

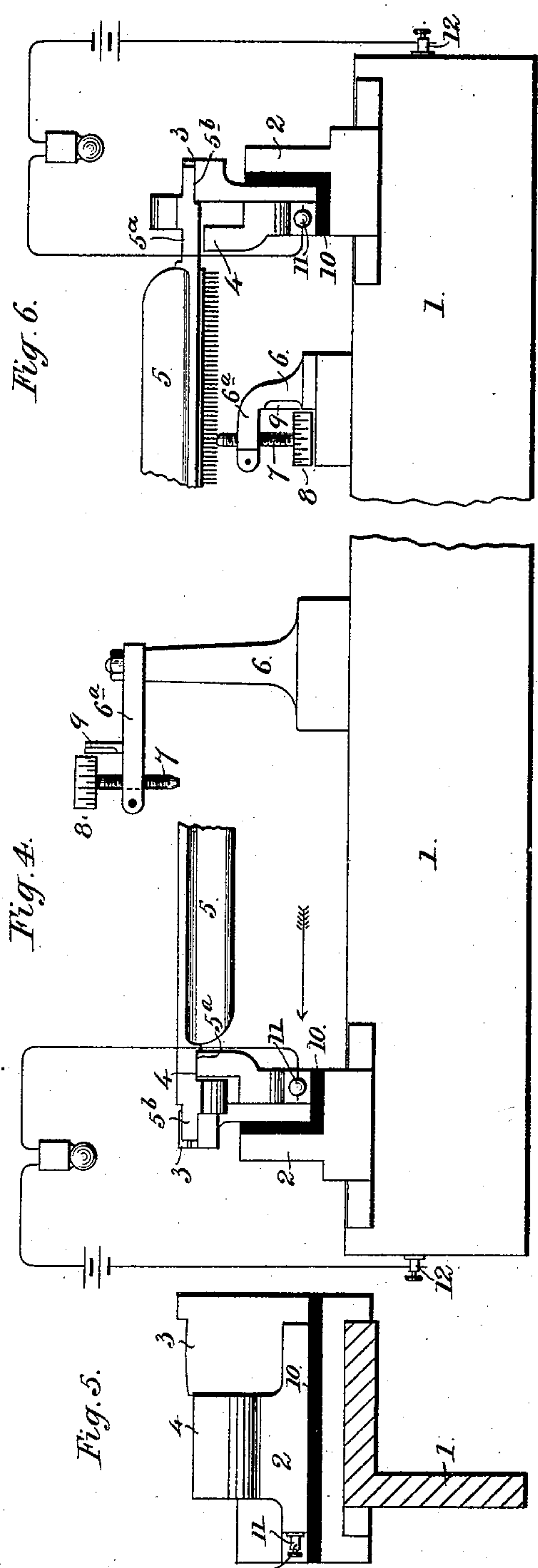
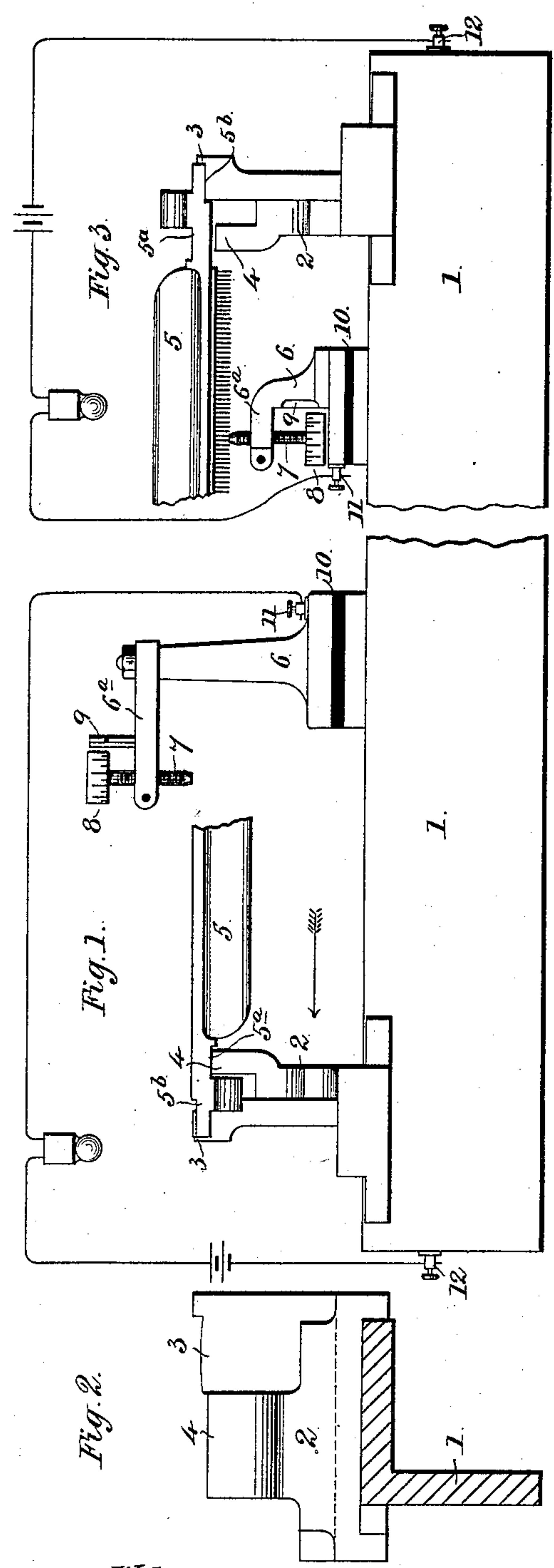
(No Model.)

