

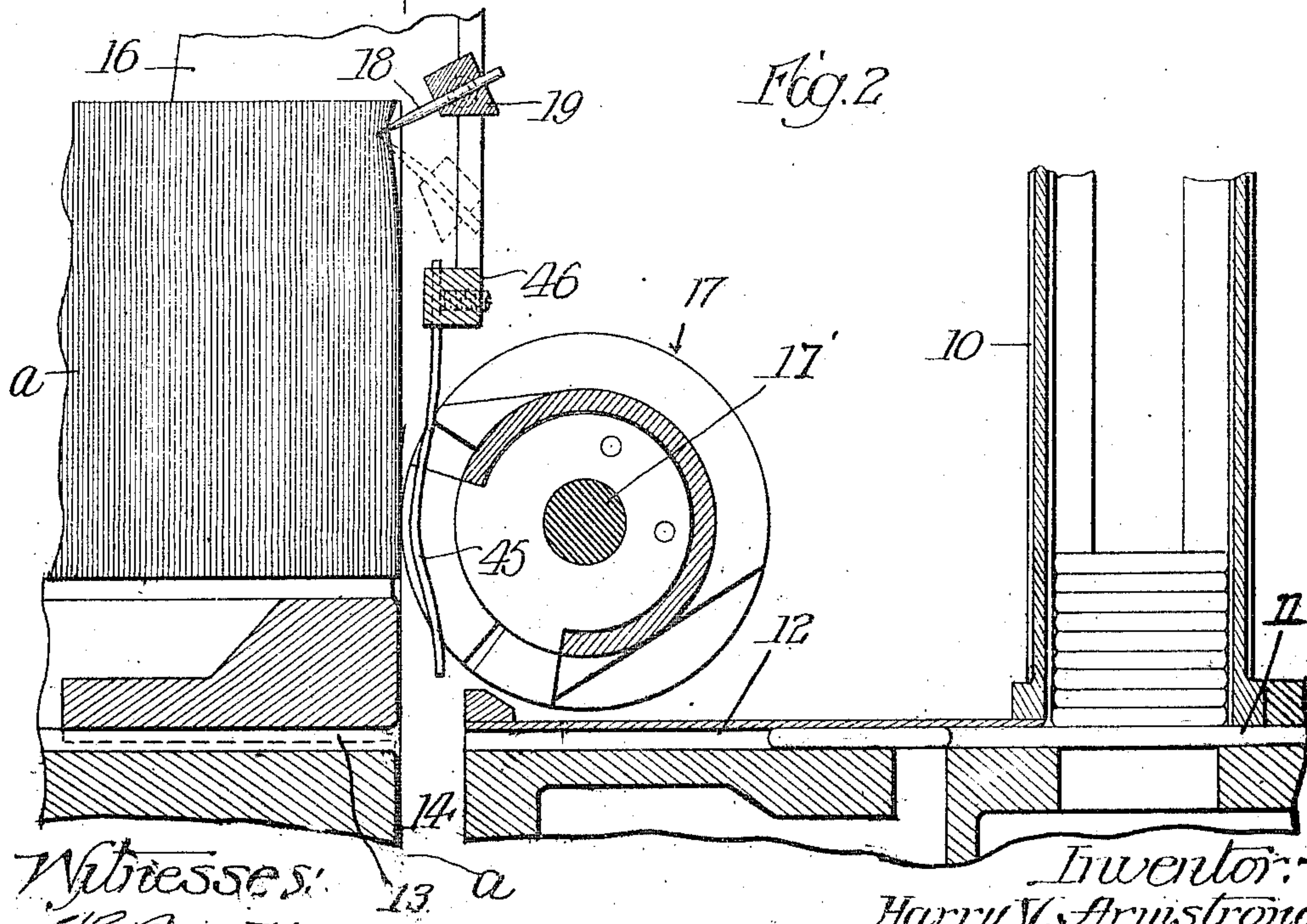
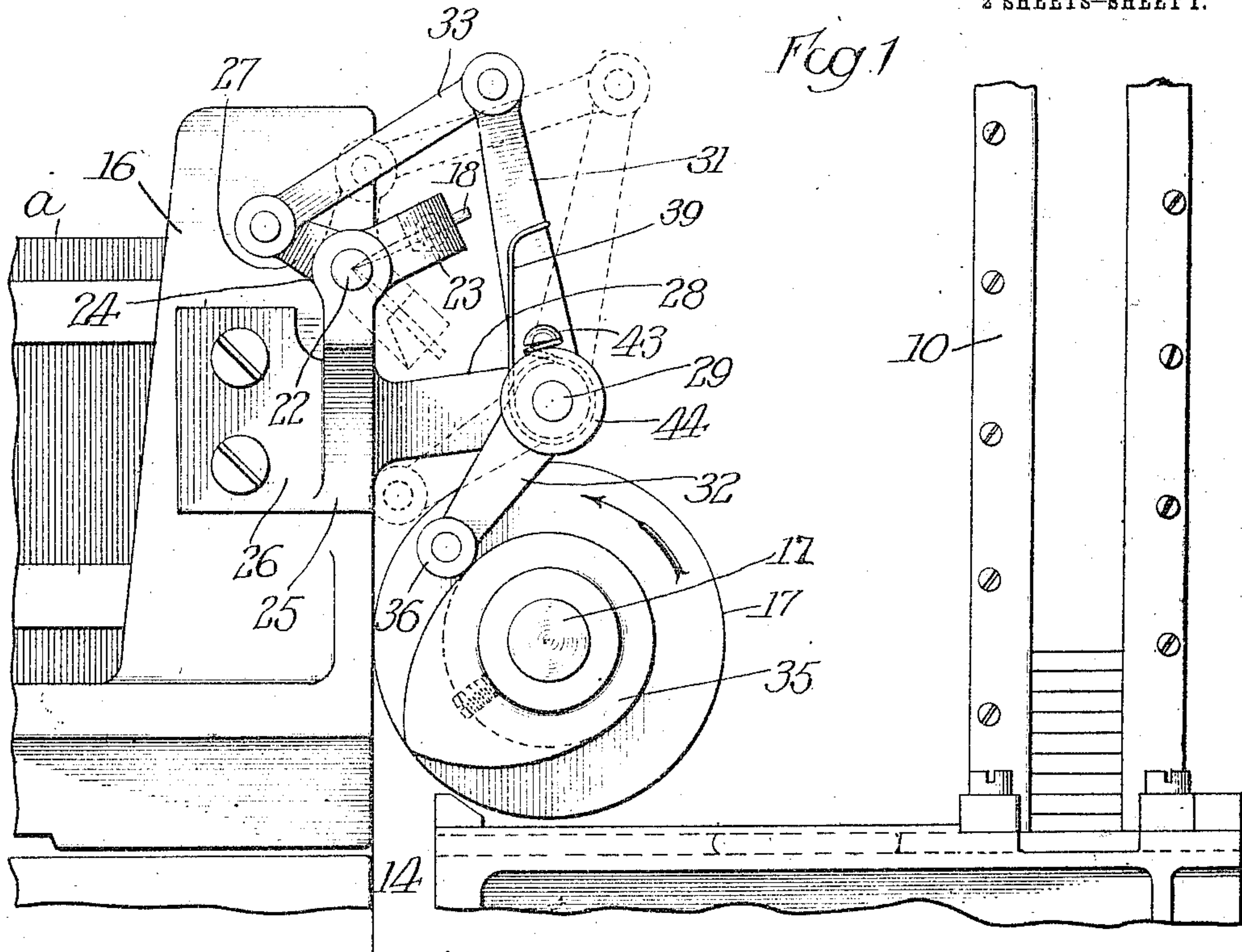
H. Y. ARMSTRONG.
WRAPPER OR SHEET FEEDING MECHANISM.

