

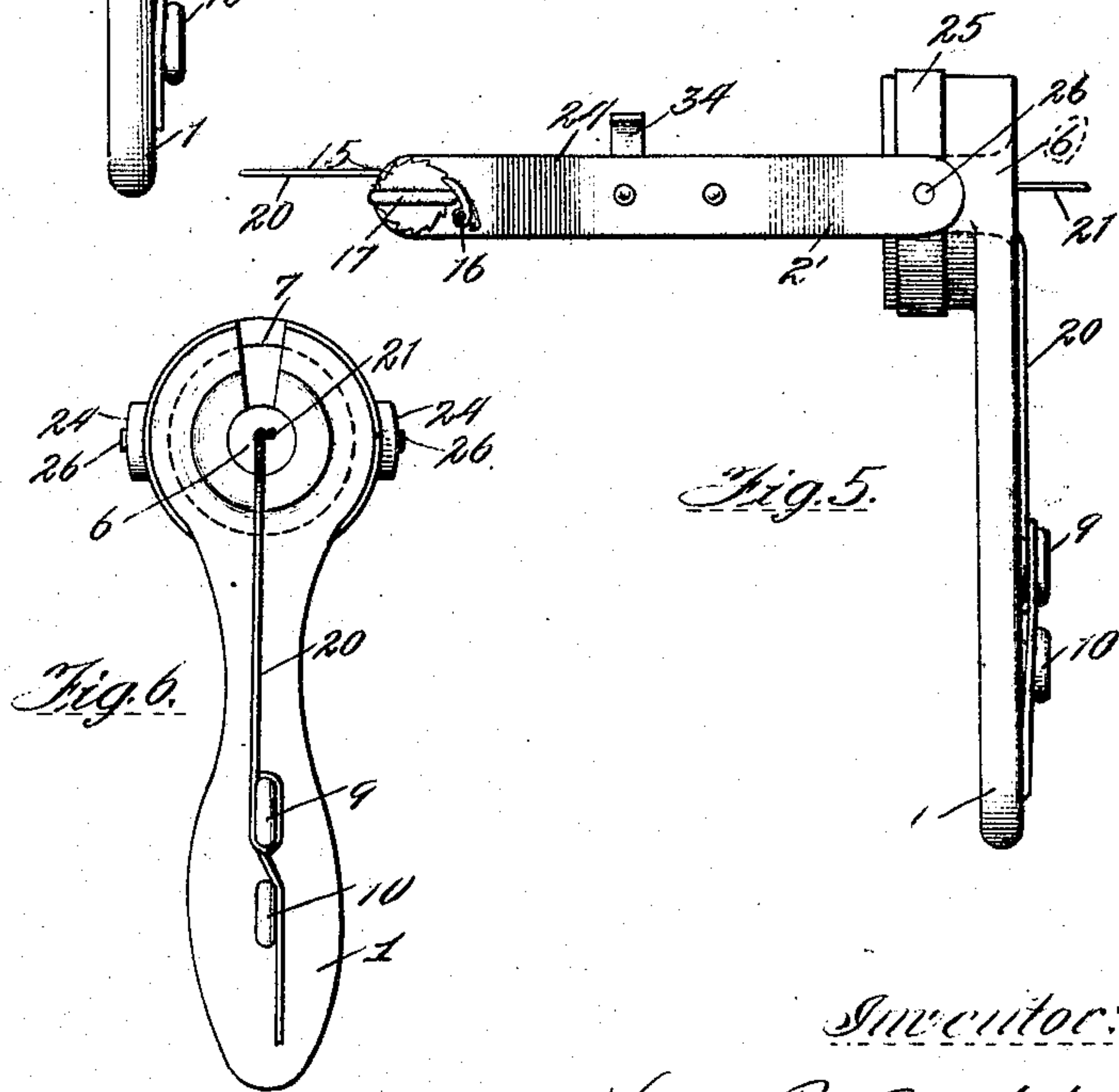
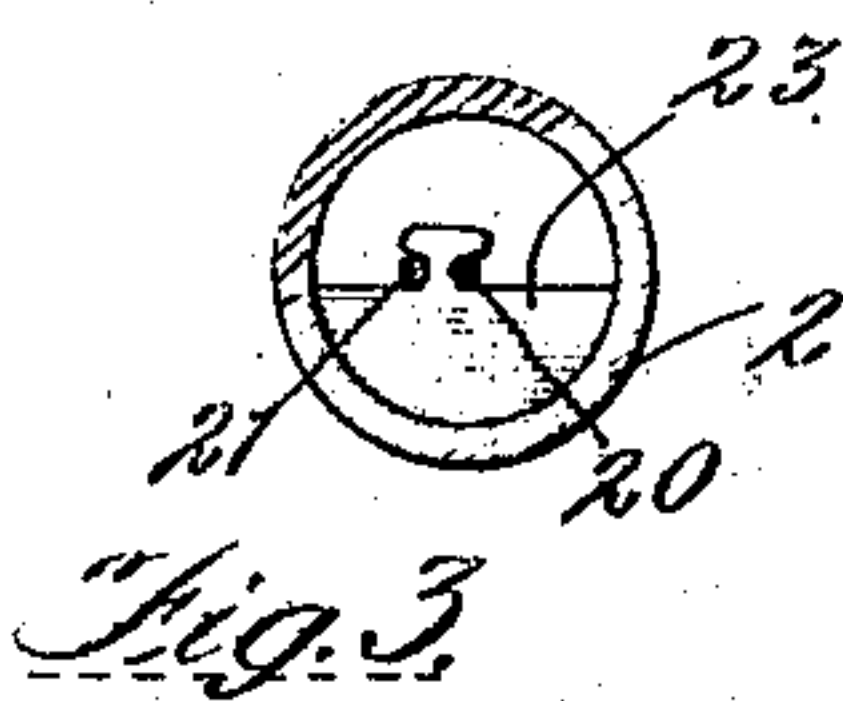
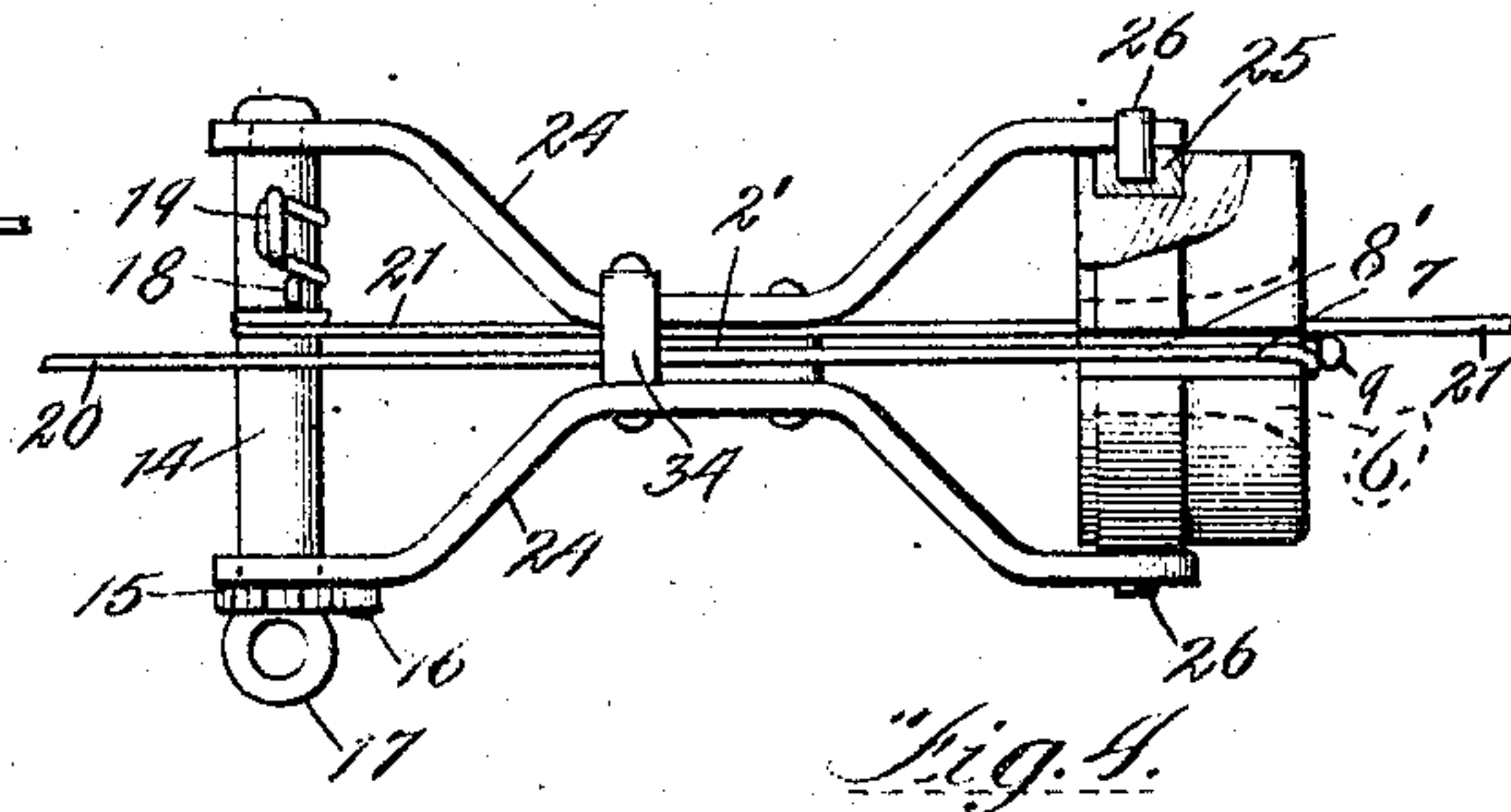
