

No. 842,372.

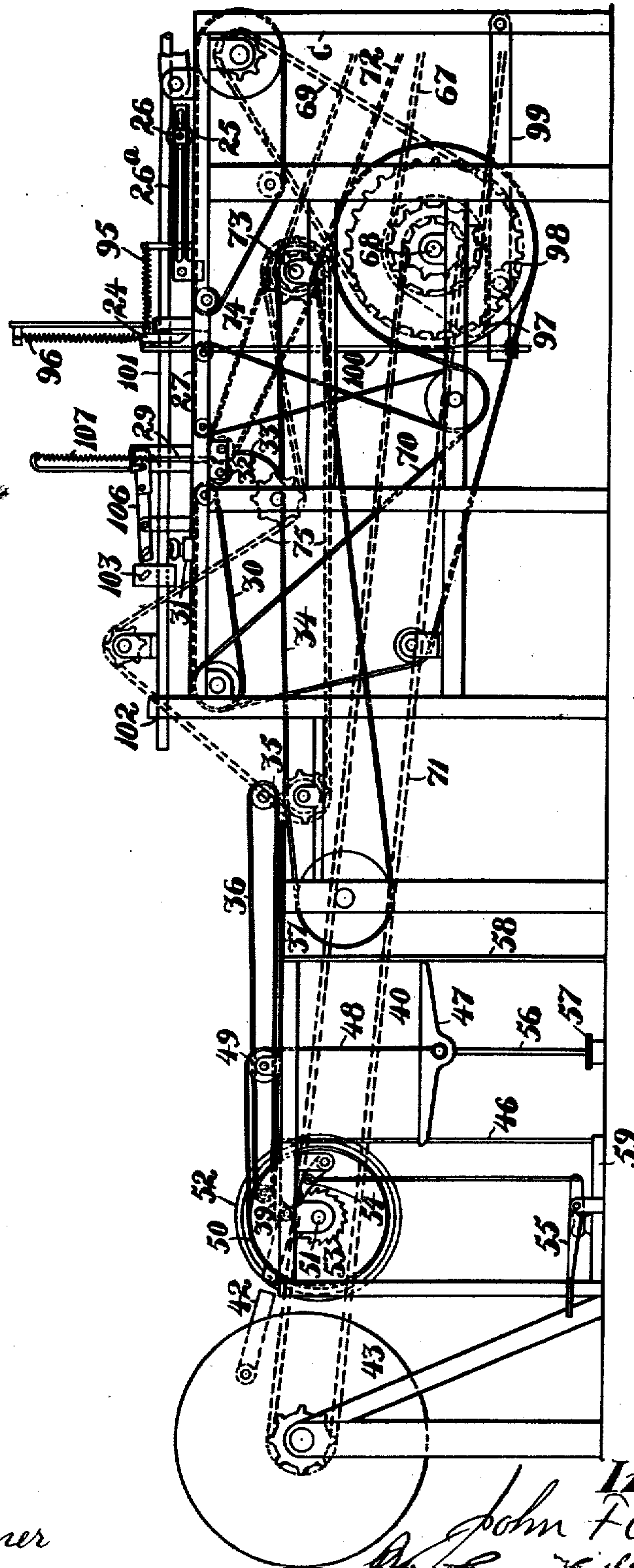
PATENTED JAN. 29, 1907.

J. F. AMES.
BAG MACHINE.

APPLICATION FILED MAR. 8, 1905.

6 SHEETS—SHEET 1.

Fig. 1.



Witnesses:-

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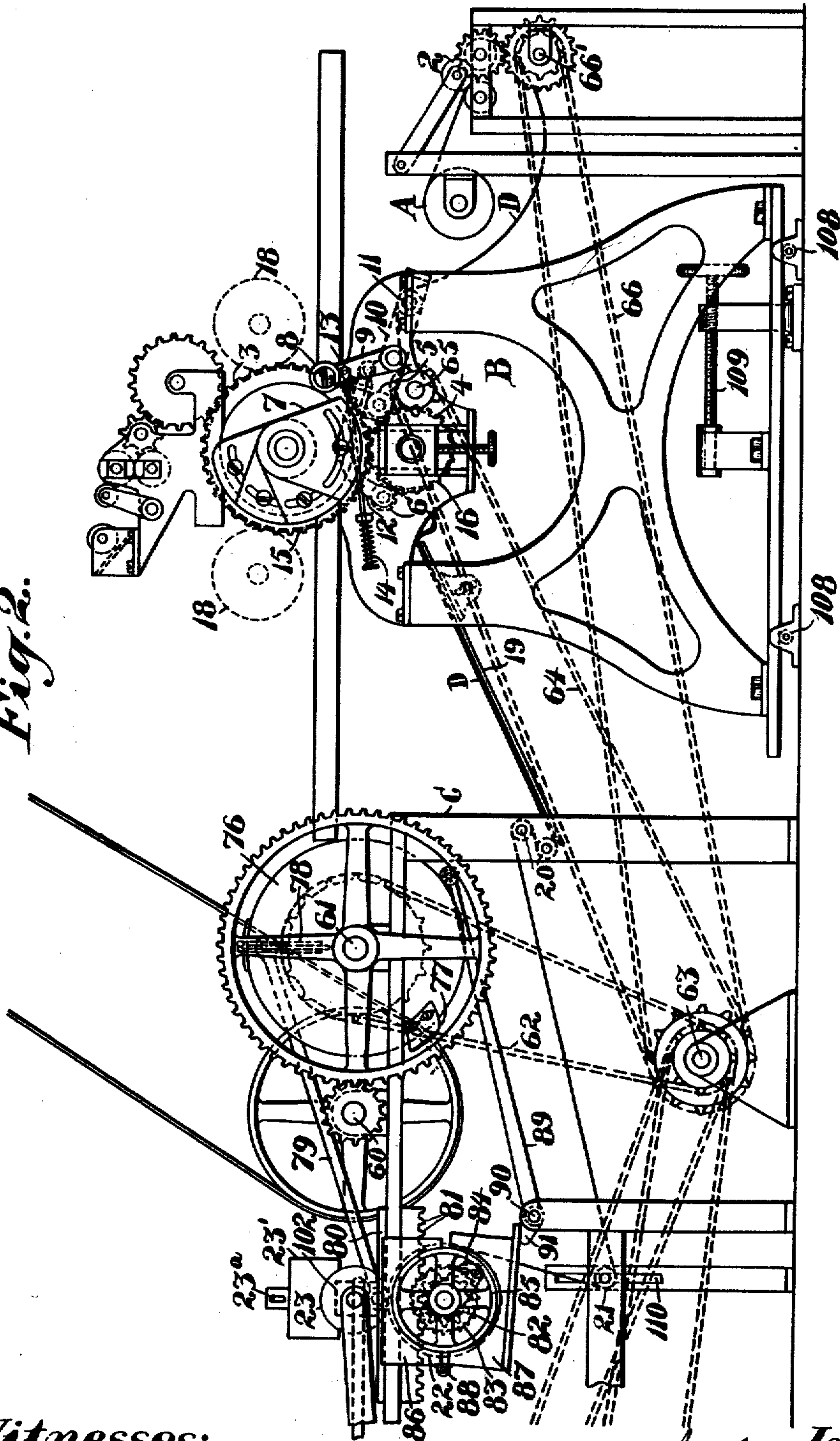
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BAG MACHINE.

APPLICATION FILED MAR. 6, 1905.

6 SHEETS—SHEET 2.

Fig. 2.



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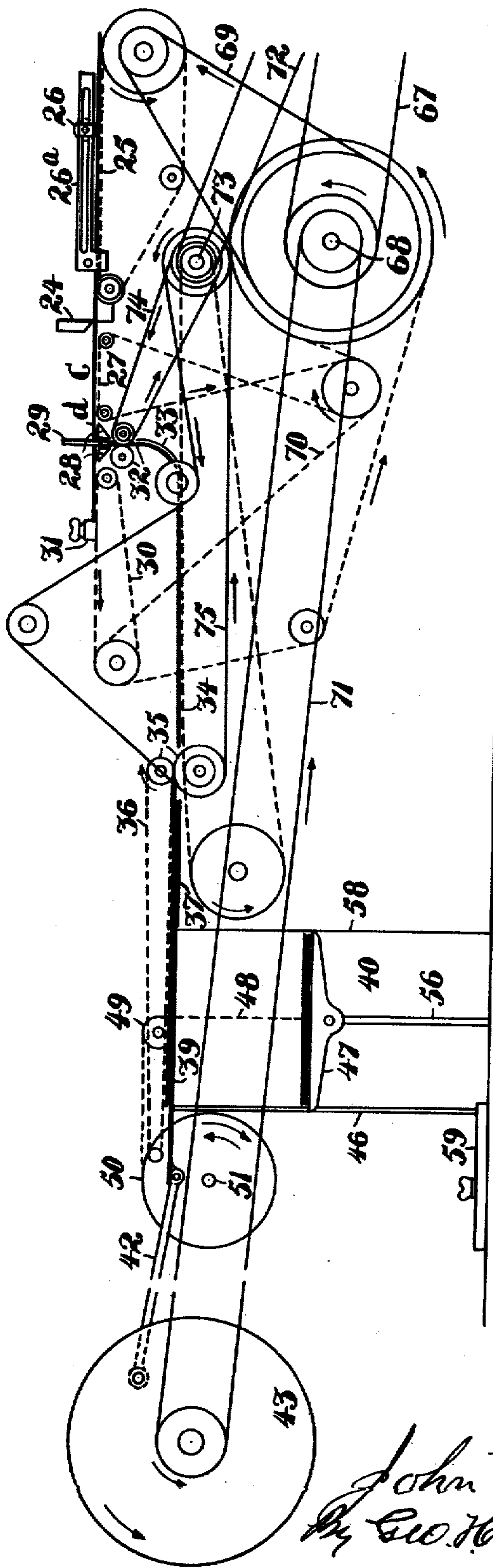
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6 SHEETS—SHEET 3.

