Aug. 31, 1965 C. M. JAHN 3,203,717

TIE-ROD COUPLER

Filed May 1, 1962

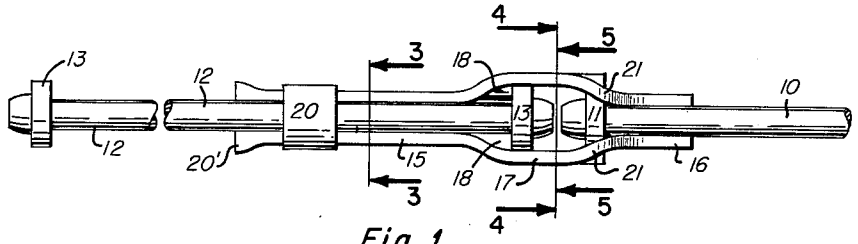


Fig. 1

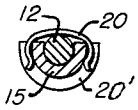


Fig. 3



Fig. 5

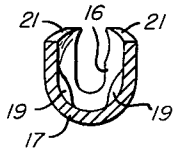


Fig. 4

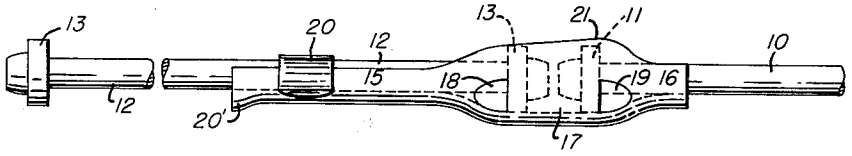


Fig. 2

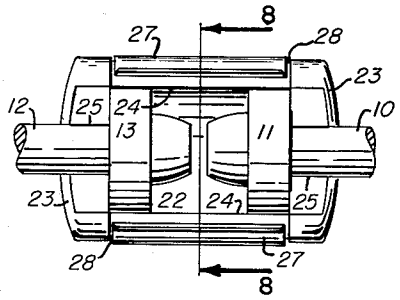


Fig. 6

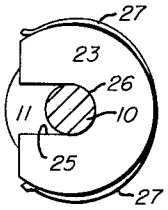


Fig. 7

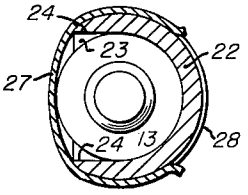


Fig. 8

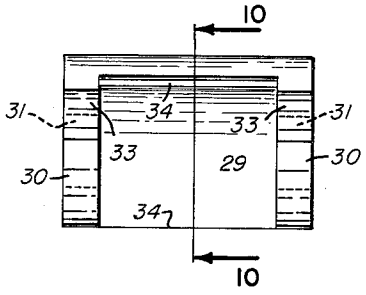


Fig. 9

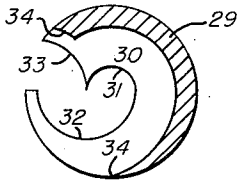


Fig. 10

INVENTOR.
CARL M. JAHN
BY
ATTORNEY

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3,203,717

TIE-ROD COUPLER

Carl M. Jahn, 2120 S. Joliet St., Denver, Colo.

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4 Claims. (Cl. 287—111)

This invention relates to the art and practice of fabricating forms for the reception and shaping of concrete, and more particularly to that technique of concrete form construction characterized by the use of headed tie-rods applied perpendicularly through and to project at each end exteriorly from the opposed walls of a form thereby related and maintained in desired separation, and has as an object to provide novel and practical means useful in optional coaction with the exterior ends of such tie-rods as associated with a form to facilitate and to expedite the operations requisite to ready the form for intended use.

A further object of the invention is to provide a novel and improved coupler applicable at option in coaction with the headed end of a tie-rod exterior to a form wall to extend the effective length of the tie-rod projection outwardly from the wall.

