

(No Model.)

3 Sheets—Sheet 1.

J. STANLEY.

BRIDLE BIT DIE AND THE METHOD OF MAKING BRIDLE BITS.

No. 382,276.

Patented May 1, 1888.

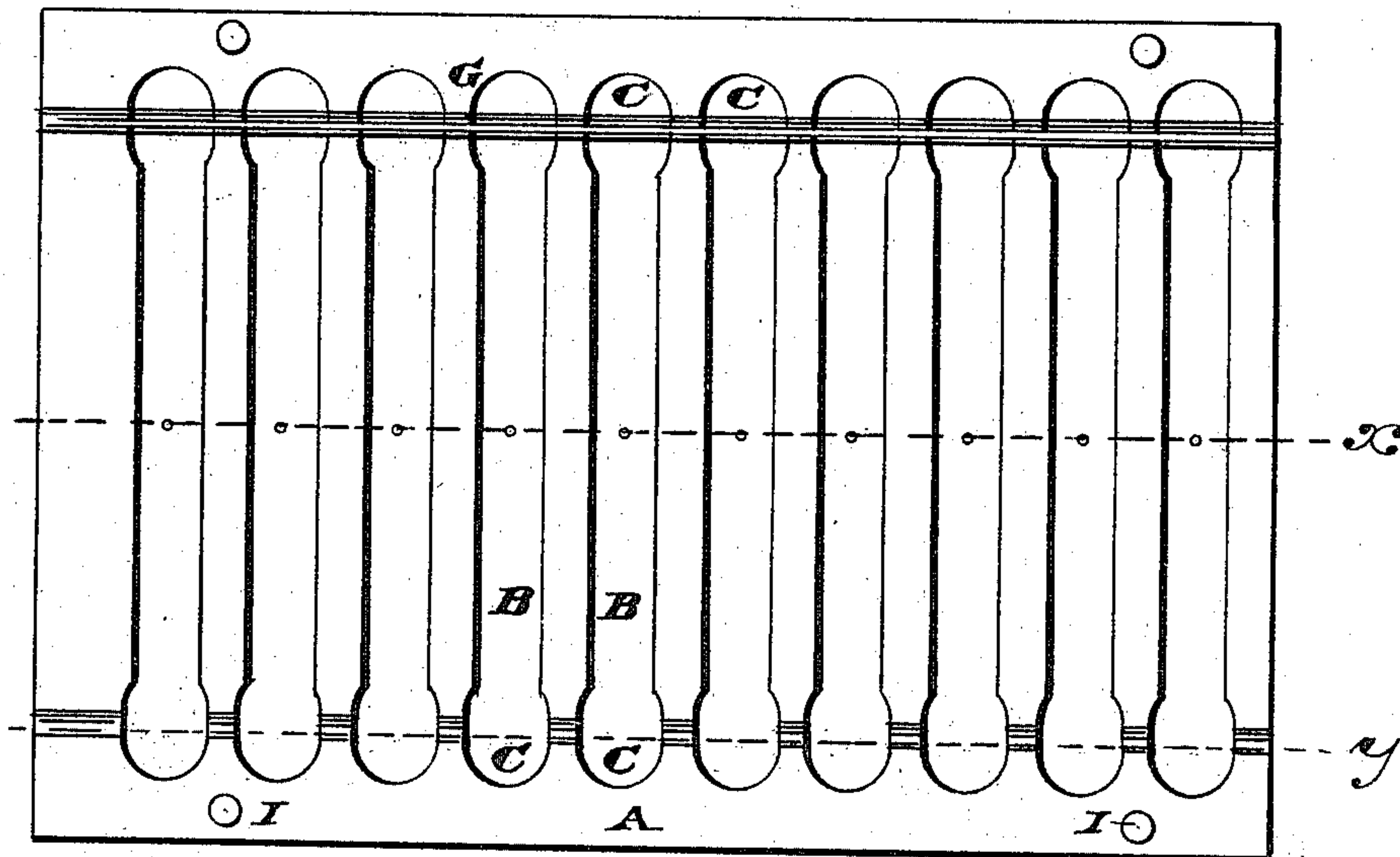


Fig. 1.

