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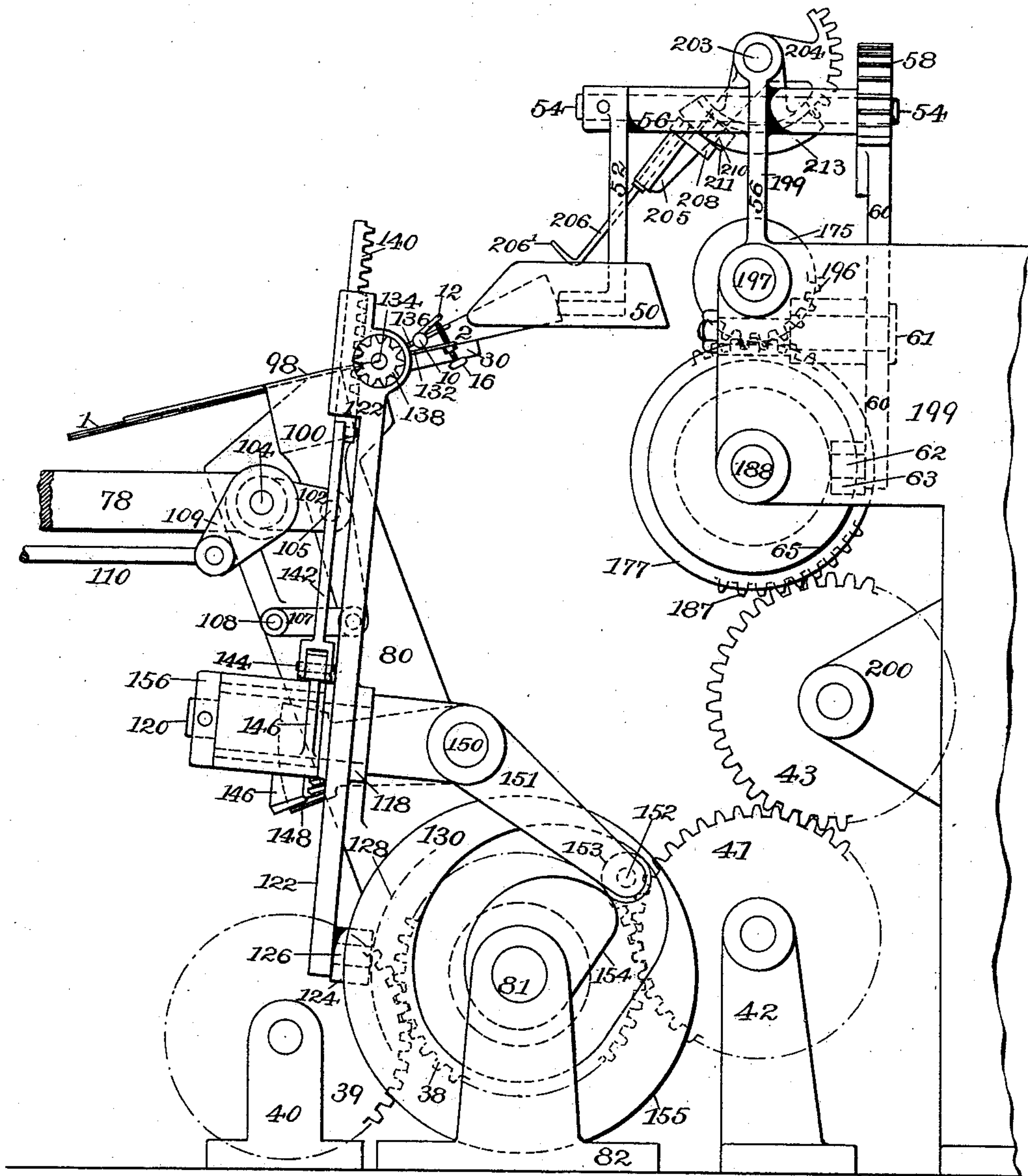
4 Sheets—Sheet 1.

W. A. LORENZ & W. H. HONISS.
PAPER BAG MACHINE.

No. 410,842.

Patented Sept. 10, 1889.

Fig. 1



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Inventors:

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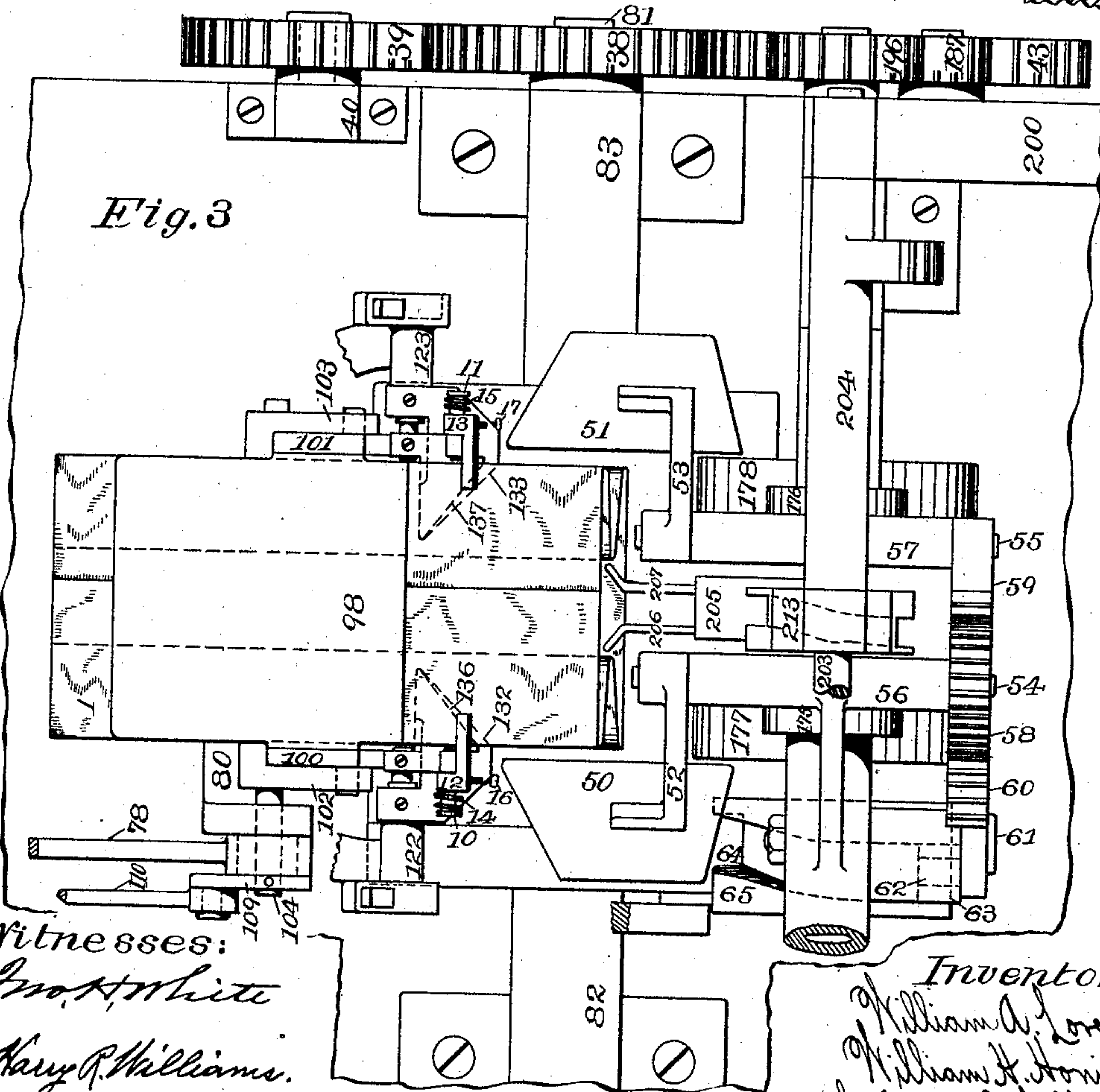
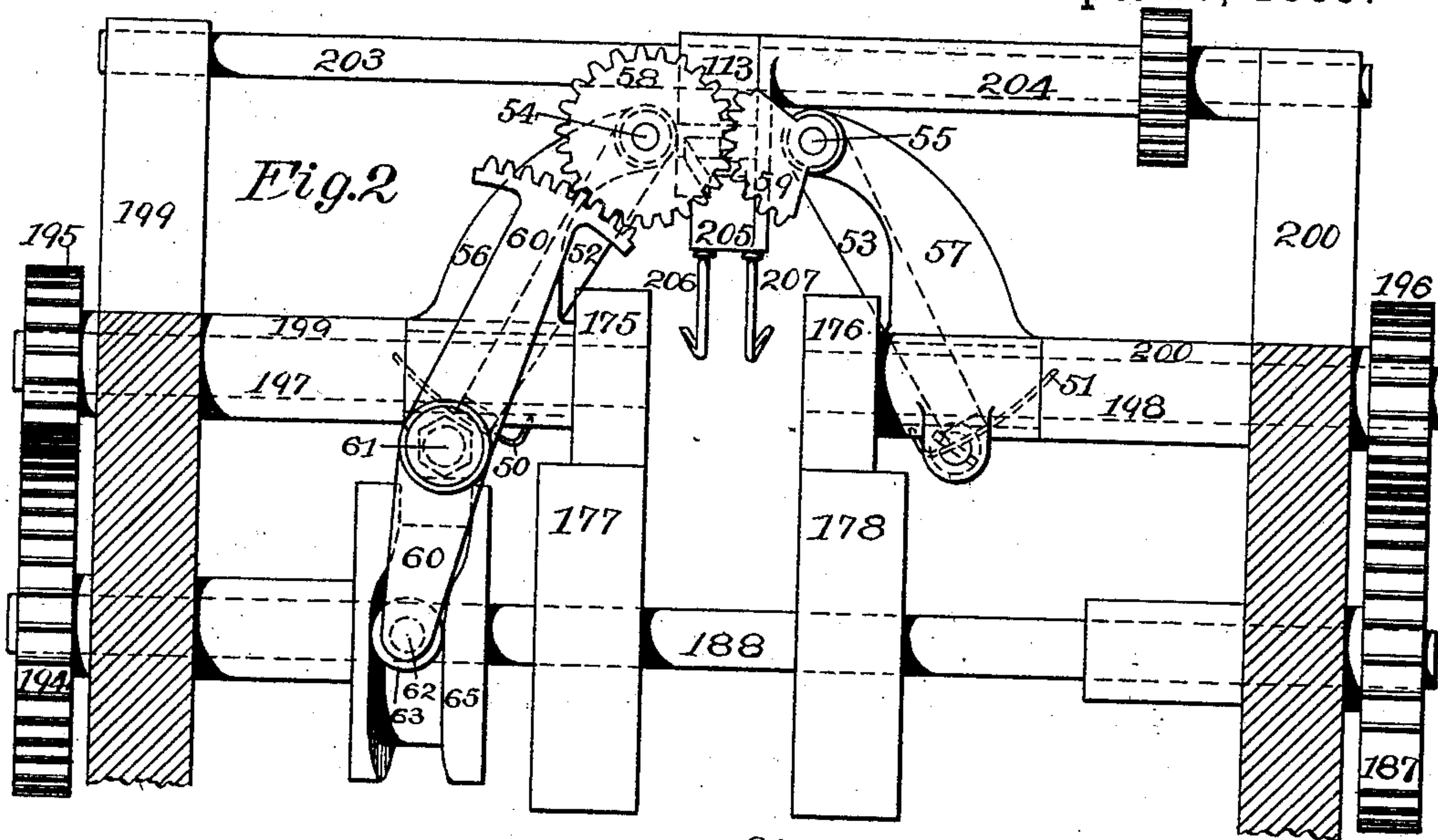
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