

(No Model.)

4 Sheets—Sheet 1.

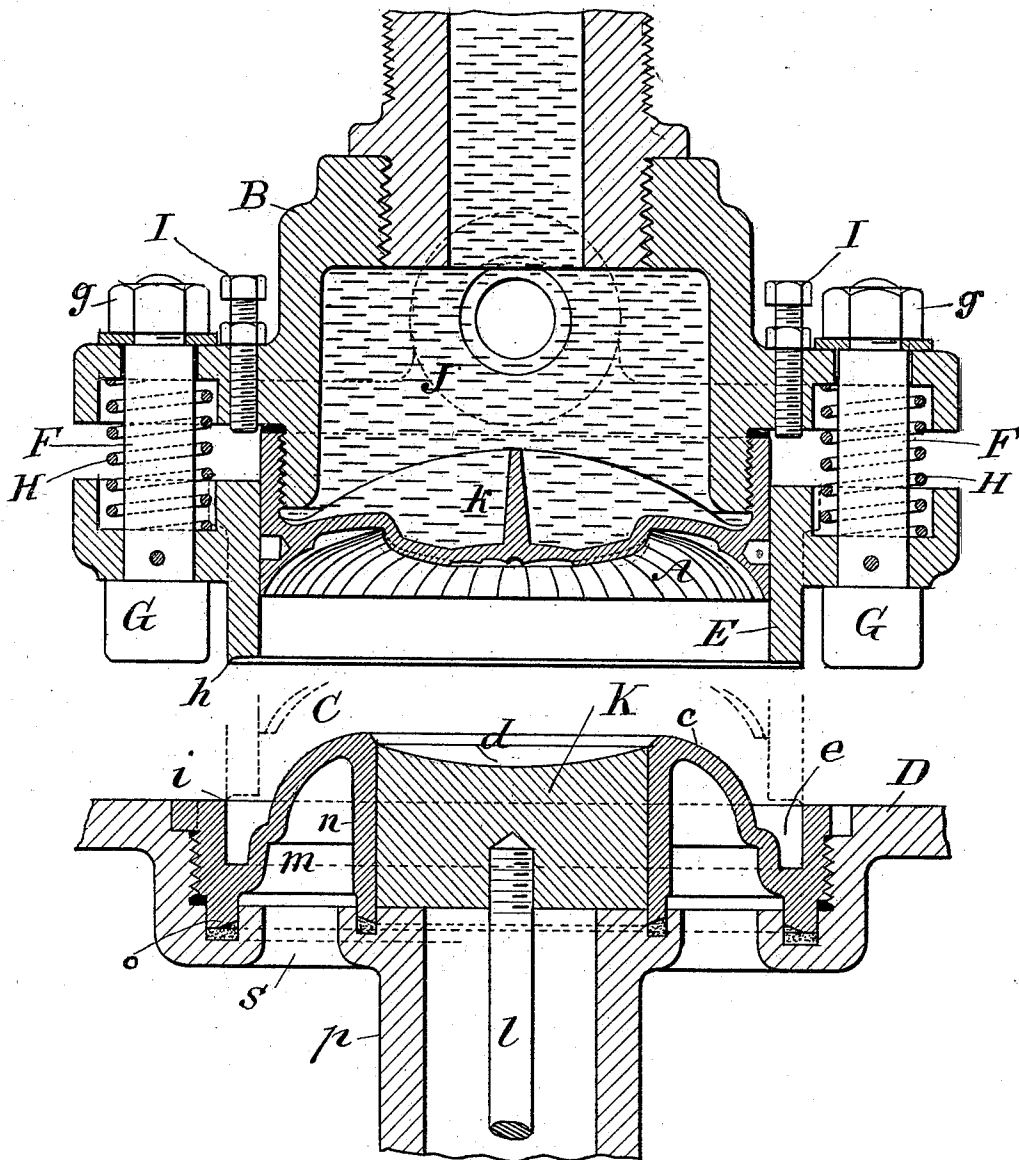
H. F. PARKER.

MOLD FOR MAKING COMPOSITION TARGETS.

No. 513,527.

Patented Jan. 30, 1894.

Fig. 1.



WITNESSES:

Chas. Hanemann

Henry Klein

INVENTOR

Henry F. Parker

BY

C. R. Ferguson

ATTORNEY

(No Model.)

4 Sheets—Sheet 2.

H. F. PARKER.

MOLD FOR MAKING COMPOSITION TARGETS.

No. 513,527.

Patented Jan. 30, 1894.

