

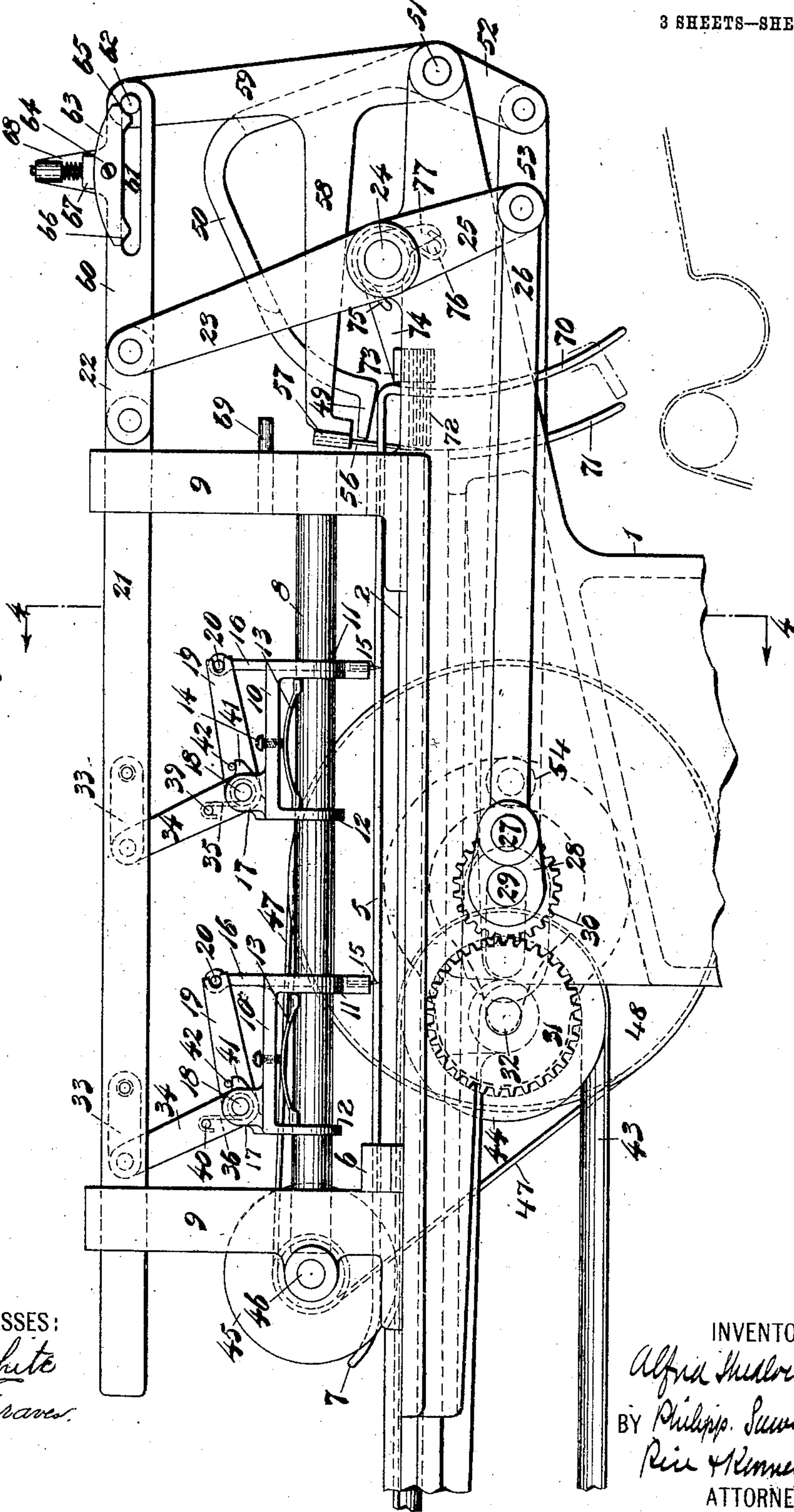
No. 840,023.

PATENTED JAN. 1, 1907.