A further object of the invention is to provide a novel and improved coupler that is expedient of attachment in length-extending coaction with headed tie-rod terminals exterior to a concrete form wall without recourse to tools.

A further object of the invention is to provide a novel and improved tie-rod coupler that is useful in the organization of concrete forms to simplify and facilitate appropriately effective correlation of form tie-rod, panel, and bracing components.

A further object of the invention is to provide a novel and improved tie-rod coupler that is applicable to accommodate efficient organization of forms characterized by tie-rod components alike as to headed terminal length and consequent projection exteriorly from a form wall wherewith engaged.

A further object of the invention is to provide a novel and improved tie-rod coupler that is effectual to selectively associate walers and strongbacks of diverse sizes in appropriate operative relation with a form wall and the headed terminals of tie-rods correspondingly projecting therefrom.

A further object of the invention is to provide a novel and improved tie-rod coupler that is simple and economical of production in any of various specific embodiments, that is in all embodiments compact in a unitary arrangement conveniently manipulable to and away from use relations, that is adapted to function without impairment throughout long periods of repetitious service, and that is positive and efficient in attainment of the purposes for which designed.

With the foregoing and other objects in view, my invention consists in the construction, arrangement, and operative combination of elements as hereinafter set forth, pointed out in the appended claims, and illustrated by the accompanying drawing, in which:

FIGURE 1 is a top plan view of one practical embodiment of the invention as applied in position of use to couple a headed rod extension to the headed terminal projection of a conventional tie-rod.

FIGURE 2 is a side elevational view of the arrangement according to FIGURE 1.

FIGURE 3 is a section taken transversely and substantially on the indicated line 3—3 of FIGURE 1.

FIGURE 4 is a section taken transversely and substantially on the indicated line 4—4 of FIGURE 1.

FIGURE 5 is a section taken transversely and substantially on the indicated line 5—5 of FIGURE 1.

FIGURE 6 is a side elevational view, on a relatively-enlarged scale, of an alternative embodiment of the invention as applied in coupling coaction with the headed ends of a conventional tie-rod projection and a rod extension thereof.

FIGURE 7 is an end elevational view of the arrangement according to FIGURE 6.

FIGURE 8 is a section taken transversely and substantially on the indicated line 8—8 of FIGURE 6.

FIGURE 9 is a side elevational view similar to FIGURE 6 of another practical embodiment of the invention apart from association with the tie-rod components it is designed to couple.

FIGURE 10 is a section taken transversely and substantially on the indicated line 10—10 of FIGURE 9.

Conventional, widely-practiced techniques of concrete form fabrication have in common the use of edge-abutted coplanarly-aligned, upright panels defining form walls intersected and spaced apart by tie-rods having like, opposite, headed terminals adapted to project as a patterned array outwardly from the wall panels for coaction with wedging means actuable in reaction to the terminal heads of the rods to clamp walers, strongbacks, and equivalent reinforcements to bracing and retaining relation with the panels effective to consolidate the form with provision for convenient subsequent disassembly thereof. Terminally-headed tie-rods suited for use as above described are commercially available in a range of lengths and length subdivisions effective to determine separation of the opposed walls of the form to which applied and also to provide, for and in connection with each particular wall-separating potential featuring the rods, headed terminals of different lengths symmetrically paired on a given rod for correspondingly-different projection exteriorly from the wall panels whereto applied. Intended for and applied to effect clamping coaction of a rod projection and a waler transverse thereof, a large proportion of the tie-rods utilized in concrete form fabrication as above described are those having headed terminals alike in a length to establish projection exteriorly of the form wall panels slightly exceeding the width of the waler wherewith they are designed to cooperate, irrespective of their wall-separating capability. Suitably spaced apart in appropriate pattern, the tie-rods terminally proportioned for direct correlation with the waler are customarily adequate for consolidation of the form in condition to receive and confine a charge of concrete without failure or distortions, but specialized conditions attending erection and use of a form frequently present occasion for supplementing and reinforcing the wall bracing provided by the walers, as by means of width-doubled or relatively-wider waler components, strongbacks bridging in bearing engagement exteriorly across the walers, and the like, clamp-yoked by the tie-rods to and through the form to resist forces tending to separate the form walls. It is conventional practice to attempt anticipation of the need for and the location of supplementary reinforcement to be included in a concrete form organization and to correspondingly adapt the form during its erection for satisfaction of the anticipated needs through provision at the predetermined locations of tie-rods having headed terminals length-suited to span and coact with components of the supplementary reinforcement exterior to the walers in substitution for the tie-rods terminally conditioned to cooperate with the walers. The conventional practice of supplementary form reinforcement just discussed substantially precludes any such strengthening of the form save at the predetermined locations furnished with the tie-rods having the longer headed terminals and thus seriously restricts correction of weaknesses in the form

