

No. 864,434.

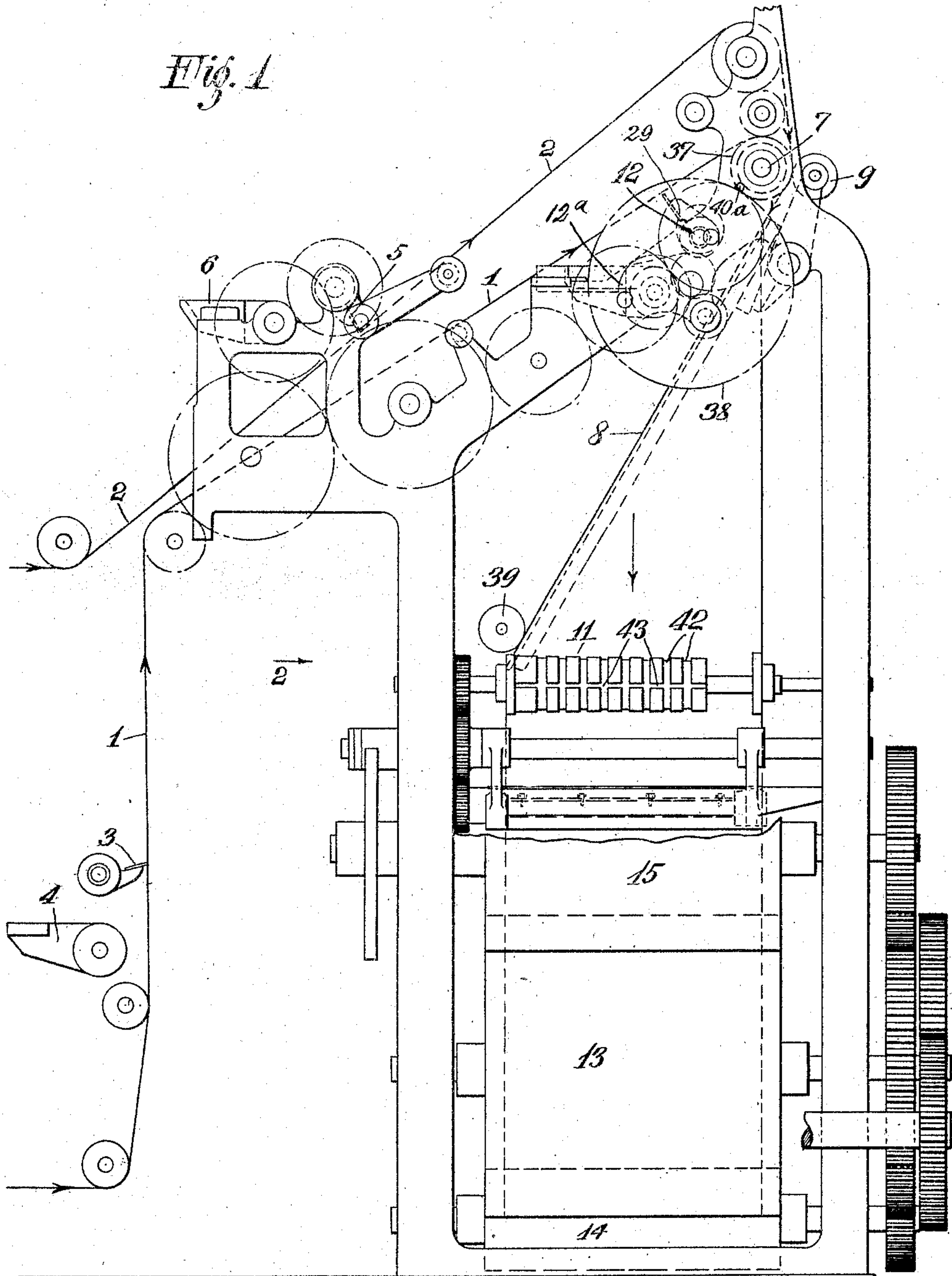
PATENTED AUG. 27, 1907.

W. SCOTT.

WEB FOLDING AND ASSOCIATING DEVICE.