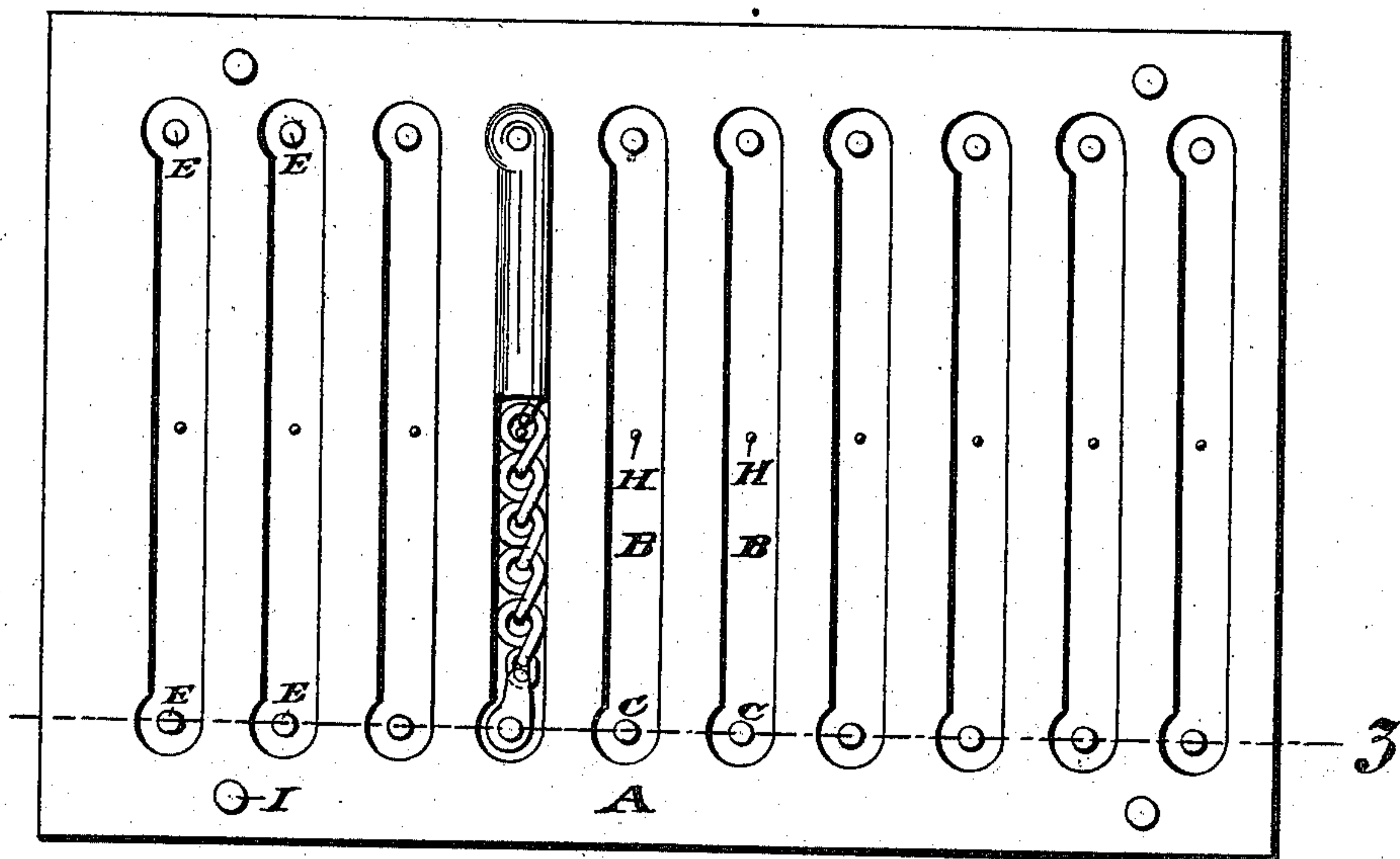


Fig. 2.

