

(No Model.)

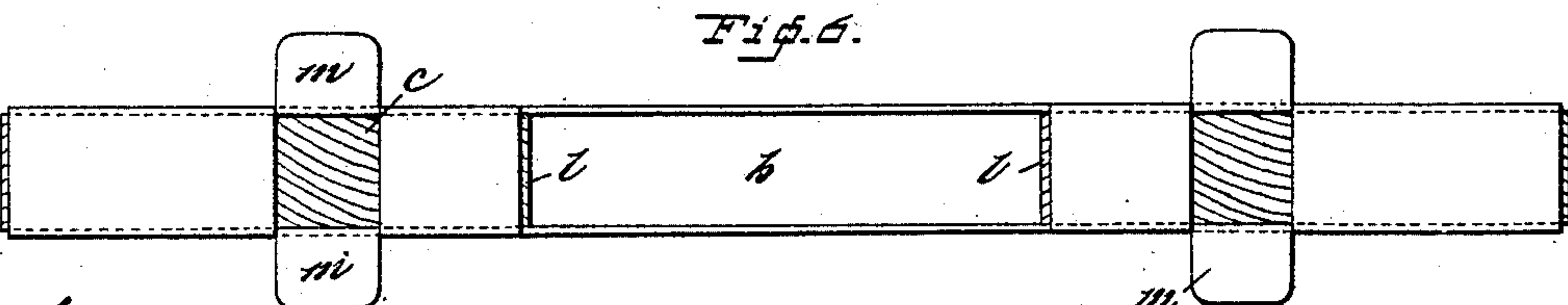
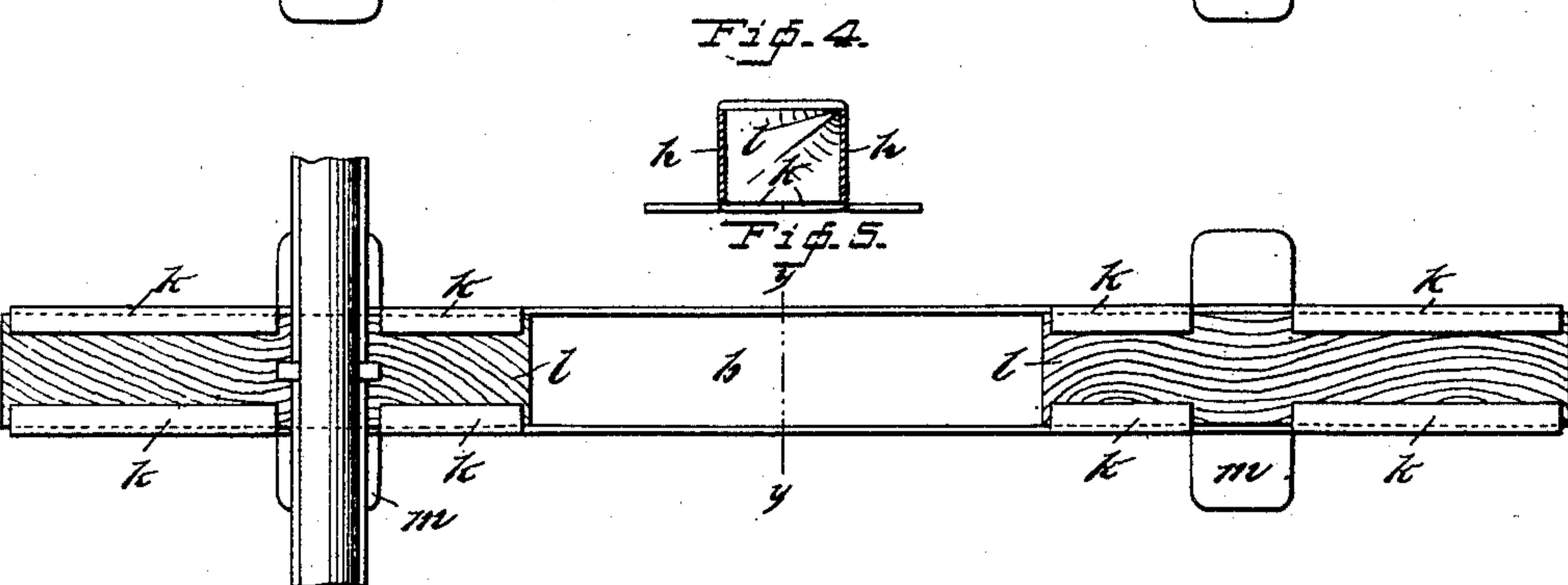
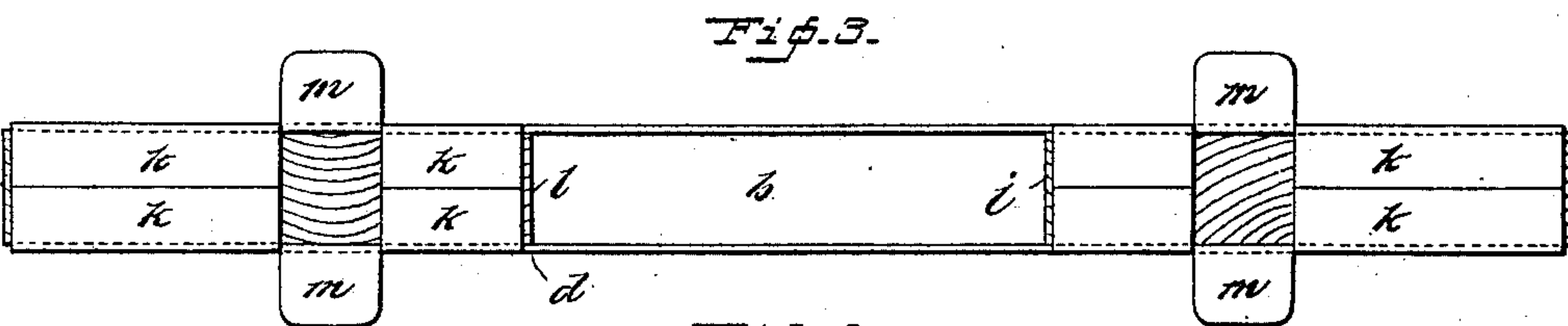
