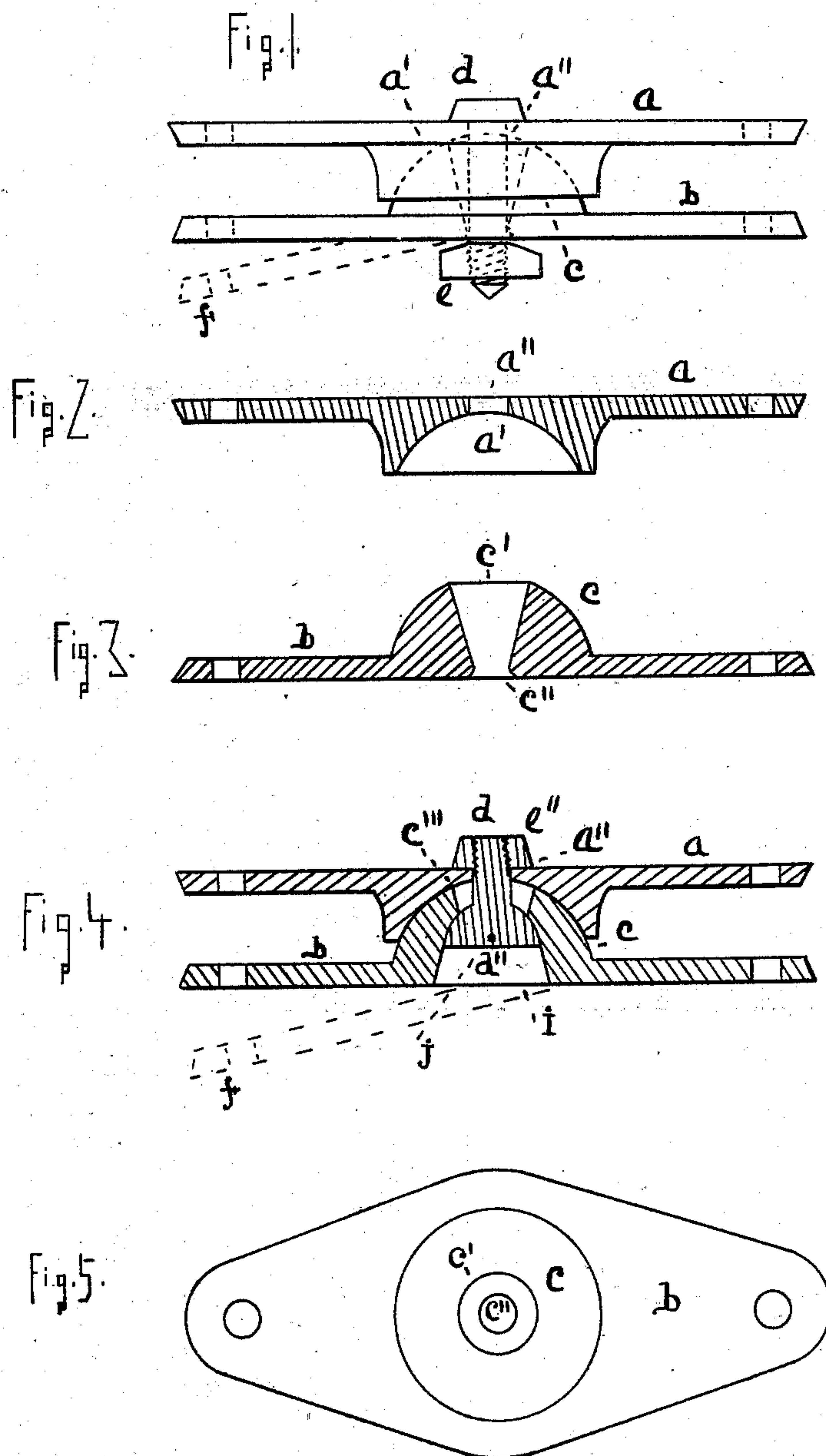


(No Model.)

H. L. TREMAN.
BOLSTER PLATE FOR VEHICLES.

No. 270,265.

Patented Jan. 9, 1883.



S. J. Parker.
John Smith Jr.

Witnesses.

Howard L. Tremain.
Inventor.