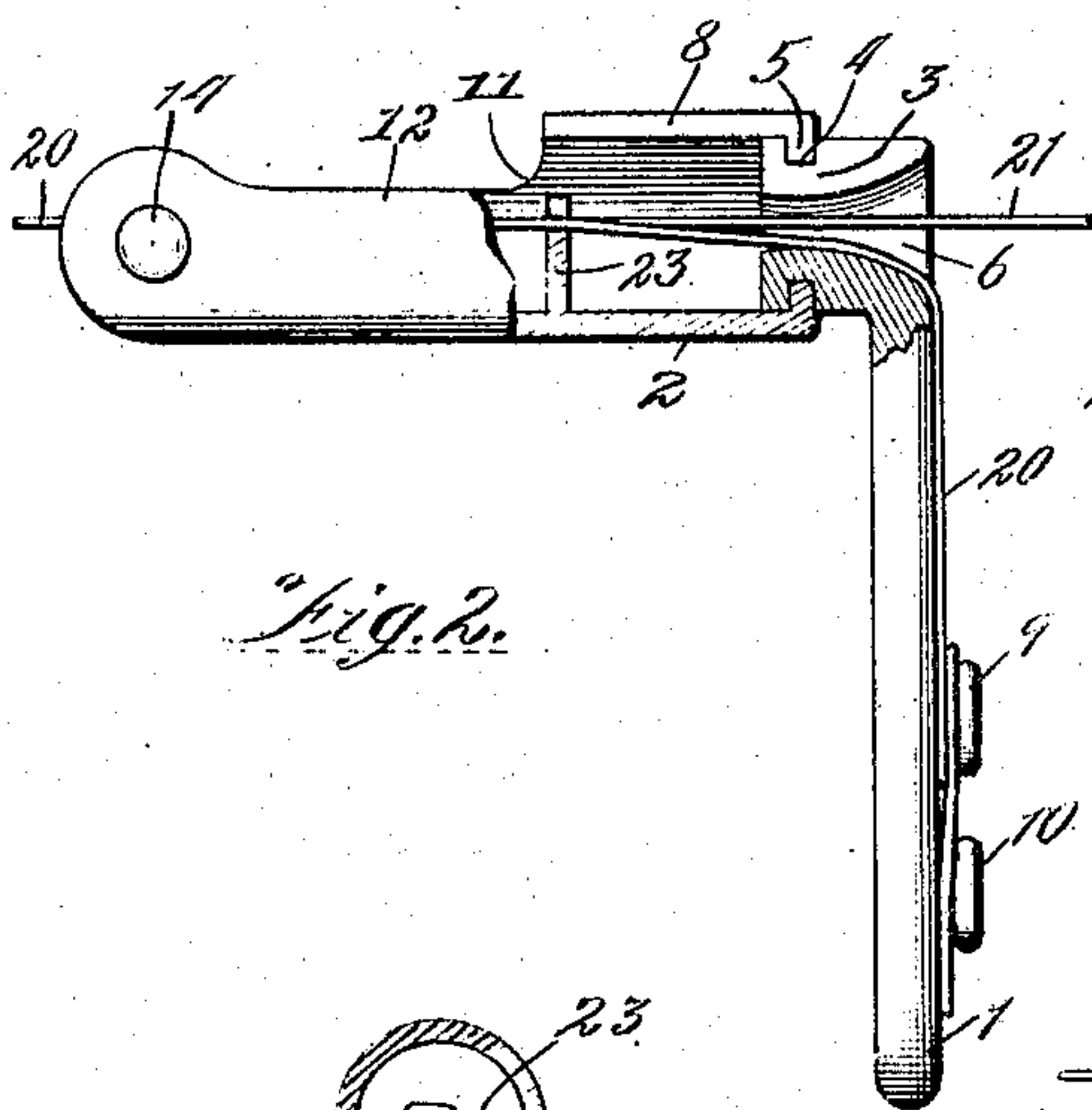
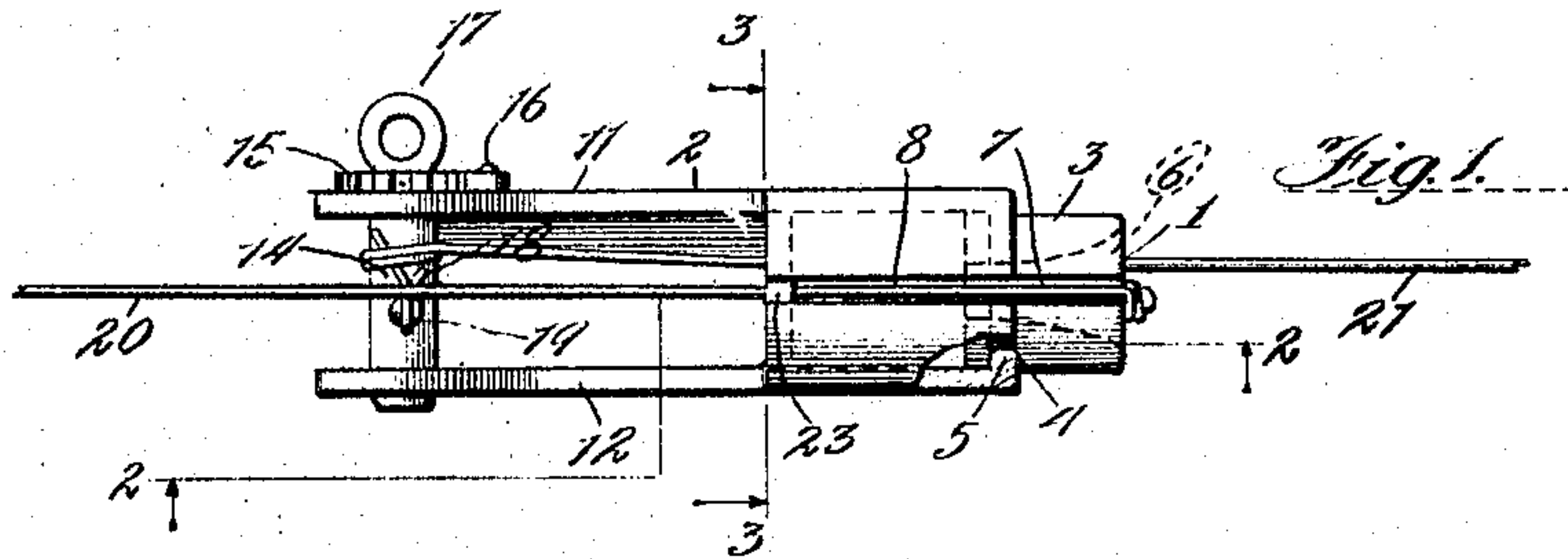
No. 885,830.