Fig. 3.



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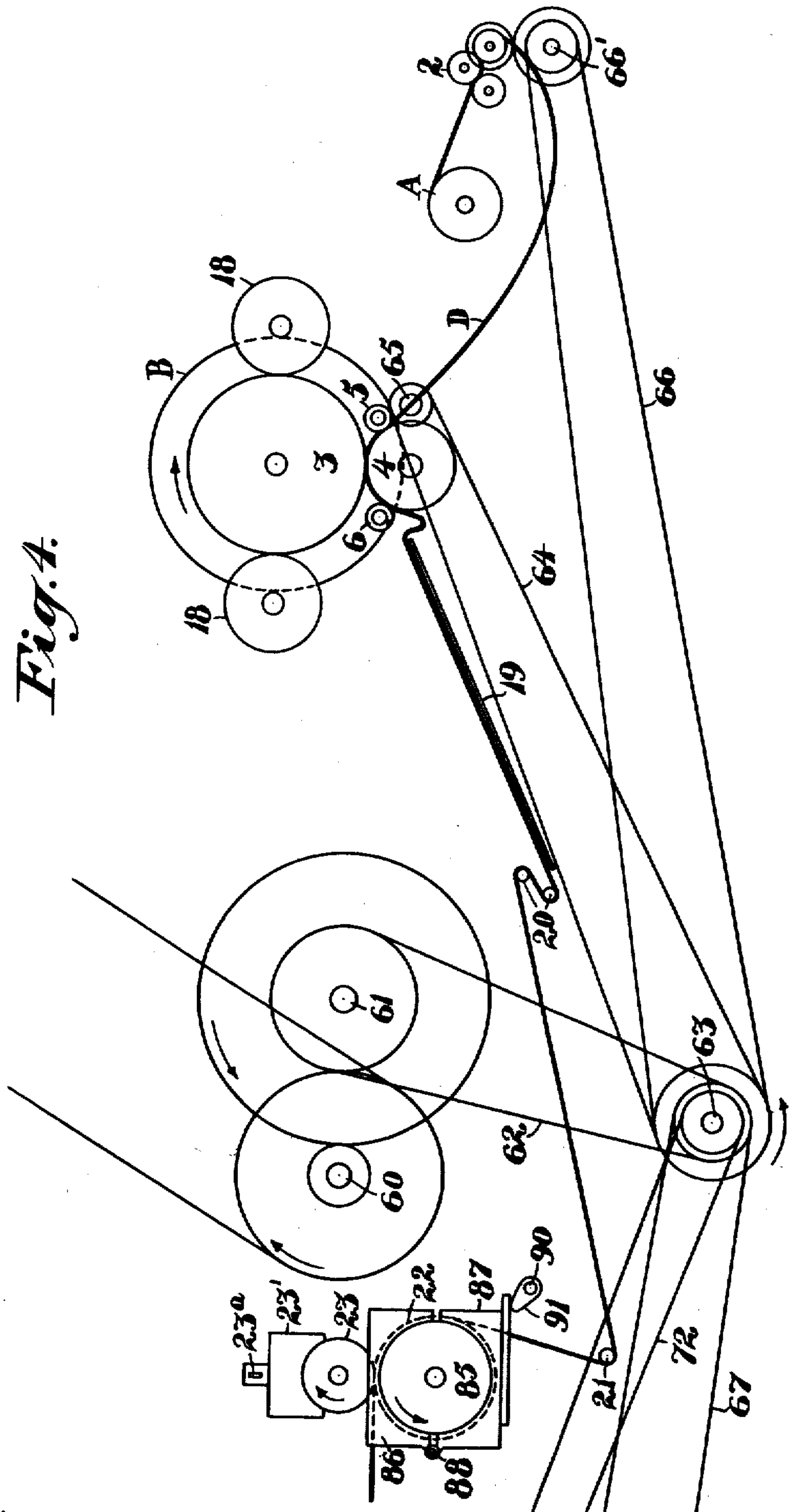
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0 SHEETS—SHEET 4.



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APPLICATION FILED MAR. 6, 1905.

6 SHEETS—SHEET 5.

Fig. 5.

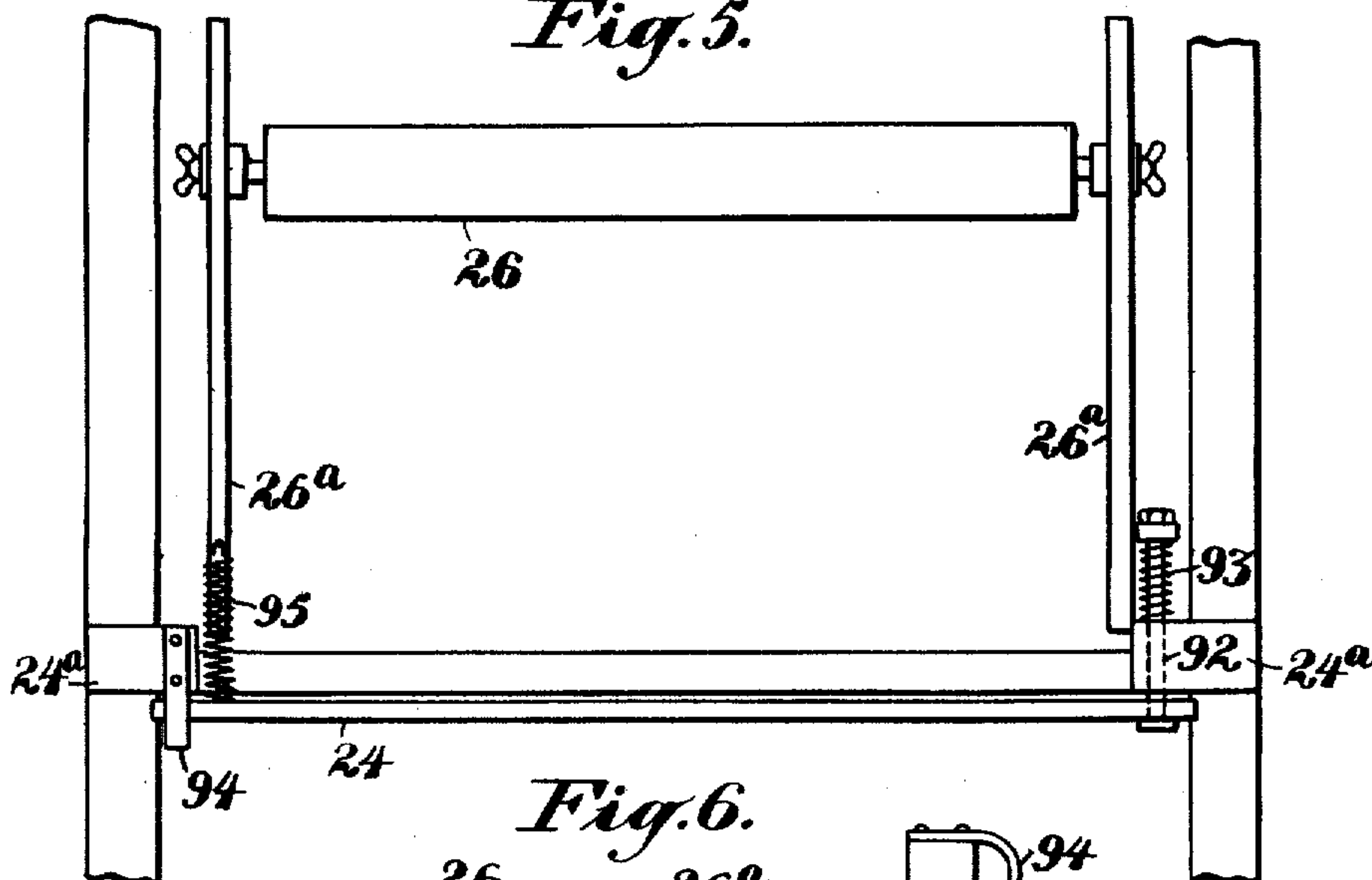


Fig. 6.

