

No. 621,220.

Patented Mar. 14, 1899.

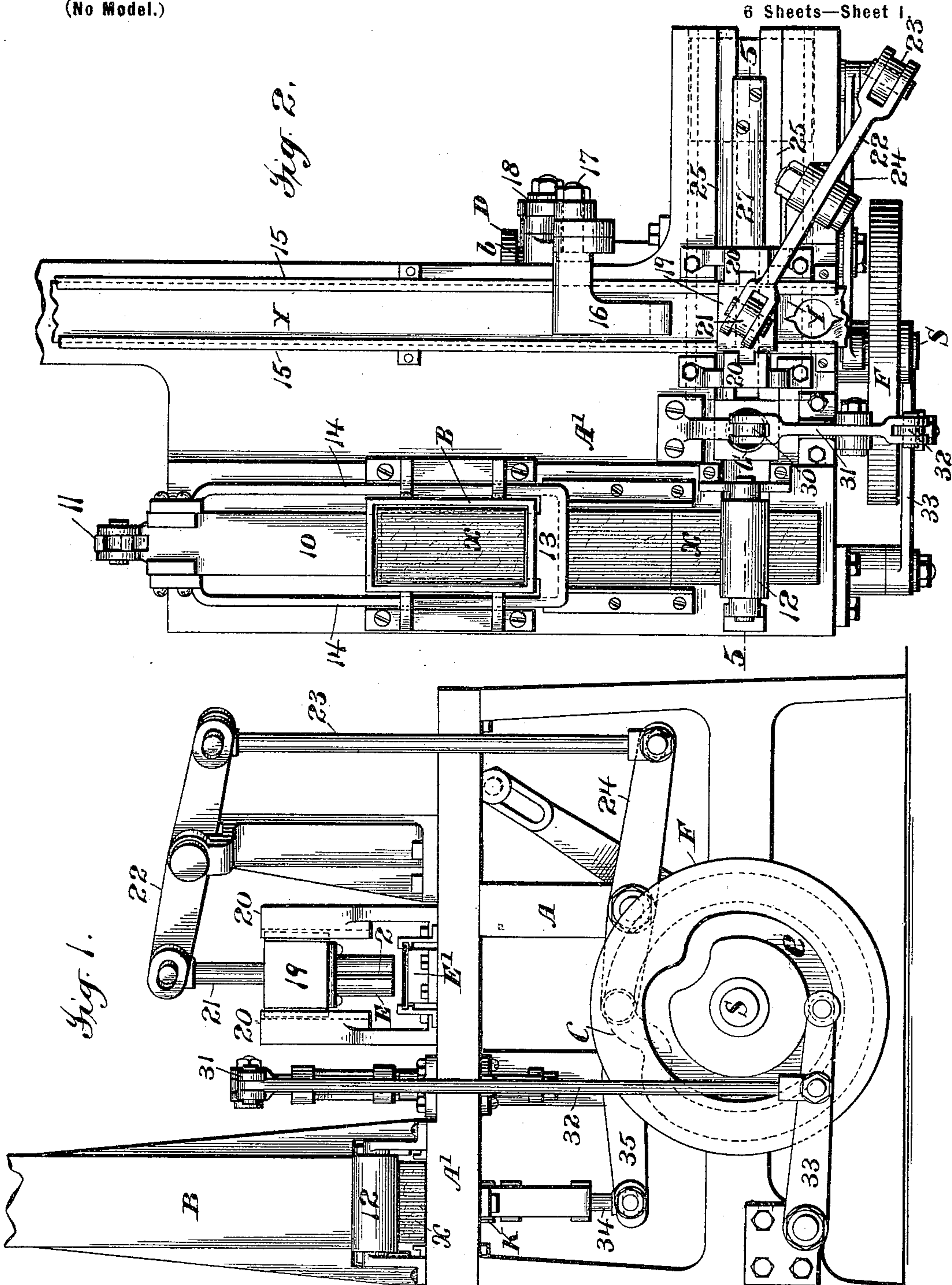
W. H. BUTLER.

MACHINE FOR ATTACHING METAL TAGS TO PLUG TOBACCO OR THE LIKE.

(Application filed Feb. 8, 1897.)

(No Model.)

6 Sheets—Sheet 1



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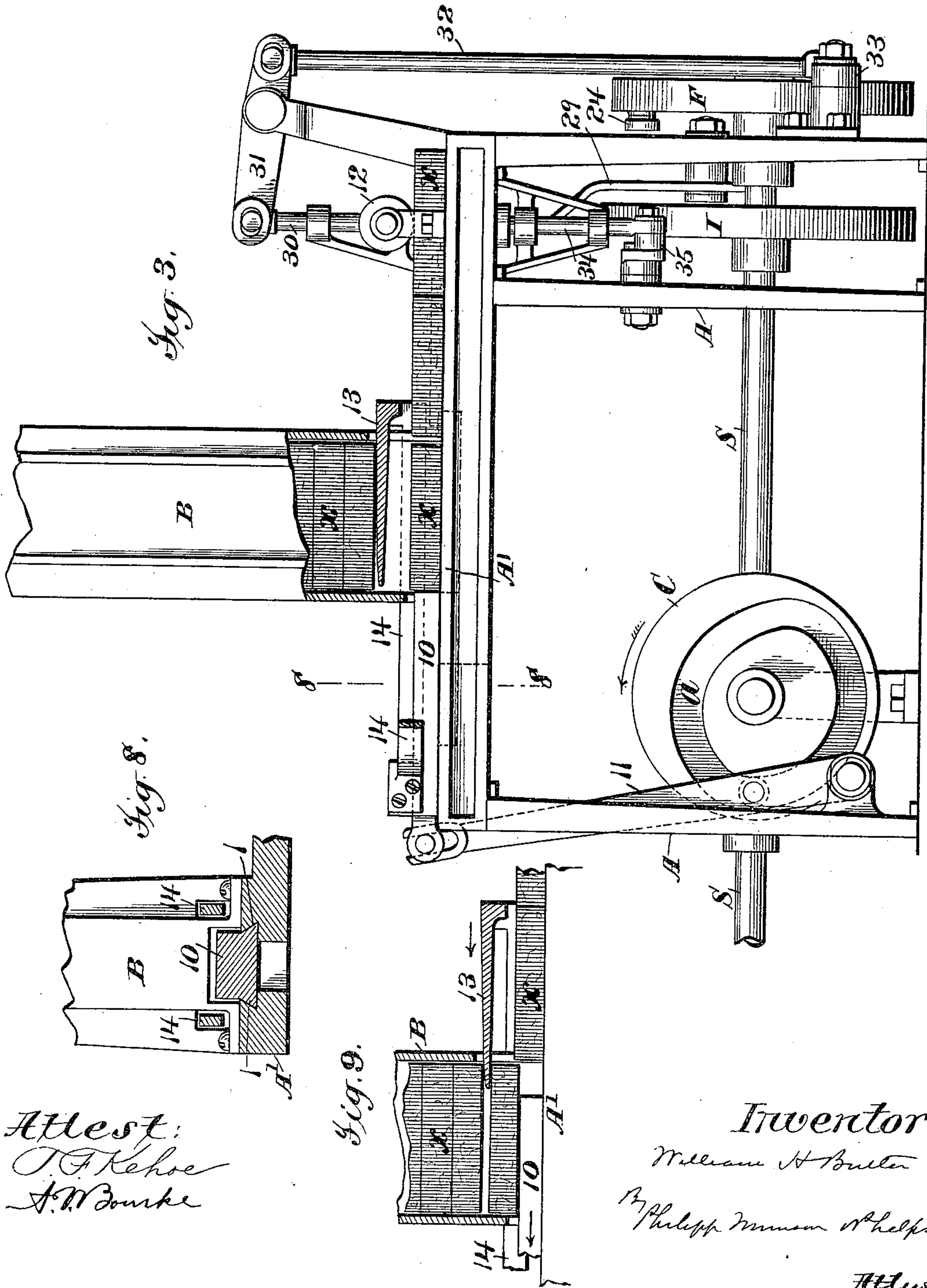
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8 Sheets—Sheet 2.



