

A. MORRISON.
RAIL.

(Application filed Apr. 22, 1901.)

(No Model.)

Fig. 1.

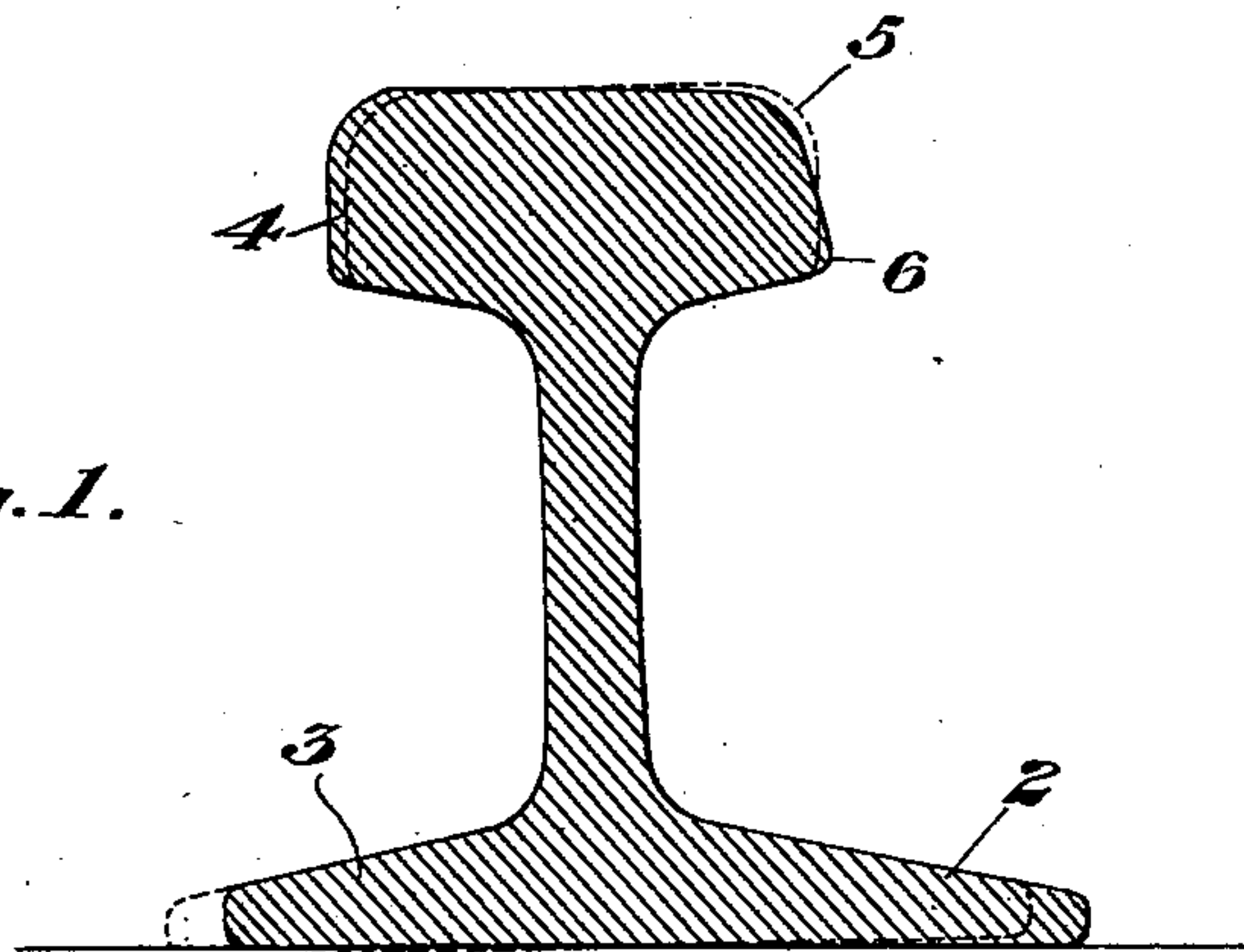


Fig. 2.

