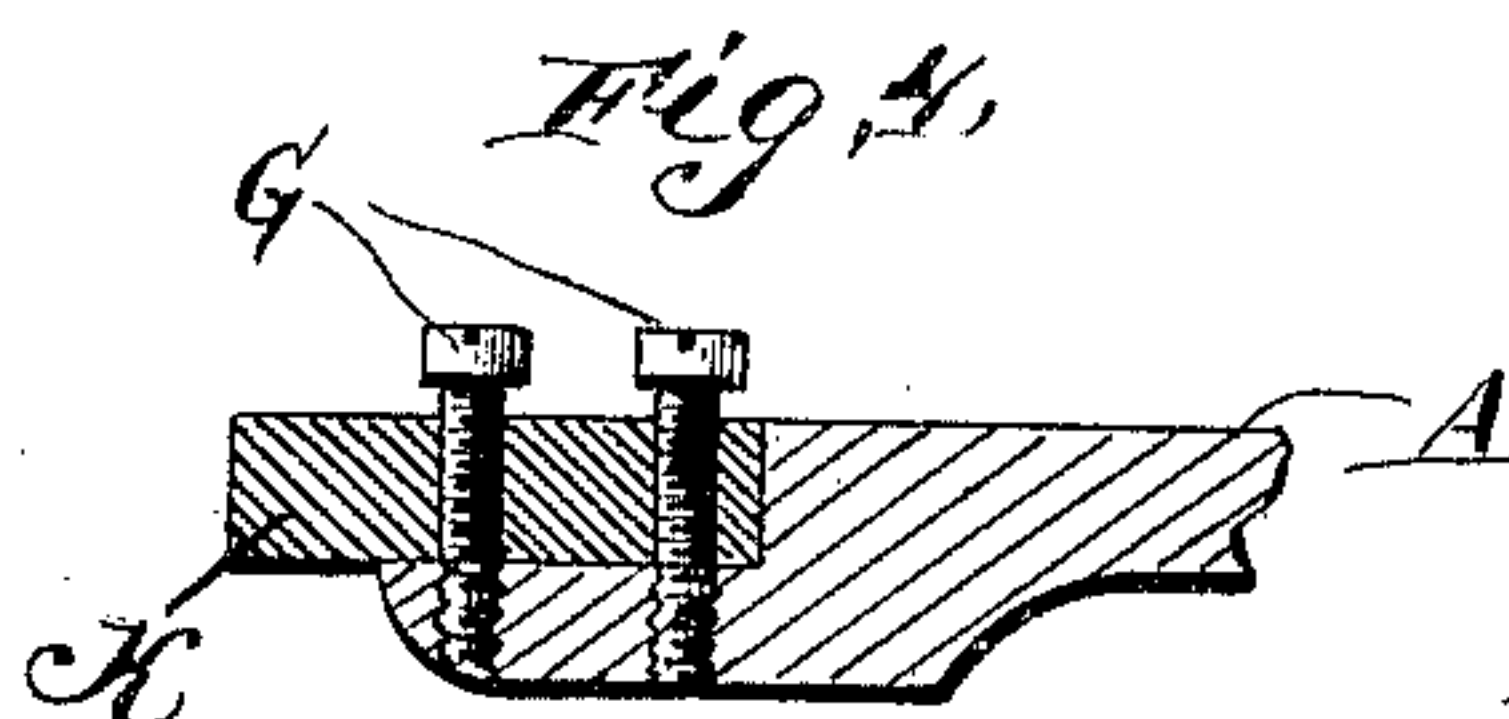
