

Nov. 17, 1953

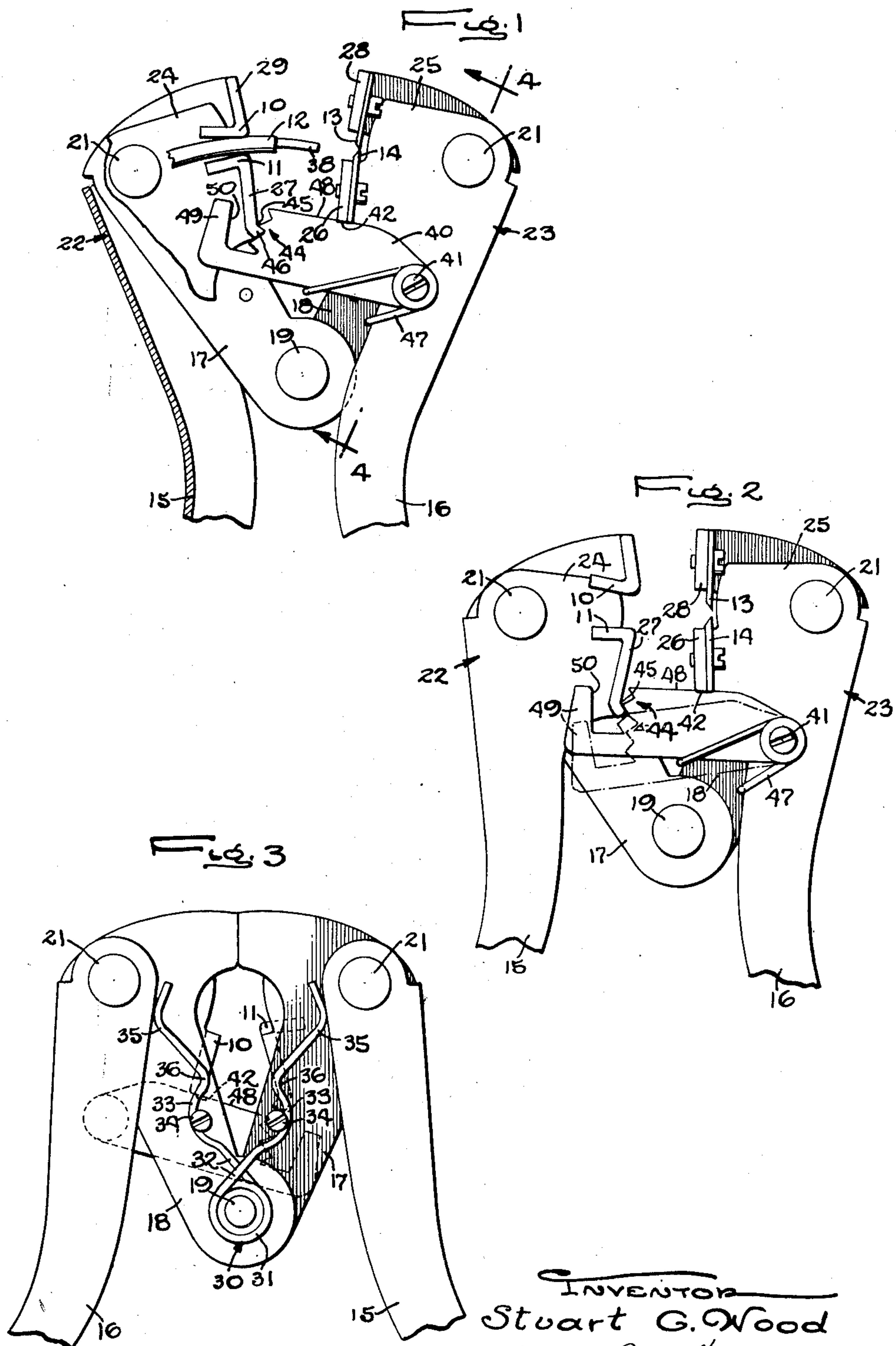
S. G. WOOD

2,659,254

WIRE STRIPPER