PATENTED APR. 28, 1908.

H. F. BONESTEEL.  
WIRE STRETCHER AND SPLICER.

APPLICATION FILED MAR. 18, 1907.

4 SHEETS—SHEET 1.



Witnesses:

Wm D. Perry  
Jno H. Nelson Jr.

Inventor:

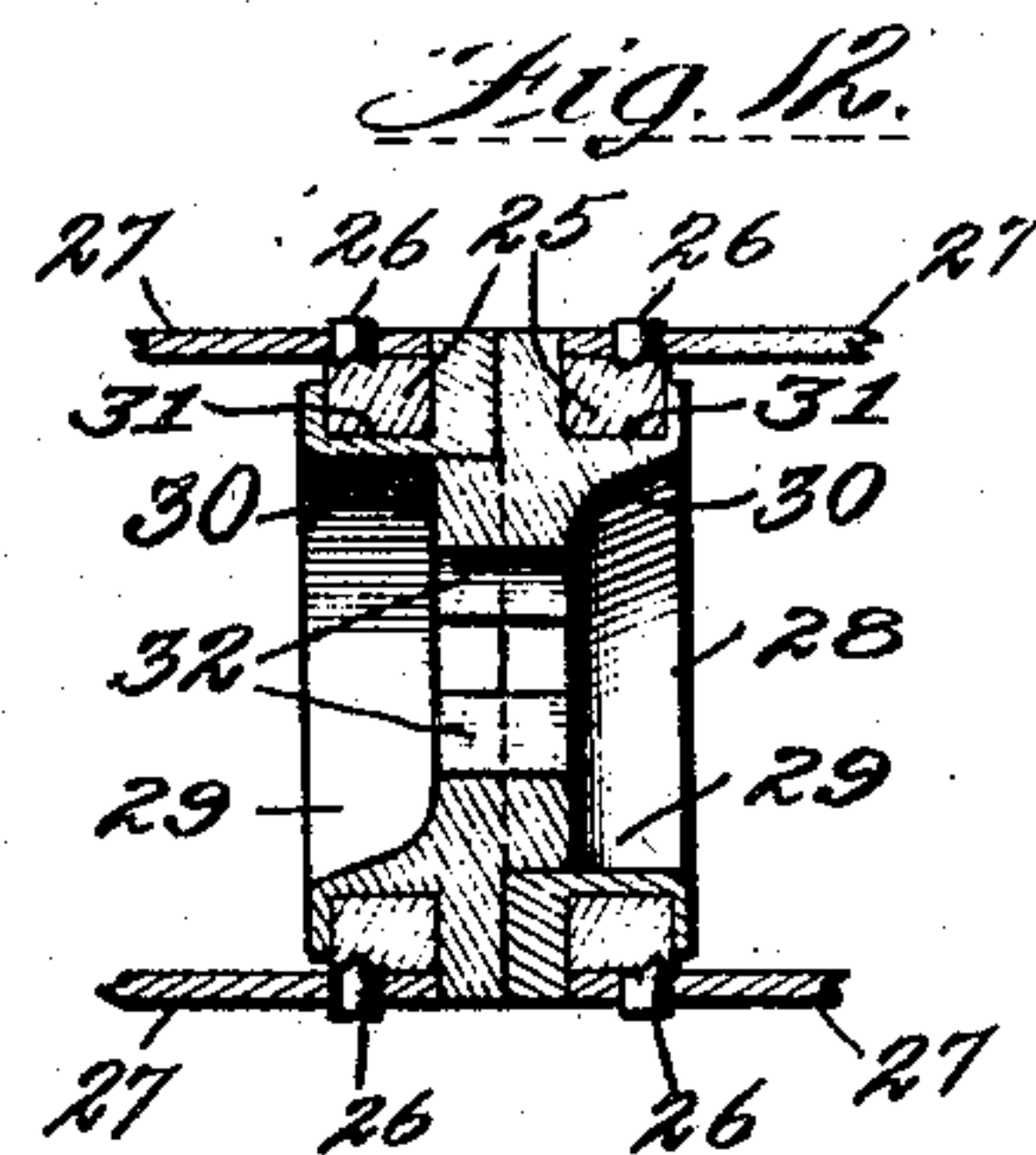
