

No. 671,328.

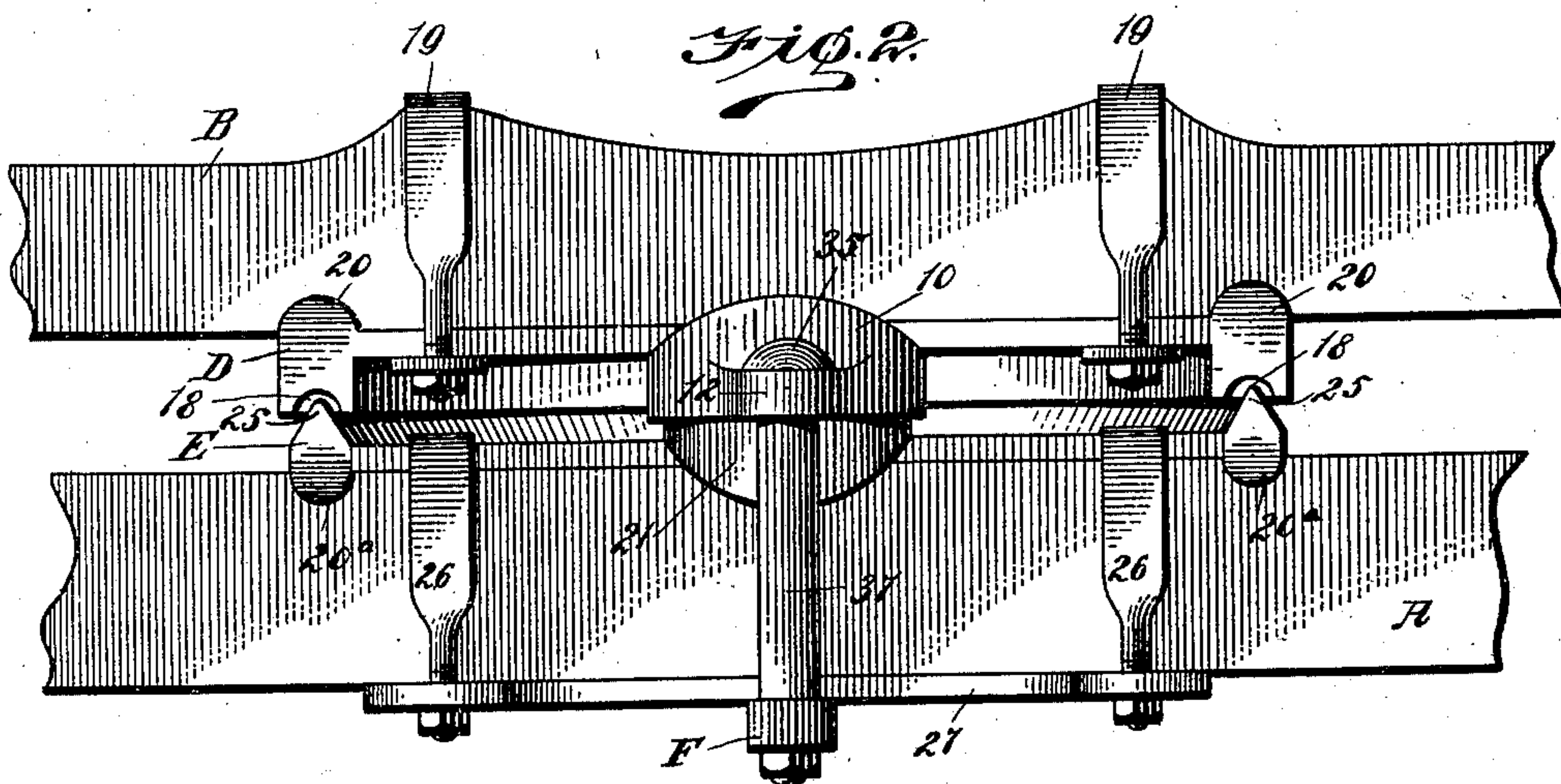