APPLICATION FILED NOV. 10, 1909. RENEWED DEC. 31, 1910.

998,737.

Patented July 25, 1911.

2 SHEETS—SHEET 1.



Witnesses:
W. B. Smith
L. F. Barber

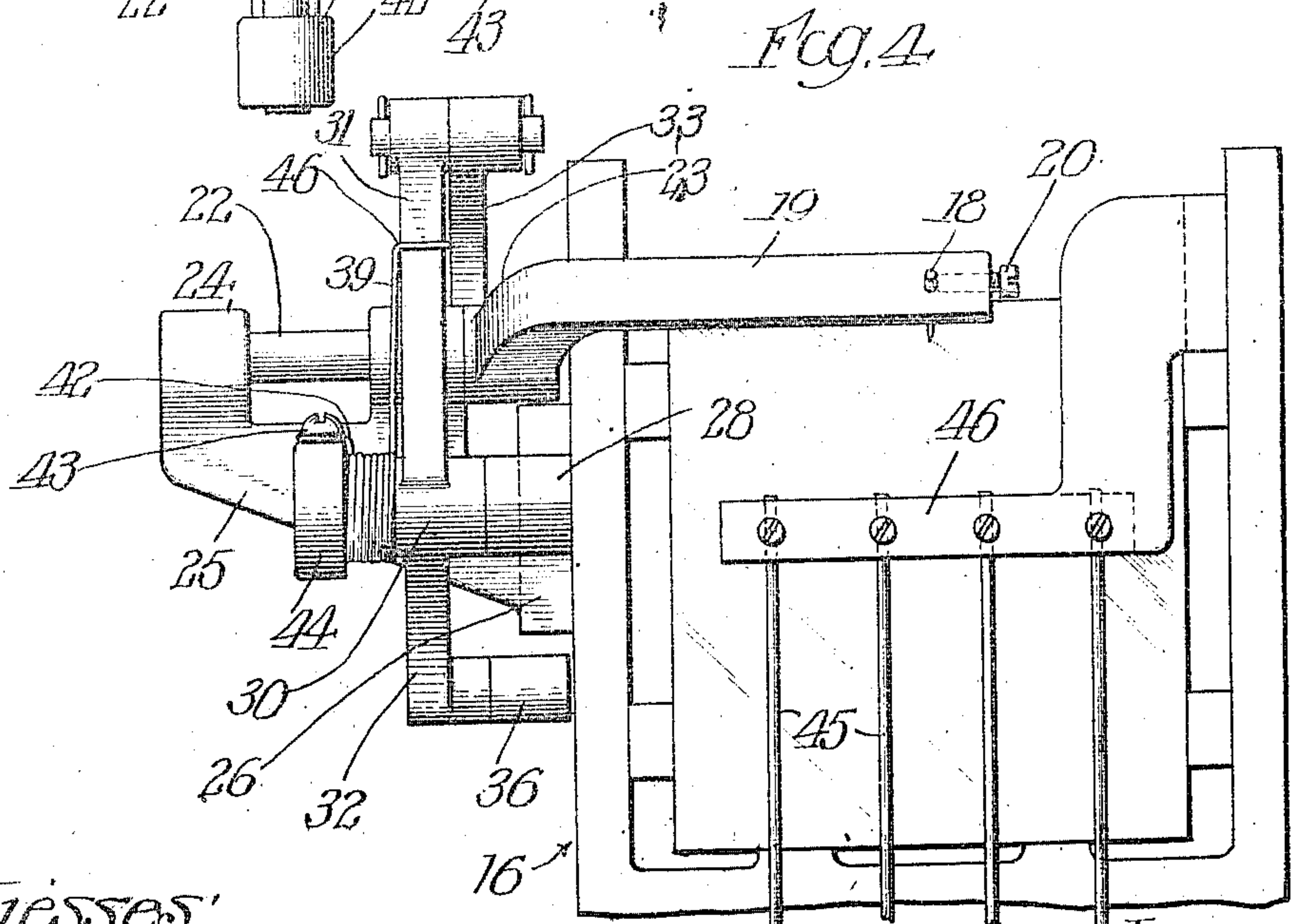
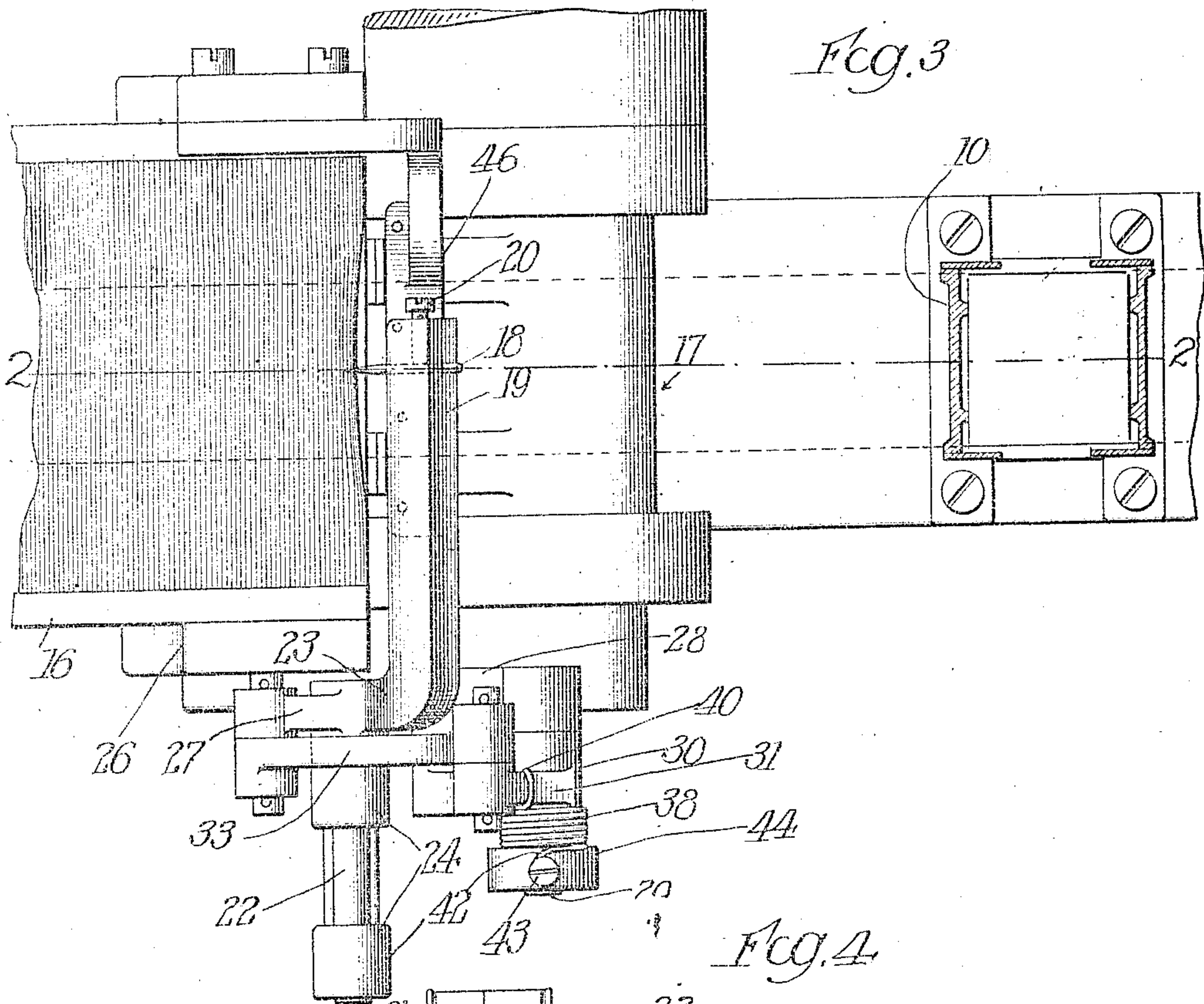
Inventor:
Harry V. Armstrong
by *William H. Hall* Atty.