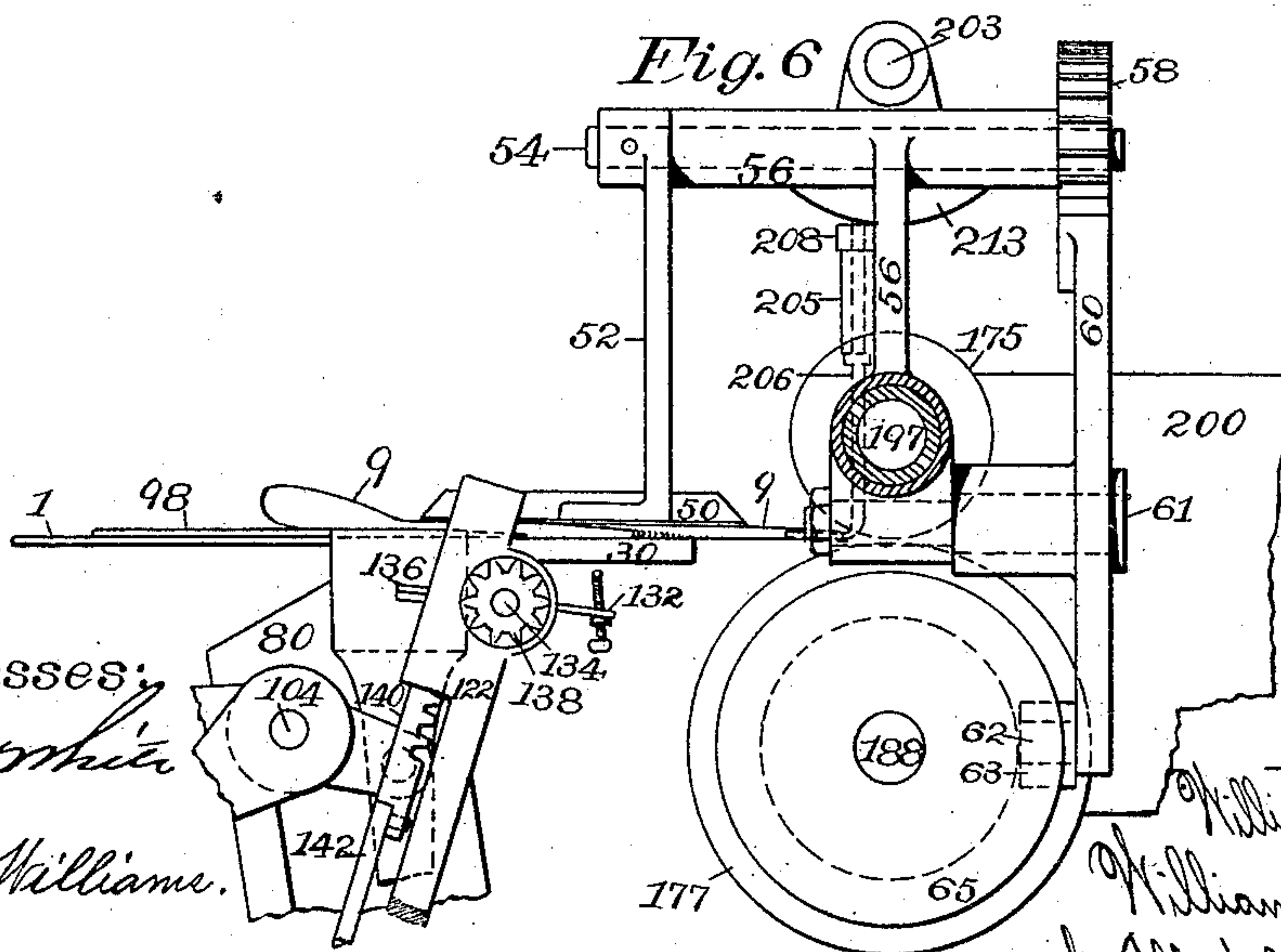
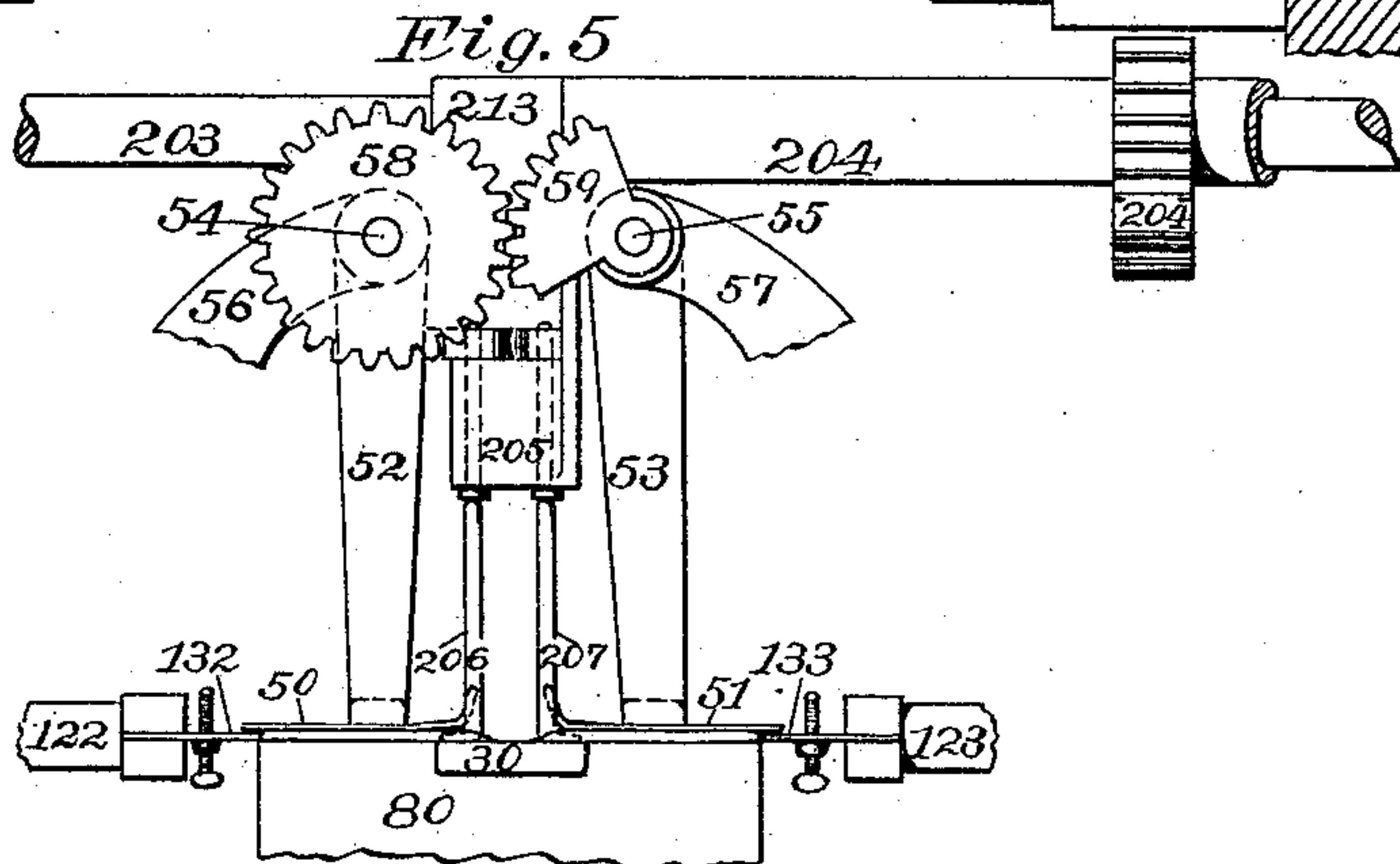
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4 Sheets—Sheet 3.