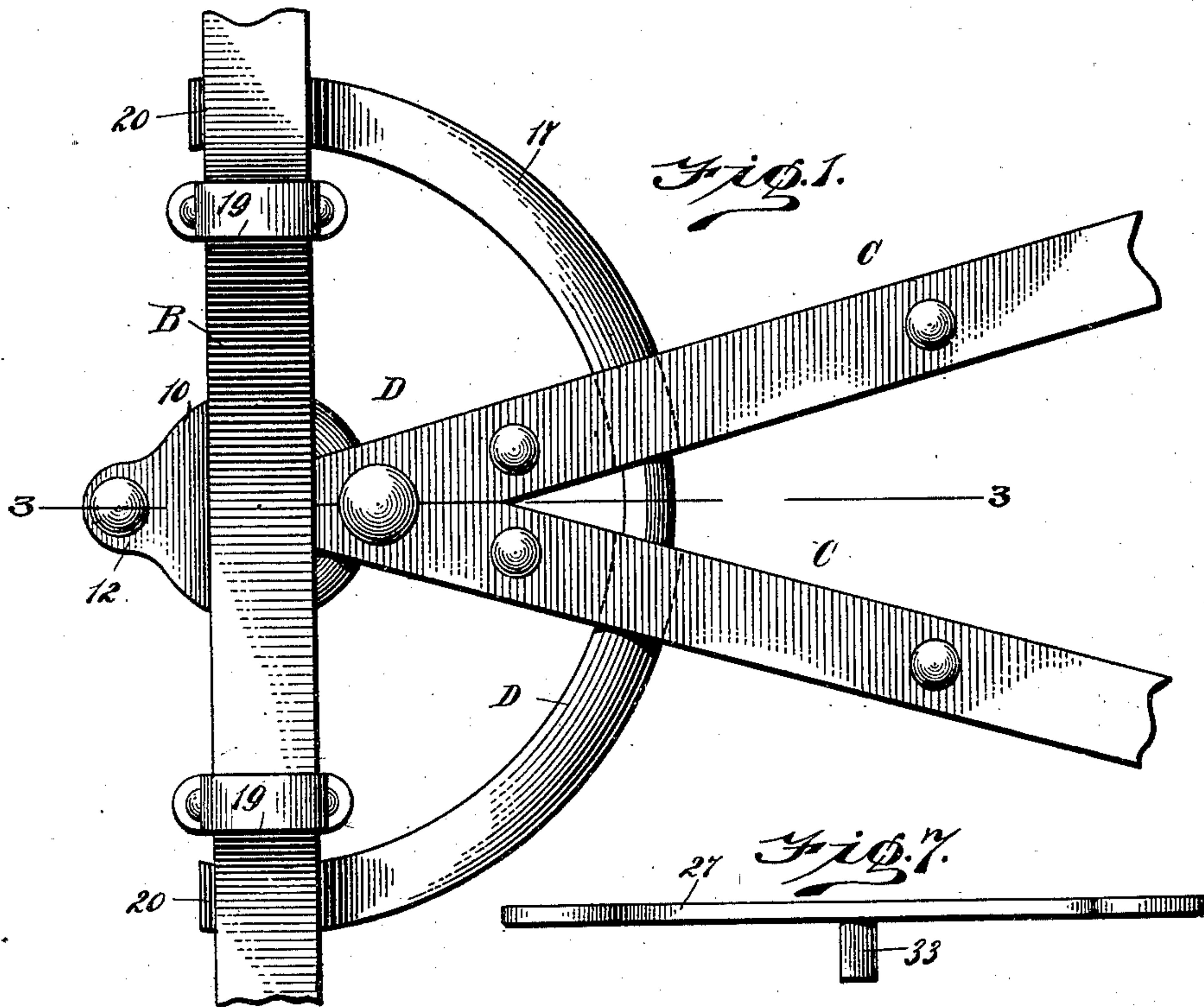
Patented Apr. 2, 1901.

