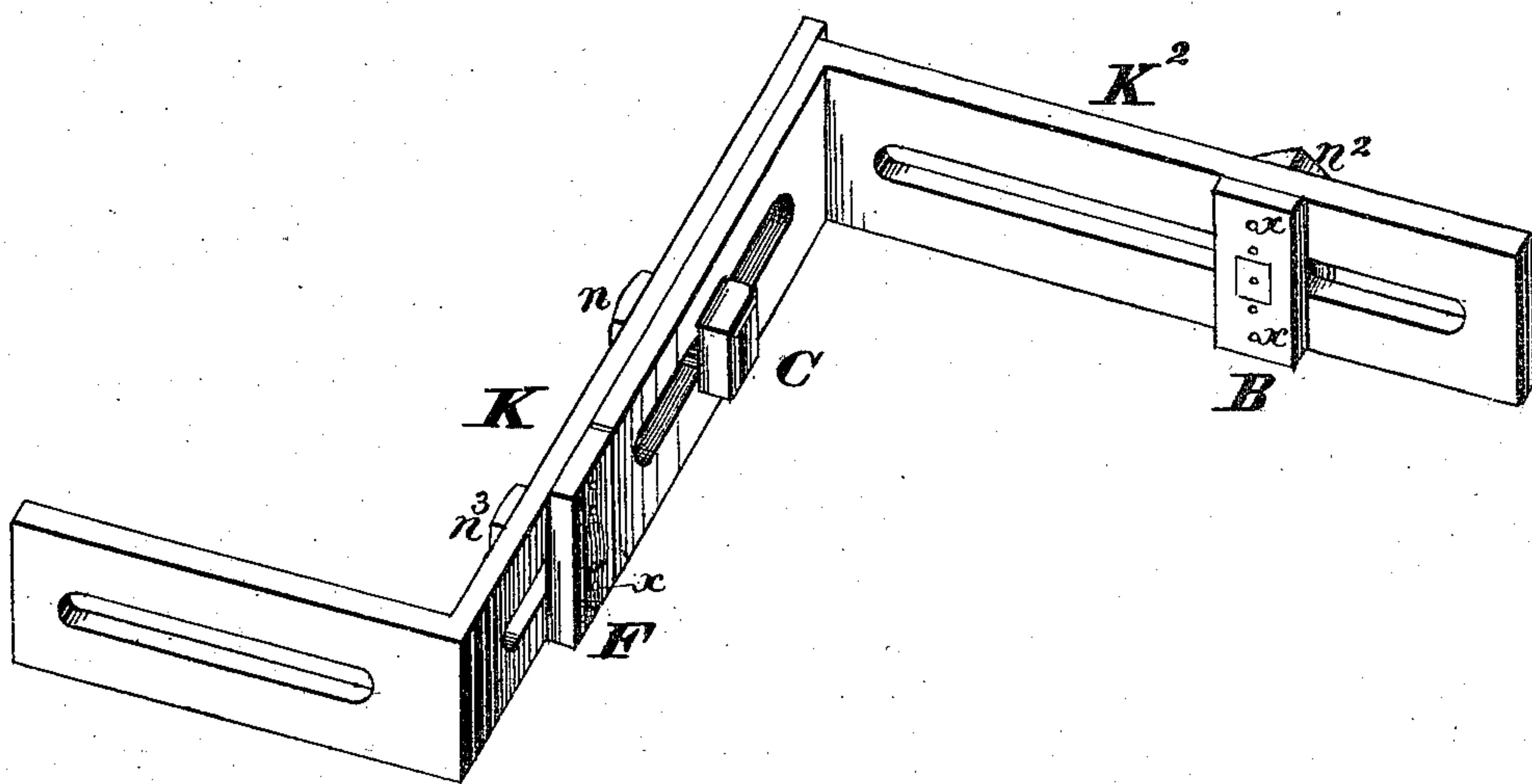


2 Sheets--Sheet 1.
G. W. METCALF & H. W. REGAN.
Drilling-Jacks.

No. 154,506.

Patented Aug. 25, 1874.

FIG. 1.



WITNESSES

*Jas L. Ewin
Walter Allen*

INVENTORS.

