(No Model.)

G. R. SANDELL.

PENCIL.

No. 525,966. Patented Sept. 11, 1894.

Fig. 1.

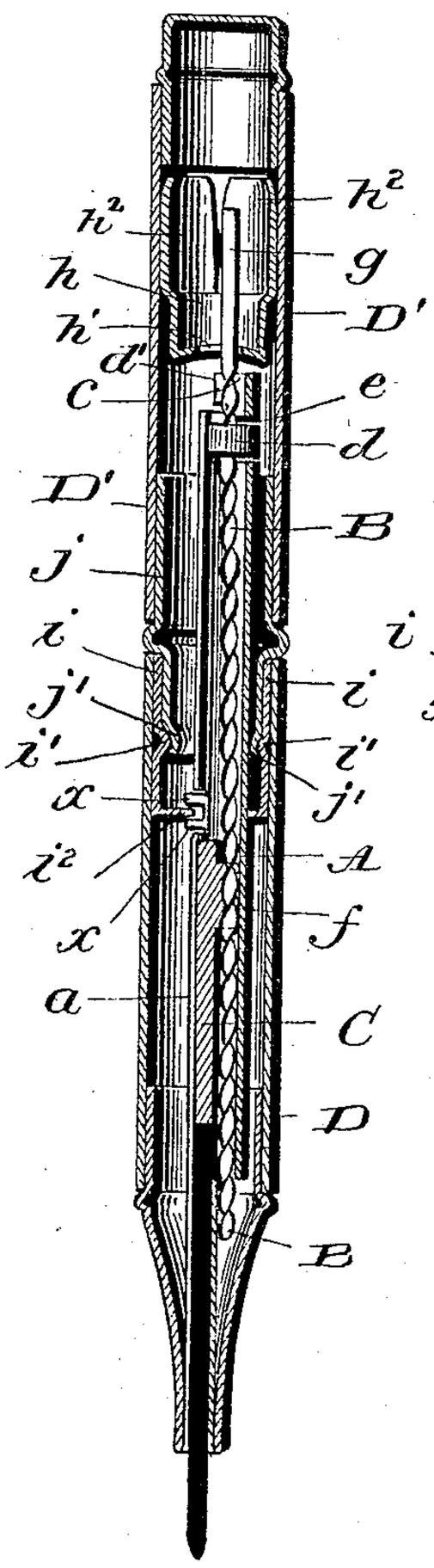

Fig. 2.

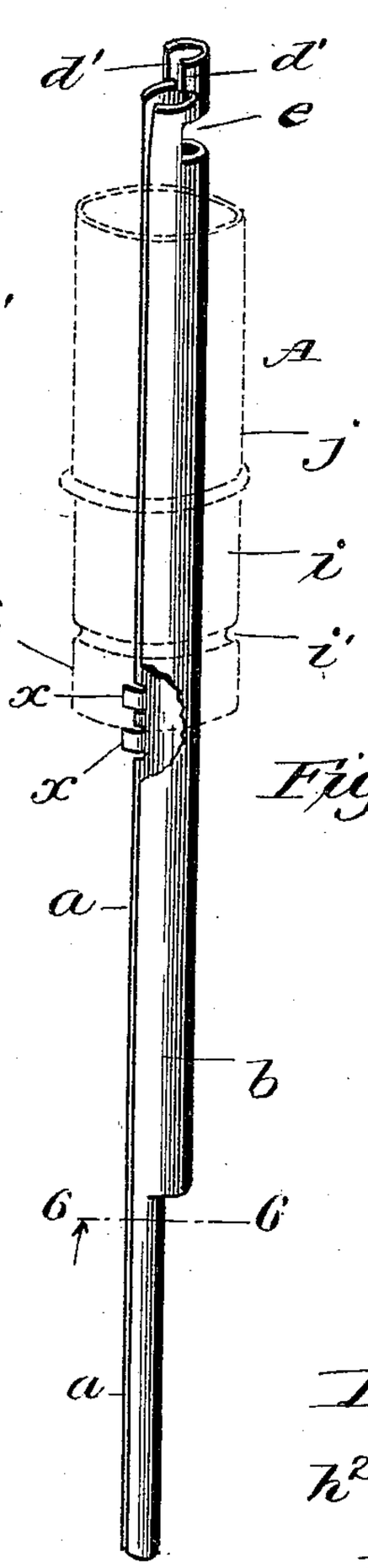

Fig. 3.

Fig. 4.

