

(No Model.)

W. PAINTER.  
PENCIL.

No. 602,355.

Patented Apr. 12, 1898.

Fig. 1. Fig. 2. Fig. 3.

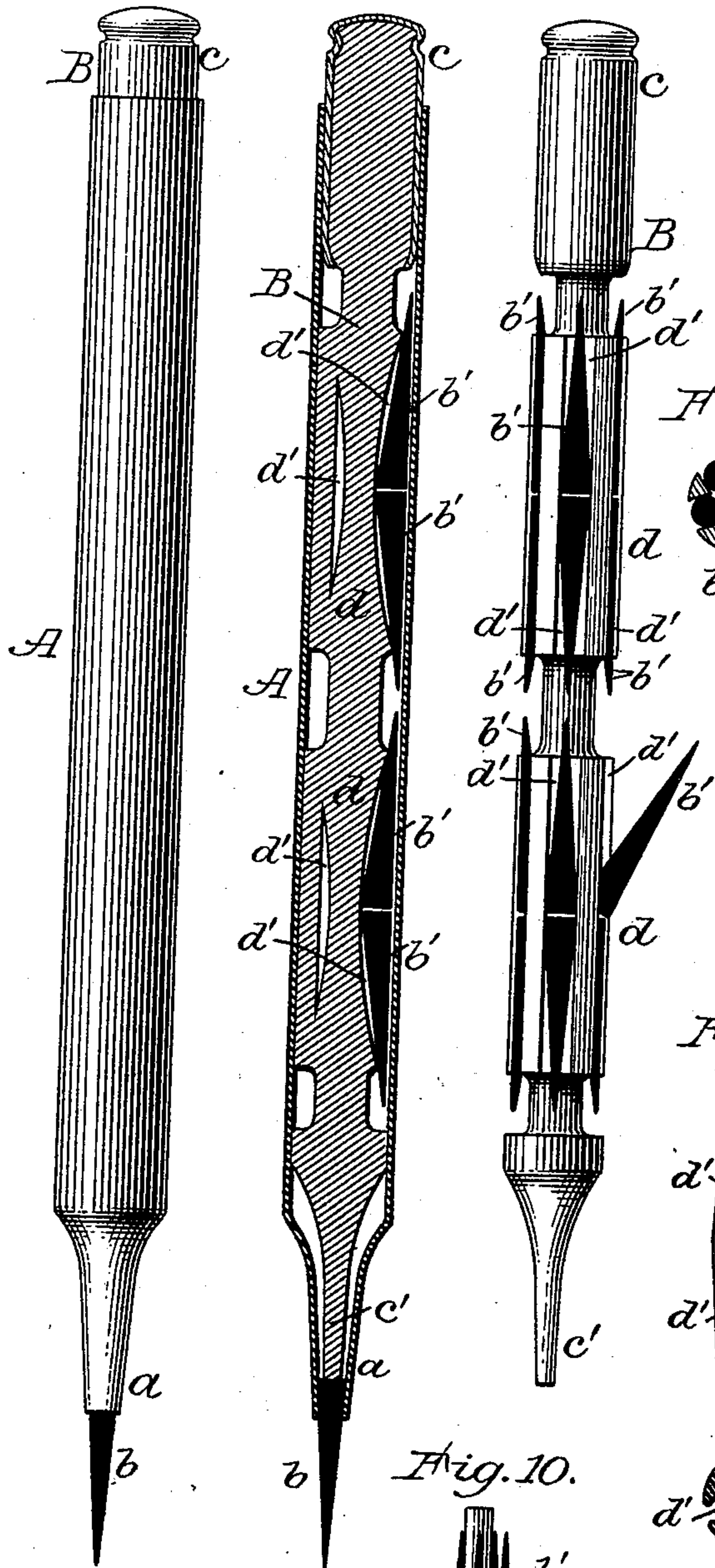


Fig. 5.

