

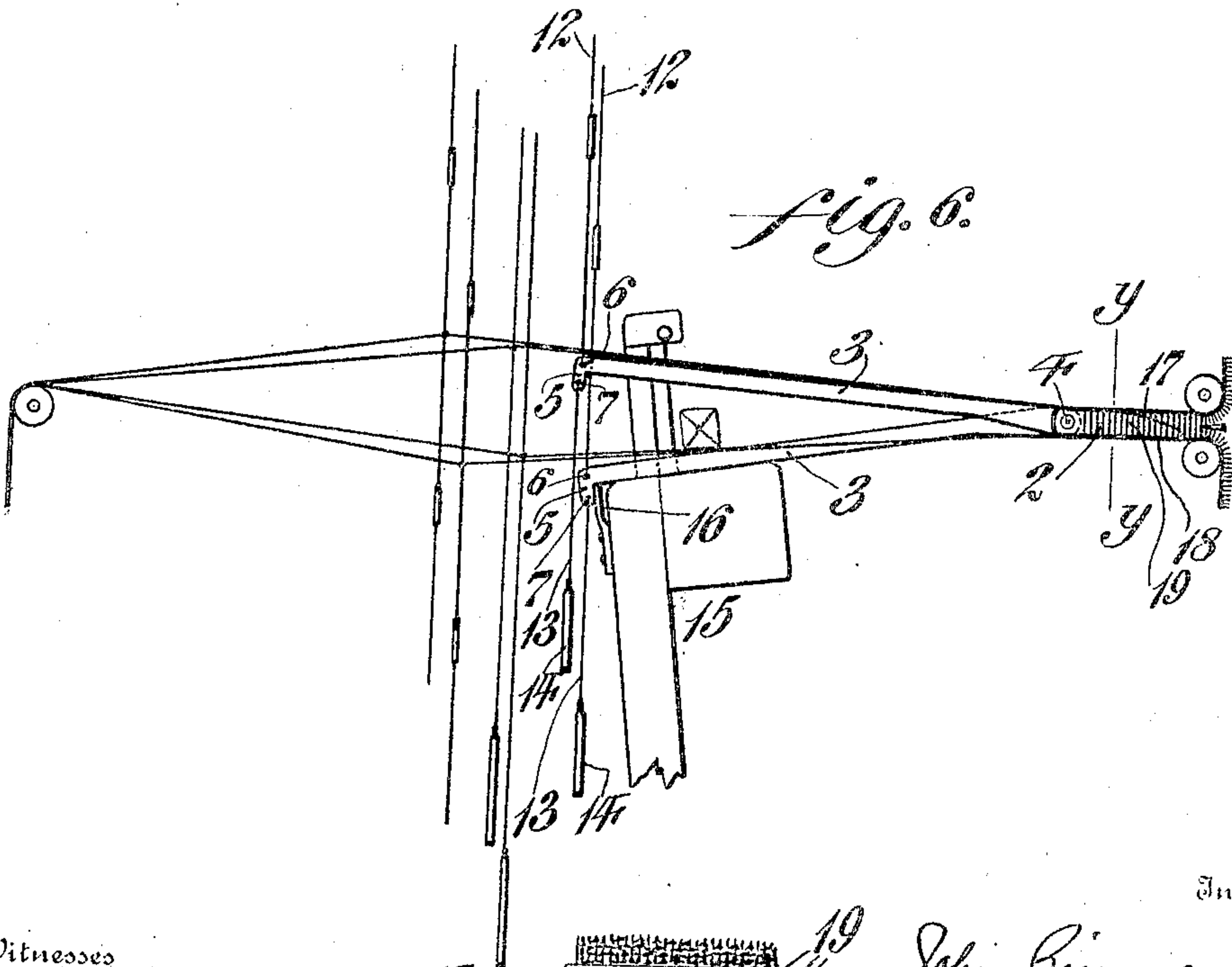
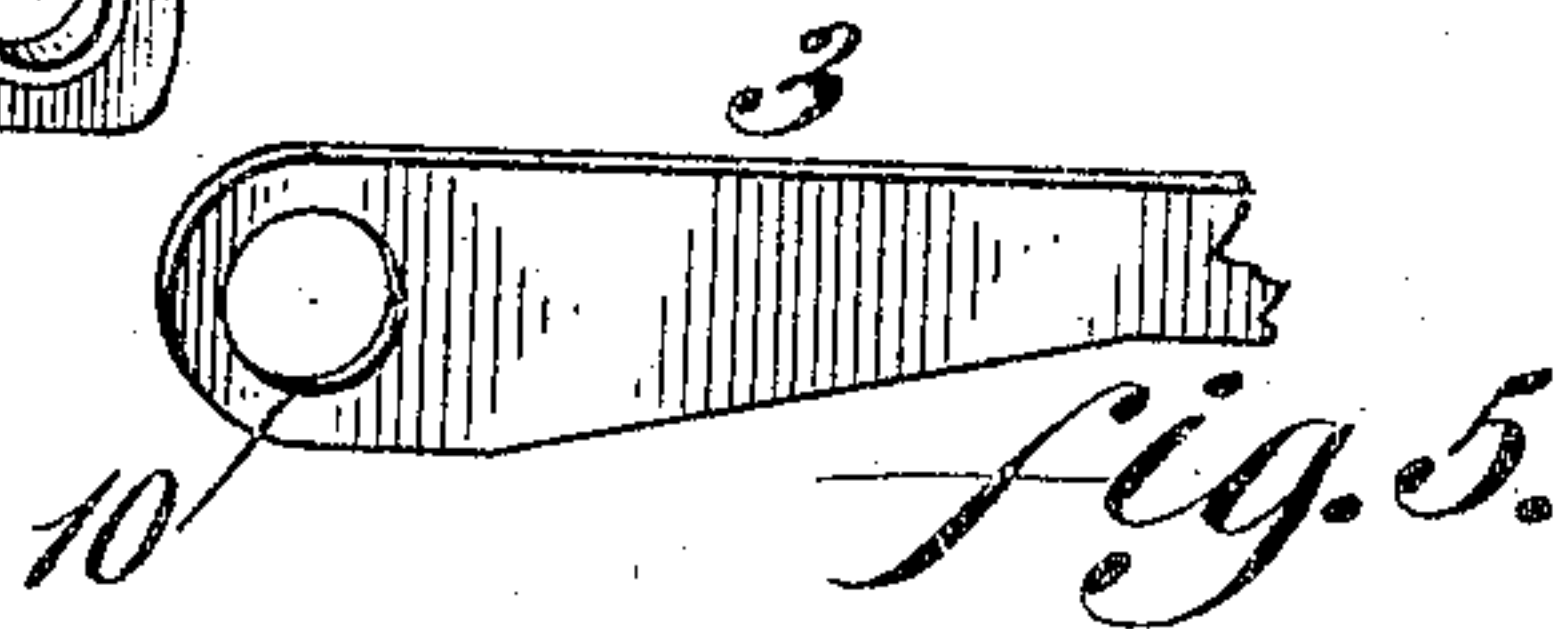
