

No. 683,227.

Patented Sept. 24, 1901.

J. H. SCHLAFLY.  
SHEET METAL EDGING MACHINE.

(Application filed July 8, 1901.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

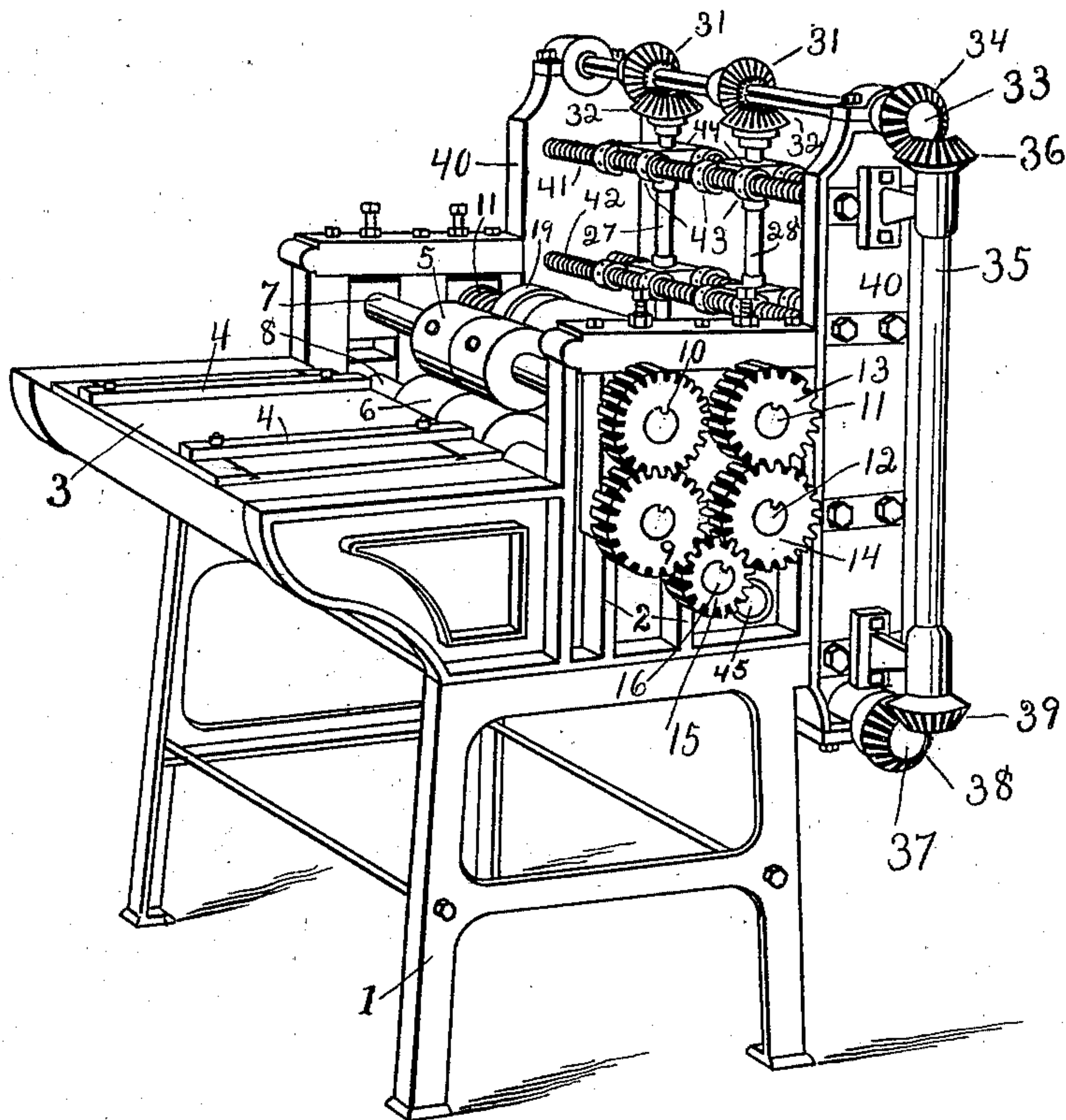