structure apparent only after erection has been completed, and such practice, necessitating suitable supply of tie-rods differing as to the length of their headed terminals and supervised attention as to their selective placement in timely correlation with the progress of form organization, is less than agreeably conservative of material and labor costs. Obviously, were it feasible to construct the form with tie-rods of but one, uniform length of headed terminals adapted for coaction with the walers and, where and as desired, to subsequently and expediently extend the terminals of selected said rods to effect desired coaction with strongbacks, wider walers, and the equivalent, facility and flexibility of supplementary reinforcement of the form would result with economy of time and expense, and the instant invention is hence directed to the provision of a coupler manually applicable to detachably engage a terminally-headed, short tie-rod of appropriate variable length to and as an operative extension of any one of the tie-rod projections characterizing the form organization.

Indicative of the function and representative of the use environment common to the several embodiments of the invention illustrated and hereinafter particularly described, a rod portion **10** terminating in a shouldered head **11** typifies, as shown in certain views of the drawing, the exterior projection of any conventional tie-rod in customary use association with a concrete form structure as to which outward extension of effective length is desired, and the numeral **12** designates a separate portion of rod material equivalent to that of the rod **10** terminating in opposed, shouldered heads **13** identical with the head **11** which determine for the rod portion **12** a length appropriate to effect desired outward extension of the rod projection **10** when said portions **10** and **12** are coaligned with one of the heads **13** closely and abuttingly approached to the head **11**. Preformed to different, and expediently assorted lengths, the extensions characterized by the rod portion **12** and heads **13** are supplied for contemplated supplementing attachment to selected exterior projections presented by an array of identical conventional tie-rods comprised in a given form to be braced, whereby to accommodate attachment of an extension of appropriate length in any and every location of intended such use.

Conveniently manipulable to detachably connect an extension of selected length to the projecting portion **10** of a conventional tie-rod comprised in a form structure with no strength impairment of the so-related components, the embodiment of the coupler illustrated by FIGURES 1–5, inclusive, of the drawing is susceptible of economical production and eminently feasible of use. As shown in the views just noted, the coupler is integrally formed and unitarily contrived from suitable strong material, such as metal, as a straight, elongated, trough portion **15** adapted to laterally receive and conformably seat a corresponding length of the extension rod **12**, a shorter trough portion **16** spacedly opposed to and aligned with said portion **15** adapted to laterally receive and conformably seat a corresponding length of the rod projection **10**, and a radially-enlarged trough portion **17** intermediately and integrally conjoining the trough portions **15** and **16**. Characteristically, the trough portions **15**, **16** and **17** are formed with full-length, open sides which for the portions **15** and **16** are alike in a width of opening appropriate to freely pass the like diameters of the rods **10** and **12** while that of the portion **17** has a greater width of opening suitable to freely pass the like diameters of the heads **11** and **13**, and said trough portions are arranged with a longitudinal bisectors of their open sides coaligned to establish a channel fully traversing and opening through the opposite ends of the unit therefrom comprised. For intended coaction with sections of the rods **10** and **12**, the channels of the trough portions **15** and **16** are concavely and coaxially bottomed to the rod radius in axial registration with and at the opposite sides of the enlarged channel of the trough