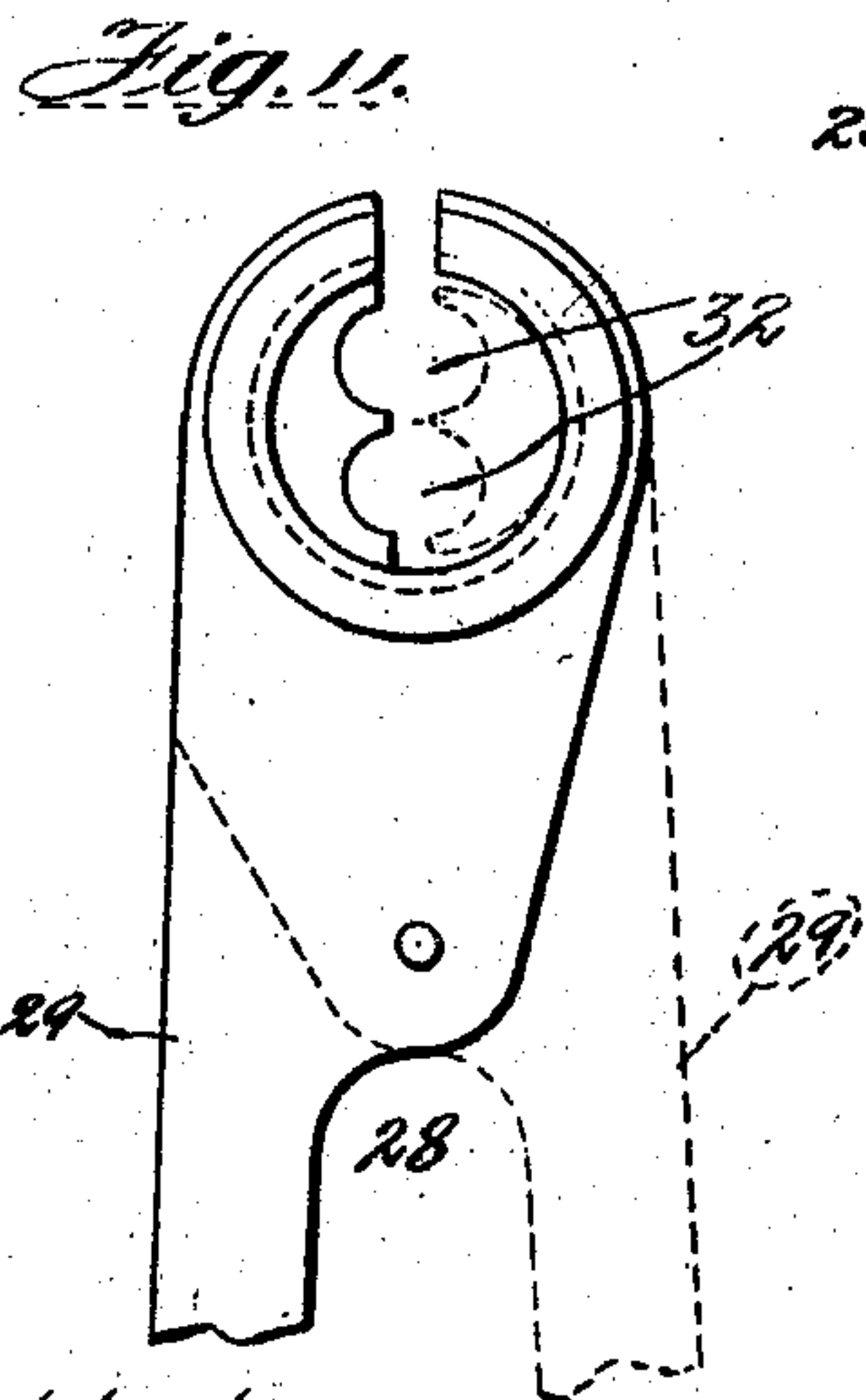
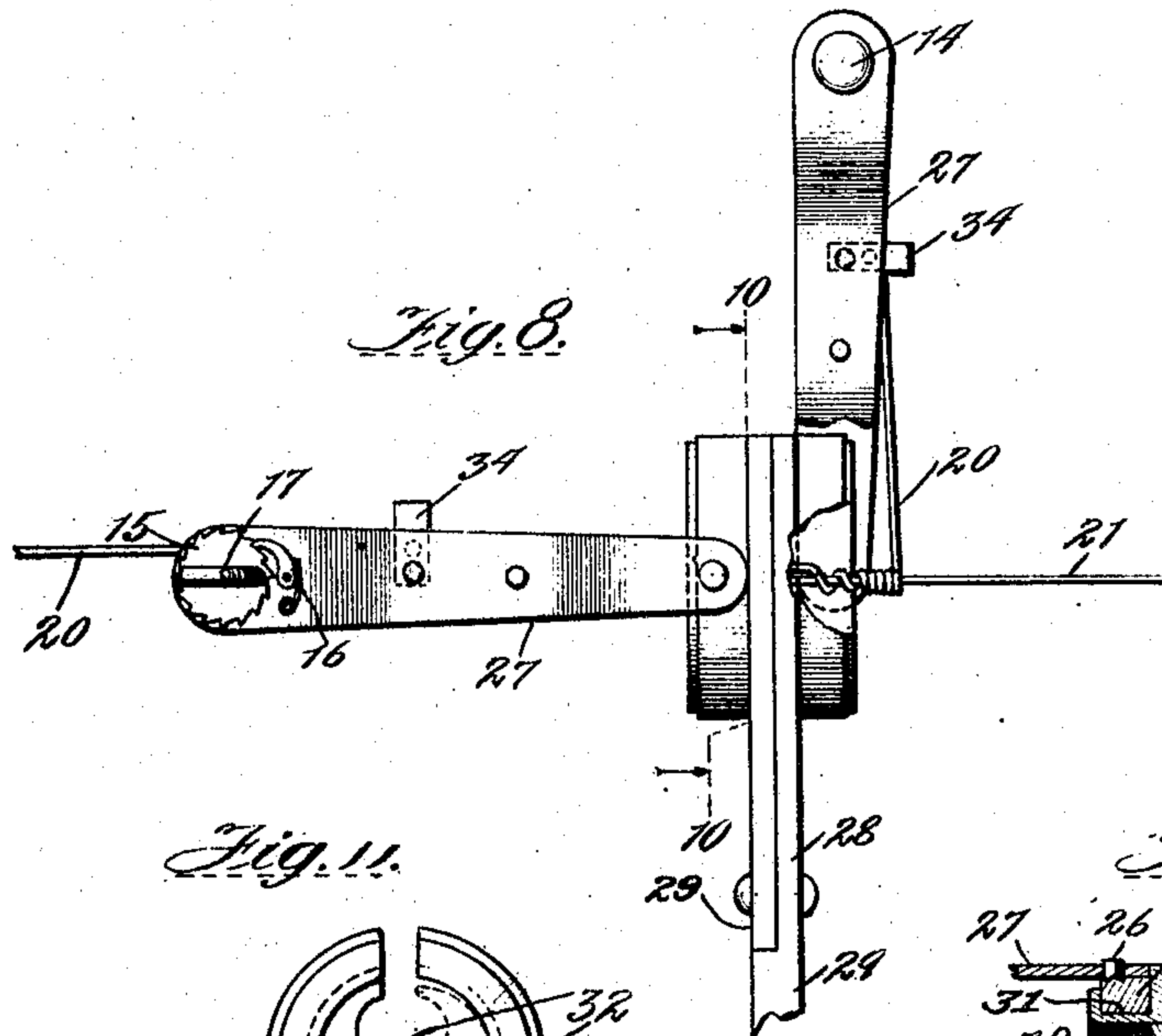
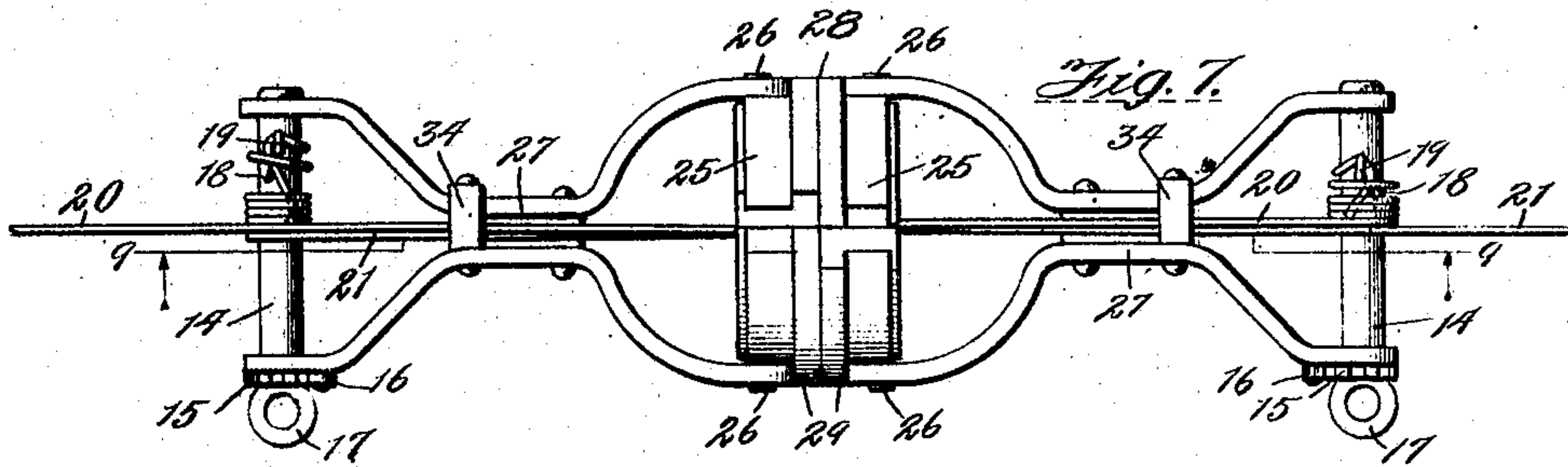
Harry F. Bonesteel  
BY Hill & Hill

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4 SHEETS—SHEET 2.



