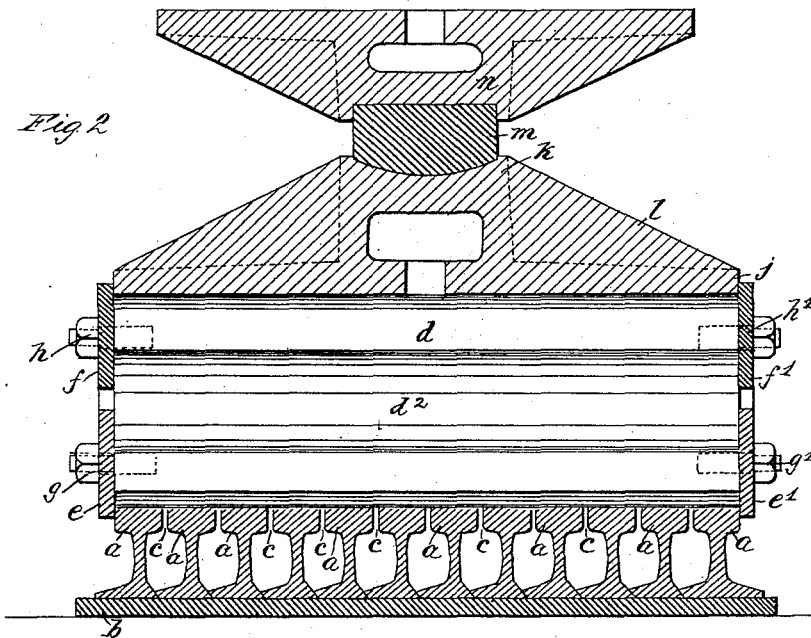
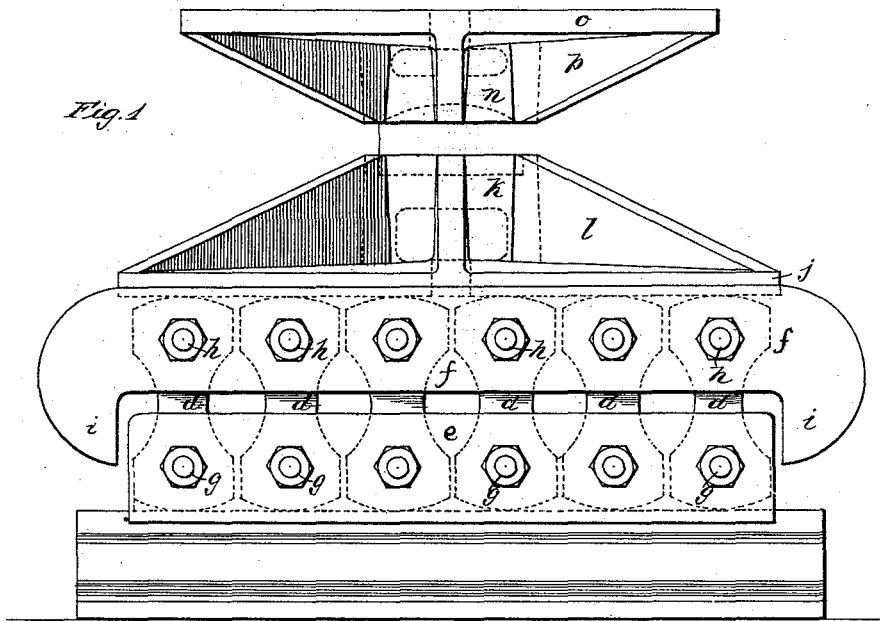


G. S. MORISON.  
EXPANSION BEARING FOR BRIDGES.

No. 484,971.

Patented Oct. 25, 1892.



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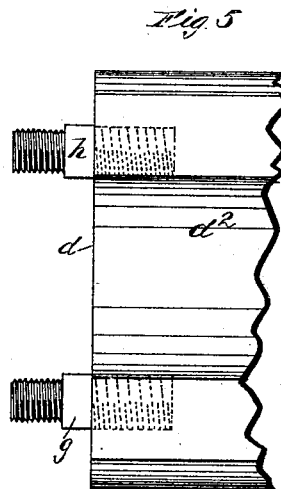
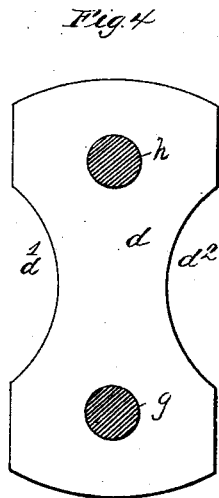
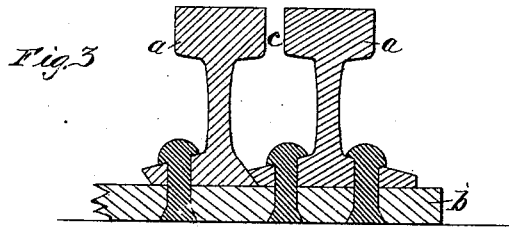
(No Model.)