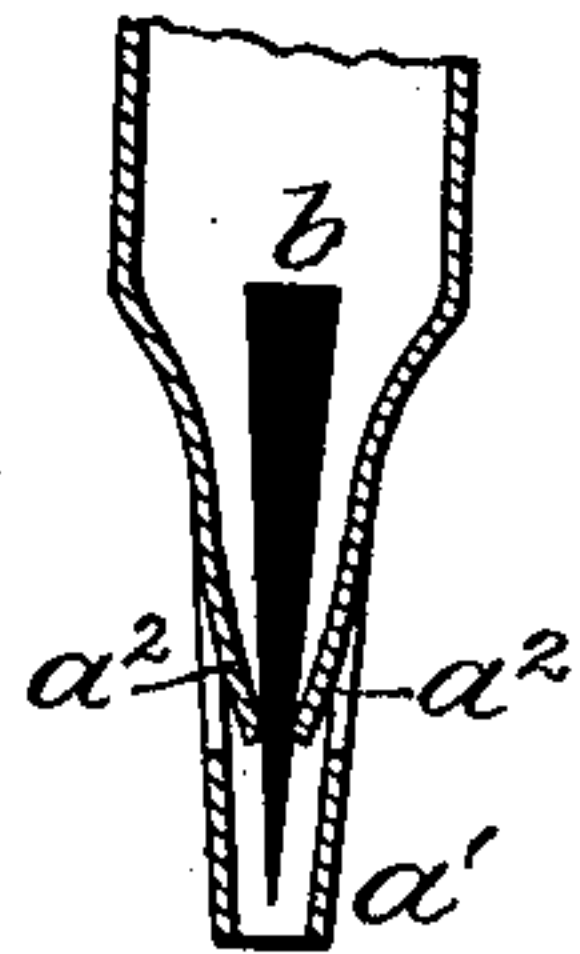


Fig. 6.

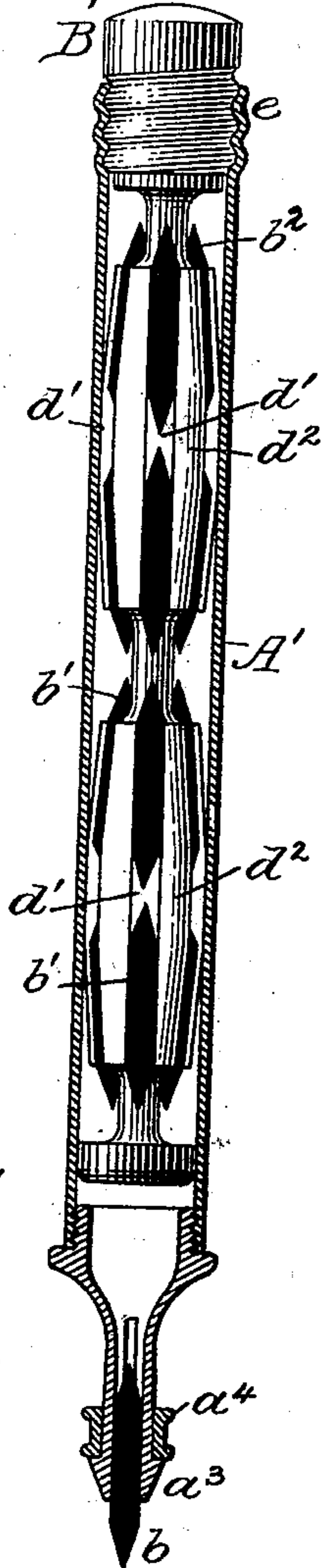


Fig. 4.



Fig. 7.

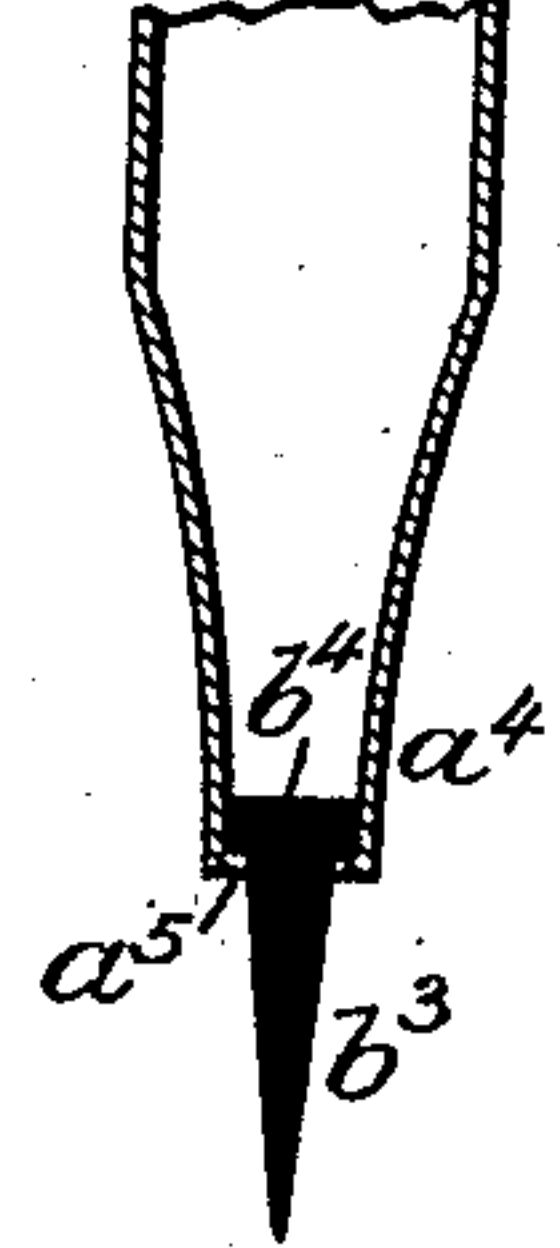


Fig. 8.

