June 17, 1924. 1,497,909

J. T. HOLTFOTH

ASSEMBLING MACHINE

Filed Oct. 30, 1922 3 Sheets-Sheet 1

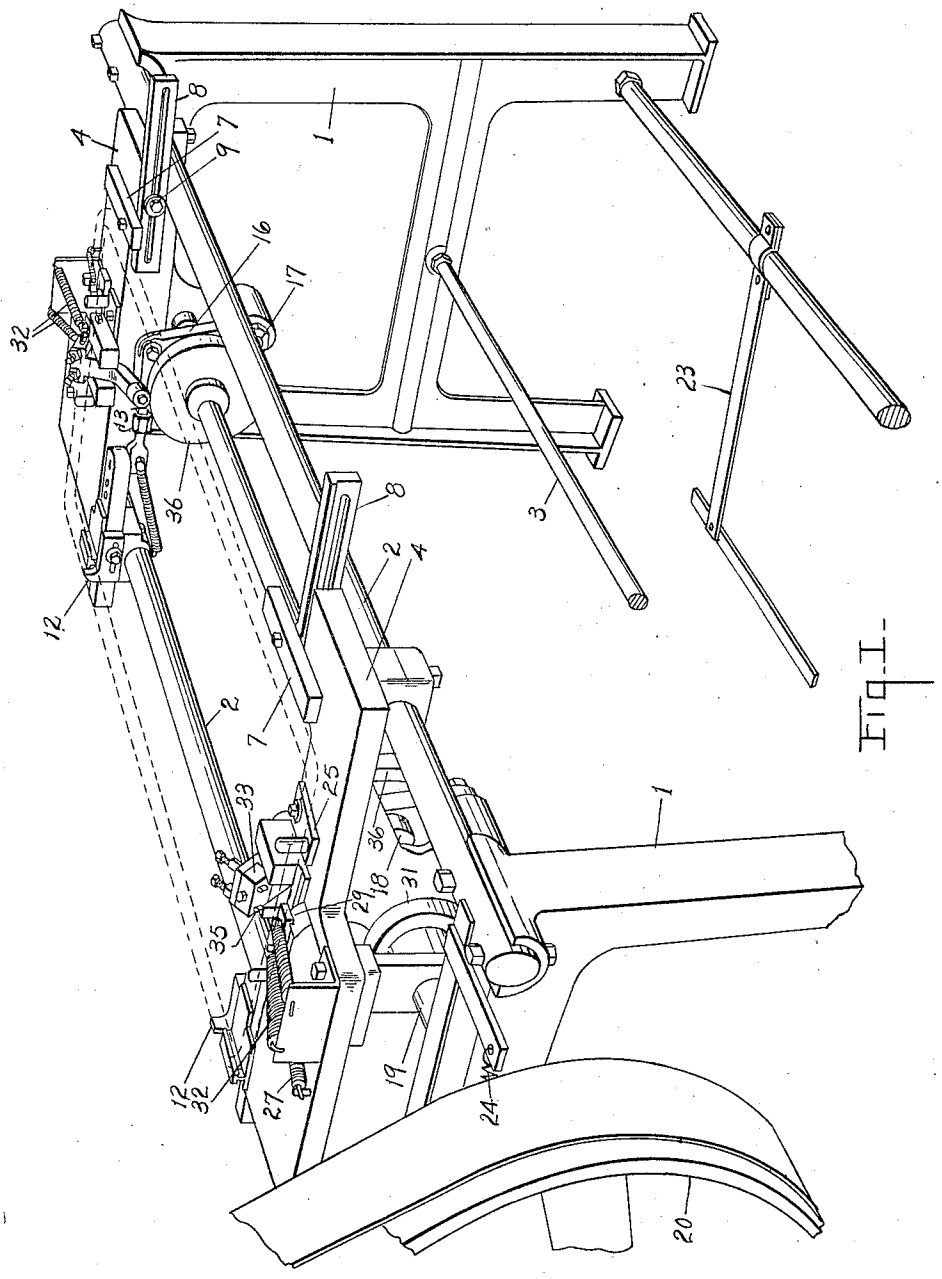


Fig. 1.

