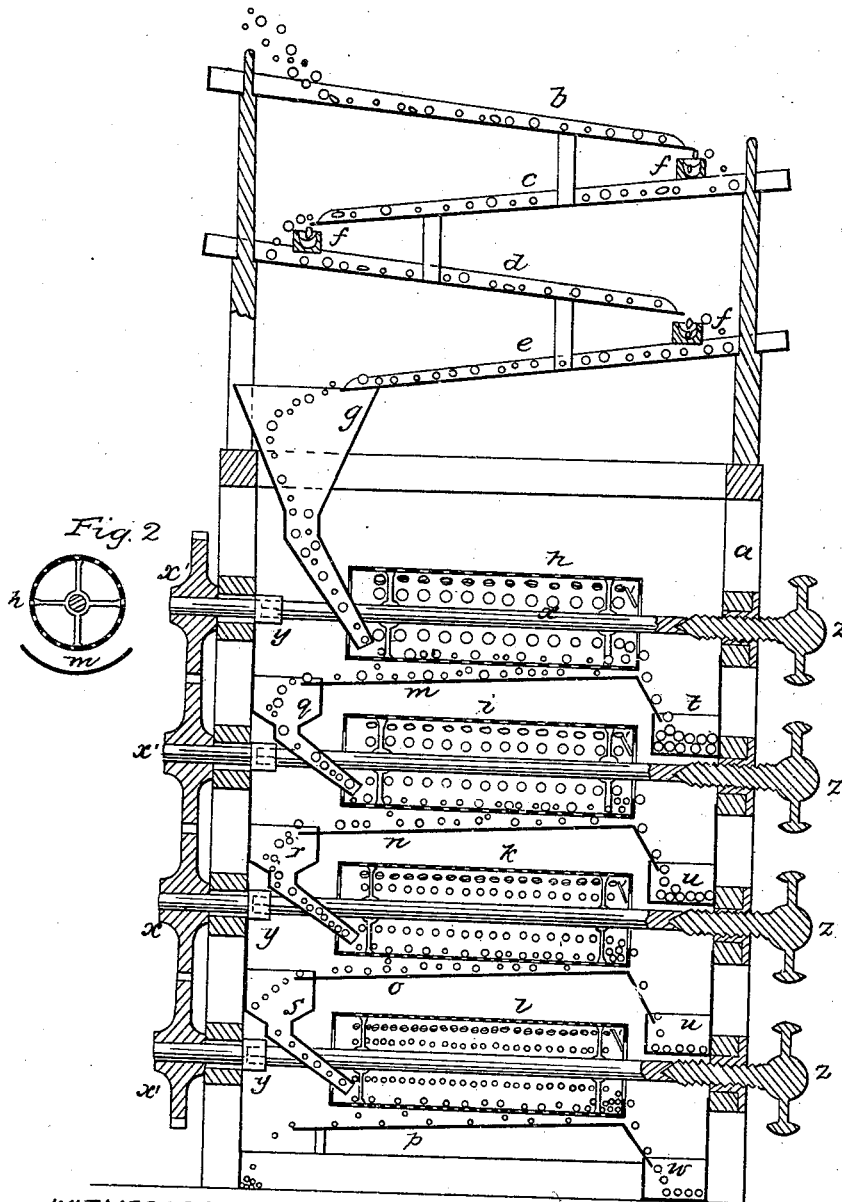


W. A. SHAW.

Device for Separating Shot.

No. 52,003.

Patented Jan'y 9, 1866.



WITNESSES

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IMPROVED DEVICE FOR SEPARATING SHOT.

Specification forming part of Letters Patent No. 52,003, dated January 9, 1866.

To all whom it may concern:

Be it known that I, WILLIAM ANTHONY SHAW, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in the Manufacture of Drop-Shot; and I do hereby declare the following to be a full, clear, and exact description of my said invention, reference being had to the annexed drawings, making part of this specification, wherein—

Figure 1 is a vertical longitudinal section of my apparatus for assorting the shot, and Fig. 2 is a cross-section of one of the screening-cylinders and the trough below.

Similar parts are designated by the same letters.