A. SHEDLOCK.  
FEEDING MECHANISM.  
APPLICATION FILED MAR. 19, 1903.

3 SHEETS—SHEET 1.

Fig. 1



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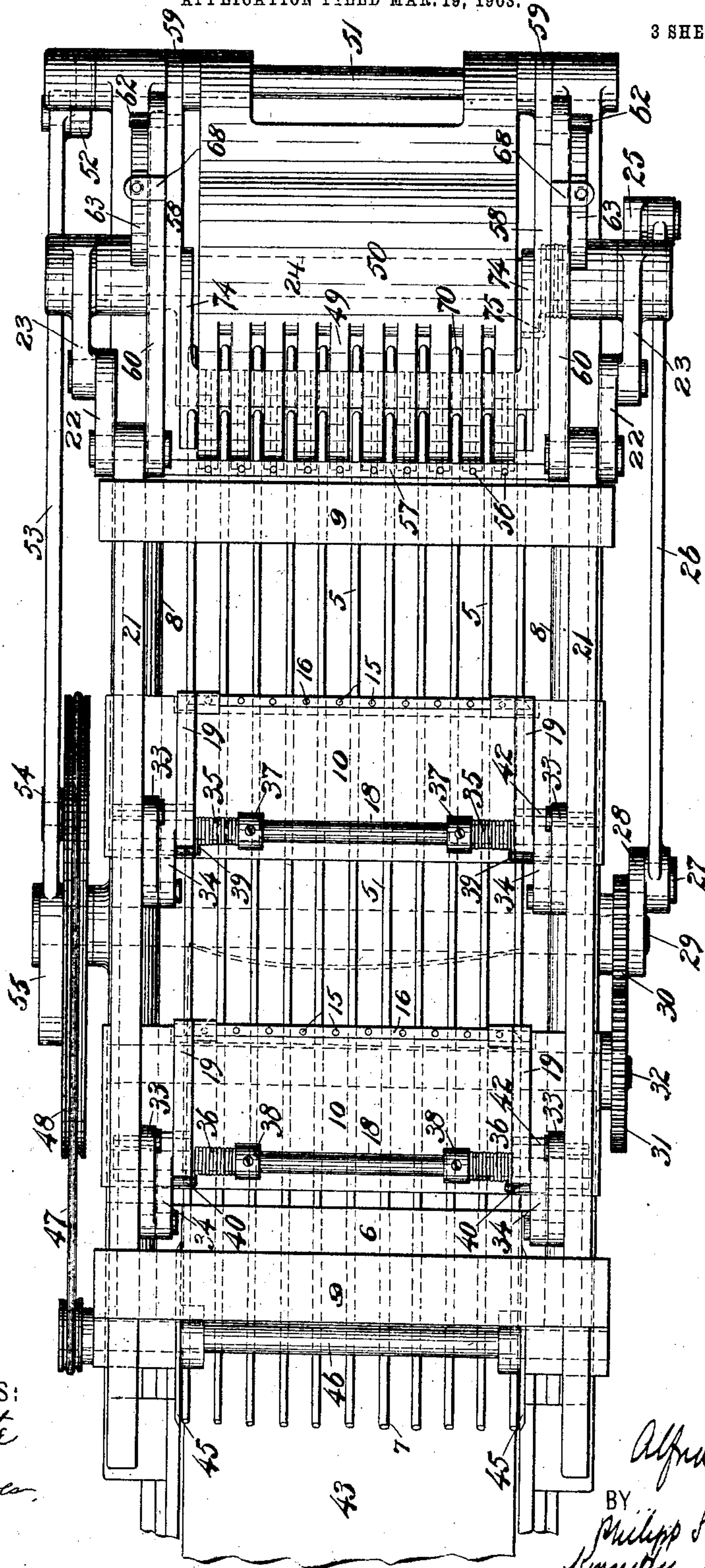
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3 SHEETS—SHEET 2.