No. 410,842.

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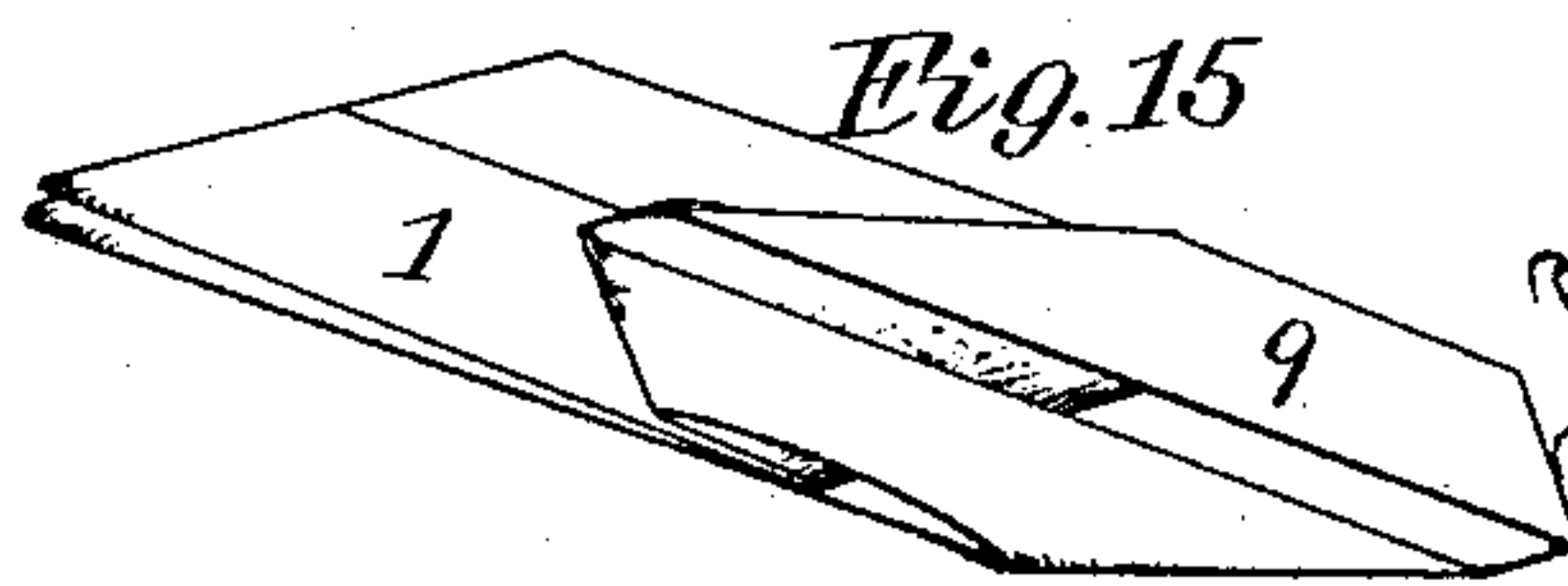