Fig. 2

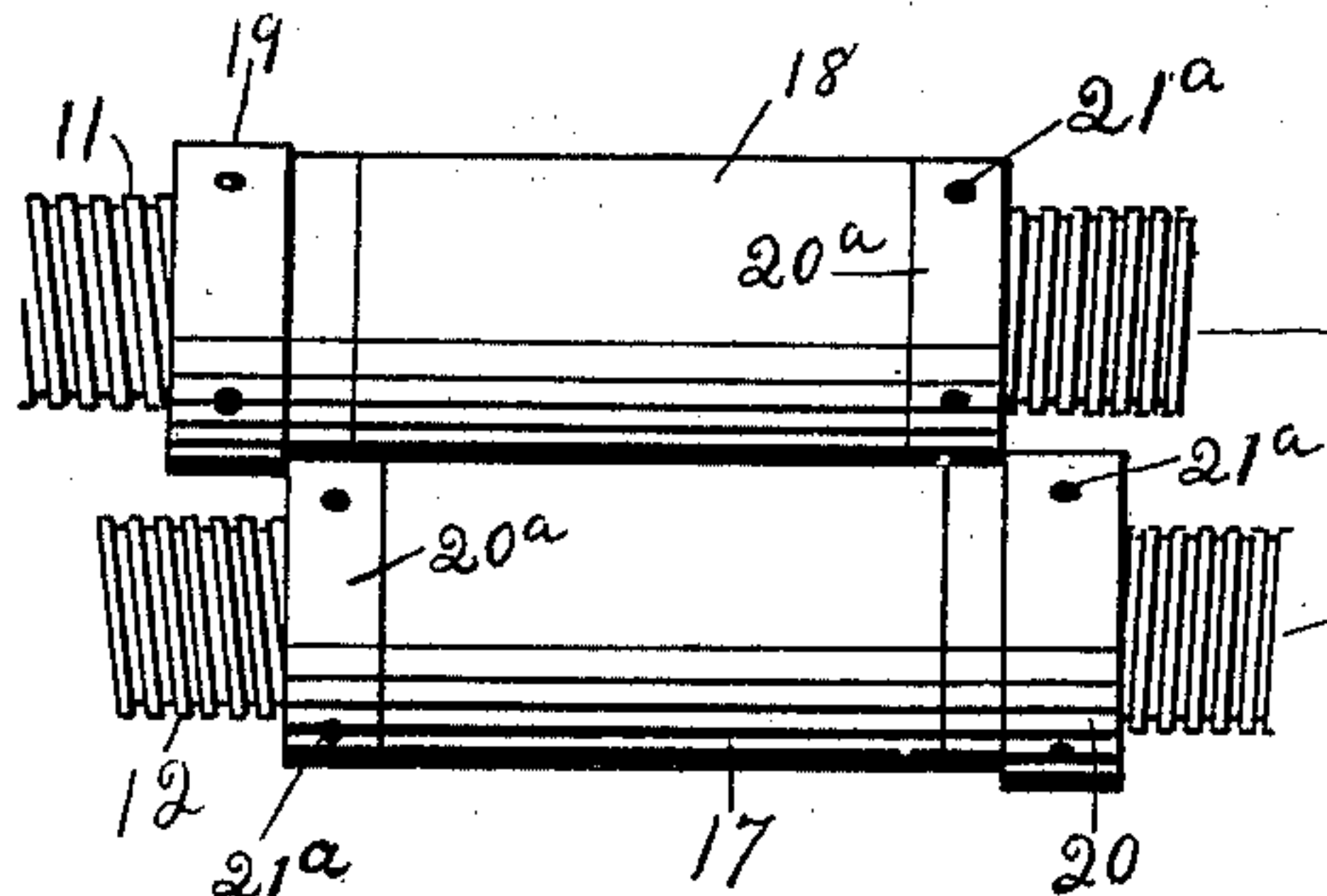
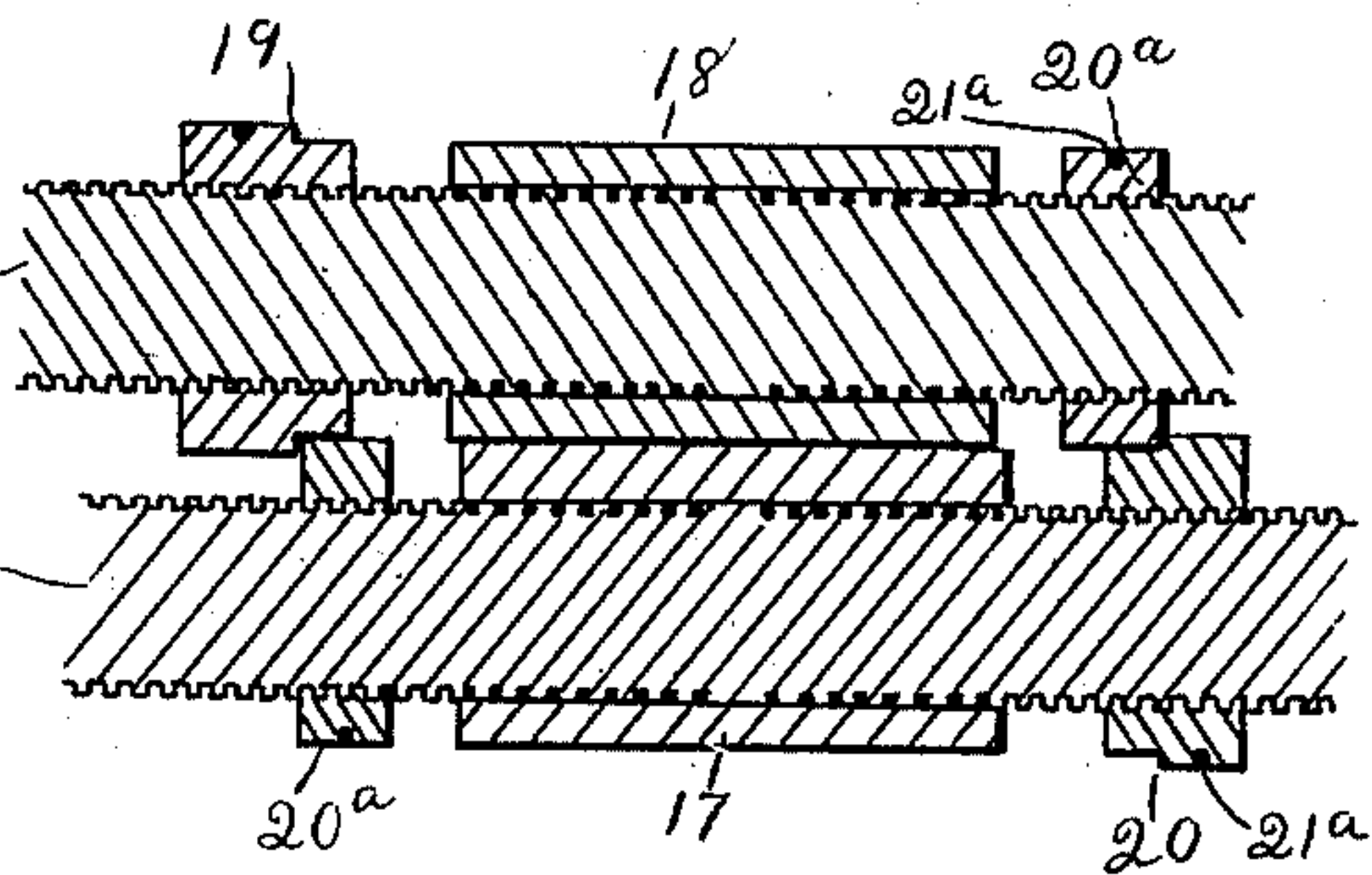


Fig. 3



WITNESSES.  
W. H. Stough  
J. R. Bond

INVENTOR.  
J. H. Schlafly  
BY J. R. Bond  
ATTORNEY.