Filed Feb. 14, 1951

2 Sheets-Sheet 1



INVENTOR  
Stuart G. Wood  
By Carlen, Pitney, Hussey & Wolfe  
ATTORNEYS

Nov. 17, 1953

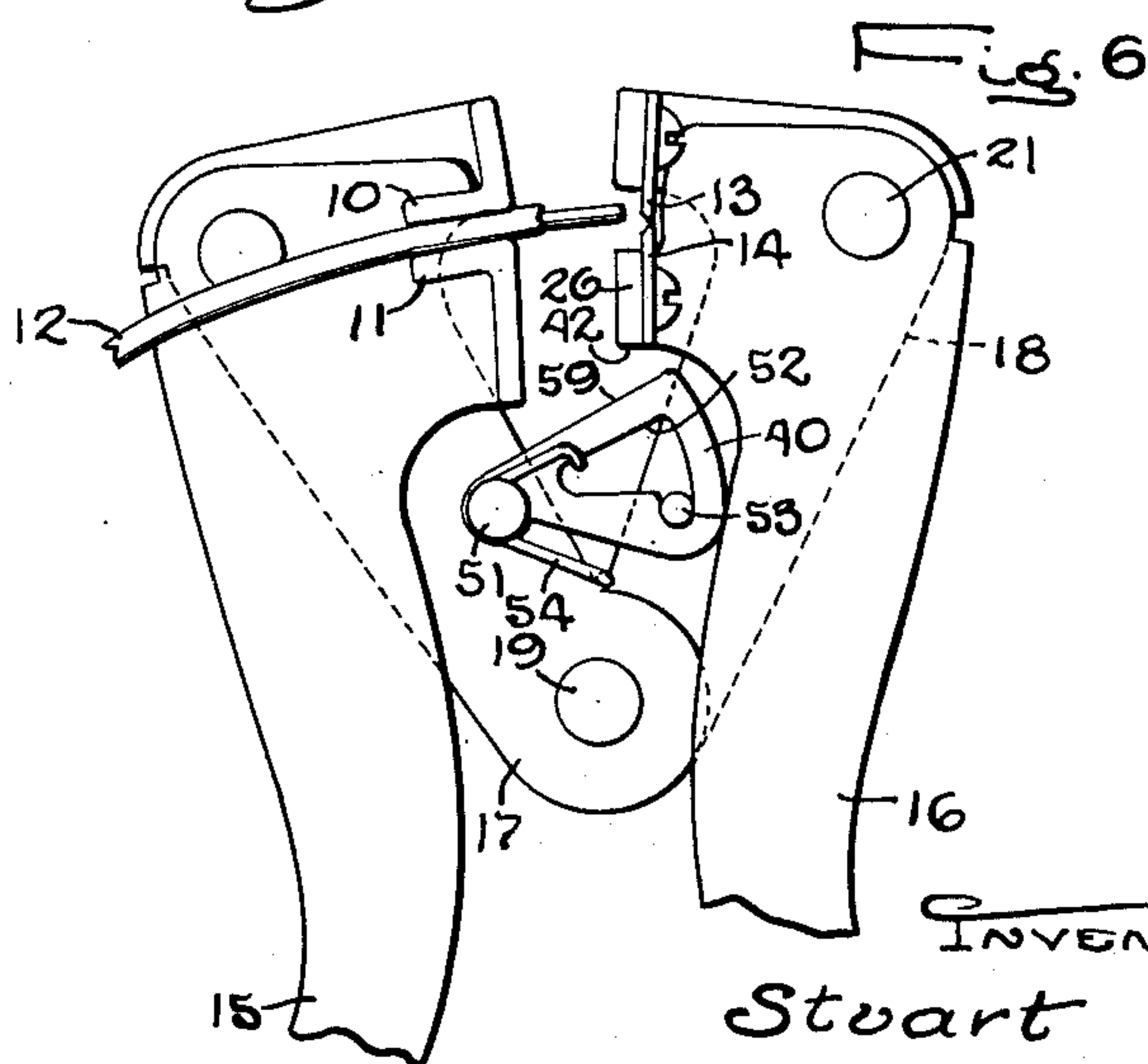
