(No Model.)

J. J. LOUD.

PEN.

No. 392,046. Patented Oct. 30, 1888.

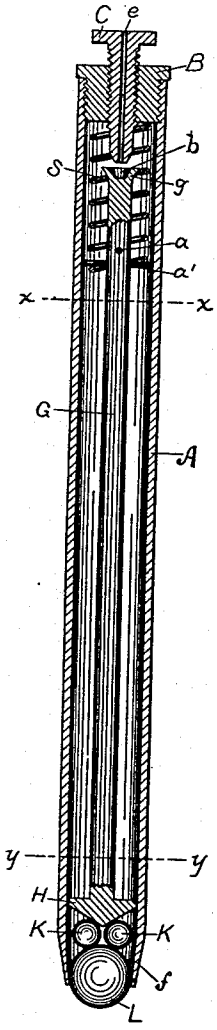

Fig. 1.

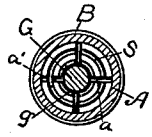

Fig. 3.

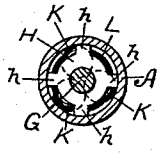

Fig. 4.

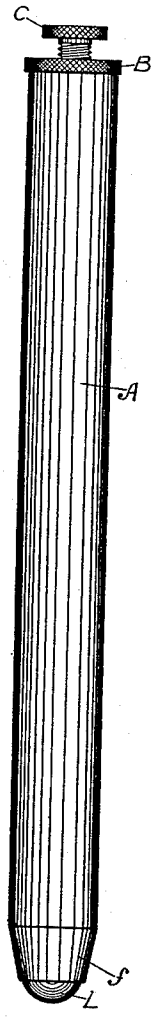

Fig. 2.

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PEN.

SPECIFICATION forming part of Letters Patent No. 392,046, dated October 30, 1888.

Application filed February 4, 1888. Serial No. 262,990. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. LOUD, a citizen of the United States, residing at Weymouth, in the county of Norfolk and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Pens, of which the following is a specification.

My invention consists of an improved reservoir or fountain pen, especially useful, among other purposes, for marking on rough surfaces—such as wood, coarse wrapping-paper, and other articles—where an ordinary pen could not be used.

Of the accompanying drawings, Figure 1 represents a longitudinal section of my improved pen. Fig. 2 is a side elevation. Fig. 3 is a section on *x x*, Fig. 1, looking toward the screw-cap B. Fig. 4 is a section on *y y*, Fig. 1, looking toward the marking-point.

A is the tube or barrel of the instrument, made of any desired material, drawn down slightly at one end, as at *f*, to form a contracted mouth and furnished at the other with an interior screw-thread into which fits the tapped screw-cap B, preferably provided with a milled head, as shown. The inner diameter of the tube A is slightly greater than the diameter of the spheroid L, which forms the marking-point, and which is preferably a sphere. The sphere L is introduced into the upper screw-threaded end of the tube A, and, falling to the bottom, is held therein by the contracted portion *f*, the diameter of which is such as to allow the sphere L to project, preferably, about one-third of its diameter beyond the end of the tube. Above the marking-sphere L are the smaller balls, K, of suitable size and number to furnish an upward anti-friction bearing for the said marking-sphere. In the pen herein illustrated I have used three of these anti-friction balls K, which are of sufficient size when dropped into the tube A to dispose themselves evenly around the top of the sphere L and against the inner surface of the tube. G is a rod provided at its upper end with an enlarged flaring portion, *g*, and at the other end with the somewhat conically-shaped bearing H, which bears against the balls K, the shape of its under surface being such as to tend to force the balls K outwardly against the inner surface of the tube A. This rod, with its conical bearing, is constantly pressed against the balls by the spiral spring S, which rests at its upper end against the bottom of the screw-cap B, while the lower end presses against the rod G, which it preferably surrounds. In the form of pen herein shown the lower part of the spring rests against small cross-rods *a a'*, fixed in the rod G, or cast thereon at right angles to each other and serving to keep the upper part of the said rod G in the center of the tube A. The lower end of the rod is centered by the conical bearing H, which touches lightly the inner surface of the tube at a number of points, *h h h h*, Fig. 4, being cut away between those points to allow the ink with which the tube A is filled to flow by the bearing. The outer screw-cap, B, is centrally bored out and tapped to admit the inner screw, C, which is preferably provided with the hole *e* for admitting air into the interior of the tube. The lower end of the screw C fits an opening, *b*, in the enlarged portion *g* of the rod G when the said screw is in contact with the top of the rod, this being the proper position when the pen is not in use. In this position the air-hole *e* is closed, and at the same time the ball L is firmly pressed outwardly and held against its seat in the contracted mouth *f* of the tube A, the seat being accurately fitted to the ball. In this position no ink can escape from the pen. When once the marking-sphere L, the anti-friction balls K K K, the rod G and its attachments, and the spring S are introduced in place, the cap B is screwed down and need rarely be removed, except for cleaning the pen. The filling is accomplished by unscrewing the inner screw, C, and introducing the ink or marking-fluid through the hole normally filled by the said screw.