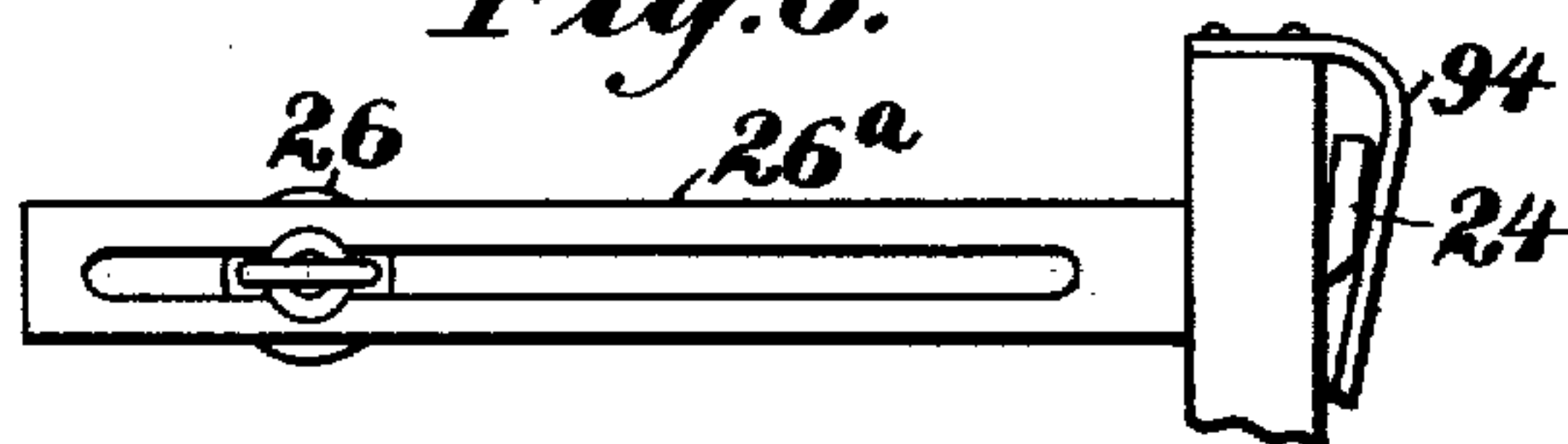


Fig. 7.

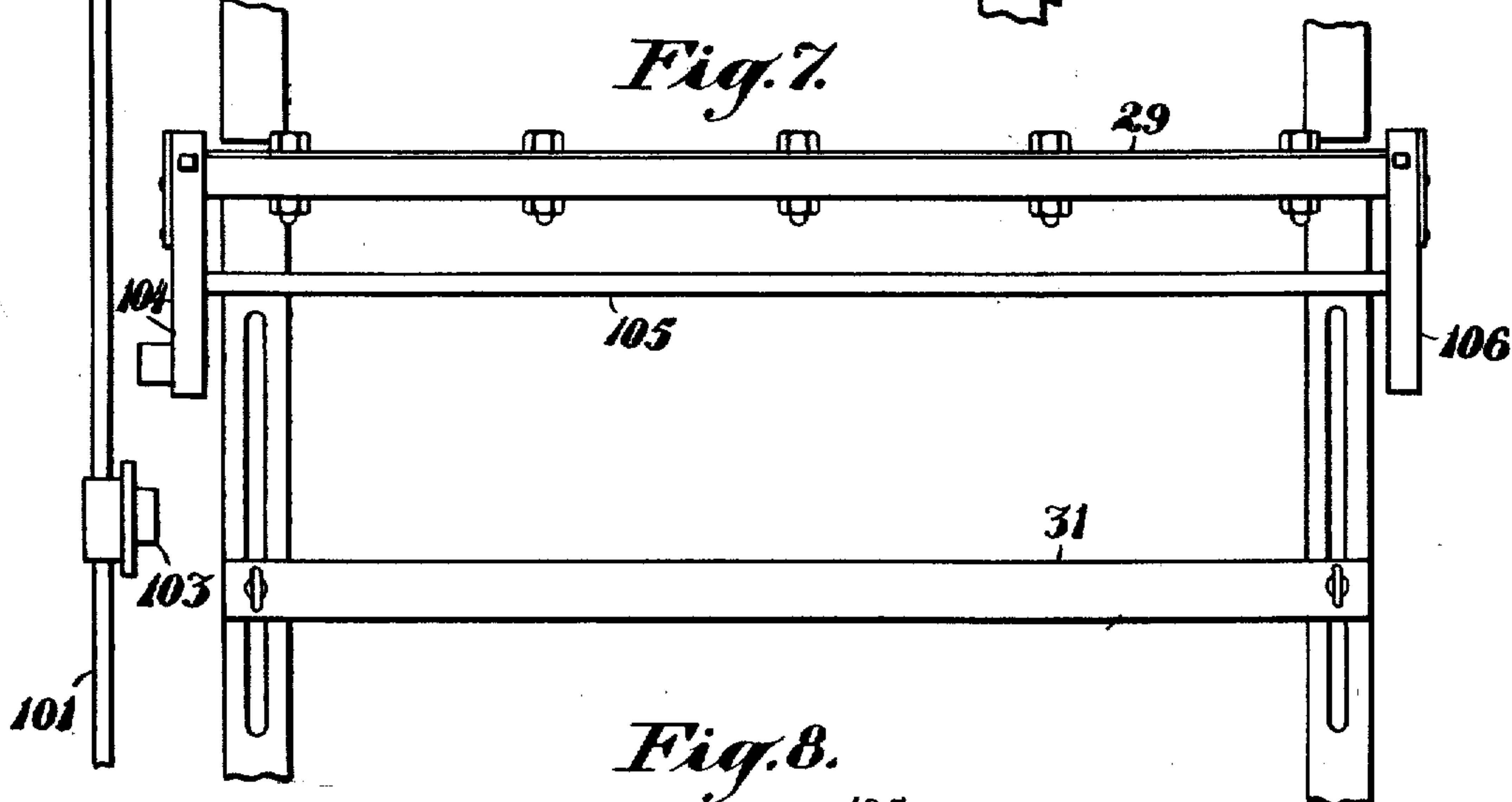
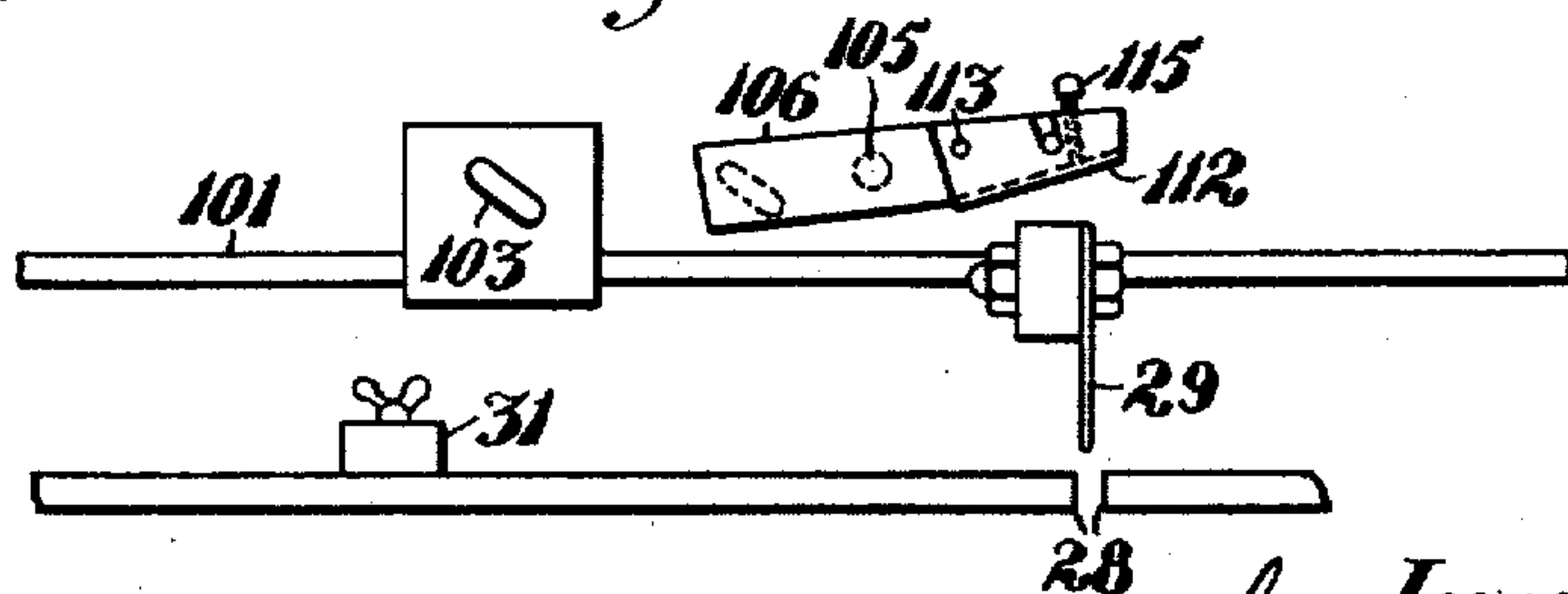


Fig. 8.