Fig. 2



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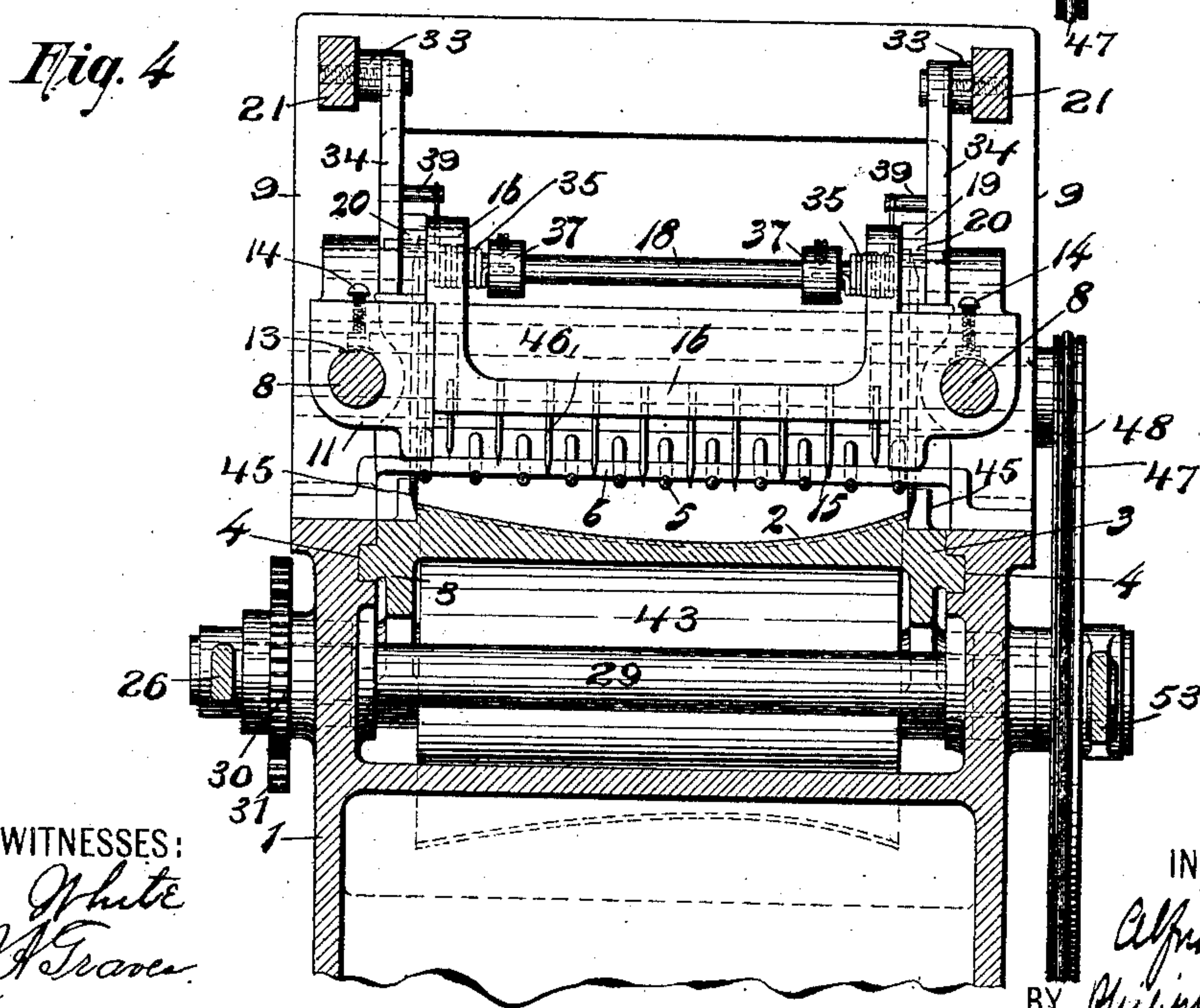
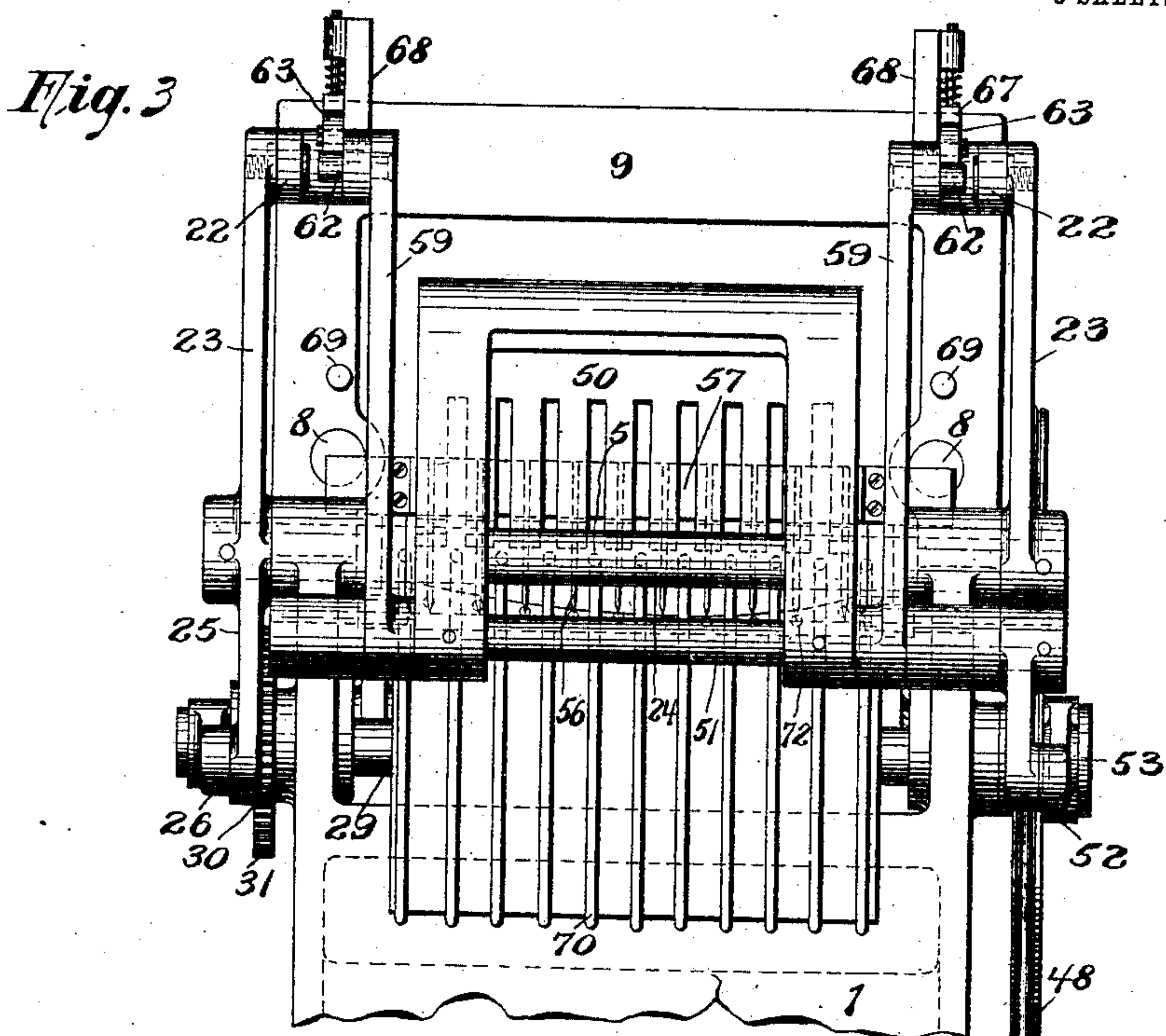


