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COMBINED ERASER AND PENCIL

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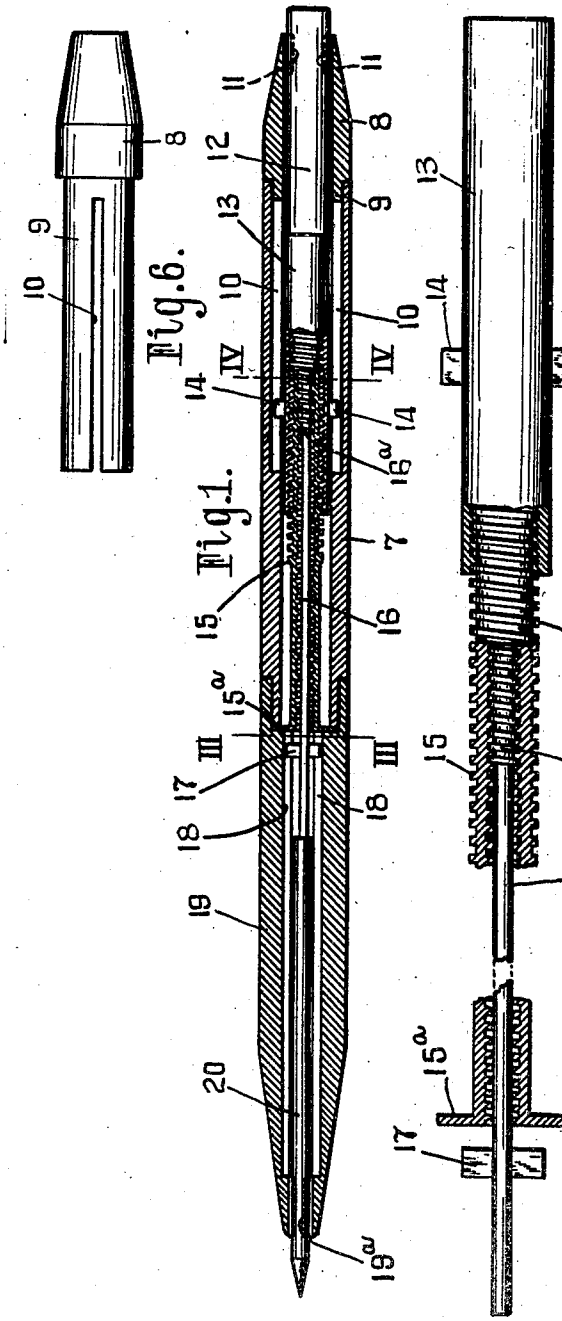

Fig. 6.

Fig. 1.

Fig. 2.

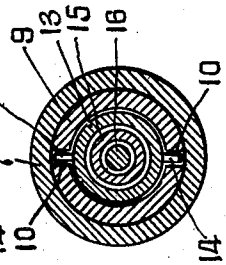

Fig. 4.

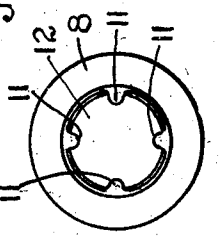

Fig. 5.

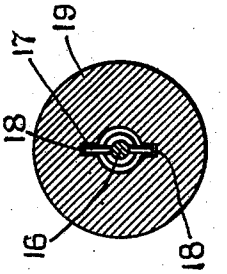

Fig. 3.

Inventor

EDMUND MORGAN GORRELL

By Finckel & Finckel

Attorneys

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COMBINED ERASER AND PENCIL

Edmund Morgan Gorrell, Columbus, Ohio

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20 Claims. (Cl. 120—38)

This invention relates to combined pencils and erasers, sometimes called "mechanical pencils".

One object of the invention is to provide an improved construction of combined pencil and eraser whereby a long lead and long eraser can be used and the period of usefulness of both the lead and the eraser is prolonged, and the necessity for frequent replacement of either is obviated. Another object of the invention is to provide improved and simplified means whereby a long piece or stick of lead or writing material can be fed into the desired working position at one end of a sheath or handle and a long stick or piece of eraser fed into desired working position at the opposite end of the sheath or handle, and improved mechanism whereby either of said implements can be fed independently of the other. Other objects will appear from the disclosure herein.

One example of the invention is herein shown and set forth in the following description, the feature of novelty being pointed out in the claims.

In the accompanying drawing—

Figure 1 is mainly a central longitudinal sectional view of the device, with parts in full.

Fig. 2 is a view on a magnified scale of the feeding mechanism removed from the sheath with parts broken out.

Fig. 3 is a cross section on the line III—III Fig. 1 enlarged and looking to the left.