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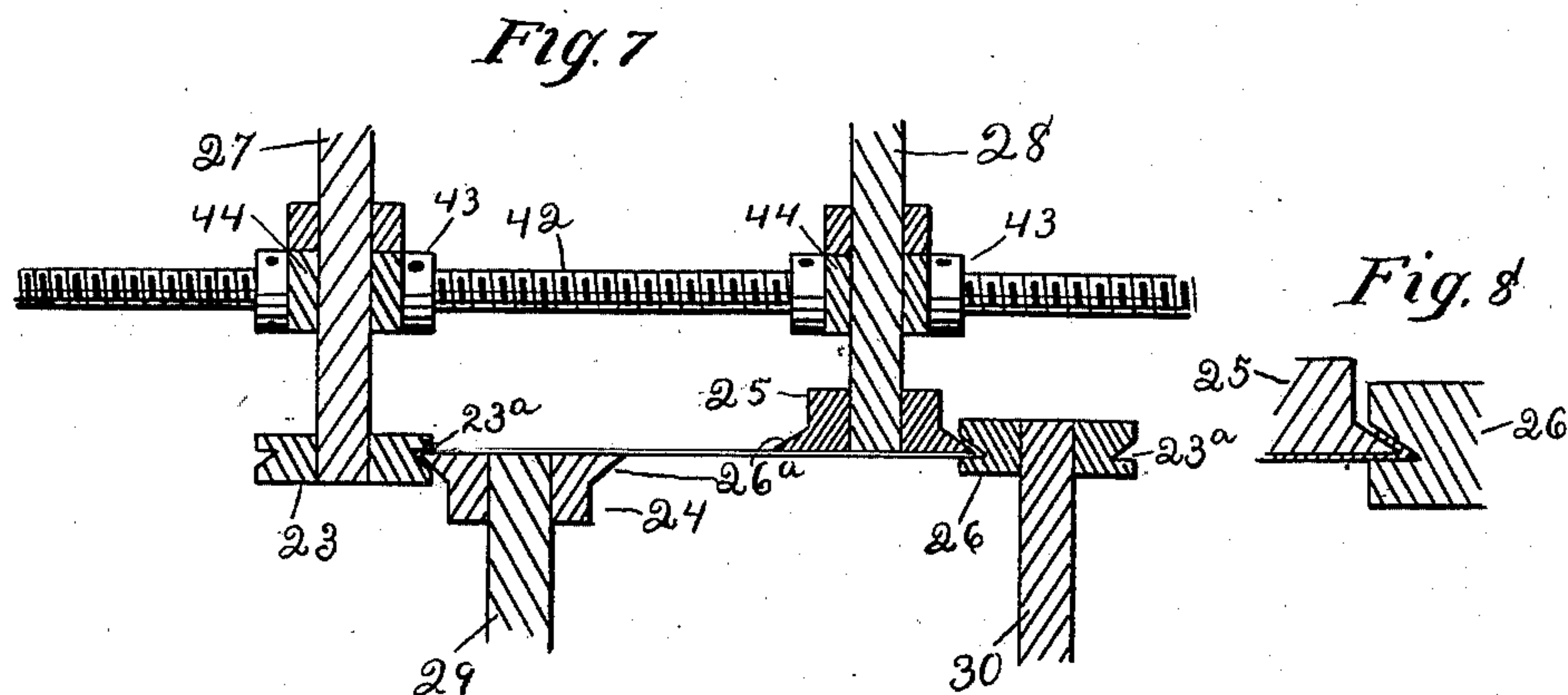
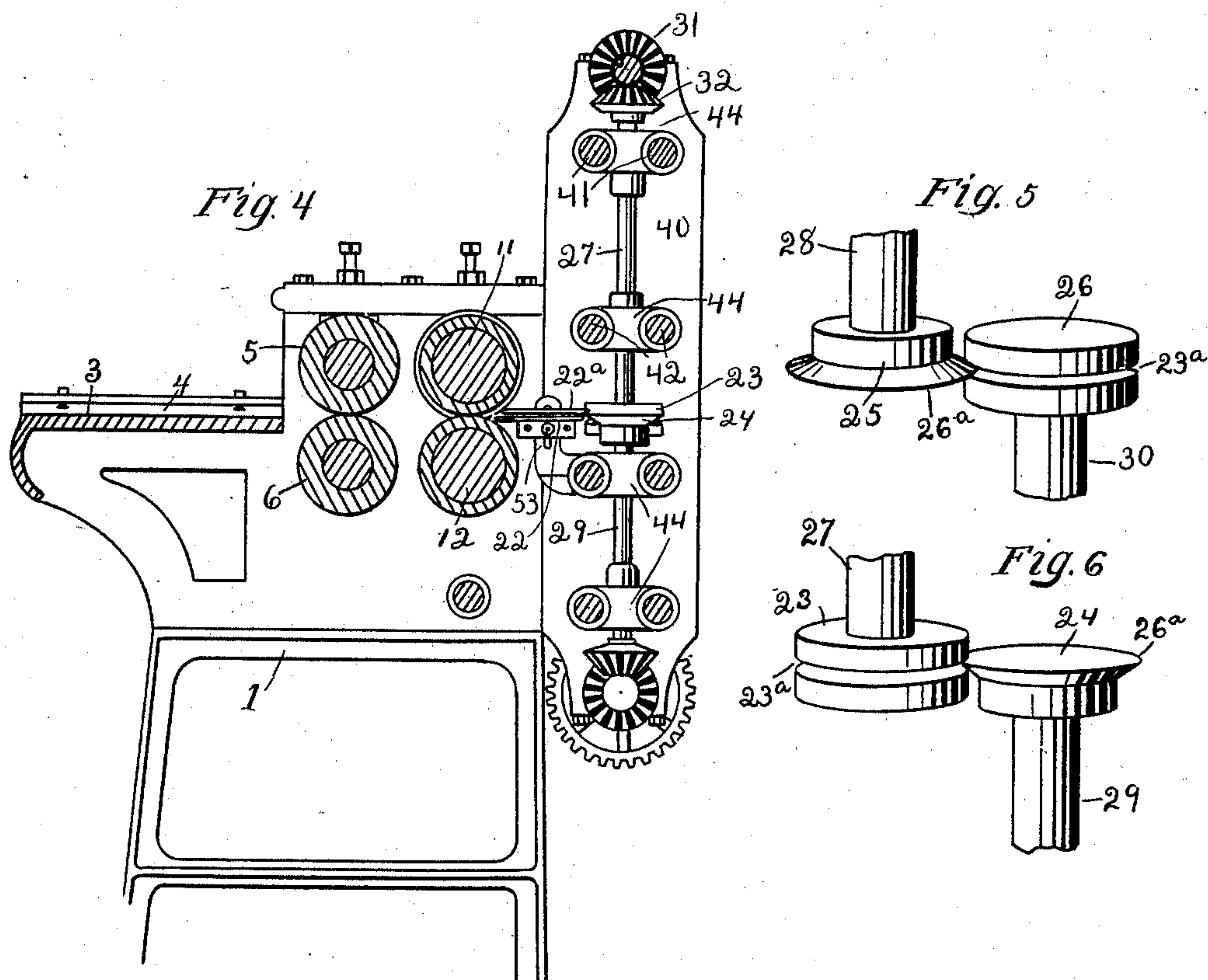
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**3 Sheets—Sheet 2.**