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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ALFRED SHEDLOCK, OF JERSEY CITY, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO INTERNATIONAL CIGAR MACHINERY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## FEEDING MECHANISM.

No. 840,023.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed March 19, 1903. Serial No. 148,489.

*To all whom it may concern:*

Be it known that I, ALFRED SHEDLOCK, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Feeding Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to feeding devices for feeding tobacco and other analogous material, and more especially to feeding devices for feeding tobacco to cigar-bunching machines.

Heretofore it has been proposed to feed tobacco to cigar-bunching machines through a chute, trough, or channel which is shaped generally to correspond with the outline of the bunch, the tobacco being caused to move through the channel either by rotating fingers or by reciprocating feeding-fingers which protrude into the channel, and in the construction in which it was proposed to employ the reciprocating feeding-fingers it was also proposed to introduce a spring between the feeding-fingers and their operating devices, so as to prevent the tobacco from being compressed too much in the feeding-chamber, the operating means for feeding devices being such as to give them what is ordinarily known as a "four-motion" feed.

In the machines which employ a single four-motion feeding device, which is yieldingly operated in the manner before referred to, it has been found that amounts of tobacco for forming bunches of even density would not always be fed forward, because the amount of tobacco in the take of the feeding device would vary, so that sometimes too little tobacco would be fed forward by the feeding device and at other times too much would be fed forward, notwithstanding the yielding character of the connections.