portion **17** which is concavely bottomed to the radius of the rod heads, whereby to accommodate lateral seating of a headed rod section in each of the trough portions **15** and **16** with the head component thereof received in the channel of the trough portion **17**. The channels of the trough portions **15** and **16** are defined in depths, not necessarily alike, exceeding the radius of the rod receivable therein and expand inwardly of the unit to merge with the deeper channel of the trough portion **17** provided in a depth approximating the diameter of the rod head, all of which expediently results from a shaping of the material from which the trough portions are formed to substantially the outline represented by the views of the drawing characterized, in particular, by an outward bulge of the trough portion **17** from smooth convergence with the trough portions **15** and **16** thereby conjoined; an inherent feature of the resulting outline being a definite offset of the margins of the trough **17** limiting the width of the channel thereof laterally and outwardly beyond the convergently-associated channel margins of the trough portions **15** and **16**.

The coupler of the invention having as practical purpose to effect a definite and known length extension of a tie-rod projection exterior to a form wall in a manner to qualify the extension as a functional continuation of the associated tie-rod, provision is made for uniformly and dependably relating one head of the applied extension with the terminal head of the tie-rod so supplemented for invariable determination of the length increase as reflection of the length of the extension utilized with concomitant effective resolution and transmission to the tie-rod of the stresses imposed upon the extension. Appropriate correlation of one head **13** of the extension with the head **11** of the tie-rod projection effective through and to realize the purposes of the coupler results from intrusive deformation of the coupler material conjoining the trough portion **17** with the portions **15** and **16** to establish opposed lugs **18** inwardly restricting the convergence of the channel of the trough portion **15** with that of the portion **17** and similar lugs **19** inwardly restricting the convergence of the channel of the trough portion **16** with that of the portion **17** spacedly confronting said lugs **18**. In a separation that does not interfere with full seating of the rod **12** and its head **13** in the channels of the trough portions **15** and **17**, the lugs **18** terminate the flat end faces coplanar interiorly and laterally of the trough portion **17** where the full-dimension channel of the latter begins to merge with the channel of the trough portion **15**, whereby to dispose the end faces of said lugs **18** as abutments at and interiorly obstructing one end of the full-dimension channel of the trough portion **17** effective in coaction with the shouldered, annular face of a head **13** entered laterally within said portion **17** to limit and determine shift of said head and its associated rod **12** axially in a direction outwardly of the trough portion **15**. Similarly, the lugs **19** are separated to avoid interference with the seating of a rod **10** and its head **11** in the channels of the coupler and terminate in flat end faces coplanar interiorly and laterally of the trough portion **17** in parallelism with the plane of the end faces terminating the lugs **18** at a spacing from the latter slightly exceeding the combined axial lengths of the like heads **11** and **13** simultaneously engageable within the trough portion **17** of the coupler, whereby said lugs **19** are arranged to limit and determine shift of a head **11** axially and in a direction outwardly of the trough portion **16** from operative seated coaction with the coupler. Arranged and spaced as shown and described, the lugs **18** and **19** serve in engagement with the heads **11** and **13** of the rod elements **10** and **12** to couple the extension to the rod projection in a definite, predetermined length combination dependably reflecting the length of the selected extension unit and function to reliably transmit tensioning stresses imposed upon the so-coupled extension to and for resolution by the tie-rod of which the rod portion **10** is a projection.