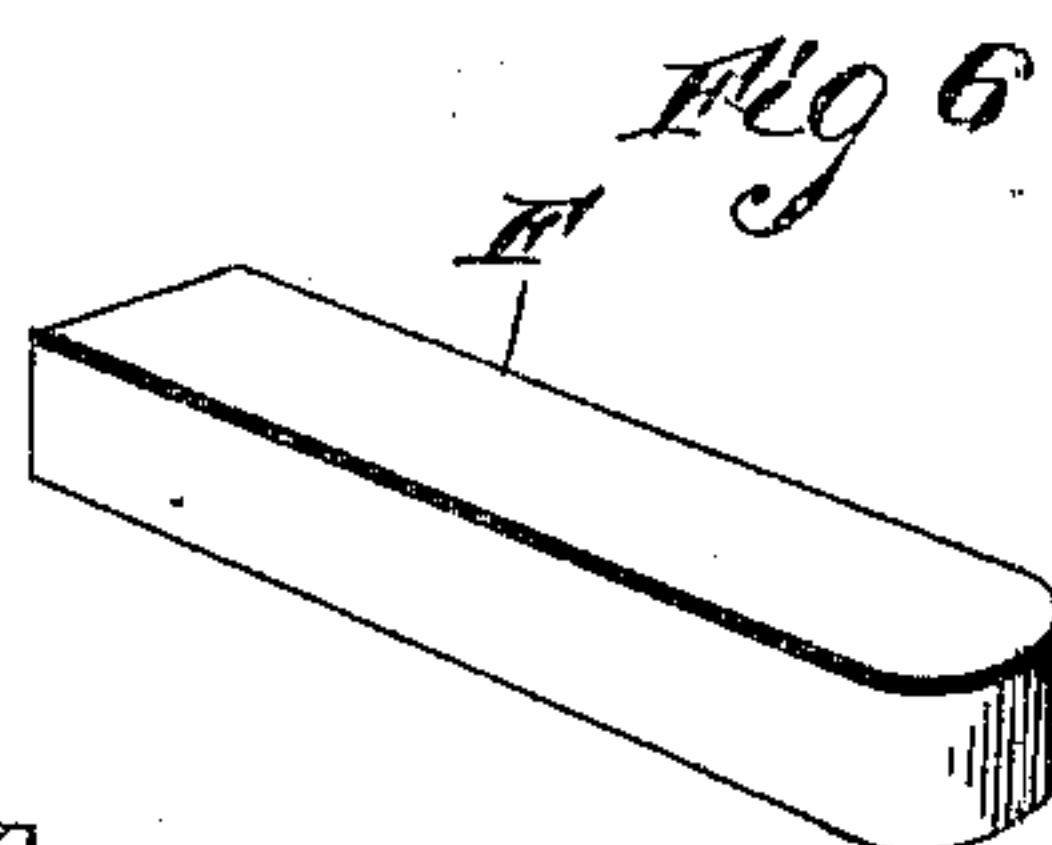