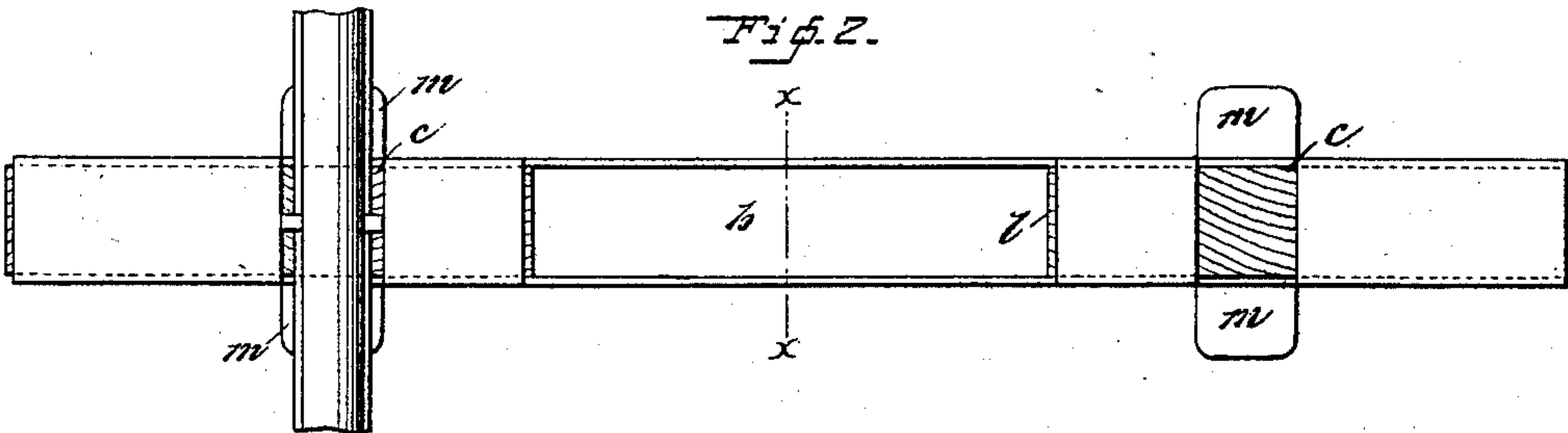
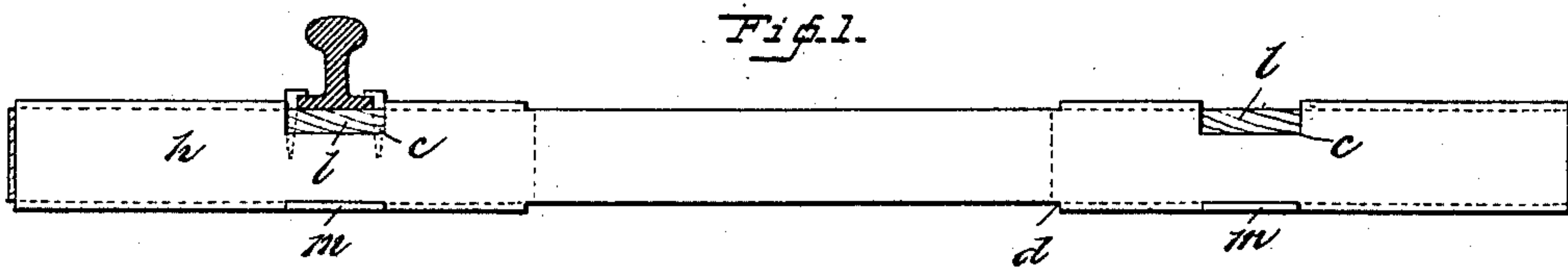
2 Sheets—Sheet 1.