It has been proposed to employ with feeding devices of the character before described a cutting mechanism by which successive amounts or charges of tobacco each sufficient to form a bunch would be severed from the mass and advanced by the feeding device or devices. In certain classes of work, however, it is deemed desirable that the tobacco should be broken from the mass rather than cut therefrom.

It is the object of this invention to produce an improved feeding mechanism for tobacco or other analogous material which is of such a character that the material forwarded will be of substantially even density, so that the amounts or charges separated from the mass will be uniform.

With this and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, Figure 1 is a side elevation of so much of a feeding mechanism as is necessary to an understanding of the invention. Fig. 2 is a plan view of the construction shown in Fig. 1. Fig. 3 is an end view, and Fig. 4 is a sectional elevation on the line 4 4 of Fig. 1.

Referring to the drawings, 1 indicates a frame, which may be of any suitable configuration or construction. This frame serves to support a channel 2, through which the mass of tobacco is fed, said channel when the device is used for feeding a mass of tobacco from which charges which are to form bunches are separated being preferably given a concave shape, generally corresponding to the outline of the bunch. This channel may be formed in any suitable manner, but, as shown, is formed from a casting or plate having depending lugs 3, which are provided with projections engaging grooves 4 in the frame of the machine. In the preferred form of the construction the channel will be provided with a slotted top. As shown, this top consists of wires 5, said wires being connected to cross-bars 6, which are suitably secured to the frame of the machine. The ends of these wires in the preferred form of the construction are bent upwardly, as indicated at 7, to form a flaring mouth for the entrance end of the channel.

The tobacco may be fed through the channel by mechanism varying widely in character. In the preferred form of the construction, however, two or more feeding devices will be employed, said feeding devices being arranged tandem. These feeding devices may be variously mounted and operated. In the construction shown, which illustrates a preferred form of the apparatus, there is pro-



vided a guideway which comprises a pair of horizontal rods 8, extending along above the channel, these rods being mounted on standards 9, rising from the frame. On these rods  
5 are mounted carriages which may be of any suitable construction. As shown, they comprise plates 10, which extend across the machine, said plates having depending webs 11 and 12, which are perforated and through  
10 which the rods 8, which form the guideway, pass.

For reasons which will appear hereinafter it is desirable in some cases that there be considerable friction between the carriages and  
15 the guideway. This friction may be provided for in any suitable manner. As shown, each carriage is provided with a pair of springs 13, which bear upon the rods 8, forming the guideway, the amount of pressure of  
20 the springs being regulated by means of set-screws 14 or in any other suitable manner.

The feeding devices proper may be, as has been before indicated, of widely-differing constructions. As shown, they consist of a  
25 plurality of sets of fingers 15, there being one set of fingers for each carriage. These fingers are mounted in the construction illustrated on cross-bars 16, which move in guideways formed in the webs 11 before referred  
30 to, the construction being such that the bars can be reciprocated to cause the fingers to move into or out of the mass of tobacco or other material in the feeding-channel. The  
35 vertical movement of the fingers may be effected by any suitable construction. As shown, each carriage is provided with bearings 17, which serve to support shafts 18, extending across the machine from side to side.  
40 Each of these shafts 18 has secured to it a pair of arms 19, these arms having concave recesses in their ends which engage pins 20, carried on upward extensions of the cross-bars 16.

In the preferred form of the construction  
45 the feeding devices will be first moved into engagement with the mass of tobacco or other material in the channel and will then be given a forward movement. After they have completed their forward movement they will  
50 be withdrawn and returned for a fresh take. The forwarding movement of the feeding devices will furthermore be effected in such a manner that this movement will cease whenever the tobacco or other material in the  
55 feeding-channel has been compacted to a certain predetermined degree.

The described feeding movements of the feeding-fingers or other feeding devices may be effected by mechanism of any suitable  
60 character; but in the construction shown they are effected by interposing a yielding connection between the carriages which carry the fingers and the operating means therefor. The operating means referred to  
65 may be of any desired character. As shown,

there is provided a slide which comprises two horizontal bars 21, which move in ways in the standards 9 before referred to. These bars 21 in the construction shown are connected by links 22 to operating-arms 23,  
70 mounted on a shaft 24, suitably supported in bearings in the frame of the machine and extending across the frame from side to side. One of these arms 23 is provided with an extension 25, to which is pivoted a link 26, said  
75 link being connected at its other end to a crank-pin 27. This crank-pin 27 is carried on a crank 28, said crank being mounted on a shaft 29, suitably supported in the frame. This shaft 29 is provided with a gear 30,  
80 which meshes with a gear 31, mounted on a shaft 32, which will be hereinafter referred to.