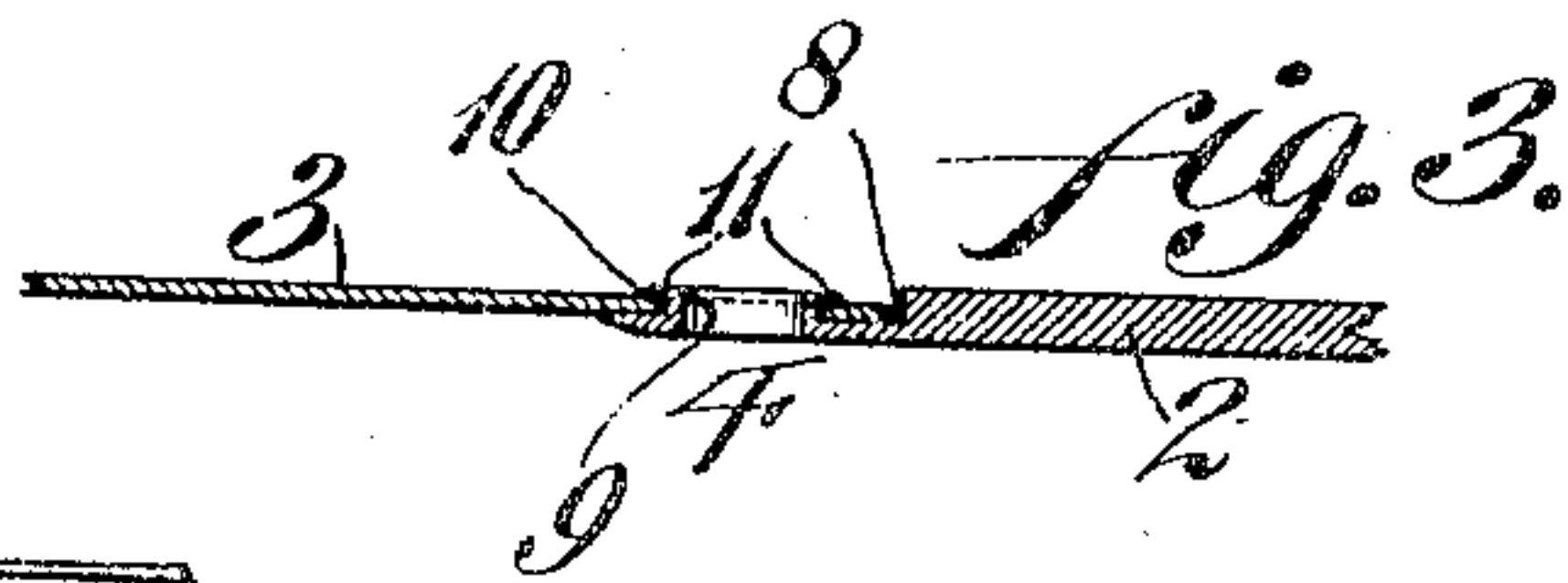
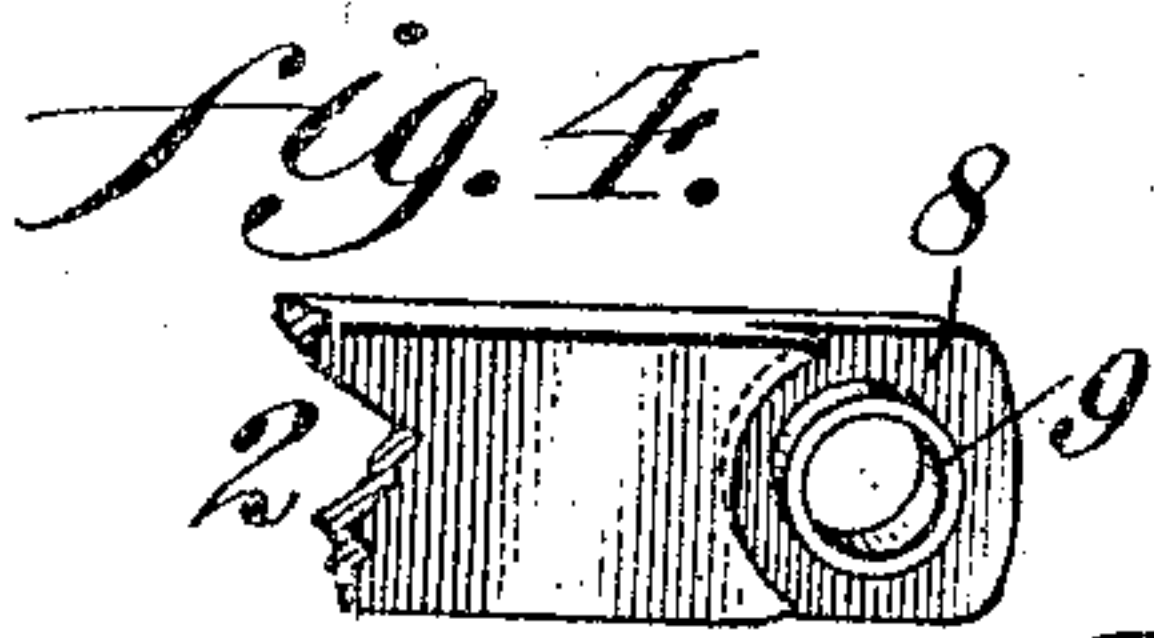