Structurally adequate and functionally complete as shown and thus far described, the manipulative convenience and practical utility of the improved coupler are enhanced by supplementing features which facilitate its application to and retention in position of use. Quite obviously, preliminary attachment of an extension rod **12** with its double heads **13** to and for manipulation to position of use as a unit with the coupler promotes ease and speed of the intended coupling operation, to which end an annular clip **20** of appropriate spring material interrupted to pass the diameter of the rod **12** is slidably and rotatably engaged about and to embrace in excess of the half-circumference of the trough portion **15** inwardly of a retaining bead, or enlargement, **20'** outwardly terminating the said portion. The clip **20** may be turned on the trough portion to register its interruption with the open side of the trough channel thereby cleared to receive the rod **12** for intended coaction with the coupler as above set forth, and the said clip thereafter turned to close over the channel and the rod received therein, as represented by FIGURE 3, to retain the rod against separation from the coupler. With the clip **20** shifted outwardly along the trough portion **15**, the rod **12** may be moderately oscillated thereunder to enter the inner of its heads **13** within the channel of the trough portion **17**, or to retract said head radially and outwardly away from said channel, in connection with or independently of axial shift of the rod relative to the clip and the trough portion **15** directed to clear and fully open the channel of the trough portion **17**, when and as desired, and alternatively to seat the rod **12** in the channel of the trough portion **15** with one of its terminal heads **13** seated in the channel of the trough portion **17** and therein coacting with the ends of the intruded lugs **18**, in which latter illustrated association of the rod extension and coupler the clip **20** may be shifted on and inwardly along the trough portion **15** in maintained embracing relation with the rod **12** to inhibit inadvertent separation of the head **13** from its full-seated connection with the coupler. Facilitating connection of the coupler in retained use association with the rod projection **10** and its head **11**, opposed free margins of the side walls bordering the channel of the trough portion **17** are converged adjacent the conjunction of the trough portions **16** and **17** as lips **21** effectively restricting and narrowing the opening to the channel of the trough portion **17** immediately above and inwardly of the trough portion from the ends of the lugs **19** in partially-circumscribing relation with the position of the head **11** when in its intended operative coaction with the coupler. The lips **21** serve to confine the head **11** against escape laterally of the trough portion **17** from a seat in the channel of the latter such as to engage the head with the ends of the lugs **19**, as represented in FIGURE 1, and extend in overhanging relation with the inward ends of said lugs **19** toward the lugs **18** but slightly to leave unobstructed the major length of the channel opening to the trough portion **17** in a width adequate to freely pass the heads **11** and **13** laterally to and from said channel.

Furnished with the clip **20** and lips **21** as illustrated and above described the coupler represented by FIGURES 1–5, inclusive, is conditioned to effect attachment of a headed rod extension to and in retained operative relation with any selected headed terminal projection of a tie-rod conventionally associated with a concrete form organization pursuant to manipulations conveniently simple of speedy execution. Desirably, although not necessarily, a supply of the coupler units is readied for subsequent use in individual association with a headed rod extension **12** loosely retained thereon under and by means of the clip **20** located near the outer end of the trough portion **15**. Upon occasion for length-extension of a tie-rod projection **10**, a coupler carrying an extension **12** of appropriate length is arranged through relative adjustment of the latter to clear the inner head **13** from and out of obstructing relation with the opening to the channel of the trough portion **17** and is then applied to receive the head **11**