Witnesses:  
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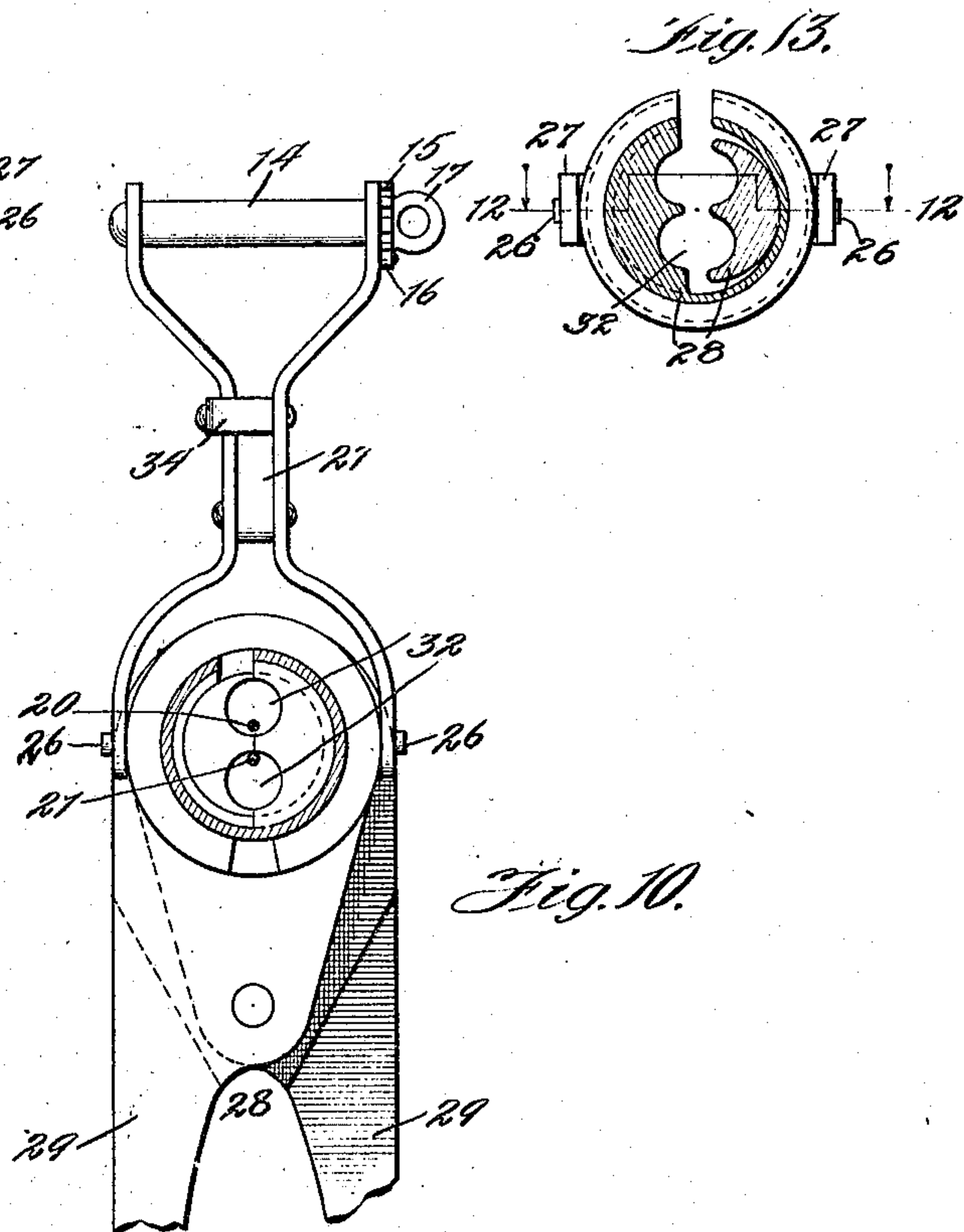
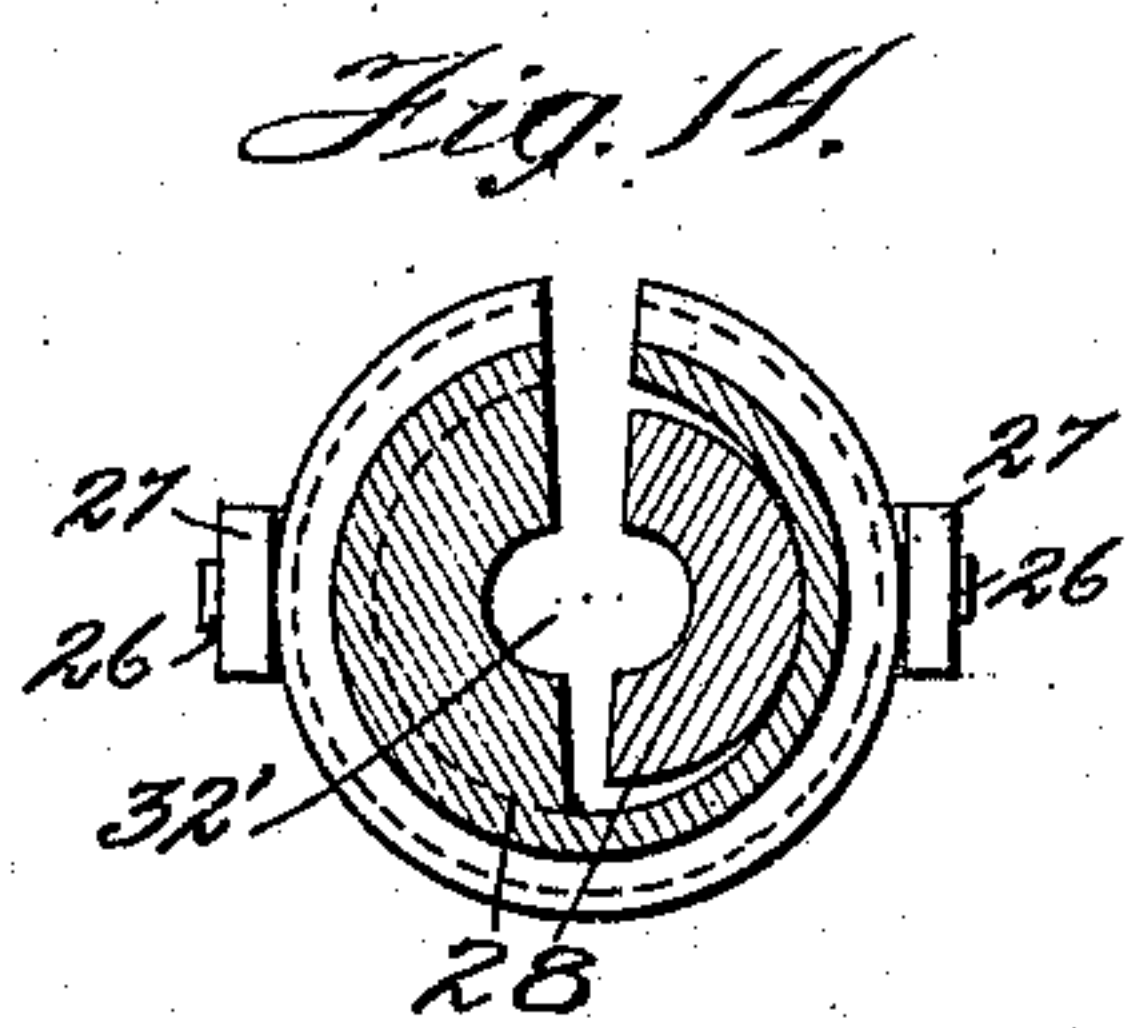
