Dec. 2, 1941. I. TOMATSU 2,264,463

MECHANICAL PENCIL

Filed April 12, 1940

Fig. 2

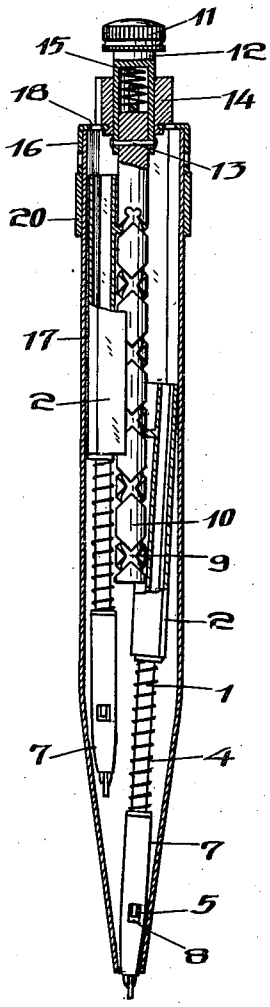


Fig. 1

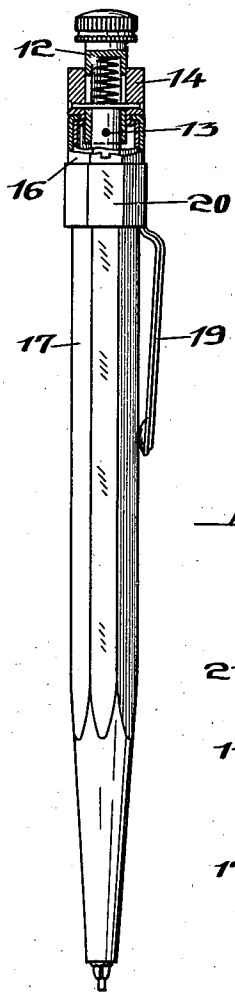


Fig. 3

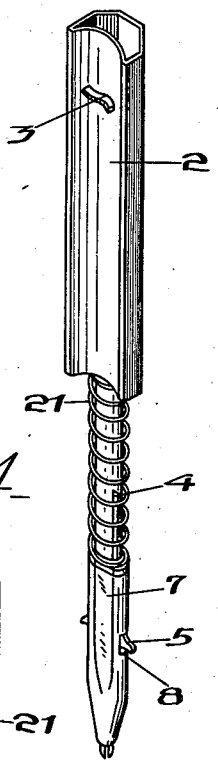


Fig. 4

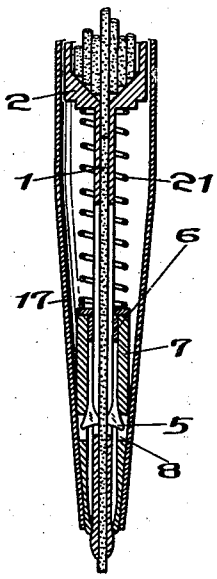
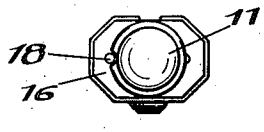


Fig. 5



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Patented Dec. 2, 1941 2,264,463

UNITED STATES PATENT OFFICE

2,264,463

MECHANICAL PENCIL

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Application April 12, 1940, Serial No. 329,374
In Japan December 23, 1939

3 Claims. (Cl. 120—14)

The present invention relates to a mechanical pencil, which may conveniently be made by providing an inclined projection on each of two depressible push tubes connected with a slitted lead tube; inserting said lead tube into a lead delivery tube fitted with a lead holder, and said lead delivery tube into a sliding tube which has a window to allow the lead holder to go in and out; securing by a pin a spring tube which has a head, to the top of a push rod provided with intersecting helical grooves; putting a spring into said spring tube and fitting a rotatable ring to its outside; suspending a cap rotatably at the lower end of said ring; connecting the two push tubes to the sides of the push rod in such a manner that one is situated above the other; inserting the inclined projections into the helical grooves, putting them all into an outer cylinder and then fitting the cap to its top fixedly. The object thereof is to obtain a mechanical pencil capable of containing leads of several colours and pushing them out successively by a comparatively simple mechanism.