R. MORRELL.

RAILROAD TIE.

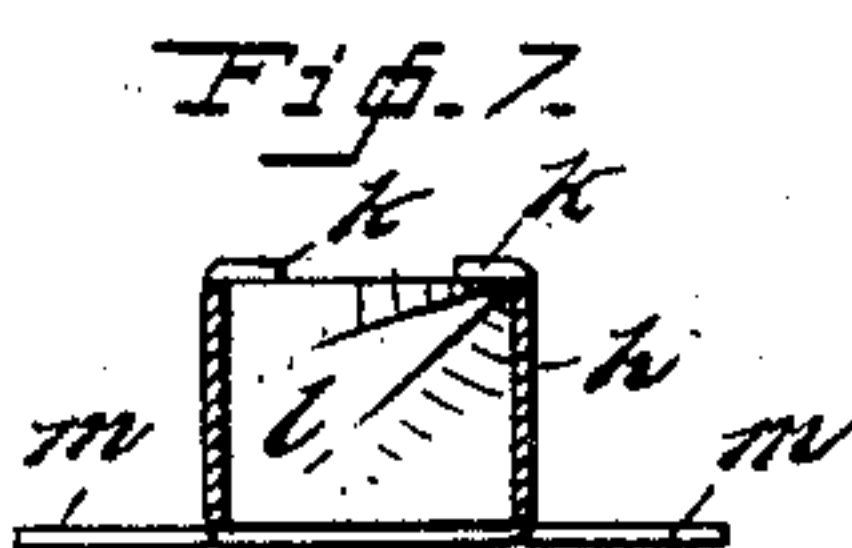
No. 354,433.

Patented Dec. 14, 1886.



Witnesses,

C. C. Perkins.  
W. J. Morgan.



Inventor,

Robt. Morrell.  
By A. P. Thayer,  
Att'y.

(No Model.)

2 Sheets—Sheet 2.

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Fig. B.