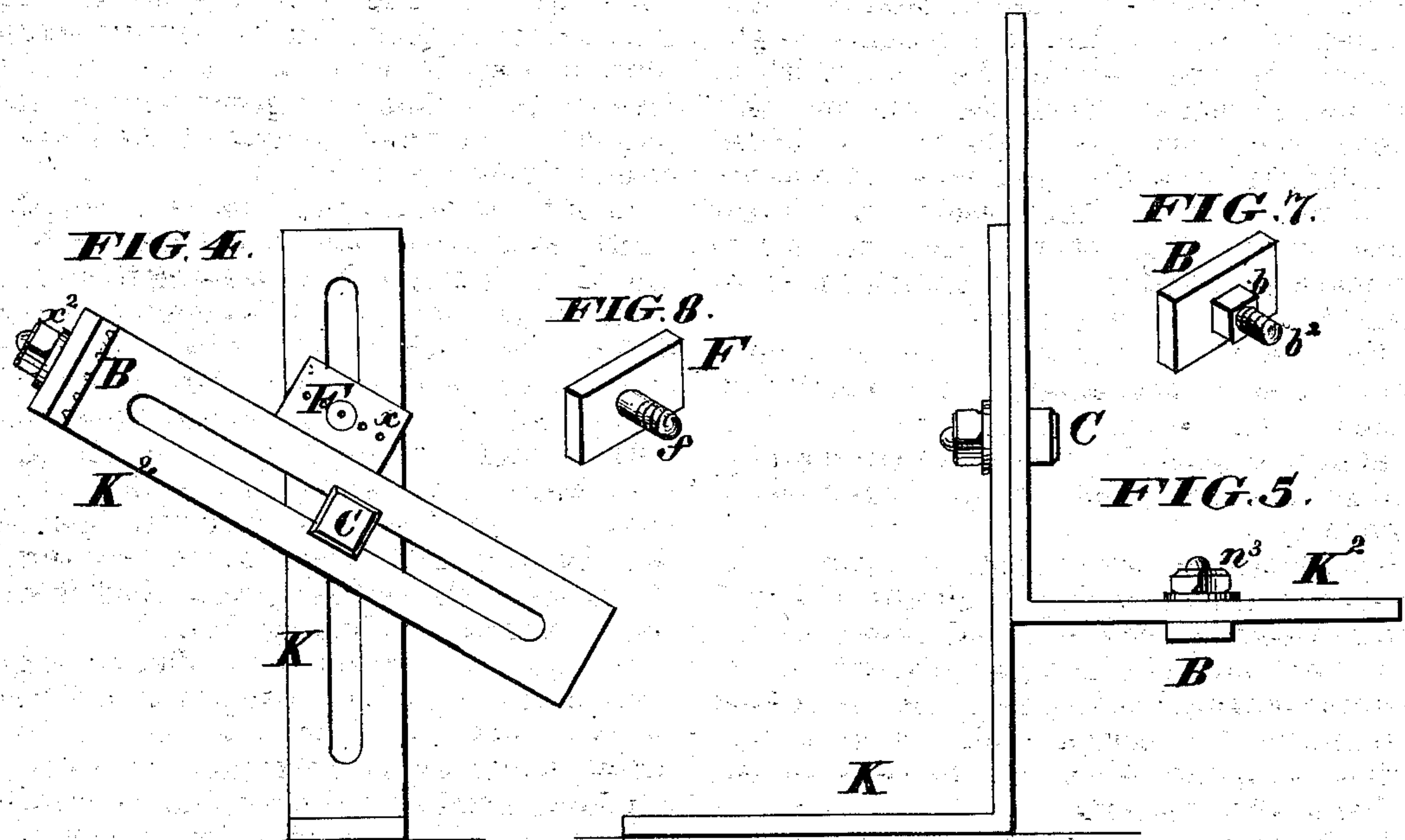
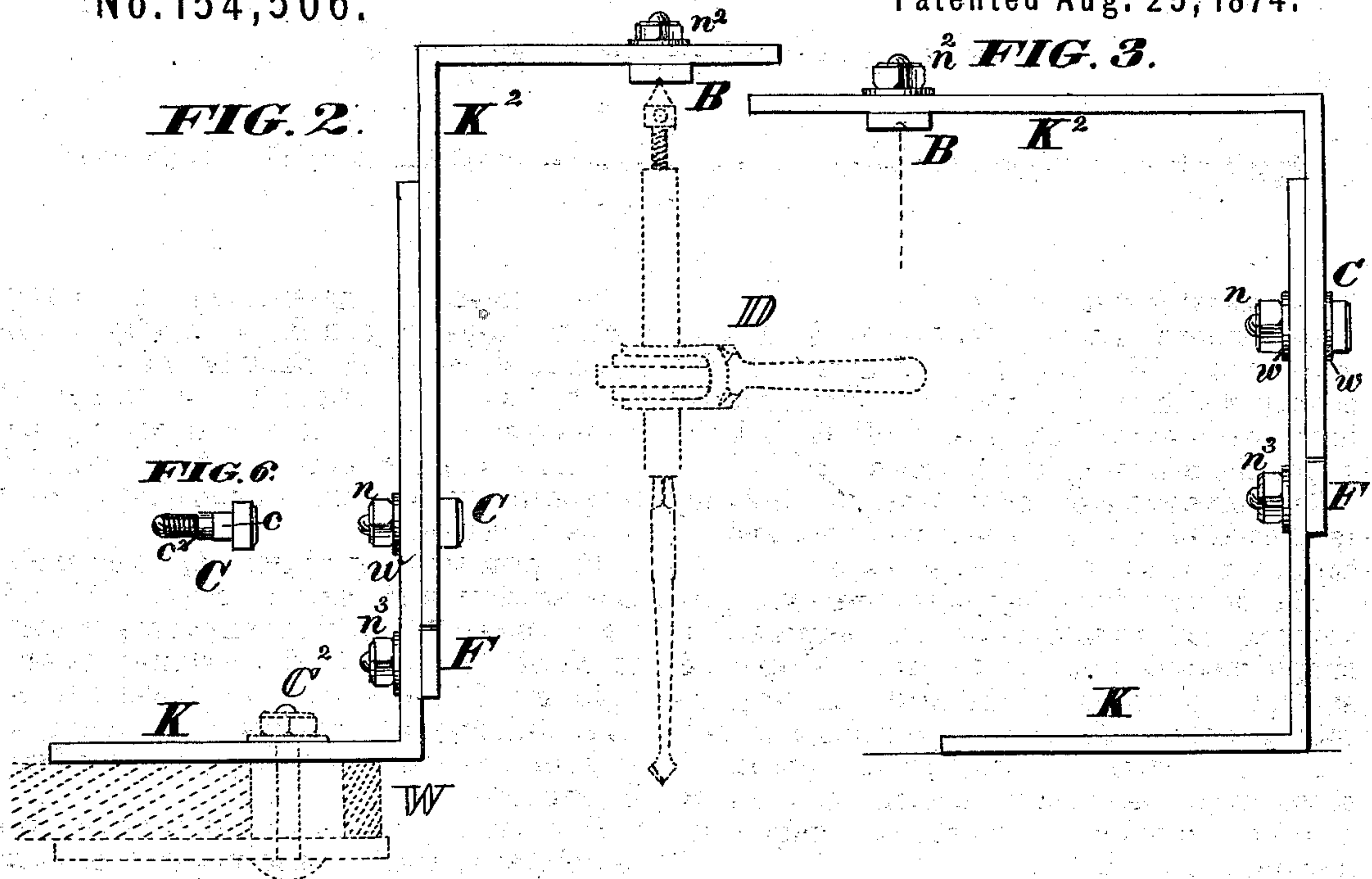
*George W. Metcalf
Henry W. Regan.
By Knights Bros Attorneys*