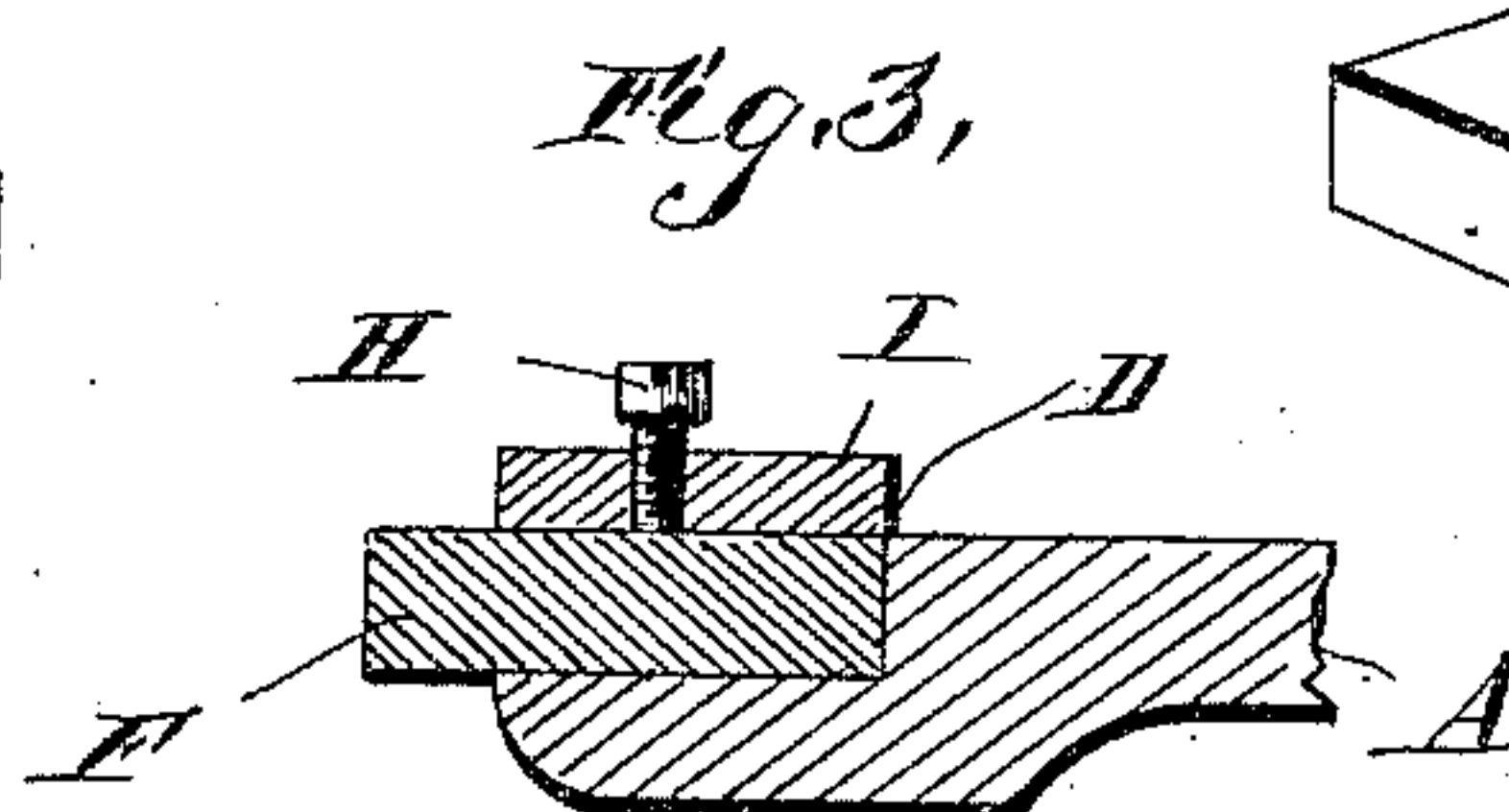
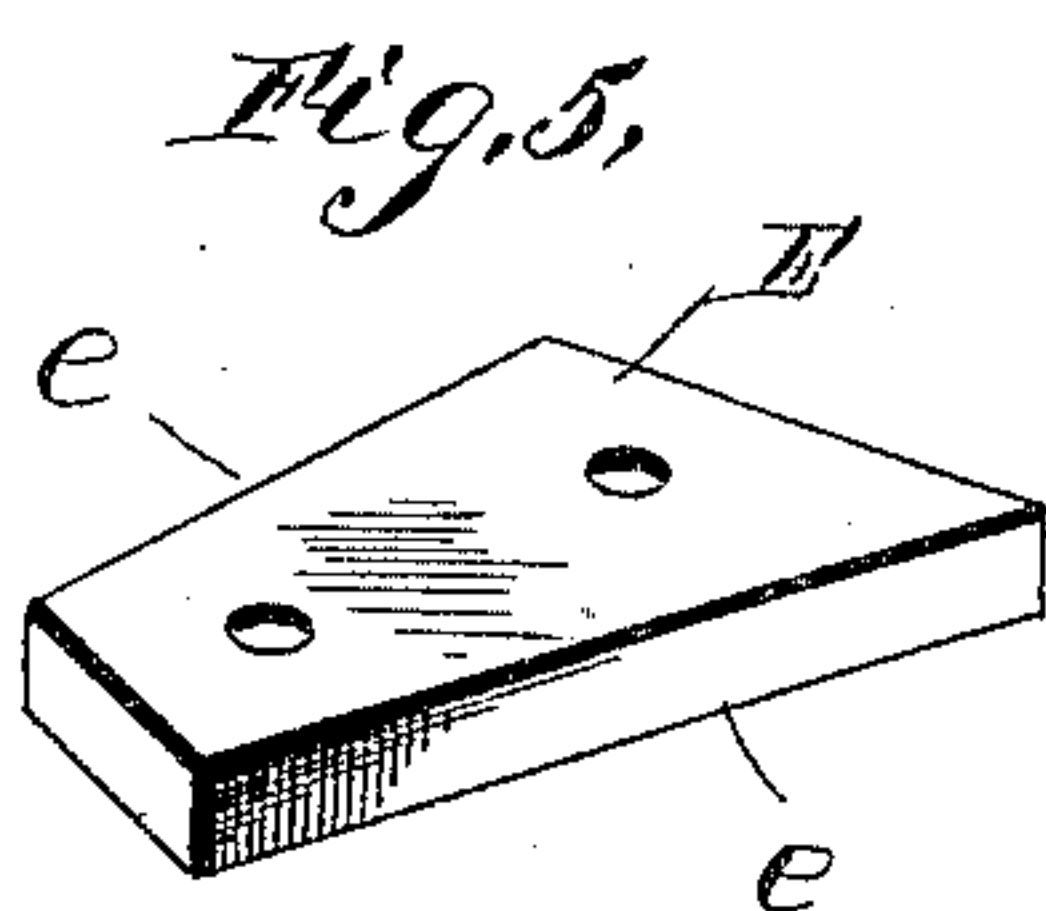