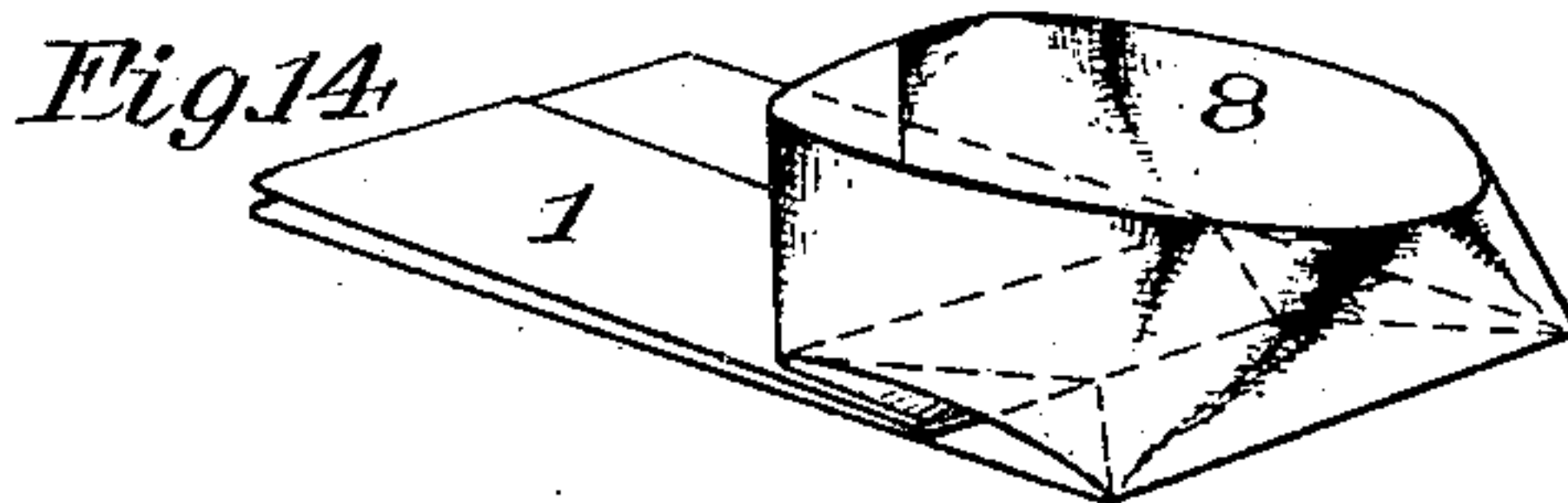
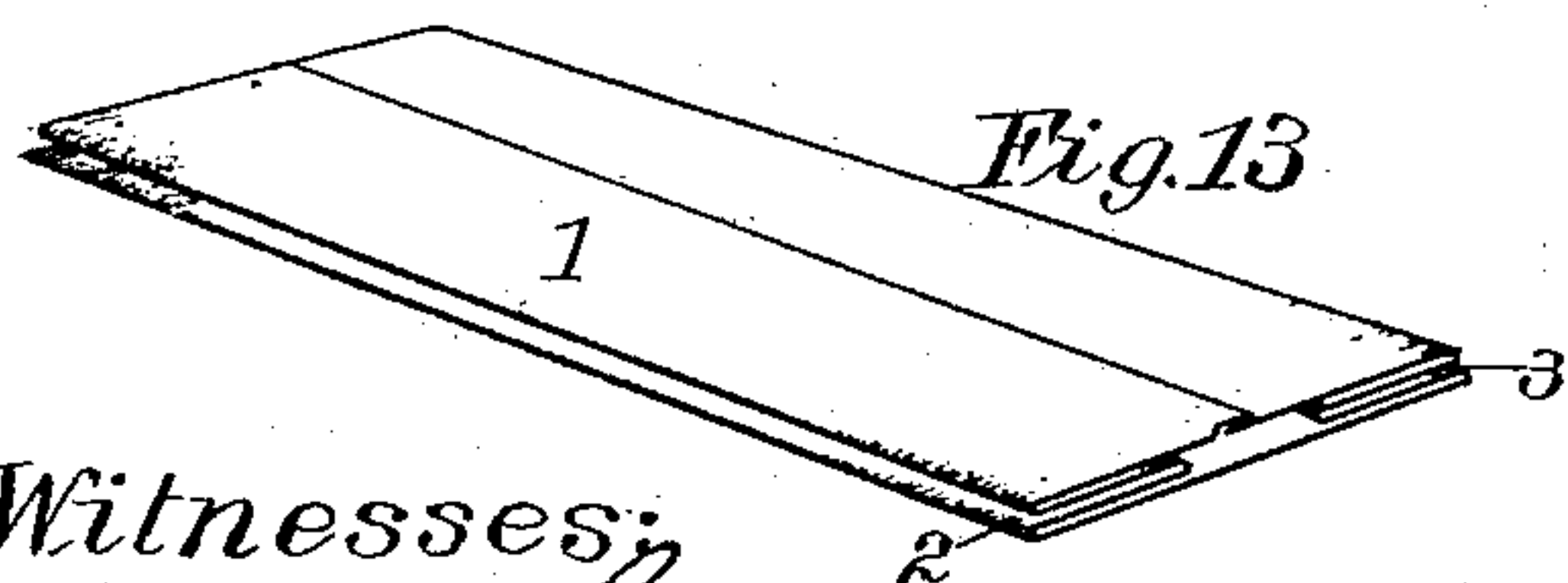
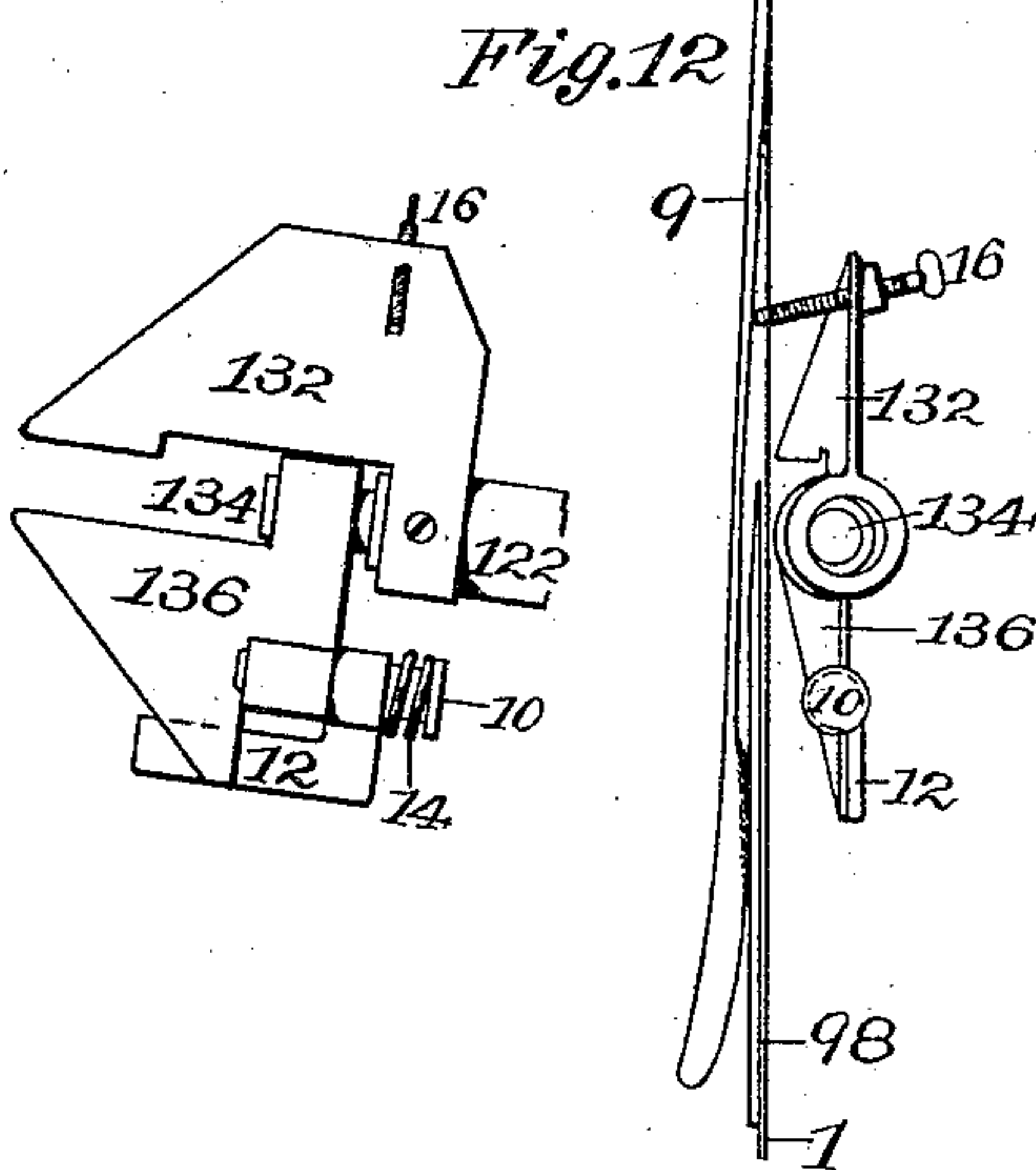
