , and is moved to the right by the spring m^2 it will slide past the base of the projectile without turning the same. As the shaft *c* continues to revolve, the slide *n* is presently released by the cam n' and is moved to the right by the spring n^2 , the aperture n^3 at this moment wholly emerging from the wall *o*, so that the projectile No. 2, the point of which rests in such aperture, is now enabled to fall therethrough past the slide *n*, and thus likewise to enter the chute *b* point first.

The object of the guide *d* is to direct the projectile, whether turned over as No. 1 or moved along in its initial position as No. 2, in such manner as to secure it against any undesirable canting or inclination, and thus to avoid its becoming jammed in its course.

It may here be mentioned that the rest which intercepts the blunt ends or bases of the projectiles or bodies need not necessarily be formed by the slot or aperture n^3 of the slide *n*, partially covered or contracted by the wall *o*, as described above. Instead of this a fixed projection or stop may be provided for the purpose on the said wall *o* and made to operate in conjunction with the said slot or aperture n^3 , the shape and size of such projection being so calculated that it will intercept only the flat bases of the articles fed through the chute, and consequently their pointed ends will be maintained within reach of the slide *n*, and conversely the said projection will cause the points of the bodies to

enter the aperture n^3 for such a distance that their flat bases will be situated beneath and clear of the slide *m*.

I claim as my invention.

1. In apparatus for arranging bodies which are smaller at one end, the combination, with an intercepting slide provided with an opening, of a guard which permits only the small end of each body to enter the said opening, a tilting slide provided with an opening which engages with the small end of the said body when its large end rests on the said intercepting slide, and means for reciprocating the said slides, substantially as set forth.

2. In apparatus for arranging bodies which are smaller at one end, the combination, with an intercepting slide which supports each body at a higher level when its large end is downward than when its small end is downward, of a tilting slide which engages with the small end of the said body when its large end rests on the intercepting slide, and means for reciprocating the said slides, substantially as set forth.

3. In apparatus for arranging bodies which are smaller at one end, the combination, with an intercepting slide which supports each body at a higher level when its large end is downward than when its small end is downward, of a tilting slide provided with an opening which engages with the small end of the said body when its large end rests on the intercepting slide, means for reciprocating the said slides, and a feeding device which drops the said bodies intermittently through the opening in the said tilting slide, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PAUL PONDORF.

Witnesses:

RUDOLPH FRICKE,
OTTO HASENBEIN.