3 Sheets—Sheet 2.

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3 Sheets—Sheet 3.

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Fig 9.

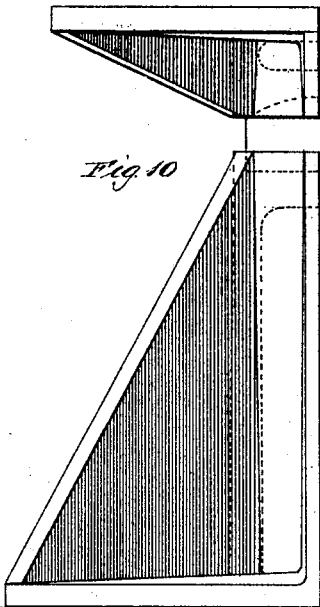
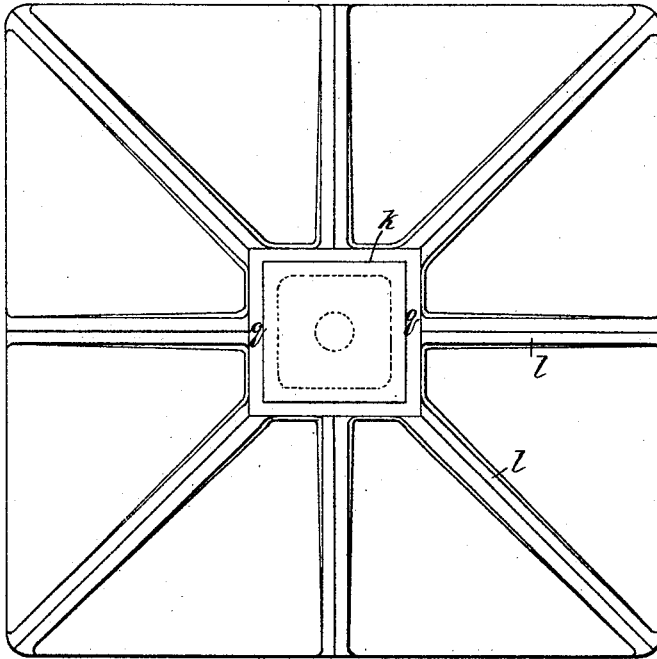


Fig 7

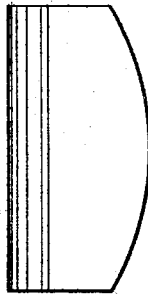


Fig 6

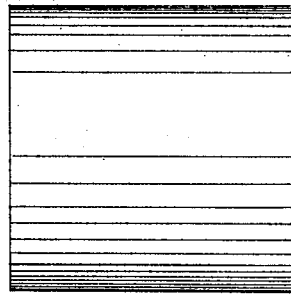
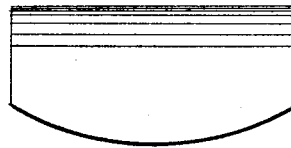


Fig 8



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# UNITED STATES PATENT OFFICE.

GEORGE S. MORISON, OF CHICAGO, ILLINOIS.

## EXPANSION-BEARING FOR BRIDGES.

SPECIFICATION forming part of Letters Patent No. 484,971, dated October 25, 1892.

Application filed May 21, 1892. Serial No. 433,861. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. MORISON, of Chicago, in the county of Cook and State of Illinois, have invented a new Expansion-Bearing, of which the following is a specification.

The object of my invention is to construct an expansion-bearing applicable to bridge superstructures, in which the rollers can be made of large size, so that they will roll with a minimum amount of friction, in which provision is made for a uniform distribution of weight on the rollers in spite of any irregularity in the level of the bed or any disturbance from the deflection of the superstructure, and in which the base is stiff and not liable to get clogged with dirt.

In the accompanying drawings, Figure 1 is an elevation of the bearing, looking toward the ends of the rollers. Fig. 2 is a sectional elevation of the same, on a vertical plan, passed transversely through the center of rocker-plate. Fig. 3 is a cross-section of a portion of the base-plate. Fig. 4 is an end view of one of the rollers detached. Fig. 5 is a partial side view of the same. Fig. 6 is a plan view of the rocker-plate. Figs. 7 and 8 are edge views of the same, looking in directions at right angles with each other. Fig. 9 is a plan view of the bearing-plate below the rocker-plate. Fig. 10 is a modification, showing the rocker-plate interposed between an upper and lower bearing-plate without the employment of any separate base-plate or rollers.