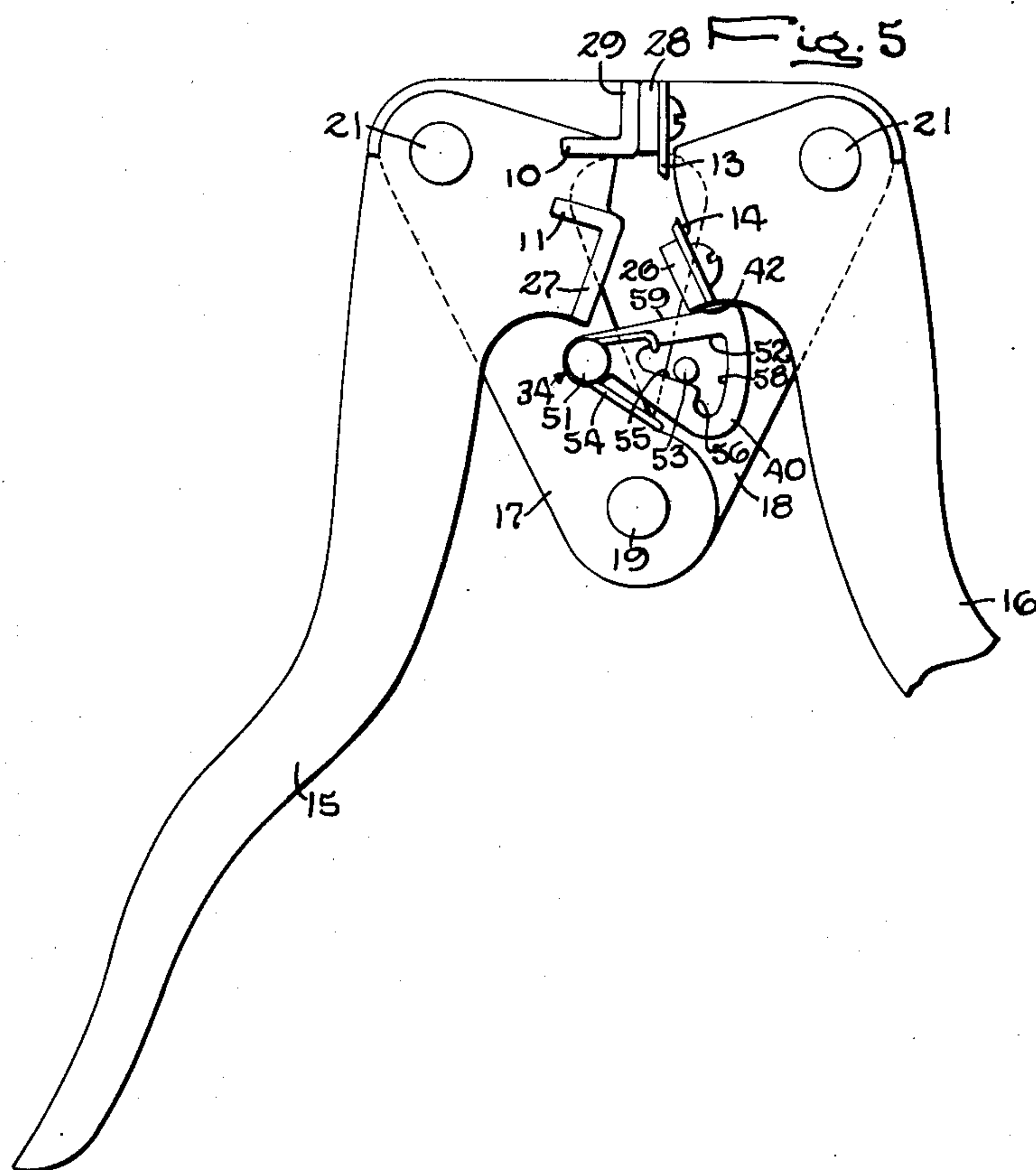
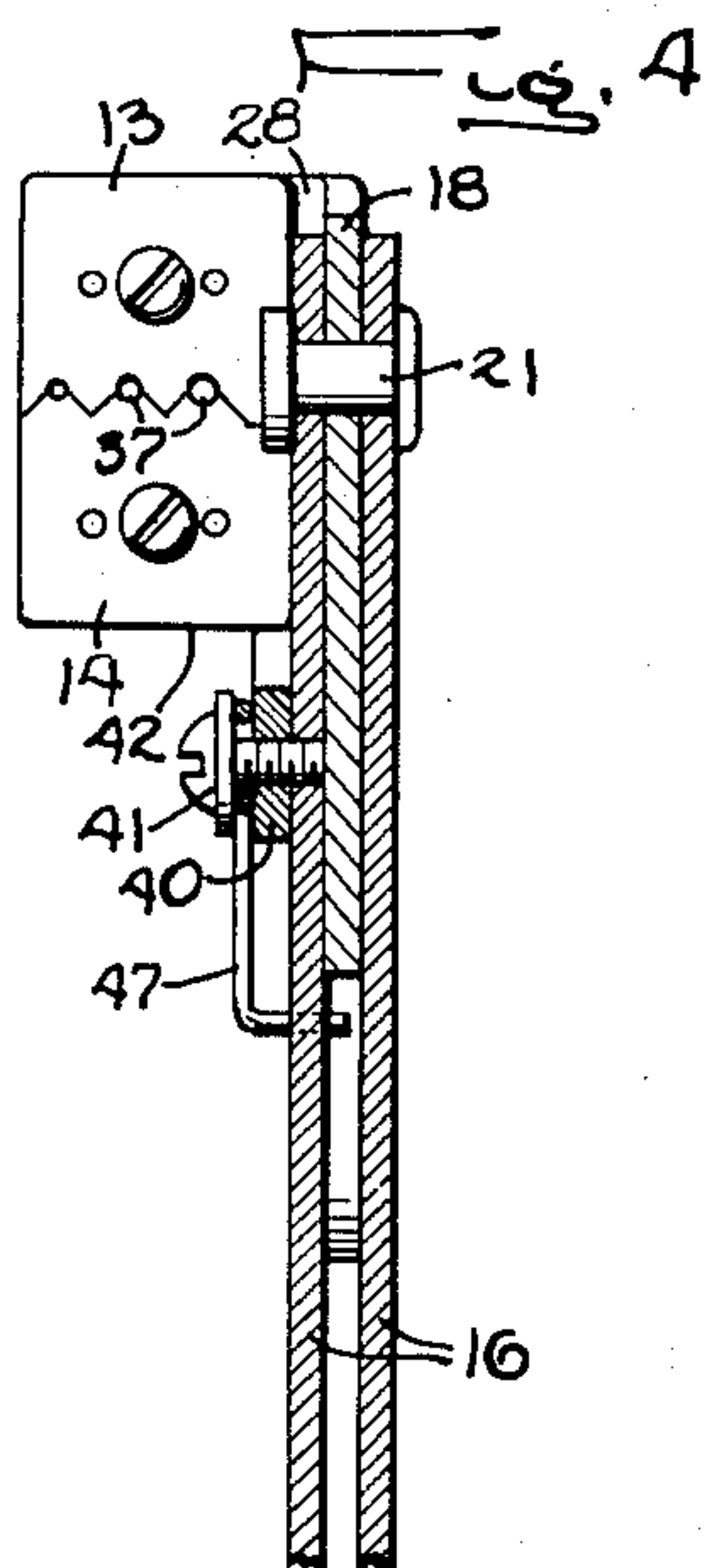
S. G. WOOD