in said channel through the unobstructed and unrestricted area of its lateral opening as said opening is approached upwardly to and from below the head **11** with the coupler trough portion **16** underlying the rod **10** in downward divergence therefrom. With the head **11** received to full seated engagement within the channel of the trough portion **17**, the coupler is rocked thereon to coaxial alignment with the rod **10** and simultaneously shifted outwardly on the rod to abutment of said head against the intruded ends of the lugs **19** and entrapment of the salient arc of said head beneath the lips **21** as the rod **10** seats adjacent its conjunction with the head in the channel of the trough portion **16**, whereby the coupler carrying the extension rod **12** is linked to and retained against inadvertent separation on the tie-rod projection designed to be extended. Shift of the coupler on the rod **10** to engagement of the head **11** with the ends of the lugs **19** clears a length of the channel of the trough portion **17** adequate to receive and accommodate the inner head **13** of the extension **12** engageable therewithin through oscillation and shift of the latter appropriate to seat said rod **12** in the channel of the trough portion **15** in coalignment with the rod **10** as the said head **13** is entered to its seat within the trough portion **17** adjacent and in position to bear against the intruded ends of the lugs **18**, whereafter slide adjustment of the clip **20** on and inwardly of the trough portion **15** in maintained embracing coaction with the rod **12** serves to inhibit escape of the head **13** from a disposition wherein it opposes retraction of the head **11** from the restraining influence of the lips **21** and preserves a self-supporting, operative correlation of the extension rod **12** and rod projection **10** effective to transmit tensioning stresses imposed upon the rod **12** to and for resolution through the tie-rod thereby extended. Obviously, recovery of the coupler and its associated rod extension from use position in condition for reuse involves but a reversal of the operations above set forth, shift of the clip **20** outwardly on the trough portion **15** to free the rod **12** for oscillation effective to displace the head **13** from the channel of the trough portion **17** and subsequent shift of the coupler on the rod **10** to free the head **11** from the influence of the lips **21** being fully adequate to detach the coupler and extension from the rod projection in unimpaired condition.

While it is of practical advantage to connect the rod extensions **12** to the couplers by means of the clips **20** prior to use application thereof, it is fully apparent that the coupler separate from its rod extension may be first connected to the rod projection **10** as above described and the extension **12** then applied to the mounted coupler through manipulation of the clip **20** with attainment of the same ultimate result and the combination as characterizes the technique first detailed.

The alternative embodiment represented by FIGURES 6, 7 and 8 is a structurally-modified, functional equivalent of the coupler hereinbefore described and is employable to operatively interlink the head **11** of a tie-rod projection **10** and a juxtaposed head **13** of a rod extension **12** in a correlation identical as to purpose and analogues as to facility with that of the first-described unit.

As shown in the views last noted, the coupler is a tubular sleeve **22** end-closed by integral webs **23** parallel transversely of the sleeve in a spacing of their opposed faces slightly exceeding the combined lengths of the head **11** and its duplicate **13**. The sleeve **22** defines a semicircular cavity sized and concaved to receive and conformably seat the half-circumferences of the heads **11** and **13** in a coaxial correlation of said heads, sleeve, and the rod portions terminated by the heads, which cavity opens laterally in its full diametric dimension through one side of the sleeve across the extent of web **23** separation to intersect the exterior cylindrical wall of the sleeve in parallel lips **24** establishing a plane chordally of the sleeve which is continued through the end webs **23**; said lateral opening of the cavity providing passage for the heads **11**