The base-plate is formed of a series of T-rails *a*, riveted to a plate *b* below and subsequently planed on their upper surfaces. A base-plate so constructed will be stiff vertically and will keep itself clean. Dust instead of collecting on the upper surface will drop through the spaces *c c* between the rails, and a brush can easily be worked from below when it becomes necessary. *d d* are the rollers, one of which is shown in detail in Figs. 4 and 5. When placed in position, as shown in Fig. 1, they lie transversely of the rails and their respective vertical diameters are greater than the horizontal distance between their centers. They are therefore of necessity segmental rollers, or rollers with the sides cut off, as shown in Fig. 4. Their sides are parallel

planes, and when the series of rollers is in position, as shown in Fig. 1, they are separated by so short a distance that the plane sides of adjacent rollers will come in contact before the rollers will tip over. Each roller is hollowed out on both sides, as shown at *d' d'*, Fig. 4, making a space through which a brush can be worked for cleaning, if it be desired.

*e e'* and *f f'* are end plates which hold the rollers in their true relative position. All of the rollers are journaled at one end to the plate *e* by the journals *g g*, &c., and at the other end to the plate *e'* by the journals *g', &c.* All of the rollers are likewise journaled to the plate *f* by the journals *h h*, &c., and to the plate *f'* by the journals *h', &c.* Each of the plates *f* and *f'* is provided at each end with a downward projection *i*, that overlaps the end of the plate *e* or *e'* beneath, leaving a space between, as shown in Fig. 1, so as to admit of the limited motion of the rollers in either direction. On top of the series of rollers rests the plate *j*, having a flat lower surface. From the top of this plate rises a column *k*, braced laterally by the ribs *l l*, &c. The upper surface of the column *k* forms the lower bearing for a rocker-plate *m* of peculiar construction. (Shown in detail in Figs. 6, 7, and 8.) On top of the rocker-plate rests a column *n*, that extends downward from a plate *o*, adapted to carry the weight of the bridge overhead. The column *n* is braced laterally by the ribs *p*.

The rocker-plate *m* is peculiar. It has two cylindrical surfaces, the upper and the lower, at right angles to each other. One of these fits in a cylindrical surface on top of the column or bearing *k* and the other fits in a cylindrical surface on the bottom of the column or bearing *n*. The concave cylindrical surface is in each case bounded by a vertical bearing-surface at each end, as shown at *q q*, Fig. 9, so that the upper bearing can rock in both directions, while it is held from moving horizontally by the fact that the rocker-plate is held in one direction by the cylindrical surface and in the other by the vertical bearings at the ends of the cylindrical surface. The rocker-plate serves not only to distribute the weight equally over the whole nest

of rollers, but to distribute it equally over the length of each roller.

I claim—

1. In an expansion-bearing, in combination, a base-plate, a series of rollers resting thereon, two bearings surmounted upon said series of rollers, and a rocker-plate interposed between said bearings, substantially as described.
2. In an expansion-bearing, in combination, a base-plate, a series of rollers resting thereon, two bearings surmounted upon said series of rollers, and a rocker-plate interposed between said bearings, said rocker-plate being provided with cylindrical upper and lower bearing-surfaces, respectively, at right angles with each other, substantially as described.
3. In an expansion-bearing, in combination, a base-plate composed of a series of parallel T-rails secured together, a series of segmental rollers resting transversely upon said rails in such position that their vertical diameters exceed the horizontal distance between their centers, and a bearing-plate resting upon said rollers, substantially as described.
4. In an expansion-bearing, in combination, a base-plate, a series of rollers resting thereon, two parallel or approximately-parallel plates journaled to the ends of said rollers on opposite sides of the centers thereof, and a bearing-plate resting on the tops of said rollers, substantially as described.
5. In an expansion-bearing, in combination, a base-plate, a series of rollers resting thereon, two parallel or approximately-parallel plates journaled to the ends of said rollers on opposite sides of the centers thereof, and a bearing-plate resting on the tops of said rollers, one of said end plates being provided with a projection overlapping the other, substantially as described.
6. In combination, two bearings and a rocker interposed between the same, said rocker being provided on opposite sides with cylindrical bearing-surfaces, respectively, at substantially right angles with each other, as set forth.
7. In an expansion-bearing, in combination with the rollers thereof, two plates, one provided with a projection overlapping the other, and connections between said plates and rollers, whereby the movement of the rollers causes the plates to move with respect to each other, substantially as described.

GEO. S. MORISON.

Witnesses:

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