Fig. 4 is a cross section on the line IV—IV Fig. 1 enlarged and looking to the left.

Fig. 5 is an enlarged end view of the eraser holder and looking to the left at the right hand end of Fig. 1.

Fig. 6 is a detail view in side elevation of the eraser holder removed from the sheath.

In the views the character 7 designates the main sheath or shell. In one end of said shell is the eraser holder 8, said holder having a tubular extension 9 provided with diametrically opposed longitudinal slots 10. The eraser holder is provided at its discharge end with internal ribs 11 extending longitudinally, said ribs adapted to grip the eraser and prevent it from turning when being used.

The character 12 designates the stick of eraser preferably of the usual resilient sort, said stick being of substantially cylindrical form and having a diameter slightly less than that of the bore of the holder in rear of the ribs or projections 11 so that when suitable pressure is exerted on the inner end of the stick or eraser to cause outward movement thereof, said stick will not be expanded into troublesome frictional contact with the wall of the holder but will slide easily on the ribs 11. The said ribs 11 are of such depth in relation to the bore of the holder that in practice they penetrate by depression the surface of the eraser to hold it from turning when used for erasing purposes and also prevent the longitudinal slipping of the rubber except when adequate force is applied thereto by the ram to cause such longitudinal slipping.

Within the tubular extension 9 is an internally threaded tube 13 having on its exterior lugs 14 that extend into and fit in the slots 10 so that when the eraser holder is turned said tube 13 is rotated. The internally screw threaded tube 13 engages the external screw thread of a tube 15 of smaller diameter so that when the tube 13 is rotated by turning the eraser holder 8 said tube 13 is fed longitudinally, and when the eraser holder is turned in the proper direction with competent power the tube 13 acts as a ram to feed or force the eraser 12 outward or in the projecting or discharging direction.

If it happens that the erasing end of said stick is projected too far the ram can be adjusted by reverse movement thereof and thereby permit the stick to be pushed inward by external pressure to effect the desired projection of the working end of the eraser.

The aforesaid tube 15 is also screw threaded internally and engaging the said internal screw thread is a screw threaded portion 16^a of a rod or ram 16. The tube 15 is provided with an annular flange 15^a by means of which it is secured to the pencil end of the sheath so that said tube 15 is held in fixed longitudinal relation to the sheath 7. The ram 16 is provided with lugs 17 that fit and project into parallel grooves 18, 18, extending longitudinally in the lead holder 19.

The said lead holder 19 is connected by a suitable joint with the other end of the pencil shell or sheath 7 and can be rotated and upon turning said lead holder with respect to the sheath 7 the ram or rod 16, and, of course, the threaded portion 16^a thereof is thereby rotated by the pressure on the lugs 17, thus causing the longitudinal feeding movement of said rod or ram in one direction or the other according to the direction in which the lead-holder is turned.

The character 20 designates a stick of lead or other suitable writing or marking material placed in the holder and held yieldingly movable in said holder by means of suitable penetrating or pinching rifling at 19^a in the end of the holder. When the stick of writing material 20 is to be further projected, as after it is worn down by use, the

holder is rotated in the proper direction to cause the pencil ram 16 to press against the inner end of the said stick and thereby cause the further projection thereof. If it happens that the point of the said stick be projected too far the ram can be adjusted by rotating it in the reverse direction and thereby permit the stick to be pushed inward by external pressure thereon in the longitudinal direction thereof.

Because the tube 15 is secured to the sheath it will be observed that the said tube 15 serves as a purchase for the operation of the threaded tube to operate the ram for feeding the eraser as well as the purchase for the operation of the lead feeding ram. It will therefore be obvious that the lead holder or the eraser holder can be held while the sheath is turned or the sheath can be held while either of said holders is turned to effect the feeding of the eraser or the lead as the case may be. By reason of the telescopic arrangement of the parts, 13, 15 and 16a both the lead or writing instrument and eraser can be long without unduly extending the length of the instrument as a whole.

The forms and dimensions of the instrumentalities employed in the construction herein shown and described can be changed without departing from the gist of the invention as claimed.

What I claim is:

1. In a combined writing and erasing instrument, a sheath, a tubular member internally and externally screw threaded on the same cross sections thereof in said sheath, a ram engaging one of said threads to feed the writing member and a ram engaging the other of said threads to feed the erasing member.

2. In a combined writing and erasing instrument, a sheath, a tubular member internally and externally screw threaded on the same cross sections thereof secured to said sheath, a ram engaging one of the threads of said internally and externally threaded member to directly engage and feed the erasing member, and a ram engaging the other of said threads to directly engage and feed actuate the writing member.