UNITED STATES PATENT OFFICE.

HOWARD L. TREMAN, OF HECTOR, NEW YORK.

BOLSTER-PLATE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 270,265, dated January 9, 1883.

Application filed October 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, HOWARD LA FAYETTE TREMAN, of Hector, Schuyler county, New York, (with post-office at Mecklenburg, same town and county,) have invented an Improved Bolster-Plate for Vehicles, of which the following is a specification, reference being made to the accompanying drawings.

My object is to make a bolster-plate having a knob moving in a circular cup or cavity with great freedom of motion about the king-bolt, for especial use in heavy wagons and in sleighs; and the nature of my invention will be apparent as I describe the plate.

Figure 1 is a side elevation of the two parts of the plate. Fig. 2 is a longitudinal section perpendicularly through the center of the upper half of the plate. Fig. 3 is the same section through the lower half or part of the plate. Fig. 4 is another form of the king-bolt, shown by longitudinal section. Fig. 5 is a view looking down on the lower half or part of the plate, showing its shape and rendering the other figures clearer.

In the figures, *a* is the upper half or part of the plate, shaped as seen in Fig. 5, and is a plain piece of metal made with an inverted circular cup-cavity, *a'*, beneath the plain part of it. It has three apertures through it—one at each end—by which it is bolted to the bolster, and another, *a''*, for the king-bolt; and *b* is the lower half or part of the plate, made similarly to the part *a*, and with the same number of apertures, except that instead of a cup circular cavity it has a circular knob or stud, *c*, that fits into the cup-cavity of the upper part. An aperture, *c'*, is made through the stud *c*, which is shaped as seen in Fig. 3—that is, it is funnel-shaped, with a neck, *c''*, at its lower portion. In the apertures *a'* and *c'* there is placed a king-bolt, *d*, which is shown in Fig. 1 to have a head on the top of the plate *a*, and to reach through the funnel part of the aperture *c'* to fit the neck *c''*, and have a burr, *e*, on its lower end. This burr has its upper surface beveled or circular, as shown in Fig. 1. The dotted lines show the extent of motion that the plates have—those of Fig. 1, *f* that of the beveled burr *e* and funneled aperture *c'*. By

this arrangement it will be seen that I make a half ball and socket about the king-bolt, with a large extent of motion.

In Fig. 4 another form differing from the one just described is shown. In it the burr *e''* is on the top of the upper plate, *a*, the king-bolt *d* is in the apertures *a''* and *c'''*, and the head *d''* of the king-bolt *d* is in the cavity *i* of the stud *c* of that figure, the bolt-head *d''* being circular on its upper part and fitting into the half-circular cavity *i*, as shown in section. The funnel shape of the aperture *a''* is truncated or cut down, so as to leave only the top portion of what is seen in section in Fig. 3. By this construction the same half-ball and half-ball socket is used as in Figs. 1, 2, and 3; but the central pivot-point of the king-bolt is raised from the neck *c''* of Fig. 3 to a point indicated by a small black dot just above the letter *d''*, Fig. 4, which dot is marked *j*, Fig. 4. The advantage is that in Fig. 1 the motion vertically of the ball-and-socket joint of the plates is limited by the bolt and by the nearness to each other of the plates; but in Fig. 4 the motion of the joint vertically is limited not at all practically by the king-bolt, and only by the shape of the stud *c* and the nearness of the plates *a* and *b*, or, in other words, is greater. It were easy to make figures showing other forms of sockets *a'* and of studs *c* in extension of this same principle—as, for example, one with a more complete ball and socket.

The advantages and uses of my invention are apparent.

I claim—

1. Ball-and-socket-joint plates for vehicles, constructed by the plates *a* and *b* with king-bolt *d*, the ball-surface of the stud *c* fitting into the cavity *a'*, and there being a funnel-excavation in the stud about the king-bolt, as shown and described.

2. The half-ball stud *c*, fitting into the cavity *a'*, the stud having an excavation, *i*, in which the king-bolt head is fitted, and the truncated funnel-excavation *c'''*, as shown and described.

HOWARD LA FAYETTE TREMAN.

Witnesses:

S. J. PARKER,
WM. J. TOTTEN.