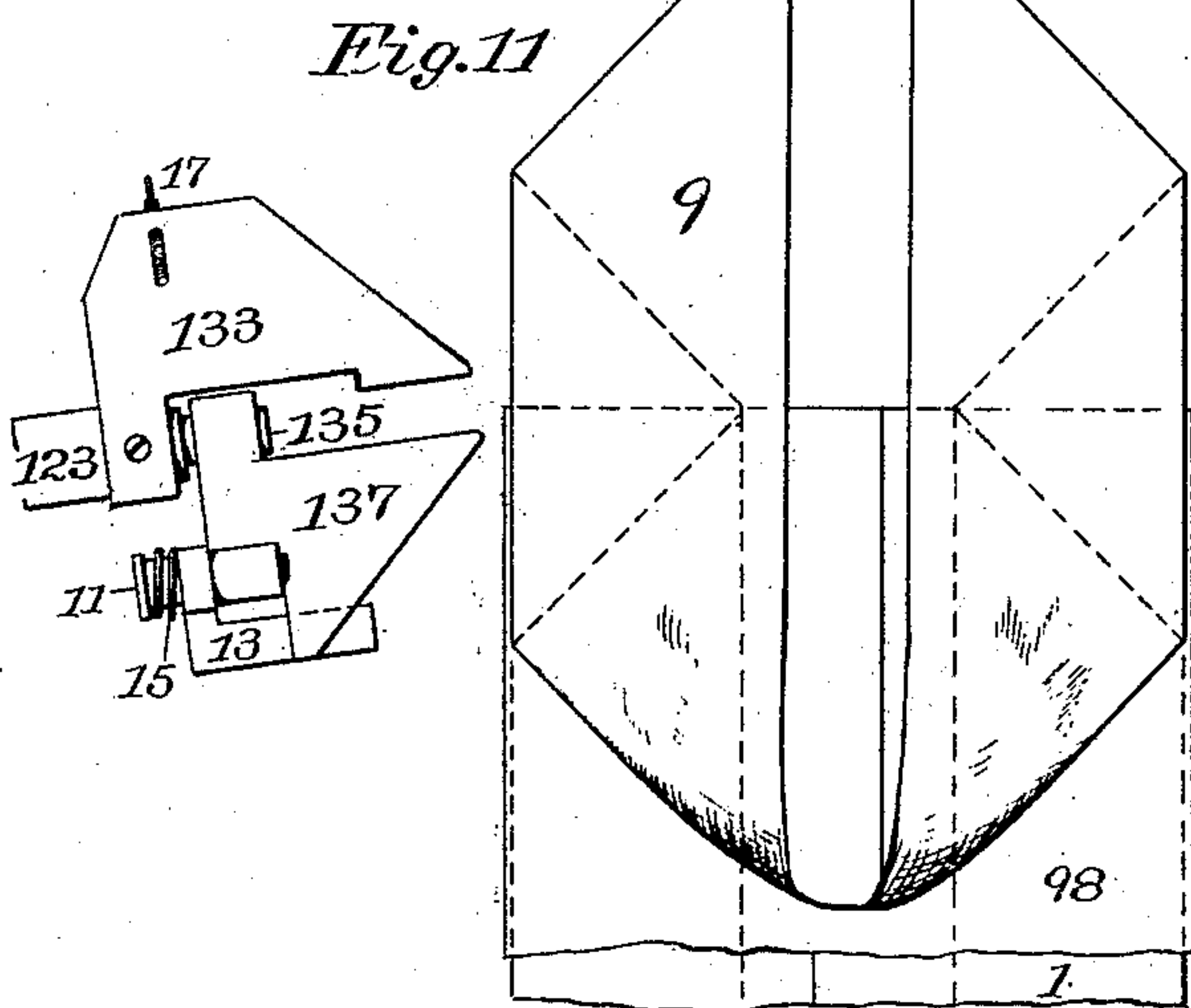
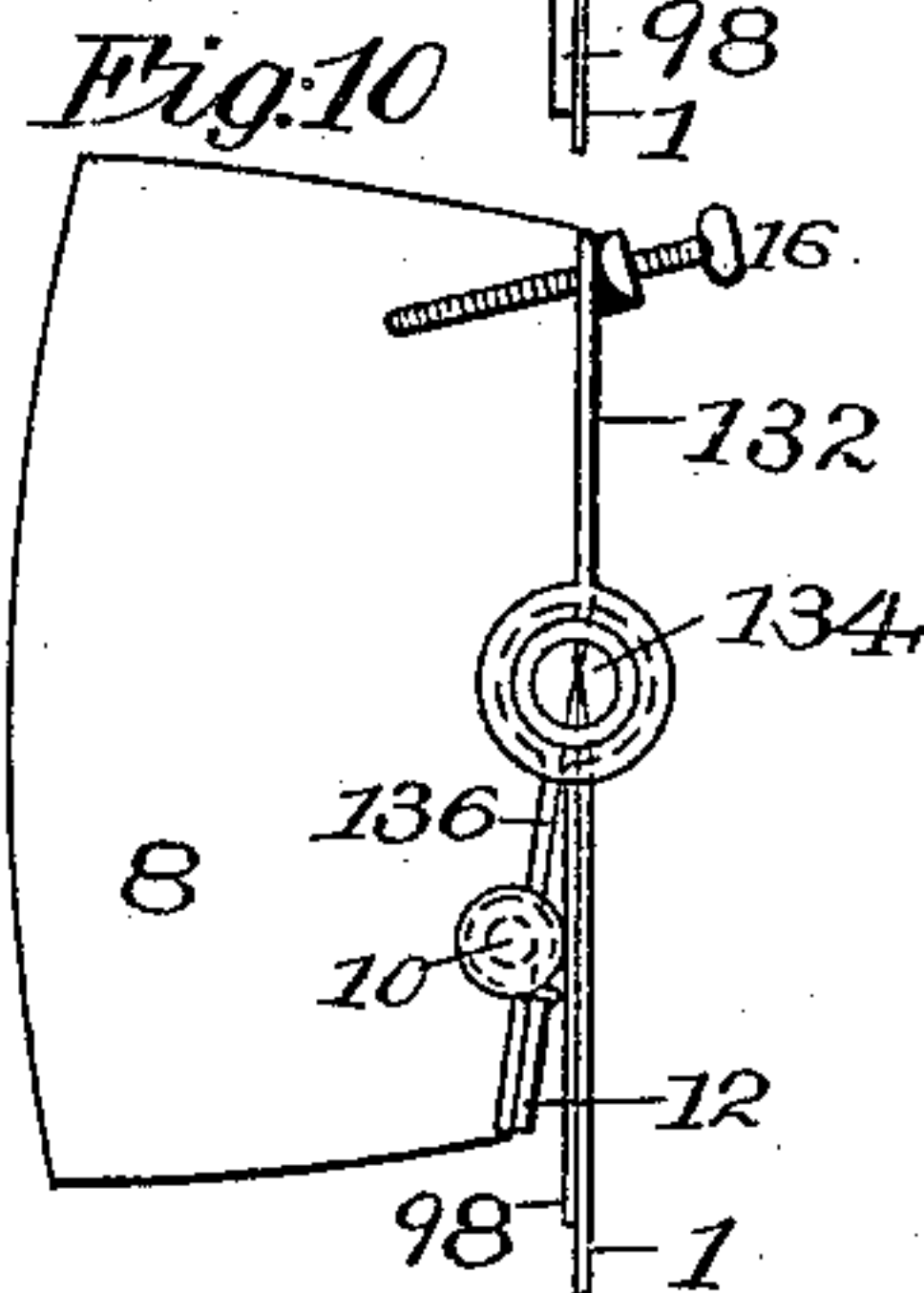
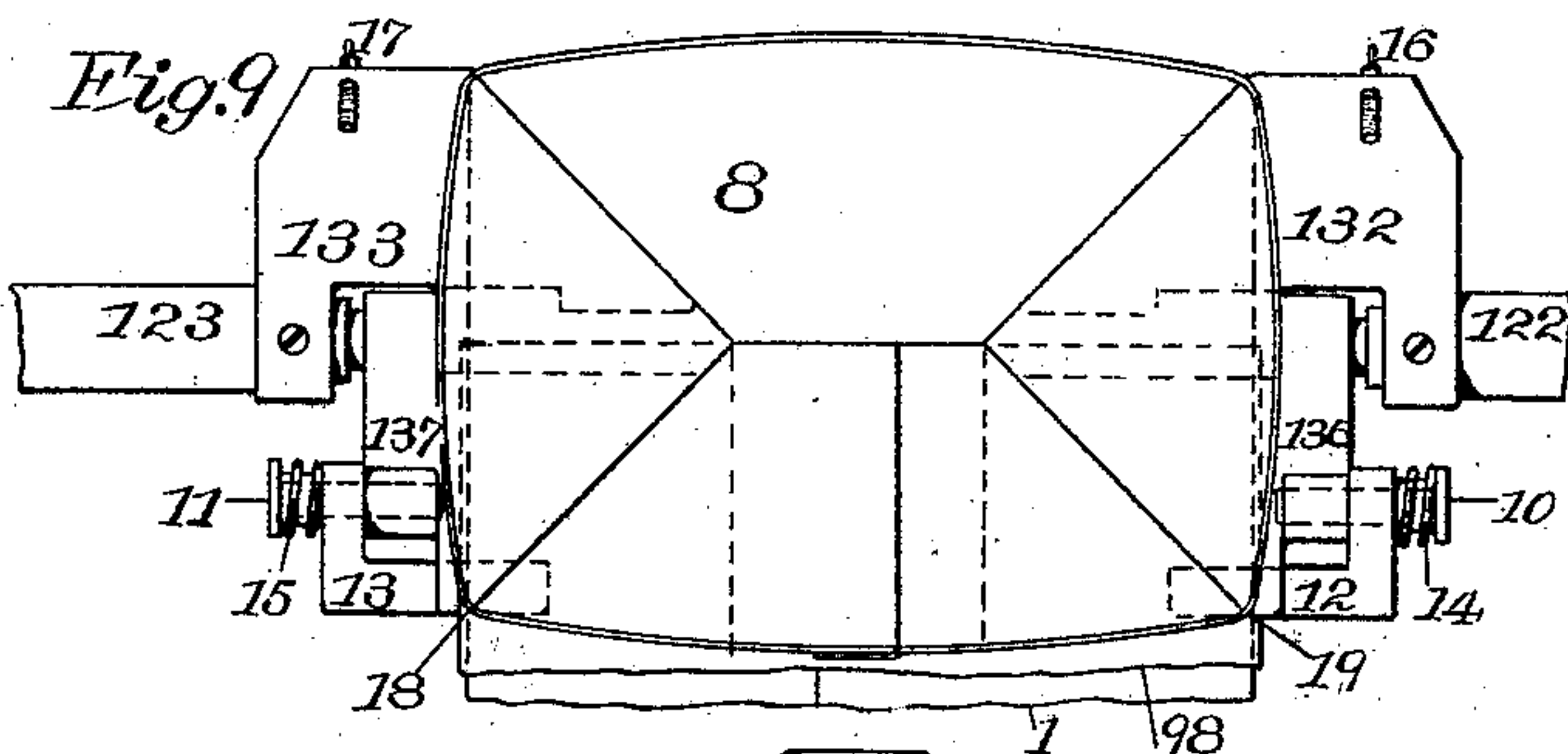