and 13 to and from seated accommodation within the cavity. At its intersection with the end webs 23, the plane common to the lips 24 is laterally and symmetrically interrupted by a notch 25 intruded radially in and to open axially through each of the end webs 23 in a size to receive and pass the diameter of the like rods 10 and 12, which said identical, complementarily-disposed notches 25 alike terminate centrally of the end webs 23 as arcuate seats 26 concentric with the sleeve and its end webs adapted to conformably accommodate and coaxially align the rod portions 10 and 12 mounting the heads 11 and 13 engageable in juxtaposed opposition within the cavity of the sleeve 22. With the lateral opening of its sleeve cavity unobstructed, the coupler comprised from the sleeve 22 and end webs 23 is expediently applicable to operatively connect the extension 12 to the tie-rod projection 10 through simultaneous embracing engagement with the associated heads 11 and 13 entered in opposition through the cavity opening to seated reception within the cavity and bearing coaction with inner faces of the end webs 23 as the rod components traverse the latter by way of the notches 25, in which operative correlation, clearly represented by FIGURE 6, the coupler serves to establish and determine the axial cooperation of the rod components and is effective to transmit to the tie-rod typified by the projection 10 tensioning stresses imposed upon the extension 12 when and as provision is made to obviate inadvertant release of said heads, either or both, from the interior of the sleeve. Where the plane established by the lips 24 interrupts the cylindrical exterior and alters the radial projection of the sleeve 22 there is consequent exposure outwardly through the opening to the sleeve cavity of corresponding peripheral arcs of the heads 11 and 13 received and seated within said cavity, as is clearly shown in FIGURES 7 and 8, availably disposed for coaction with a retainer manipulable to close thereover and secure the heads within and against separation from the sleeve. In the simple, practical arrangement illustrated, the retainer is contrived as an interrupted, annular band 27 of constrictively-biased, spring material, such as metal, adapted to conformably and rotatably embrace in excess of the half-circumference of the exterior of the sleeve 22 in a width, or dimension axially of the sleeve, approximating the length of the sleeve cavity receivable with restraint of relative axial displacement between radially-narrow, annular shoulders 28 exteriorly and circumferentially enlarging the end webs 23 relative to the sleeve 22 at and about their conjunctions. Constrictively engaged on and about the sleeve 22 between the shoulders 28 to present an annular interruption adequate to at times fully expose the lateral opening to the sleeve cavity separating the lips 24, the retainer 27 is revoluble in a maintained axial correlation on and about the sleeve 22 to selectively and alternatively fully expose the cavity opening between the lips 24 and to entirely close over said opening with concomitant envelopment of the exposed arcs of the heads 11 and 13, as in FIGURE 8, effective to inhibit escape of said heads, and their associated rod components, from operative coaction with the coupler. Employable in an obvious manner, the coupler typified by the sleeve 22 is detachably applicable in analogy with the coupler typified by the trough portion 17 to effectuate the purposes and to attain the results characterizing the latter.

Functionally equivalent to the two coupler embodiments previously described, the organization represented by FIGURES 9 and 10 is characteristically and operatively similar to the embodiment typified by the sleeve 22 in a structural departure therefrom distinguished by a unitary construction dispensing with the inclusion of, or occasion for, relatively-movable components. Organized as a sleeve 29 resembling the sleeve 22 and end webs 30 transverse thereof comparable to the end webs 23 in a combination sized and proportioned for application to and seated reception of the heads 11 and 13 to be interlinked in functional conformity with the coupler last above discussed, the embodiment according to FIGURES 9 and 10 is distinguished by means for and a manner of coaction with the rod components of the heads 11 and 13 adapting the coupler to effectuate its purposes and to maintain its operative capability in reflection of simple rotational manipulations of the unit incident to its use application. Designed for centered accommodation and seating of the rod components 10 and 12, the ends webs 30 of the modified coupler embodiment are alike intersected by concentric, semi-circular rod seats 31 sized and disposed as are the seats 26 terminating the notches 25 of the analogous embodiment for operative coaction with the rod components 10 and 12, and in contrast with the access notches 25 terminating in said seats 26 the seats 31 are alike served by and terminate spiral throats 32 sized to pass the diameter of the rod components which curve from convergence to the associated seat outwardly and away from the axis of the sleeve 29 toward the periphery of the end web 30 thereby interrupted through which periphery they open by way of a correspondingly-sized, reversely-curved, throat continuation 33; said seats 31, throats 32, and throat continuations 33 of each end web 30 being registered axially of the unit. Since the features 31, 32 and 33 constitute a passage for a rod component thereby seated coaxially of the sleeve 29 and such rod component terminates in an enlarged, concentric head movable therewith to reception within the sleeve, it is manifest that the path of head access to the cavity of the sleeve is necessarily established by the trace generated by the periphery of the head as it moves with the rod component along and in centered registration with the bisector of the throat 32 and its continuation 33, which trace determines a spiral convergence of the wall of the sleeve 29 remote from the outlet opening of the throat continuation 33 and lips 34 in spaced parallelism axially of the sleeve defining a lateral opening to the cavity of said sleeve somewhat wider than that between the lips 24 of the analogous embodiment but considerably less than one hundred and eighty degrees of arc, whereby to leave intact more than the half-circumference of the wall of the sleeve 29, substantially as shown by FIGURE 10. As should be readily apparent, the rod components to be coupled are entered through the access passages provided by the throats in the end webs of the unit to engagement with their respective seats 31 and simultaneously carry their head elements to reception within the cavity of the sleeve 29 and shouldered bearing coaction with the opposed inner faces of the end webs 30 for ultimate coupled correlation as shown by FIGURE 6 and previously described, retention of the components and heads in the so-established coupled relation with inhibition of component and head separation from the coupler being assured through such rotation of the coupler on and about the seated rod components as will preclude their outward traverse of the throats 32 and continuations 33 in reaction to the influence of gravity.