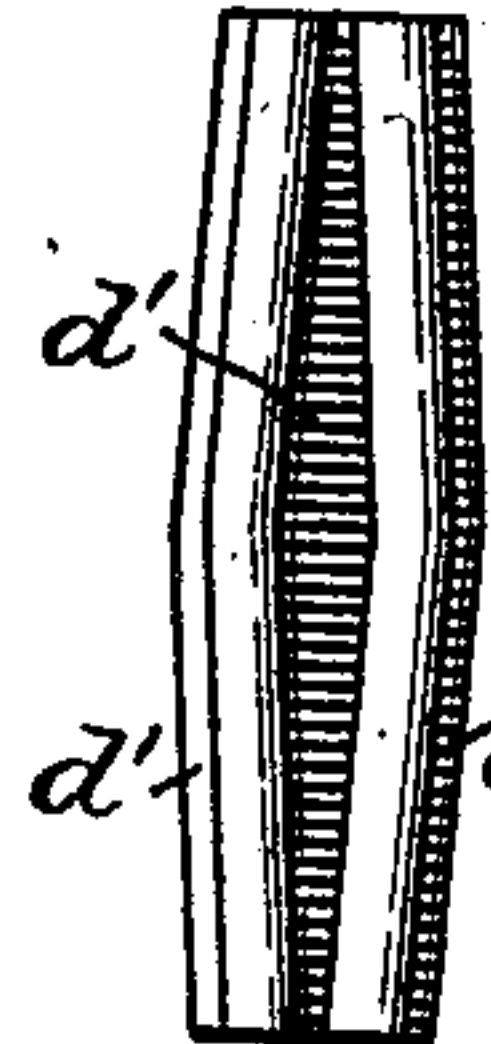


Fig. 9.

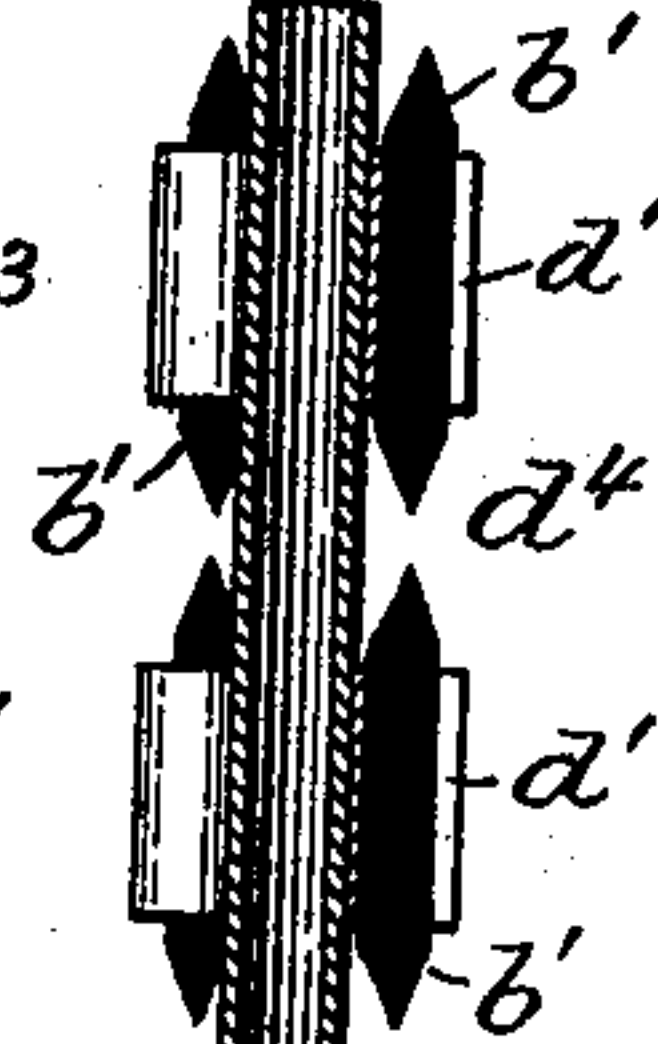


Fig. 10.