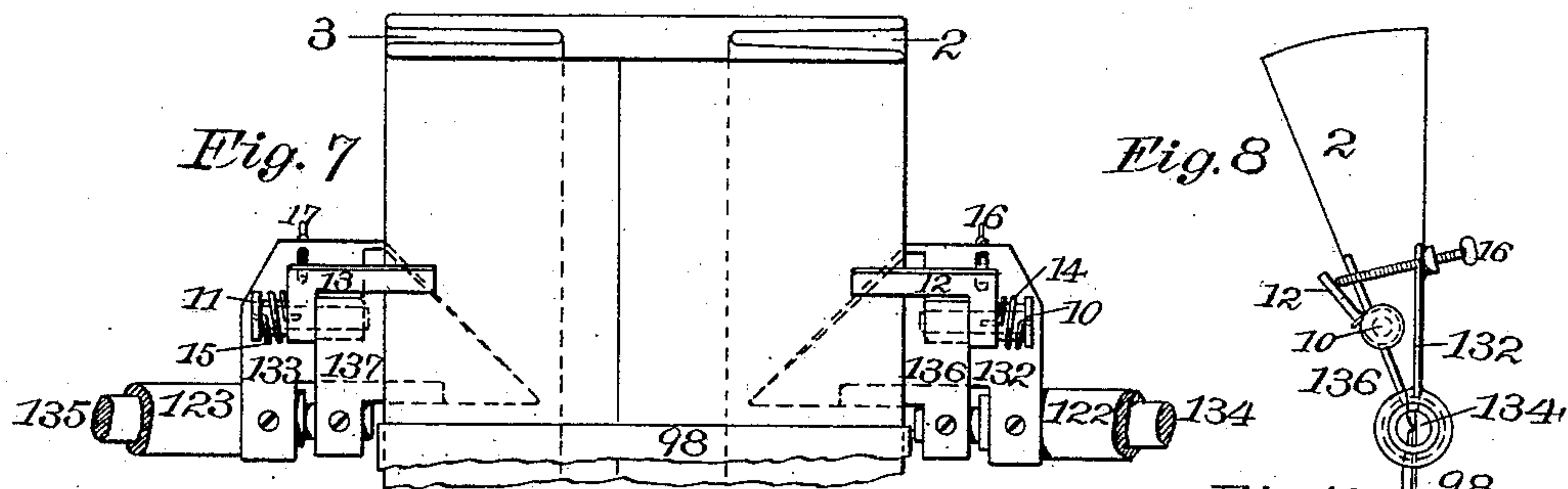
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4 Sheets—Sheet 4.