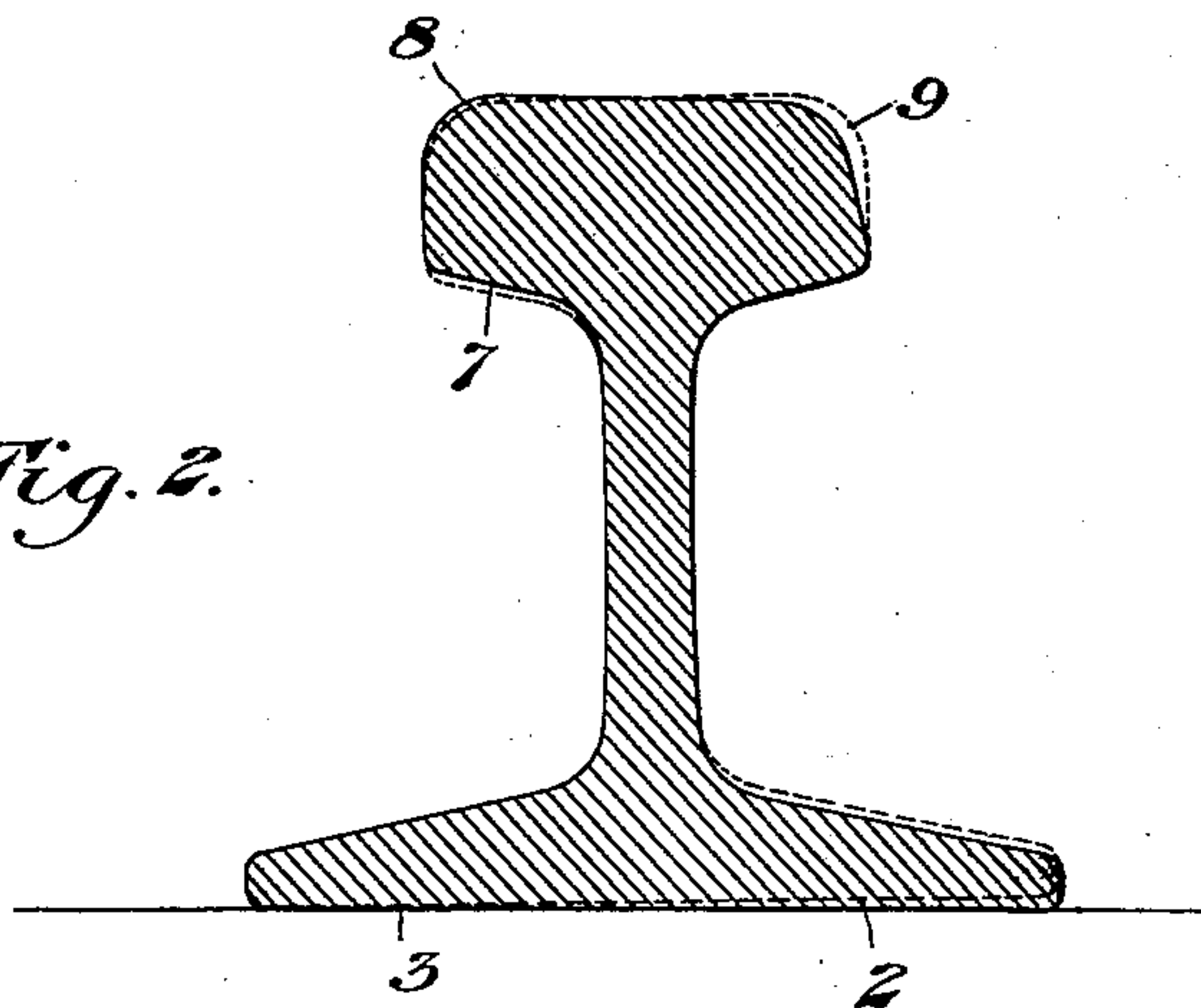
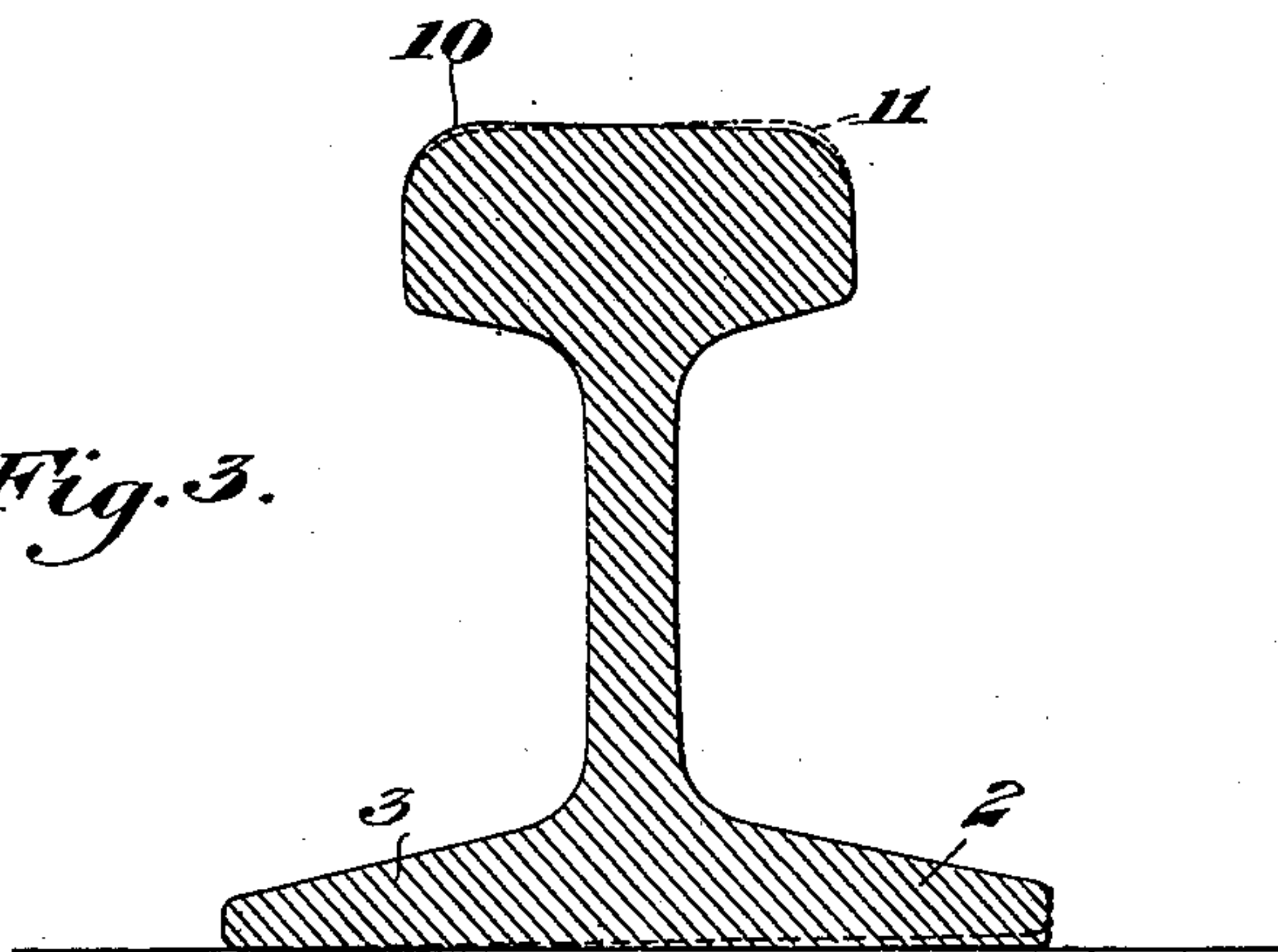