WITNESSES  
W. H. Strong  
J. R. Bond

INVENTOR  
Julius H. Schlafly  
BY F. W. Bond  
ATTORNEY

No. 683,227.

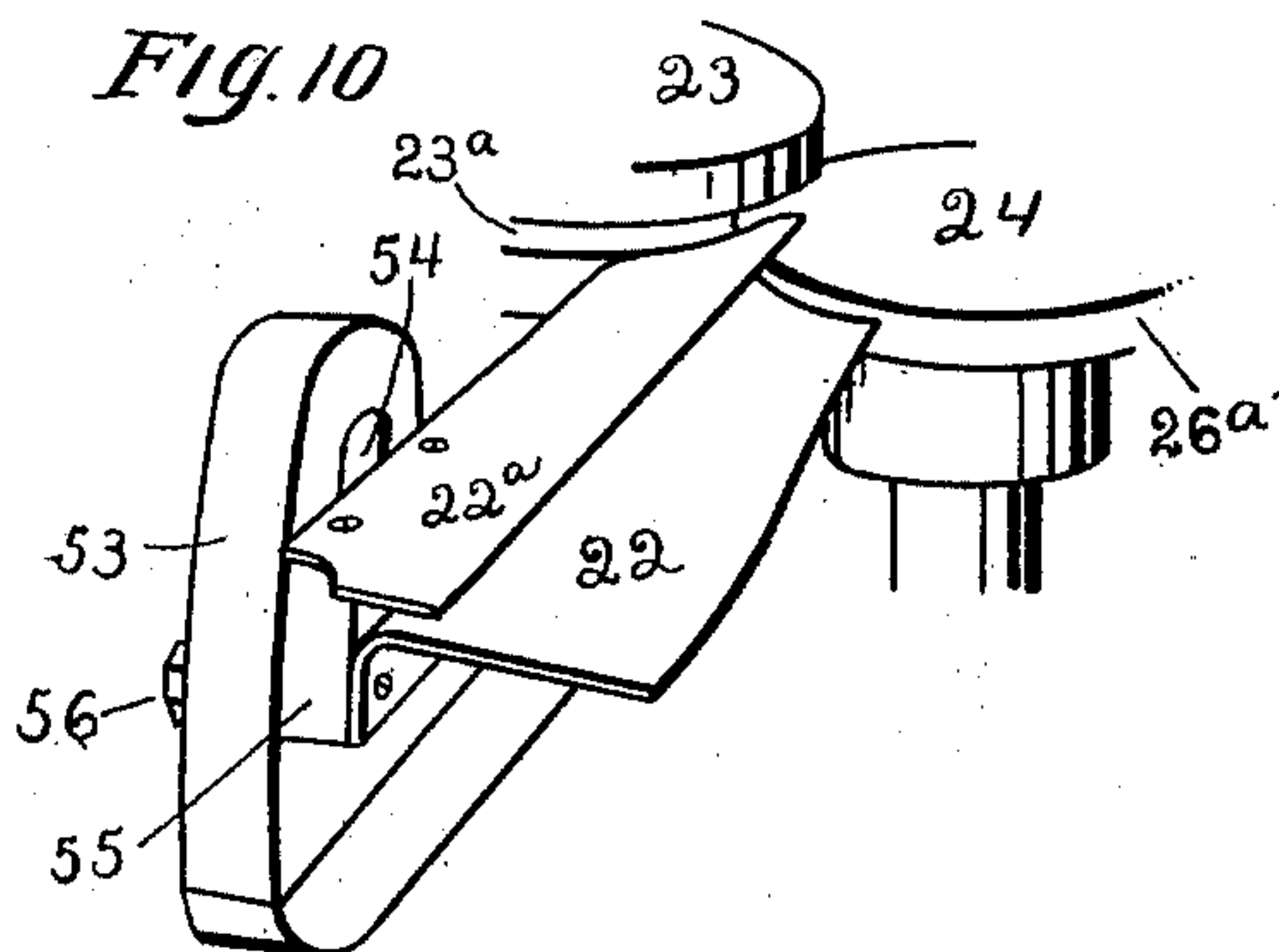