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2 SHEETS-SHEET 2.



Witnesses:
H. G. Barrett
J. F. Barclay

Inventor:
Harry Y. Armstrong
by William L. Hall, Atty

UNITED STATES PATENT OFFICE.

HARRY YARRINGTON ARMSTRONG, OF ELGIN, ILLINOIS.

WRAPPER OR SHEET FEEDING MECHANISM.

998,737.

Specification of Letters Patent.

Patented July 25, 1911.

Application filed November 10, 1909. Serial No. 527,192. Renewed December 31, 1910. Serial No. 600,281.

To all whom it may concern:

Be it known that I, HARRY Y. ARMSTRONG, a citizen of the United States, and a resident of Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Wrapper or Sheet Feeding Mechanism, (Case No. 3:) and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in sheet delivery devices of that class designed to strip and deliver individual sheets, one at a time, from a compact bundle of sheets, and the invention relates more specifically to improved means arranged to prevent more than one sheet being stripped from the bundle at a time and thereby maintain a bundle of sheets in condition for single and consecutive delivery of the sheets.

My invention may be employed to separately deliver wrappers from a magazine to the wrapping mechanism of a wrapping machine, and the construction herein shown has been designed for such use. Said invention is, however, capable of other adaptations where it is desired to consecutively deliver sheets from a compact bundle.

The invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side view of a portion of a sheet delivery mechanism embodying my invention. Fig. 2 is a central vertical section on line 2-2 of Fig. 3. Fig. 3 is a plan view thereof. Fig. 4 is a front elevation of the magazine, with the stripper roller removed.