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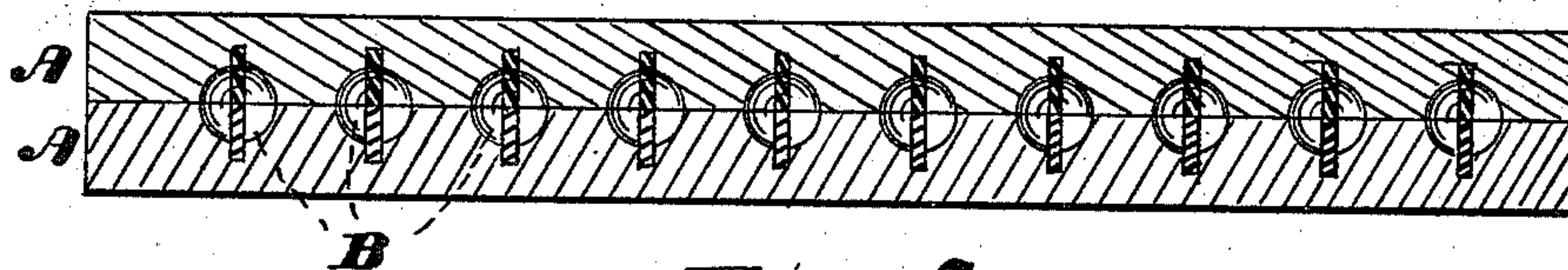


Fig. 3.

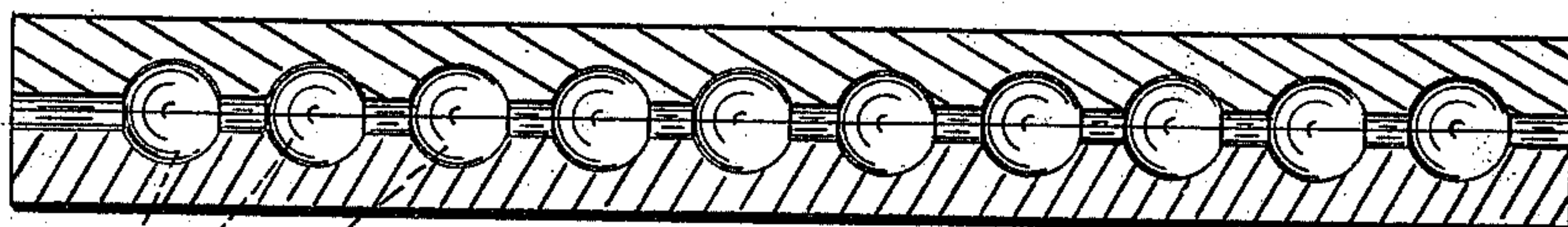


Fig. 4.

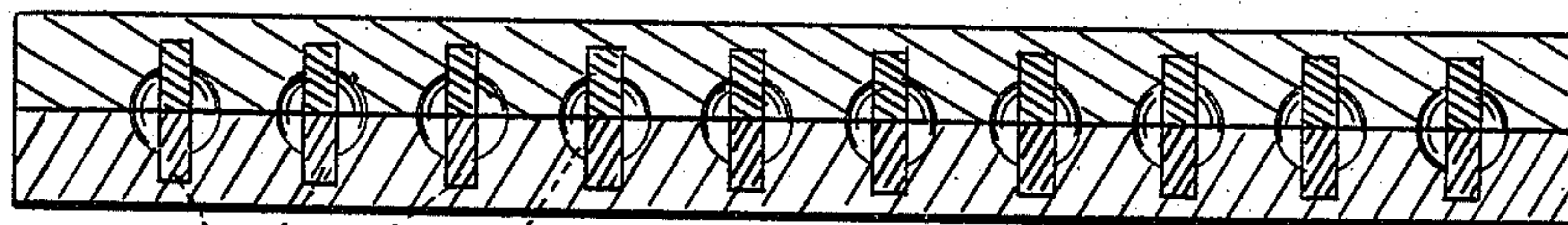


Fig. 5.