2,659,254

WIRE STRIPPER

Filed Feb. 14, 1951

2 Sheets-Sheet 2



INVENTOR

Stuart G. Wood  
By Carlson, Pitzner, Huttmann & Wolfe  
ATTORNEYS



## UNITED STATES PATENT OFFICE

2,659,254

## WIRE STRIPPER

Stuart G. Wood, Rockford, Ill., assignor to Rockford Wire Stripper Co., Rockford, Ill., a corporation of Illinois

Application February 14, 1951, Serial No. 210,804

9 Claims. (Cl. 81—9.5)

1

This invention relates to a wire stripper of the type in which a wire to be stripped is gripped and held between one pair of jaws while the end portion of the wire covering is cut and stripped off by another pair of jaws adapted for movement toward each other and then away from the holding jaws in response to squeezing of two handles together. More particularly, the invention relates to a stripper in which the handles which carry the inner holding and stripping jaws are individually pivoted on the outer ends of two arms pivotally connected together at their inner ends and carrying the other holding and stripping jaws at their outer ends.

The primary object is to provide in a wire stripper of the above character a novel constructed and arranged latch for temporarily holding the pairs of jaws apart following a stripping operation and releasable in response to a later outward movement of one of the handles.

Another object is to utilize the separating motion of the jaws in a novel manner to release the latch.

A further object is to provide a spring constructed and arranged in a novel manner to actuate both the handles and the supporting arms in a stripper of the above character.

The invention also resides in a novel construction of the latch to adapt the same for proper action while stripping wires of different sizes.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, in which

Figures 1 and 2 are fragmentary front elevational views of a wire stripper embodying the novel features of the present invention and with the parts thereof shown in different positions.

Fig. 3 is a rear elevational view.

Fig. 4 is a fragmentary section taken along the line 4—4 of Fig. 1.

Figs. 5 and 6 are views similar to Figs. 1 and 2 showing a modified form of the invention.

The improved wire stripper shown by way of illustration in Figs. 1 to 4 comprises generally two holding jaws 10 and 11 for gripping a piece of wire 12 between them and two adjacent jaws 13 and 14 having sharpened edges which coact when the jaws are moved together to pierce or cut the wire covering and strip off the end portion thereof in response to manually squeezing together two elongated handles 15 and 16. The latter comprise pieces of sheet metal of U-shaped cross section and longitudinally curved inwardly toward each other. Two elongated generally flat arms 17 and 18 approximately half as long as the handles overlap each other at their inner ends and are pivotally connected together by a stud 19. The outer or free end portions of the arms are disposed in a common plane and are received in the outer end portions of the chan-

2

nels of the handles 15 and 16 to which the extreme outer ends of the arms are pivotally connected by studs 21.

The channel shaped handles 15 and 16 constitute long arms of bell cranks 22 and 23 having short and relatively wide arms 24 and 25 projecting laterally and inwardly toward each other from the end portions of the handles. On the inner side nearest the pivot 19, the end portion of the arm 25 is bent upwardly to form a flange 26 to which the inner stripping jaw 14 is secured as by a screw. The free end 27 of the other arm 24 is bent up at right angles, and then the outer portion of the flange thus formed is bent laterally at right angles to form the inner holding jaw 11. In a similar way, flanges 28 and 29 are bent up from the inner side edges of flat arms 17 and 18. The separately formed outer stripping jaw 13 is secured to the flange 28 and the outer portion of the flange 29 is bent at right angles to form the outer holding jaw 10. The outer holding jaw 10 is spaced above and overlies the inner end of the arm 24.

In accordance with one aspect of the present invention, a single spring 30 is provided for urging the handle supporting arms 17 and 18 apart and for urging each of the handles 15 and 16 outwardly about their pivots 21. The spring includes a wire coil 31 of several turns adjacent the pivot 19 and arms 32 projecting tangentially from the periphery of the coil and crossing each other. Beyond the point of crossing, the arms are curved as indicated at 33 and underlie the heads of rivets 34 rigid with and upstanding from the arms. The coil 31 acts in torsion to swing the wire arms 32 and the rivets 34 toward each other thus urging the arms 17 and 18 together.