3. In a combined writing and erasing instrument, a sheath, a friction holder for the writing member and a friction holder for the erasing member, a tubular member internally and externally screw threaded on the same cross sections connected with said sheath, feeding rams directly engaging said writing and erasing members, one of said rams actuated by the external thread of said internally and externally threaded member and the other actuated by the internal thread thereof.

4. In a combined writing and erasing instrument, a sheath, a holder for the erasing member and a holder for the writing member, a tubular member internally and externally screw threaded on the same cross sections connected with said sheath, a feeding ram for said erasing member consisting of an internally threaded tube engaging the external thread of said internally and externally threaded member and a feeding ram for the writing member consisting of a rod having a threaded portion engaging the internal thread of said internally and externally threaded member.

5. In a combined writing and erasing instrument, a sheath having connected therewith a holder for an erasing member and a holder for a writing member, said holders connected with said sheath for independent rotation of each with respect to the other, a tubular member internally and externally screw threaded on the same cross sections in said sheath, a feeding ram for the erasing member consisting of an internally threaded tube engaging the external thread of the first mentioned tubular member, and a feeding ram for the writing member consisting of a rod having a threaded portion engaging the internal thread of said first mentioned tubular member, and means controlled by said eraser holder whereby feeding movement of either of said rams can be effected.

6. In a combined writing and erasing instrument, a tubular sheath, an eraser holder having a slotted tubular extension seated in one end of said sheath, a tubular member internally and externally threaded on the same cross-sections thereof secured in said sheath, an internal, screw threaded ram distinct from the eraser member on said tubular member, said last named member having a non-rotative but sliding engagement with said sheath, a pencil holder connected rotatingly with the opposite end of the said sheath, a ram for the pencil member distinct therefrom having a threaded portion engaging the internal thread of the aforesaid internally and externally threaded tubular member said pencil ram having a non-rotative but sliding engagement with respect said pencil holder.

7. In an erasing instrument the combination of a tubular casing, a holder for a stick of eraser, a tubular ram internally threaded, a relatively fixed threaded means engaging said internally threaded ram, and means operated by the eraser holder to propel said ram and feed the eraser.

8. In an erasing instrument the combination of a tubular holder for a stick of eraser, a casing to receive said holder, an internally threaded tubular ram for the stick of eraser, said holder for the stick of eraser having sliding engaging means with the said ram, and threaded means for actuating said ram upon turning the eraser holder.

9. In an erasing instrument the combination of a case, a holder for a stick of eraser, said holder having a slotted extension entered in the casing, a tubular internally threaded ram for said stick of eraser provided with a lateral extension engaging the slot of the said slotted extension and a relatively stationary means engaging the internal thread of the ram whereby when the eraser holder is turned in one direction the stick of eraser is fed.

10. In an erasing instrument the combination of a tubular casing, an eraser holder rotatable in said casing, an externally threaded member held in said casing, a ram for the eraser engaging said externally threaded member and the eraser holder whereby the eraser can be fed by turning the eraser holder.

11. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement rotatable within said threadless interior surface, a ram to feed the implement in its holder and means operated by said holder for moving the ram to feed the implement.

12. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement within said threadless interior surface, said implement being movable in its holder, a ram to feed the imple-

ment in its holder, and means operated by the holder to propel the ram and the implement.

13. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement within said threadless interior surface, a tubular ram to feed the implement in its holder, and means operated by the holder to propel the ram and the implement.

14. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a tubular holder for the implement rotatable within said threadless interior surface, a ram in said holder, and means operated by the holder for propelling the said ram and the implement.

15. Means of the kind described for feeding an implement including in combination, an external tubular sheath having a substantially threadless interior surface, a tubular holder for the implement rotatable within said threadless interior surface, a tubular ram in said holder, and means operated by the implement holder for moving the ram to feed the implement.

16. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a ram for said implement slidable within said threadless interior surface, and means operated by said sheath to propel the ram.

17. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement movable within said threadless interior surface, a ram to feed the implement in respect to its holder, and means operated by said holder for moving the ram to feed the implement.

18. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement movable within said threadless interior surface, a ram movable independently of the implement to feed the implement in respect to its holder, and means operated by said holder for moving the ram to feed the implement.

19. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement rotatable with respect to said threadless surface, said holder having at its outer end means for frictionally clamping the implement, and means operated by said holder for moving the ram to feed the implement to working position.

20. Means of the kind described for feeding an implement including in combination, an external sheath having a substantially threadless interior surface, a holder for the implement rotatable with respect to said threadless surface, a threaded ram in said external casing to feed the implement in its holder and threaded means engaging said threaded ram operated by the implement holder for moving the ram to feed the implement to working position.

EDMUND MORGAN GORRELL.