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

ANDREW MORRISON, OF PITTSBURG, PENNSYLVANIA.

RAIL.

SPECIFICATION forming part of Letters Patent No. 714,011, dated November 18, 1902.

Application filed April 22, 1901. Serial No. 56,839. (No model.)

To all whom it may concern:

Be it known that I, ANDREW MORRISON, of
Pittsburg, in the county of Allegheny and
State of Pennsylvania, have invented a new
5 and useful Rail, of which the following is a
full, clear, and exact description, reference
being had to the accompanying drawings,
forming part of this specification, in which—

10 Figures 1, 2, and 3 are cross-sections show-
ing different forms of rails constructed in
accordance with my invention.

My invention is designed to overcome the
embedding of the outer flanges of rails in
their supporting-ties, which results from the
15 fact that the resultant of pressures from the
wheel is inclined slightly to the vertical, thus
increasing the relative pressure on the outer
base-flange, tending to embed this flange.

To that end the invention consists, broadly,
20 in a rail having a flange slightly inclined
toward the inner side, the head, or at least
the inner portion thereof, being substantially
parallel with the base, so that the vertical cen-
tral plane of the rail makes an angle slightly
25 greater than a right angle to the plane of the
rail-base.

It further consists in the above construction,
wherein the outer base-flange of the rail is
wider than the inner base-flange, and, further,
30 in the construction and arrangement of the
parts, as hereinafter more fully described,
and set forth in the claims.