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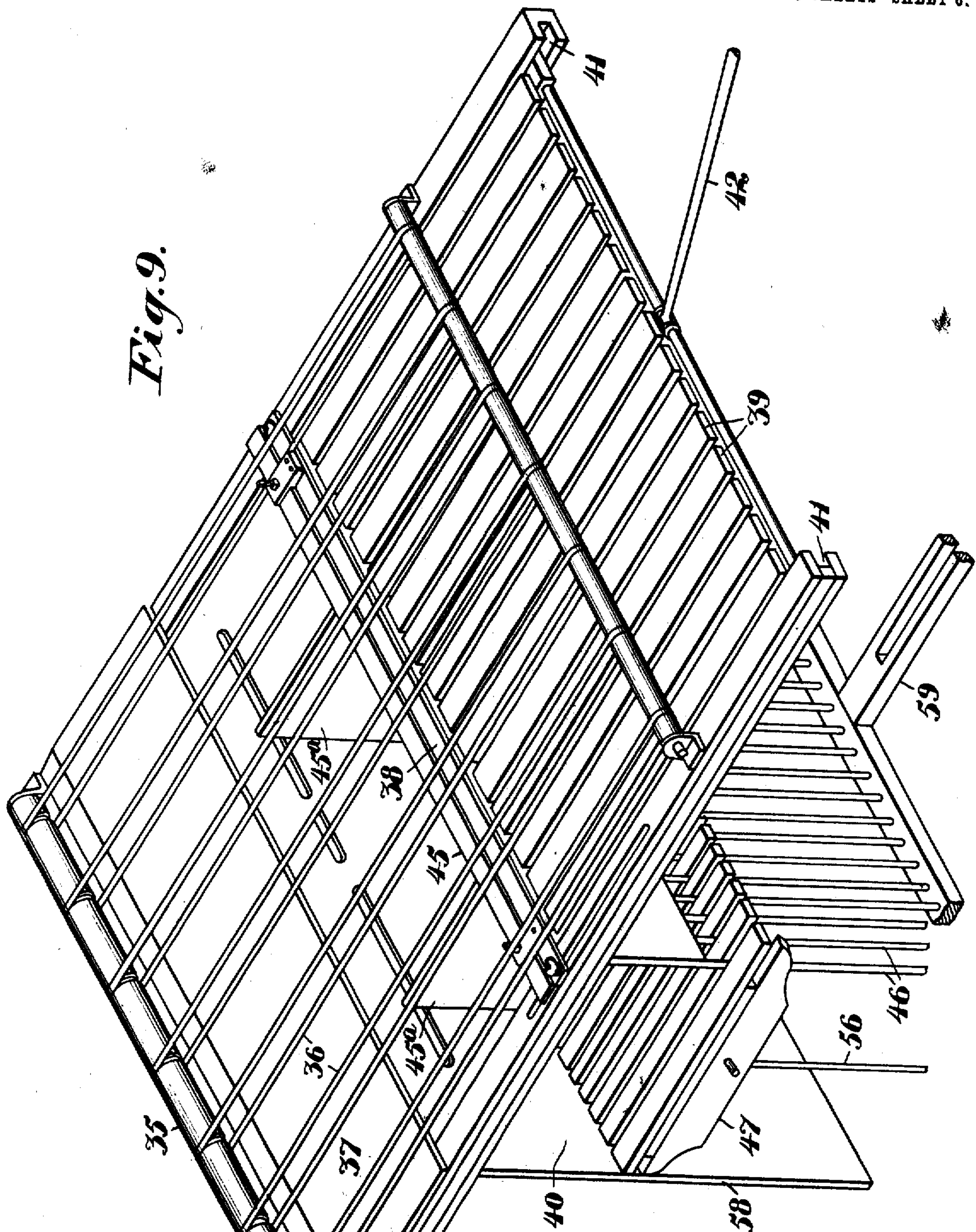
PATENTED JAN. 29, 1907.

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6 SHEETS—SHEET 6.

Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN F. AMES, OF PORTLAND, OREGON.

BAG-MACHINE.

No. 842,372.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed March 6, 1905. Serial No. 248,586.

To all whom it may concern:

Be it known that I, JOHN F. AMES, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Bag-Machines, of which the following is a specification.

My invention relates to a machine for use in making bags, and especially bags from cloth, which is supplied in rolls of any desired quantity, and in which machine the cloth is taken from the roll, passed as a continuous strip through a printing-press, by which a desired brand is applied at proper intervals, the strip then being fed automatically and continuously to a suitable cutting device, whereby it is severed into desired lengths, these lengths then folded, and the folded lengths finally piled ready for sewing.

The object of the invention is to provide a machine combining bag-printing, cutting, folding, and piling mechanisms, said several mechanisms having coördinated movements, and a wide range of mutual adjustability adapting the machine to the printing, cutting, folding, and piling of bags of all sizes, having all sizes, shapes, and colors of brands.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of half of the apparatus, showing cutting, folding, and piling mechanisms. Fig. 2 is a side elevation of the other half of the apparatus, showing printing mechanism and means for feeding the printed strip to the cutter. Figs. 3 and 4 are diagrammatic views corresponding, respectively, to Figs. 1 and 2, showing the fabric in heavy full line, the sprockets in single lines, and the carriers in broken lines. Fig. 5 is a plan view of a part of the apparatus, showing the cutter and the presser-roller. Fig. 6 is a side view of same. Fig. 7 is a plan view of a part of the apparatus, showing the folding-blade and guide-bar 31. Fig. 8 is a diagrammatic view showing operation of the folding-blade. Fig. 9 is a perspective view of the piling mechanism.

A represents the roll of stock which is to be printed at regular intervals and cut into suitable lengths, the width of the rolled stock corresponding to the length of the bag to be made.

B is the printing-press taking the stock

from roll A, printing it, and passing it on to be taken into and through the cutting and folding machine, the frame of which latter is indicated by the reference-letter C. For convenience of illustration, the stock in its travel through the press and machine is represented in heavy lines by D.

From roll A, Fig. 4, which is mounted to turn free, the fabric is carried between the rollers 2, driven in unison with the rest of the machine. Thence it passes between the form or type-cylinder 3 of the press and the impression-cylinder 4, being fed intermittently thereto by means of the feed-rollers 5 6, resting normally on the impression-cylinder. These feed-rollers are operated through the agency of an expansible and adjustable cam 7, Fig. 2, on the shaft of the constantly-revolving form-cylinder. The cam 7 is composed of a plurality of concentric sectors, adapted to be opened out or closed up to present a more or less extended surface of contact to the roller 8 on arm 9, by which the periodical raising of the rollers 5 6 is effected. The roller 5 is journaled in the arms 10, keyed to rock-shaft 11, to which the roller-arm 9 is also fastened. Roller 6 is carried by the arms 12, which are pivoted on arms 10, and the two rollers are adjusted by suitable devices, as the set-screws 13, to cause them to bear equally and simultaneously on the impression-cylinder. The roller 6 serves also to strip the cloth from the form, to prevent the cloth following around with the cylinder after making the impression. Thus it is seen that when the cam 7 contacts with the roller on arm 9 the shaft 11 is rocked to lift both rollers 5 6 from the impression-cylinder. When the cam leaves the roller 8, a spring 14 operates to pull arm 9 back and allow the rollers 5 6 to contact with the impression-cylinder to feed the cloth forward. The period of contact of the rollers 5 6 with the impression-cylinder regulates the amount of feed at each revolution of the form-cylinder independent of the contact of the form with the cloth and impression-cylinder, and the amount of feed of cloth depends on the size of the bag to be made.