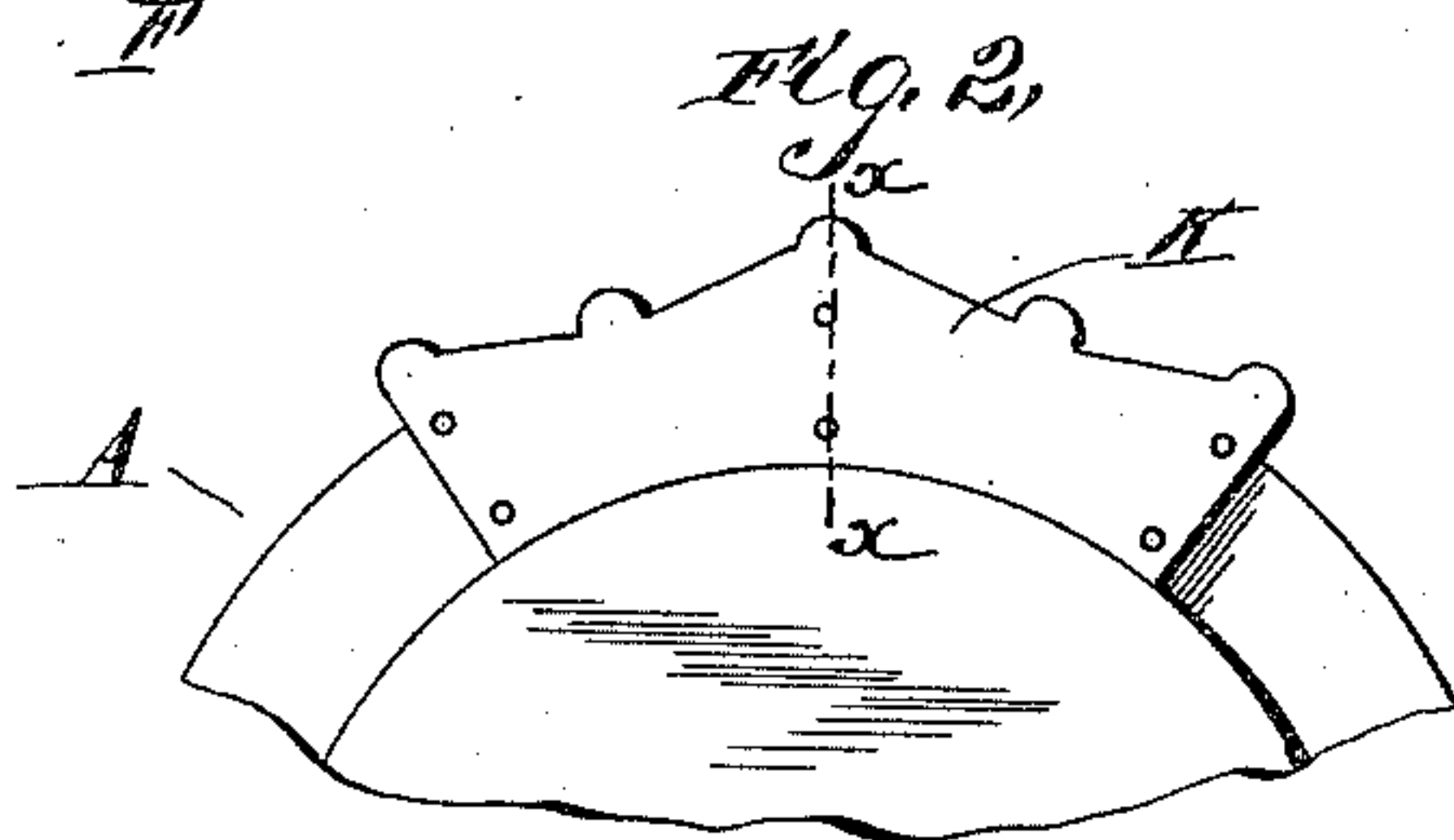