In the drawings, in each of which the dotted
lines indicate the standard T-rail section, re-
35 ferring to Fig. 1, I show a rail as having the
base extending at a slight angle to that of the
normal rail-base, so that the outer angle be-
tween the central plane of the web and the
rail-base is slightly greater than a right angle.
40 I have also shown in this form the outer base-
flange 2 as wider than the inner base-flange 3,
thus further equalizing the pressures upon
the two flanges. The outer flange 2 is also
made slightly thicker than the ordinary
45 T-rails of similar size by adding metal along
the under surface of the base, while the inner
flange is made correspondingly thinner by
removing metal from the under surface of
the base. In this form, therefore, the thick-
50 ness of the base is changed in the various
parts for facilitating the rolling of the rail
and for providing proportionate strength for

the narrowed or widened parts of the base.
In this form the inner part of the head ex-
tends substantially parallel with the base 55
and is made wider than the inner portion of
the standard T-rail, as indicated at 4, and
the outer part of the rail-head is cut away
somewhat from the normal section, as shown
at 5, the head being widened at the lower 60
outer corner, as at 6. A full bearing is thus
made for the angle-bar on the outer side of
the head, while the top bearing-surface for
the wheel is decreased in the outer part of the
head. 65

In the form of Fig. 2 the base-flanges 2 and
3 are bent down or lowered, as shown by the
dotted line, so as to change the base of the
rail from a right-angular position to the cen-
ter line of the rail, giving the base an inward 70
bevel, which will tilt the rail inward when
used on the track. The inner half of or the
entire head is practically parallel with the
base to prevent the load from riding on the
outer corner of the rail, and thus causing the 75
rail to tilt outwardly. In this form the under
part of the inner half of the head is cut away,
as shown at 7, in order to make the angle-bars
interchangeable on both sides of the rail, and
metal is correspondingly added to the upper 80
part of this inner half, as shown at 8, to in-
crease the bearing on the inner half of the
rail-head, and thus further gaining the object
desired. The outer part of the head is cut
away or beveled, as shown at 9. 85

In the form of Fig. 3 the outer flange 2 is
thickened by adding metal along the under
side of the outer base, so as to tilt the rail in-
ward and at the same time maintain equal
depths of angle-bars. The top of the rail is 90
made practically parallel with the beveled
base, and metal is preferably added to the
upper side of the inner half of the head at
10 and removed from the outer half, as shown
at 11. 95

In the second and third forms the base-
flanges are of substantially equal width.

The advantages of my invention flow from
the making of the outer angle between the
vertical plane of the web and the plane of the 100
base greater than a right angle, while the in-
ner half of the head is substantially parallel
with the base, and hence also forms an ob-
tuse angle to the vertical plane of the web.

The rail is so proportioned that the same depth of angle-bars may be used on both sides and the embedding of the outer flanges is greatly decreased, the pressure being substantially equalized over the entire rail-base.

Many changes may be made in the form and size of the rail without departing from my invention.

I claim—

10 1. A rail having a web whose plane forms an outer angle with the plane of the base which is greater than a right angle, the inner part of the rail-head being substantially parallel with the base of the rail; substantially
15 as described.

2. A rail having a T-shaped head, and an inclined web the said web forming equal angles with the under sides of the head and also equal angles with the upper sides of the base;
20 substantially as described.

3. A rail having a web forming an obtuse outside angle with the plane of the base, the outer base-flange being thicker than the inner base-flange; substantially as described.

25 4. A rail having a web forming an obtuse inner angle with the head, and an obtuse outer angle with the base, the outer base-flange being thicker than the inner base-flange, said rail being arranged to receive angle-bars of even depth on both sides; substantially
30 as described.

5. A rail having a T-shaped head, and an

inclined web, said web forming equal fishing angles on both sides, the outer base of the rail being deeper than the inner base; substantially as described. 35

6. A rail having its web forming an obtuse inner angle with the head, and an obtuse outer angle with the base, the inner part of the rail-head having metal added to its top portion over the normal T-head rail; substantially as described. 40

7. A rail having a web whose plane forms an outer angle with the plane of the base which is greater than a right angle, the inner part of the head being substantially parallel with the base of the rail, the outer base-flange being wider than the inner base-flange; substantially as described. 45

8. A rail having a T-shaped head, and an inclined web forming an inner angle with the plane of the head and an outer angle with the plane of the base, both of which angles are greater than a right angle, the web forming equal angles with the under sides of the head, and also equal angles with the upper sides of the base; substantially as described. 50 55

In testimony whereof I have hereunto set my hand.

ANDREW MORRISON.

Witnesses:

H. M. CORWIN,
C. P. BYNES.