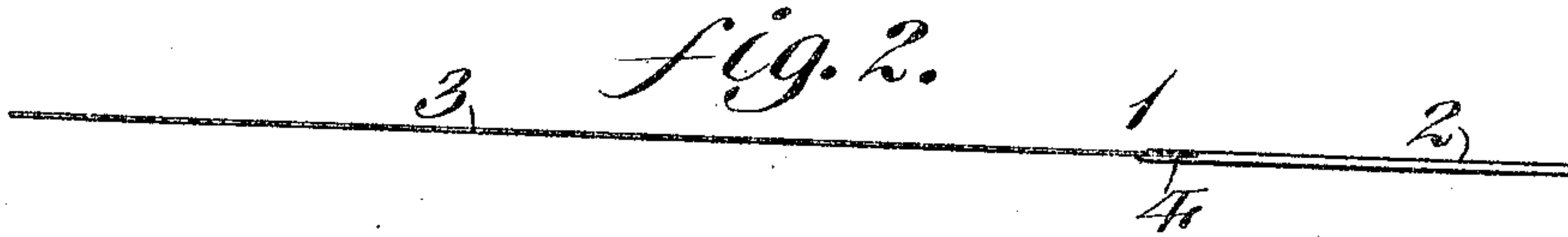
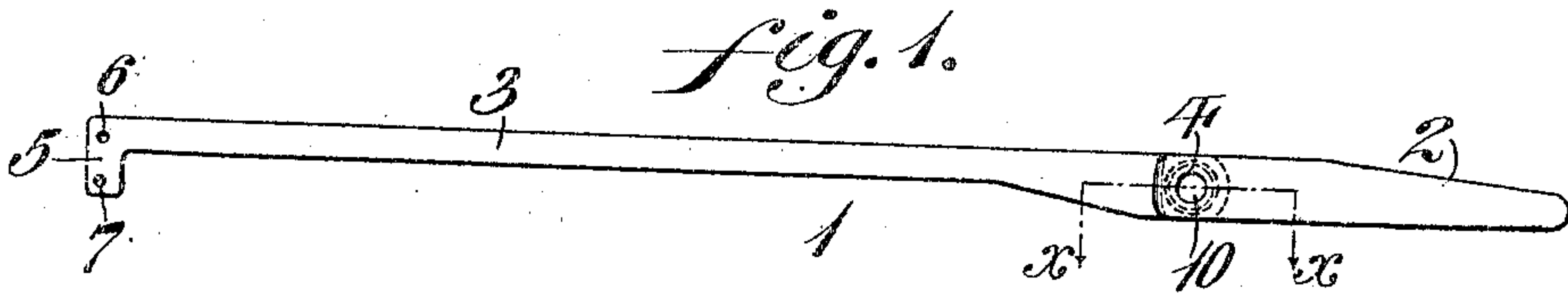
No. 813,132.