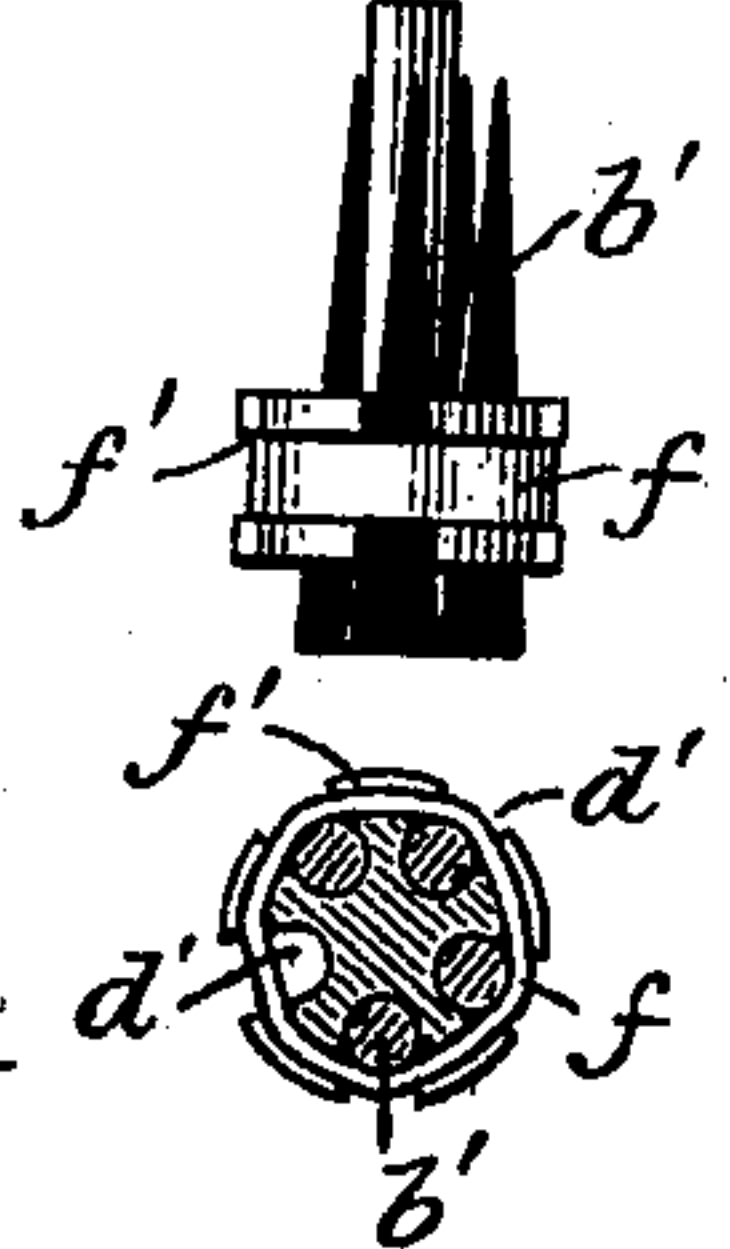
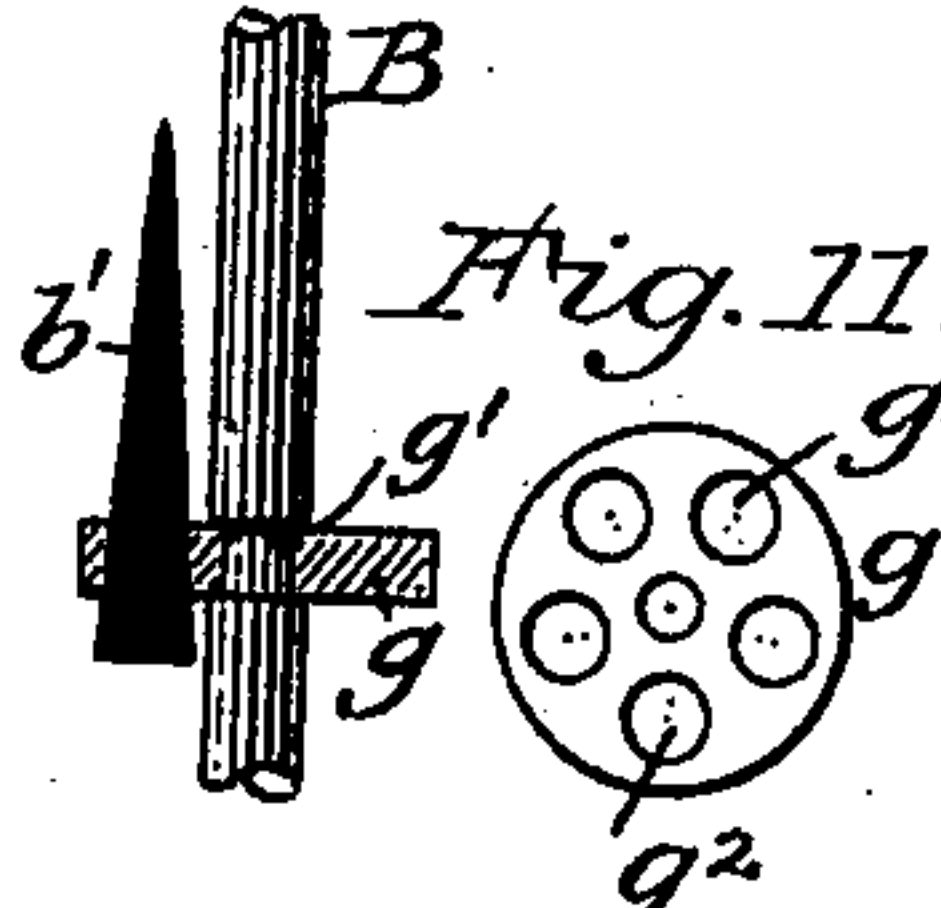