The connection by which the feed-slide 21 moves the carriages in the manner heretofore referred to may be of any desired construction. As shown, each bar 21 is provided  
85 with a pair of links 33, which are connected to arms 34, loosely journaled on the shaft 18, before referred to as mounted on the carriages. The movements of the slide-bar produced by the mechanism before described  
90 are of course positive, and in order that the carriages may be stopped in their feeding movement whenever required by the density of the mass in the feeding-channel without  
95 affecting the movements of the slide the connection between the arms 34 and the shafts is a yielding connection. As shown, each shaft is provided with two springs, the  
100 springs on the shaft nearest the delivery end of the channel being marked 35 and the springs on the other shaft being marked 36. The springs 35 are wound around their shaft and are connected at one end to collars 37,  
105 which are fast on the shaft. The springs 36 are similarly wound about their shaft and are fast to collars 38, secured on the shaft. The ends of the springs 35 which are not fast to the collars are carried upward and over  
110 pins 39 on the arms 34 with which they cooperate, and the ends of the springs 36 are similarly secured to pins 40 on the arms 34 with which they cooperate. Each arm 34 is provided with a forwardly-extending toe 41,  
115 which takes under pins 42, mounted on the arms 19 before described. With this construction it is apparent that as the arms 34 begin to move under the action of the slide the springs will rock the shafts 18 and cause the feeding-fingers through the connections described to engage the mass of material in the  
120 feeding-channel, the carriages at this time remaining stationary through their own inertia, assisted by the operation of the springs 13 before described. When the feeding-fingers have become fully engaged with the  
125 mass in the channel, the shafts 18 will cease to rotate, and the further movement of the slide will cause the carriages to be advanced. This advancing movement of the carriages  
130



will, however, stop whenever the density of the mass in the channel is sufficient to overcome the tension of the springs 35 and 36, at which time the slide will continue its forward movement, although the carriages remain stationary.

It will be furthermore seen that although the forward carriage may cease its feeding movement the rear carriage may continue its movement. This insures a practically uniform density of the mass in the channel behind the forward feeding-fingers, so that these fingers when they are retracted for a fresh take will be sure to receive a full charge.

In the preferred form of the construction the springs 35 will be made slightly stronger than the springs 36, so that the compacting action of the two sets of feeding-fingers is progressive.

The tobacco may be placed in the channel and within the range of action of the feeding-fingers in any desired manner. As shown, there is provided a feeding-belt 43, said belt passing over a drum 44 on the shaft 32 before described. In the construction shown this belt not only serves to forward the tobacco, but also drives the shaft 32.

In order to insure that the mass of material completely fills the feeding-channel from side to side and at the same time does not extend beyond it, there is preferably provided a suitable cutting mechanism, which, as shown, coöperates with both sides of the channel. This cutting mechanism in the construction illustrated consists of a pair of rotating knives 45, said knives being fast on a shaft 46, which is driven by means of a belt 47 from a belt-wheel 48, mounted on the end of the shaft 29 which is opposite to that which carries the crank.

The mechanism for separating the successive charges from the mass of material fed through the feeding-channel may be of any desired description. In the preferred form of the construction, however, this mechanism will operate to break the charges of tobacco from the mass as distinguished from cutting them therefrom. The breaking mechanism for separating the successive charges may be widely varied in construction. As shown there is provided a breaker which consists of a comb 49, said comb being carried by a plate 50, which is fast on a shaft 51, suitably supported in the frame. This shaft 51 has connected to it an arm 52, which is in turn connected to a link 53. This link 53, is provided with a cam-roll 54, which works in a cam-groove in the face of the wheel 48 before referred to. The extreme end of this link 53 is provided with a yoke 55, which takes over the end of the shaft 29, so that the link is suitably supported.