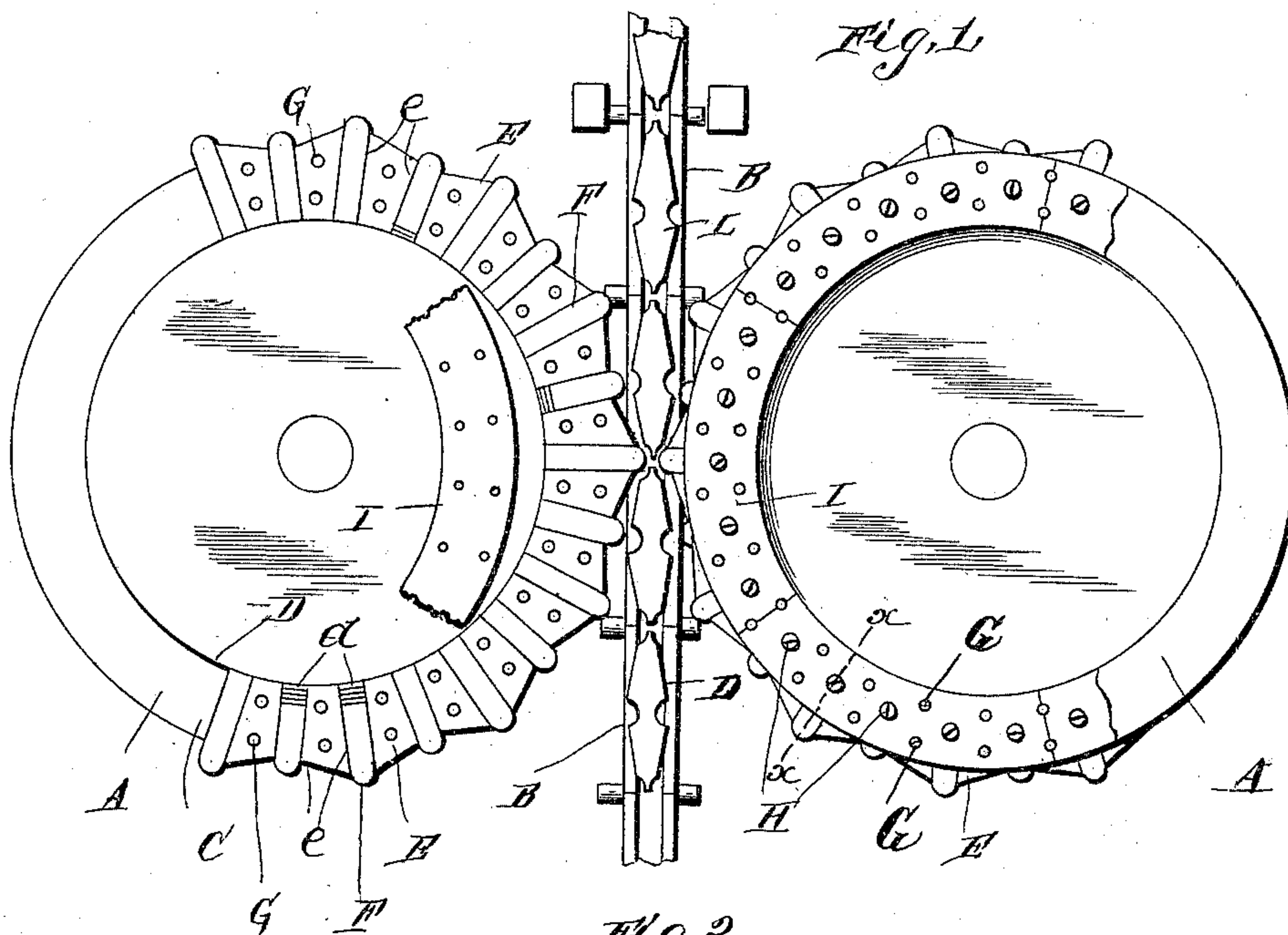