Fig. 11.



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# UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND.

## PENCIL.

SPECIFICATION forming part of Letters Patent No. 602,355, dated April 12, 1898.

Application filed January 19, 1894. Serial No. 497,424. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM PAINTER, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Pencils; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

Although the prime value of my said invention will probably be realized in connection with lead-pencils, it is to be understood that my improvements are well adapted for use in connection with any variety of marking-points, including crayons and slate-pencils, as for use in schools.

My invention pertains to that general class of pencils which embody a case having a suitable marking-point holder or tip and adapted for receiving and storing a supply of suitable marking-points, and to that special variety which have been named "ever-point" pencils, in that short well-pointed or finely-tapered marking-points are therein employed and a stock of them is usually at hand within the case for affording a ready substitution of a fresh marking-point for one that has been so blunted as to warrant its removal.

Inasmuch as the main object of the ever-point magazine-pencil is to have constantly at hand a finely-pointed marking device, it is obviously important that all of the marking-points held in reserve should be so stored and maintained within the case that their delicately-sharpened points may be practically free from liability to injury either by abrasive contact with each other or with the interior surfaces of the receptacle case or casing.

In some pencils known to me prior to my present invention, each individual marking-point or "lead" has been stored axially within its own holder, several of these holders being coupled together, as by screw-threads, for use with or without a case; but in most instances short pencil-points or marking-points have been loosely stored in mass within suitable pencils or pencil-cases. One prior method of individually controlling each marking-point in the magazine of a pencil-case involved the use of a thin strip of textile material, such as muslin or cambric or paper, to

which, by means of glue or other adhesive matter, the several marking-points were united in longitudinal arrangement, the whole being adapted to be inserted within the magazine-space of a pencil-case.

The adverse effects of the presence of any form of extraneous matter upon a marking-point is one of the objections which I have sought to overcome, as well as the expense involved in a separate adhesive mounting of each marking-point upon its carrier; and to those ends one feature of my invention consists in a marking-point magazine or carrier for use in pencil-cases which embodies or is provided with a series of frictional sockets which in their best forms are longitudinal grooves having resilient or yielding sides, which enables each socket to so receive and frictionally maintain control of a marking-point that it may be kept intact and free from abrasive contact with other points or with the interior surfaces of the pencil-case, within which the charged magazine is housed. I have, however, as another feature of my invention so organized one or more of these magazines with a slidable detachable stem that the latter, having a suitable inner end, serves not only for removing the one or more magazines from the pencil-case, but said stem also serves as a forcing and controlling factor with reference to the marking-point which occupies the tip of the case as for service. This slidable stem has been by me varied in its character, so that it operates telescopically under frictional contact with the case in some instances and in others with a rotative longitudinal movement, as by means of screw-threaded connections of the stem with the case. I have also variably organized my magazine-pencils, so that in some examples the marking-point may be securely retired within the tip of the pencil-case, as when not in use, and in some examples the interior stem does not operate as a forcing element with relation to the marking-point in service.

The marking-points are quite inexpensive, being as a rule short and substantially tapered from butt to point; but in some instances it is preferable that they be cylindrical and pointed quite bluntly at their ends, and still others are each provided



with a head. The magazines having grooved frictional sockets may be quite largely varied without departure from my invention, not only as to the material employed, but also as to structure and matters of form and in the arrangement of the grooves with reference to each other, as well as to the central stem, and whether said magazines are parts of or separable from the interior stem or whether any stem is employed at all, although stems in certain novel and appropriate combinations with the case and with the novel magazine-point carriers involve sundry substantial portions or features of my invention.