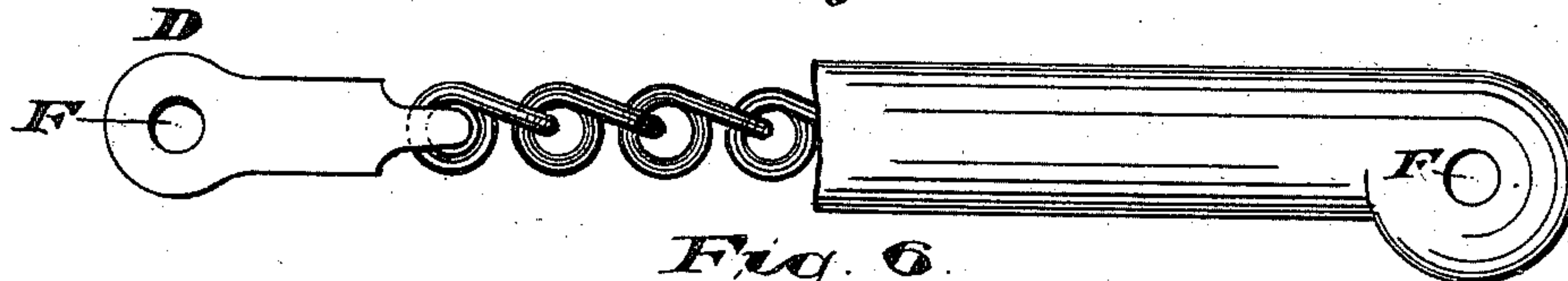


Fig. 6.