C. G. BURDICK.
FIFTH WHEEL.

(Application filed Sept. 5, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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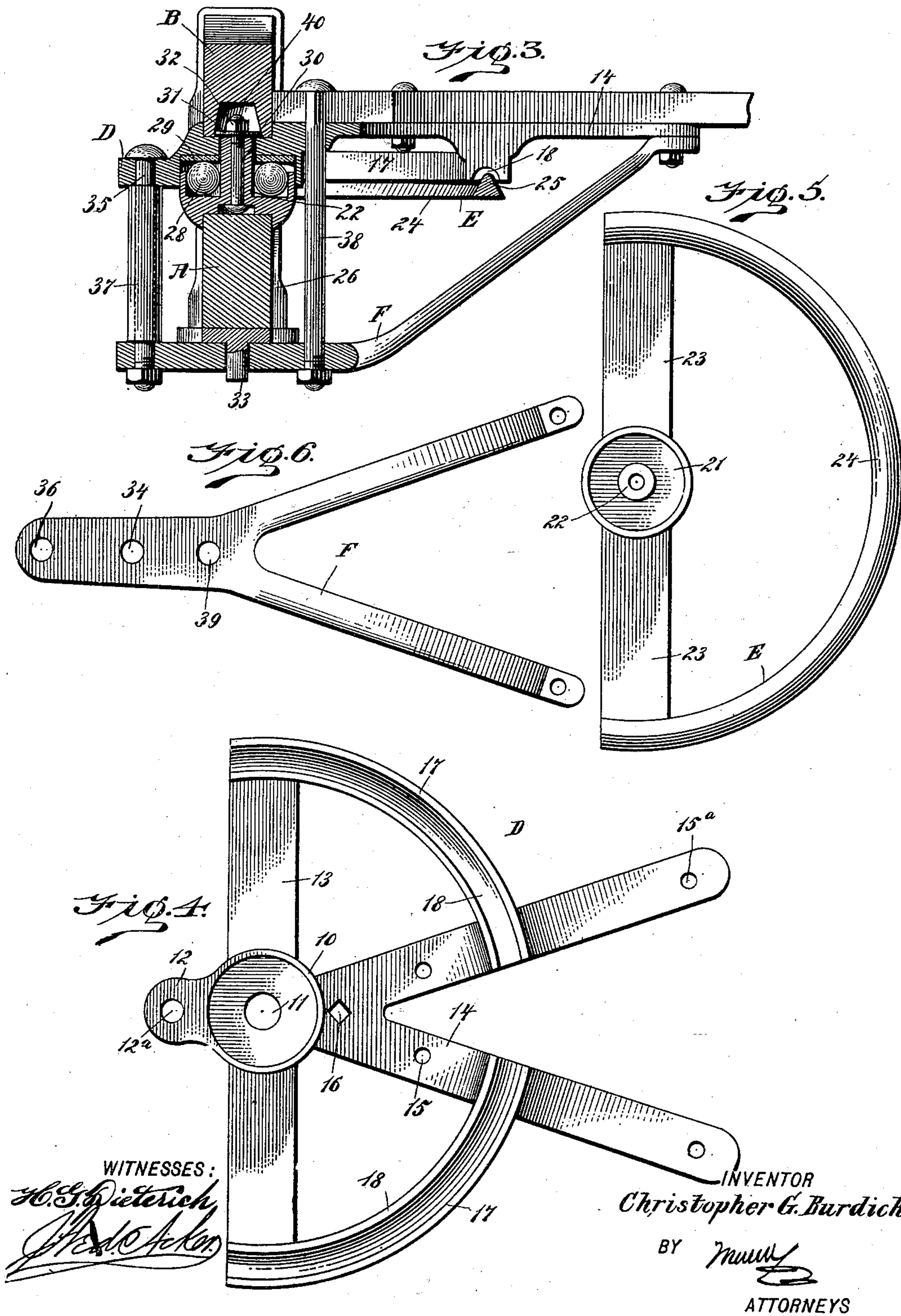
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UNITED STATES PATENT OFFICE.

CHRISTOPHER GILL BURDICK, OF ANTIGO, WISCONSIN.

FIFTH-WHEEL.

SPECIFICATION forming part of Letters Patent No. 671,328, dated April 2, 1901.

Application filed September 5, 1900. Serial No. 29,028. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER GILL BURDICK, a citizen of the United States, and a resident of Antigo, in the county of Langlade and State of Wisconsin, have invented a new and Improved Fifth-Wheel, of which the following is a full, clear, and exact description.

One purpose of the invention is to provide a fifth-wheel for vehicles which will have a central ball-bearing and interlocking segmental braces or guides forming a portion of the bearing and which are so constructed that one will turn in the other under ordinary circumstances without friction and to so construct and locate the braces or guides that when the vehicle is cramped or unduly weighted at one side said braces or guides, while not having a retarding action, will relieve the central ball-bearing from undue strain in direction of the inclination of the weight.

A further purpose of the invention is to provide means for concealing and protecting the main king-bolt and to provide auxiliary king-bolts, which are located at front and rear of the main one, acting in conjunction with the braces or guides to overcome any severe strain which the main king-bolt would otherwise be called upon to sustain.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the improved fifth-wheel and a portion of the reach of a vehicle. Fig. 2 is a front elevation of the improved fifth-wheel, a portion of the axle, and head-block, the parts being shown on an enlarged scale. Fig. 3 is a longitudinal vertical section taken practically on the line 3 3 of Fig. 1. Fig. 4 is a bottom plan view of the upper section of the fifth-wheel. Fig. 5 is a plan view of the bottom section of the fifth-wheel. Fig. 6 is a plan view of the lower reach-plate employed, and Fig. 7 is an edge view of a plate which is to be attached to the under face of the axle A.