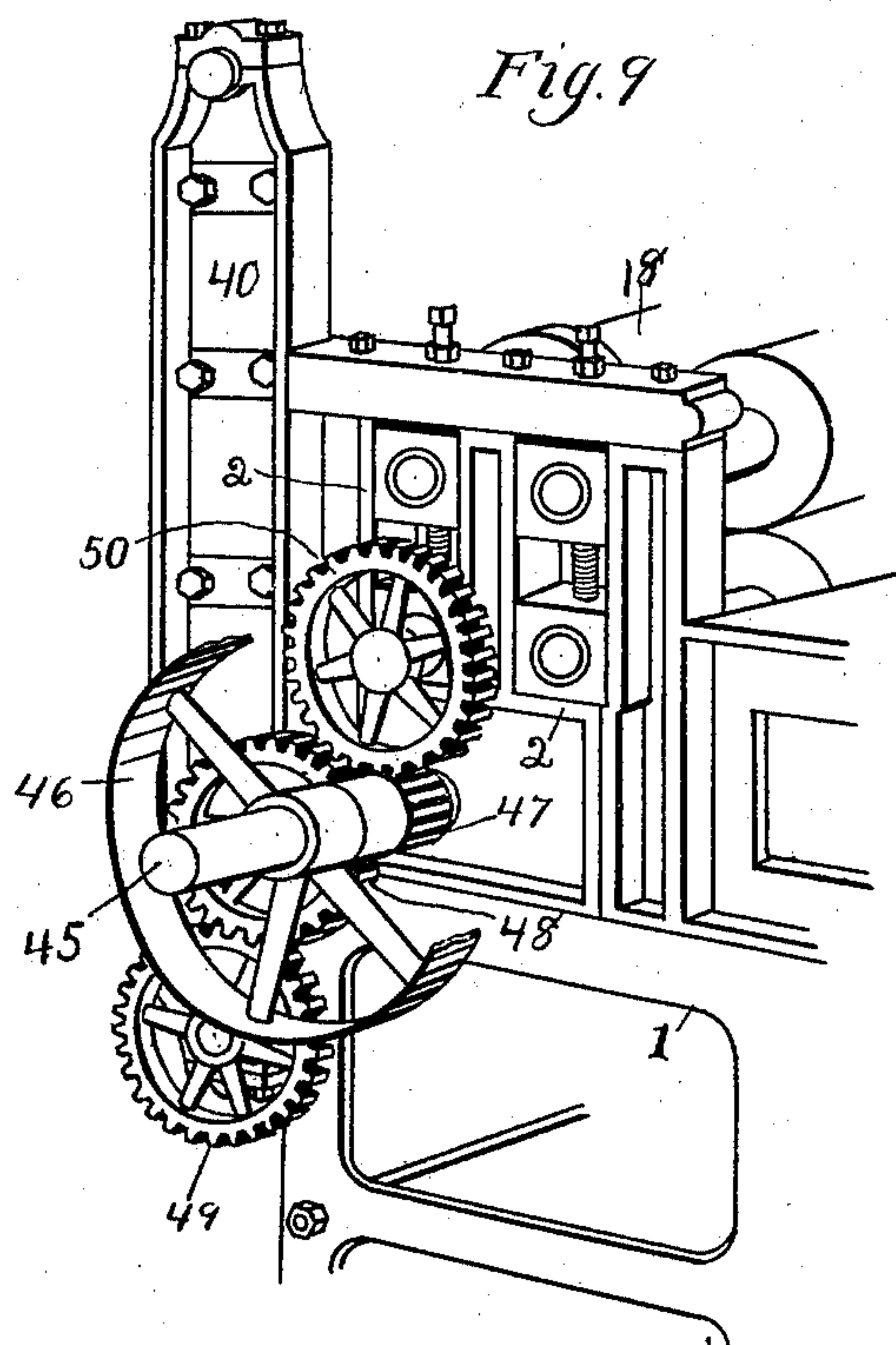
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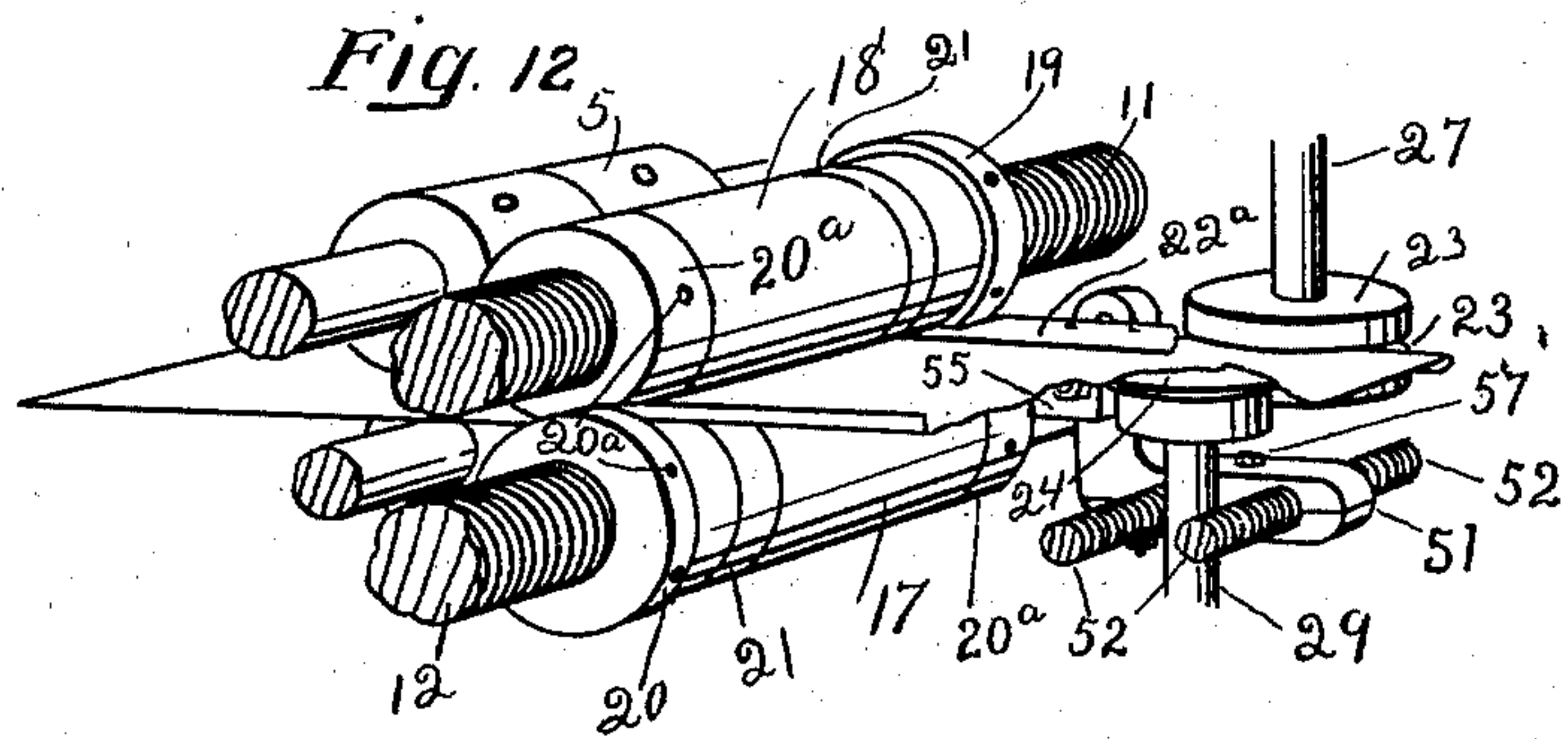