PATENTED FEB. 20, 1906.

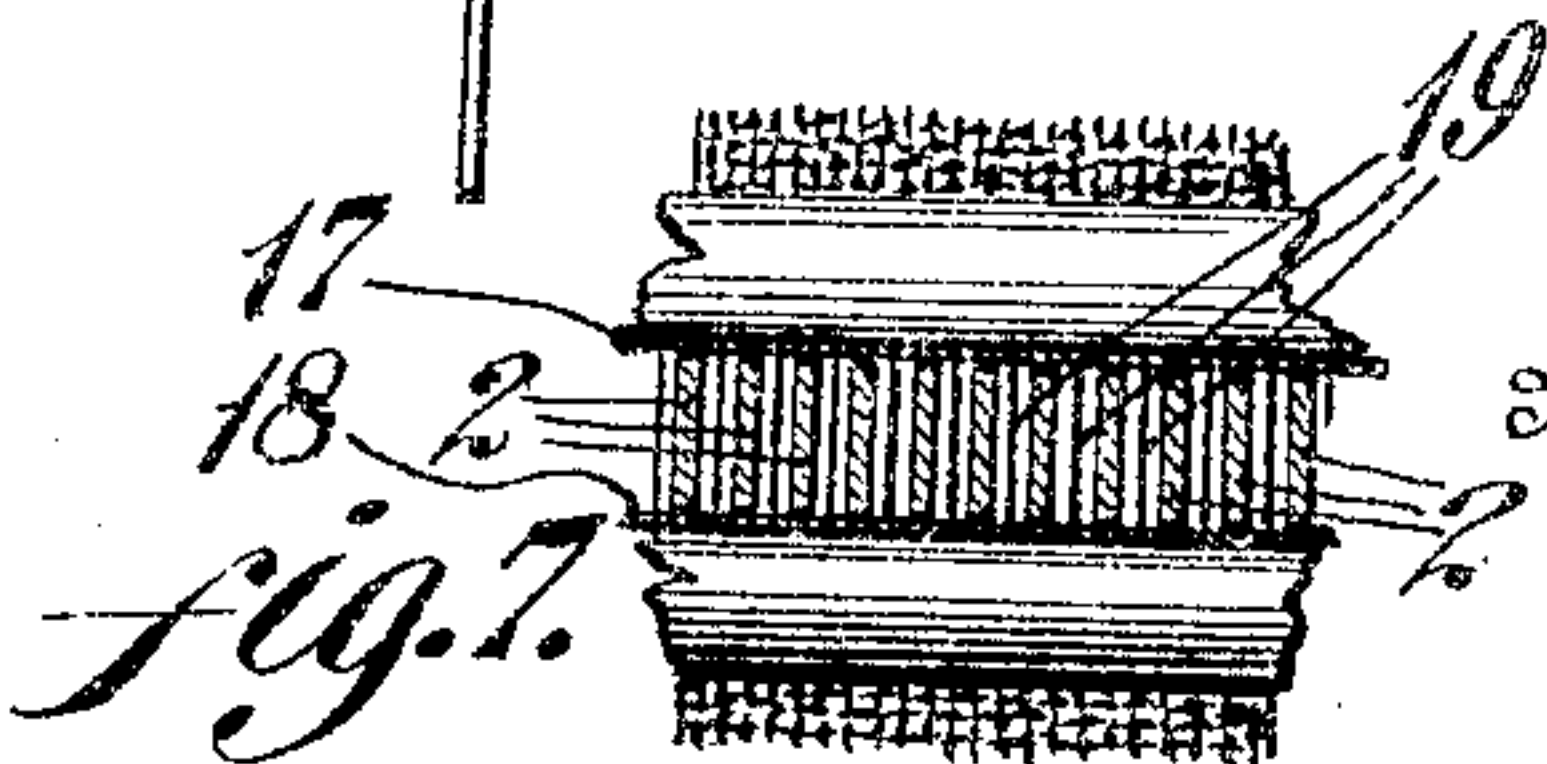
J. ZIMMERMAN.

