

(No Model.)

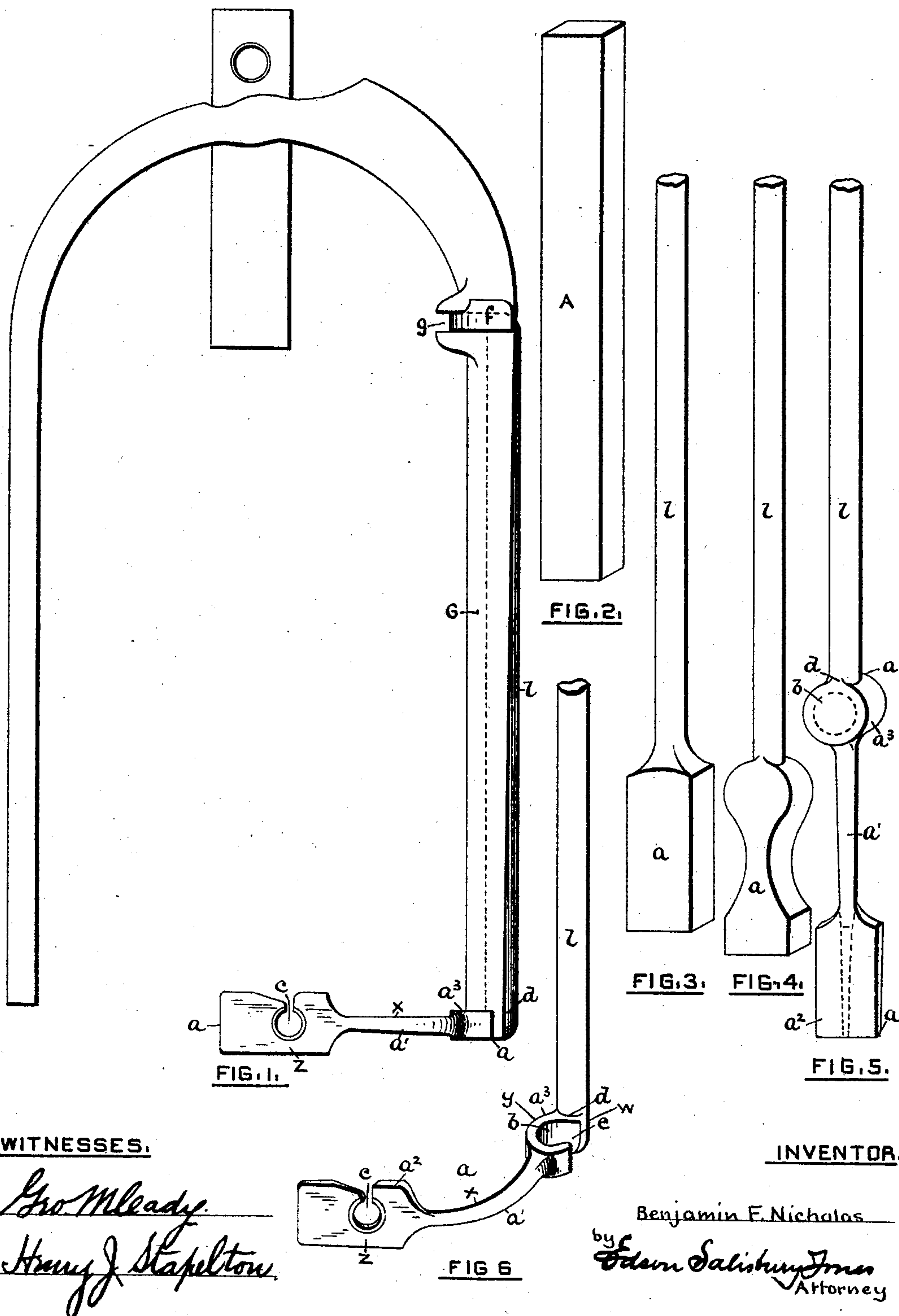
2 Sheets—Sheet 1.