To more particularly describe my said invention, I will refer to the accompanying drawings, in which—

Figures 1 and 2 illustrate one of my pencils, of a simple and desirable form, but on an enlarged scale, in side view and longitudinal central section. Fig. 3 illustrates the stem and its magazine detached from the case and charged with marking-points, one of the latter having been swung outwardly ready for removal. Fig. 4 is a cross-section of one of the magazines and its marking-points. Fig. 5 illustrates in section the "tip" or marking end of one of my pencils, wherein the pencil-case tip is arranged for permitting the retirement and retention of the marking-point when not in use. Fig. 6 illustrates in section another form of my pencil, wherein non-tapered marking-points are used and the magazine-stem, although screw-threaded to the case, does not engage with the service marking-point, the latter being securely held by the pencil-tip, because the latter is contractible and expansible, as in many prior pencil-cases. Fig. 7 illustrates a pencil-tip adapted to receive a marking-point having a headed butt-end. Fig. 8 illustrates in side view and section one of my magazines or marking-point carriers as when molded from elastic-rubber compound or other plastic resilient matter and provided with an axial opening for receiving a stem, if desired. Fig. 9 illustrates in a longitudinal section and an end view one of my magazines as when composed of light sheet metal, as for use with expensive forms of my pencil. Fig. 10 in two views illustrates a magazine or carrier provided with grooved sockets in which the marking-points are frictionally held by an elastic band. Fig. 11 in two views illustrates a magazine or carrier the frictional sockets of which are afforded by a perforated elastic collar mounted on a pencil-stem.

The pencil illustrated in Figs. 1 to 4, inclusive, will be first described, that being a complete and specially desirable embodiment of all the features of my invention and designed with special reference to economic production with a view to meeting the general requirements of the mass of people who carry pencils.

The cylindrical pencil-case A is preferably composed of thin sheet metal, although hard

rubber or any other material well known to be suitable for such purposes may be employed. As here shown, the tip *a* is integral with the case; but it may be separable without departure from my invention. As here shown, the interior of the tip *a* is tapered because of the use therewith of a tapered marking-point *b*; but when straight marking-points are to be used the tip is or may be, as will be hereinafter further described, provided with a straight interior chamber and a suitable exterior clamping device.

Within the case A there is a detachable stem B, which at its outer end at *c* fits snugly within the rear end of the case; but at the front or inner end the stem is provided with a piston-tip *c'*, which normally abuts against the rear end or butt of the marking-point *b* and serves to keep the latter, when in service, firmly socketed in the tapered tip *a*. As here shown, the butt *c* of the stem frictionally engages with the interior of the case, thus while admitting of a free withdrawal of the stem from the case it assures a desirably firm contact of the stem with the marking-point. Instead of having the stem and case thus frictionally united both may be screw-threaded at their rear end for a short length for affording a more positive abutment, as between the stem and the marking-point, than would be possible with the frictional arrangement, it being obvious that in this form of my pencil the stem must be longitudinally movable.

In this instance the stem B and two magazines or multiple marking-point carriers *d d* are integral with each other and are composed of suitable soft wood, the butt of the stem at *c* being in this instance provided with a metallic ferrule, although the use of a ferrule is not always essential. The stem may, however, be separately constructed from the magazines, and it may also be unprovided with the piston-tip *c'*, or the stem may be dispensed with entirely without departure from certain features of my invention.

Each magazine or marking-point carrier *d*, as here shown, consists of a cylindrical mass (preferably of soft wood) longitudinally grooved, as at *d'*, to afford frictional sockets. These grooves *d'* are straight and have a width slightly less than the largest diameter of the marking-points to be stored therein; but said grooves are deeper in the middle than at the ends and open into each other centrally, as clearly indicated in Figs. 2 and 4, thus providing in each socket for a delicate resiliency of the side walls. Lead marking-points are quite delicate and fragile, and hence they would be liable to breakage while being forced into magazine sockets or grooves if the side walls of the latter were not capable of slightly yielding, and consequently sufficiently resilient to maintain a secure retaining control over the marking-points. These marking-points *b'* being as a rule substantially tapered from butt to point they engage with the side walls of the magazine in this in-



stance only at their butts, and as each of these magazines is considerably shorter than the combined length of two marking-points the latter can be placed butt to butt and each have its pointed end projected beyond the end of the magazine, so as to enable it to be readily lifted at its point and tilted outwardly, as shown in Fig. 3, into a position favorable for its removal from the magazine.

It is obvious that shorter magazines having shorter grooves or sockets may be employed, so as to receive a single marking-point in each groove, in which case both the butt and the tip of the marking-point may, if desired, be projected beyond the ends of the groove, it being only necessary that the side walls of the groove should frictionally engage with or lightly grasp the marking-point for retaining it against accidental displacement.