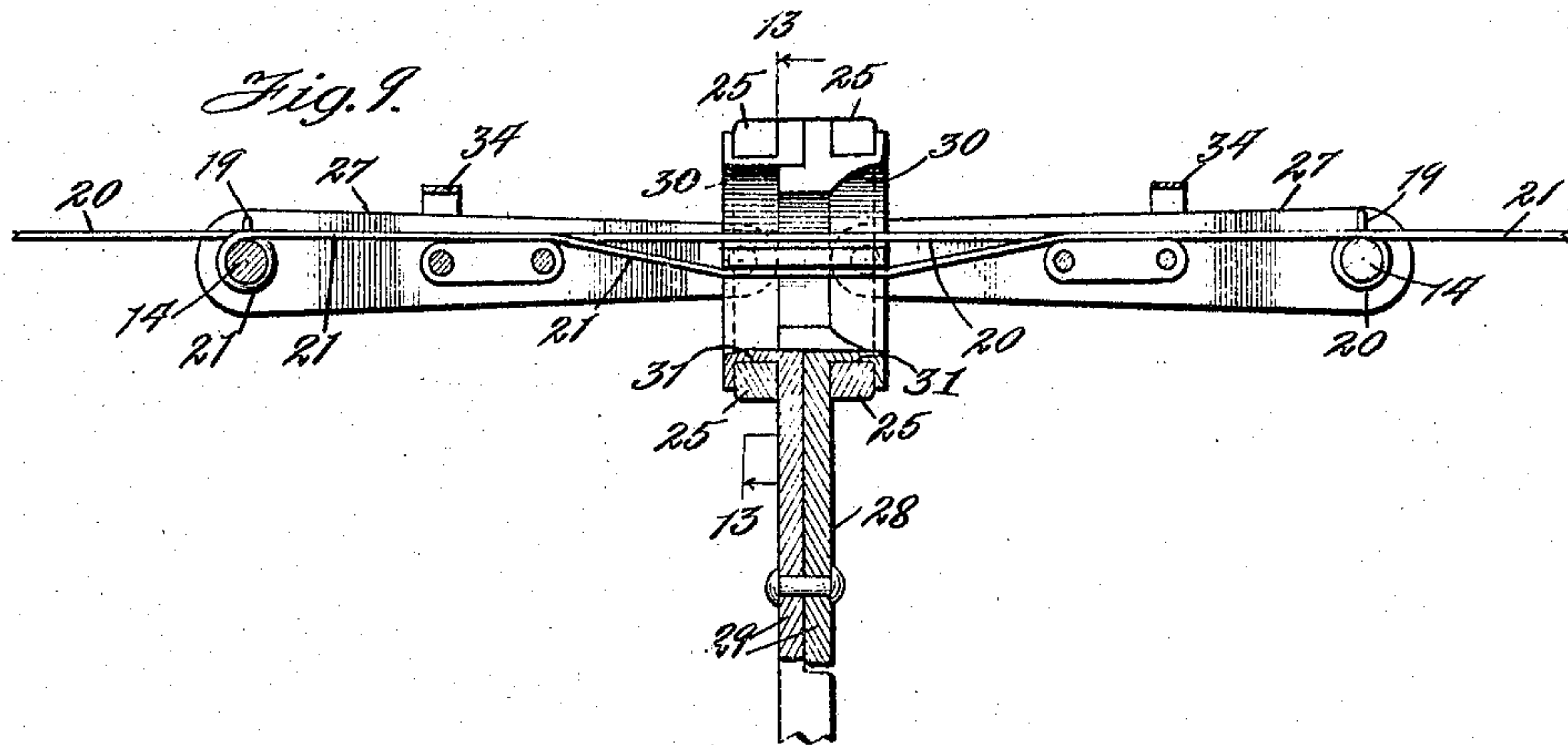
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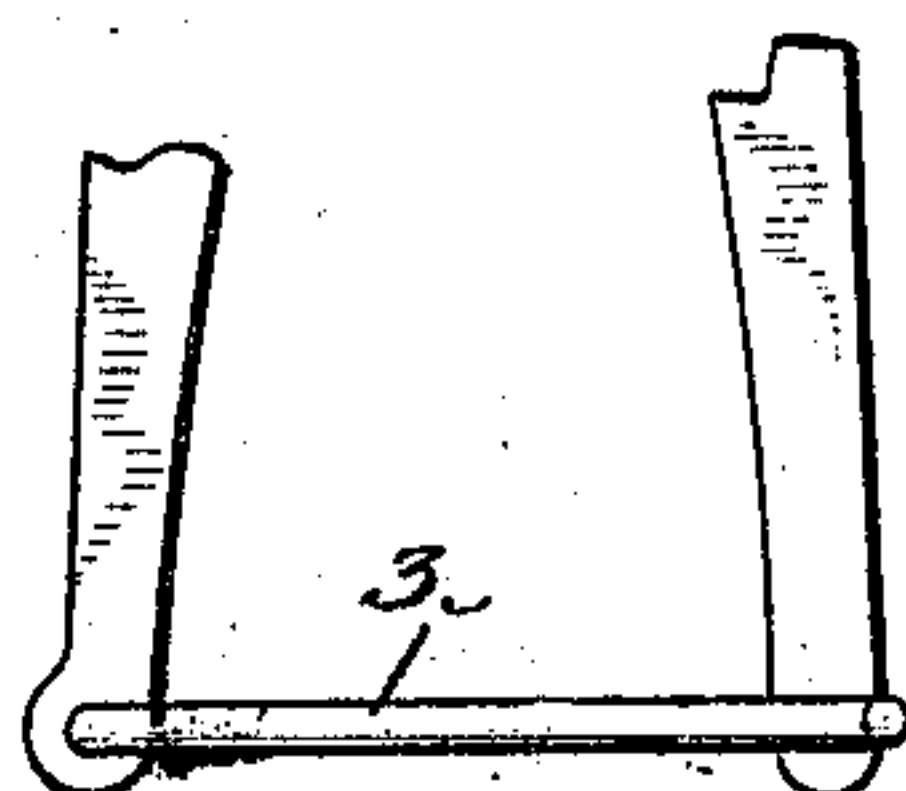
H. F. BONESTEEL.  
WIRE STRETCHER AND SPLICER.