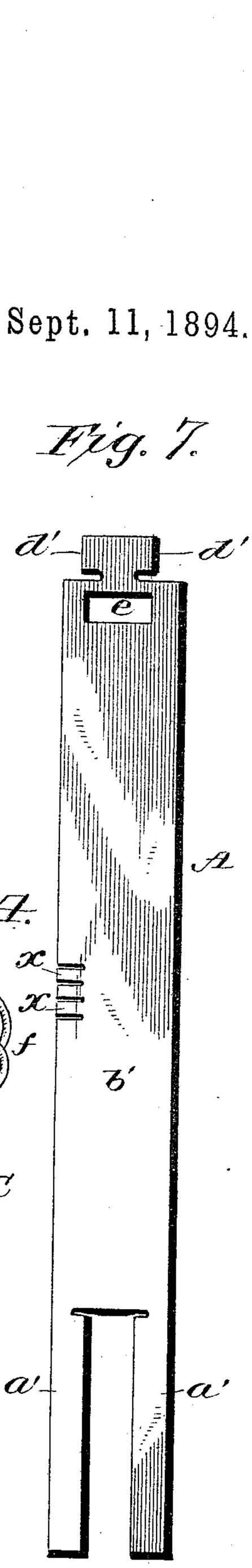

Fig. 5.

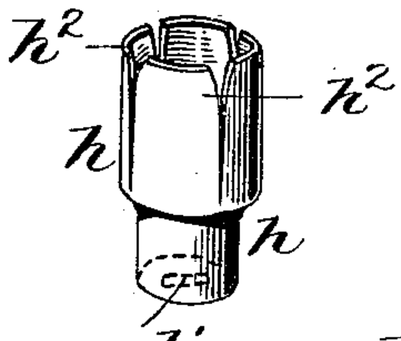

Fig. 6.

Fig. 7.

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UNITED STATES PATENT OFFICE.

GUSTAV R. SANDELL, OF NEW YORK, N. Y., ASSIGNOR TO THE EAGLE PENCIL COMPANY, OF SAME PLACE.

PENCIL.

SPECIFICATION forming part of Letters Patent No. 525,966, dated September 11, 1894.

Application filed August 10, 1894. Serial No. 519,971. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV R. SANDELL, of the city, county, and State of New York, have invented certain new and useful Improvements in Pencils, of which the following is a specification.

My invention relates to what are known as propeller pencils, and it consists of certain novel structural features which will first be described in connection with the accompanying drawings and will then be pointed out specifically in the claims.

In the drawings accompanying and forming part of this specification Figure 1 is a longitudinal central section of a pencil embodying my invention. Figs. 2, 3, 4 and 5 are perspective views of the four parts of the propeller movement, viz: the lead tube (Fig. 2); the propeller screw (Fig. 3); the follower (Fig. 4) and the driving thimble (Fig. 5). Fig. 6 is a cross section of a lead tube on the line 6—6 Fig. 2. Fig. 7 is a view of the sheet metal blank from which the lead tube is formed.

The lead tube A, which is sheet metal, has a front cylindrical portion *a* of the size of the lead to be contained therein, the lead fitting snugly in this portion of the tube. Back of the front portion *a* the tube becomes approximately elliptical in shape as seen at *b* in Fig. 6, having on one side an enlargement *b'* extending lengthwise of the tube for the remainder of its length, which enlargement is a channel for the reception of the propelling screw B. At the front end of the enlargement is a hole *c* through which the front end of the screw passes and in which it takes its bearing. At the rear of the enlargement *b'* is a slot *e* which is entered and engaged by an annular collar *d* on the screw; and back of the slot are lips or flanges *d'* which after the screw is put in place are bent over so as to surround the shank of the screw back of the collar *d*, thus giving the screw a rear bearing and holding it in position in the lead tube.

The blank from which the lead tube is formed is shown in Fig. 7. The part *a* of the tube is formed by the fingers *a'*; the main body of the tube by the part *b'*. The slot *e* and flanges *d'* of Fig. 2 are designated by the same reference letters in Fig. 7. This blank by suitable shaping tools is bent up into the form shown in Fig. 2, the fingers *a'* being bent each into the shape of a half round in cross section; and after the screw is inserted in place the lips or flanges *d'* are bent toward each other so as to surround the shank of the screw back of its collar *d*. In this economical and expeditious way the parts are made and fitted and held together without brazing or the use of any extraneous fastening devices.