The sheet delivering mechanism illustrated herein is designed for use in connection with gum wrapping machines of the general type shown in my prior United States Letters Patent, Number 890,953, granted June 16, 1908, and is applied for delivering wrappers to the wrapping mechanism. Only such parts of the wrapping machine are illustrated as will facilitate the understanding of the application of my sheet or wrapper delivery mechanism thereto.

As shown in the drawings, 10 designates a hopper, from the bottom of which the pieces of gum are fed by gravity into the

path of a plunger 11 that reciprocates through the bottom of the hopper and through a way 12 formed in the machine frame, and through which way the gums are delivered to the wrapping mechanism, the slot 13 in line with said way constituting a part of the wrapping mechanism.

14 designates the upper part of a wrapper receiving recess into which the wrappers are separately delivered by my improved sheet delivery mechanism, so as to extend across the path of the gums as they are advanced by the plunger, and thus effect the initial folding of the wrapper about the gum, as set forth in my aforesaid prior patent. Located above and just in rear of this wrapper receiving recess is a magazine, designated as a whole by 16, in which are contained a compact bundle of wrappers *a* that are arranged vertically on their edges. The wrappers at the forward end of the magazine are in line with the wrapper receiving recess 14, and said wrappers are stripped one at a time from the inner end of the bundle by means of a stripper roller, designated as a whole by 17 and fixed to a horizontal rotative shaft 17'. The said stripper roller may be constructed in any suitable manner, and, as herein shown is like the roller illustrated in my co-pending application for United States Letters Patent, Serial Number 521,834 filed on the 9th day of October, 1909.

Referring now to the improved means, constituting the present invention for preventing the stripping of more than one wrapper from the end of the bundle one at a time, the same are made as follows: 18 designates a sharp pointed needle which is located in front of the bundle of wrappers in the magazine, near the upper side thereof, and penetrates at its point the first sheets of the bundle closest adjacent to the stripper roller. The said needle, thus arranged, affords a resistance to the removal of a second or third wrapper, which is not overcome by the friction of the wrapper being withdrawn upon the next wrapper to be withdrawn. Therefore but one wrapper is stripped at a time. In accordance with my invention this needle is given a swinging or oscillatory motion about an axis located at its point so as to prevent particles of paper, which may be torn from the wrappers, adhering to the end of the needle and thus clog the needle in a manner to prevent it properly penetrating

the wrappers. The said needle 18 is shown as mounted in and extends rearwardly from a horizontally arranged rocking bar 19 that extends inwardly across the upper front side of the bundle of wrappers from one side of the magazine, and the needle is locked in place by the set screw 20. The said rocking bar 19 is provided at its outer end with a bearing shaft 22, located out of alignment with the part of the bar that carries the needle, the said bar being offset at 23 for this purpose. The said bearing shaft has rocking engagement with bearing members 24 formed on an arm 25 extending laterally from and made integral with a casting 26 that is bolted or otherwise secured to the side wall of the magazine 16.

The rocking bar 19 is provided at its offset portion 23 with a rearwardly directed crank arm 27 with which is connected the mechanism for actuating or rocking said bar. The mechanism for so actuating and rocking the bar is made as follows: 28 designates an arm extending forwardly from the casting 26, to the rear end of which is fixed a short horizontal shaft 29. Mounted on said shaft 29 is a vertically swinging lever comprising a hub 30, an upper arm 31 and a lower arm 32. The upper arm of said lever is connected by a link 33 with the crank arm 27 of the rocking needle bar, and the lower arm 32 of said lever is adapted to be actuated by a cam 35 that is fixed to the stripper roller shaft 17' at one end of said roller; said lower arm 32 being provided with a laterally extending anti-friction bearing roller 36 which rides on the periphery of the cam. The bearing roller is held engaged with the cam face or track by means of a spring 38 that is coiled about the hub of said rocking lever. One terminal 39 of said spring extends along the upper arm of the lever and is provided with a hook 40 which hooks over said arm, and the other terminal 42 of the spring is wrapped about a screw 43 which is carried by a collar 44 fixed to said shaft 28 laterally outside of said spring 38.