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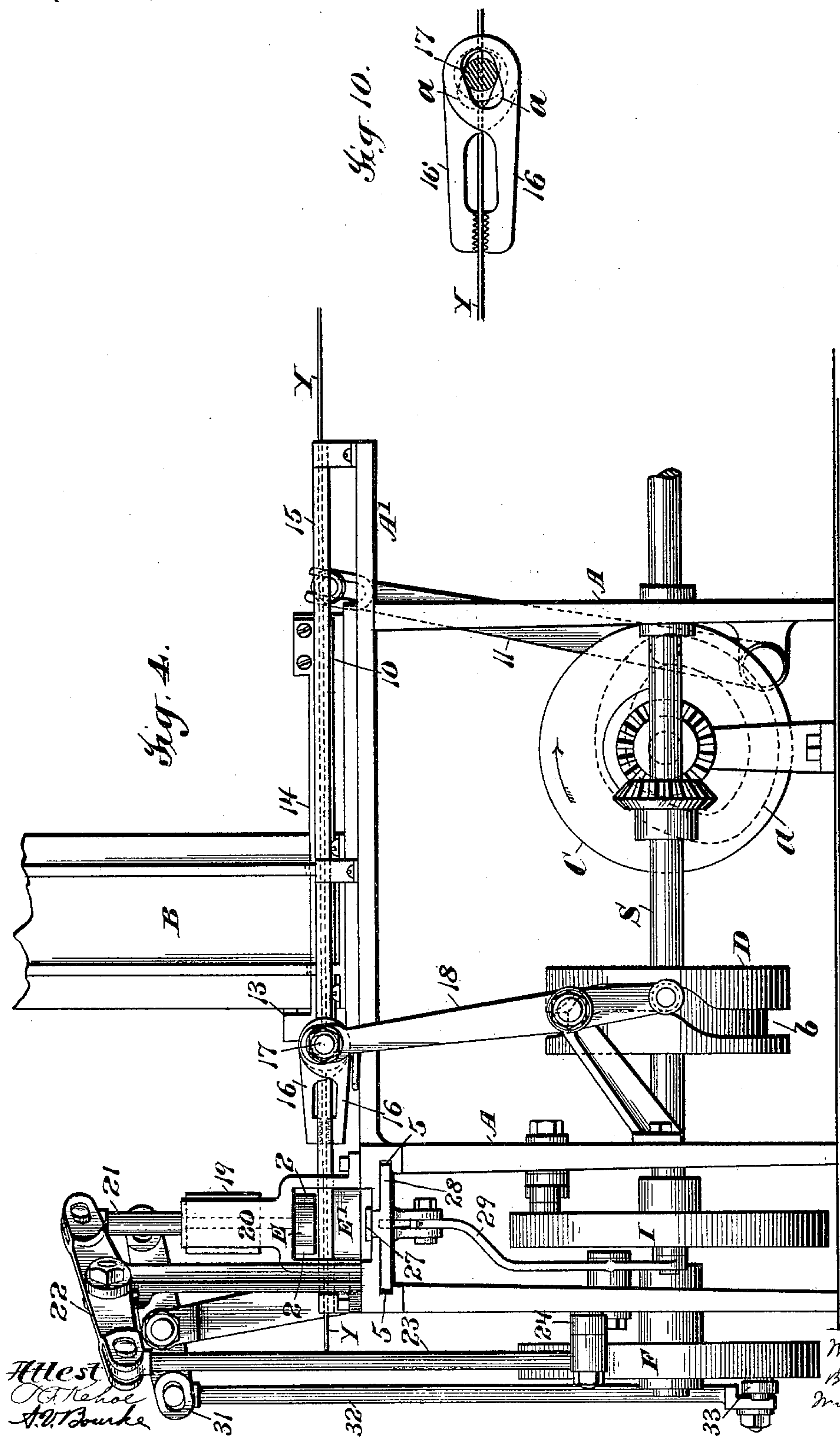
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6 Sheets—Sheet 3.



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6 Sheets—Sheet 4.