A represents the forward axle of a vehicle; B, the head-block; C, the forward portion of a bifurcated reach; D, the upper section of the improved fifth-wheel; E, the lower section thereof, and F the under reach-plate. The upper section D of the fifth-wheel consists of a cup 10, which is open at its bottom portion, the said cup being provided with a central opening 11 and a forwardly-extending lug 12, having an aperture 12^a therein. The cup 10 is made integral with or is attached to the central portion of a horizontal cross-bar 13, and from the rear central portion of this cross-bar and the corresponding portion of the cup 10 a bifurcated upper reach-iron 14 is secured or is integrally formed, the members of the said upper reach-iron being provided near their junction with apertures 15 and at their extremities with apertures 15^a, while at a point near the cup 10 a polygonal opening 16 is made in the said upper reach-iron 14, as is shown best in Fig. 4. The construction of the upper member of the fifth-wheel is completed by the addition of segmental braces or guards 17, which extend from the extremities of the cross-bar 13 to the members of the upper reach-iron 14, and in the under faces of the segmental braces or guards 17 a gutter or groove 18 is made half-round in cross section, as is shown in Figs. 2 and 3, and, as illustrated in Fig. 4, these grooves or gutters 18 extend from end to end of the said braces or guards 17.

The transverse bar 13 of the upper section of the fifth-wheel is adapted to lie in engagement with the under surface of the head-block B, and at the ends of the braces or guards 17, crossing the said bar 13, flanges 20 are formed, as shown in Fig. 2, adapted for engagement with the front face of the head-block B. The attachment of the upper section of the fifth-wheel to the head-block B is made through the medium of clips 19, so that the head-block B is in no manner weakened by the attachment to it of the upper section of the fifth-wheel.

The lower section E of the fifth-wheel is shown in detail in Fig. 5 and consists of a cup 21, the upper face of which is open, and said cup is of such diameter that it will enter the cup 10 of the upper section D of the fifth-

wheel. The cup 21 of the lower section E of the fifth-wheel is provided with a central post 22, having an aperture extending longitudinally through it, as shown in Figs. 3 and 5, and the cup 21 is made integral with or is attached to the central portion of the transverse horizontal bar 23, corresponding to the bar 13 of the upper fifth-wheel section, and the construction of the lower fifth-wheel section E is completed by the addition of a segmental brace or guard 24, corresponding to the braces or guards 17 of the upper fifth-wheel section. This guard or brace 24 extends continuously from one end of the cross-bar 23 to the other, being bowed in a rearward direction, and the side faces of the brace or guard 24 are inclined in opposite directions. In fact, in cross-section the guard or brace 24 of the lower section of the fifth-wheel is substantially triangular and its upper contracted portion is adapted to enter the groove, trough, or channel 18, made in the guard or brace of the upper section of the fifth-wheel. Normally, however, the guard or brace of the lower section of the fifth-wheel is not in contact with the face or surface of the groove 18 in the brace or guard of the upper section, so that these two parts may move relative to each other without friction.

The cross-bar 23 of the lower section of the fifth-wheel is adapted to lie upon the upper surface of the axle A, and at the ends of the brace or guard 24 of this lower section of the fifth-wheel flanges 20^a are formed, which engage with the front face of the axle A. The cross-bar 23 of the lower section of the fifth-wheel is secured to the axle A by clips 26, so that the axle A is not rendered weak by apertures to receive bolts. The ends of the clips 26 are received by a wear-plate 27, engaging with the under face of the axle A, as shown particularly in Figs. 2 and 3. When the parts are assembled, the forward portion of the reach C has bearing upon that portion of the reach-iron 14 which connects with the cup 10 of the upper section of the wheel, and the upper reach-iron 14 is secured to the reach C by bolts or their equivalents passed through the apertures 15 and 15^a. The cup 21 of the lower section of the fifth-wheel is made to enter and loosely turn in the cup 10 of the upper section of the fifth-wheel. The post 22 of the cup 21 is made to pass through the opening 11 in the cup of the upper section of the fifth-wheel, as shown in Fig. 3, balls 28 having been placed in the cup 21 prior to entering the same in the cup 10. These balls have bearing against the side wall of the cup 21 and the outer surface of the post 22 and likewise have bearing against a washer 29, apertured to receive the post 22 and located in contact with the upper wall of the cup 10. This washer 29 is made, preferably, of tempered steel and is adapted to take up the wear of the balls 28 and prevent them from wearing the upper cup 10.

