No. 754,225. PATENTED MAR. 8, 1904.

P. S. LOCKWOOD.

SLEIGH KNEE.

APPLICATION FILED JULY 8, 1903.

NO MODEL.

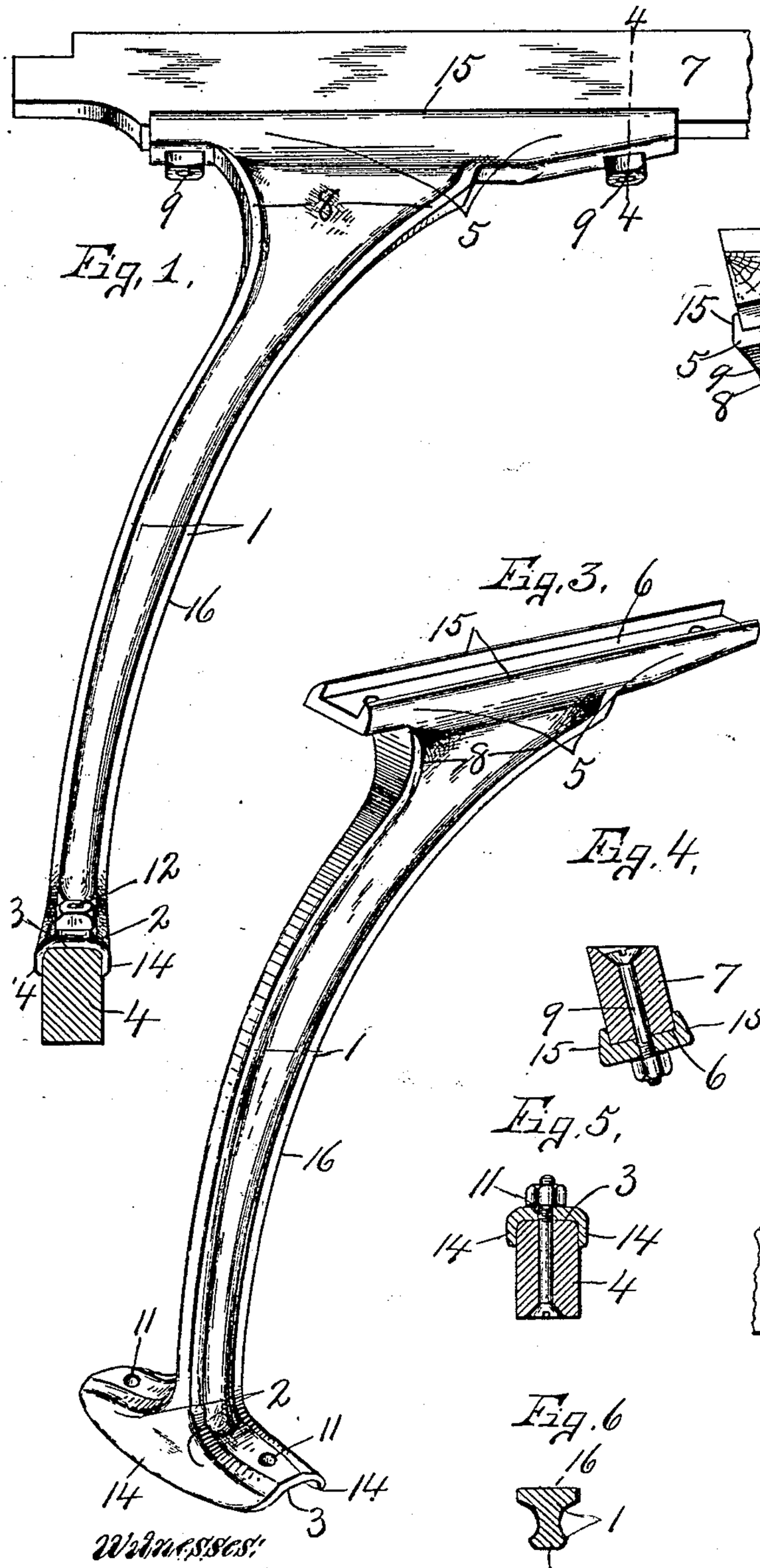

Fig. 1.

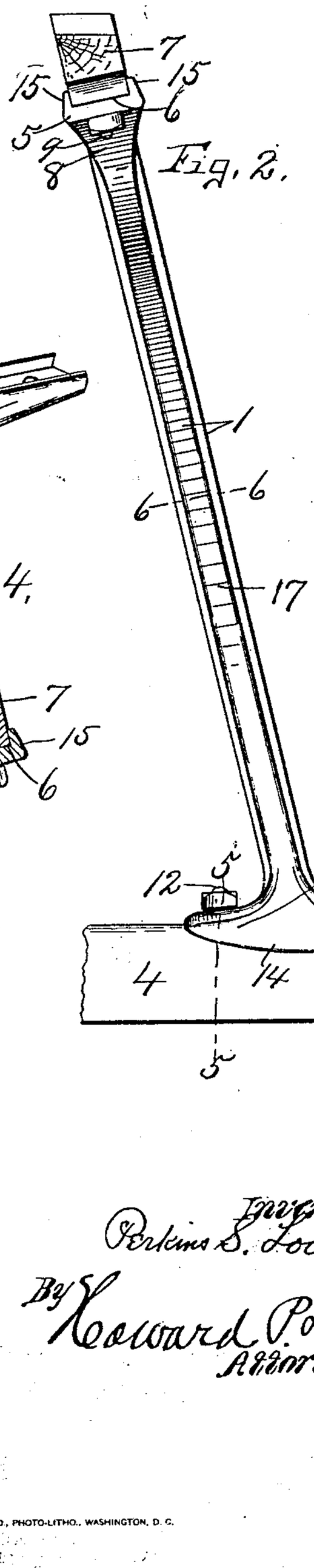

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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No. 754,225. Patented March 8, 1904.