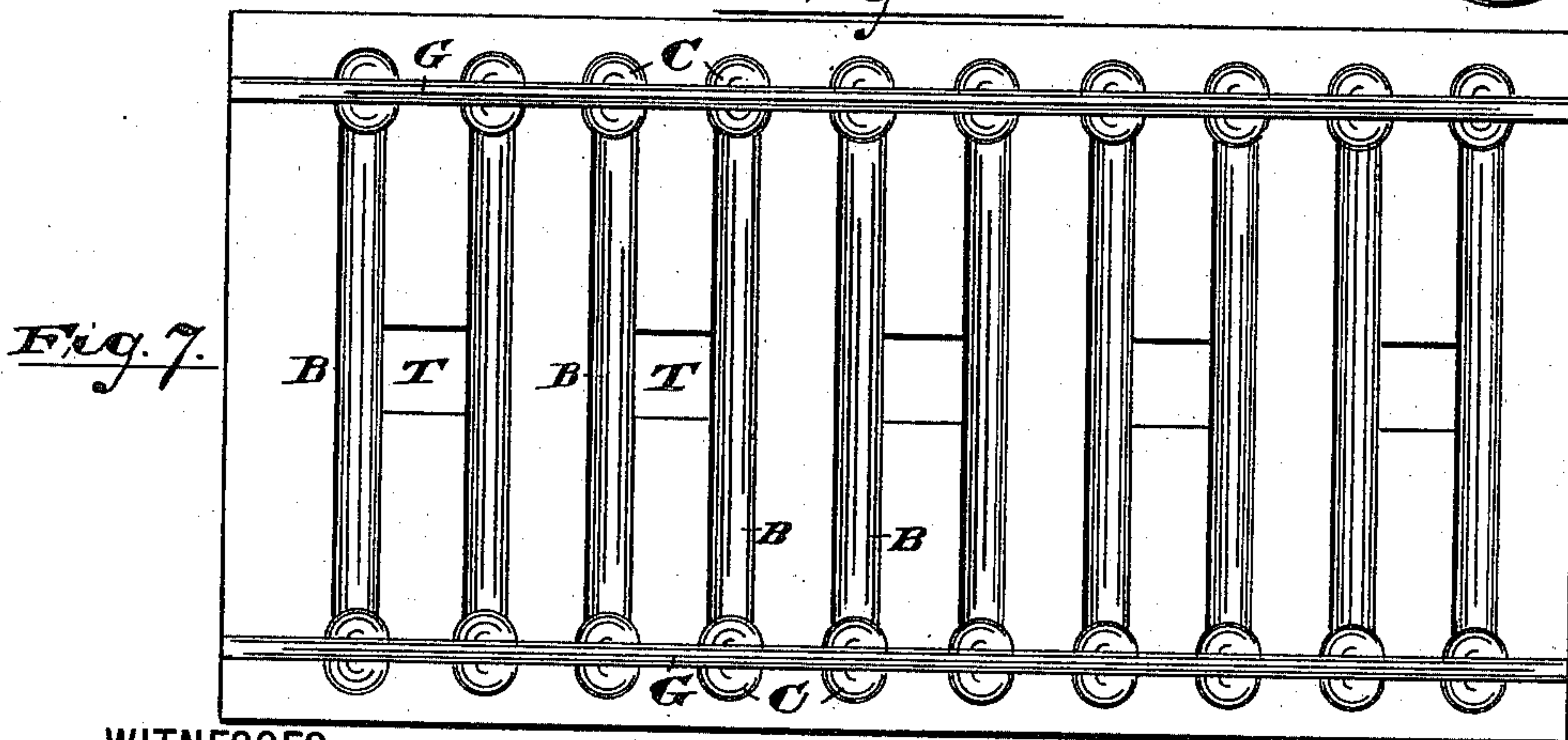


Fig. 7.

— WITNESSES: —

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3 Sheets—Sheet 3.