The forming of the magazine-grooves  $d'$ , as described, involves only the use of a grooving-saw of suitable thickness and having such peripheral dimensions as will provide for the proper depth of groove at the center and a gradually-decreased depth toward the ends, thus enabling this form of magazine to be very economically produced.

The opening of one groove into another centrally, as shown, is a very desirable feature, because the portion of the wood along the opening being semidetached from the mass is specially resilient at the very places at which the marking-points are pinched; but it is obvious that if the magazine  $d$  had but three instead of the five grooves shown there would be no openings between them and the holding of the marking-points would depend upon the frictional contact therewith of the yielding walls of the sockets or grooves.

It will be readily seen that with the pencil thus far described the numerous reserve marking-points  $b'$  will be securely carried and that the stem has only to be wholly withdrawn for discharging the service marking-point  $b$  and for replacing it with one from either of the magazine sockets or grooves and that said service-point will be well confined in the pencil-tip and held firmly to its work by the stem. This form of my pencil loaded fully with short marking-points can be produced at such low cost as to place it in the market among the higher grades of wooden lead-pencils. With this pencil (shown in Fig. 1) the marking-point can be pushed inward for its protection when not in use by applying slight pressure at the tip of the marking-point. Now for securing a better control of the lead retired under such circumstances some of my pencil-case tips are provided with a well-known lead-controlling device, such as is shown in Fig. 5. In this instance the pencil-tip  $a'$  is provided with one or two spring-tongues, as at  $a^2$ , so that when it is desired to house the service-point  $b$  it is pressed inwardly, as described, where it will be held by the tongue or tongues until again forced outwardly by the stem.

The form of my pencil shown in Fig. 6 includes my magazine or carriers, although these magazines  $d^2$  have sockets which are adapted in this pencil to receive and frictionally engage with straight marking-points  $b^2$ , each being pointed at both ends. This pencil-tip  $a^3$  is separable from the barrel of the case  $A'$  and is of a well-known form, being tapered, externally slitted, and provided with a slidable ring  $a^4$ , so that the service-point can be firmly grasped and held while any desirable portion thereof is protruded. These marking-points being double-pointed can be readily turned end for end, because they can be readily discharged outwardly from the tip, and it will be seen that the reserved marking-points will be as securely held in the frictional sockets of the magazine  $d^2$  as in the pencil first described. In this pencil, Fig. 6, the stem  $B'$  and the case are united by a short screw-thread, as at  $e$ ; but the stem needs no piston-tip at its inner end, because of the clamping capacity of the pencil-tip  $a^3$ . It will now be understood that this pencil, Fig. 6, embodies only those features of my invention which include the magazines or marking-point carriers, in which the frictional sockets or grooves may either be of uniform depth or deeper at the middle, as before described; but their side walls engage frictionally with the marking-points and securely hold them in position against accidental displacement.

In some instances it will be desirable to provide marking-points with a well-developed head—as, for instance, as shown in Fig. 7, wherein the marking-point  $b^3$  is provided with a head  $b^4$ —and hence the pencil-tip  $a^4$  has an interior annular shoulder, as at  $a^5$ , upon which the marking-point head  $b^4$  is seated and firmly held by the piston-tip of a stem, as already described.

Now as to marking-point magazines embodying my invention it is to be understood that while economy will be best assured in the use of cheap materials—such as wood, cork, or suitably selected or prepared cloth or paper—for affording the frictionally-retaining sockets or grooves  $d'$ , I do not preclude myself from employing more expensive forms of magazine, for use in expensive styles of pencil-cases; nor do I restrict myself to such magazines as are integral with, or in connected combination with, a stem—as, for instance, in Fig. 8, I show a magazine  $d^3$  as when molded from elastic rubber compound. The sockets or retaining-grooves  $d'$  are tapered and annularly arranged around an axial aperture which may or may not be occupied by a stem. In Fig. 9 I show a metallic magazine  $d^4$ , wherein the frictional sockets or retaining-grooves  $d'$  are formed of thin sheet metal secured to the outside of a central tube. It is not essential that the frictional sockets should be such as will enable the points to be laterally inserted or laterally removed so long as the walls of the socket are suitably yielding or resilient—as, for instance, the marking-points  $b'$  can be in-



serted endwise and so withdrawn—and in the case of the rubber magazine tapered marking-points can be dropped into any one of the sockets or grooves and then pushed endwise until well pinched by the walls, the open top of the socket or groove enabling the use of a pin or stick against the butt or large end of the marking-point for forcing it longitudinally from the magazine.