The feed-rollers 5 6 are preferably caused to contact with the impression-cylinder prior to the contacting of the form with the cloth, so as to start the latter in motion and not produce a smudge as might occur if the feed of the cloth depended on the contact of the form and impression-cylinders alone. The

adjustability of the cam-sectors allows a wide range of variation in the time and amount of feed to the press. For large bags the sectors would be closed more than for
5 small bags. The two cylinders are driven positively in unison and at the same surface speed by reason of the interengagement of the gears 15 16 on the respective cylinders.

18 represent the inking-rolls, which are
10 preferably mounted on adjustable carriages and each adapted to apply a different-colored ink to a different area of the brand.

Leaving the press the printed length of fabric is preferably supported on an inclined
15 plane or table 19, which is carried by and adjustable with the press, as will be more fully explained later. The fabric passes around a suitable tension device 20, Figs. 2-4, and thence around an adjustable tension-rod 21,
20 whose functions and necessity will be made apparent hereinafter. Thence the cloth passes to the feed-rolls 22 23, by which it is fed intermittently to the knife or cutter 24, Figs. 3 and 1, first coming after leaving rolls
25 22 23 upon the constantly-running tapes 25 and passing beneath the adjustable presser-roller 26, which latter holds the fabric flat, evens out the creases, and keeps the end of the fabric from jumping back or buckling
30 when the knife cuts off a section. This roller 26 is important, for the reasons last mentioned, and is adjustable in slotted guides 26^a to permit it to be moved back and forth lengthwise of the machine, so that when the
35 cloth is temporarily at rest, being still held by the rollers 22 23, but supported on the constantly-running tapes 25, the roller, which also runs constantly by reason of its engagement with the tapes, can be shifted so that it
40 will not rub over the freshly-printed portion of the cloth and possibly blur the brand or smear the fabric.

23', Figs. 2 and 4, is a frame felt-lined on its under side and slidable on a suitable guide
45 23^a and movable lengthwise of and in contact with the upper feed-roll 23. It is for the purpose of wiping off the ink that may possibly collect on the roll from the freshly-imprinted fabric.

50 Beyond the cutter the severed and printed section *d* of the strip D is received onto the constantly-running tapes 27 and carried across the transversely-extending bars 28, between which the vertically-reciprocating
55 folding-blade 29 operates. The front end of the severed strip *d* is caught by a succeeding set of constantly-running tapes 30 and carried against an adjustable guide-bar 31, which trues the front edge of the strip. The guide-
60 bar 31 is essential, since both carriers 27 30 run constantly, and without the bar the severed section would likely be carried too far or be thrown askew so as not to be folded in the middle. As it is the bar is adjusted back and
65 forth lengthwise of the machine, according to

the size of the bag being made, to bring the folding-blade exactly in the middle of the severed section of fabric. By its means I provide a very simple and efficient device for
70 always getting an exact and uniform fold.

As the severed strip contacts with bar 31 the blade 29 descends and folds the strip lengthwise in the middle, carrying the strip down between the oppositely-turning rollers 32, which crease and deliver the folded strip
75 onto a curved guide 33, and thence onto the endless carrier 34, which latter advances it between the two rollers 35, run at accelerated speed. The upper of rolls 35 carries tapes 36, Figs. 9, 3, and 1, which carry the strip-section
80 over a plane surface 37 against an adjustable stop 38 and onto the reciprocating table 39, by which the folded strip, ready for sewing, is piled in the adjustable receiver 40. The table or sliding frame 39 travels in guides 41
85 and is moved by a crank-rod 42, connected with the revolving disk 43, operated in unison with the other parts of the machine.

In its forward movement the table 39 is timed to pass underneath the stop-bar 38, be-
90 tween which and the surface 37 is an open space through which the bag drops into the receiver 40 when the support afforded by the table 39 is withdrawn on the backward movement of the latter.
95

To prevent the crushing or crumpling of the cloth against stops 38 by the backward movement of the table, a strip of metal 45 of suitable width is disposed immediately in
100 front of the stops and slightly above the plane of movement of the table, which serves the purpose of holding a certain portion of the cloth adjacent to the fold flat against the surface of the table.

The receiver 40 is made with respective
105 adjustable end and rear walls 45^a 46 to accommodate it to bags and sacks of all sizes. It has a movable slatted bottom or platform 47, which is supported at the ends by the cords, chains, or belts 48, which pass up over
110 the idlers 49 to attach to the periphery of the pulleys or drums 50 on the transverse shaft 51. The latter is operated by a hand-wheel 52 or equivalent mechanism, and the platform 47 is held at any suitable elevation by
115 means of the ratchet 53 and the pawl 54, which last is released by the foot-lever 55 and appropriate connections. The platform 47, on which the folded sections are deposited by the table, is suitably guided and steadied in
120 its vertical movements by the underneath rods 56, working in boxes 57 in the floor.

The end walls 45^a of the receiver consist of metal plates about six inches wide and carried by and adjustable on the fixed trans-
125 versely-slotted front wall-plate 58, according to varying bag lengths.

The rear wall 46 consists of a plate equal in length to the width of the machine and of the same width as the end plates 45^a, mounted
130

on upright slats carried by the adjustable frame 59 on the floor. This rear wall may thus be moved back and forth, according to varying bag widths.

5 The side and ends of the receiver having been adjusted to the length and breadth of a folded bag-blank the platform 47 is raised to within six or eight inches of the table 39. The well or inclosed space thus formed above
10 the platform operates to provide a sort of air-cushion for the folded fabric, as the latter drops from the table 39 and occasions a more uniform piling than if the sides of the well or receiver were entirely open. As the receiver
15 is filled, the platform is lowered from time to time, as desired, by stepping on the lever 55 and releasing the pawl. When the space from the floor to the under edge of the metal plates forming the rear and end walls of the
20 receiver is filled, the folded and piled material may be removed.

Referring next to the driving connections, power is derived from the main shaft 60, Figs. 4 and 2, operated from any suitable
25 source. A gear on shaft 60 engages another gear on the counter-shaft 61, whence extends a sprocket-chain 62 to a sprocket on shaft 63. From shaft 63 runs a chain 64 to shaft 65 on
30 the printing-press, whence the form and impression cylinders, inking and feed rolls are operated. Also from shaft 63 extends a chain 66 to a sprocket 66', geared to one of the rolls 2, which operate the unwinding of the material from roll A. Also from shaft 63
35 runs a chain 67 to a shaft 68, whence power is transmitted by the respective connections 69 and 70 to run the carriers 25, 27, and 30. The disk 43 is operated by a chain 71 from shaft 68. Also from shaft 63 extends an-
40 other chain 72 to operate a shaft 73 and the conveyer 34. The rolls 32 are run from shaft 73 by connections 74 and the rollers 35 and carrier 36 by the connections 75.

Shaft 61 carries a radially-slotted disk 76
45 and an adjustable cam 77, disposed on a radius approximately at right angles to the slot 78 in the disk. A connecting-rod 79, adjustable in slot 78, connects with a sliding carriage 80 on the frame of the cutting and
50 folding machine. The carriage 80 is provided with a rack 81, engaging a pinion 82, loose on the shaft of the feed-roller 22. A ratchet 83 is fast to the shaft of roller 22, and pinion 82 carries an arm having a pawl 84,
55 riding on the ratchet, so that as the carriage 80 moves in one direction or toward the cutter the roller 22 will be turned, and when the carriage is retracted the pawl will ride free over the ratchet and the roller will remain
60 stationary. The amount of rotation of roller 22 will determine the feed to the cutter, and this amount will equal the exact length of fabric to be severed and will be equal to the feed through the press at each imprinting
65 operation. Variation in the feed to the

knife is effected by shifting the pivot of the connecting-rod 79 in the slot 78 to shorten or lengthen the stroke. Thus it is seen that the adjustment afforded by the slotted disk 76 and connecting-rod 79 and the adjustment
70 afforded by cam 7 are mutually interdependent.

In order to render effective a fine and exact adjustment of the feed of the fabric to the cutter relative to the operation of the
75 printing-press, means are provided to limit the rotative movement of the feed-rollers 22, 23 beyond that prescribed by the forward movement of the carriage 80, since these rollers have a tendency to continue turning after
80 the power by which they were set in motion has ceased to be applied. To prevent this continued rotation and to bring them to rest immediately and prevent any possible variation in the amount of feed each time to the cutter, 85
the shaft of roller 22 carries a friction-pulley 85, Figs. 4 and 2, on which a weight 86 is adapted to rest by gravity, and a brake-shoe 87, hinged at 88, is adapted to be pressed up against the under side of the roller. This
90 brake is applied the moment the power for accomplishing the rotary movement of the feed-rolls is discontinued, through the agency of the adjustable cam 77 periodically depressing the arm 89, fastened to the rock-
95 shaft 90. The latter carries a projection 91, on which the brake-shoe is suitably supported. This brake mechanism prevents an unequal feeding and assures absolute uniformity in the length of the severed sections
100 of cloth.