Since changes, variations, and modifications in the form, construction, and arrangement of the elements shown and described may be had without departing from the spirit of my invention, I wish to be understood as being limited solely by the scope of the appended claims, rather than by any details of the illustrative showing and foregoing description.

I claim as my invention:

1. A rod coupler for detachably engaging a terminally-headed rod to and as a coaligned extension of a like headed projection conventionally terminating a tie-rod horizontally fixed in use association with a concrete form, comprising an elongated, rigid member formed with a laterally-open, concavely-bottomed trough portion adapted to receive and conformably seat in closely-spaced coaxial opposition the head of said projection and a terminal head of said rod, laterally-open, concavely-bottomed trough extensions aligned in fixed engagement with an unequal opposite projection from the ends of said trough portion adapted to receive and conformably seat the rod compo-

nents terminated by the heads accommodated in said trough portion, said trough extensions being relatively shorter and longer in lengths of projection from the trough portion exceeding the combined length dimensions of the heads receivable in said portion, abutments at the conjunctions of said trough portion and trough extensions coactable with the heads engaged within the trough portion to inhibit axially-directed separation thereof, means fixedly restricting the lateral opening of the trough portion in overhanging relation with the abutment at the joinder of said trough portion and shorter trough extension effective to prevent release from the trough portion of a head bearing against the abutment in termination of a rod component traversing the shorter trough extension, and other means slidably and revolubly embracing the longer trough extension selectively manipulable to effect seated reception of a terminally-headed rod in the trough portion and associated longer extension, to accommodate at option oscillation of the so-seated rod with attendant displacement of its head relative to the trough portion, and to latch the head of the so-seated rod in bearing engagement with the contiguous abutment interiorly of the trough portion.

2. The organization according to claim 1, wherein the elongated, rigid, coupler member is unitarily shaped from suitable material with smooth convergence of trough portion and trough extensions in a straight-line continuity of their lateral openings, and said abutments are lugs integrally intruded from the conjunctions of said trough portion and trough extensions to provide ends coactable with annular faces of the heads coplanar at and transversely of each end of the trough portion opposed in a separation but slightly exceeding the combined lengths of the heads receivable therebetween.

3. The organization according to claim 1, wherein the elongated, rigid, coupler member is unitarily shaped from suitable material with smooth convergence of trough portion and trough extensions in a straight-line continuity of their lateral openings, said abutments are lugs integrally intruded from the conjunctions of said trough portion and trough extensions to provide ends coactable with annular faces of the heads coplanar at and transversely of each end of the trough portion, and the means fixedly restricting the lateral opening at one end of the trough portion consists of integral lips marginally of the trough portion convergent from opposite sides of the lateral opening of said portion over inner ends of the subjacent abutment in position to radially confine a head entered to engagement with the associated abutment axially thereunder.

4. The organization according to claim 1, wherein the means manipulable along and about the longer trough extension is an interrupted, annular clip axially short in relation to the length of the associated trough extension correlated in frictional retention on said extension alternatively to fully uncover and to close over the lateral opening thereof in all dispositions longitudinally of the extension between a radial enlargement at the free outer end of the extension and the conjunction of the extension with the trough portion.

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CARL W. TOMLIN, *Primary Examiner.*