Fig. 3

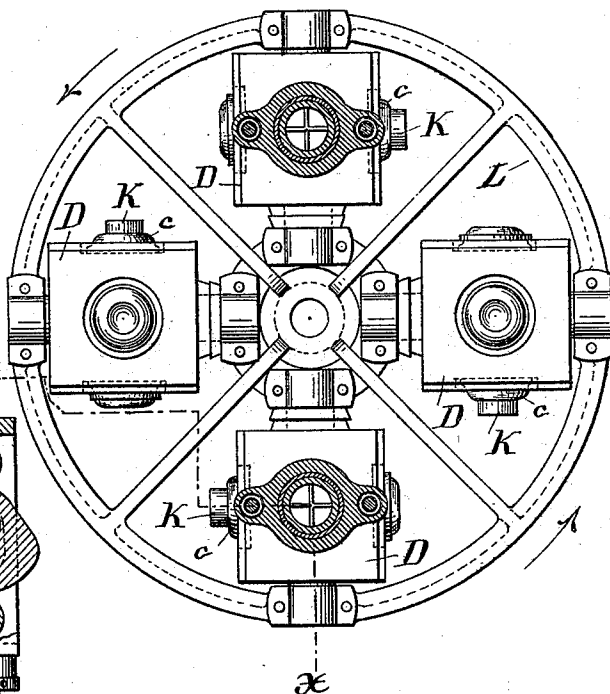
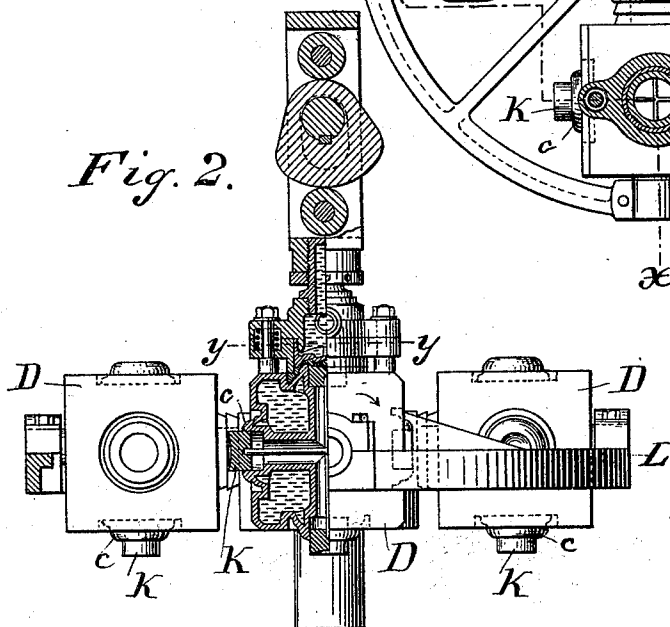


Fig. 2.



WITNESSES:

Chas. Hasimann
Henry Klein

INVENTOR

Henry F. Parker

BY

C. A. Ferguson

ATTORNEY

(No Model.)

4 Sheets—Sheet 3.

H. F. PARKER.

MOLD FOR MAKING COMPOSITION TARGETS.

No. 513,527.

Patented Jan. 30, 1894.

Fig. 4.

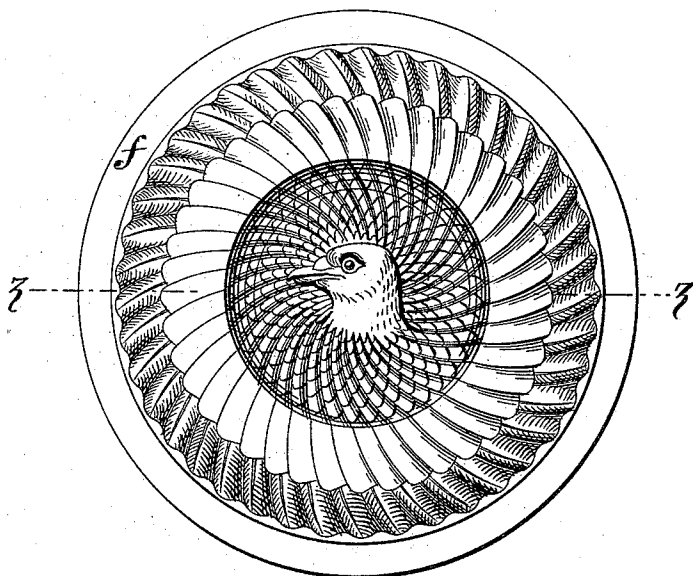
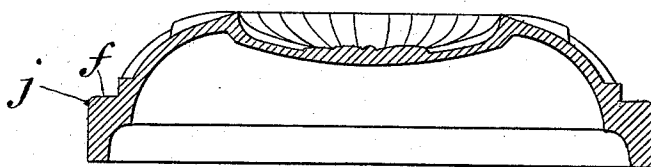


Fig. 5.