E. TWEEDALE.

ELECTRIC TESTING DEVICE FOR CARD FLATS.

No. 390,101.

Patented Sept. 25, 1888.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

EDMUND TWEEDALE, OF ACCRINGTON, COUNTY OF LANCASTER, ENGLAND,  
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## ELECTRIC TESTING DEVICE FOR CARD-FLATS.

SPECIFICATION forming part of Letters Patent No. 390,101, dated September 25, 1888.

Application filed May 23, 1888. Serial No. 275,370. (No model.) Patented in England January 22, 1886, No. 984.

*To all whom it may concern:*

Be it known that I, EDMUND TWEEDALE, a subject of Her Majesty the Queen of Great Britain, residing at Accrington, in the county of Lancaster, England, have invented new and useful Improvements in Apparatus for Testing Card-Flats, (for which I have obtained a patent in Great Britain, No. 984, bearing date January 22, 1886,) of which the following is a specification.

My invention relates to apparatus or means for testing the correctness or accuracy of the card-flats employed in carding-engines, it being well known that upon this accuracy the result obtained largely depends.

To this end, briefly, it consists in providing upon a suitable platform or table a pair of standards, upon which is laid the card-flat to be tested. Each of these standards has two bearing-surfaces for the end of the flat, one corresponding to the bearing-surface of the "bends" or side frame of the carding-engine on which the flats travel when working and the other corresponding to the "grinding-bracket" on which the card flats are held while the cards are being ground; or in place of these a standard having a single bearing-surface may be employed. In connection with these are employed blocks movable on said platform carrying micrometer-screws, which can be set to test or "feel" for inequalities on the surface of the flat or over the teeth of the cards, contact or absence of contact being indicated by an electric bell or by similar means.

To clearly explain the nature of my invention reference is made to the accompanying drawings, in which—

Figure 1 shows a portion of the platform or table, one of the standards, a part of a flat, a movable insulated block for testing it while in the position shown, and electrical connections. Fig. 2 is an end view of the standard on Fig. 1, looking in the direction of the arrow, the platform being in section. Fig. 3 is a view of the opposite end of a platform, a standard, a portion of a clothed flat in a different position, a movable insulated testing-block, and electrical connections. Fig. 4 is a similar view to Fig. 1, showing a different method of insulating the parts. Fig. 5 is an end view of the

standard in Fig. 4, looking in the direction of the arrow, the platform being in section. Fig. 6 is a similar view to Fig. 3, showing a different method of insulating the parts.

Upon the platform or table 1, which has a perfectly true surface, is mounted at each end a standard, 2. These receive the ends of the flat 5 to be tested, and are capable of a sliding movement for the necessary adjustment to flats of various lengths.

In the drawings only one standard and one end of the platform are shown in each case; but it will be understood the other end corresponds to it. Each standard has two resting or bearing surfaces, 3 and 4, for the ends of the flat 5, the surface 3 being the exact counterpart of the bearing-surface of the bends on which the flats 5 are received when in working position on the carding-engine, the other surface, 4, being the equivalent of the grinding-bracket on which the card-flats are held while the cards are being ground.

