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INSERTING TOOL FOR SNAP TIES

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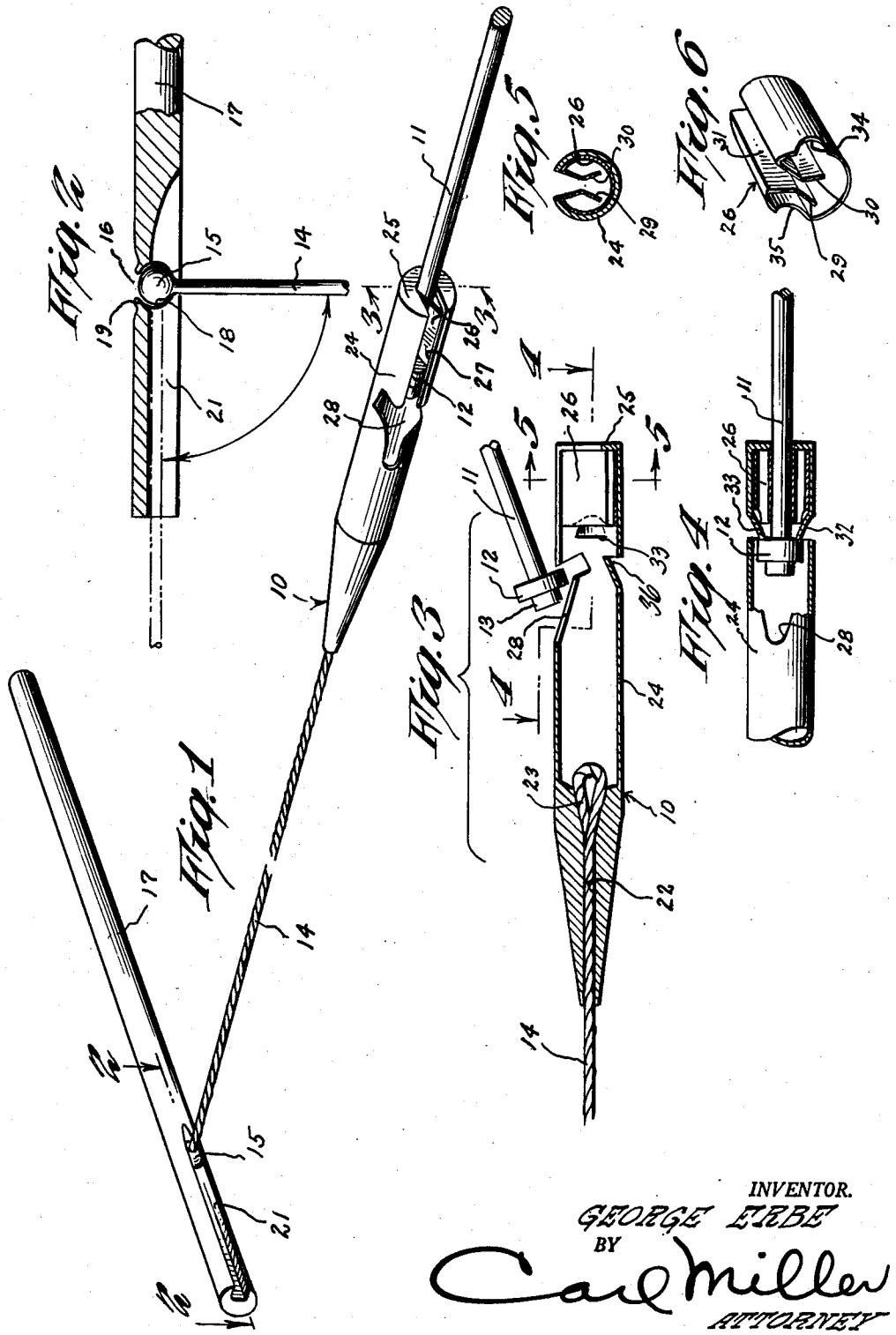

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INSERTING TOOL FOR SNAP TIES

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4 Claims. (Cl. 81—3)

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This invention relates to a tool for inserting tie rods on building wall forms.

It is an object of the present invention to provide a quick attachable and detachable tool, adapted for connection to a tie rod whereby to locate the tie rod in a hole in the opposite form from which it is connected in order that the forms can be pulled or pushed and spaced properly from one another, and wherein the inserting tool can be readily released from the tie rod by a simple movement of the tool over the head of the tie rod.

It is another object of the invention to provide a quick attachable and detachable inserting tool for tie rods wherein the handle can be swung to a position in alignment with the pull cable so that the handle can be passed through an opening in a wall form.

It is another object of the invention to provide a quick attachable and detachable inserting tool for tie rods wherein the tie rod can be easily attached to the tool through a head thereon and wherein there is provided within the tool a non-rotatable retaining member to hold the rod in the longitudinally extending slot of the tool and with the member merely clamping the tie rod within the end of the inserting tool between locking and unlocking positions.

Other objects of the present invention are to provide a tie rod inserting tool for forms used in wall constructions which is of simple construction, easy to attach to the tie rod, inexpensive to manufacture, has a minimum number of parts, strong, durable and efficient in operation.

For a better understanding of the invention reference may be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of the inserting tool connected to a tie rod with the handle extending transversely of the cable, and with the tie rod locked in place in the tool head.

Fig. 2 is a fragmentary enlarged sectional view, taken on line 2—2 of Fig. 1.

Fig. 3 is an enlarged collective and sectional view taken generally on line 3—3 of Fig. 1.

Fig. 4 is a fragmentary side elevational view of the head along the lines 4—4 of Fig. 3 with a portion broken away to show the tie rod in position within the head.