(No Model.)

M. M. SHELLABERGER.
DIE BEARING DISK.

No. 409,309.

Patented Aug. 20, 1889.



WITNESSES
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UNITED STATES PATENT OFFICE.

MICHAEL M. SHELLABERGER, OF BEAVER FALLS, PENNSYLVANIA.

DIE-BEARING DISK.

SPECIFICATION forming part of Letters Patent No. 409,309, dated August 20, 1889.

Application filed June 24, 1889. Serial No. 315,340. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL M. SHELLABERGER, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Die-Bearing Disks; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in dies for crimper-disks such as are employed in fence-picket-crimping machines and other machines of a like character, and it has special relation to crimper-disks such as are employed in a recent application of mine, Serial No. 313,974, filed June 12, 1889; and it has for its object to provide means whereby the wear of the dies may be compensated for by successive adjustments thereof, thus obviating the inconvenience and expense of continually replacing the disks.

In my improved die-bearing disks the dies are formed independent of the disk, and are attached thereto by means which enable them to be adjusted or replaced at will to compensate for wear.

In the drawings forming a part of this application, my improvement is illustrated in connection with the mechanism described in my said prior application, Figure 1 being a top plan view, partly in section, of two opposing disks embodying my improvements, arranged on opposite sides of an intermediate die-carrier provided with female dies to mesh with the male dies of the disks; Fig. 2, a similar view of a slightly-modified form of the dies; Fig. 3, a transverse sectional view of the disk on the line $x x$ of Fig. 1; Fig. 4, a similar view on the line $x x$ of Fig. 2; Fig. 5, a detail perspective view of one of the block-dies, and Fig. 6 a similar view of one of the male dies.