The cutting mechanism, which is shown in detail in Figs. 5 and 6, consists of stationary members 24^a on the bed-frame and a movable member 24, having a spring-supported
105 pivot at one side of the machine. This pivot comprises a bolt 92, suitably journaled in the frame, and a spring 93 surrounds the bolt and operates always to press that end of the knife in against the stationary cutting member.
110 The opposite end of the blade is movable in a tapered spring-guide 94, which acts in conjunction with the spring 95 to press that end of the knife always into close contact with the stationary cutting member. Thus the
115 knife is flexibly supported and guided at each end and operates on the cloth after the fashion of a pair of shears. By mounting the movable blade in this manner the cutting edges remain sharp for a considerable length
120 of time.

A spring 96 serves to hold the knife normally open, and its depression at proper intervals is effected by means of the cam 97 on shaft 68 contacting with a roller 98 on the
125 pivoted arm 99, to which is connected the rod 100, the free end of the rod being pivoted to the knife-blade.

The operation of the folder 29 is accomplished by means of a rod or bar 101, fast to
130

4

and movable with carriage 80 and slidable in guides 102. This bar carries a cam 103, which engages a rocker-arm 104 at each revolution of disk 76. Arm 104 is connected with one end of the folder and is fixed to the transversely-extending fulcrum-shaft 105, the opposite end of which is provided with a similar arm 106, which is connected with the end of the folder on that side of the machine.

10 A rocking of shaft 105 in one direction by the cam 103 depresses the blade to carry the bight of the severed strip in between the creasing-rollers 32. The retraction of the folder is occasioned by the springs 107.

15 It will be observed that while the feeds to the printing-press and to the cutter are intermittent the operation of the several endless carriers 25, 27, 30, 34, and 36 is continuous.

20 The several driving connections are either chains and sprockets or gears in order that every essential part should be positively driven, thereby preventing disarrangement after the machine is once adjusted for a particular run of bags.

25 In operation a roll of cloth A is taken, the width of the cloth being equal to the length of the bag to be made. Cam 7 is adjusted so that its period of non-contact with the roller on arm 9 will allow the rolls 5 6 to operate just long enough to feed the exact quantity of cloth through the press as will constitute the width of a severed bag-blank before it is folded. The position of the press relative to the cutter 24 is then determined, the press being mounted on rollers 108 for this purpose and being movable back and forth by suitable means, as the screw and hand-wheel 109.

35 The throw of the connecting-rod 79 is then adjusted to render the feed by the rollers 22 23 to the cutter proportionate to the feed through the printing-press, since there is seen to be a necessarily-coordinated movement between the printing and the cutting and folding mechanisms.

45 In many cases where bags are made of a length less than the standard width of the cloth, the original roll is split in two, leaving the cloth with one selvage edge and one raw edge. The selvage edge is slightly puckered, drawn, or shortened, while the raw edge is loose and has a tendency to lengthen when stress is put on it. Hence the reason for the tension-rod 21, around which the printed length of fabric passes between the press and the cutter feed-rollers 22 23. This rod has its ends adjustable in the vertical guides 110, so that each end may be raised or lowered independently to effect the proper angle for accomplishing the equalization of the varying lengths of the edges.

50 The tension means 20, between the rod 21 and the press, supplement the rod 21 and produce the necessary tension to render the operation of the rod 21 effective.

The feed of the cloth to the cutter and folder is intermittent, like that to the press, but is alternative with and at a different rate of speed than the latter—that is, the amount of material coming from the press after each imprint will exactly equal the amount going to the cutter at each actuation of the rollers 22 23, yet at the actual time of the forward movement of the cloth through the press and to the cutter the rate of speed through the cutting machine is greater than through the printing-press, due to the differences in the respective feed-operating means. It is obvious, therefore, that if the cloth is fed simultaneously into each and not successively or alternatively there will be a gain of the feed into the cutting-machine over that by the printing-machine, with the result that the cloth when it is held by the pressure of the printing-plate against the impression-cylinder will be torn by the pull of the feeding-rolls of the cutting and folding machine.

The printing mechanism is disposed at some distance from the cutting mechanism and its feed-rollers, and the section of cloth between the press and the feed to the cutter has printed on it at regular intervals various and several impressions of the printing-plate. This separation of the press and the cutting and folding machine is to permit of the adjustment of one machine relative to the other that must be made in printing bags of different sizes, since the distance from the cutting-blade to the point of contact on the cloth of the side of the printing-plate must be definitely fixed in order that the print on the section to be severed be always properly disposed relative to the distance from each edge of the folded section. In other words, the print on the cloth must occupy a definite uniform position relative to the cut edge of the cloth. Hence with a continuous strip having successively applied brands the cut must always occur on precisely the same line between any two prints in order that the sewed bag-sections should have the prints appear uniform.

For every different size of bag and every different size of brand the position of the print on the strip has to be especially regulated relative to the cutter.

The inclined table 19 is fixed to the printing-press frame and moves with it, and a space is left between the impression-cylinder and the adjacent upper end of the table, into which space a fold of the fabric is received after each impression. This portion of fabric which is allowed to sag between the table and the cylinder is exactly the amount that the rollers 22 23 will draw forward the next instant for the cutter.

The features of this invention which are deemed to be essentially novel are, first, the means for operating the several printing, cutting, folding, and piling mechanisms in uni-

son and arranging for their mutual adjust-
 ability according to the size of the bags or the
 character of the brands; second, the verti-
 cally-adjustable tension-rod for evening the
 5 edges of the strip prior to cutting; third, the
 brake for controlling the rotative movement
 of the feed-rolls in order to accomplish uni-
 formity in the length of the cuts; fourth, the
 10 presser-roller for removing creases and keep-
 ing the goods flat during cutting; fifth, the
 construction of the cutter; sixth, the mov-
 able guide for truing the edges of the sev-
 ered sheet and positioning it ready for fold-
 ing; seventh, the piling mechanism; eighth,
 15 the means, not previously mentioned, for
 adjusting the arms 104 106 of the folding-
 blade to cause the blade to contact with both
 edges of the cloth at the same time. In Fig.
 8 it is noted that each of said arms has an
 20 angle-plate 112 pivoted to it at one end, as at
 113, each plate having a part extending be-
 neath its arm and resting directly on the
 blade, which slides up and down in suitable
 guides on the frame, Fig. 1. A set-screw 115
 25 is threaded in each arm 106 and is adapted to
 bear on the underneath part of the corre-
 sponding plate 112. By turning the screws
 115 in one direction or the other the pressure
 of the two arms on the blade may be regu-
 30 lated so that the blade will come down equally
 and simultaneously on both edges of the
 cloth and make an even fold. Some adjust-
 ment of this sort is essential for best results.

Having thus described my invention, what
 35 I claim, and desire to secure by Letters Pat-
 ent, is—

1. A bag-making machine having in com-
 bination means for supporting a continuous
 strip of cloth, a printing mechanism to which
 40 the strip is delivered, means for giving an
 advance movement to the strip in unison
 with the making of the imprint, means for
 interrupting the advance of the strip and
 causing the printed portion thereof to be de-
 45 livered loosely beyond the printing devices,
 independent intermittently-operating means
 for renewing the travel of the printed strip
 after each imprint, and a cutting mechan-
 ism to which the printed strip is advanced
 50 by the last-named means.

2. In bag machinery, the combination
 in a single organism of means for supporting
 a continuous strip of cloth, a printing mech-
 anism to which the strip is delivered, means
 55 for interrupting and then renewing the
 travel of the strip and causing the printed
 portion thereof to be delivered loosely be-
 yond the printing devices, and independent
 means for continuing the travel of the loose
 60 and printed strip.