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Fig. 8

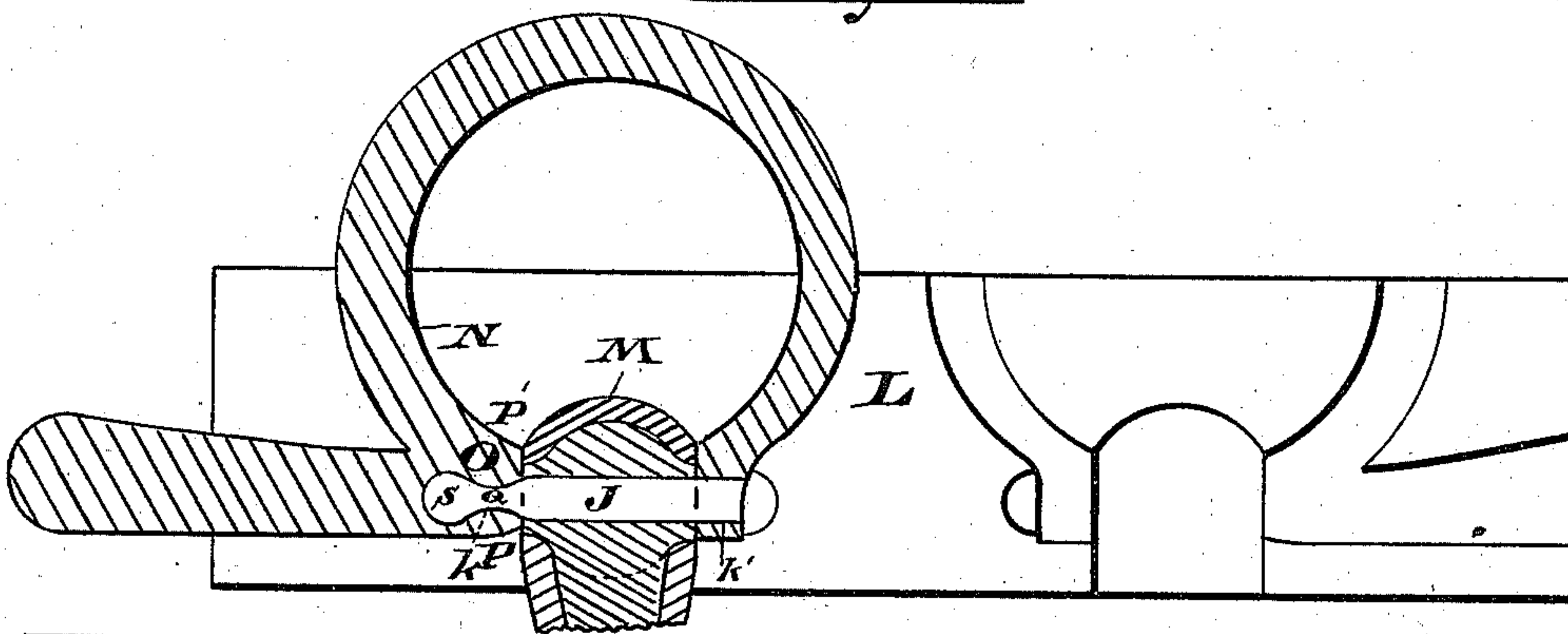
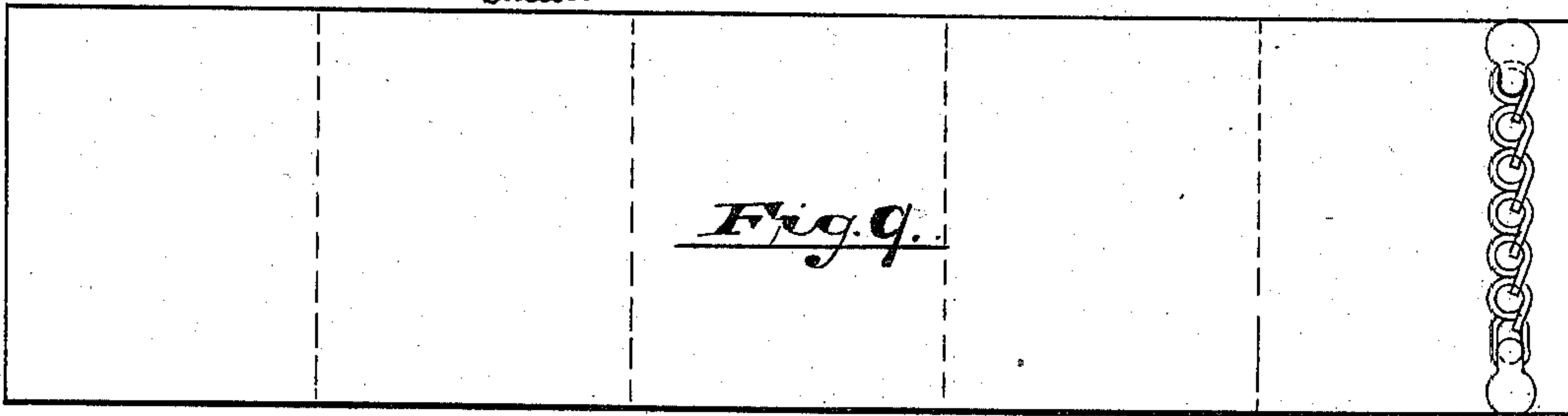


Fig. 9.



— WITNESSES: —

— INVENTOR: —

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James Stanley,

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UNITED STATES PATENT OFFICE.

JAMES STANLEY, OF NEWARK, NEW JERSEY, ASSIGNOR TO EDWARD N. CRANE, FREDERICK CRANE, AND JASON CRANE, ALL OF SAME PLACE.

BRIDLE-BIT DIE AND THE METHOD OF MAKING BRIDLE-BITS.

SPECIFICATION forming part of Letters Patent No. 382,276, dated May 1, 1888.

Application filed March 18, 1887. Serial No. 231,392. (No model.)

To all whom it may concern:

Be it known that I, JAMES STANLEY, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bridle-Bit Dies and the Method of Making Bridle-Bits; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

The object of this invention is to reduce the cost of manufacturing bridle-bits, the mouth-pieces of which are covered with a covering of plastic material—such as rubber—to secure a more perfect finish than can be secured when the covering is arranged in place after the cheek-pieces and the mouth-piece are brought into operative combination, and to enable the mouth-pieces of certain kinds of bits to be covered with the said plastic material, that have heretofore been allowed to remain uncovered because of the impossibility of covering said mouth-pieces in a neat, durable, and workmanlike manner at a moderate cost.