WITNESSES:

Chas. Hanimann.
Henry Klein

INVENTOR

Henry F. Parker

BY

C. R. Ferguson

ATTORNEY

(No Model.)

4 Sheets—Sheet 4.

H. F. PARKER.

MOLD FOR MAKING COMPOSITION TARGETS.

No. 513,527.

Patented Jan. 30, 1894.

Fig. 6.

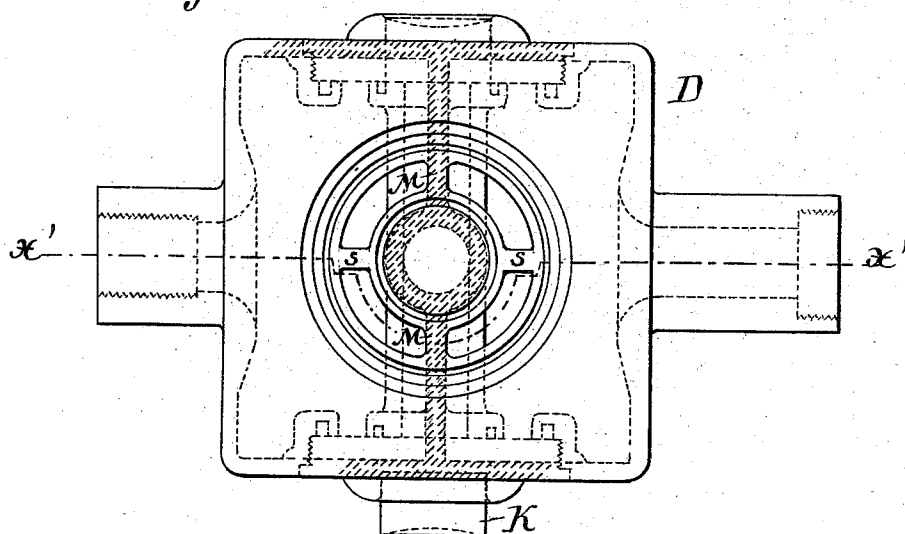
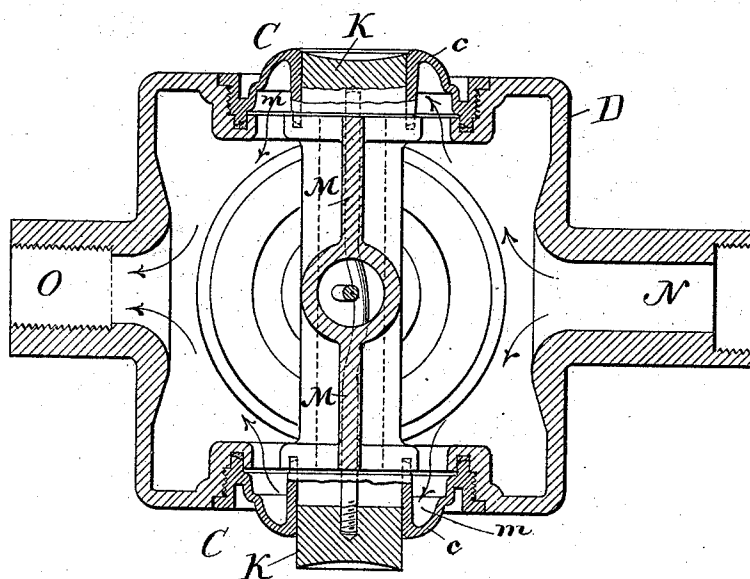


Fig. 7.



Witnesses
Chas. Hanimann
Henry Klein

By his Attorney *Inventor*
Henry F. Parker
C. R. Ferguson

UNITED STATES PATENT OFFICE.

HENRY F. PARKER, OF NEW YORK, N. Y., ASSIGNOR TO HALLECK A. PEN-ROSE, OF NEW LONDON, CONNECTICUT.

MOLD FOR MAKING COMPOSITION TARGETS.

SPECIFICATION forming part of Letters Patent No. 513,527, dated January 30, 1894.

Application filed March 24, 1893. Serial No. 467,446. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. PARKER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Molds for Making Composition Targets, of which the following is a specification.