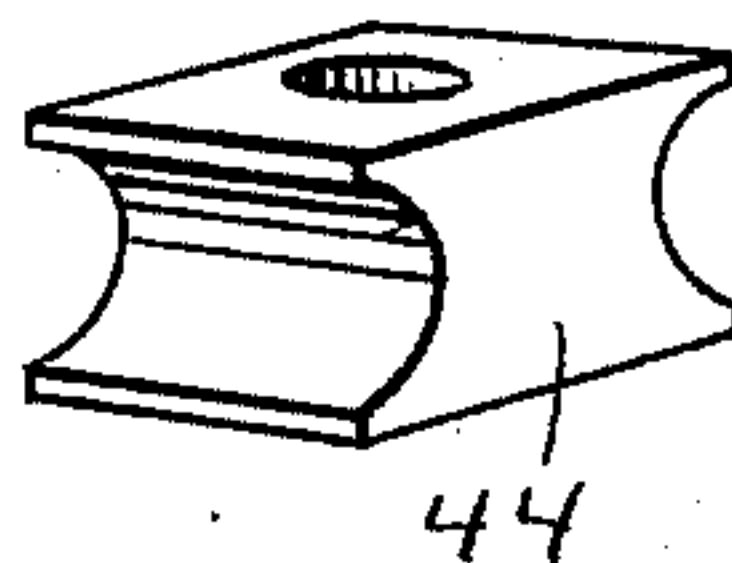
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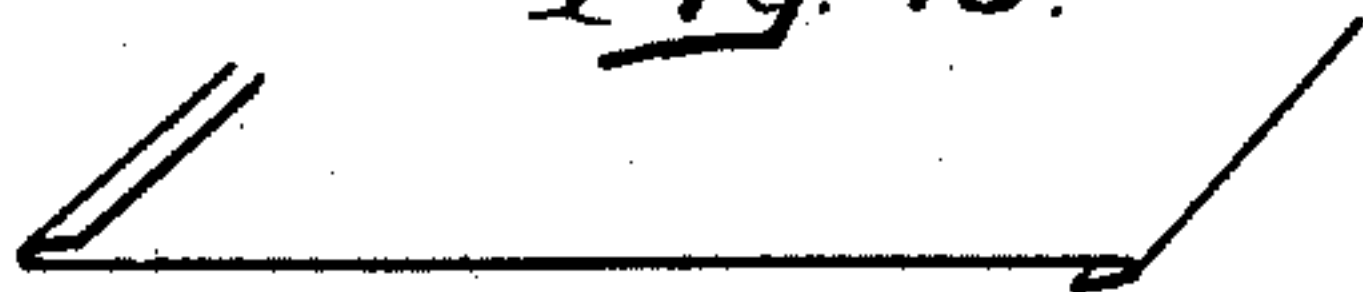
3 Sheets—Sheet 3.