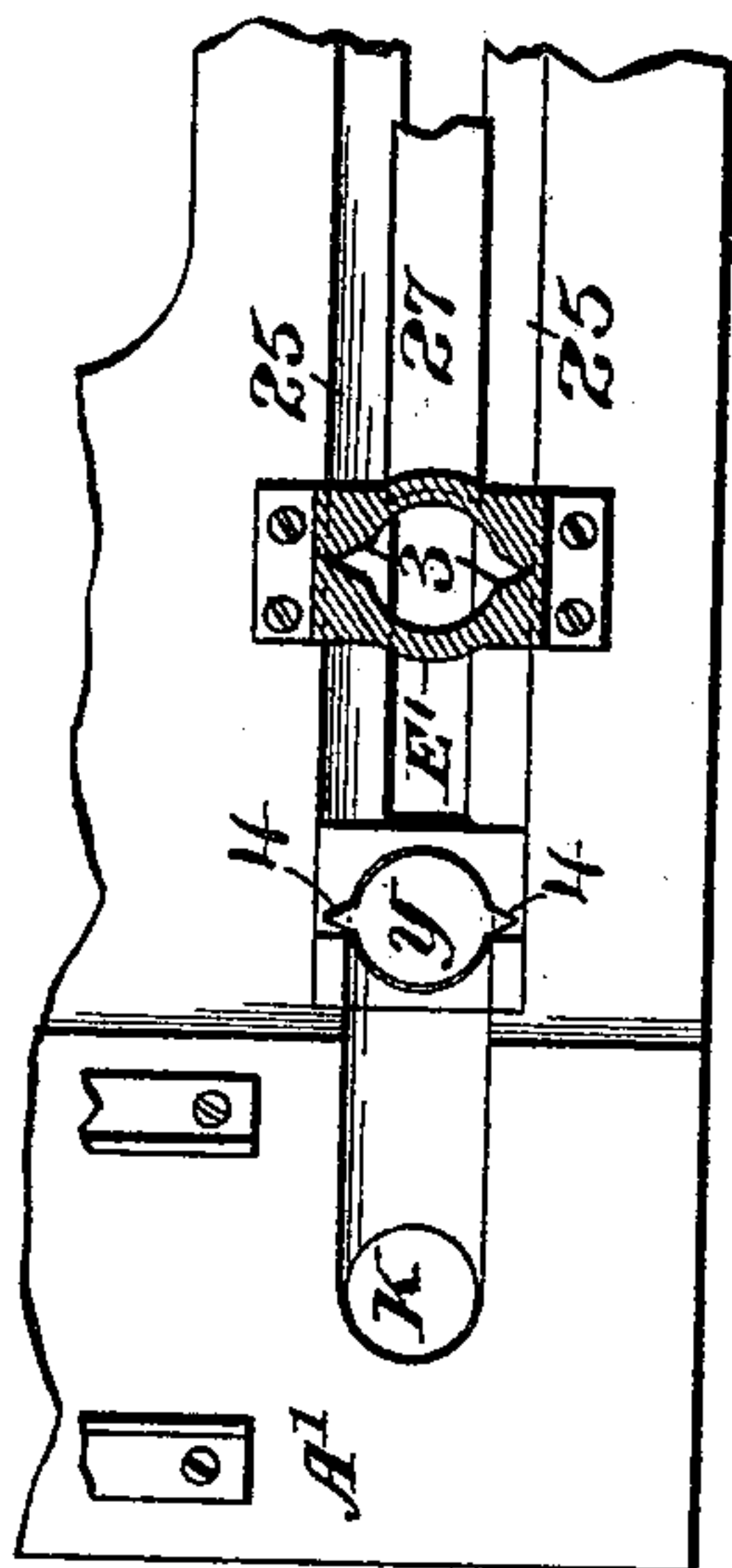
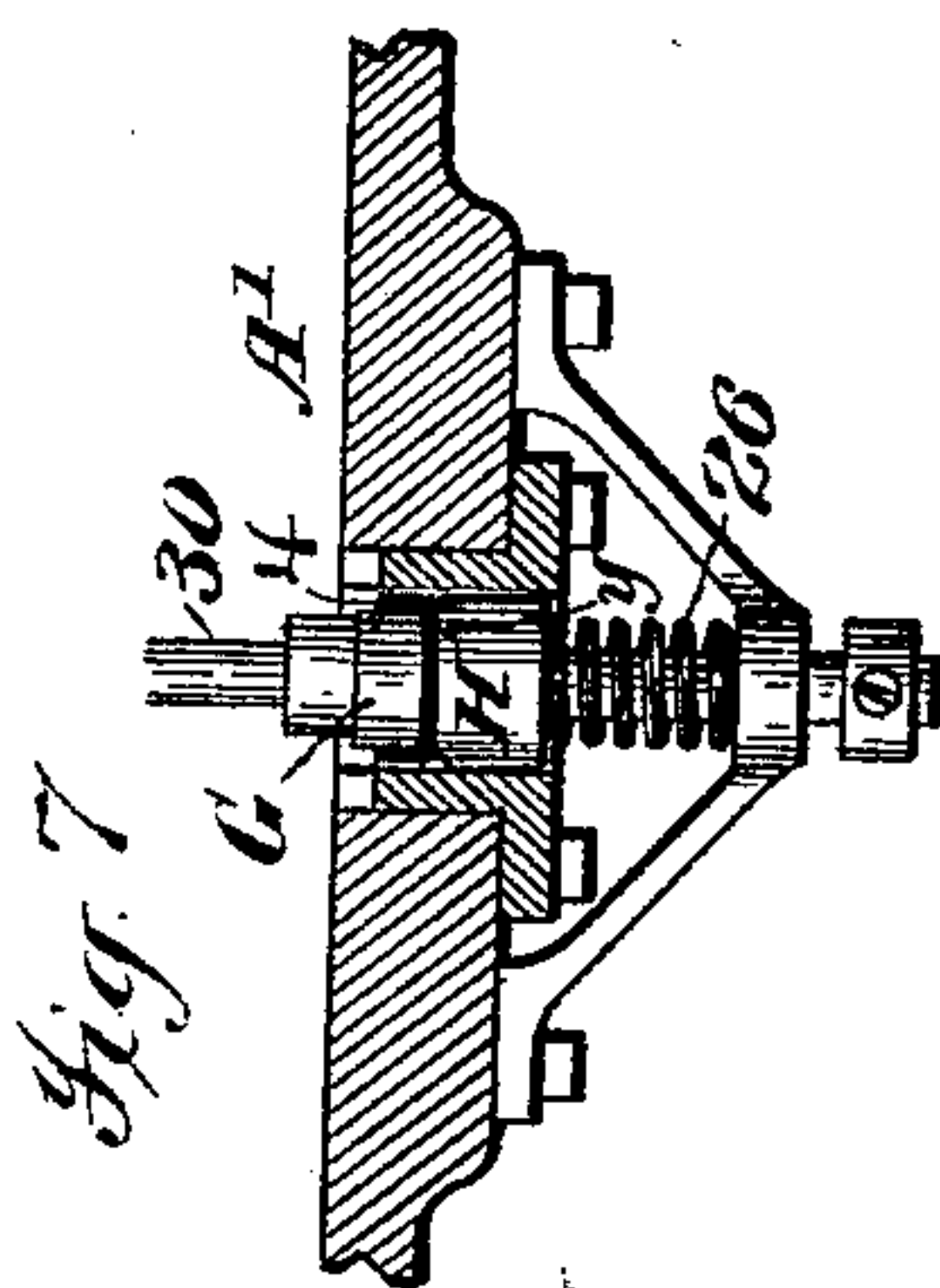


Fig. 6.



