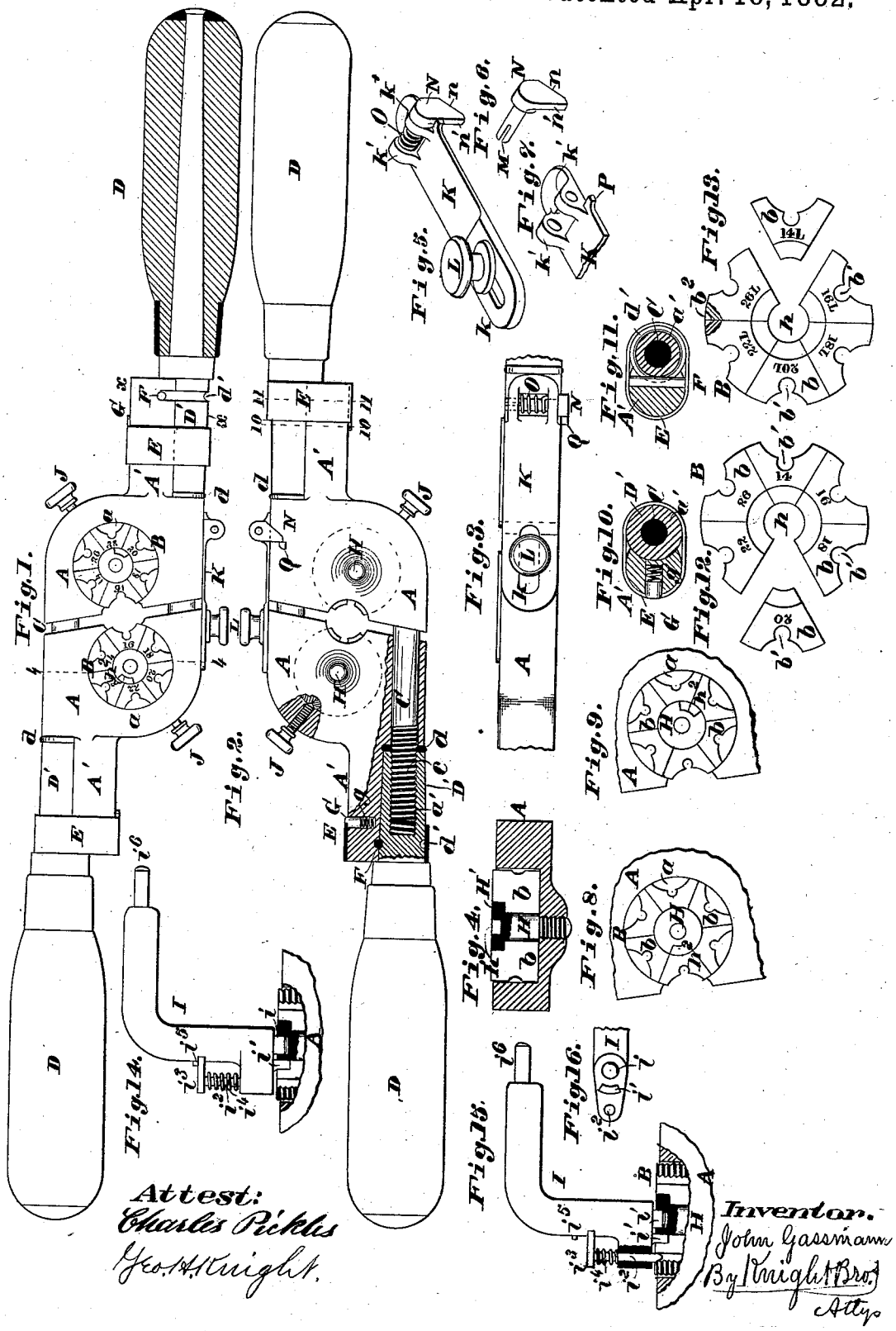
(No Model.)

J. GASSMANN.

DIE AND DIE STOCK.

No. 256,669. Patented Apr. 18, 1882.



Attest:
Charles Pickles
Geo. H. Knight.