G. W. METCALF & H. W. REGAN.

Drilling-Jacks.

No. 154,506.

Patented Aug. 25, 1874.



WITNESSES

Gas L. Ewin
Walter Allen

INVENTORS.

George W. Metcalf
Henry W. Regan
By Knight Bros Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. METCALF AND HENRY W. REGAN, OF RENOVO, PENNSYLVANIA.

IMPROVEMENT IN DRILLING-JACKS.

Specification forming part of Letters Patent No. 154,506, dated August 25, 1874; application filed August 3, 1874.

To all whom it may concern:

Be it known that we, GEORGE W. METCALF and HENRY W. REGAN, of Renovo, in the county of Clinton and State of Pennsylvania, have invented an Improved Drilling-Jack, of which the following is a specification:

This invention relates to means for applying ratchet-drills in the various positions and locations in which they must be used.

The device which has been employed previous to our invention for this purpose is a simple metallic knee, of the proper shape and size for a given use of the drill. In large establishments, such as the repair-shops of rail-ways, for instance, a very great number of these knees have been required in order to provide the different lengths and angles demanded.

The common practice has been, when a slight variation of the knee or jack has been wanted, in order to drill at a peculiar angle, to have the knee bent by the blacksmith to the desired shape. Then the next time this knee is called into use, if the hole be drilled in a different line, the knee must necessarily be altered again. This results in a great waste of time and labor, besides the inconvenience of selecting and changing knees or jacks for every drilling operation.

The present invention consists in a compound knee or jack, adapted to be readily adjusted to any required length or shape, so as to apply a ratchet-drill in any desired position, and so as to drill a hole at any given angle or inclination.

The improved jack consists of a pair of angle-bars or knees, having longitudinal slots in their respective members, and united by one or more clamp-bolts, and provided with an adjustable bearing-block or step, with or without a supplemental bearing-block or step, to constitute a fastener when not otherwise in use, as hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view of this improved drilling-jack in horizontal position. Fig. 2 is a side elevation of the same differently adjusted, illustrating by dotted lines one mode of attaching the jack, and the application of a ratchet-drill thereby. Fig. 3 is a side view, representing the jack at another adjustment. Fig. 4 is

a front elevation, representing the improved jack as adjusted to drill at an angle. Fig. 5 is a side elevation, illustrating another adjustment of the jack. Fig. 6 is an elevation of the clamp-screw. Fig. 7 is a perspective view of the main bearing-block or step. Fig. 8 is a perspective view of the supplemental bearing-block or fastener.