*Fig. 11.*



*Fig. 13.*



WITNESSES.

W. H. Stough

J. R. Bond

INVENTOR  
Julius H. Schlafly  
By J. R. Bond  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JULIUS H. SCHLAFLY, OF CANTON, OHIO, ASSIGNOR TO THE BERGER  
MANUFACTURING COMPANY, OF SAME PLACE.

## SHEET-METAL-EDGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 683,227, dated September 24, 1901.

Application filed July 8, 1901. Serial No. 67,405. (No model.)

*To all whom it may concern:*

Be it known that I, JULIUS H. SCHLAFLY, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Sheet-Metal-Edging Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the figures of reference marked thereon, in which—

Figure 1 is a perspective view showing the different parts of the machine properly assembled. Fig. 2 is a view of the forming-dies, their shafts, and cylinders. Fig. 3 is a horizontal section through Fig. 2. Fig. 4 is a vertical transverse section. Fig. 5 is a detached view of one set of folding-dies. Fig. 6 is a similar view showing a different set of folding-dies. Fig. 7 is a sectional view showing the different folding-dies in proper relative position with each other. Fig. 8 is an enlarged view showing one side of the folding-dies. Fig. 9 is a view showing the side of the machine opposite from that illustrated in Fig. 1. Fig. 10 is a view showing the location of the sheet-guide with reference to one side of the folding-dies. Fig. 11 is a detached view of one of the bearings for one of the folding-die shafts. Fig. 12 is a view showing the relative position of the feed-rolls, also the forming-dies, their shafts, and cylinders, and illustrating the position of one set of folding-dies and illustrating a sheet of metal in proper relative position with reference to the various dies. Fig. 13 is a view showing the finished product.

The present invention has relation to sheet-metal-edging machines; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the accompanying drawings, 1 represents the frame, which may be of the form shown and is provided with suitable housings, such as 2, which housings are for the purpose of providing means for holding the various

shafts in proper relative position. To the front or forward portion of the frame 1 is connected or formed integral therewith the table 3, which table is for the reception of the sheets of metal designed to be passed through the machine, and, as illustrated, said table is provided with the guide-bars 4, which guide-bars are adjustably connected to the table in any convenient and well-known manner. At the inner edge of the table 3 and in proper position to receive the sheets of metal the feed-rollers 5 and 6 are located, one directly above the other, and are so connected to the shafts 7 and 8 that they will rotate with said shafts, which shafts are driven in opposite directions by means of the pinions 9 and 10. Directly back of the feed-rollers 5 and 6 and in horizontal alinement therewith are located the right and left hand screw-threaded shafts 11 and 12, which shafts are propelled in opposite directions by means of the pinions 13 and 14, the pinions 9, 10, 13, and 14 all being driven by the pinion 15, which pinion is mounted upon the shaft 16. Upon the right and left hand screw-threaded shafts 11 and 12 are located the cylinders 17 and 18, said cylinders being provided with non-screw-threaded apertures. At the end of the cylinder 18 is located the die 19, and at the end of the cylinder 17 is located the die 20, said die being located upon the opposite ends of the cylinders 17 and 18, and are so located for the purpose of bending at right angles to the feed flanges upon opposite sides thereof, said dies 19 and 20 being spaced one from the other the distance between the flange edges of the sheet. For the purpose of holding the dies in proper fixed position their apertures are screw-threaded, said dies abutting against the ends of the cylinders 17 and 18.

It will be understood that in order to form flanges upon sheets of metal having different widths the dies 19 and 20 must be adjusted to or from each other, and in order to so adjust the dies filling cylinders or rings, such as 21, are provided, which rings are strung upon the shafts 11 and 12 and are formed of different widths, so as to provide the proper adjustment for the dies 19 and 20. It will be understood that by locating the dies 19 and 20 as shown right-angled flanges will be



formed upon opposite sides of the sheet—that is to say, one of the flanges will stand up and the other down. For the purpose of guiding the sheets after they have passed between the cylinders 17 and 18 and received the proper edging by means of the dies 19 and 20 the guide-flanges 22 are provided, it being understood that a guide-flange is to be located for each edge of the sheets, or, in other words, two guide-flanges, such as 22, are to be provided. For the purpose of properly folding the right-angled flanges formed upon the sheets, so as to provide hooked edges, the horizontal dies 23, 24, 25, and 26 are provided, and are located substantially as illustrated in Fig. 7, and, as illustrated, the die 24 is upon the bottom or under side of the sheet, the die 25 upon the top side of the sheet, and the grooved dies 23 and 26 located in operative relation to the dies 24 and 25.

It will be understood that in order to properly fold the edges of the sheet, or, in other words, to bend the right-angled flanges of the sheets into proper position to form hooked edges, power should be applied to all of the dies, and in order to so apply power each die must be provided with a driving-shaft, the die 23 being driven by the shaft 27, the die 25 by the shaft 28, the die 24 by the shaft 29, and the die 26 by the shaft 30, power being applied to said shafts by means of suitable beveled gear-wheels 31 and 32, the beveled gear-wheels 31 being fixed upon the shaft 33 and said shaft provided with the beveled wheel 34. The beveled gear-wheel is driven by the shaft 35 and the beveled gear-wheel 36, said shaft being driven by means of the shaft 37 and the gear-wheels 38 and 39.