The two cups 10 and 21 are connected by a

bolt 30, passed upward through the aperture in the post 22 of the cup 21, and a washer 31 is located upon the upper end of the bolt 30, having bearing against the upper surface of the cup 10, as shown in Fig. 3, a suitable nut 32 being placed upon the upper end of the said bolt. A recess 40 is made in the head-block to receive the upper end of the bolt 30, so that this bolt, which is the main king-bolt, is concealed when the parts of the device are in position. A stud 33 extends down from the central portion of the plate 27, and this stud 33 when the wear-plate 27 is in position is in vertical alinement with the main king-bolt 30, and therefore may be said to be a continuation thereof.

The lower reach-plate F is substantially Y-shaped in plan view, embracing a forked end and a straight body portion, as shown in Fig. 6, and the forked section of the said lower reach-plate is curved in an upward direction or at an angle to the straight body, as shown in Fig. 3. The straight body of the lower reach-plate is provided with three apertures, a central aperture 34 and apertures 36 and 39 at opposite sides of the central aperture. The aperture 34 loosely receives the stud 33, while the aperture 36 receives the lower end of a forward king-bolt 35, which is likewise passed through the aperture 12^a in the stud extension from the upper cup 10. A sleeve 37 is preferably placed around this extra king-bolt 35, as shown in Fig. 3. A third and rear extra king-bolt 38 is also provided, and this latter king-bolt 38 has an upper polygonal section, which is passed through the forward portion of the reach C and through the aperture 16 in the upper reach-plate, the lower portion of the rear king-bolt 38 being carried through an opening 39 in the body of the bottom reach-plate F, and the extremities of the forked portion of this bottom reach-plate are secured to corresponding portions of the upper reach-plate by the same bolts that are passed through the apertures 15^a of the said upper reach-plate.

It will be observed that the ball-bearing of the fifth-wheel is at its center and that the segmental extensions therefrom are simply braces or guides and, as stated, one is never normally in contact with the other; but should the weight be greater on one side of the vehicle than on the other or should the vehicle be unduly cramped at any time the braces or guards will be brought together in such relation that they will sustain the greater portion of the unevenly-distributed weight, and therefore will prevent the ball-bearing of the fifth-wheel from being subjected to extra friction or from being cramped or locked. I furthermore desire it to be understood that the upper surface of the upper cup 10 is usually recessed to receive the bottom portion of the head-block B and that the lower portion of the lower cup 21 is correspondingly recessed to receive the upper surface or face of the axle A.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a fifth-wheel, a ball-bearing and
5 guards or braces extending in segmental form from opposite sides of the ball-bearing and connected therewith, one of the said braces or guards having a channel, and the other
10 brace or guard a triangular surface adapted to enter said channel, the two guards or braces being held normally out of contact, for the purpose set forth.

2. In a fifth-wheel, a central ball-bearing comprising two cups, one arranged to enter
15 the other, one cup having a hollow post which passes through an aperture in the opposing cup, a king-bolt passed through said post, being provided with a washer having bearing against the cup through which the bolt
20 is passed, balls located within the cups around the said post, and segmental guards or braces extending rearward from the cups, the under face of one guard or brace having a half-round groove therein, the upper surface of
25 the opposing guard or brace being triangular in cross-section, the two guards or braces being held normally out of contact with each other, for the purpose set forth.

3. The combination, with a head-block, an
30 axle, a reach, an upper reach-plate and a lower reach-plate, of a fifth-wheel comprising an upper section consisting of a cup, a cross-bar connected with the cup and segmental braces or guards extending from the
35 ends of the cross-bar and connecting with the

upper reach-plate, the said braces or guards having half-round grooves produced therein, the lower section of the fifth-wheel consisting of a cup adapted to carry balls and to enter the cup of the upper section of the
40 wheel, the cup of the lower section having a hollow post which extends through the cup of the upper section into a recess of the head-block, the cup of the lower section of the fifth-wheel being provided with a cross-bar, and
45 a segmental brace or guard attached to the cross-bar, the upper surface of which is triangular in cross-section and is arranged to loosely enter the grooves in the braces or guards in the upper section of the wheel, a
50 main king-bolt passed through the post of the cup belonging to the lower section of the fifth-wheel and having bearing against the cup of the upper section of the fifth-wheel, extra king-bolts passed through the upper and lower
55 reach-plates at opposite sides of the main king-bolt, which is concealed between the axle and head-block, and a pivot pin or stud extending from the axle through the lower reach-plate, said pivot pin or stud being in
60 vertical alinement with the main king-bolt, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTOPHER GILL BURDICK.

Witnesses:

JOHN HARVEY,
WILLIAM WOODHAM.