This invention relates to the manufacture of sportsmen's flying targets composed of tar and plaster or other suitable mixture which is pressed in a hot plastic state into a saucer like shape and upon cooling becomes brittle so that when thrown from a trap the target if struck by the shot of the marksman, will break.

The object of the invention is in molding such targets, to impart to the convex side thereof, which is the side exposed to view, a smooth and perfect finish. A design, which if embossed thereon, may thereby be produced to greater advantage than heretofore.

Heretofore targets have been molded with the convex side down; that is to say, in the bottom die. The dies have cavities cooled by water circulation, and oil is usually applied with a brush from time to time to the surfaces of the dies to prevent the composition adhering thereto after it has been compressed. The water will frequently ooze through the metal walls of the dies and collect in the bottom die, and the oil accumulate in small quantities also therein, and the convex side of the target then being formed in the lower die receives therefore a rough surface due to the confined oil and water, impairing the marketable appearance of the target. Moreover, when the composition is gravitated in its hot plastic state into the bottom die, there are at first drippings or fine strings of the tar mixture that precede the main bulk of it which is fed, and those drippings or strings, quickly harden upon striking the cool die and form indiscriminate figures on what is to be the convex surface of the target, which cannot be effaced by the force of compression used. In addition to overcoming these difficulties, the object of the invention is also, in the machine in which it is contemplated to use the molds, to economize in the construction of the machine by locating the design die on the part of the mold which is employed in the least

multiplicity in the organization of the machine; also to promote proximity of the circulating current of cold water to the dies.

The invention consists in an apparatus adapted for molding targets wherein the convex side is formed in the upper die; said apparatus having for that purpose certain novel features such as hereinafter described and claimed; and the said invention also embodies means of promoting circulation of the cooling medium.

Referring to the accompanying drawings: Figure 1, is a vertical sectional elevation, showing a suitable construction of the dies; the same appearing at a separated position. Fig. 2, is a side elevation partly in section on the line $x-x$ Fig. 3, showing on a reduced scale a part of a suitable machine to which the molds are adapted. Fig. 3, is a plan view of Fig. 2 partly in section. Fig. 4, is a plan view on the same scale as Fig. 1, showing the face or convex side of a target produced by the mold; and Fig. 5, a cross-section of Fig. 4 on the line $z-z$. Fig. 6, is an elevation; and Fig. 7, a section taken on the line $x'-x'$ Fig. 6, showing a mold block similar to those in Figs. 2 and 3, enlarged, and relating to the feature of water circulation.

The upper die A, is fixed to a suitable part, B, and the lower die C, is fixed to another suitable part D, and either of said parts may be moved while the other is stationary, or both may move, so that in any event the plastic material will be compressed; the convex side of the target in the upper die A, and the concave side in the lower die C. A portion c , of the lower die is contoured above the surface of the part D, which supports it, and there is an annular valve E, which is movable with reference to the upper die A, so as to close about the raised die C, before the die A, descends far enough to compress the composition thereon.

The die C, has concave portions d , and e , which are sufficient to hold or partially hold the plastic composition which is gravitated to the center d , and delay and thereby prevent its overflowing before the valve E closes around it.

The valve E, incidentally forms a part of the upper die, serving to shape the top sur-

face of the rim, *f*, of the target. (See Figs. 4 and 5.) The valve E, also incidentally serves as an ejector for throwing the work off from the upper die A, when the same rises.

5 The annular valve E is vertically movable on the cylindrical periphery of the die A, and carries with it studs F, which may slide freely in the part B, and serve by means of their nuts *g*, to prevent the valve E from dropping off.

10 Projections G, are provided upon the valve E, which abut on the surface of the part D, to limit the descent of the valve E, and said projections are for convenience located upon the studs F.

15 Springs H, are interposed between the part B, and the valve E, and force the latter downward into its advanced position. Set screws I, are provided in the part B, which may be adjusted to abut on the valve E, and determine the limitation of stroke of the die A, thereby determining the thickness of the target.

25 Where mechanism is used, such as will definitely limit the stroke of the part B, the set screws I, or other means of abutment between the part B, and the valve E, may be omitted, and the springs H, may in that case if desired be depended on as a sole means of confining the valve E on the substance of the target, and surplus material can escape by the yielding of the springs. In any event, it is intended that the exterior margin *h*, of the valve E, shall approximate to the edge *i*, of the die C, when the mold is closed together, allowing the escape of surplus material, and in order to avoid a burr being left at the conspicuous margin of the target when the surplus material is broken off, the under surface of the valve E, is concaved so as to form a rounded shoulder on the target, leaving the burr, if any, a little below the stepped surface *f*, as at *j*, Fig. 5.