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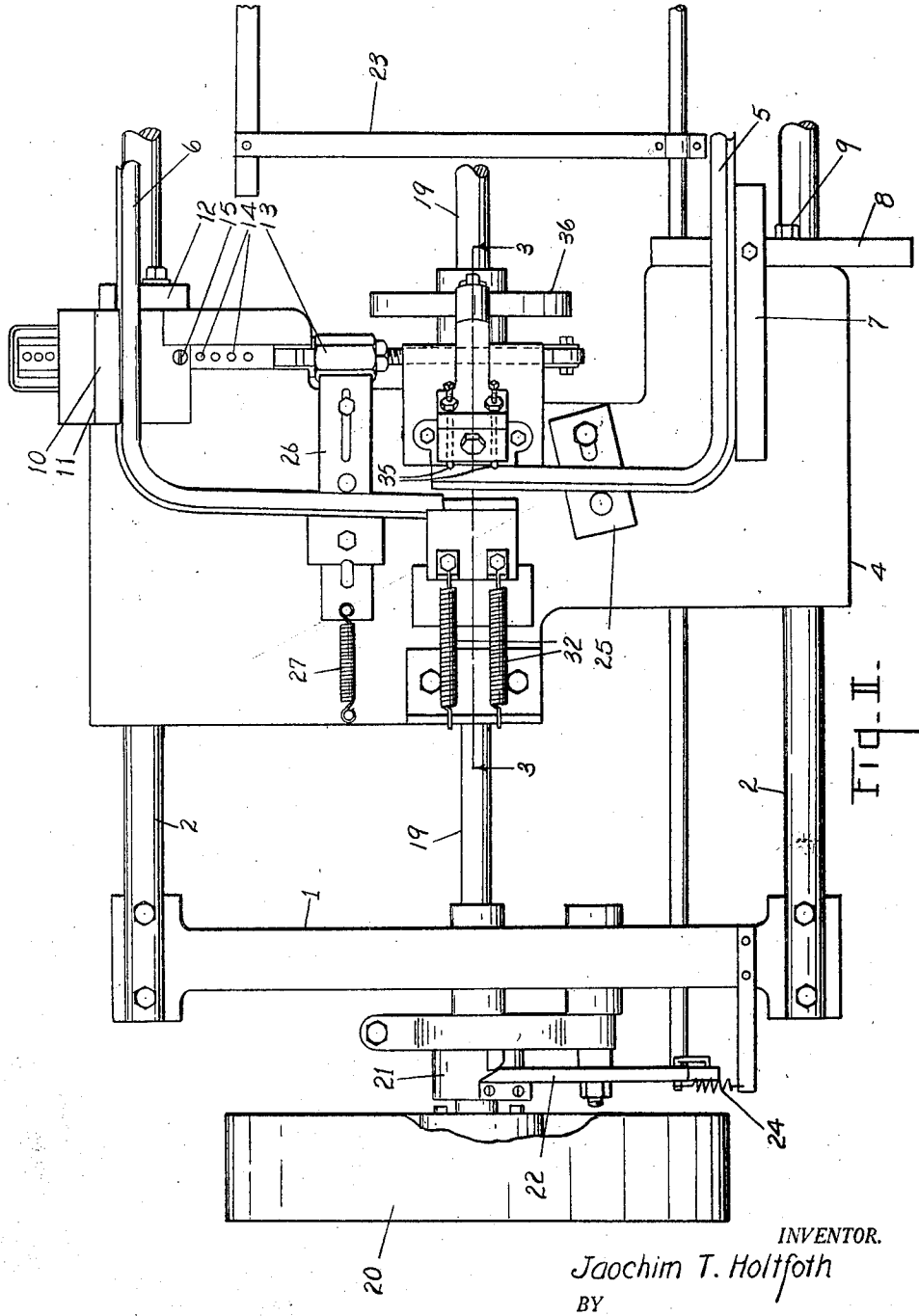


Fig. II.