PILE GAGE.

APPLICATION FILED JAN. 18, 1905.



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# UNITED STATES PATENT OFFICE.

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TO PHILADELPHIA TAPESTRY MILLS, A CORPORATION OF PENN-  
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## PILE-GAGE.

No. 813,132.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed January 18, 1905. Serial No. 241,540.

*To all whom it may concern:*

Be it known that I, JOHN ZIMMERMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Pile-Gage, of which the following is a specification.

My invention relates to pile-gages for double-pile fabrics; and it consists of a gage with a swinging end, which may be raised and lowered at will, so as to permit said swinging end to occupy a position either above or below a shuttle when the latter is passing through the shed.

My invention further consists in providing a gage having a pivoted operating extension attached thereto.

A further object of my invention consists in provision for intermittent positive partial withdrawal of my gage from the pile.

A further object of my invention consists in providing a floating pile-gage with means for shifting it to different positions in the shed to permit access to either the upper or the lower fabric.

A further object of my invention consists in permitting longitudinal movement of a floating pile-gage and in providing means for such movement to secure a beneficial result.

It also consists of means for drawing the gage a proper distance out of the cloth during the process of weaving.

Figure 1 represents a side elevation of my pile-spacer. Fig. 2 represents a plan view thereof. Fig. 3 represents a horizontal section on line *x x*, Fig. 1, on an enlarged scale. Figs. 4 and 5 represent perspective views of certain portions of the gage, on an enlarged scale. Fig. 6 represents a side elevation of my pile-gage as applied to a loom. Fig. 7 represents a vertical section on line *y y*, Fig. 6, on an enlarged scale.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a complete pile-spacer, which consists of strips 2 and 3, respectively, performing the functions of a gage and an operating-arm, preferably made of metal and hinged together at 4 to permit the arm 3 to be raised and lowered as may be desired, the gage 2 forming a support for the arm 3. The strip 3 has a de-

pending end 5, which is provided with eyes 6 and 7 for a purpose hereinafter described.

In Figs. 3 and 4 I show a cut-away portion 8 in the strip 2, leaving a projecting ring 9 in said strip, and the object of which is to receive the opening 10 in the strip 3, after which that portion of the ring 9 which projects beyond the strip 3 is formed into a flange 11, which prevents the strips 2 and 3 from separating, while at the same time permits them to turn on each other.