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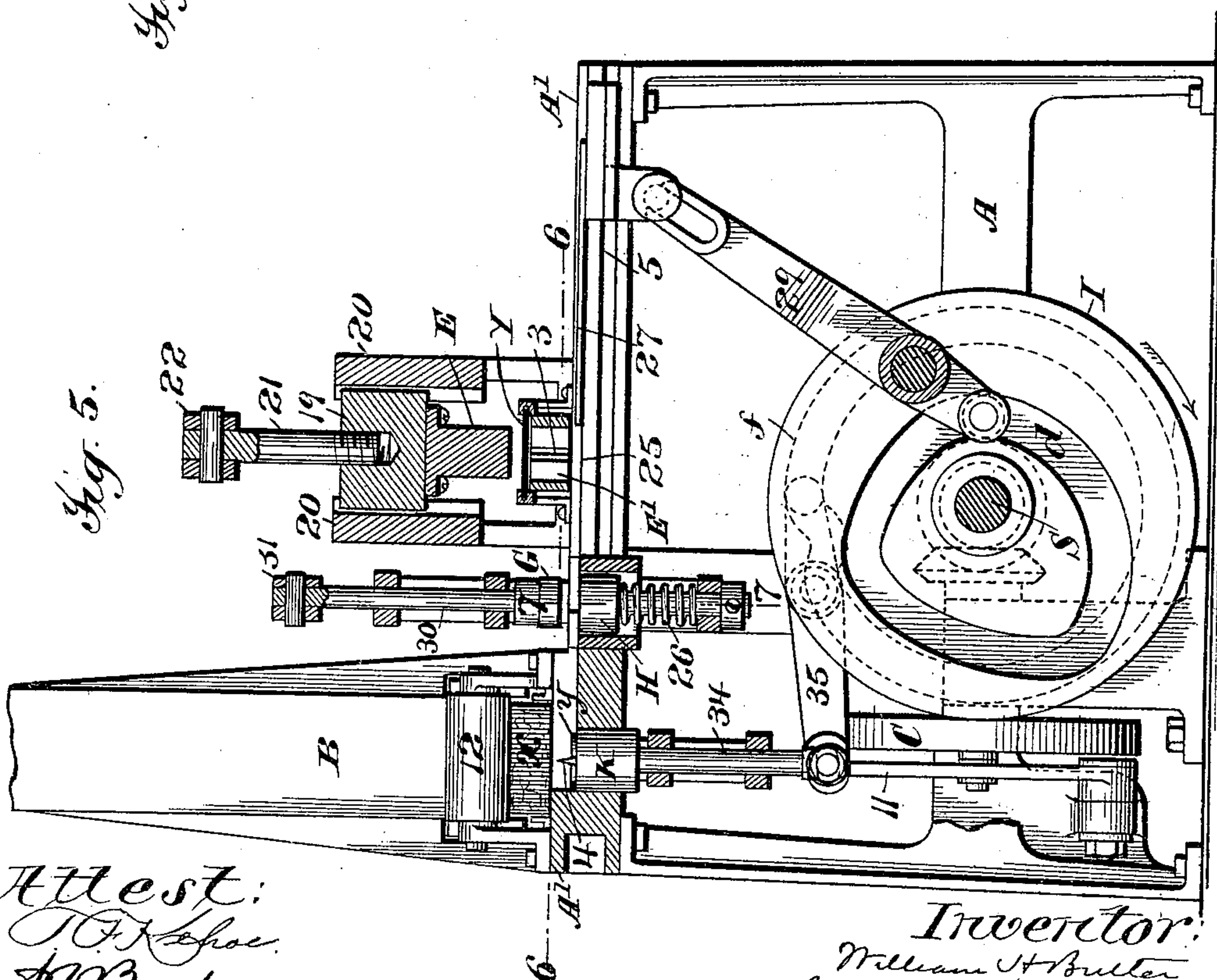


Fig. 5.

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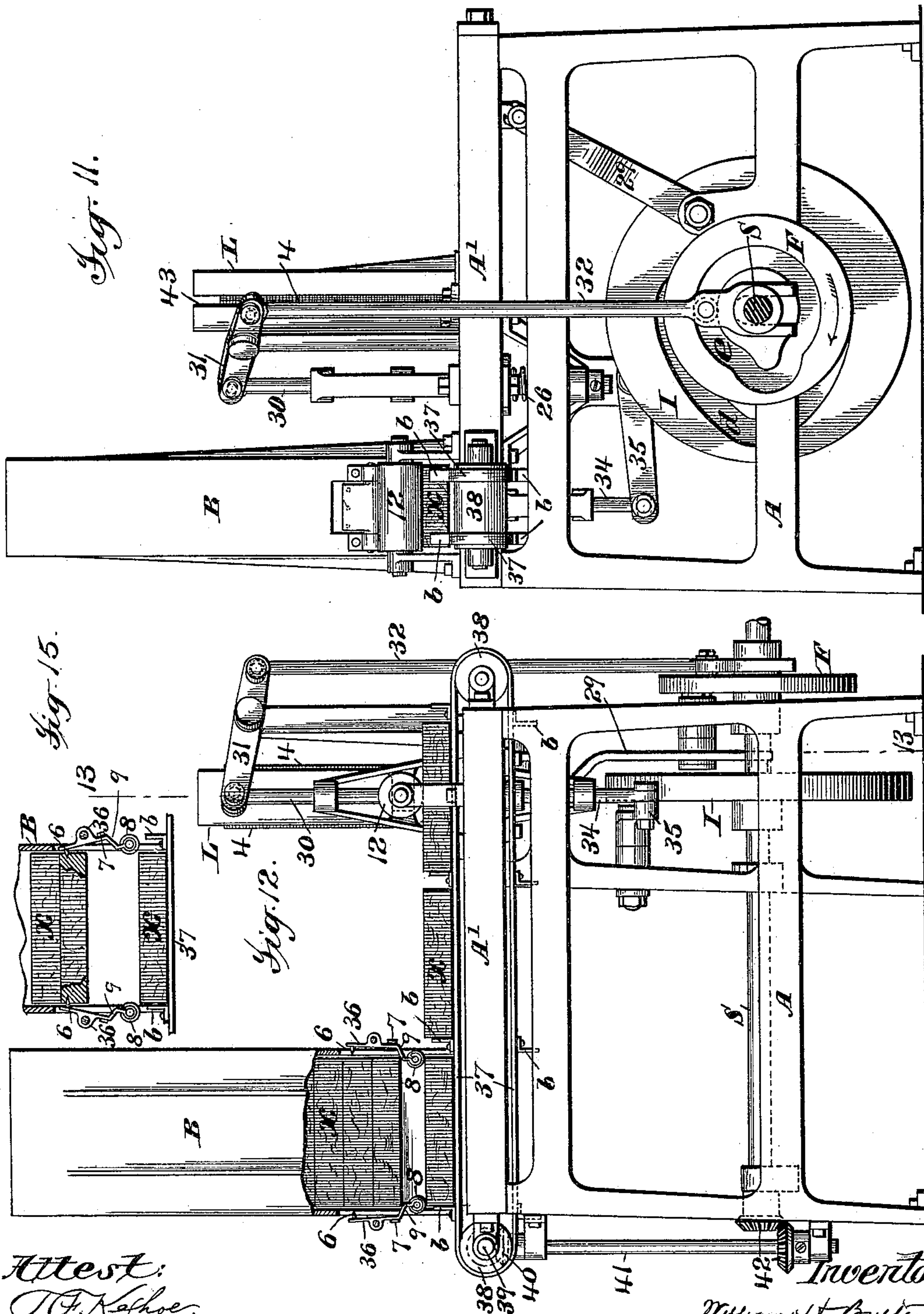
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(No Model.)