Upon the platform or table 1 is a movable block, 6, carrying at right angles thereto an arm, 6<sup>a</sup>. The under surface of this block is perfectly true with the surface of the table, and it can be moved about on it in any direction. The arm 6<sup>a</sup> carries a micrometer-screw, 7, having an index-head, 8, the divisions on which may be read off by means of the index-finger 9, so that an exceedingly fine setting may be obtained.

The block 6 may be electrically insulated at the point 10 from the platform or table 1, and above this point may have a binding-screw, 11, to which can be connected the terminal of a wire having in circuit an electric battery and bell, (or a galvanometer or other indicating apparatus,) the other terminal being secured to the binding-screw 12 on the platform or table 1.

When it is desired to test the unclothed surface of a card-flat, as shown in Fig. 1, the flat is placed upside down on the surfaces 4 of the standards 2 and the block 6 is moved about on the platform or table, so that as the point of the screw 7 passes over the surface of the flat inequalities on the surface will be detected by the sense of sight or touch. The flat, after being so tested, will, if untrue, be corrected at



the points 5<sup>a</sup>, so as to bring its level to a predetermined standard indicated by the dial 8 of the screw 7, or it may have to be thrown out as useless.

5 As a convenient means of indicating contact with the micrometer-screw, I employ the electric bell shown to signal same; but it is not absolutely essential to my invention. It will be seen that by reason of the insulating strip  
10 the circuit is not completed and the bell rung until the point of the screw 7 touches the flat.

When it is desired to test a card-flat after clothing and grinding, the flat is placed with  
15 the teeth of the cards downward, as shown in Fig. 2, its ends being upon the surfaces 3 of the blocks 2. In this case the movable block 6 which I employ is somewhat shorter and has the screw 7 in the reverse position to the  
20 other—that is, pointing upward. It has the same index-head, 8, an edge, 9, on the block taking the place of the index finger 9. The block is similarly moved about on the platform or table 1, so that by the sense of touch  
25 or sight it can be told if the end of the screw makes or fails to make contact with the teeth of the card, or if the electrical connections are made as shown the making of contact will be announced by the bell. If the flat is found  
30 not to be level or to be otherwise untrue, it may be corrected at the points 5<sup>b</sup> or be thrown out.

In Figs. 4 and 6 the same arrangements are shown as in Figs. 1 and 2 and need not be again described, the only difference being that  
35 in place of insulating the block 6, I insulate the standard 2 at the point 10, and above this point place the binding-screw 11 for the wire terminal, this arrangement being slightly more convenient, as obviating the necessity of moving the wire with the block 6.  
40

In place of having the two bearing-surfaces 3 and 4 on each standard 2, a standard having one alone may be used, in which case the flat would be tested by either pattern of movable block shown, both when clothed and unclothed while in the same position, which  
45 may be either of those shown in the drawings,

the screw of the block determined upon feeling both for the points of the teeth and when screwed farther up or down, as the case may  
50 be, for the surface of the flat itself; but the arrangement shown has the advantage of greater accuracy.

What I claim, and desire to secure by Letters Patent, is—

1. In an apparatus for testing card-flats, the combination, with a platform or table carrying a pair of standards or supports, each having two separate bearing-surfaces, of a movable block carrying an index-screw, substantially as described, and for the purpose set forth. 55

2. In an apparatus for testing card-flats, the combination, with a platform or table carrying a pair of standards or supports, each having two separate bearing-surfaces, of a movable insulated block carrying a screw adapted to close an electric circuit between said block and the card-flat when the latter is in position, substantially as described, and for the purpose set forth. 65 70

3. In an apparatus for testing card-flats, the combination, with a platform or table carrying a pair of insulated standards or supports, each having two separate bearing-surfaces, of a movable insulated block carrying a screw adapted to close an electric circuit between said block and the card-flat when the latter is in position, substantially as described, and for the purpose set forth. 75 80

4. In an apparatus for testing card flats, the combination, with a platform or table having a pair of bearing-blocks for a card-flat, of a movable block carrying a contact-making screw, substantially as described, and for the purpose set forth. 85

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EDMUND TWEEDALE.

Witnesses:

ARTHUR C. HALL,  
ALBERT E. HALL.