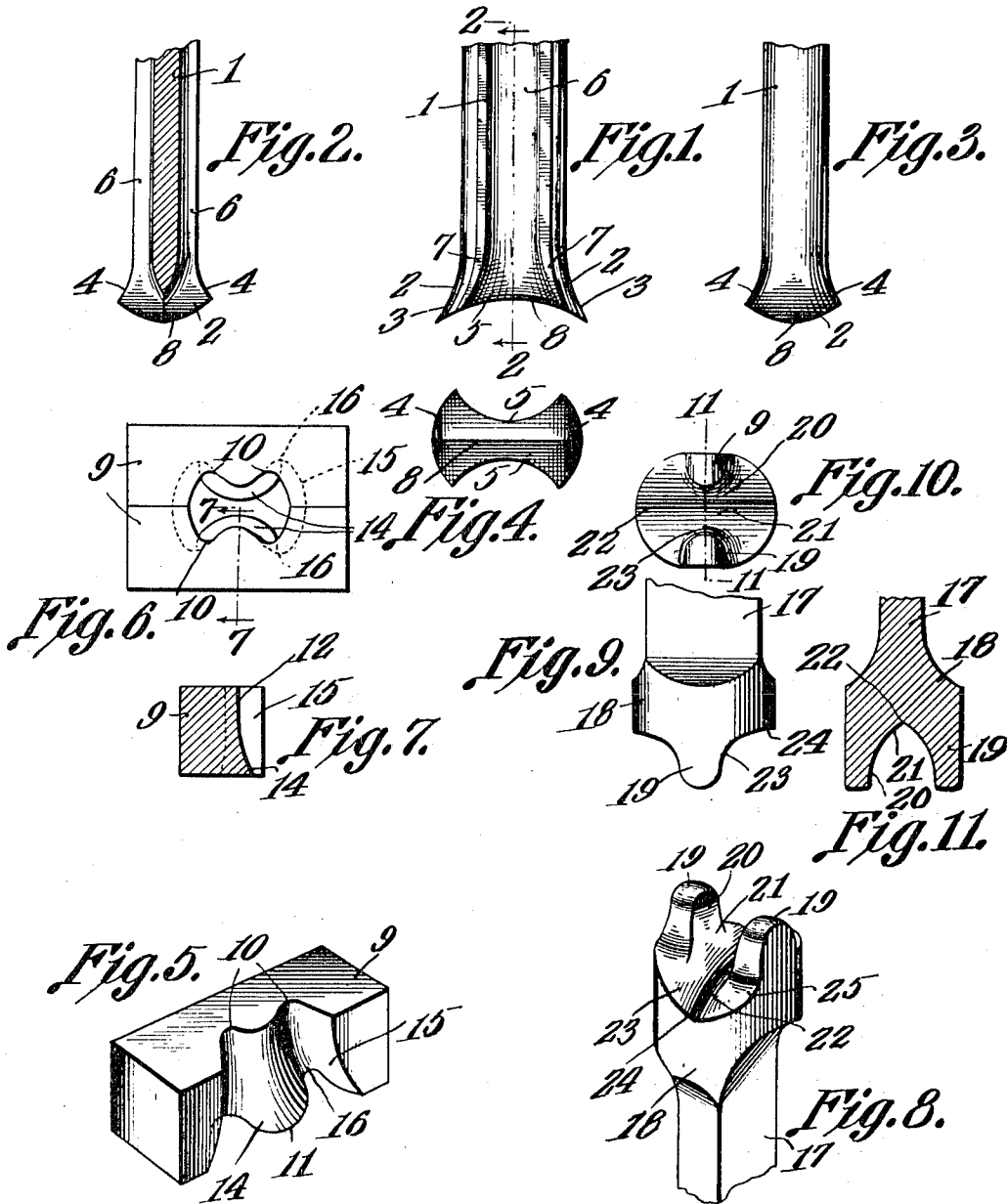


F. A. GILL.
DIES AND DOLLY.
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1,039,380.

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Witnesses

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UNITED STATES PATENT OFFICE.

FRED A. GILL, OF CULEBRA, CANAL ZONE.

DIES AND DOLLY.

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To all whom it may concern:

Be it known that I, FRED A. GILL, a citizen of the United States, residing at Culebra, Canal Zone, Isthmus of Panama, have invented new and useful Dies and Dollies, of which the following is a specification.

One object of the present invention is to provide a novel set of elements adapted to reface, and to spread to gage, the wings of a drill of the type hereinafter set forth. The invention aims, further, to provide a set of dies adapted to be employed for refacing the drill, to give the same the desired approximate contour, and to provide a dolly which, being applied to the drill, longitudinally of the same, will finish the end face of the drill and spread the wings of the drill to gage.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings,—Figure 1 shows in side elevation, a drill of the sort which is manipulated by the elements constituting the subject-matter of this invention; Fig. 2 is a section on the line 2—2 of Fig. 1; Fig. 3 is a side elevation of the drill; Fig. 4 is an end elevation of the drill; Fig. 5 is a perspective of one of the dies; Fig. 6 is an end elevation showing two of the dies together and in operative relation; Fig. 7 is a section on the line 7—7 of Fig. 6; Fig. 8 is a perspective of the dolly; Fig. 9 is a side elevation of the dolly; Fig. 10 is an end elevation of the dolly; and Fig. 11 is a transverse section of the dolly on the line 11—11 of Fig. 10.