APPLICATION FILED NOV. 14, 1904.

3 SHEETS—SHEET 1.



Witnesses
Ivan Tonigsberg.
Anne Wessman.

Walter Scott. Inventor
By his Attorneys
Beckman & Spaulding

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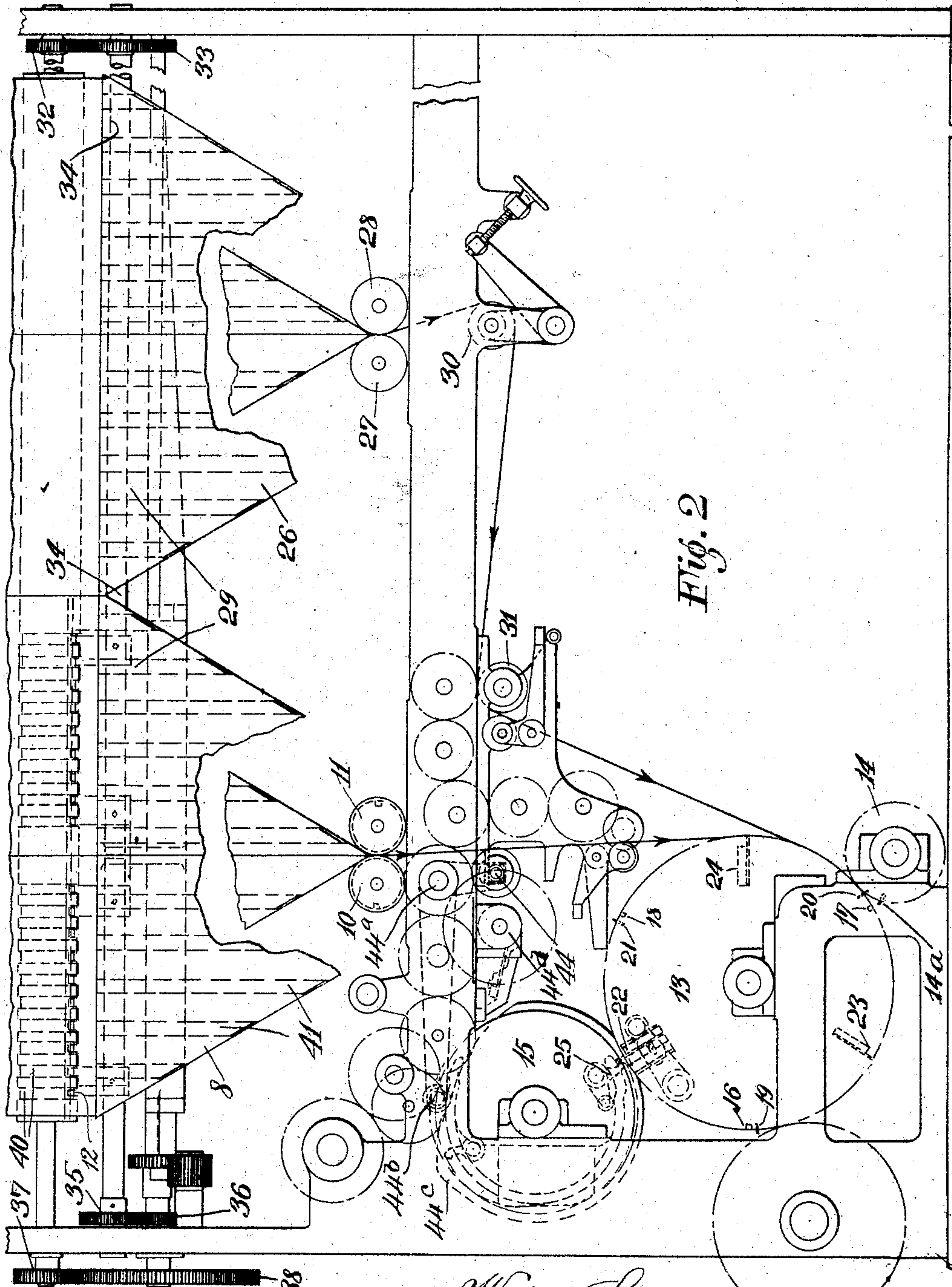
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3 SHEETS—SHEET 2.