3. In bag machinery, the combination in a
 single organism of means for supporting a
 continuous strip of cloth, a printing mechan-
 ism to which the strip is delivered, means for
 65 interrupting after each imprint and then re-

newing during the succeeding imprint the
 travel of the strip, said strip being delivered
 in a loose condition beyond the printing
 mechanism after each imprint, independent
 means for continuing the travel of the said 70
 loose and printed portion of the strip, a cut-
 ting mechanism to which the printed strip is
 delivered, and means for operating the im-
 printing, feeding and cutting mechanisms
 automatically and coördinately. 75

4. In a bag-machine the combination in a
 single organism of means for supporting a
 continuous strip of cloth, a printing mech-
 anism to which the strip is delivered, means
 for interrupting and then renewing the 80
 travel of the strip and delivering said strip in
 a loose condition beyond the printing mech-
 anism, independent means for continuing
 the travel of the said loose and printed strip,
 a cutting mechanism to which the printed 85
 strip is delivered, a folding mechanism to
 which the severed lengths of cloth are de-
 livered, and means for operating the im-
 printing, feeding, cutting and folding mech-
 anisms automatically and coördinately. 90

5. A bag-machine having in combination
 intermittently-operating printing mechan-
 ism and means whereby a strip of fabric may
 be fed thereto; intermittently-operating
 cutting mechanism by which the printed 95
 strip is severed into bag lengths; intermit-
 tently-operating folding mechanism suc-
 ceeding the cutting mechanism, and feeding
 means between the cutting and folding
 mechanisms. 100

6. A bag-machine including in a single or-
 ganism an adjustable printing mechanism to
 which a strip of fabric is delivered, an ad-
 justable, intermittently-operating feeding
 means for giving an advance movement to 105
 the strip in unison with the making of the
 imprint and then interrupting said advance
 movement after the imprint is made, a cutting
 mechanism for severing the imprinted strip
 into bag lengths, and means associated with 110
 the cutting mechanism and independent of
 the first-named feeding means for delivering
 to the cutting mechanism the portion of
 fabric advanced beyond the printing mech-
 anism by said first feeding means, a mechan- 115
 ism for folding the severed lengths of fabric,
 means for piling the folded lengths, and
 means for operating the feeding, cutting,
 folding and piling mechanisms automatic-
 ally and coördinately. 120

7. A bag-machine including in a single or-
 ganism an adjustable printing mechanism to
 which a strip of fabric is delivered, an ad-
 justable, intermittently-operating feeding
 means for giving an advance movement to 125
 the strip in unison with the making of the
 imprint and then interrupting said advance
 movement after the imprint is made, a cut-
 ting mechanism, means whereby the print-
 ing and cutting mechanism are adjustable 130

one relative to the other, said cutting mechanism operating during the intermission of the forward movement of the fabric, for severing the fabric into bag lengths, a feeding means associated with the cutting mechanism and independent of the first feeding means for feeding to the cutting mechanism the portion of the imprinted fabric advanced beyond the printing mechanism by the said first feeding means, and an adjustable intermittently-operating folding mechanism to which the severed lengths of fabric are delivered.

8. A machine of the character described having the following instrumentalities, viz: means for supporting and feeding a strip of fabric; means for printing said strip; adjustable, intermittently - operating mechanism for cutting the printed strip into bag lengths and to which mechanism the strip is automatically and intermittently fed; and adjustable folding mechanism to which the severed lengths are delivered intermittently and by which said lengths are folded into bag forms.

9. A machine of the character described having the following instrumentalities, viz: means for feeding a strip of fabric; means for printing said strip; adjustable and intermittently - operating mechanism for cutting the printed strip into bag lengths, intermittently-acting feeding means for delivering the printed fabric to the cutting mechanism; adjustable folding mechanism to which the severed lengths are delivered; means for delivering the severed lengths intermittently to the folding mechanism; and means for piling the folded bag forms.

10. The combination with means for supplying a strip of fabric, of a cutting device for severing the said strip into desired lengths, an adjustable, intermittently-acting folder cooperating with the cutter to fold the severed sections, suitable conveying means, and a piling device to receive the folded sections, said piling device comprising a frame having adjustable sides and ends.

11. The combination with means for cutting a strip of fabric into desired lengths, and adjustable means for intermittently folding the severed sections, of a piling device comprising a framework with adjustable walls and a movable bottom operatable vertically between said walls, said walls partially inclosed at the top to provide an air-cushion for the falling material.

12. The combination of three successively-arranged carriers moving in the same direction, having their carrying-surfaces disposed in substantially the same plane, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip of material intermittently upon said carriers, and a folder

operating between the second and third carriers.

13. The combination of three successively-arranged carriers the carrying-surfaces of which move in the same direction, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, a transversely-extending guiding device disposed in the path of the severed sections of the strip for the purpose of stopping and truing the edge of the severed sections prior to folding, and a folding-blade operative between the second and third carriers.

14. In a bag-machine, the combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism, three successively-arranged carriers the carrying-surfaces of which move in the same direction, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, a transversely-extending guiding device disposed in the path of the severed sections of the strip for the purpose of stopping and truing the edge of the severed section prior to folding, and a folding-blade operative between the second and third carriers.

15. The combination of four successively-arranged carriers whose carrying-surfaces move in the same direction, the fourth carrier being disposed parallel with the other three but on a different plane, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, a transversely - extending guiding device disposed in the path of the severed sections of the strip for the purpose of stopping and truing the edge of the severed section prior to folding, a folder operative between the second and third carriers, and means cooperating with the folder for delivering the folded sections upon the fourth carrier.

16. A bag-machine having in combination a printing mechanism to which a strip of fabric is delivered, a feeding mechanism for the printed strip, four successively-arranged carriers moving in the same direction with the fourth carrier disposed parallel with the other three but disposed on a different plane, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, a folding device operating between the second and third carriers, and a guide for stopping and truing the edge of the severed section prior to folding.

17. The combination of three successively-arranged carriers whose carrying-surfaces

move in the same direction, a cutter operating between the first and second carriers, a folder operating between the second and third carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, and a guide disposed in the path of the severed sections of the strip for the purpose of stopping and truing the edge of the severed section prior to folding.

18. In a bag-machine the combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism, three successively-arranged carriers whose carrying-surfaces move in the same direction, a cutter operating between the first and second carriers, means for driving the carriers continuously in the same direction, a transversely-extending guiding device disposed in the path of the severed section of the strip for the purpose of stopping and truing the edge of the severed section prior to folding, and a folder operative between the second and third carriers.

19. The combination of four successively-arranged carriers whose carrying-surfaces move in the same direction, the fourth of said carriers being disposed parallel with the other three but on a different plane, a cutter operating between the first and second carriers, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers, a guide disposed in the path of the severed sections of the strip for the purpose of stopping and truing the edge of the severed section, and a folder operatable between the second and third of said carriers.

20. The combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism, four successively-arranged carriers whose carrying-surfaces move in the same direction, the fourth of said carriers being disposed parallel with the other three but on a different plane, a cutter operatable between the first and second of said carriers, means for driving the carriers continuously in the same direction, means for feeding a strip intermittently upon the carriers, a guide disposed in the path of the severed section of the strip for the purpose of stopping and truing the edge of the severed section prior to folding, and a folding device operatable between the second and third of the carriers.

21. In a bag-machine the combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism and three successively-arranged carriers having their upper planes disposed in substantially the same plane and whose carrying-surfaces move in same direction, a cutter operating between the first two of said carriers, a folder operating between second and third of said carriers, the cutter and folder operating

in successive order during the intermission of the forward movement of the fabric, means for driving the carriers continuously, and means for feeding a strip intermittently upon said carriers.

22. In a bag-machine the combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism and three successively-arranged carriers having their upper planes disposed in substantially the same plane and whose carrying-surfaces move in same direction, a cutter operating between the first two of said carriers, a folder operating between second and third of said carriers, the cutter and folder operating in successive order during the intermission of the forward movement of the fabric, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers and a transversely-extending guiding device disposed in the path of the severed section of the strip for the purpose of stopping and truing the edge of the severed section.

23. In a bag-machine the combination with means for supplying a strip of fabric, of a printing mechanism, a feeding mechanism and three successively-arranged carriers having their upper planes disposed in substantially the same plane and whose carrying-surfaces move in same direction, a cutter operating between the first two of said carriers, a folder operating between second and third of said carriers, the cutter and folder operating in successive order during the intermission of the forward movement of the fabric, means for driving the carriers continuously, means for feeding a strip intermittently upon said carriers and a transversely-extending guiding device disposed in the path of the severed section of the strip for the purpose of stopping and truing the edge of the severed section, and a presser-roller arranged between the cutter and said feeding means.

24. The combination with a printing-press mounted on a movable carriage, of a cutting device mounted independently of the press and operatable in unison therewith, means for passing a strip of material through the press, means for feeding the imprinted strip to the cutting device, and adjustable feeding means operating coordinately with the cutting device to fold the severed sections.

25. The combination with a printing-press mounted on a movable carriage, of a cutting device mounted independently of the press and operatable in unison therewith, means for passing a strip of material through the press, means for feeding the imprinted strip to the cutting device, adjustable folding means operating coordinately with the cutting device to fold the severed sections, and adjustable mechanism for piling the folded sections.

26. The combination with a printing-press

mounted on a movable carriage, a cutting mechanism supported independently of said carriage, means for feeding a strip of material to said printing mechanism, means for feeding the imprinted strip to said cutting mechanism, means for operating the several mechanisms and feeding means in unison and adjustable tension means for the strip intermediate of the printing mechanism and the means for feeding material to the cutting mechanism.