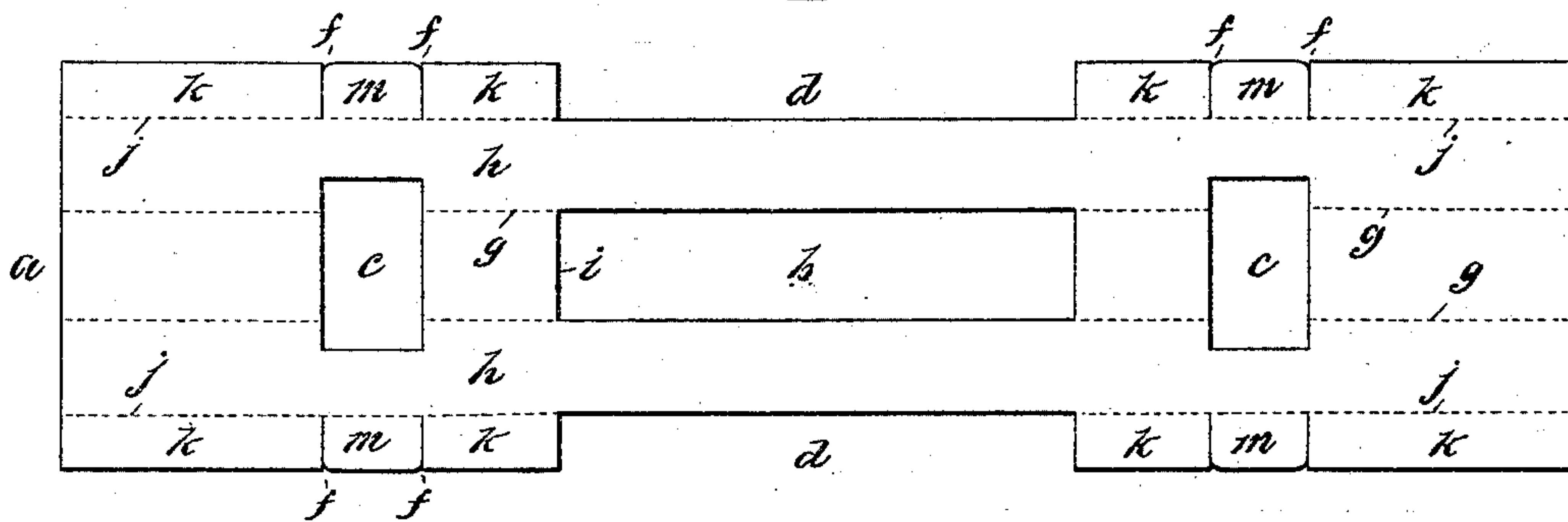
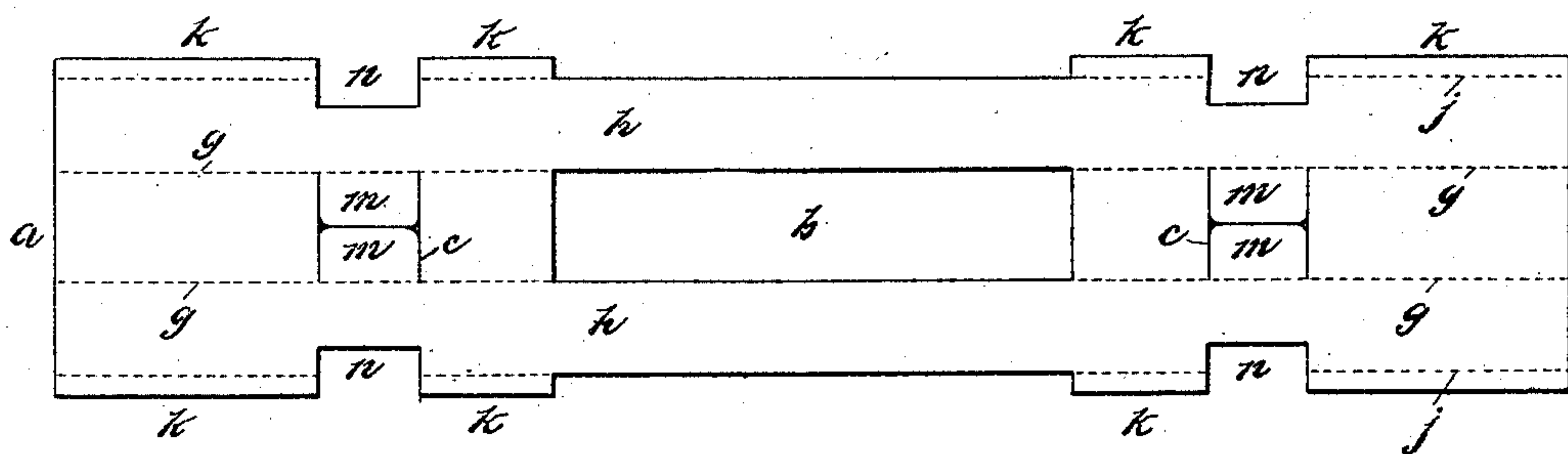


Fig. A.



Witnesses.

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# UNITED STATES PATENT OFFICE.

ROBERT MORRELL, OF SUMMIT, NEW JERSEY.

## RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 354,433, dated December 14, 1886.

Application filed October 13, 1886. Serial No. 216,100. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT MORRELL, of Summit, Union county, New Jersey, have invented a new and useful Improvement in Railroad-Ties, of which the following is a specification.