6 Sheets—Sheet 5.



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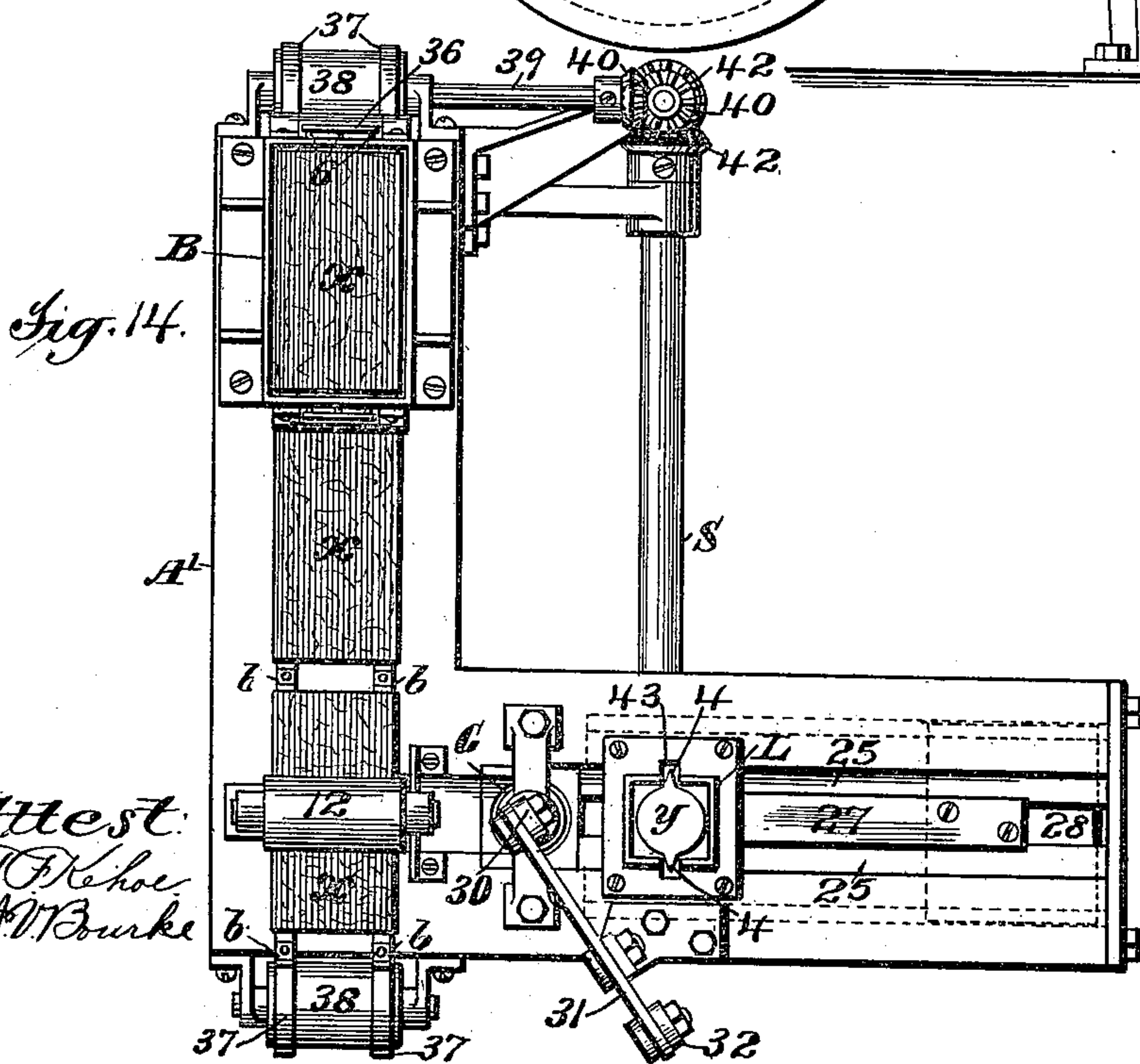
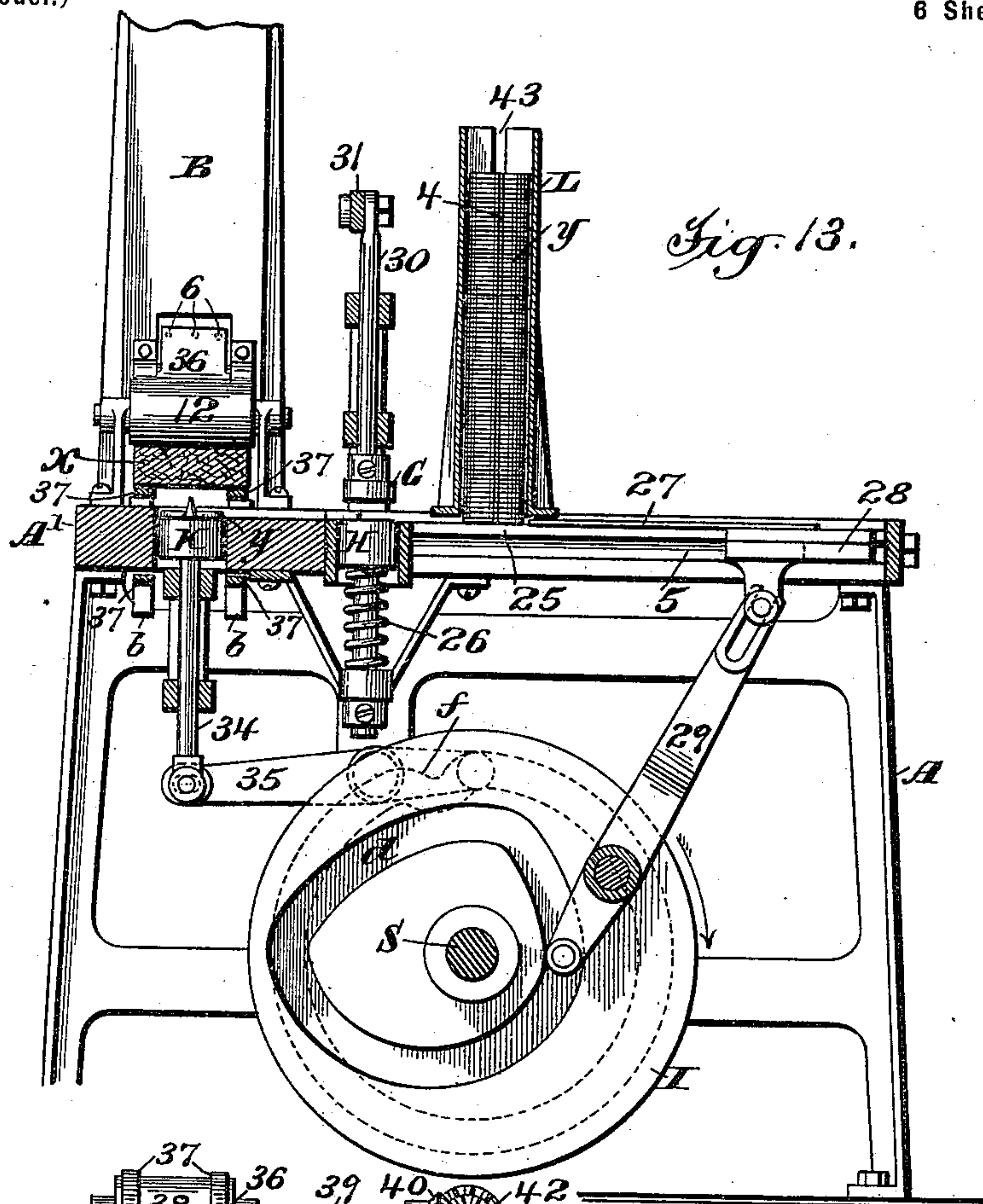
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(No Model.)