APPLICATION FILED MAR. 18, 1907.

4 SHEETS—SHEET 3.



Witnesses:  
*Edw. D. Perry*  
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Inventor.  
*Harry F. Bonesteel*  
By *Hill & Hill*  
*Attys*







# UNITED STATES PATENT OFFICE.

HARRY F. BONESTEELE, OF IOWA FALLS, IOWA.

## WIRE STRETCHER AND SPLICER.

No. 885,830.

Specification of Letters Patent.

Patented April 28, 1908.

Application filed March 18, 1907. Serial No. 363,029.

*To all whom it may concern:*

Be it known that I, HARRY F. BONESTEELE, a citizen of the United States, residing at Iowa Falls, in the county of Hardin and State of Iowa, have invented certain new and useful Improvements in a Wire Stretcher and Splicer, of which the following is a description.

My invention relates to means particularly adapted to repairing the wires of telegraph or telephone lines, fences, or the like, where one or more wires are extended between widely separated points, and are attached to posts, poles, or other suitable intermediate supports.

The object of my invention is to provide a simple, portable, and convenient device for the purpose described, and to this end my improvement consists in the novel construction, arrangement, and combination of parts herein shown and described and more particularly pointed out in the claims.

In the accompanying drawings, wherein like or similar reference characters indicate like or corresponding parts; Figure 1 is a plan view of a simple form of my device with parts broken away to more clearly show the construction. Fig. 2 is a partial section taken substantially on line 2—2 of Fig. 1. Fig. 3 is a section taken substantially on line 3—3 of Fig. 1. Fig. 4 is a plan view of a slightly modified form of my device with parts broken away to more clearly show the construction. Fig. 5 is a side elevation of the form shown in Fig. 4. Fig. 6 is an end elevation of the same. Fig. 7 is a plan view of a modified form of my device in operative position. Fig. 8 is an elevation of the form shown in Fig. 7 with the splice partially formed and with parts broken away to more clearly show the construction and operation. Fig. 9 is a section taken substantially on line 9—9 of Fig. 7. Fig. 10 is a section taken substantially on line 10—10 of Fig. 8. Fig. 11 is a partial detail of the preferred form of connector employed in the form shown in Fig. 7. Fig. 12 is a section taken substantially on line 12—12 of Fig. 13. Fig. 13 is a section taken substantially on line 13—13 of Fig. 9. Fig. 14 is a section similar to Fig. 13, but showing a slightly modified form of connector. Fig. 15 is a plan view of a modified form of my device. Fig. 16 is a section taken substantially on line 16—16 of Fig. 15. Fig. 17 is a section taken substantially on line 17—17 of Fig. 16. Fig. 18

is a section taken substantially on line 18—18 of Fig. 16. Figs. 19 and 20 are elevations showing a slightly modified form of connector; and Fig. 21 is an elevation of another slightly modified form of connector.

In the preferred form shown in the drawings, my device consists of two rotatably connected members each provided with means for independently engaging the lapped ends of oppositely extended wires, and with convenient means for drawing said wires toward each other, to tension the same, after which by rotating one of these members upon the other, the wires are closely wrapped about each other to form a splice and securely connect the wires.

In the form shown in Figs. 1, 2, and 3, 1 and 2 are rotatably connected members, the member 1 being formed to serve as a stock or handle, and provided at one end with a projection 3 suitably formed to cooperate with the member 2 to rotatably connect the members. In the form shown the projection 3 is circular and provided with an annular groove 4 arranged to cooperate with a ring 5 upon the member 2 for this purpose. An opening 6 is provided through the projection 3 substantially parallel to and near the axis of the members, and a slot 7 extends from the opening 6 to the periphery of the projection 3 and a similar slot 8 is provided in the member 2 to register with the slot 7 so that a wire or other similar article may be passed through the slots 7 and 8 into the opening 6. Convenient means are also provided for attaching a wire to the member 1. As shown two hooks 9 and 10 are provided, so positioned that a wire may be engaged with each to attach the same securely to the member.

The member 2 is preferably provided with two arms 11 and 12 suitably spaced from each other and arranged at their extremities to rotatably support a pin 14 adapted to serve as a winch in a manner hereinafter explained. The pin 14 may be either straight or tapering as preferred and is provided near one end with suitable means for engaging a wire, and with a ratchet wheel 15 adapted to cooperate with a spring actuated pawl 16 upon the member 11, or equivalent means to control the direction of rotation of the pin. Suitable means are also provided for engaging the pin to rotate the same. As shown a head 17 is provided for this purpose which is preferably slightly flattened and provided



with an opening so that a bar or the handle of pliers may be inserted and employed to rotate the pin thus providing sufficient leverage to secure any desired tension upon the wires. Suitable means are also provided for attaching a wire to the pin 14. As shown two hooks 18 and 19 are provided upon the body of the pin about which a wire may be engaged leaving its free end extending in such a position that upon rotating the pin the succeeding wraps of the wire will engage the free end and secure the same firmly in position.

In operation, suppose it is desired to splice the two wires 20 and 21, extending in opposite directions. The wire 20 is passed through the slots 7 and 8 into the opening 6 and its free end is attached to the hooks 9 and 10. The wire 21 is similarly positioned in the opening 6 with its end attached to the hooks 18 and 19 upon the pin 14, when thus positioned the pin 14 is rotated until the desired tension is secured, first however preferably slightly rotating the member 2 upon the member 1 so that the slot 7 is closed by a portion of the member 2 to prevent the possible displacement of the wires and a reversal of the device. After the desired tension is secured, it is obvious that, by holding the member 1 stationary and rotating the member 2, the part of the wire 21 between the opening 6 and pin 14 will be wrapped about the wire 20, after which by holding the member 2 stationary and rotating the member 1 the part of the wire 20 at the opening 6 will be closely wrapped about the wire 21 in a similar manner.

In the form above described that portion of the splice made by rotating the member 2 may be somewhat loose, that is, unnecessarily extended along the wire 20. To obviate this difficulty a partition 23 may be provided in the member 2 as shown, having two notches to engage the wires and preventing any tendency of the wires to twist between the pin 14 and partition 23 when the member 2 is rotated, and producing a closely wound splice upon that part of the wire 20 between the member 1 and the partition 23.

The form shown in Figs. 4, 5 and 6 is very similar to that above described, the only substantial difference residing in the member 2' which in place of being tubular as above described consists of two similarly formed bars 24—24 slightly separated and rigidly connected near their central portions. In place of the slotted ring 5 being formed rigidly upon the member 2 a slotted ring 25 is provided having suitable pins or gudgeons 26—26, and the extremities of the bars 24—24 are arranged to pivotally engage these gudgeons, thus attaching the member 2' to the member 1 both rotatably and pivotally, with the axis of its attachments at substantially right angles to each other. The operation is

substantially the same as above described except that when the member 2' is to be rotated, it is turned upon its pivotal axis to bring the wire 21 between the pin 14 and opening 6 nearly at right angles to the wire 20 thus forming a close spiral upon the wire 20 without employing any part corresponding to the partition 23. The member 1 preferably remains in all respects substantially the same as above described.

These forms are very convenient and portable, and for small and medium sized wires, have proved exceedingly satisfactory in actual practice. But where larger wires are to be spliced, the form shown in Figs. 7 to 14 inclusive may be found more desirable. In this form two substantially duplicate members 27—27 are provided preferably in all particulars similar to the member 2' shown in Figs. 4 and 5. These members in place of being attached directly to each other, are attached to the opposite sides of a connector 28 and substantially in line with each other. In the form shown the connector 28 is formed of two pivotally connected parts 29—29 similar to the opposing members of pliers or pincers, each part having a projection 30 with an annular groove 31 to receive the slotted ring 25 of the member 27, with the faces of the parts 29—29 formed as shown in Fig. 11, so that when the connector is closed, two similar openings 32—32 extend through the connector one upon each side near, and parallel to, the common axis of the rings 25—25.

Obviously when operating a device of this nature it is desirable that the hands of the operator should be as free as possible, and for this reason, if desired, a link 33 or other suitable means may be pivotally attached near the extremity of one of the parts 29 adapted to engage the opposite part when the jaws of the connector are closed, and hold them securely in their closed position. Also if desired a hook 34 may be provided upon each of the members 27 to engage the wires being connected and support the members in their extended position during the manipulation of the device to tension the wires. In this form obviously those portions of the wires 20 and 21 positioned in the openings 32—32 are held substantially parallel, and the winding of the wires about each other takes place at opposite sides of the openings. In Fig. 14 the jaws are shown with but a single opening 32' to receive both wires. In this form the winding of the wires about each other is substantially continuous the full length of the splice.

In the form shown in Figs. 15 to 18 inclusive one of the parts 29' of the connector 35 is attached near the center of a tubular member 36, the opposite part 29'' extending through a slot 37 into the interior of the tubular member 36 and engaging the wires substantially the same as in the form above de-



scribed. In this form the oppositely disposed rotatable members 38—38 are formed substantially similar to the members 2 shown in Figs. 1 and 2, except that the adjacent cylindrical portions of these members are threaded upon their exterior, and cooperating threads are formed upon the interior of the member 36, a suitable slot 39 being provided in both the members 36 and 38 so that a wire or wires may be inserted in, or removed from, the openings 32' between the jaws of the connector 35 as desired. In this form the members 38—38 are screwed into the parts 36 upon each side of the connector 35 and the lapped portion of the wires 20 and 21 is positioned through the openings 32'—32' in the connector 35 and engaged with the pins 40, which are then rotated to produce the desired tension in the wires. After which the members are merely unscrewed from their position in the member 36, one wire upon each side being driven about the other by means of the hook-shaped projection 41 upon the partition 42 to form the splice, it being desirable in most cases to slightly loosen the wires during the wrapping process by permitting the pins to rotate to unwind the wire after the first few turns are made. A splice produced by this device is substantially the same as that produced by the form shown in Figs. 7 to 13 as heretofore described.