My invention consists of improvements in the contrivance of a combined metallic and wood tie, whereof the metallic portion is made from a rolled-metal plate, as hereinafter fully described, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved tie and a section of a rail laid on it. Fig. 2 is a plan view of the same. Fig. 3 is a plan of the tie inverted. Fig. 4 is a cross-section on line  $x\ x$  of Fig. 2. Fig. 5 is a plan view of a modified form of my improved tie with a portion of a rail laid on it. Fig. 6 is a plan view of the tie of Fig. 5 inverted. Fig. 7 is a transverse section of Fig. 5. Fig. 8 is a diagram of the plate as I prepare it for making the tie as represented in Figs. 1 to 4, inclusive. Fig. 9 is a diagram of the plate as I prepare it for making the tie represented in Figs. 5 to 7, inclusive.

My improved tie is designed more particularly for elevated roads, bridges, and such other structures or places as have the ties placed on and attached to metallic or other stringers, instead of being embedded in the ground; but it is also designed for use on the ground.

The essential features are the contrivance of metallic plates, whereby the end portions are formed into shells or cases for receiving elastic bearing-blocks of wood or other equivalent material, also the contrivance, together with the metal plate having the end portions bent into shells or cases for containing elastic bearing-seats of wood or other equivalent material for the rails, of laterally-projecting base-flanges for securing the ties to the stringers, and a contrivance of the middle portion with a vertical open space adapted to allow the snow to fall through and prevent it from lodging on the top, and thus save the labor of sweeping it off, as is the custom on elevated roads.

In the construction of the tie, as represented in Figs. 1 to 5, I first provide the rolled-metal plate  $a$  of approved length, breadth, and thick-

ness, and punch out the longitudinal middle space,  $b$ , also the transverse spaces  $c$ , near each end of space  $b$ , also the long notches  $d$  in the edges along the middle, and also (when the tie is to be attached to stringers) cut the slits  $f$  in the edges coincident with the side edges of transverse spaces  $c$ . Then I bend up the plate to right angles along the dotted lines  $g$ , forming sides  $h$  to the part  $i$ , which constitutes the top of the rail when placed in position, and then bend said sides again to right angles along the lines  $j$ , turning the parts  $k$  inward, so that the edges meet, or thereabout, as seen in Figs. 3 and 4, and form the bottoms of the shells or cases for the elastic bearing-blocks  $l$  of wood; finally, (when the tie is to be attached to stringers,) I bend out the base-flanges  $m$  at right angles to the sides  $h$  and in opposite directions to the parts  $k$  for lateral extension along the stringers to fasten the ties thereto by bolting or riveting them to said stringers; but when the tie is to be laid on the ground the parts  $m$  are bent together with parts  $k$ . The wood blocks are then driven lengthwise into the metallic shells thus constructed either from the ends or from the middle space,  $b$ , as preferred, and the rails are laid and spiked on them in the spaces  $c$ . This makes a substantial combined metallic and wood tie, the contrivance enabling the required strength to be obtained with very light and thin metal. The joint of the edges of the bent plate is at the bottom, and the top is a continuous solid plate—a form that is greatly strengthened by the base-flanges when the tie is attached to stringers; but I make substantially the same tie with the open joint along the top and with a closed bottom by only partly cutting out the metal from the spaces  $c$ , and forming the base-flanges  $m$  thereof, and making notches  $n$ , as represented in the blank of Fig. 9, instead of forming the flanges thereat, as in Fig. 8. The open space in the tie is also provided for less obstruction of light to the roadway below.

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

1. In a railroad-tie consisting of metallic shells or cases made of a rolled and bent metal plate and elastic bearing-seats for the rails located in said shells or cases, the metallic portion con-

structed with the joint edges meeting, or nearly so, along the bottom of the tie, the continuous solid top at each end, and with the bearing-openings for seating the rails on the wood cut 5 through said continuous solid top, substantially as described.

2. In a railroad-tie consisting of metallic shells or cases made of a single rolled and bent metal plate, and elastic bearing-seats for the 10 rails located in said shells or cases, the metallic portion constructed with the vertical open space through the middle portion, and with the bearing-openings for seating the rails made in the top of the shells or cases, substan- 15 tially as described.

3. In a railroad-tie consisting of metallic shells or cases made of a single rolled and bent metallic plate, and elastic bearing-seats for the rails located in said shells or cases, the metallic portion constructed with the bearing- 20 openings for seating the rails made in the top of the shells or cases, and also with the vertical open space through the middle portion, substantially as described.

ROBERT MORRELL.

Witnesses:

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S. H. MORGAN.