The follower is shown at C. It is provided with a tubular screw threaded portion *f* laterally projecting from the body of the follower into the enlargement *b'*, and encircling and engaging the screw B. Rotation of the screw will advance or retract the follower, according to the direction of rotation.

The pencil case or sheath is a two-part one, consisting of the front and rear sections D D'. The front section D is mounted on and secured to a sleeve *i*. Within this sleeve fits and is held another sleeve *j* swiveled to sleeve *i*, so that the one may rotate independently of the other, sleeve *j* for this purpose having in it an annular groove *j'* entered by an annular internal rib *i'* on the outer sleeve *i*. Sleeve *j* projects to the rear of sleeve *i* and on it is fitted and secured the rear section D'. Thus the one part of the handle can rotate independently of the other. The lead tube A and the propeller movement carried by it are attached to the front handle section D. The tube A for this purpose passes through a head i^2 (Fig. 1) with which the sleeve *i* is provided and is restrained from longitudinal movement therein by two fins *x* (Figs. 1 and 7) formed by appropriately slitting one of the edges of the blank as shown at *x* Fig. 7. The rear fin is turned up before the lead tube is inserted from the rear into the sleeve *i*, and when this fin brings up against the interior of the head the front, and now exterior, fin *x* is turned up; these parts then occupying the position shown in Fig. 1.

Provision is made for rotating the propeller screw by connecting it to that portion of the handle which can rotate independently of the part in which the propeller movement is mounted and held. The connection is made as follows:—The screw at its rear has a flat stem *g* which enters a slot *h'* in the head of a driving thimble *h* which fits and is held in

the part D′ of the handle. But there is no rigid connection between this thimble and the part of the handle in which it is mounted. On the contrary the thimble which ordinarily rotates with the part D′ yet is nevertheless capable under certain circumstances—that is to say when the resistance to rotation of the screw exceeds a predetermined limit—of rotating independently of said part D′, this result being attained by means of a friction joint between the two. The propeller C at each extreme of its movement brings up against a rigid abutment, and if after this point is reached the screw, as not infrequently is the case, is by inadvertence or carelessness still farther rotated in the same direction, some part of the propeller movement—usually the joint between the propeller and the screw—must give or break, thus unfitting the pencil for further use. The friction joint between the driving thimble and the part D′ prevents any such occurrence. The thimble rotates with the part D′ so long as conditions are normal; but the moment there is obstruction to further movement of either the screw or the propeller, the friction joint permits the handle to rotate while the driving thimble remains at rest. The friction joint is readily provided by slitting longitudinally the thimble (which is made of sheet brass) so as to provide it with a series of outwardly expanding spring fingers h^2 which bear against the interior of the part D′ for rotating the thimble, with sufficient force to cause the thimble to follow the movement of the handle until an obstruction is met, as above explained.

Having now described my improvements and the best way known to me of carrying the same into effect, what I claim herein as new, and desire to secure by Letters Patent, is—

1. The two interior sleeves *i j* swiveled together so that the one may rotate independently of the other, and the two handle sections D D′ mounted on said sleeves respectively in combination with the lead tube and its contained lead propelling mechanism secured to the front sleeve *i* and having the propeller screw of that mechanism connected to and rotatable with the rear handle section D′, as hereinbefore shown and described.

2. The lead tube A formed from a sheet metal blank having fingers *a′* to form the front cylindrical portion *a* of the tube, a body portion to form the elliptical part *b* of the tube, a slot *e* and lips or flanges *d′*, in combination with the propeller screw contained in the enlargement *b′* of the elliptical part of the tube, provided with a collar *d* to engage the slot *e* and having its shank back of said collar surrounded by the lips or flanges *d′* as and for the purposes shown and described.

3. The lead tube A formed as described with a cylindrical part *a*, an enlarged elliptical part *b*, a slot *e* and lips *d′*, the propeller screw contained in said enlarged part of the tube, having a collar *d* to engage slot *e* and clasped back of said collar by the lips *d′*, a handle composed of two independently rotatable parts, the one carrying the lead tube; and a driving thimble frictionally held in the other part and engaging the propeller screw, these parts being combined and arranged as hereinbefore shown and described.

4. In a propeller pencil, the combination with the case or handle composed of two parts independently rotatable, of a lead tube and lead propelling screw and follower mounted in and secured to the one part, and a driving thimble connected to the propeller screw and frictionally mounted and held in the other part, as and for the purposes hereinbefore set forth.

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