In Figs. 19 and 20 a form of connector is shown preferably formed of a single piece and adapted to be used with members similar to the members 2 and 27. In this form a projection 44 is provided on opposite sides of the extremity of the connector, each projection having an annular groove 45 to receive a ring 25 as before described. The operation of this form is obviously substantially the same as those before described and requires no further description.

In Fig. 21 the connector 46 is substantially the same as that shown in Fig. 17 except in place of the tubular part 36 it is provided with a part 47 similar to that shown in Figs. 19 and 20, except that it is only rigidly attached to one of the jaws of the part 47 while the other jaw extends through a slot similar to the connector shown in Fig. 17 but intended for use with members 27 as hereinbefore described.

In the foregoing description and in the drawings only the preferred forms of my improvement are described and shown, but it is obvious that various immaterial modifications may be made in my device without departing from the spirit of my invention, hence I do not wish to be understood as limiting myself to the exact form and construction shown.

What I claim as new, and desire to secure by Letters Patent is:—

1. In a device of the kind described, two

rotatably connected members with one or more openings parallel with and near their common center, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

2. In a device of the kind described, two rotatably connected members, with one or more openings parallel with and near their common center, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires, and means for releasing the several parts from said spliced wire.

3. In a device of the kind described, two members both rotatably and pivotally connected with the axes of said connections at right angles to each other, means upon said members for separately engaging the lapped ends of oppositely extended wires, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

4. In a device of the kind described, two rotatably connected members with one or more openings parallel with and near said common center, means upon their members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means comprising a winch-pin rotatably mounted upon one of said members, for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

5. In a device of the kind described, two rotatably connected members with one or more openings parallel with and near their common center, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, straining means comprising a winch-pin rotatably mounted upon one of said members, means adapted to control the direction of rotation of said winch-pin and means for engaging said pin to rotate the same and draw said wires toward each other, whereby the wires may be strained to any



desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

5 6. In a device of the kind described, two members both rotatably and pivotally connected with the axes of said connections at right angles to each other, and with one or more openings parallel with and near their  
10 common center of rotation, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means comprising a winch-pin rotatably mounted  
15 upon one of said members, and means for engaging said winch-pin to rotate the same and draw said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members  
20 upon the other the wires may be wrapped about each other to form a splice connecting the wires.

7. In a device of the kind described, two members both rotatably and pivotally connected with the axes of said connections at right angles to each other, and with one or more openings parallel with and near their common center of rotation, means upon said  
25 members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means comprising a winch-pin rotatably mounted upon one of said members, means for normally controlling the direction of rotation of  
30 said winch-pin, and means for engaging said pin to rotate the same and draw said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other  
35 the wires may be wrapped about each other to form a splice connecting the wires.

8. In a device of the kind described, two members both rotatably and pivotally connected with the axes of said connections at right angles to each other, and with one or more openings parallel with and near their common center of rotation, means upon said  
45 members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means comprising a winch-pin rotatably mounted upon one of said members, means for normally controlling the direction of rotation of  
50 said winch-pin, and means for engaging said pin to rotate the same and draw said wires toward each other, whereby the wires may be strained to any desired tension, and by rotating one of said members upon the other, the wires may be wrapped about each other  
55 to form a splice connecting the wires, and means for releasing the several parts from the spliced wire.

9. In a device of the kind described, two oppositely extended rotatably connected  
65 members, with one or more openings be-

tween said members parallel with and near their common center, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through  
said openings, and straining means for drawing said wires toward each other, whereby  
70 said wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting  
75 the wires.

10. In a device of the kind described, two oppositely extended rotatably connected members with one or more openings therebetween parallel with and near their common center, means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means upon each member for drawing said wires toward each  
85 other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

11. In a device of the kind described, two oppositely extended rotatably connected members with one or more openings therebetween parallel with and near their common center, a rotatable winch-pin mounted  
95 upon each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said  
100 wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires.

12. In a device of the kind described, two oppositely extended rotatably connected members with one or more openings therebetween parallel with and near their common center, a rotatable winch-pin mounted upon  
110 each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said  
115 wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members upon the other the wires may be wrapped about each other to form a splice connecting the wires,  
120 and means for releasing the several parts from the spliced wire.

13. In a device of the kind described, a connector, members rotatably mounted upon each side of said connector, and one or more  
125 openings through said connector parallel with and near the center of rotation of said members, in combination with means upon said members for separately engaging the lapped ends of oppositely extended wires



passed through said openings, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating said members the wires may be wrapped about each other to form a splice connecting the wires.

14. In a device of the kind described, a connector, a pair of members rotatably mounted upon opposite sides of said connector substantially in line with each other, and one or more openings through said connector parallel with and near the common center of rotation of said members, in combination with means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating said members the wires may be wrapped about each other to form a splice connecting the wires.

15. In a device of the kind described, a connector, a pair of members rotatably mounted upon opposite sides of said connector substantially in line with each other, with one or more openings through said connector parallel with and near the common center of rotation of said members, in combination with a winch-pin rotatably mounted upon each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said wires toward each other.

16. In a device of the kind described, a connector, a pair of members rotatably mounted upon opposite sides of said connector substantially in line with each other, with one or more openings through said connector parallel with and near the common center of rotation of said members, in combination with a winch-pin rotatably mounted upon each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said wires toward each other, whereby the wires may be strained to any desired tension and by rotating one of said members the wires may be wrapped about each other to form a splice connecting the wires, and means for releasing the several parts from said spliced wire.

17. In a device of the kind described, a connector, a pair of members positioned at opposite sides of said connector and each both rotatably and pivotally attached thereto with the axes of said attachments for each member at substantially right angles to each other, said connector having one or more openings substantially parallel to and near the common center of rotation of said mem-

bers, in combination with means upon said members for separately engaging the lapped ends of oppositely extended wires passed through said openings, and straining means for drawing said wires toward each other, whereby the wires may be strained to any desired tension and by rotating said members the wires may be wrapped about each other to form a splice connecting the wires.

18. In a device of the kind described, a connector, a pair of members positioned at opposite sides of said connector and each both rotatively and pivotally attached thereto with the axes of said attachments for each member at substantially right angles to each other, said connector having one or more openings substantially parallel to and near the common center of rotation of said members, in combination with a winch-pin rotatably mounted upon each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said wires toward each other.

19. In a device of the kind described, a connector, a pair of members positioned at opposite sides of said connector and each both rotatably and pivotally attached thereto with the axes of said attachments for each member at substantially right angles to each other, said connector having one or more openings substantially parallel to and near the common center of rotation of said members, in combination with a winch-pin rotatably mounted upon each member, means upon said winch-pins for separately engaging the lapped ends of oppositely extended wires passed through said openings, and means for engaging said winch-pins to rotate the same and draw said wires toward each other, whereby the wires may be strained to any desired tension and by rotating said members the wires may be wrapped about each other to form a splice connecting the wires, and means for releasing the several parts from the spliced wire.

20. In a device of the kind described, two rotatably connected members, means upon said members for separately engaging the lapped ends of oppositely extended wires, the lapped portion of said wires being positioned substantially parallel to and near the common center of rotation of said members, and straining means mounted upon one of said members for drawing said wires toward each other.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

HARRY F. BONESTEELE.

Witnesses:

BURTON U. HILLS,  
CHARLES I. COBB.