The drill shown in the accompanying drawings is of novel form, but the drill itself constitutes no part of the present invention. In order, however, that the nature of the invention may be clearly understood, it is necessary to describe the drill in detail.

The drill comprises a shank 1, provided at one end with lateral wings 2, the side faces of which flare, as indicated at 3. The lateral edges of the wings 2 flare, also, as indicated at 4. The end edges of the wings 2 converge, as shown at 5. Extended longi-

tudinally of the shank 1 are oppositely disposed grooves 6 which, between the wings 2 slope as indicated at 7 to a meeting line 8 which is concaved away from the extremities of the wings 2, as clearly shown in Fig. 1. The drill, considered generally, is of panduriform contour at its cutting end, as will be most clearly understood when Fig. 4 is noted.

In carrying out the present invention a pair of dies are provided, each die being denoted by the numeral 9, and the dies being duplicates. But one die, therefore, need be described in detail.

Extended transversely of the inner face of the die 9 is a pair of notches 10, defining, between them, a core which is denoted generally by the numeral 11, the core 11 comprising a cylindrical neck 12 and a flaring toe 14. The notches 10 flare laterally, longitudinally of the die, as indicated at 15, the notches flaring also, as indicated at 16, in a direction transverse to the length of the die.

The drill above described is self-sharpening, and on account of its peculiar shape, does not need re-sharpening. The invention herein disclosed, therefore, is used to reface and to put additional stock upon, that part of the drill which has been worn down in use, so that the drill is no longer of the correct gage.

In operation, it will be understood that one die is laid upon a support, the other die being placed upon a movable member, such as the plunger of a steam or air hammer, the defective drill being, in the first instance, placed upon one die, to be shaped by the other die. When the dies thus coöperate, the shaping of the defective drill takes place as follows. The cylindrical neck 12 of the core 11 registers in and shapes one end of the groove 6 in the shank 1. The flaring toe 14 of the core 11 serves to define and to re-shape the sloping face 7 of the drill. The flare of the notches 10, indicated at 15, serves to shape the side faces 3, and the flare indicated at 16, serves to give the desired slope or flare to the edges 4 of the wings 2. The foregoing operation, of course, takes place while the drill is in a heated condition.

After the drill has been operated upon in the manner above described, the drill is set on end, and is engaged endwise by a dolly, hereinafter described.

The dolly comprises a shank 17 and an enlarged head 18. Projecting from the head

18, in approximate parallelism to the shank 17 is a pair of oppositely disposed spaced fingers 19. As indicated at 20, and as seen most clearly in Fig. 10, the adjacent, inner 5 faces of the fingers 19 are rounded, as shown at 20. As shown best in Fig. 11, the rounded faces 20 converge as at 21, and meet at a line 22 which is convex toward the ends of the fingers 19. Upon both sides of each of the 10 fingers 19 are faces 23, the faces which are adjacent the respective fingers 19 sloping toward each other, and meeting along the line 22 above mentioned. The peripheries of the faces 23 converge at the perimeter of the 15 head 18, as indicated at 24. The faces 23 not only slope toward the line 22 but, as well, slope away from the free ends of the fingers 19 and toward the perimeter of the head 18, as indicated at 25 and as seen most 20 clearly in Fig. 9.

After the drill has been operated upon by the dies 9, in the manner hereinbefore described, the drill is struck endwise by the dolly, whereupon, the following operation 25 takes place. The curved edges 20 of the fingers 19 pass into the grooves 6 of the shank 1, the converging portions 21 of the faces 20 serving to define the sloping faces 7 of the drill, and the line 22 in the dolly serving to

define the line 8 in the drill. The edges in- 30 dicated at 24 in the dolly conform to and serve to shape the edges 5 of the wings 2 of the drill, and since the faces 23 of the dolly are inclined as indicated at 25, these faces 35 serve to spread the wings 2, so that the drill will be restored to correct gage.

Having thus described the invention, what is claimed is:—

1. A pair of like dies, each having in one face, a pair of grooves, the grooves flaring in 40 rectangularly disposed directions to define an intermediate core, comprising a cylindrical neck and a flaring toe.

2. A dolly comprising opposed fingers, the adjacent faces of which, are transversely 45 curved and slope longitudinally to a meeting line, the dolly having, upon both sides of each finger, faces which slope to the meeting line and likewise slope longitudinally of the 50 meeting line.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRED A. GILL.

Witnesses:

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