6 Sheets—Sheet 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BUTLER, OF HARRISON, NEW YORK.

MACHINE FOR ATTACHING METAL TAGS TO PLUG-TOBACCO OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 621,220, dated March 14, 1899.

Application filed February 8, 1897. Serial No. 622,447. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BUTLER, a citizen of the United States, residing at Harrison, county of Westchester, and State of New York, have invented certain new and useful Improvements in Machines for Attaching Metal Tags to Plug-Tobacco or the Like, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

In the preparation of plug-tobacco for the market it has become usual to affix to each plug a small tag of thin sheet metal by forcing into the plug pointed projections or prongs on the tag. The present invention has been made in connection with devising a machine for attaching tags to tobacco in this manner, the object being to provide a simple and efficient machine for doing this work; and the invention will be illustrated and described as applied to machines of this specific class, although many of the features of the invention are applicable also in attaching tags of other form and to other articles than plugs of tobacco.

For a full understanding of the invention a detailed description of a machine embodying all the features of the same in the preferred form as applied to a machine for affixing tags to plug-tobacco and a modified form of machine of the same class will now be given, in connection with the accompanying drawings, forming a part of this specification, and the features forming the invention will then be specifically pointed out in the claims.

In the drawings, Figure 1 is an end elevation of the preferred form of a machine which both makes and attaches the tags. Fig. 2 is a plan view of the same. Fig. 3 is a side elevation, looking to the right in Figs. 1 and 2, with the walls of the plug-holder partly broken away. Fig. 4 is a side view looking to the left in Figs. 1 and 2. Fig. 5 is a cross-section on the line 5 of Fig. 2. Fig. 6 is a section on line 6 of Fig. 5, but showing the tag beneath plunger G. Fig. 7 is a detail section on the line 7 of Fig. 5, showing the operation of bending the prongs. Fig. 8 is a detail section on the line 8 of Fig. 3. Fig. 9 is a detail view of the plug feeder and support similar to Fig. 3, but showing the parts in a different position. Fig. 10 is a detail view of the tag-strip

feeder. Figs. 11 to 15 show another machine in which previously-formed tags are used. Fig. 11 is an end view looking to the left in Fig. 12. Fig. 12 is a side view of the machine, looking from the left in Fig. 11, with the plug-holder partly broken away. Fig. 13 is a vertical section on the line 13 of Fig. 12, looking to the left. Fig. 14 is a plan view of the machine; and Fig. 15 is a detail similar to Fig. 12, but showing the parts in a different position.

Referring now especially to the machine shown in Figs. 1 to 10, upon the top of the frame A, at one side, is mounted the holder B, in which are piled one upon the other the tobacco plugs x , to which the tags are to be attached. The holder B is open below, so that the bottom plug of the pile rests upon the table A' at the top of the frame A, and this bottom plug x is advanced from the holder B along the table toward the front or delivery end of the machine by a reciprocating plunger 10, moving in undercut groove-guides 1 in the table A' and actuated intermittently by a cam-lever 11, provided with a bowl running in a cam-groove a , formed in the face of a cam-disk C, mounted in the frame A. The throw of the plunger 10 by the cam C and lever 11 is substantially the length of a plug, so that the bottom plug is carried outside the holder by the feeding movement of the plunger, and the row of plugs thus advanced in line from the holder beneath a roller 12, which holds the plugs against the pressure of the tag-attaching plunger while the tags are being set, as fully described hereinafter, and the plugs, with attached tags, delivered at the end of the machine.

In feeding the plugs it is important that the weight of the pile of plugs should not be supported by the bottom plug while the latter is being advanced, and I have shown a support acting to hold the pile of plugs above the bottom plug while the latter is being fed out, this support in the form shown in the figures now being described acting to raise all the plugs except the bottom one on the return of the feeding-plunger 10 after each successive feeding operation. This support 13 in the form shown consists of a bar having its end beveled and carried by arms 14 on opposite sides of the holder B and connected

to the plunger 10, so as to move with the latter, but at the opposite side of the holder B, so that as the plunger is advanced for feeding the bottom plug from the holder the support moves out of the holder and permits the pile of plugs to fall from the position shown in Fig. 3, so that the bottom plug rests upon the plunger 10, and on the return of the plunger for another feeding operation the beveled end of the support 13 enters between the bottom and second plugs and raises the latter, with the pile of plugs above it, off the bottom plug, as shown in Fig. 9, the plunger then withdrawing from the bottom plug in its farther movement to the left from the position shown in Fig. 9, and on its full withdrawal the bottom plug is released and falls down onto the table A' into the position shown in Fig. 3, and is ready to be fed out by the plunger, while the pile of plugs above it is supported by the support 13.

On the opposite side of the machine from the plug-holder B are guides 15, extending parallel with the movement of the plunger 10 and raised somewhat upon the level of table A', in which guides moves the strip Y, from which the tags γ are formed. This strip Y is fed forward intermittently the distance required to provide the material for the formation of a tag by means of pivoted grippers 16, arranged to grip the strip as they move forward, but to slip upon the strip on their return movement, these grippers being carried by a stud 17, mounted on a cam-lever 18, provided with a bowl which runs in a cam-groove b , formed in the rim of a cam-disk D, mounted on the main shaft S of the machine, the throw of the feeding-grippers 16 through the cam-disk D and cam-lever 18 being that required at each feed of the strip Y. The action of the grippers in seizing the strip on their feeding movement and releasing it on their return movement is secured in the construction shown by providing the body of each gripper with an inclined slot a , these slots crossing each other and receiving the stud 17, the grippers thus being carried forward and rearward by the stud, while the movement of the latter in one direction by acting upon the inclined walls of the slots a in front of the stud forces the grippers together to seize the strip Y, while the movement of the stud in the opposite direction by acting upon the walls behind the stud tends to force the grippers apart and release the strip. It will be understood that any other suitable strip-feeding mechanism, such as rotating or oscillating feeding rolls or segments, may be used.