W. A. LORENZ & W. H. HONISS.
PAPER BAG MACHINE.

No. 410,842.

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PAPER-BAG MACHINE.

SPECIFICATION forming part of Letters Patent No. 410,842, dated September 10, 1889.

Application filed January 18, 1889. Serial No. 296,734. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. LORENZ and WILLIAM H. HONISS, of Hartford, Connecticut, have jointly invented certain new and useful Improvements in Paper-Bag Machines, of which the following description and claims constitute the specification, and which is illustrated by the accompanying four sheets of drawings.

These improvements consist of certain gripping devices attached to the box-blades of such a paper-bag machine as that shown in our Letters Patent, No. 361,951, of April 26, 1887; and it consists, also, in certain mechanism for folding the "box-like" form of the bag-blank down into the "diamond" form thereof.

Figure 1 of the present drawings is a side view of that part of the paper-bag machine which contains the present improvements. Fig. 2 is a view of the right-hand end of the upper part of what is shown in Fig. 1. Fig. 3 is a plan view of what is shown in Fig. 1. Fig. 4 is a view of parts of what is indicated in Fig. 2, with other parts broken away. Fig. 5 is a view of parts of what is shown in Fig. 4 in another stage of movement. Fig. 6 is a view of parts of Fig. 1, in a changed position, however. Figs. 7 and 8 are enlarged plan and side views of the new gripping devices and of the parts with which they are immediately connected. Figs. 9 and 10 present another stage of movement of what is shown in Figs. 7 and 8. Figs. 11 and 12 present still another stage of movement of the same parts. Fig. 13 is a perspective view of a length of tucked paper tube. Fig. 14 shows the tucked paper tube of Fig. 13 with one end opened out into the box-like form. Fig. 15 shows the blank of Fig. 14 with the box-like form folded down and into the diamond form.

To promote clearness many of the teeth are omitted from the gears 38, 39, 41, 43, 187, and 196, wherever in the drawings those gears appear in side view.

The numeral 1 indicates a bag-blank severed from a continuous tucked paper tube, and having two inwardly-projecting tucks 2 and 3.

The numeral 8 indicates the box-like form and the numeral 9 indicates the diamond form, through both of which forms the blank 1 passes in the process of being made into a paper bag.

In this machine, the blank 1 is delivered to a traveling folding-bed and there transformed first into the box-like form, and then into the diamond form, and is then delivered to a pair of gripping-rolls that pass it on to other folding mechanisms, which are shown in said Letters Patent No. 361,951, but are not shown in the present specification. The traveling folding-bed is made in the form of the rocking carriage 80, oscillated by a crank and connecting-rod, and it has attached thereto a presser-plate mechanism, and a tuck-entering mechanism, and a box-blade-turning mechanism. These mechanisms are identical with those shown and described in said Letters Patent No. 361,951, and their various parts are numbered in the drawings of this specification to correspond with their numbers in the drawings of those Letters Patent.

The new gripping devices are pivoted upon the studs 10 and 11, which are fixed to the box-blades 136 and 137, and those devices are themselves numbered 12 and 13, and they are held in contact with their respective box-blades 136 and 137 by the springs 14 and 15, except when they collide with the adjustable studs 16 and 17, respectively, in which case they are forced away from contact with their respective box-blades. When the tuck-levers 122 and 123 move inward, as described in said Letters Patent No. 361,951, the box-blades 136 and 137 are folded over upon the tuck-blades 132 and 133, as shown in that patent; but the new grippers 12 and 13 are forced by the adjustable studs 16 and 17 to turn upward away from the box-blades 136 and 137, and are thus caused to pass above the upper ply of the blank, as shown in Figs. 3, 7, and 8 of the present drawings. The box-blades 136 and 137 then turn over to the positions shown in Figs. 9 and 10, thus folding the blank of Fig. 13 into the box-like form of Fig. 14; and during this turning the grippers 12 and 13 are carried out of contact with the studs 16 and

17, and are forced by the springs 14 and 15 to close down upon the parts of the blank which lie between them and the box-blades 136 and 137, respectively. The function of the grippers 12 and 13 consists in preventing the blank from slipping along the diagonal edges of the box-blades 136 and 137 during their folding operation. After the blank has been folded into the box-like form of Fig. 14 it is drawn down toward the diamond form of Fig. 15 by the sweeper-shafts 206 and 207, whose feet 206' and 207' enter the box 8 and draw the forward wall thereof down, so as to constitute the forward end of the diamond form 9, and then draw that forward end into the bite of the gripping-rolls 175, 176, 177, and 178, in the manner described in the said Letters Patent No. 361,951.

The new side plates 50 and 51 are attached by means of the arms 52 and 53 to the shafts 54 and 55, respectively, which shafts oscillate in brackets 56 and 57, respectively, and which brackets are respectively supported by the main brackets 199 and 200. The gear 58 and the sector 59 are fixed to the shafts 54 and 55, respectively, and mesh together, while the gear 58 also meshes with the sector-lever 60, the fulcrum of which lever is the stud 61 on the bracket 56, and the power end of which lever is provided with the stud 62 and the roll 63, running in the cam-groove 64 of the cam 65. That cam derives motion from the shaft 188, and that motion is so timed that the side plates 50 and 51 are open, as shown in Figs. 1, 2, 3, and 4, until the blank

is folded into the box-like form, when the side plates are swung together, as shown in Figs. 5 and 6, and thus co-operate with the sweeper-shafts 206 and 207 in folding the box-like form into the diamond form.

We claim as our joint invention—

1. The combination of the tuck-blades 132 and 133, the studs 16 and 17, the box-blades 136 and 137, provided with the studs 10 and 11, respectively, and the grippers 12 and 13, provided with the springs 14 and 15, respectively, all combined and operating together substantially as described.

2. The combination of the swinging side plates 50 and 51, attached by means of the arms 52 and 53 to the shafts 54 and 55, respectively, the gear 58, and the sector 59, respectively fixed to the shafts 54 and 55, the sector-lever 60, meshing with the gear 58, and the cam 65, working that lever, all substantially as described.

3. The combination of the side plates 50 and 51, reciprocating toward and from each other crosswise of the bag-blank, with the two sweeper-shafts 206 and 207, reciprocating side by side lengthwise of the bag-blank, all substantially as described.

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