The primary parts of this improved drilling-jack are two angle-bars or knees, $K K^2$, of flat iron or steel, of sufficient thickness or section to resist bending by the ordinary strain of drilling. These knees are preferably of L form, and may be identical in size and shape, as in the illustration, or they may be different, if preferred.

In order to provide for uniting these knees in different positions or forms, and for attaching the jack to the work or to any convenient fixed object, W , Fig. 2, in an adjustable manner, and for attaching and adjusting a bearing-block or step, B , each member of each of the knees $K K^2$ is slotted longitudinally in planes parallel to the sides or edges of the knees, as clearly illustrated in Fig. 1.

In order to adjust the jack as to length or width, as the case may be, the knees $K K^2$ are united by a clamp-bolt, C , passing through the longitudinal slots in two adjoining members of the knees, and provided with a nut, n , and one or more washers, w , as illustrated. The clamp-bolt C is, by preference, constructed with a short square, c , on its shank, and a cylindrical shank-section, c^2 , beyond this, as shown in Fig. 6, so as to facilitate operating the clamping-nut without preventing turning the knees on the bolt as a pivot, which is sometimes required, as illustrated in Fig. 4.

In order to drill holes at different angles, the square c on the bolt-shank extends through but one thickness of the knees, and the cylindrical shank-section c^2 occupies the slot in the adjoining member. The jack may be attached and securely held by an ordinary clamp, C^2 , such as shown in dotted lines in Fig. 2, the same passing through the slot in that member, which is, for the time being, the base of the jack, as in the illustration; or the jack may be attached so as to depend as a hanger, or otherwise, as may be required, or as the location may necessitate; or in some locations

any fastening of the jack may be dispensed with.

The bearing-block B, Fig. 7, is constructed with a square boss, *b*, from which its screw-stem *b*² projects. The square boss is adapted to occupy the slot in the member to which the bearing-block is applied, so as to preclude turning, while the screw-stem *b*² receives a clamping-nut, *n*², with one or more washers on the opposite side of the member.

To provide for more securely holding the outer knee in different positions than by the clamp-bolt alone, and at the same time to provide a bearing-block or step which can be used for drilling in some directions—horizontally, for instance—a supplemental bearing-block or fastener, F, Fig. 8, is employed, by preference, the same being furnished with a stud-screw or cylindrical screw-stem, *f*. This is applied in the slot of the fixed or supporting member, through which the clamp-bolt C passes, as illustrated in Figs. 1 to 4, and admits of being fixed by means of its nut *n*³ in position, or at any angle relatively to the lines of the adjoining members. It may engage with the end of the outer knee, as illustrated in Figs. 1, 2, and 3, or with one edge of the same, as illustrated in Fig. 4, and may be dispensed with in some cases, as illustrated in Fig. 5. The bearing-blocks are adjustable, each in one line, in the longitudinal slots through which their stems pass. To provide another adjustment for the drill D without loosening the jack, each bearing-block is constructed with a plurality of countersunk centers, *x*, arranged in a line transverse to the knee in the case of the main bearing-block B.

The drill D may be of any approved pattern, and forms no part of the present invention. The drilling-jack is designed to be used with any ordinary metal-working ratchet-drill, and with drills of various lengths.

To use the jack, the knees K K² are adjusted relatively to each other, as required, and fixed in this position by means of the clamp-bolt C, with or without the fastener F. The bearing-block B is then fixed in the proper position on the outer knee K, and one or more of the countersunk centers *x* is used as the bearing or step for the drill D. The drill proper is then adjusted and operated in usual manner.

The following is claimed as new in this invention, namely:

1. A drilling-jack composed of a pair of slotted angle-bars or knees, K K², united in variable form by means of a clamp-bolt, C, and provided with an adjustable bearing-block or step, B, substantially as herein shown and described, for the purpose set forth.

2. The combination of the knees K K², having longitudinal slots in their respective members, the clamp-bolt C, having a stem with square and cylindrical portions *c* *c*², and the fastener F, having a cylindrical screw-stem, *f*, substantially as herein shown and described, to provide for joining and securing the outer knee at different angles relatively to the other knee, in the manner herein set forth.

GEO. W. METCALF.

HENRY W. REGAN.

Witnesses:

BENJ. F. ROMBERGER,
W. J. PARSONS.