The die-bearing disks A A, which are shown arranged on opposite sides of the die-carrier B, are provided at their peripheries with annular or peripheral recesses or seats C, having abrupt annular shoulders D at their inner

edges. In these seats or recesses are fitted removable block-dies E E, as shown in Figs. 1 and 3, the same having plain inclined faces e , as shown in the drawings, or irregular faces, according to the design of the picket which they are designed to form, and in the intervals between said block-dies are arranged the projecting male dies F F, having rounded or abrupt ends, as preferred. The male dies project beyond the outer faces of the block-dies, and they are parallel-sided, as shown, whereas the block-dies are provided with convergent sides, which coincide with radii of the disks. The dies bear at their rear or inner ends against the shoulder D, or against washers $d d$, as shown in Fig. 1, which are interposed between their rear or inner ends and the shoulder, said washers being applied as the outer ends of the male dies wear and are refaced or reground. The block-dies are secured rigidly in place on the disk by means of bolts or screws G, which are engaged in registering perforations in the disk and dies, and the male dies are locked in place by means of small set-screws H H, which are mounted in a covering-plate I, and bear at their lower ends on the said dies. This covering-plate is placed on the upper sides of the block and male dies and bears evenly thereon, and is secured firmly to the block-dies by the screws or bolts G, which also extend through registering perforations therein. In Fig. 1 the covering-plate of one of the disks is shown removed, as when the dies are being adjusted or removed.

In the modified form which is shown in Figs. 2 and 4 the block-dies and male dies are formed integral with each other, and the die-plate K, which embraces the said dies, is secured in the peripheral recess or seat in the disk by means of bolts or screws G G, as above described.

The female dies L are carried by the die-carrier B, and obviously must conform accurately to the dies on the die-bearing disks, from which they are separated a distance sufficient to allow a wire or rod of the desired thickness for the proposed picket to pass between their opposing faces, and thereby receive the impression of the dies.

The material of which the block-dies are

formed is or may be cast-iron, as the wear thereon is slight; but the male dies must be of highly-tempered steel in order to withstand for any length of time the great wear thereon, and when the same become worn so that they do not properly fit the female dies on the die-carrier they should be reground and then adjusted outward the proper distance to compensate for the reduction in their length by the wearing and grinding, washers *d d* being introduced between the inner ends and the shoulder D to hold them at the desired adjustment.

It will be observed that the strain on the dies is directly inward toward the center of the disk, or in alignment with the radii of the latter, and therefore I have found the set-screws H H amply sufficient to retain the male dies in position.

From the above it will be seen that the greater portion of the length of the dies may be utilized before it is necessary to replace them, thus materially reducing the expense of machines employing disks of this character.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination, with a disk provided with a peripheral shoulder and carrying a removable plate provided with threaded perforations, of the independent dies bearing at their ends against the shoulder of the disk, and set-screws mounted in the perforations of the said plate and engaging said dies, substantially as specified.

2. The combination, with a disk bearing

stationary block-dies arranged at intervals to form spaces having parallel sides, of the parallel-sided male dies fitting in said spaces and engaged by set-screws, substantially as specified.

3. The combination, with a disk provided with a peripheral seat or recess and a peripheral shoulder adjacent thereto, of alternate block-dies having convergent sides, and male dies having parallel sides fitting in said seat or recess and bearing at their inner ends against said shoulder, substantially as specified.

4. The combination, with die-bearing disks provided with peripheral seats or recesses, of the block-dies fitting in said seats or recesses and secured by screws or bolts G, the male dies fitting between the block-dies, the covering-plate arranged on the upper sides of the block and male dies and secured in place by the bolts or screws G, and the set-screws mounted in the said plate and engaging the male dies, substantially as specified.

5. The combination, with a die-bearing disk, of the block-dies fitting in a peripheral seat or recess therein, the adjustable male dies fitting between said block-dies, and the covering-plate secured to the block-dies and carrying set-screws to engage and lock the male dies in position, substantially as specified.

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

MICHAEL M. SHELLABERGER.

Witnesses:

J. F. MERRIMAN,

WILLIAM C. GALTON.