A further object is to enable the cheek-pieces of the bit to be finished (plated and polished) independent of the mouth-piece, thereby preventing the plastic covering from being injured in said polishing process or the said finished mouth-piece from being defaced when the covering is subsequently applied.

Heretofore bits of the class above referred to have had the mouth-piece covering applied after the mouth and cheek pieces were united. By that process the defects above noted resulted; and, in addition, the manufacturers, in covering the bits, were compelled to employ long strips of rubber and apply the same by winding them spirally around the mouth-piece before inserting the bit into the die to give continuity, or perfection of shape, to the covering. The use of these strips and the employment of the winding process entail a waste of material and loss of time, which is saved in the process herein described. It may be observed, further, that covering the mouth-piece when the cheek-pieces are in their relative positions necessitates the use of large dies

to cover a single bit, so that heretofore but one mouth-piece could be covered at a time. By the improvements from ten to thirty or 55 or forty can be practically covered at once.

The invention consists in the dies for use in manufacturing bridle-bits and in the process of manufacturing bridle-bits, substantially as will be hereinafter set forth, and finally embodied in the clauses of the claim.

Referring to the accompanying drawings, embraced in three sheets, in which like letters indicate corresponding parts in each of the several figures, Figure 1, Sheet 1, is a plan of 65 a section of a die embodying my improvements. Fig. 2 is a similar plan showing a modified construction. Fig. 3, Sheet 2, is a section taken on line *x* through the die-sections. Fig. 4 is another section through line 70 *y*; and Fig. 5 is a sectional view of the preferred modification of the die on line *z*, Fig. 2. Fig. 6 is a view of the mouth-piece, the covering of which is partly broken away. Fig. 7 is a plan showing another modification in the 75 construction of the dies. Fig. 8 is a view of a die-section adapted to unite the cheek and mouth pieces after the covering is applied; and Fig. 9 illustrates a sheet or band of rubber adapted to be wrapped around the mouth- 80 pieces to cover the same, the broken lines indicating the positions of knife-cuts made to detach the covering portions of the band or sheet from the body thereof.

In said drawings, A A indicate the sections 85 of a die or mold for covering the core of a mouth-piece with rubber and impressing the rubber into the links of the said mouth-piece and giving appropriate outer form to the mouth-piece. Said dies are of metal, and in 90 the inner faces thereof is formed a series of grooves, B B B B, which in section present concave surfaces to give cylindrical rotundity to the central portions of the mouth-piece. At the ends of the grooves the same are enlarged, as at C C, to receive the heads D D, 95 and to produce an enlargement at the ends of the mouth-piece around said head. At said ends the dies are provided with pins E E, which are adapted to receive the heads D D, 100 (the latter being provided with the usual perforations, F F,) and hold the said mouth-piece, or at least the core thereof, in position in the die.

The pins may lie horizontally in said dies, in which case they are preferably connected and form continuous rods G, which have a separable relation to the die-sections; or the said pins may have a permanent relation to the dies, as in Figs. 2 and 5, extending vertically in the enlargements, so that the covered cores may be manipulated individually.

I prefer to provide the central portions of the grooves with pins H H, which serve to hold the chains or covered cores in place at the centers. The dies are provided with means, such as pins I, for causing the sections to come into proper relative positions. The said sections are of course in pairs, one being the duplicate of the other.