B. F. NICHOLAS.

MANUFACTURE OF CENTRIFUGAL PRESSERS FOR SPEEDER FLIERS.

No. 452,647.

Patented May 19, 1891.



(No Model.)

2 Sheets—Sheet 2.

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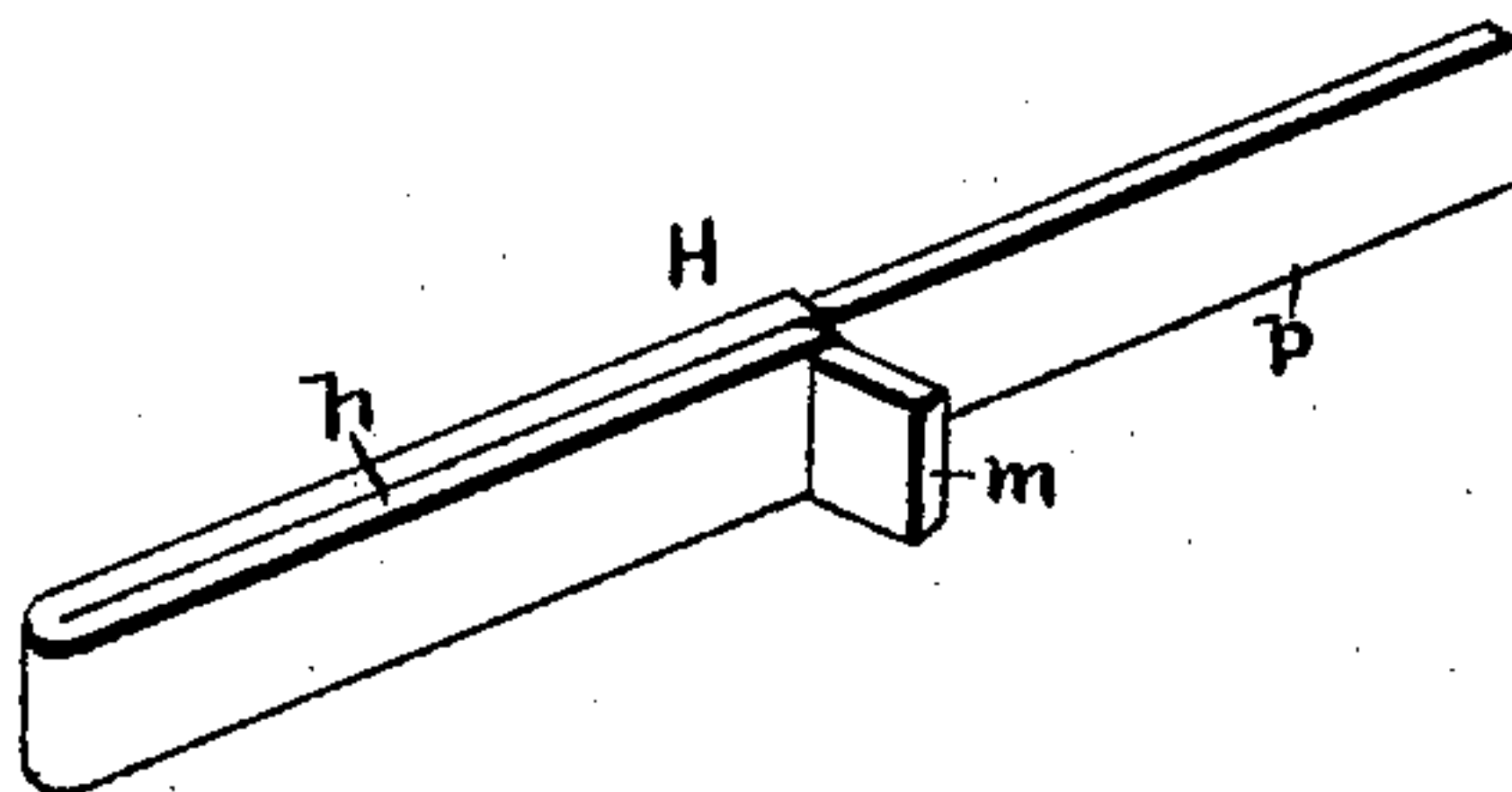
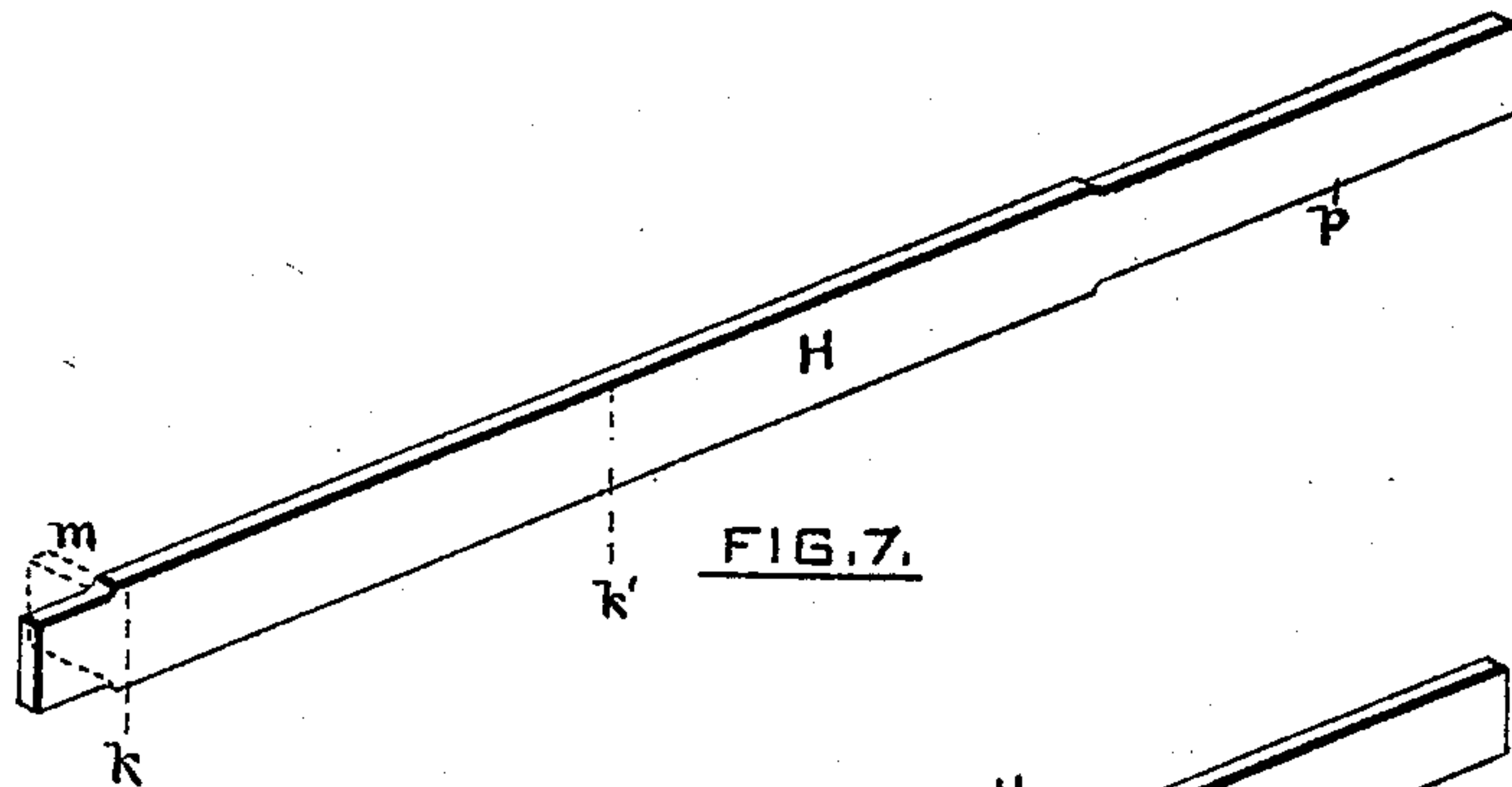


FIG. 8.