The portion of the strip Y from which the tag is to be formed is advanced by the feeding mechanism just described beneath a punch E, mounted above the path of movement of the strip and coacting with a die E' below the strip. The punch E is carried by a head 19, moving vertically in grooved guides formed in standards 20 on the table A', and this punch is actuated through bar 21, secured

to the punch-head, lever 22, connecting-rod 23, and cam-lever 24, this cam-lever carrying a bowl, which runs in a cam-groove c , formed on the inner side of a cam-disk F, carried by the main driving-shaft S, the throw of the punch E by the cam-disk F and connections being such as to cut a tag from the strip Y and force it through the die E' onto a support 25, depressed slightly below the surface of the table A', so that the tag, when advanced to proper position for attachment to the plug, will lie below the latter.

In the construction shown the tags γ are circular and provided with two prongs, one at each side, by which they are attached to the tobacco plugs. The punch E and die E', therefore, are circular in form and the punch provided at opposite sides with triangular projections 2, which coact with similarly spaced and formed grooves 3 in the die E' to form these prongs. It will be understood, however, that the tags may be of oval or any other desired form and that a different number of attaching-prongs may be used, the punch and die being suitably varied in construction.

As formed by the punch E and die E' in the construction shown the tags are flat, and the next step is the turning up of the prongs 4 at right angles to the body of the tag, so that they may be driven into the plugs and the tags thus attached to the latter. For this purpose the tags with the prongs flat are advanced edgewise along the support 25 to and beneath a plunger G, which plunger forces the tags through a die formed in the table and made to fit the body of the tag closely, so that as the tags are thus forced through the die the prongs 4 are turned up. As they are pressed through the die the tags rest upon a spring-pressed support H, which yields to the pressure of the plunger G against the tension of spring 26, coiled on the stem of the support, and this support follows the plunger up on the return of the latter, so as to raise the tag again to the level of the support 25, with the prongs turned up and the tag thus fully formed. This enables a simple plunger to feed the tags both to and from the plunger G. If this is not desired, it will be understood that the spring-pressed support H need not be used, but the tags simply forced through the die by the plunger G onto a support at a lower level, from which they are advanced to the attaching-die.

In the construction shown the complete tag, with its prongs pointing upward, is advanced edgewise from the plunger G along the support 25 to a point just below the pressure-roll 12, previously described, where the next step in the operation of the machine—that is, the attachment of the tag to the plug—is performed. The tags are advanced from the die E to the plunger G and from the plunger G to the attaching position beneath the pressure-roll 12 by a feeding slide or plunger 27, moving upon the support 25 and

connected through a slot in the support to a slide 28, moving in side guides 5 in the table A' below the support 25 and actuated by a cam-lever 29, having a bowl running in a cam-groove *d*, formed in the outer face of cam-disk I, carried by the main shaft S, this cam being formed so as to give the slide 28 and feed-plunger 27 two advance movements and a full return to each rotation of the cam-disk I, the feed-plunger 27 thus being advanced to carry the tag beneath the plunger G, then resting while the prongs are turned up by the action of this plunger and the tag returned again to position at the level of support 25 by the spring-pressed support H, and the feeding-plunger 27 then being advanced farther to carry the tag into position below the pressure-roll 12 and beneath the plug and then returned to normal position for the advance of another tag from the die E'. The plunger G is actuated through its stem 30 by a lever 31 and connecting-rod 32 and lever 33, which carries a bowl running in a cam-groove *e* in the outer face of cam-disk F.

The means shown for forcing the prongs of the tags into the tobacco plugs and thus attaching the tags are as follows: When the tag, with its prongs 4 pointing upward, is advanced by the feeding-plunger 27 to the attaching position beneath the tobacco plug and roller 12, the tag rests upon the top of a vertically-moving plunger K, the upper surface of which is substantially level with and fills an opening in the support 25. This plunger K is raised at the proper time to press the tag against the plug of tobacco beneath the roller 12, by which the lifting pressure of the plunger K is resisted, so as to force the prongs 4 into the tobacco, and thus attach the tag to the plug, completing the operation. The plunger K is reciprocated vertically for this purpose through its stem 34 and a cam-lever 35, connected to the latter and provided with a bowl running in a cam-groove *f*, formed on the inner face of the cam-disk I.

The operation of the machine is clear from the drawings and the above description of the different parts and their action, so that no further detail description of the general operation of the machine is necessary.

While the construction above described embodies the invention in its most complete and preferred form, the tags being wholly formed in the machine, many of the features of the invention may be embodied in a machine in which the tags are wholly or partially formed prior to their introduction into the machine, and I have shown in Figs. 11 to 14 another machine embodying the general features of the invention in which the tags are cut to proper form, with the prongs flat, before their introduction into the machine, the machine acting only to turn the prongs at the proper angle to the body of the tags and attach them to the plugs, the construction of the machine thus being somewhat simplified. In this construction also are

shown certain modifications in feeding and supporting devices for the tobacco plugs which may be used in place of the devices for this purpose shown in Figs. 1 to 10 and previously described.

Referring now to the machine shown in Figs. 11 to 14, the same letters of reference are used for parts corresponding to those shown in Figs. 1 to 10, and the construction and operation of these parts will be clear from the above description, so that only a description of the parts of this machine which differ from those previously described need be given.

The general construction and arrangement of the plug-holder B are the same as in the construction previously described except that different means for feeding the plugs and for supporting the pile of plugs out of contact with the bottom plug while the latter is being fed out are used. In this construction the opposite walls of the holder B are slotted vertically above the line of feed of the bottom plug, and through these slots work horizontally-pivoted levers 36, carrying at their upper ends pins 6 and spring-pressed inward at their lower ends by springs 7. The levers 36 are inclined inward at their lower ends, where they project within the holder B, so as to form supports 9 for the tobacco plugs, and at their extreme lower ends below these supports carry rollers 8, which rest upon the bottom plug as the latter is being fed out of the holder. The plugs are advanced over the table A' to the pressure-roll 12 by feeding-belts 37, carrying at suitable intervals fingers *b*, projecting upward from the belts 37, and the tags are attached by forcing the prongs 4 into the plug from the under side by the upwardly-moving plunger K, as in the construction previously described, the feeding-belts 37 being formed by two or more narrow belts, as shown, or cut away so as to leave space through the belts for the action of the plunger in attaching the tags. The belts are shown as carried by rolls 38, one of these rolls being a belt-driven roll with its shaft 39, driven by beveled gears 40 from a vertical shaft 41, which in turn is driven through beveled gears 42 from main driving-shaft S of the machine. While the belts are shown as driven continuously, it will be understood that they may be driven intermittently, if preferred, so that the plugs will be stationary while the tags are being attached. The operation of this plug supporting and feeding construction is as follows: In the position shown in Fig. 12 the belts 37, by a pair of the feeding-fingers engaging the rear end of the bottom plug, are just feeding the bottom plug out from beneath the pile of plugs in the holder B, when the pile of plugs is supported above the bottom plug by resting upon the supports 9 on the levers 36, the rollers 8 resting upon the bottom plug, and thus holding the levers from being thrown out by the weight of the plugs against the pressure of springs 7. As the