To assist the breaker-comb in its action, a suitable holding mechanism is preferably provided. This mechanism may be of any

suitable description. As shown, it consists of a series of holding-fingers 56, carried on a suitable cross-bar 57. This cross-bar 57 is carried by the arms 58 of two two-armed levers 58 59, which are loosely pivoted on the shaft 51 before referred to. In the construction shown these two-armed levers are operated through suitable connections from the slide before referred to. The connections by which the movement of the two two-armed levers is effected may be of any suitable character. As shown, each of the bars 21 which comprise the slide has connected to it a link 60, said links being provided with slots 61, which engage pins 62 on the arms 59 of the two-armed levers.

The movements given the slide in the construction shown in order to enable it to operate the carriages are greater than is necessary to produce the necessary operations of the holding-fingers. In order that the movement of the fingers may be interrupted without interfering with the movements of the slide, each of the links 60 is provided with a tappet 63, pivoted at 64 and having operating-faces 65 and 66. The tappets are held in operative position by means of spring-operated blocks 67, which bear on the tappets, said blocks being carried on standards 68, rising from the links. There is also provided a stop-pin 69, which in the construction shown extends from the forward standard 9. With the construction described as the slide begins its movement (see Fig. 1) the two-armed levers 58 59 will be operated by the tappets, the faces 65 of which bear against the pins 62. When, however, the bar 57 strikes the pin 69, the tappets will be rocked and allow the slide to continue its movement without moving the fingers. When the slide has completed its forward or feeding movement, the faces 66 of the tappets will be in engagement with the pins 62. On the return movement of the slide the levers 58 59 will be operated to throw the holding-fingers down into the mass which has been forwarded by the feeding-fingers, and after the holding-fingers have become fully engaged with the mass the tappets will again be rocked, thus permitting the slide to continue its rearward movement. The movement of the breaking-comb is of course so timed that it comes into action after the holding-fingers have become fully engaged with the mass.

There is preferably provided a delivery-chute, through which the breaker-comb forces the charge which has been torn from the mass. This delivery-chute may be constructed in any suitable manner. As shown, the front wall of this chute is formed by bending down the forward ends of the wires 5, said downwardly-bent ends being marked 70. The rear wall of the chute is or may be formed by wires 71, which are or may be fast to the frame.



In order to support the forward end of the mass of tobacco as it is fed forward by the feeding-fingers, so that the charge torn from it by the breaker may descend the delivery-chute in a comparatively compact condition, there is preferably provided a gate, which may be of any suitable construction. As shown, this gate consists of a series of fingers 72, which are carried on a cross-bar 73. This cross-bar 73 is carried by arms 74, which are loosely mounted on the shaft 24. The arms 74 are held up, so that the gate will be in operative position by means of a spring 75, which surrounds the arms 74, one end of said spring being secured to one of the arms 74 and the other end being secured to a pin 76, which is fast on the inside of the frame. In order to prevent the arms 74 from rising too far, one arm is provided with a toe 77, (see dotted lines in Fig. 1,) said toe being so arranged as to strike the pin 76 when the arms and gate are at the limit of their upward movement.

While the machine which has been described illustrates a preferred form for carrying the invention into effect, it is to be understood that the invention may be embodied in constructions which differ widely therefrom. The invention is not therefore to be limited to the exact construction herein shown and described.

What is claimed is—

1. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of feeding devices arranged tandem, operating means, a yielding connection between said feeding devices and the operating means, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

2. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of feeding devices arranged tandem, operating means, a yielding connection between said feeding devices and the operating means, and means for breaking a charge of tobacco from the mass fed forward, substantially as described.

3. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of feeding devices arranged tandem, operating means, a yielding connection between said feeding devices and the operating means, holding devices for the mass, and means for breaking a charge of tobacco from the mass, substantially as described.

4. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a yielding connection between each set of fingers and the operating means, and means for separating a charge of tobacco

from the mass fed forward, substantially as described.

5. In an apparatus for feeding tobacco or analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a yielding connection between each set of fingers and the operating means, said yielding connections increasing in resistance toward the discharge end of the channel, whereby the compacting action of the sets of fingers is progressive, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

6. In an apparatus for feeding tobacco or analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a spring between each set of fingers and the operating means, the springs increasing in resistance toward the discharge end of the channel, whereby the compacting action of the fingers is progressive, and means for separating a charge of tobacco from the mass fed forward.

7. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a yielding connection between each set of fingers and the operating means, a breaker for separating a charge from the mass, and means for operating the breaker, substantially as described.

8. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a yielding connection between each set of fingers and the operating means, a set of holding-fingers for the mass, a breaker for separating a charge from the mass, and means for operating said breaker and holding-fingers, substantially as described.

9. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating means for the fingers, a yielding connection between each set of fingers and the operating means, cutting mechanism cooperating with the channel, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

10. In an apparatus for feeding tobacco and analogous material, the combination with a feeding-channel, of a plurality of sets of feeding-fingers working therethrough, said fingers being arranged tandem, operating



means for the fingers, a yielding connection between each set of fingers and the operating means, cutting mechanism cooperating with the channel, a set of holding-fingers for the mass, a breaker for separating a charge from the mass, and means for operating said breaker and holding-fingers, substantially as described.

11. In an apparatus for feeding tobacco and analogous material, the combination with a channel, of a plurality of sets of feeding-fingers working therethrough, an operating-slide, a yielding connection between the slide and each set of fingers, means for operating the slide, a set of holding-fingers, a breaker for separating charges from the mass, and means for operating said fingers and breaker, substantially as described.

12. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages, a set of feeding-fingers mounted to reciprocate on each carriage, operating means for reciprocating the carriages, a yielding connection between said carriages and the operating means, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

13. In a feeding apparatus for tobacco and analogous material, in combination with a feeding-channel, of a plurality of carriages, a set of feeding-fingers mounted to reciprocate on each carriage, operating means for reciprocating the carriages, a yielding connection between said carriages and the operating means, a set of holding-fingers, a breaker, and means for operating the holding-fingers and breaker, substantially as described.

14. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages arranged tandem, a guideway for the carriages, a friction device intermediate the carriages and the guideway, sets of reciprocating feeding-fingers, one for each carriage, means for reciprocating the carriages, a yielding connection between each carriage and the operating means for reciprocating said carriages, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

15. In a feeding apparatus, for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages arranged tandem, a guideway for the carriages, a friction device intermediate the carriages and the guideway, sets of reciprocating feeding-fingers, one for each carriage, operating means for reciprocating the carriages, a yielding connection between each carriage and the operating means, a set of holding-fingers, means for moving said fingers into and out of the forwarded mass, a breaker, means for operating the breaker,

and a delivery-channel into which the breaker delivers, substantially as described.

16. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages, a guideway for the carriages, a friction device intermediate each carriage and the guideway, sets of reciprocating fingers, one for each carriage, shafts mounted in the carriages, arms between the fingers and the shafts for operating the fingers, an operating-slide for the carriages, a yielding connection between the carriages and the operating-slide, and means for separating a charge of tobacco from the mass fed forward, substantially as described.

17. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages, a guideway for the carriages, a friction device intermediate each carriage and the guideway, sets of reciprocating fingers, one set for each carriage, shafts mounted in the carriages, arms between the fingers and the shafts for operating the fingers, an operating-slide for the carriages, a yielding connection between the carriages and the operating-slide, holding-fingers for the mass, a breaker, operating means for the holding-fingers and breaker, and a delivery-channel into which the breaker delivers, substantially as described.

18. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages arranged tandem, a plurality of sets of reciprocating feeding-fingers, one for each carriage, an operating-slide, yielding connections between the carriages and the operating-slide, a set of holding-fingers, means whereby the operating-slide operates the holding-fingers, a breaker, means for operating said breaker, and a delivery-channel, substantially as described.

19. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages arranged tandem, a plurality of sets of reciprocating feeding-fingers, one for each carriage, an operating-slide, yielding connections between the carriages and the operating-slide, a set of holding-fingers, means whereby the operating-slide operates the holding-fingers, a breaker, means for operating said breaker, cutting mechanism cooperating with said feeding-channel, and a delivery-channel, substantially as described.

20. In a feeding apparatus for tobacco and analogous material, the combination with a feeding-channel, of a plurality of carriages arranged tandem, sets of reciprocating feeding-fingers, one for each carriage, a guideway, shafts mounted in the carriages, operating connections between the shafts and the feeding-fingers, an operating-slide, yielding



connections between the slide and the shafts, a pivoted arm carrying holding-fingers, operating connections between the operating-slide and said arm, a pivoted breaker, and  
5 means for operating said breaker, substantially as described.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing witnesses.

ALFRED SHEDLOCK.

Witnesses:

SYDNEY I. PRESCOTT,  
GEO. H. SNYDER.