45 A movable ejector K, is provided in the central part of the die C by which the finished target is pushed off from the said die after being sufficiently cooled, and any suitable means, such as a rod *l*, may be provided to operate the ejector K, at the proper time.

50 The die A, is made of a separable piece bearing the embossment of the design, that may be removed readily and replaced by dies bearing other designs. The die A, is composed of thin structure having webs *k*, to strengthen it. A cooling medium circulated in the cavity J, will thereby rapidly absorb the heat from the composition. The die C, is also made of a separable piece and is provided with an annular cavity *m*, for the reception of a cooling medium.

60 The outer flange *o*, of the die C, is fitted water tight with packing in a circumferential groove in the part D, and the inner wall *n*, of the die C, containing the ejector K, is fitted water tight in a similar manner on the tubular column *p*, connected by webs *s*, to the part D, with openings between them for the

admission of water, into the cavity *m*, while the central tubular chamber is reserved for the ejector K and its operating mechanism. 70

The design herewith illustrated, Figs. 4 and 5, is of raised or embossed character as indicated, and is imprinted solely on the convex side of the target; the interior being smooth. Both dies A, and C, may be embossed so as to impart hollow figures to the interior of the target corresponding to the raised figures of the exterior, thereby producing a structure of uniform thickness, bearing any desired embossments, such as corrugations, adapted to strengthen the target. 75 80

Figs. 2 and 3, illustrate a part of a mechanism described in detail in my Patent No. 495,228, of April 11, 1893, and which need not therefore be described at length herein, except that the parts D, compose rotary mold blocks which, mounted in the rotary carriage L, present different dies C, successively to the parts B, shown as reciprocating rams. 85

An advantage of the herein described invention consists in that when it is desired to emboss only the convex side of the target, as is usually the case, and when the lower dies C, are employed in a large plurality as in Figs. 2 and 3, (showing sixteen,) a great economy in the number of embossed dies, as well as in the labor of changing designs when required is effected, owing to the employment of a minimum number of the embossed dies A, which form the convex side of the target, two being shown in the organization of the machine. 90 95 100

In order to promote the cooling efficiency of the water circulated in the annular cavity of the lower die C, a partition M, is provided as illustrated in Figs. 6 and 7, which divides the hollow part D, bearing the die C, into two chambers, and when the cold water is introduced for instance at N, and escapes at O, the current is directed wholly through the annular cavity or cavities *m*, in the die or dies C, cooling the composition more rapidly than would be the case were the current allowed to pass through the part D, in a more direct manner. 105 110

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is— 115

1. In a mold for shaping plastic material, the combination of a lower die contoured above the surface which surrounds it, an upper die, and a valvular part surrounding the upper die, movable with reference thereto, adapted to close in advance of the upper die, and to prevent the overflow of the plastic material after it has been fed upon the lower die, and before it is compressed, in the manner described. 120 125

2. In a target mold, a lower die adapted for forming the concave side of the target, contoured above the surface which surrounds it, provided with a circumferential channel surrounding the raised contoured part, and a depression at the center of said raised part, and an upper die adapted for forming the 130

convex side of the target, and an annular valve, arranged substantially as and for the purposes described.

3. In combination with the lower raised die C, and its annular channel *e*, and the upper die A, the annulus E, having the depending forming edge *h*, at its outer margin, adapted to cause the escape of the surplus material below the stepped surface at the rim of the target, and to form a smooth shoulder as described.

4. The combination of the lower die, the movable annulus E abutting on the lower die, the upper die abutting on the movable annulus, and means of adjusting the said abutment of the upper die on the movable annulus for the purpose described.

5. The combination with the mold block D, having a tubular channel *p*, supported in the block which is provided with a water chamber, and the separable hollow die C, secured to the block fitting water tight to said block and

to the extremity of said tubular channel, for admitting circulation, and the ejector K, arranged as described.

6. The combination with a die C, having an annular cavity *m*, of a suitable hollow support having a transverse partition extending to an intermediate part of said cavity, and an inlet and an outlet for a cooling medium on opposite sides of said partition.

7. The combination of a separable die having an annular cavity, and a suitable hollow support having a seat for the reception of said die, perforated opposite the cavity and a partition extending from an intermediate portion of said seat within the hollow support providing separate inlet and outlet chambers for a cooling medium, substantially as described.

HENRY F. PARKER.

Witnesses:

K. D. VAN PELT,
HENRY KLEIN.