Any desired form of pivot or hinge or other similar connection may evidently be used.

The operation is as follows: A cord 12 is secured to a strip 3 by passing it through the eye 6. The other end of said cord 12 is connected with the jacquard or shaft mechanism, which latter is not illustrated in the drawings, but may be of any well-known form. A cord 13 is secured to the strip 3 by passing it through the eye 7 and is provided with a lingo 14 or may be connected with a shaft which lowers the strip 3 when the cord 12 is lowered, and consequently depresses said strip 3. The lay 15 is provided with a strip or bar 16 of sufficient length to include all the depending ends 5 of the pile-spacers 1, which are placed between the upper and the lower clothes 17 and 18, respectively, as seen in Figs. 6 and 7, it being noted that the spacer 1 may be placed between each pile-warp 19, if desired, as seen in Fig. 7. The height of the strip or gage 2 determines the length of the pile 19 in the fabric. When a weft is to be supplied to the lower cloth 18, the strips 3 are all raised, so as to permit said weft to find its way below the strips 3 to the lower cloth, and when a weft is to be supplied to the upper cloth 17 the strips 3 are all lowered, so as to permit said weft to find its way above the strips 3 to the upper cloth 17. When the take-up mechanism draws the fabric toward the breast-beam of the loom, the gages 1 are carried with the fabric; but as all the strips 3 are lowered for each pick in the upper cloth depending ends 5 are brought in the path of the strips 16, which due to the backward throw of the lay 15 partly withdraws the gages 2 from the fabric and returns said gages 2 to their proper positions relatively to other parts.

It will be evident that various changes



may be made by those skilled in the art which may come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a device of the character described, a gage, an arm hinged thereto, a depending end for said arm, a lay coacting with the depending end and means whereby said arm may be raised and lowered when the shuttle passes through the shed.
2. In a device of the character described, a gage, an arm hinged thereto, means coacting with said end, whereby said arm is raised or lowered when the shuttle is passing through the shed, and means for drawing the gage out of the cloth during the process of weaving.
3. In a device of the character described, a gage, an arm hinged thereto, a lay coacting with said arm, means whereby the latter is raised and lowered when the shuttle is passed through the shed, and means for drawing the gage out of the cloth during the process of weaving.
4. In a device of the character described, a gage, an arm hinged thereto, a depending end on said arm, a lay, a strip secured thereon in the path of which said depending end passes and by means of which the movements of said gage are regulated and means for actuating said arms.
5. In a device of the character described, a gage, a swinging arm secured thereto, a depending end on said arm, an upper and a lower eye on said end, a cord secured to said upper eye and to means by which said cord is actuated, suitable means attached to said lower eye, a lay and means thereon whereby the movements of said gage are automatically regulated.
6. In a device of the character described, a gage, a projecting ring at one end thereof, an arm having an opening adapted to receive said ring which latter forms a hinge on which

said arm is movable, means for raising and lowering said arm and automatic means for regulating the movement of said gage.

7. In a device of the character described, a pile-gage having a swinging arm, a depending end, a lay and a bar secured thereto which acts in conjunction with said end to regulate the movement of said gage.

8. A floating pile-gage and means for longitudinally moving the gage.

9. A floating pile-gage, a lay, and means upon the gage cooperating with said lay to cause longitudinal movement of the gage.

10. A floating pile-gage having a pivoted arm, means for maintaining suitable longitudinal position of the gage by means of the arm and means for shifting the arm vertically.

11. A floating pile-gage having a pivoted arm and means for shifting said arm vertically.

12. A floating pile-gage having a pivoted arm, a lay, a projection upon the arm engaged by movement of the lay and means for shifting the arm vertically.

13. A floating pile-gage and means for intermittently moving the gage longitudinally.

14. A floating pile-gage having a pivoted arm and means for shifting said arm to permit weaving in either of the fabrics at will.

15. A floating pile-gage having a pivoted arm, a projection upon said arm, a lay causing engagement with said projection to produce longitudinal movement of the gage intermittently and means for varying the vertical position of the arm.

16. A longitudinally-movable pile-gage.

17. A pile-gage having an arm connected therewith and means for producing vertical and longitudinal movement thereof.

18. A pile-gage and means for producing intermittent positive partial withdrawal from the pile.

JOHN ZIMMERMAN.

Witnesses:

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