27. The combination with a printing-press mounted on a movable carriage, a cutting mechanism supported independently of said carriage, means for feeding a strip of material to said printing mechanism, means for feeding the imprinted strip to said cutting mechanism, means for operating the several mechanisms and feeding means in unison, adjustable tension means for the strip intermediate of the printing mechanism and the means for feeding material to the cutting mechanism, said last-named means including a rod extending transversely of the path of movement of the strip and adjustable to bear unequally on the opposite edges of the strip.

28. The combination of a printing mechanism and a cutting mechanism, means for delivering a strip to said printing mechanism, means for delivering the imprinted strip to the cutting mechanism and adjustable tension device between the printing mechanism, and the means for feeding the strip to the cutting mechanism, said tension device operable to bear more or less on one side or the other of the strip to equalize the length of the two edges of the strip as it passes to the cutter.

29. The combination with a printing-press mounted on an adjustable carriage of an independently-supported cutting device, means for feeding a strip of material to the printing-press, means for feeding the imprinted strip to the cutting mechanism, means for giving the press, the cutting mechanism and the several feeding means a coördinate movement, and a table carried by and movable with the printing-press upon which the imprinted material is delivered prior to its passage to the cutting mechanism, and suitable adjustable tension means between the press and the means for feeding the imprinted strip to the cutting mechanism.

30. The combination with means for supplying a strip of material continuously, of means for bestowing an imprint at regular intervals on said strip, a cutting device operable at right angles to the path of movement of the strip, means for feeding the strip intermittently to said cutting device, said means comprising upper and lower contact-rollers, means for giving one of said rollers a step-by-step movement, and a brake operated intermittently with said means for ro-

tating said roller to limit the movement of the latter.

31. The combination with intermittently-operating feed-rollers to which the material is adapted to be delivered in a continuous strip, a continuously-operating endless carrier upon which the material is delivered from said feed-rollers, a presser-roller adjustable lengthwise of said endless carrier and beneath which roller the strip passes, a cutter operating in the path of the strip and during the intervals of rest of the material, successively-arranged and continuously-operating carriers upon which the severed strip is delivered from the cutter, and a folding device operating intermittently of said last-named endless carriers, means for operating said endless carriers continuously and means for operating said feeder means, cutter and folding means intermittently and coördinately.

32. The combination with intermittently-operating feed-rollers to which the material is adapted to be delivered in a continuous strip, a continuously-operating endless carrier upon which the material is delivered from said feed-rollers, a presser-roller adjustable lengthwise of said endless carrier and beneath which roller the strip passes, a cutter operating in the path of the strip and during the intervals of rest of the material, successively-arranged and continuously-operating carriers upon which the severed strip is delivered from the cutter and a folding device operating intermittently of said last-named endless carriers, means for operating said endless carriers continuously, means for operating said feeder means, cutter and folding means intermittently and coördinately, and an adjustable guide-bar arranged in the path of the severed section of material and in juxtaposition to the folding device.

33. The combination of three successively-arranged endless carriers having their upper planes disposed in substantially the same plane and all moving in the same direction, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip of material intermittently upon said carriers, and a folder operating between the second and third carriers.

34. The combination of three successively-arranged endless carriers having their upper planes disposed in substantially the same plane, a cutter operating between the first two of said carriers, means for driving the carriers continuously, means for feeding a strip of material intermittently upon said carriers, a presser-roller adjustable lengthwise of the machine and arranged between the cutter and said feeding means and a transversely-extending adjustable guiding device succeeding the folder and disposed in the path

of the severed section of the strip for the purpose of truing the edges of said severed section prior to folding, and a folder.

35. The combination with means for cutting a strip of fabric into desired lengths, and adjustable means for folding the severed sections of a piling device comprising a framework with adjustable walls and a movable bottom operatable vertically between said walls, said walls partially inclosed at the top to provide an air-cushion for the falling material.

36. The combination with a cutting device, of means for feeding a strip of material thereto, means for folding the severed sections of the strip and means for piling said folded sections, said last-named means including a frame having adjustable walls, a slotted bottom operatable between said walls, means for raising and lowering said bottom, said last-named means including a shaft with pulleys thereon, flexible connections between said pulleys and said movable bottom, means for rotating said shaft to raise or lower the bottom and locking means for holding the bottom at any desired elevation.

37. The combination with cutting mechanism, of means for delivering a strip of material thereto, means for folding the severed sections, carrier means, a reciprocating table upon which the folded sections are delivered, stop means arranged in the path of the material and above said table and a vertically-movable platform upon which the material is delivered on the withdrawal of the support afforded by said table beneath said stop means.

38. The combination with means for advancing a strip of material, of a cutter arranged in the path of the material and adapted to sever the same into desired lengths, means for folding the severed sections of material, suitable conveyer means upon which the folded sections are delivered, a succeeding conveyer to receive the folded sections, a table reciprocating across an opening and upon which table the folded sections are delivered and stop means in the path of the folded material and cooperating with the table to deposit the material through the said opening on the withdrawal of the table beneath said guide means.

39. The combination with cutting and folding devices, of means for feeding a strip of material to the cutter, means for delivering the severed sections to the folder, suitable conveying means receiving the folded sections, a reciprocating table upon which the folded sections are delivered by said conveying means, an adjustable guide arranged in the path of the folded sections cooperating with the table to deposit the folded sections beneath the table on the withdrawal of the support of the latter, a vertically-movable

platform upon which the material from the table is deposited.

40. In bag machinery and in a single organism, the combination of a printing device, a cutter, intermittently-operating means for feeding a continuous flexible web of material to the printing device, and an intermittently-operating feed mechanism between the printing device and cutter for feeding the imprinted strip to the cutter, said last-named feed mechanism operating subsequent to the putting in motion of the web by the printing-device feeding means.

41. In bag machinery and in a single organism, the combination with means for feeding a continuous web of material, of means for imprinting a brand or the like at intervals on said web, a cutting device for severing the printed web into bag lengths, and intermittently-operating means between the imprinting means and the cutting device for feeding the imprinted web to said cutting device, said feeding means for the cutter operating subsequent to the putting in motion of the web by the printing-device feeding means whereby the portion of the web between the cutting means and said feeding means remains stationary during a part of the imprinting operation substantially as described.

42. In bag machinery and in a single organism, the combination with means for feeding a continuous web of material, of means for imprinting a brand or the like at intervals on said web, a cutting device for severing the printed web into bag lengths, intermittently-operating means between the imprinting means and the cutting device for feeding the imprinted web to said cutting device, said feeding means for the cutter operating subsequent to the putting in motion of the web by the printing-device feeding means whereby the portion of the web between the cutting means and said feeding means remains stationary during a part of the imprinting operation, a folding device and means for adjusting the printing means with respect to the cutting device.

43. In bag machinery and in a single organism, the combination with means for feeding a continuous web of material, of means for imprinting a brand or the like at intervals on said web, a cutting device for severing the printed web into bag lengths, intermittently-operating means between the imprinting means and the cutting device for feeding the imprinted web to said cutting device, said feeding means for the cutter operating subsequent to the putting in motion of the web by the printing-device feeding means whereby the portion of the web between the cutting means and said feeding means remains stationary during a part of the imprinting operation, successively-ar-

ranged endless carriers beyond the cutting device having their carrying-surfaces arranged in substantially the same plane and moving in the same direction, and a folder
5 operating between said carriers.

44. In bag machinery and in a single organism, the combination with means for feeding a continuous web of material, of means for imprinting a brand or the like at
10 intervals on said web, a cutting device for severing the printed web into bag lengths, intermittently-operating means between the imprinting means and the cutting device for feeding the imprinted web to said cutting
15 device, said feeding means for the cutter operating subsequent to the putting in motion of the web by the printing-device feeding means whereby the portion of the web between the cutting means and said feeding
20 means remains stationary during a part of the imprinting operation, successively-arranged endless carriers beyond the cutting device having their carrying-surfaces arranged in substantially the same plane and moving in
25 the same direction, a folder operating between said carriers, and an adjustable stop beyond the folder and movable toward and from said folder and interposable in the path of the severed sections.

30 45. The combination with a printing-

press, of a cutting device mounted independently of the press and operatable in unison therewith, means for passing a strip of material through the press, means for feeding the imprinted strip to the cutting device, folding
35 means operating coördinately with the cutting device to fold the severed sections and an endless carrier operative on each side of the cutting device and folding device to support the fabric during the cutting and folding
40 operations.

46. The combination with the form and impression cylinders of a printing-press, of intermittently-operating means for feeding a web to said cylinders, a cutting device, in
45 termittently-operating means for feeding the printed web to said cutting device, said last-named feeding means operating subsequent to the putting in motion of the web by the first-named feeding means, and means for
50 varying the distance between the cutting device and said cylinders.

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

JOHN F. AMES.

Witnesses:

S. H. NOURSE,
JESSIE C. BRODIE.