Prior to placing the cores in the die with the coverings the said cores are first covered. A long strip or belt of rubber, slightly wider than the length of the mouth-piece, is laid on the table, a number of mouth-pieces, separate from the cheek-pieces, lying conveniently at hand. The mouth-pieces are then, one by one, placed on said belt, band, or sheet at one end thereof and at right angles thereto, and in that manner the belt is given two, three, or more enveloping turns therearound, the number of turns being according to the desired size of the mouth-piece. The enveloping portion of the belt is then, by a simple pass of a suitable knife, severed from the body of the belt. The projecting ends of the tubular covering thus formed are then, with more or less care, folded together or brought over or around the ends of the mouth-piece or core, and the roughly-covered core is then placed in the mold or die. This process is then repeated until the several receptacles or grooves are filled. In placing the mouth-pieces or covered cores in said dies the pins E are forced through the rubber into the perforations F of the heads, so that when the molds or dies have given form to the mouth the ordinary pin J of the bit may be readily passed into position. Before severing the tubular portion of the rubber belt from the body portion the said belt is given an application of cement back of the line where the edge is to be made in cutting to secure the said edge more perfectly in the completed bit.

The series of mouth-pieces thus covered are then pressed into shape in the dies and subjected to heat to vulcanize the rubber. They are then removed from the mold in a finished state, ready to be arranged with the cheek-pieces. By this method of operation bits which heretofore have remained uncovered, because of the difficulty of applying the rubber after the cheeks and mouth-pieces were together, may be covered in a practical and workmanlike manner by the use of dies. Furthermore, by this method, when the covering is of hard rubber, the cheeks and the coverings can be finished independently of one another, so that the brilliance of one is not marred in giving a polish to the other. After the cheeks and the

covered mouth-piece have been united, by means of the pins J (shown in Fig. 8) being thrust through the perforations or openings K K' in the cheeks and F in the mouth, the said pins are held permanently in place by means of dies L, one section of which is shown in Fig. 8. The other, being of like construction, is not shown. The said dies are provided with grooves or recesses M, resembling or corresponding to the shape of that portion of the mouth-piece to which the cheek-piece is attached, and also grooves or recesses N, corresponding with the shape of that portion of the cheek to which the mouth-piece is attached. The bit being placed in said grooves or recesses, with the pin passing through the perforations K K' F, the portion O of the bit is compressed in two opposite directions, so that the pin, which was straight when first inserted in said perforations, is compressed or flattened and caused to assume the shape indicated in Fig. 8. To secure this result, the die is at P P provided with compression portions to force the metal together and cause the pin to contract, as at Q, and the grooves of the die-sections are shallow at R to compress the metal laterally adjacent to that just referred to in the opposite direction, and cause the pin to flatten or contract in the opposite direction, as at S. By this means the pin is prevented from withdrawing from the bit and allowing a separation of parts.

It may be stated that the pin, as shown in Fig. 8, is exaggerated in outline to bring out the invention more clearly. The said pin may be compressed with the surrounding metal in but one direction and secure effective results.

When it is desired to mold a double mouth-piece, or one in which two mouth-pieces are connected by a web or connective of rubber, I connect pairs of grooves B B at their centers with recesses or depressions T, in which the said web or connective is formed. By forming the tube which surrounds the mouth-piece core by means of a sheet, which extends from end to end of the said core continuously without any intermediate seams, I secure a more uniform finish, as compared with the covering formed by spirally-winding narrow strips around the said core, as will be evident.

Having thus described the invention, what I claim as new is—

1. The method of manufacturing bridle-bits herein described, which consists, essentially, in covering the mouth-core with rubber, arranging said covered core on pins in a die and subjecting the same to pressure to give form to the covering, withdrawing said covered core from said pins, and, finally, arranging said covered core in operative union with the cheek-pieces, substantially as set forth.

2. The die or mold for covering mouth-piece cores of bridle-bits, which consists of sections having concave grooves enlarged at the opposite ends, C C, and having pins in said enlarged portions, upon which the core of

the mouth-piece may be arranged, and forming a perforation for the elastic covering for the cheek-piece, substantially as set forth.

5 3. The die for covering mouth-piece cores for bridle-bits, which consists of sections having grooves with enlarged opposite ends, the enlarged portions having pins E permanently secured to die-sections, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of March, 1887.

JAMES STANLEY.

Witnesses:

CHARLES H. PELL,
OSCAR A. MICHEL.