The spring arms 32 are extended well beyond the rivets 34 and the extensions 35 are bent intermediate their ends as indicated at 36 and, at their outer ends, bear against the inner edges of the handles 15 and 16 adjacent the fulcrums 21 of the latter. The rivets 34 serve as anchors for the extension 35 which thus act as independent spring arms in urging the handles outwardly. It will be apparent that the spring 30 is formed from a single piece of wire and assembled on the tool merely by swinging the arms 35 together around the rivets 34 and allowing the arms to expand against the handles.

With the handles of the tool above described released, the end portion of a wire covering may be stripped off simply by placing the wire properly between the two pairs of jaws and squeezing the handles 15 and 16 together. The holding jaws 10 and 11 are first forced together about the pivot 21 to grip the wire and then as the jaws 13 and 14 move together about the other pivot 21, the sharp edges of the jaws 13 and 14 around the selected hole 37 therein cut through



3

the wire covering to the proper depth. In the continued movement of the handles toward each other, the handles and their respective supporting arms 17 and 18 swing outwardly in unison about the fulcrum 19 thus stripping off the severed end portion of the wire covering.

The motions are reversed when the squeezing pressure on the handles is released. In the case of a solid wire, the strip jaws 13 and 14 slide inwardly along the bared end 38 in the initial part of the movement of the jaws toward each other when the covered part of the wire is still gripped between the jaws 10 and 11.

In the case of standard wire, the bared end is more flexible and it is desirable to provide means for causing the coacting jaws of one pair to separate before the arms 17 and 18 and the pairs of jaws start to swing toward each other. In other of its aspects, the present invention takes advantage of the characteristics of a stripper as described above to provide a very simple means for insuring opening of the jaws in the initial movement of the handles 15 and 16 toward each other following a stripping operation. Generally stated, this means comprises a latch rendered operative in the final part of the stripping operation to hold the pairs of jaws apart until the final part of the outward movement of the handles 15 and 16 by which the latch is released.

In the case of stranded wire, the bared end is acts between the supports for the inner holding and stripping jaws 11 and 14 and comprises a flat bar 40 fulcrumed at one end on a pivot 41 rigid with the jaw side of the handle 16 about midway between the pivots 19 and 21. The latch bar projects across the inner edge 42 of the handle flange 26 and near its free end is formed with a series of teeth 44 spaced transversely of the latch bar and adapted to enter a shallow groove 45 formed by bending the inner edge portion 46 of the flange 27 inwardly and out of the plane of the flange toward the stripping jaws. A torsion spring 47 coiled around the pivot screw 41 and acting between the latch and the handle 16 urges the latch toward the flange edge 42 against which the upper edge 48 of the latch bears preparatory to and during the stripper operation. (See Fig. 3.)

To limit the separation of the jaws during a stripping operation, the latch bar 40 is extended across the inner edge of the flange 27 and then laterally to provide a projection 49 laterally spaced from the teeth 44 and engageable with the outer side of the flange.

With the handles fully separated as shown in Fig. 3 and the pairs of jaws 10, 11 and 13, 14 disposed adjacent each other, the latch edge 48 engages the flange edge 42 and the teeth 44 are spaced inwardly beyond the edge 46 of the flange 27. After the wire has been positioned between the jaws and the handles start to move toward each other, the handle and jaws 11 and 14 first move toward the others which allows the latch edge 48 to come against the flange edge 46 and to separate from the edge 42. In the continued squeezing of the handles following gripping of the wire and severing the covering, the pairs of jaws are separated to strip the wire during which the latch edge 48 slides along the flange edge 46 until the latter is passed by the first tooth 44. Thereupon, the spring 47 swings the latch upwardly against the edge 42, the edge 46 moving into the latch notch 50 a distance determined by the size of the wire being stripped and therefore the spacing of the gripping jaws 10 and 11. One of the teeth 44 is thus brought opposite the

4

groove 45 which the tooth enters in the subsequent initial swinging of the arms 17 and 18 and the pairs of jaws toward each other following release of the squeezing pressure. With the latch thus engaged as shown in Fig. 1, the pairs of jaws are held separated so that further movement of the handles 15 and 16 toward each other under the action of the spring 30 can occur only by separation of the jaws 10 and 11 or 13 and 14. Such separation of the jaws of the individual pairs as shown in Fig. 2 releases the wire and prevents the application of any endwise force which would bend the bared strands.