Inventor.
John Gassmann
By Knight Bros.
Attys.

UNITED STATES PATENT OFFICE.

JOHN GASSMANN, OF JACKSON, MISSOURI, ASSIGNOR OF ONE-HALF TO ADAM HOFFMANN, OF SAME PLACE.

DIE AND DIE-STOCK.

SPECIFICATION forming part of Letters Patent No. 256,669, dated April 18, 1882.

Application filed November 1, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN GASSMANN, of Jackson, in the county of Cape Girardeau and State of Missouri, have invented a certain new and useful Improvement in Dies and Die-Stocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

This invention belongs to the class of screw-cutters constructed to cut threads varying in pitch and upon bolts varying in diameter.

In the drawings, Figure 1 is a bottom view of the tool with one of the handles in section. Fig. 2 is a top view with parts in section. Fig. 3 is a detail edge view. This figure, like those following, is upon a larger scale than Figs. 1 and 2. Fig. 4 is a section at 4 4, Fig. 1, enlarged. Fig. 5 is a perspective view of the click-gage. Fig. 6 is a perspective view of the spring-toe of the click, and Fig. 7 is a detail perspective showing the bearing of the toe. Figs. 8 and 9 are detail bottom views, showing the die-holding screw in different positions. Fig. 10 is a transverse section at 10 10, Fig. 2, enlarged. Fig. 11 is a transverse section at 11 11, Fig. 2, enlarged. Figs. 12 and 13 are under views of the dies, showing one die of each series or set removed to a distance, Fig. 13 being partly section. Fig. 14 is a detail, partly in section, showing the key in position to turn the holding-screw. Fig. 15 is a view showing the key in position for turning a set of dies in their cavity, the latter being shown partly in section. Fig. 16 is an under side view of the key.

The stock consists of two duplicate parts, each consisting of a plate, A, having a cylindrical cavity, *a*, containing a circular set, B, of dies *b*, fitting the recess. From each plate A extends a screw-threaded shank, C, that passes through a socket, *a'*, in the other plate A and extends beyond the plate. Onto the projecting screw-threaded part *c* screws the handle D. The end of the handles bear against the plates, either with or without an interposed washer, *d*, so that as the handles are turned forward upon the screw-shanks the plates A A are forced nearer to each other, and as the handles are turned outward upon the shanks the plates A are drawn asunder by means of a circumferential groove, *d'*, in the handle, which works on a removable pin, F, traversing the projection A' of the plate A. The projection A' has a recess in which the shank of the handle fits, and to which it is held by a strap, E, which surrounds the projection A' and the handle-shank D'.

The strap E covers the ends of the pin F and holds the pin in its place. The strap E is held in place over the pin F (see Fig. 2) by a spring-pin, G, movable in a transverse pin-hole in the projection A' and forced outward by a spring, *g*, to engage the edge of the strap. When the pin G *g* is pushed inward the strap can be forced back, as shown in Fig. 1 at X, allowing the removal of pin F. The sets B of segmental dies *b* fit the cylindrical cavities in the die-plates so closely that the dies are held together in the relative position shown.

In the center of the series of dies is a bore, *h*, for a screw-bolt, H, which screws into the plate A at the bottom of the cavity *a*. The head H' of the screw occupies a counterbore, *h'*. The head H' has at one end a notch, h^2, allowing, when the screw is turned in the position shown in Fig. 8, the removal of one of the dies, while the screw and the other dies remain in the cavity. When the screw is screwed down fast the notch h^2 does not coincide with either die-block *b*, but is intermediate between two of the dies, and consequently all the dies are held in by the head of the screw. (See Figs. 1 and 9.)

The head of the screw has a hole, *h'*, which may be round, as shown, or may be angular or of other form to fit any peculiarity of key. I use a key, as shown in side view in Figs. 14, 15, and 16, to turn the screw and also to turn the set of dies. The key I is of angular shape. It has a stud, *i*, entering the hole *h'* in the screw-head, and another stud, *i'*, fitting in the notch h^2, so that the turning of the key causes the turning of the screw H.

i^2 is a thumb-pin, whose point may be forced down into the slot *b'* of the die when it is desired to turn the set of dies in the cavity *a*. The pin i^2 is forced down by pressure upon its top i^3.

i^4 is a spiral spring, tending to lift up the pin

i^2 into position shown in Fig. 14. The upward movement of the pin i^2 is limited by a teat, i^5.

i^6 is a drift-pin for pushing out the key-pin F when desired.