In Fig. 1 the pen is shown in proper position for marking. The screw C is unscrewed slightly from its closed position and the pen is held nearly upright. When the ball L is pressed against a surface, the spring S yields, allowing the ink to flow out of the tube around the ball on all sides to the point in contact with the surface to be marked, the amount of the flow and the width of the line being determined by the amount of play of the ball L inside the contracted mouth, which is in turn

regulated by the distance between the opening *b* and the lower end of the screw C.

When writing over rough surfaces, the marking-point, when a sphere, is free to revolve in all directions, so that writing may easily be done over cracks and seams, and the point can neither split, spatter, nor catch; hence its adaptability for marking wooden or paper boxes and other rough articles.

I claim—

1. A pen having a spheroidal marking-point, substantially as described.

2. A pen having a marking-sphere capable of revolving in all directions, substantially as and for the purposes described.

3. In a fountain-pen, a marking-sphere, in combination with a spring, and a tube having a contracted mouth, whereby the sphere projects from the tube, substantially as and for the purposes described.

4. In a fountain-pen, a tube having a contracted mouth, in combination with a spring, a marking-sphere, and one or more anti-friction balls, substantially as described.

5. A pen having a marking-sphere, in combination with one or more anti-friction balls, substantially as described.

6. In a fountain-pen, a tube having a contracted mouth, in combination with a marking-sphere, a screw, a spring, and a centrally-guided rod provided with suitable end bearings, whereby the marking-sphere may be closed tightly into the contracted mouth, substantially as and for the purposes described.

7. In a fountain-pen, a tube having a contracted mouth and a tapped screw-cap, in combination with an inner screw, a marking-sphere, a spring, and a centrally-guided rod provided with suitable end bearings, substantially as described.

8. In a fountain-pen, a tube having a contracted mouth, in combination with a marking-sphere, one or more anti-friction balls, a screw, a spring, and a centrally-guided rod, substantially as and for the purposes described.

9. In a fountain-pen, a tube having a contracted mouth, in combination with a marking-sphere, a spring, a centrally-guided rod provided with suitable end bearings, and a screw provided with an air-hole, whereby by turning the screw against the centrally-guided rod both the air-hole is stopped and the marking-sphere closed tightly into the contracted mouth, substantially as and for the purposes described.

10. A pen consisting of a tube, A, having the contracted mouth *f* and the tapped screw-cap B, in combination with the inner screw, C, the marking-sphere L, the anti-friction balls K, the spring S, and the centrally-guided rod G, provided with the end bearings, *g* and H, all arranged and operated substantially as and for the purposes described.

11. In a pen, substantially as described, a centrally-guided rod flared at one end and provided with a recess, and having at the other end a conical bearing cut away at intervals along its outer edge, substantially as and for the purposes described.

12. In a pen, substantially as described, a rod provided with guides *a a'*, and having at one end the flared recessed portion *g* and at the other the conical bearing H, cut away at intervals along its outer edge, whereby it touches the inner surface of the cylinder at the portions *h*, substantially as and for the purposes described.

13. A fountain-pen consisting of a tube having a contracted mouth and a tapped screw-cap, in combination with an inner screw, a marking-sphere, anti-friction balls, a spring, and a rod provided with guides *a a'*, and having at one end a flared recessed bearing, *g*, and at the other the conical bearing H, cut away at intervals, all arranged and operated substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

JOHN J. LOUD.

Witnesses:
WM. B. H. DOWSE,
ALBERT E. LEACH.