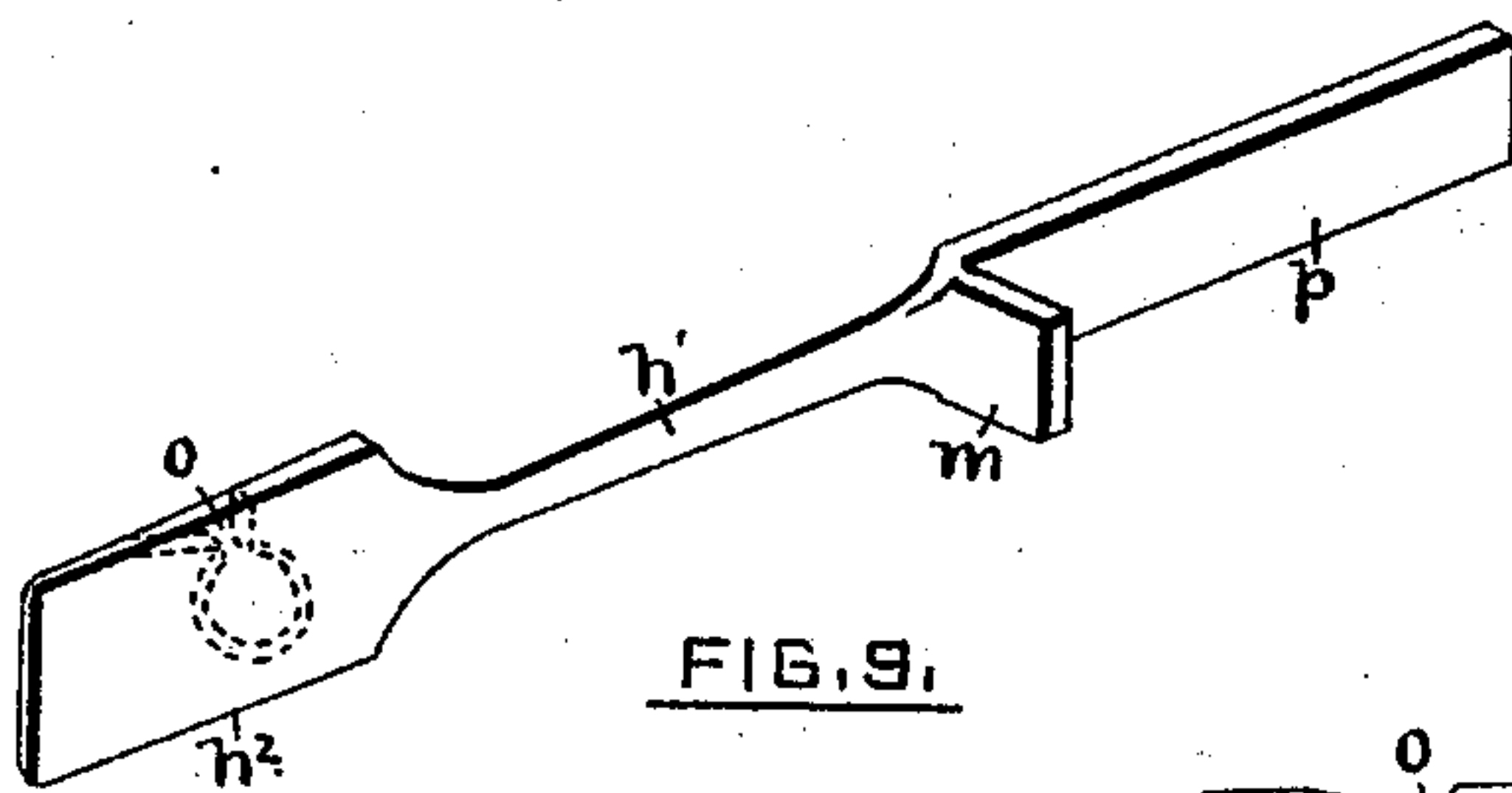


FIG. 9.