As an incident to the separation of the coacting jaws while the latch is in active position and engaging the jaws 11 and 14, the latch is swung inwardly and toward the pivot 19 by the flange edge 42 until, in the final outward movement of the handles, the latch will be inclined sufficiently as shown in phantom in Fig. 2 to permit the active tooth 44 to slip out of the groove 45 and past the flange edge 46. Thus, the edge 42 constitutes a means which is operable in the final movement of the handles to disengage the latch. In some instances, the next higher tooth 44 may then engage in the groove 45 so that a further short movement of the handles is required in order to effect disengagement of the last tooth and complete release of the latch. With the latch thus released, the arms 17 and 18 may swing toward each other thus returning the parts to normal inactive positions (Fig. 3).

In the modified form of the invention shown in Figs. 5 and 6, the latch 40 and the part engaged thereby are mounted respectively on the arms 17 and 18 which support the jaws 10 and 13 which are thus held apart in the initial releasing movement of the handles following a stripping operation. To this end, this form of the latch comprises a generally triangular plate disposed on the side of the arms 17 and 18 opposite the spring 30 and pivoted at one end in the extended headed end 51 of one of the rivets 34. The other end portion is slotted at 52 to receive a similar head 53 on the other rivet 34. A torsion spring 54 encircling the head 51 acts between the latch and the arm 17 to swing the free end of the latch upwardly holding a wall 55 of the slot 52 against the head 53.

In the released or idle positions of the parts (Fig. 5), the jaws are separated and the latch 40 is released. As the handles are squeezed together to strip a wire, the jaws close and then move apart as previously described. In the final part of outward swinging of the arms 17 and 18, the slot wall 55 rides along the pin 53 until the squared corner of a notch 56 in the wall passes the pin 53. Thereupon the latch swings upwardly to the position shown in Fig. 6 and the notch edge acts on the pin 53 to hold the arms 17 and 18 apart. The extent of separation of the two pairs of jaws is limited by engagement of the pin 53 and the end 58 of the slot.

With the arms 17 and 18 thus latched apart, the inward movement of the handles toward each other results in inward movement of the handle jaws 11 and 14 away from the other jaws 10 and 13. Finally, the edge 42 of the flange 26 moves far enough downwardly to engage the upper edge 59 of the latch and swing the latter carrying the notch edge 56 out of engagement with the pin 53. With the latch thus released, the pairs of jaws and the arms 17 and 18 may move toward each other to the idle positions (Fig. 6).

It will be apparent from the foregoing that



5

the simple construction of the latch 40 and its positive and reliable action are made possible by the overall swingable construction of the parts of the stripper itself. That is to say, two of the holding and stripping jaws 10 and 13 are mounted on the arms 17 and 18 pivotally connected by the stud 19 while the other two jaws are on inwardly projecting arms of the handles 15 and 16 which are pivoted on the outer free ends of the arms 17 and 18. The relative swinging motions of the parts are thus utilized effectually to control the action of the latch.

This application is a continuation-in-part of my copending application Serial No. 137,368, filed January 7, 1950, now abandoned.

I claim as my invention:

1. A wire stripper comprising two arms pivotally connected at one end and diverging toward their free ends, elongated handles pivoted at one end on said free arm ends and having short lateral extensions projecting toward each other adjacent the handle pivots, holding and stripping jaws mounted on said arms and extensions and coacting during squeezing of said handles together to grip one portion of a wire and cut and strip the covering from an end portion of the wire, and a single piece of spring wire having end portions engaging said arms and said handles and acting on said arms and between said arms and handles to urge the arms toward each other and each of the handles outwardly relative to its supporting arm.