At J are shown set-screws whose conical or inclined points engage in holes or dents b^2 made in the periphery of the circular set of dies. The set-screws act not only to prevent the turning of the set of dies in the cavity a, but also act, as they enter the holes b^2, to carry the dies to the exact position required in adjusting them for work.

I will here state that I do not confine myself to the set B, consisting of separate dies, for the whole may be made in a single die-block. I prefer the construction shown, because it allows the renewal of any single die that may be worn out or otherwise injured.

In Fig. 12 are shown dies for working right-hand threads, each die being marked with a number indicating its pitch. In Fig. 13 are shown left-hand dies, (marked L.) One of the dies b is shown distinct from the others in each of these two figures. The lines indicate the divisions between the dies.

Attached to one of the plates A is an adjustable spring-click, whose purpose is to indicate when the two plates A have approached to a given degree of nearness to work a thread on a bolt of a certain diameter. The click has a spring-plate, K, slotted at k for the passage of a thumb-screw, L, by which the spring-plate is attached to the edge of one of the plates A. At the free end of the plate K are lugs k', giving bearing to a turn-pin, M, carrying a toe, N, that is held by a spiral spring, O, in the position shown in Figs. 2 and 5. Under the influence of the spring O the toe is turned until it comes in contact with the stud P. The click, as stated, is adjustably attached to one of the plates A. Its toe extends over the edge of the other plate, and laps over the upper face of the plate, where is a stud, Q, against which the inclined side n of the toe impinges as the plates A approach each other. Then on the continued approach of the plates the toe slides outward on the stud and springs outward the free end of the plate K until the point of the toe passes the stud, when the free end of the click-plate flies inward against the plate A, and indicates the relative position of the plates A by the sound. As the plates A are again moved asunder the straight side n' of the toe comes in contact with the stud, and the toe turns out on the pin M as an axis without necessarily flexing the spring K.

The operation of the tool is as follows: The proper dies for the work being in position, the tool is used like any common die-plate to form the thread. The dies are made to approach each other by screwing up the two handles upon the screw-shanks. When it is desired to lock the die-plates A in any given relative position it may be done by turning one handle inward and the other outward, thus jamming the handles fast upon the shanks. When a number of bolts are to be finished to an exactly uniform size the click is adjusted so as to sound on the die-plates reaching a certain distance from each other.

I claim as my invention—

1. The combination of holders A A, having projections A′ A′ and cylindrical cavities a a, dies within said cavities, screw-threaded shanks C C, extending from the holders, sockets a' a' in said projections, and handles D D, having shanks D′ D′, as set forth.

2. The combination of holder A, having die-cavity a, sectional die B, and central holding and securing screw H, as set forth.

3. The combination, with the die-holders adjustably connected together by screw-threaded shanks C, working in sockets a', of the handles screwed on the shanks and held to the die-holders by the key-pins F, substantially as described.

4. The combination, with the handle D, screw-threaded shank C, and projection A′ of the die-holder, of the key-pin F and the strap E, to hold the parts together, as set forth.

5. The combination, with the two die-holders, of the click adjustably attached to one holder and having spring-toe N, working on a stud, Q, of the other holder, substantially as set forth.

6. The combination, with a set of dies, B, fitting in a holder, A, of the central retaining-screw, H, with notch h', allowing the removal of any one of the dies b, substantially as set forth.

7. The combination, with the projecting portion A′ of the die-holder A, of the shank D′ of handle D, circumferentially grooved to receive a key-pin, F, the retaining slip-strap E, and the retaining spring-pin G, substantially as set forth.

JOHN GASSMANN.

Witnesses:
JOSEPH KOEHLER,
J. W. LIMBAUGH.