In the manufacture of drop-shot it becomes necessary to separate the imperfect shot from those that are globular, and also to assort the globular shot according to their sizes. These operations have usually been performed by costly hand-labor, and there has been no continuity in the operations, but a series of chargings and dischargings by hand. For instance, the shot as they are discharged from a rotary polisher are taken, a scoopful at a time, and scattered on an inclined table, and the attendant with a wide brush sweeps them up the incline, then raising his brush the globular shot roll down, and so he proceeds until finally the imperfect shot are swept up over the highest edge of the incline into a receptacle. The globular shot are next placed in a hopper, a given amount forming a charge. This hopper is upon a rocking frame containing drawers with screen-bottoms to assort the sizes, and these drawers have to be emptied by hand from time to time into receptacles or bins.

The object of my invention is to produce a continuously-operating or automatic separator and assorter for shot or balls, whereby the shot have only to be supplied at the upper end of the machine, and from there they proceed onward and downward and are separated, the imperfect ones being thrown out and the globular ones being assorted according to size. This is effected by a series of inclines combined with transverse receptacles at their ends, said inclines being set in opposite directions, so that the momentum of the shot is checked in passing from one table to the other, and the

transverse receptacles receive the imperfect shot, which, in consequence of not being true globes, do not roll with sufficient velocity to cause them to be projected over the said transverse receptacles, and from these separating-inclines the shot pass into and through separating and assorting screens, the different sizes of shot being delivered into bins or receptacles provided for them.

In the drawings, *a* is a frame-work, of suitable size, sustaining the inclined separating-planes *b c d e*. There may be more or less in number of these inclines, and they may be made adjustable in their inclination. These inclines are to stand at opposite inclinations in order that the shot rolling off the lower end of one must stop, and thence commence to roll in the other direction on the next. This prevents the shot acquiring too great velocity, and also produces a pause wherein an imperfect shot will turn upon its flattest side, and hence thereafter roll or slide more slowly than would be the case if the momentum were not checked. Across the lower ends of the respective inclines are troughs or receptacles *f*, placed with their upper edges in such a position relatively to the edge of the incline that those shot that are globular will, in rolling down, acquire a sufficient velocity to pass over this edge of the trough to the incline below, while those that are not globular, and hence acquire less velocity, fall into the receptacle or receptacles *f* at some stage of the successive operations. It is best to have the first inclines at a greater angle than the latter ones, in order that the angular pieces first separated may not remain on the first incline. The shot are scattered upon the upper incline from the end of a spout or hopper, and pass from the bottom of the last incline into the hopper *g*, that conveys them to the first of a series of rotary screens, which screen *h* is formed cylindrically or slightly conical, and of perforated sheet metal or other material, set upon arms from a removable shaft, *x*, at one end of which is a square or socket, *y*, setting upon a similar coupling that connects with a short shaft rotated by the wheel *x'*, driven by competent power. The shot that pass through the meshes of the sieve *h* fall on an incline, *m*, and roll into the next hopper *g*, and pass into the next sieve, *i*, while

those that remain within the sieve *h* are allowed to run out thereof into a receptacle, *t*, or an inclined bucket, 1, may be fitted within the sieve adjacent to the interior flange at the end, so as to lift the shot and throw them out over said flanged end into *t*. I have shown a series of these sieves or screens, *h i k l*, with corresponding inclines *m n o p* below them, conveying the shot to the hoppers *q r s* respectively, while the shot that do not pass through the sieves are delivered in the assorted condition into the respective receptacles *t u v w*.

The screens *h i k l* may be sustained at the end opposite the couplings *y* by any suitable means. I have, however, shown pointed screws *z z* taking cavities in the ends of the shafts respectively, in order that the screens may be removed with facility and others with different sizes of meshes substituted, so as to suit the size of shot that is being assorted.

I prefer that the top screens should have the largest meshes, so as to retain the largest shot and let all the other shot pass through; but if the screen with the smallest meshes is placed at the top the respective bins or receptacles *t u v w* will have to be placed where the hop-

pers *q r s* are shown, so that the shot retained in the screens will be emptied into the hoppers, while the smallest shot are taken off successively by the inclines *m n o p* below to the respective receptacles.

What I claim, and desire to secure by Letters Patent, is—

1. A series of revolving screens for assorting the shot, in combination with the inclines and receptacles, substantially as specified.

2. The method herein specified of assorting shot and delivering the different sizes into receptacles by mechanism, substantially as specified.

3. The combination of a series of inclines for separating the imperfect shot, as set forth, with a series of screens for assorting the sizes of the shot, all constructed and arranged substantially as set forth.

In witness whereof I have hereunto set my signature this 5th day of August, A. D. 1865.

W. ANTHONY SHAW.

Witnesses:

CHAS. H. SMITH,

JAS. E. SERRELL, Jr.