It will be understood that the shafts 29 and 30 are driven by beveled gear-wheels, such as 31 and 32, the arrangement of said beveled wheels being substantially the same and are not illustrated, as they are simply a duplication of the ones shown. To the upright members 40 are connected the screw-threaded shafts or bars 41 and 42, said screw-threaded shafts or bars being formed in pairs and one pair located directly above the other, and each shaft or bar is provided with screw-threaded collars 43, which screw-threaded collars are for the purpose of holding in proper position the bearing-blocks 44, which bearing-blocks are for the purpose of holding in proper position the die-shafts 27 and 28.

It will be understood that by providing the screw-threaded shafts or bars 41 and 42 and locating the screw-threaded collars 43 thereon the bearing-blocks 44 can be moved or adjusted so as to bring the shafts 27 and 28, together with their dies 23 and 25, to or from each other, and thereby provide adjustment for different widths of sheets. It will of course be understood that in order to adjust the shafts 29 and 30, together with their dies 24 and 26, a duplication of the mechanism employed in adjusting the shafts 27 and 28, together with their dies, must be employed,

and a description of the lower devices for supporting and holding in proper position the lower die-shafts is unnecessary here. The main power-shaft 45 is provided with a driving-pulley, such as 46 or its equivalent, and the main pinion 47, properly connected or mounted upon the power-shaft, imparts rotary motion to the wheel 48, said wheel imparting motion to the wheel 49 and the pinion imparting motion to the wheel 50, said wheels being mounted upon shafts so arranged and located that proper rotary motion will be imparted to the various rotary parts of the machine proper. In Fig. 12 the die-shaft 27 is illustrated, together with the upper set of the lower screw-threaded bar, said bars being shown only in part. The bracket-arm 51 is shown placed in position upon the screw-threaded bars 52, said bracket being for the purpose of holding in proper adjustment the head 53, which head is provided with a slot 54, which slot is for the purpose of providing means for adjusting the block 55 up and down, to which block the guide members 22 and 22<sup>a</sup> are attached.

It will be understood that a clamping-bolt, such as 56, should be employed to hold the block 55 in proper fixed adjustment. The bracket-arm 51 should be formed in two pieces, so that the block 53 can be clamped in fixed position by means of a clamping-bolt 57.

For the purpose of binding the cylinders 18 and 17 and at the same time preventing said cylinders from moving endwise upon the shafts 11 and 12 the die-collars 20<sup>a</sup> are provided, and for the purpose of rotating the die-collars 20<sup>a</sup> and the dies 19 and 20 they are each provided with suitable apertures 21<sup>a</sup>, into which apertures a bar may be inserted for the purpose of rotating the same for any purpose. The folding-dies 23 and 26 are provided with grooves 23<sup>a</sup> upon their peripheries, and the dies 24 and 25 are provided with flanges 26<sup>a</sup>, said grooves and flanges corresponding in shape with each other and the flanges located in the grooves, substantially as shown in Figs. 5, 6, 7, and 8.

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

1. In a sheet-metal-edging machine, shafts provided with right and left hand screw-threads, cylinders located upon said shafts having non-screw-threaded apertures, dies located at opposite ends of said cylinders and means for imparting rotary motion to the screw-threaded shafts carrying the cylinders and dies, substantially as and for the purpose specified.

2. In a sheet-metal-edging machine screw-threaded shafts having mounted thereon cylinders, dies located at one end of each cylinder and at the opposite end thereof filling-rings mounted upon the screw-threaded shafts and retaining-collar dies located at opposite ends from the location of the dies, substantially as and for the purpose specified.



3. In a sheet-metal-edging machine the combination of a frame provided with detachable feed-rollers, dies mounted upon a rotatable shaft and adjustable to or from each other, cylinders located between the adjustable dies, horizontal dies located in the path of the metal sheet and means for independently rotating the horizontal dies, substantially as and for the purpose specified.

4. In a sheet-metal-edging machine, a system of dies adapted to turn right-angle flanges and means for rotating the dies, a system of dies adapted to fold the right-angle flanges, and means for rotating the dies, substantially as and for the purpose specified.

5. In a sheet-metal-edging machine, two shafts each provided with right and left hand screw-threads, dies located upon the right and left hand screw-threads and adjustable laterally thereon and cylinders located between the right-angle-adjusting dies, folding-dies located in the path of the metal sheet and folding-dies formed in pairs and arranged to fold in opposite directions, and means for rotating the edging and folding dies, substantially as and for the purpose specified.

6. In a sheet-metal-edging machine rotatable edging-dies adjustable to and from each other, folding-dies located in the path of the metal sheet, said folding-dies formed in pairs and rotatable independent with each other and the pairs adjustable to and from each other and adjustable guide-flanges located between the edging and the folding dies, substantially as and for the purpose specified.

7. In an edging-machine the combination of feed-rolls, right and left hand screw-

threaded shafts having mounted thereon edging-dies and collars, feed edging-dies and die-collars adjustable to and from each other upon the right and left hand screw-threaded shafts and cylinders located between the adjusting-dies and collar-dies, said cylinders provided with non-screw-threaded apertures and the dies arranged to turn flanges upon the opposite side of the sheet, substantially as and for the purpose specified.

8. The combination of adjustable edging-dies and die-collars mounted upon shafts and rotatable therewith, folding-dies formed in pairs one of each pair provided with a groove and the other of each pair formed with a folding-flange, and said dies provided with folding-flanges located above and below the path of the sheet, substantially as and for the purpose specified.

9. The combination of the frame, feed-rollers mounted upon shafts journaled to said frame, edging-dies located in the path of the metal sheet and adapted to form flanges upon opposite sides of the sheet folding-dies located in the path of the sheet and rotatable independent of each other and guide-flanges located between the edging-dies and folding-dies, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JULIUS H. SCHLAFLY.

Witnesses:

CHAS. W. KRIEG,  
A. L. McQUEEN.