With the construction described it will be obvious that during each rotation of the stripper roller and its shaft, the rocking bar 19 will be rocked downwardly from the full line position shown in Figs. 1 and 2 to the dotted line position shown in said figures, and again upwardly to the full line position about an axis in alignment with the axis of the offset bearing shaft 22 at the end of said rocking bar. During each cycle of movement of the needle, one sheet will be withdrawn or stripped from the bundle, the upper margin of the paper being torn to release it from the retarding needle. The swinging or oscillatory movement of the needle has the effect to dislodge any fragments of the sheets or wrappers which tend

to adhere to the needle point. Inasmuch as the needle makes two reversals of movement during each rotation of the stripper roller, it will be apparent that the efficiency of the needle movement to dislodge the fragments of paper from the needle point will be very much increased, as compared to a needle having a constant movement in one direction, as, for instance, a rotating movement. In the latter case the rotation of the needle constantly in one direction has a tendency to wrap the fragments about the needle point and thereby partially or wholly defeat the purpose of the device. It will be observed that the point of the needle engages the paper substantially in line with the axis of the bearing shaft of the rocking bar so that the needle has a true swinging movement about its penetrating point and about a fixed point in space.

In order to prevent the sheets or wrappers clinging to the stripper roller as they are stripped from the bundle, I provide a plurality of vertical guide wires 45 which are arranged between the roller and the bundle of sheets and extend at their lower ends below the center of the roller. The said guide wires are attached at their upper ends to a horizontal bar 46 which extends inwardly across the front end of the magazine from the side wall thereof. The said wires are designed to occupy the depressed central portion of the stripper roller between the enlarged ends thereof, which latter have constant bearing against the sheets, as in the construction shown in my aforesaid pending application. It will be understood that the sheets in the magazine are held up against the enlarged ends of the stripper roller by suitable pressure means acting against the rear end of the bundle, as a weight or a spring and that the said stripper roller holds the sheets a given distance from the needle bar 19 so that the needle will penetrate but a few of the outermost sheets at a time.

I claim as my invention:

1. The combination with means for holding a group of sheets in a compact bundle and means for stripping the sheets one by one from said bundle, of a needle penetrating the sheets at the end of the bundle from which they are stripped and swingable about its penetrating point, the same being a fixed point in space.

2. The combination with means for holding a group of sheets in a compact bundle and means for stripping the sheets one by one from said bundle, of a swinging needle penetrating the sheets at the end of the bundle from which they are stripped, and means for swinging said needle about its point in the direction of the stripping movement of the sheets.

3. The combination with means for hold-

ing a group of sheets vertically on edge in a compressed bundle and means for separately stripping the sheets from one end of the group, of a sheet retaining needle penetrating the sheets at the delivery end of the group and swingable vertically about its penetrating point.

4. The combination with a magazine having means for holding therein a compact group of sheets arranged on edge, a stripper roller against which the wrappers at one end of the group are pressed and arranged to separately strip the sheets from one end of the group, of a rocking bar extending across the end of the magazine, a needle carried by the bar which penetrates the first few sheets at the delivery end of the group and means for giving movement to the rocking bar to swing said needle about its point.

5. The combination with a magazine having means for holding therein a compact group of sheets arranged on edge, a stripper roller against which the wrappers at one end of the group are pressed and arranged to separately strip the sheets from one end of the group, of a rocking bar extending across the end of the magazine, a needle carried by the bar and adapted to penetrate the first few sheets at the delivery end of the group, the bar being provided with an offset bearing that is located with its axis in alinement with the point of said needle and means for giving movement to said rocking bar.

6. The combination with a magazine having means for holding therein a compact group of sheets arranged on edge, a stripper roller against which the wrappers at one end of the group are pressed and arranged

to separately strip the sheets from one end of the group, of a rocking bar extending across the end of the magazine, a needle carried by the bar and adapted to penetrate the first few sheets at the delivery end of the group, the bar being provided with an offset bearing that is located with its axis in alinement with the point of said needle, means for giving movement to said rocking bar, a rocking lever connected at one end with said rocking bar and a cam carried by the shaft of the stripper roller engaging the other end of the rocking lever for giving movement thereto.

7. Means for retarding the stripping of sheets from a compressed bundle of sheets, comprising a needle arranged to penetrate the outermost sheets at the delivery end of the bundle and swingable about its penetrating point, the same being a fixed point in space.

8. Means for retarding the stripping of sheets from a compressed bundle of sheets, comprising a needle arranged to penetrate the outermost sheets at the delivery end of the bundle, a rocking bar carrying said needle provided with an offset bearing in line with the needle point, and means for giving movement to said rocking needle carrying bar.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 28th day of September A. D. 1909.

HARRY YARRINGTON ARMSTRONG.

Witnesses:

W. L. HALL,

W. GOLDBERGER.