Fig. 5 is a transverse sectional view taken on line 5—5 of Fig. 3 showing the retaining sleeve adjusted in the head to receive the tie rod.

Fig. 6 is an enlarged perspective view of the retaining sleeve.

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Referring now to the figures, 10 represents a head adapted to be connected to a tie rod 11 having an enlargement 12 thereon retained by upsetting the end of the tie rod as indicated at 13. The tool further includes a cable 14 fixed to the head 10 and having a ball enlargement 15 on its end. This cable is passed through a hole 16 in handle member 17 and the ball 15 is retained in a socket opening 18. The handle is upset around the top of the socket opening 18 as indicated at 19 to retain the ball 15 within the handle. On the underside of the handle 17 and extending through one end thereof is a slot 21 into which the cable 14 can pivot so that the handle can be aligned with the cable 14 and thus be drawn through an opening of the wall together with the tie rod 11 which is then released from the head 10.

The forward end of the cable 14 is retained in a central opening or hole 22 in the head body and is turned in at its end as indicated at 23 to provide an enlargement to prevent the outward pull of the cable 14 from the head 10.

The head has a hollow portion 24 with an end 25 thereon, serving as an abutment for a locking sleeve 26 that is used to retain the tie rod 11 in a longitudinal slot 27 communicating with transverse slot 28 intermediate the length of the hollow portion 24. The transverse slot 28 is adapted to receive the enlargement 12 on the tie rod and the tie rod itself can pass through the longitudinal slot 27 to fit in the retaining clip or sleeve 26.

The retaining sleeve 26 has opposing spring portions 29 and 30 with a slot 31 therebetween through which the rod 11 passes. The spring portions 29 and 30 are flared outwardly at their outer ends so as to catch and retain the rod 11. If desired, the sleeve 26 can be rotated within the hollow portion 24 to make a more effective locking engagement of the rod relative to the longitudinally extending slot 27.

In order to provide shoulders against which the enlargement 12 of the rod 11 may engage, struck portions 32 and 33 extend inwardly and engage with the underside of the enlargement 12. These inwardly struck portions 32 and 33 will also retain the retaining sleeve 26 against axial displacement within the hollow portion 24 and to prevent it interfering with the transverse opening 28 and these inwardly struck portions may cooperate with recesses 30 and 35 on the end edge of the sleeve 26 to prevent it from turning or for limiting the amount of turning of the retaining sleeve 26 in the hollow portion 24.

It should be noted that a struck portion 36 in

the head 24 prevents the tie rod 11 from moving longitudinally thereagainst, when said tie rod 11 is placed in proper operating position.

To make the insertion of the tie rod within the head, the enlargement 12 on the tie rod is first fitted in the transverse opening 28 and thereafter the tie rod is brought downwardly through the longitudinal slot 26 and into the end portion 25. The tie rod also passes into the retaining sleeve 26 and between the portions 29 and 30 which will retain the tie rod against lateral displacement from the head. It will be seen by being able to turn the handle 17 into alignment with the cable 14 that the handle can pass along with the cable 14 and the head 10 through holes in the construction forms. When it is desired to remove the tie rod, this can be effected by a simple exertion of force to spring the portions 29 and 30 of the sleeve 26 and to allow the rod to pass through the longitudinal slot 27 and the head outwardly of the transverse slot 28.

While various changes may be made in the detail construction, it shall be understood that such changes shall be within the spirit and scope of the appended claims.

Having thus set forth and disclosed the nature of my invention, what is claimed is:

1. A tie rod inserting tool adapted for connection with an enlarged head on a tie rod comprising a sleeve member having an elongated notch extending from the attaching end thereof with a laterally downwardly and forwardly extending notch for receiving a head on the tie rod, whereby to permit threaded movement of the head through the attaching sleeve member, said longitudinally extending notch being adapted to accommodate the tie rod and having a width only slightly larger than the diameter of the tie rod and an end formation on the sleeve head member, and a retaining sleeve for the tie rod to retain the same within the longitudinal extending slot fitted in the hollow sleeve member and abutting the end formation thereon, said retaining sleeve having inwardly extending opposing spring portions between which the rod may pass and be retained against lateral displacement.

2. A tie rod inserting tool adapted for connection with an enlarged head on a tie rod, as defined in claim 1, and inwardly struck portions on the sleeve member adapted to be engaged by the enlargement on the tie rod and to serve as an abutment therefor.

3. A tie rod inserting tool adapted for connection with an enlarged head on a tie rod, as defined in claim 1, and inwardly struck portions on the sleeve member adapted to be engaged by the enlargement on the tie rod and to serve as an abutment therefor, and said rod retaining sleeve being recessed on its end edge on the opposite sides thereof and said struck portions extending into the respective recesses and serving to retain the retaining sleeve against rotation within the sleeve member.

4. A tie rod inserting tool adapted for connection with an enlarged head on a tie rod comprising a sleeve member having an elongated notch extending from the attaching end thereof with a laterally downwardly and forwardly extending notch for receiving a head on the tie rod, whereby to permit threaded movement of the head through the attaching sleeve member, said longitudinally extending notch being adapted to accommodate the tie rod and having a width only slightly larger than the diameter of the tie rod and an end formation on the sleeve head member, and a cable extending rearwardly from the tool head, said cable having a ball formation on the rear end thereof, a handle having a socket opening therein receiving said ball formation on the cable, said handle having a recess extending from the socket opening and through one end of the handle whereby the handle may be pivoted to receive the cable and to be in alignment therewith so that the tool can be passed through ball openings or holes in the construction wall parts.

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