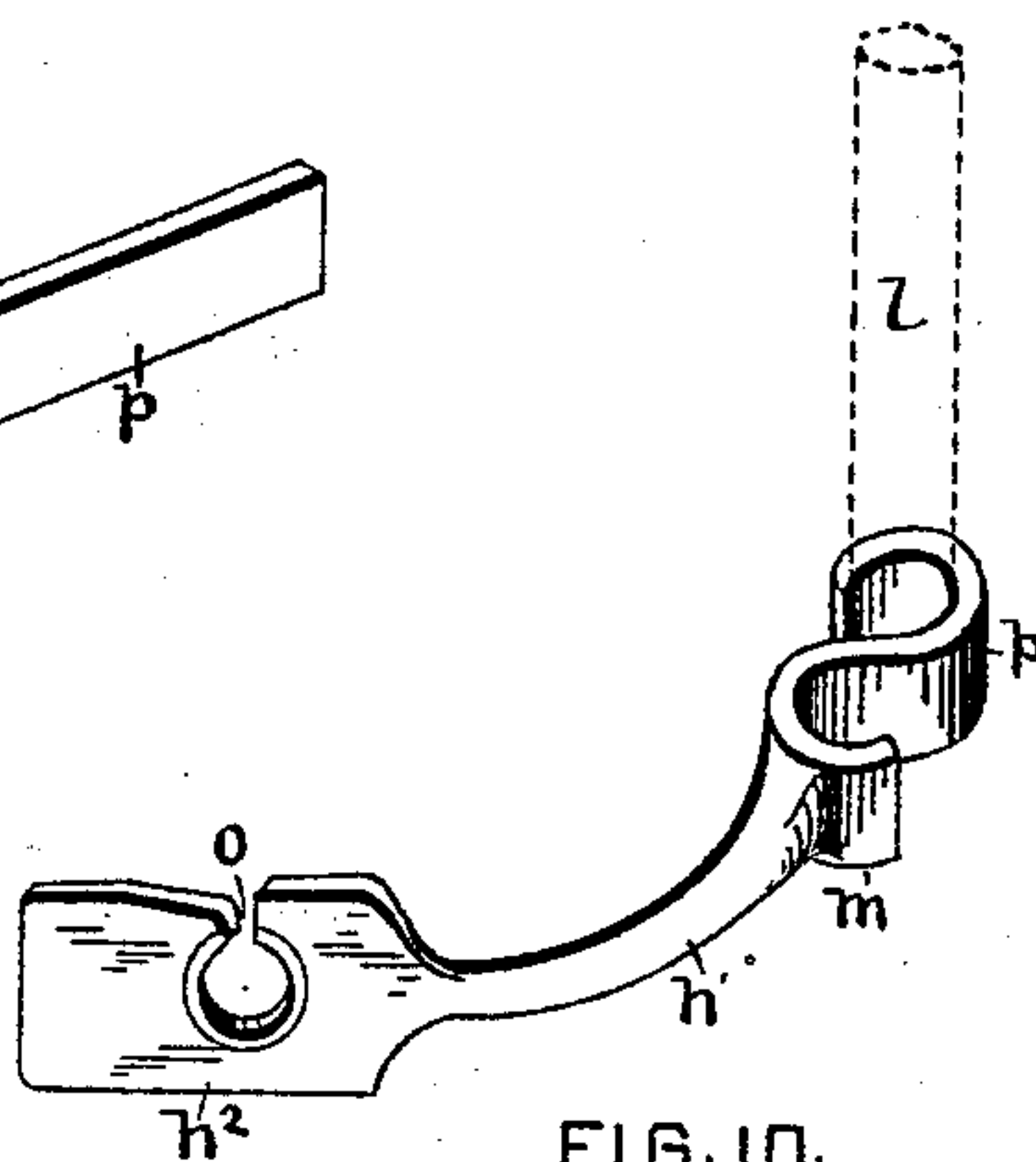


FIG. 10.

WITNESSES.

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MANUFACTURE OF CENTRIFUGAL PRESSERS FOR SPEEDER-FLIERS.

SPECIFICATION forming part of Letters Patent No. 452,647, dated May 19, 1891.

Application filed January 12, 1891. Serial No. 377,417. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. NICHOLAS, of the city and county of Providence, and State of Rhode Island, have invented a new and useful Improvement in the Manufacture of Centrifugal Pressers for the Fliers of Speeders; and I do hereby declare the following specification, taken in connection with the accompanying drawings, forming a part of the same, to be a description thereof.

This invention relates to the manufacture of what is known as a "centrifugal presser," which is pivotally mounted on one of the arms of a speeder-flier and presses upon the bobbin while the same is being wound.

The invention consists in certain features hereinafter described and claimed.

Referring to the drawings, Figure 1 represents a flier in front elevation with its centrifugal presser mounted thereon. Fig. 2 shows in perspective the metal blank from which the old or usual form of presser has been made. Figs. 3, 4, 5, and 6 represent in perspective the various changes of form that said blank undergoes to complete the foot portion of the presser, (the upper end of the leg of the presser not being shown in said figures.) Fig. 7 represents in perspective the form of blank used in my improved manufacture of the presser-foot. Figs. 8 and 9 show progressive changes in the form of said blank. Fig. 10 represents in perspective the completed presser-foot in readiness to be attached to the presser-leg.

In the manufacture of centrifugal pressers (say seven-inch size) as usually heretofore practiced a blank-piece A, Fig. 2, of the best Norway iron of the proper shape and size (about five inches long, one-half an inch wide, and five-sixteenths of an inch thick) is heated three times to "break down," "rough," and finish said blank into a rudimentary foot a and leg l , as shown in Fig. 3. The blank is then heated again to enable its rudimentary foot a to be swaged into the shape shown in Fig. 4. The piece is then again heated twice to enable the foot portion a to be swaged into the shape shown in Fig. 5, after which the "fins" produced by swaging are trimmed off. The shank a' of the foot portion a is then twisted axially while the

metal is cold to bring the toe portion a^2 of the foot into a position at right angles to the heel a^3 of the foot, as shown by dotted lines in Fig. 5. The heel a^3 is then drilled with a hole b , (shown by dotted lines in Fig. 5,) and an opening c is made in the toe of the form shown in Fig. 6, after which the article is "buffed off" to proper size. The foot a is next bent sharply at its junction d with the leg portion l , so as to cause the article to assume an L form. This bending must be done while the metal is cold, owing to great difficulty in handling the article for such purpose if hot, and the bending is exceedingly liable to produce a crack on the outer side at w , where the foot joins the leg, thereby greatly weakening the article. The shank a' of the foot is then properly curved, as shown in Fig. 6, and then the hole b is reamed out. Finally a slot or opening e is cut from one side of the heel into the hole b , thereby completing the presser-foot.

The leg l of the article is of proper length to fit a flier of definite size, and the end or head f , Fig. 1, of the leg is formed in any preferred or proper shape (which forms no part of the present improvement)—such, for instance, as shown in Fig. 1—to enable the article to be mounted upon a flier. In the manner of mounting shown in Fig. 1 the head f is curved around one arm of the flier G through a slot g on one side of the arm, and the lower end of said flier-arm passes through the hole b in the heel of the presser-foot, so that the article is loosely pivoted on the flier-arm, in order that the centrifugal force produced by the revolution of the flier shall cause the presser-foot to hug the bobbin being wound, in a well-understood way.