UNITED STATES PATENT OFFICE.

PERKINS S. LOCKWOOD, OF MADRID, NEW YORK.

SLEIGH-KNEE.

SPECIFICATION forming part of Letters Patent No. 754,225, dated March 8, 1904.

Application filed July 8, 1903. Serial No. 164,681. (No model.)

To all whom it may concern:

Be it known that I, PERKINS S. LOCKWOOD, of Madrid, in the county of St. Lawrence, in the State of New York, have invented new and useful Improvements in Sleigh-Knees, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in sleigh-knees, the object of which is to produce a metal knee which is of peculiar form and construction to resist the strains to which it is subjected when in operative position in the frame of a sleigh.

My object is to forge or cast the knee in a single piece and to enlarge or elongate its opposite ends in directions at right angles to each other and to provide the lower and upper faces of the elongated portions with open lengthwise channels, the lower one being adapted to receive the runner, and the upper one is arranged to receive one of the cross bars or beams of the sleigh-frame.

Further objects will appear in the subsequent description.

In the drawings, Figures 1 and 2 are respectively face view and side elevation of my improved knee, showing the adjacent portions of one of the runners and one of the cross bars or beams which are connected by and secured to the knee. Fig. 3 is a perspective view of the detached knee. Figs. 4, 5, and 6 are sectional views taken, respectively, on lines 4 4, Fig. 1, 5 5 and 6 6, Fig. 2, showing particularly the manner of securing the beam and runner to the knee and also the cross-sectional form of the knee.

Similar reference characters indicate corresponding parts in all the views.

As seen in the drawings, this knee consists of a slender body portion 1, having its lower end elongated longitudinally at 2 and provided with a channel or recess 3 in its lower face for receiving a runner 4, while the upper end of the knee is elongated transversely at 5 or at substantially right angles to the elongated portion 2 of the lower end, this upper elongated portion being formed with a recess or lengthwise channel 6 for receiving a cross bar or beam 7.

As seen in Fig. 1, which may represent either a front or rear view of one of the knees, the knee curves upwardly and inwardly from its lower end and is gradually widened at 8 as it approaches the elongated portion 5, the widening being in the direction of extension of said portion 5, or rather in the direction of the channel 6. The opposite ends of the elongated portion 5 extend some distance at either side of the portion 8 and are provided with apertures for receiving clamping-bolts 9, which are passed through similar apertures in the beam 7; but the upper ends of the bolts are usually depressed beneath the upper surface of the beam, which is counterbored for this purpose, or the knee and beam may be connected by suitable clips. In like manner the lower elongated portion 2 of the knee extends longitudinally beyond the upright portion 1 and is formed with apertures 11 for receiving clamping-bolts 12, which are also passed through similar apertures in the runner 4, the lower ends of the bolts being countersunk within the lower face of the runner.

It is thus seen that the upper end of the knee lies within the vertical plane of the lower end for the purpose of bracing the frame against lateral strains, and it will be noticed that the upper elongated portion 5 is considerably longer than the lower elongated portion which receives the runner, the object of this being to extend the support as far under the superimposed load as may be practicable, so that the dead-load or lateral strains may be transmitted through the knee to the runner.

Again, it will be noticed upon reference to Fig. 2 that the knee inclines longitudinally from a vertical position, so that its upper end lies in a plane at one side of its lower end, and that the intermediate portion appears substantially straight when viewed in side elevation, as seen in Fig. 2, the lower end presenting the appearance of a shoe or foot which rests upon the upper face of a runner 4, and owing to the fact that the runner is seated in the longitudinal channel 3 the tortional strain upon

the runner is somewhat relieved by the flanges, as 14. This same statement may apply to the upper end, which forms a chair or seat for receiving the rail or beam 7 and is provided with upwardly-projecting flanges 15, which engage the sides of the beam and affords resistance to tortional or twisting strains upon the beam.

One of the objects not previously stated of this construction of knee is to produce one which is slender and neat in appearance and yet possesses the advantages of strength and durability, and in order to bring about this result it is preferably constructed substantially T-shaped in cross-section, as seen in Fig. 6, in which the central longitudinal portion is reduced in thickness, while its opposite longitudinal inner and outer edges are somewhat increased in thickness, so as to form reinforcing lengthwise ribs, extending from the lower elongated end 2 to the upper elongated portion 5; but the width across the inner face, as 16, is greater than the width across the outer face, as 17, the object of this being to afford greater rigidity at the inner face or nearest the center of the load when the knees are assembled in the frame.

The function and construction of my improved knee will now be readily understood upon reference to the foregoing description and the accompanying drawings.

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

A knee for sleighs formed from a single piece of metal channeled on its sides, the lower end thereof being enlarged and extending on either side beyond the knee-body, flanges formed integral with the termination of said enlarged end, and extending below the extremities of said enlarged end, said enlarged end lying in a plane transverse to the plane of the knee-body, the upper end of the knee-body being enlarged and extending in a plane transverse to the lower end, the said enlarged upper end being secured to said knee-body at a point to one side of the center thereof, and upwardly-projecting flanges carried by the said enlarged upper end, substantially as described.

In witness whereof I have hereunto set my hand this 23d day of June, 1903.

PERKINS S. LOCKWOOD.

Witnesses:

JAMES W. AITCHISON,

WM. H. EASTON.