bottom plug is fed out, so that the rolls 8 are released, the lower ends of the levers 36 are forced out by the weight of the pile of plugs, but at the same time the inner ends of the
 5 levers 36 are forced inward, so as to press the pins 6 into the second plug with such force as to get a hold sufficient to support the second and upper plugs, while the bottom plug, which
 10 levers 36, is permitted to drop between the rollers 8 and onto the table A' in position to be advanced by the belts 37, as shown in Fig. 15, the rollers 8 and levers 36 then being returned by the springs 7 as the bottom plug
 15 passes below the rollers 8, so as to release them, this movement of the levers 36 withdrawing the pins 6 from the next plug and allowing the pile of plugs to fall onto the supports 9 of the levers 36, the parts thus being
 20 returned to the position shown in Fig. 12. If desired, it is obvious that the pins 6, or suitable wedges equivalent thereto, may be arranged to enter between the second and third plugs instead of being forced into the ends of
 25 the plugs, as shown and above described.

In the construction now being described the tags *y* are piled vertically in a magazine L, mounted above the support 25, this magazine being provided with slots or grooves 43
 30 at opposite sides, forming guides for the prongs 4, so that the tags are thus kept in proper position to reach the support 25, with the prongs lying in the same direction, and the bottom tag is advanced from the magazine by the plunger 27 and along the support
 35 25 to the plunger G, with its prongs lying in proper position, the subsequent operations being the same as in the machine shown in Figs. 1 to 11.

40 It will be understood that many modifications may be made in the construction and arrangement of devices shown without departing from the invention, and I am not to be limited to the form or arrangement of devices
 45 in either of the machines illustrated.

What I claim is—

1. The combination with means for advancing plugs of tobacco or similar articles, of prong-bending mechanism, tag-attaching
 50 mechanism, and means for advancing the tags edgewise to the prong-bending mechanism and from the prong-bending mechanism to the tag-attaching mechanism, substantially as described.

55 2. The combination with means for advancing plugs of tobacco or similar articles, of strip-feeding mechanism, tag cutting, forming and edgewise-feeding mechanism, and tag-attaching mechanism, substantially as described.

60 3. In a machine for attaching pronged tags to plugs of tobacco and similar articles, the combination of prong-bending mechanism, tag-attaching mechanism, and means for advancing the tags edgewise from the prong-bending mechanism to the tag-attaching
 65 mechanism, substantially as described.

4. In a machine for attaching pronged tags

to plugs of tobacco and similar articles, the combination of prong-bending mechanism, tag-attaching mechanism, and means for advancing the tags edgewise to the prong-bending mechanism and from the prong-bending mechanism to the tag-attaching mechanism, substantially as described. 70

5. In a machine for attaching pronged tags to plugs of tobacco and similar articles, the combination of strip-feeding mechanism, tag-cutting mechanism, prong-bending mechanism, tag-feeding mechanism, for advancing the tags edgewise from the tag-cutting mechanism to the prong-bending mechanism, and tag-attaching mechanism, substantially as described. 75 80

6. The combination with a holder for plugs of tobacco or similar articles, and means for feeding the bottom article from said holder, of means for raising the second and upper articles from the bottom article and for supporting the second and upper articles out of contact with the bottom article as the latter is fed out of the holder, substantially as described. 85 90

7. The combination with a holder for plugs of tobacco or similar articles, and means for feeding the bottom article from said holder, of means for raising the second and upper articles from the bottom article and for supporting the second and upper articles out of contact with the bottom article as the latter is fed out of the holder, feeding mechanism for advancing pronged tags, and attaching mechanism for forcing the prongs into the articles to attach the tags, substantially as described. 95 100

8. A reciprocating feeding-plunger arranged to feed the bottom one from a pile of articles, and a support arranged to raise the second and upper articles from the bottom article and to sustain the upper articles out of contact with the bottom article while the latter is being fed from beneath the pile, and permit the next article to move into feeding position for the next movement of the plunger, substantially as described. 105 110

9. A reciprocating feeding-plunger arranged to feed the bottom one from a pile of articles, and a support moving with the plunger and acting to raise the second and upper articles from the bottom article during the return of the plunger and to support the second and upper articles out of contact with the bottom article while the latter is being fed from beneath the pile, substantially as described. 115 120

10. The combination with a magazine for a pile of articles, of feeding-plunger 10, and support 13 moving with the plunger and mounted to withdraw from the magazine as the plunger is advanced for feeding out the bottom article and to return to the magazine above the bottom article as the plunger is withdrawn, substantially as described. 125 130

11. The combination with means for advancing plugs of tobacco or similar articles, of a pressure-roller on one side of the path of

the plugs, and a reciprocating tag-attaching plunger on the other side of said path opposite the roller, substantially as described.

12. The combination with a guide, and a pressure-roller, of means for advancing plugs of tobacco or similar articles along said guide and between the guide and the pressure-roller, and a tag-attaching plunger reciprocating through an opening in said guide opposite the roller, substantially as described.

13. The combination with strip-feeding mechanism, of punch E and die E' for cutting tags from said strip, support 25 below the die, and tag-feeder 27, substantially as described.

14. The combination with strip-feeding mechanism, of punch E and die E' for cutting tags from said strip, support 25 below the die, tag-feeder 27, prong-bending plunger G, and tag-attaching plunger K, substantially as described.

15. The combination with strip-feeding mechanism, of punch E and die E' for cutting tags from said strip, support 25 below the die, tag-feeder 27, prong-bending plunger G working through a die in the support, spring-pressed support H, and tag-attaching plunger K, substantially as described.

16. The combination with support 25, of a prong-bending die in the support, tag-feeder 27, prong-bending plunger G working through the die in the support, spring-pressed support

H, and tag-attaching plunger K, substantially as described.

17. The combination with support 25, of tag-feeder 27, prong-bending plunger G, and tag-attaching plunger K, substantially as described.

18. The combination with prong-bending plunger G and a die coacting therewith, of means for advancing tags to the die transversely to the direction of movement of the plunger and for advancing them from the die, and spring-pressed tag-support H, substantially as described.

19. The combination with tag-attaching plunger K, of prong-bending plunger G, and feeding mechanism for advancing tags to the plunger G and from the plunger G to the plunger K, substantially as described.

20. The combination with tag-attaching plunger K of prong-bending plunger G, spring-pressed tag-support H, and tag-feeder 27 having a double movement for advancing a tag to the plunger G and from the plunger G to the plunger K, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM H. BUTLER.

Witnesses:

JOSIAH T. O'NEIL,
JAMES RHETT.