This invention relates to erasers intended for attachment to pencils or pencil caps, and to a holding means for securing the erasers to the pencil or cap.

The object of the invention is to provide a novel form of eraser intended for attachment to pencils or to pencil caps in which the desirable features of the so-called "circular" or "disc" eraser are present. It is well known that an eraser of thin or flat contour, provided with a curved, sharp or "knife" edge about its periphery, is more suitable for some erasing purposes than the usual cylindrical eraser mounted on the end of a pencil. The flat type of eraser, presenting a sharp or thin curved edge, enables erasures to be made within a very small area, without marring or disturbing adjacent or surrounding writing.

In the past, efforts have been made to attach erasers of the flat type to pencils or pencil caps, but without material success. The failure of such prior devices was due primarily to the shapes of the erasers employed and to the manner in which it was attempted to secure the erasers in position. In most cases the thickness of the eraser used was such that the eraser did not possess the required stiffness to enable it to satisfactorily perform its intended erasing function. In other cases, the means provided on the pencil for holding the eraser did not grip or hold the eraser with sufficient force to resist the strain imposed upon it during the erasing action so that the eraser became easily dislodged from its position on the pencil or pencil cover.

This invention contemplates a structure in which these and other defects of prior erasers are remedied and in which the form of eraser employed and the means for attaching it in place result in a very satisfactory structure wherein all of the advantages of the flat or circular eraser may be utilized.

Specifically, the invention comprises an eraser body of flat characteristics and preferably of disc shape, provided with a curved, thin, sharp or "knife" edge and formed with a central conical or cylindrical reinforcement which is either removably received or securely fastened in the usual tubular metal pencil ferrule or in a tubular pencil cap.

In the accompanying drawing, wherein several embodiments of the invention are shown, Fig. 1 is a front elevation of a pencil provided with an eraser made in accordance with this invention; Fig. 2 is a view at right angles to that of Fig. 1; Fig. 3 is a face view of the eraser as it appears when detached from the pencil; Fig. 4 is a view of the eraser taken at right angles to that of Fig. 3; Fig. 5 is a sectional view on the line 5-5 of Fig. 1, looking in the direction of the arrows; Fig. 6 is a front view of a pencil cap, showing the eraser held therein, and Fig. 7 is a view taken at right angles to that of Fig. 6.

In the construction shown in Figs. 1 to 5 inclusive, 8 indicates a pencil of conventional form provided at one of its ends with a tubular metal ferrule or socket 9 for the reception of the eraser 10. The tubular ferrule or socket 9 is secured to the pencil by any of the methods generally employed, as for instance, by perforating the metal of the ferrule and forcing the displaced metal inwardly to penetrate the wooden sheath of the pencil.

The eraser 10 is of rubber and is formed with a central cylindrical reinforcing portion 11 which fits within the corrugated part 12 of the ferrule 9 and is held thereby. Additional fastening means for holding the eraser in the ferrule 9 may be employed, as by perforating the ferrule 9 and forcing the displaced metal inwardly to penetrate the eraser, as indicated at 13. The cylindrical portion 11 of the eraser has its upper end formed conical portion 14. Extending laterally from the cylindrical part of the eraser is a disk-shaped or "flat" portion indicated at 15, this part of the eraser being in the same plane as the axis of the pencil to which it is attached. The opposing faces 16 and 17 of the portion 15 converge from the cylindrical reinforcing portion 11 of the eraser to the peripheral edge 18 of the disc, this edge being relatively thin and sharp to enable erasing to be performed by it within a small area.

The cylindrical reinforcing portion 11 of the eraser extends below the disc-like portion 15 and enters into the ferrule 9 wherein it is held as previously described. The opposite sides of the ferrule 9 are formed with V-shaped slots 19 within which the lower edge portion of the disc 15 fits and by which rotative movement of the eraser in the ferrule 9 is prevented.

While the portion 15 of the eraser is herein shown as being relatively disc-shaped, it will be understood that the same need not necessarily be formed in this particular shape since many other forms may be used with satisfactory results, the primary requirement of the shape employed being that it be substantially flat and thin to provide a sharp and preferably curved erasing edge. These requirements are more satisfactorily met by an eraser of disc shape although other forms may be employed with success.
The central cylindrical reinforcement 11 conforming to and tightly fitting the ferrule 9 securely holds the eraser in the ferrule and since its upper conical terminal 14 extends nearly to the peripheral edge 18, it is of sufficient size to add body and strength to the eraser and acts as a reinforcement where the bending strain is imposed by the act of erasing. This serves to prevent breakage of the eraser, which was one of the primary defects of prior structures.

In Figs. 6 and 7, the eraser is shown attached to a pencil cover or cap 20. This cap or cover is of conventional construction and is provided at one of its ends with the usual corrugated portion 21 into which the cylindrical part 21 of the eraser is received. In this construction the eraser may either be permanently fastened in the cap or may be removably held therein so that a new eraser may be substituted when that in position becomes worn from use. The cap or cover member 20 is provided with the V-shaped slots 22 fitting the disc portion of the eraser as previously described with reference to the construction of Figs. 1 to 5.

What we claim is:

1. An eraser attachment for pencils comprising a flat rubber disc provided with an integral central conical reinforcement formed with a lower cylindrical part, said reinforcement having its upper end extending relatively close to the periphery of the disc, a pencil ferrule or cap into which the cylindrical part of the reinforcement is fitted, said ferrule having its wall slotted at diametrically opposite points to form the ferrule into jaws which embrace the opposite faces of the disc and prevent rotative movement of the eraser in the ferrule.

2. An eraser attachment for pencils comprising a disc-shaped section of rubber provided with a central cylindrical reinforcement, the edges of said disc-shaped section being substantially V-shaped in cross section, a pencil ferrule into which the reinforcement is fitted, the wall of said ferrule being provided with V-shaped slots which divide the ferrule into jaws embracing portions of the disc adjacent the central reinforcement and preventing rotative movement of the eraser in the ferrule.

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