2. A wire stripper as defined in claim 1 in which said spring wire comprises a torsion coil with end portions projecting tangentially therefrom in crossed relation.

3. A wire stripper as defined in claim 1 in which lugs are formed on said arms and in which said spring wire includes a loop and crossed portions diverging outwardly around said lugs and, beyond said lugs, bearing outwardly against said handles short of the pivots thereof.

4. A wire stripper comprising two arms pivotally connected at one end and diverging toward their free ends, elongated handles pivoted at one end on said free arm ends and having short lateral extensions projecting toward each other adjacent the handle pivots, holding and stripping jaws mounted on said arms and extensions and coacting during squeezing of said handles together to grip one portion of a wire and cut and strip the covering from an end portion of the wire, projections on said arms paralleling and spaced from the pivot thereof, and a spring for urging said arms together and said handles outwardly relative to the arms and including arms extending along the respective first arms and bearing inwardly intermediate their ends against said projections and outwardly at their free ends against said handles adjacent but short of the pivots thereof.

5. A wire stripper as defined by claim 4 in which said spring arms cross each other between said projections and the pivot of the first arms and are formed on opposite ends of a torsion coil.

6. A wire stripper comprising a pair of diverging arms pivotally connected together at one end, handles pivotally connected at one end to the free ends of said arms and having lateral extensions projecting toward each other and overlying the arms, outer holding and stripping jaws mounted on said free arm ends, inner holding and stripping jaws mounted on the ends of said extensions and coacting with said first jaws during squeezing of said handles together to grip

6

a piece of wire and cut and strip the covering from one end portion of the wire, a latch pivoted on one of said handles to swing toward and away from the inner jaw on such handle and having a notch for receiving the other inner jaw, spring means urging said latch against said first inner jaw, and a plurality of teeth spaced along one wall of said notch and individually engageable with said other jaw in the initial movement of said handles toward each other after a stripping operation, but disengageable from such jaw in the final inward movement of the handles.

7. A wire stripper comprising a pair of diverging arms pivotally connected together at one end, handles pivotally connected at one end to the free ends of said arms and having lateral extensions projecting toward each other and overlying the arms, outer holding and stripping jaws mounted on said free arm ends, inner holding and stripping jaws mounted on the ends of said extensions and coacting with said first jaws during squeezing of said handles together to grip a piece of wire and cut and strip the covering from one end portion of the wire, a latch pivoted on one of said handles to swing toward and away from the inner jaw on such handle, spring means urging said latch against said first inner jaw, and a plurality of teeth spaced across the end of said latch and individually engageable with the other inner jaw in the initial movement of said handles toward each other after a stripping operation, and means on one of said handles and operable in the final inward movement of the handles to disengage said latch from said other inner jaw.

8. A wire stripper comprising a pair of diverging members pivotally connected together at one end, handle members pivotally connected at one end to the free ends of said first members and having lateral extensions projecting toward each other, outer holding and stripping jaws mounted on said free arm ends, inner holding and stripping jaws mounted on the inner ends of said extensions and coacting with said first jaws during squeezing of said handle members together to grip a piece of wire and cut and strip the covering from one end portion of the wire, a latch pivoted on one of said members and urging into engagement with a part on the other corresponding member to hold the jaws on such members spaced apart after the completion of a stripping operation, said latch having a surface engaging a surface on one of said other members to hold said latch inactive until said handle members approach their final inner positions, and means on one of said handle members and movable therewith to disengage said latch and said part in the final outward movements of the handle members.

9. A wire stripper as defined in claim 8 in which said latch is pivoted on one of said diverging members and said part is on the other of said diverging members.

STUART G. WOOD.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

Number	Name	Date
2,179,581	Voogd	Nov. 14, 1939
2,523,936	Axelsen	Sept. 26, 1950

##### FOREIGN PATENTS

Number	Country	Date
682,647	France	Feb. 17, 1930