Referring to the appended drawing,

Figure 1 is an elevation partly in section of the mechanical pencil according to the present invention;

Figure 2, a sectional view of the same;

Figure 3, a perspective view of the push tube;

Figure 4, a sectional view of the end of the pencil and

Figure 5, a plan of the head of the pencil.

In this invention, an inclined projection 3 is provided on each of the two depressible push tubes 2 connected with a lead tube 1 having a slit 4, which tube is inserted into a lead delivery tube 6 fitted with a lead holder 5. The lead delivery tube is inserted into a sliding tube 7 which has a window 8 to allow the lead holder 5 to go in and out. A spring tube 12 having a head 11 is fixed by a pin 13 to the top of a push rod 10 provided with intersecting helical grooves 9. A spring 15 is placed in tube 12 and a rotatable ring 14 is fitted to its outside. At the lower end of said ring there depends a rotatable cap 16. The push tubes 2, 2 are connected to the sides of said push rod 10 in such a manner that one is situated above the other. The inclined projections 3 are adapted to engage in the helical grooves 9 and slide in that condition. Next, they are put into an outer cylinder 17 and then the cap 16 is fitted fixedly to its upper end. The push tubes 2, 2 are hollow to receive leads and communicate with the lead tube through holes at their lower ends. The upper surface of the cap is pierced by an inlet 18 for leads. 19 is a clip; 20, a seat for the clip and 21, a spring.

With the above construction, if the rotatable ring 14 is rotated to either the right or left as desired, the inclined projections of the push tubes engaged in the push rod 10 formed integrally with that ring 14 are moved up and down to move the push tubes and consequently advance one of the push tubes (while the other recedes) until the end of the lead tube is projected from the end of the outer tube 17. Next, press the head 11 repeatedly several times, and then the push rod 10, push tube 2 and lead tube 1 will move up and down in one body to push out the leads in succession.

The present invention thus has a great practical advantage of being able to contain leads of several colours and push them out in succession by a comparatively simple mechanism.

I claim:

1. A mechanical pencil comprising a casing; a rotatable and depressible push rod mounted substantially axially of said casing and extending along substantially the upper half thereof, said push rod being provided with a plurality of oppositely arranged, intersecting helical grooves extending along the length thereof; a plurality of push tubes mounted for advancing and receding movement, one on each side of said push rod, each said push tube being provided with an inclined lug extending into operative engagement with one of said helical grooves, lead-holding means depending from said several push tubes; said parts being so constructed and arranged that rotation of said push rod advances one of said push tubes toward writing position and simultaneously withdraws the other from such position, said lead-holding means comprising a slitted lead tube, and means actuable upon depression of said depressible push rod to advance lead from said lead-holding means.

2. A mechanical pencil comprising a casing; a rotatable and depressible push rod mounted substantially axially of said casing and extending along substantially the upper half thereof, said push rod being provided with a plurality of oppositely arranged, intersecting helical grooves extending along the length thereof; a plurality of push tubes mounted for advancing and receding movement, one on each side of said push rod, each said push tube being provided with an inclined lug extending into operative engagement with one of said helical grooves, lead-holding means depending from said several push tubes; said parts being so constructed and arranged that

rotation of said push rod advances one of said push tubes toward writing positon and simultaneously withdraws the other from such position, said push tubes constituting lead-containing reservoirs, and means on said casing having openings alignable with the respective push tubes whereby leads may be supplied to said tubes.

3. A mechanical pencil comprising a casing; a rotatable and depressible push rod mounted substantially axially of said casing and extending along substantially the upper half thereof, said push rod being provided with a plurality of oppositely arranged, intersecting helical grooves extending along the length thereof, a plurality of push tubes mounted for advancing and receding movement, one on each side of said push rod, each said push tube being provided with an inclined lug extending into operative engagement with one of said helical grooves, lead-holding means depending from said several push tubes; said parts being so constructed and arranged that rotation of said push rod advances one of said push tubes toward writing position, said push tubes constituting lead-containing reservoirs, and means on said casing having openings alignable with the respective push tubes whereby leads may be supplied to said tubes, said last-named means constituting a closure for the end of said casing and simultaneously a support for a pencil clip.

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