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Filed Oct. 30, 1922 3 Sheets-Sheet 3

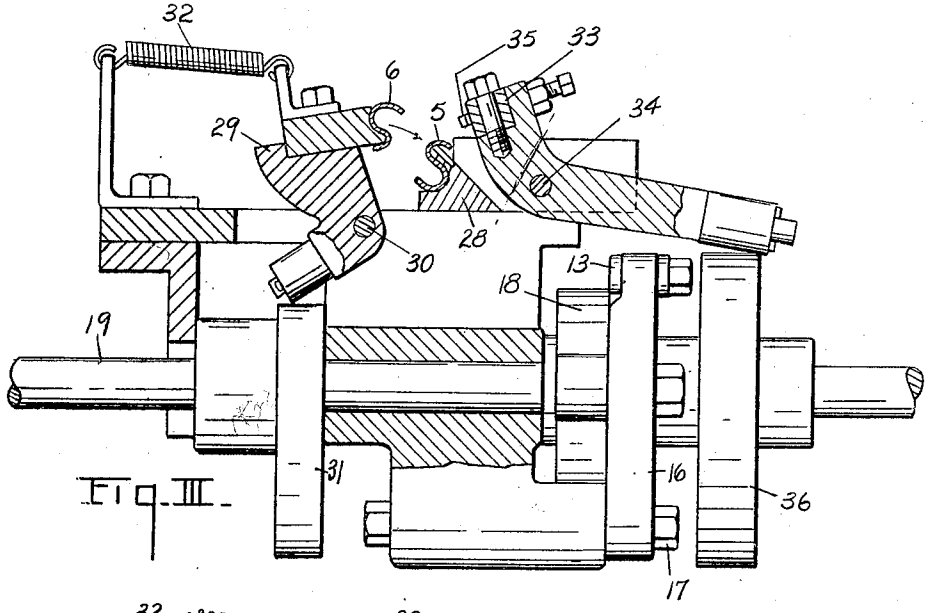


Fig. III.

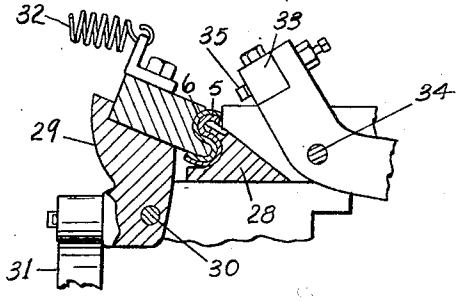


Fig. IV.

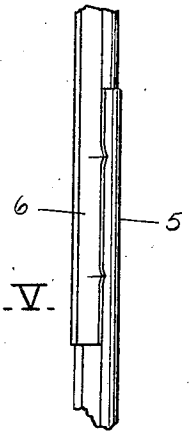


Fig. V.

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Patented June 17, 1924. 1,497,909

UNITED STATES PATENT OFFICE.

JOACHIM T. HOLTFOTH, OF HIGHLAND PARK, MICHIGAN, ASSIGNOR TO L. A. YOUNG INDUSTRIES, INC., OF DETROIT, MICHIGAN.

ASSEMBLING MACHINE.

Application filed October 30, 1922. Serial No. 597,878.

To all whom it may concern:

Be it known that I, JOACHIM T. HOLTFOTH, a citizen of the United States, residing at Highland Park, county of Wayne, State of Michigan, have invented certain new and useful Improvements in Assembling Machines, of which the following is a specification.

This invention relates to improvements in assembling machines.

My improved assembling machine is especially designed by me for assembling the rims of spring cushions such as are shown in my application for Letters Patent, Ser. No. 558,733, filed May 5, 1922, and I have illustrated the same herein as embodied in such machines. My improvements are, however, desirable and readily adapted for the assembling of other parts, particularly those of a channel or similar cross section.

The main objects of the invention are:

First, to provide a machine of the class described which rapidly and effectively joins or assembles parts of S cross section, indenting the parts at the joint, thereby retaining them in assembled relation.

Second, to provide in a structure of the class described a machine which is of large capacity and easily operated.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this application, in which:

Fig. I is a fragmentary perspective view of a machine for assembling rims of cushion spring structures embodying my invention.

Fig. II is a fragmentary plan view, the lefthand end only of the machine being shown. It will be understood, however, that the righthand end is a duplicate of the lefthand except in the matter of the drive for the shaft.

Fig. III is a detail view partially in vertical section on a line corresponding to line 3—3 of Fig. II with the jaws open.

Fig. IV is a detail sectional view corresponding to that of Fig. III with the jaws closed.

Fig. V is a detail perspective view of the joint between the assembled members.