Inasmuch as the gist of my improvement in marking-point magazines consists in providing for each individual marking-point a frictional socket wherein a marking-point may be securely held against abrasive contact either with other points or with the interior surface of the pencil-case it will be seen that the desired effect will be secured whether the socket has sides which are wholly yielding and resilient or only partially so—as, for instance, as shown in Fig. 10, the grooves or channels at  $d'$  may have in themselves no resiliency, that capacity being here afforded by an elastic band at  $f$ , which, being seated in an annular groove, as at  $f'$ , serves as the outer resilient side for all the sockets and securely maintains several marking-points  $b'$  in positions from which they may be readily removed. Again, a still simpler magazine will be afforded by the use of a suitable elastic rubber washer, as shown in Fig. 11 at  $g$ , sprung into an annular groove  $g'$  on the stem B. Said washer is provided with a series of holes  $g^2$ , each of which serves as a frictional socket in which a marking-point  $b'$  may be securely maintained and from which it may be readily removed.

It will be readily seen that one or more of these charged magazines may be carried within a pencil-case even when not axially controlled by a stem, (with the exception of the form shown in Fig. 11,) it being only necessary that the case be provided with any kind of a cap or plug for confining the magazines in place, and it will be equally apparent that marking-point magazines or carriers having frictional sockets or grooves, whether in single sets or double and whether combined with a stem or not, will, in combination with marking-points, constitute charged magazines capable of being held in stock for separate sale to parties already owning pencil-cases which are provided with suitable point-controlling tips and stems.

It is to be understood that I am aware that it is not new in pencils to employ a handle or stem having a conical tip fitted to receive a hollow conical marking-point tip or holder provided with a marking-point which is permanently fixed therein, so that the one stem may be used with successive combined tips and points, which are wholly cast aside as soon as a point becomes worn away to the end of the tip. In such prior pencils the stem is a mere handle and cannot be advanced and retired as with my longitudinally-movable interior stem, which serves as an abutment in engagement with the rear end

of a marking-point which is removable from the tip.

I am also aware that pencils have heretofore embodied an interior spring-actuated magazine-tube and a push-piece carried by or integral with the outer portion of the case projected into a slot in the magazine-tube and enabling the spring to force a marking-point to its seat in a tip at the end of the magazine-tube; but in such pencils the marking-points are loosely carried within the tube and in constant abrasive contact with each other and with the walls of the tube during the handling of the pencil or while it is carried in a pocket, and such pencils involve complications and expense, which I have sought to avoid. A spring might, however, be employed in my pencils without departure from certain features of my invention.

It is also to be understood that I am well aware that magazine-pencils have embodied grooves, channels, or holes in which the marking-points or leads have been loosely carried; but I believe I am the first to devise grooved magazines wherein each of many short marking-points is or can be frictionally held and securely carried without liability of damage either by mutual contact or by contact with the interior surface of the pencil-case. For school uses I contemplate furnishing pencils having one magazine charged with lead-points and one with specially fine grade slate-pencil points, thus enabling their varied use according to immediate requirements of pupils, and for commercial uses I further contemplate furnishing large heavy pencils with marking-points of various colors for enabling their use for appropriately indicating individual check-marks and entries, as is often desirable.

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

1. A marking-point carrier or magazine for use in pencil-cases, provided with sockets having a yielding wall adapted to frictionally engage with marking-points for securely holding the same, and adapted as a whole to be inserted in and removed from a pencil-case substantially as described.

2. The combination with a suitable pencil-case having a suitable marking-point tip, of a readily-detachable magazine within the case provided with grooves or sockets having a yielding wall adapted to frictionally hold and control a reserve marking-point, substantially as and for the purposes specified.

3. A marking-point magazine or carrier for use in pencil-cases, provided with longitudinal sockets or grooves having yielding or resilient sides, substantially as described, whereby marking-points may be held and maintained in said grooves under yielding pressure, as and for the purposes specified.

4. The combination substantially as hereinbefore described, of a suitable pencil-case, of a slidably-detachable interior stem pro-



vided with sockets serving as parts of a magazine for marking-points, each socket having a yielding wall adapted to frictionally hold and maintain control over a reserved marking-point, substantially as and for the purposes specified.

5 5. The combination with a pencil-case provided with a suitable tip, of an interior stem slidingly adjustable within the case and separable therefrom and provided with an end or piston which serves to keep a detachable marking-point socketed within the tip, substantially as described.

10 6. The combination substantially as here-

inbefore described, of a suitable pencil-case 15 provided with an internally-tapered tip, and an interior stem carrying one or more magazines embodying frictional sockets for the reception and control of tapered leads or other marking-points, and provided at its inner end 20 with a piston which serves to keep the service marking-point socketed within the tip, substantially as and for the purposes specified.

WILLIAM PAINTER.

Witnesses:

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T. R. ALEXANDER.