The manufacture of centrifugal presses when conducted as above described is comparatively expensive, owing to the higher grade of iron required to allow of so many changes in shape, to the great number of heatings to which the iron must be subjected, and to the large number of operations and tools necessary to complete the article. The article is also very liable to break when bent at d , as already explained. Further, as the shank a' of the presser-foot is very liable to break at x , the heel portion at y , and the toe

at z during use, the whole article must be thrown away when a break occurs and an entirely new one be substituted.

The object of my improvement is to produce a less expensive and stronger presser, and at the same time to so make it that if the presser-foot breaks during use in any part another foot can be easily attached to the leg portion of the article and the cost of a new leg be thereby saved. The manufacture of the leg does not enter into the improvement, which resides in the forming of the presser-foot and its attachment to the leg, though it is to be noted that by my improved manufacture a cheaper grade of iron can be used for the leg than has been possible heretofore.

In forming the presser-foot in accordance with my invention a blank H , Fig. 7, of comparatively low-grade iron is punched from a strip, say, three thirty-seconds of an inch thick. This blank is bent cold on the line k , Fig. 7, to form a tang m . (Shown by dotted lines in Fig. 7 and by full lines in Fig. 8.) The blank is then bent cold upon itself on the line k' to form two parallel portions, and such portions are then heated and welded together, forming a solid portion h . While hot the portion h is drawn out and swaged into the shank portion h' and toe portion h^2 , Fig. 9, of the presser-foot, and the foot is then buffed off. The opening or slot o (shown by dotted lines in Fig. 9 and by full lines in Fig. 10) is now punched in the toe h^2 , thereby completing the shank and toe of the foot. The tang m is now bent or curved cold into the shape shown in Fig. 10 to give the foot at this point a bearing to receive the arm of the flier, and the portion p of the blank is bent or curved cold into the form shown in Fig. 10. Then the shank is curved, as shown in said figure, and the foot is completed. A properly-formed leg l (shown by dotted lines, which may be similar in shape to the leg shown in Fig. 1) is now inserted into the bent portion p of the foot, and the foot is rigidly secured to such leg in any proper manner, but preferably by brazing.

From the foregoing description it will be

readily seen that my improved manufacture of the presser-foot is much simpler and less expensive than the old manufacture of such feet, that the presser will be stronger, because there is no liability of breakage at the point of junction of the foot with the leg, (as at the point d in the old form of presser,) and that if the shank h' or the toe or heel of my foot should break during use the foot can readily be unbrazed or detached from the leg l and another foot quickly brazed on or attached in its place, thereby saving the expense of a new leg. By making the presser-foot separate from the leg, as by my manufacture, a cheaper grade of iron can be used for the leg than is necessary by the old way of manufacture.

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

1. The improvement in the manufacture of the feet of centrifugal presser for the fliers of speeders, which consists in bending a properly-shaped blank to form a tang m , bending the blank upon itself to form two parallel portions and welding such portions together, drawing out and shaping such welded portions into the shank and toe of the foot, bending or curving the tang m for a bearing for the flier-arm, and bending or curving the portion p of the blank to receive the presser-leg, substantially as set forth.

2. The improvement in the manufacture of centrifugal pressers for the fliers of speeders, which consists in bending a properly-shaped blank to form a tang m , bending the blank upon itself to form two parallel portions and welding such portions together, drawing out and shaping such welded portions into the shank and toe of the foot, bending or curving the tang m for a bearing for the flier-arm, bending or curving the portion p of the blank to receive the leg of the presser, and brazing the foot to the lower end of such leg, substantially as set forth.

BENJAMIN F. NICHOLAS.

Witnesses:

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GEO. W. CADY.