In the drawing similar reference numerals refer to similar parts throughout the several views and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, I provide a frame comprising the end pedestals 1, longitudinal bars 2 mounted on the pedestals, and the tie rod 3. As the mechanisms are in duplicate, that is, there are two sets of mechanisms, I will, for convenience, describe only one of them. These mechanisms are carried by beds 4 mounted upon the frame adjacent each end thereof. The parts to be assembled are indicated at 5 and 6 and are of U-shape and S cross section, the ends being connected by a telescoped joint,—see Fig. V.

The bed member 4 is provided with an adjustable rest 7 for the piece of work 5, this rest being supported by the longitudinally slotted bar 8 which is secured in its adjusted positions by the screw 9. Opposed to this rest or thrust member 7 is a slide 10 hooked at 11 to receive the piece of work 6. A positioning stop 12 is disposed at the side of this slide. This slide is adjustably connected to a link 13, the link having a series of holes 14 therein to receive the screws or bolts 15. The purpose of adjustment of the slide and of the rest 7 being to adjust the machine for the assembling of rims of different sizes.

The link 13 is connected to a lever 16 pivoted at 17 to be acted upon by the cam 18 on the shaft 19. The shaft 19 is driven from the pulley 20 which is connected to the shaft by a clutch 21, shown conventionally. The trip or clutch lever 22 is connected to the foot lever 23 so that the operator releases the clutch after the work has been placed. The spring 24 returns the clutch control lever to its operative position so that unless the foot lever 23 is held down the clutch is thrown out at the completion of each revolution of

the shaft. A positioning member 25 is provided for the end of the piece of work 5, and a corresponding positioning member 26 is provided for the end of the piece of work 6, the purpose being to position the work so that the ends of the work pieces are supported in overlapping relation. The positioning member 26 is yieldingly supported by the spring 27 so that it yields when the overlapping ends are moved to engaging position, as shown in Fig. IV.

A jaw 28 is mounted upon the bed in relatively fixed relation to the pivoted jaw 29, which is pivoted at 30 and is acted upon by the cam 31 on the shaft 19, so that the pivoted jaw carries the end of the piece of work 6 into engagement with the end of the piece of work 5,—see Figs. III and IV. The spring 32 retracts the jaw 29. The cam 31 is timed relative to the cam 18 so that the jaws are first actuated to engage the ends and the slide 10 is then actuated to telescope the ends together. To insure the retaining of the parts in telescoping engagement I provide an indenting tool 33, which is pivoted at 34 and has blades 35 adapted to act while the telescoped parts are supported by the jaws. The tool is actuated by the cam 36 on the shaft which is properly timed so that the parts are first brought into engagement by the lateral movement thereof, are then telescoped with a longitudinal movement, and then indented.

By the aid of my machine the parts may be very rapidly assembled and are very secure.

I have not attempted to illustrate or describe my improvements in embodiments or adaptations for assembling parts of other cross section such, for instance, as the plain channel or the like, as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt the same as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral yielding movement, a spring acting on said yielding positioning member, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, a spring for holding said pivoted jaw in normally retracted position, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, a pivoted indenting tool adapted to indent the telescoped ends of the work, a cam on said shaft for actuating said indenting tool, the several cams being timed so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws, means for driving said shaft including a clutch, and an automatic means for retracting said clutch on each revolution of the shaft.

2. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral yielding movement, a spring acting on said yielding positioning member, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, a spring for holding said pivoted jaw in normally retracted position, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, a pivoted indenting tool adapted to indent the telescoped ends of the work, and a cam on said shaft for actuating said indenting tool, the several cams being timed so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws.

3. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, a pivoted indenting tool adapted to indent the telescoped ends of the work, a cam on said shaft for actuating said indenting tool, the several cams being timed

so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws, means for driving said shaft including a clutch, and an automatic means for retracting said clutch on each revolution of the shaft.

4. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, a pivoted indenting tool adapted to indent the telescoped ends of the work, and a cam on said shaft for actuating said indenting tool, the several cams being timed so that the jaws are actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws.

5. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, said slide being adjustably associated with said link, a pivoted indenting tool adapted to indent the telescoped ends of the work, and a cam on said shaft for actuating said indenting tool, the several cams being timed so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws.

6. In a structure of the class described, the combination of an adjustable rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, said slide being adjustably associated with said link, a pivoted indenting tool adapted to indent the telescoped ends of the work, and a cam on said shaft for actuating said indenting tool, the several cams being timed so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws.

7. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral yielding movement, a spring acting on said yielding positioning member, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, a spring for holding said pivoted jaw in normally retracted position, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, a link connecting said lever to said slide, means for driving said shaft including a clutch, and an automatic means for retracting said clutch on each revolution of the shaft.

8. In a structure of the class described, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, coacting assembling jaws adapted to receive the overlapping ends of the work, one of said jaws being pivotally supported so that when actuated the ends of the work are engaged with a lateral movement, an actuating shaft, a cam on said shaft for actuating said pivoted jaw, means for actuating said slide to telescope the work comprising a cam on said shaft, a lever coacting therewith, and a link connecting said lever to said slide.

9. In a machine for assembling work of S cross section, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral movement, coact-

ing assembling jaws having faces conformed to the cross section of the work and adapted to receive the overlapping ends thereof, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for actuating said jaw, means for actuating said slide to telescope the work while supported by said jaws, an indenting tool adapted to indent the telescoped ends of the work while supported by said jaws, and means for actuating said indenting tool.

10. In a machine for assembling work of S cross section, the combination of a rest for one piece of work, an opposed reciprocating slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral movement, coacting assembling jaws having faces conformed to the cross section of the work and adapted to receive the overlapping ends thereof, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for actuating said jaw, and means for actuating said slide to telescope the work while supported by said jaws.

11. In a machine for assembling work of S cross section, the combination of means for positioning and supporting the pieces of work with their ends in overlapping side by side relation, coacting assembling jaws having faces conformed to the cross section of the work and adapted to receive the overlapping ends thereof, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for telescoping the work while supported by said jaws, and an indenting means adapted to indent the telescoped ends of the work while supported by said jaws.

12. In a machine for assembling work of S cross section, the combination of means for positioning and supporting the pieces of work with their ends in overlapping side by side relation, coacting assembling jaws having faces conformed to the cross section of the work and adapted to receive the overlapping ends thereof, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, and means for telescoping the work while supported by said jaws.

13. In a structure of the class described, the combination of a rest for one piece of work, an opposed slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral yielding movement, coacting assembling jaws, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for actuating said movable jaw, means for actuating said slide to telescope the work, and an indenting tool adapted to indent the telescoped ends of the work, said actuating means being timed so that the jaws are actuated to engage the ends of the work, the slide actuated to telescope the work while supported by the jaws and the indenting tool actuated to indent the work while supported by said jaws.

14. In a structure of the class described, the combination of a rest for one piece of work, an opposed slide for telescoping a coacting piece of work therewith, positioning members adapted to position the pieces of work with their ends in overlapping side by side relation, one of said positioning members being supported for lateral yielding movement, coacting assembling jaws, one of said jaws being movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for actuating said movable jaw, and means for actuating said slide to telescope the work.

15. In a structure of the class described, the combination of positioning and supporting means whereby pieces of work are supported with their ends in overlapping side by side relation, coacting jaws, one of which is movably supported so that when actuated the ends of the work are engaged with a lateral movement, means for telescoping the work while supported by said jaws, and an indenting tool actuated to indent the telescoped ends of the work while supported by said jaws.

16. In a structure of the class described, the combination of positioning and supporting means whereby pieces of work are supported with their ends in overlapping side by side relation, coacting jaws, one of which is movably supported so that when actuated the ends of the work are engaged with a lateral movement, and means for telescoping the work while supported by said jaws.

17. In a structure of the class described, the combination of positioning and supporting means whereby pieces of work are supported with their ends in overlapping side by side relation, means for engaging the work with a lateral movement, means for telescoping the work while so engaged and supported, and an indenting means actuated to indent the telescoped ends of the work while in said supporting means.

18. In a structure of the class described, the combination of positioning and supporting means whereby pieces of work are supported with their ends in overlapping side by side relation, means for engaging the work with a lateral movement, and means

for telescoping the work while so engaged and supported.

19. In a structure of the class described, the combination of means for engaging the ends of the work with a lateral movement, means for telescoping said work while so engaged, and an indenting means adapted to indent the telescoped ends of the work.

20. In a structure of the class described, the combination of means for engaging the ends of the work with a lateral movement, and means for telescoping said work while so engaged.

In witness whereof, I have hereunto set my hand and seal.

JOACHIM T. HOLTFOTH. [L. S.]