Witnesses
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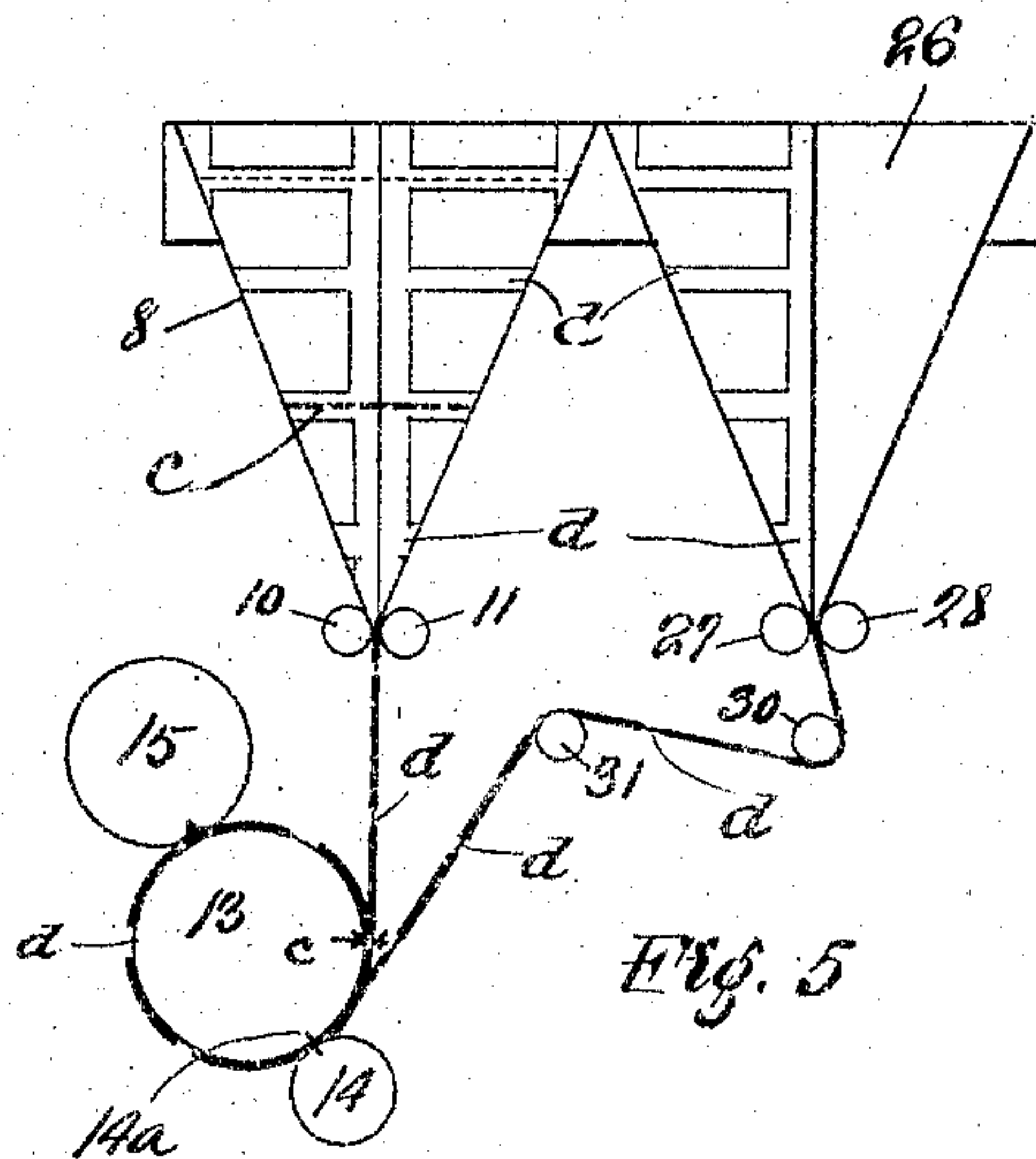
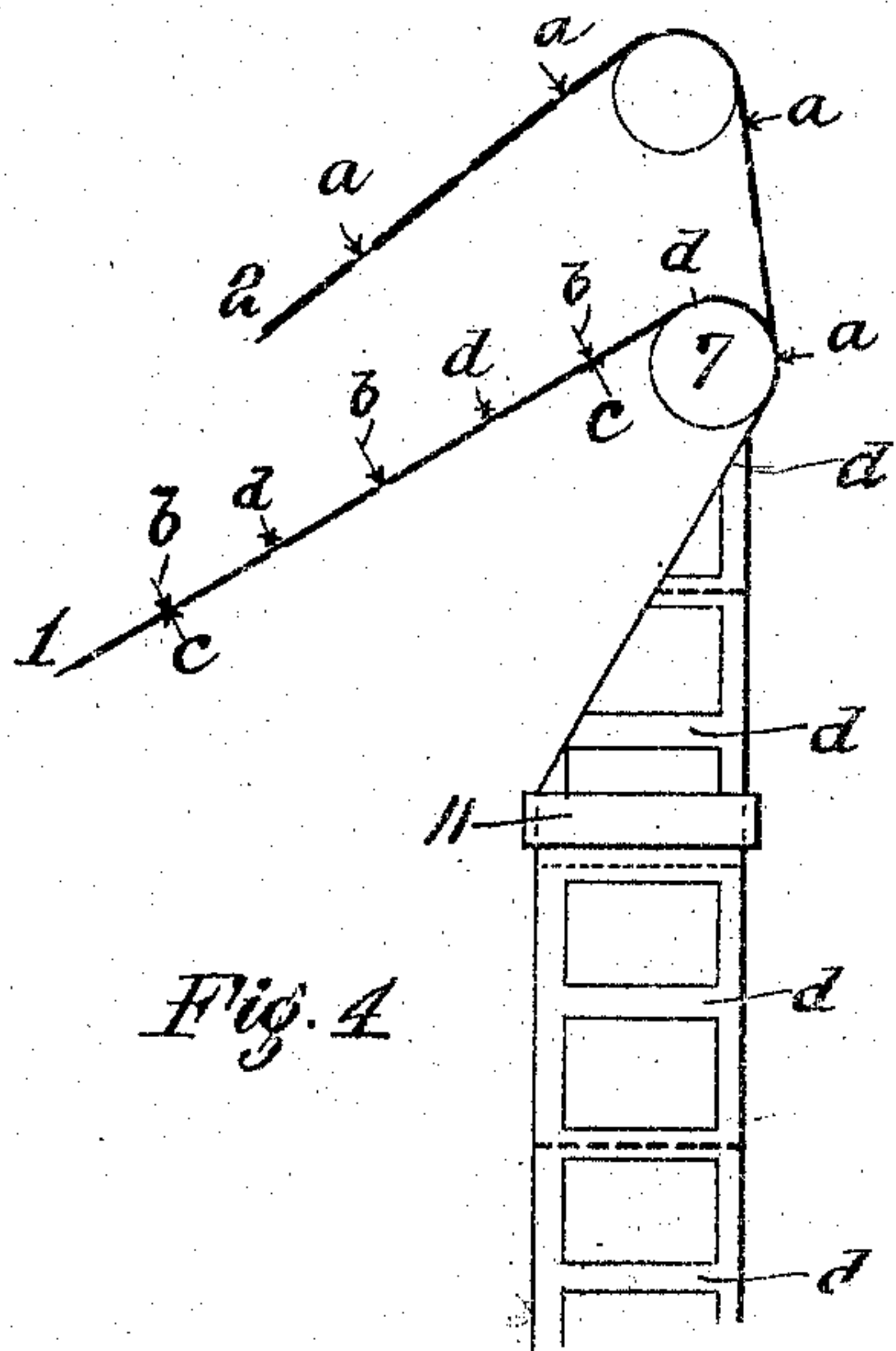
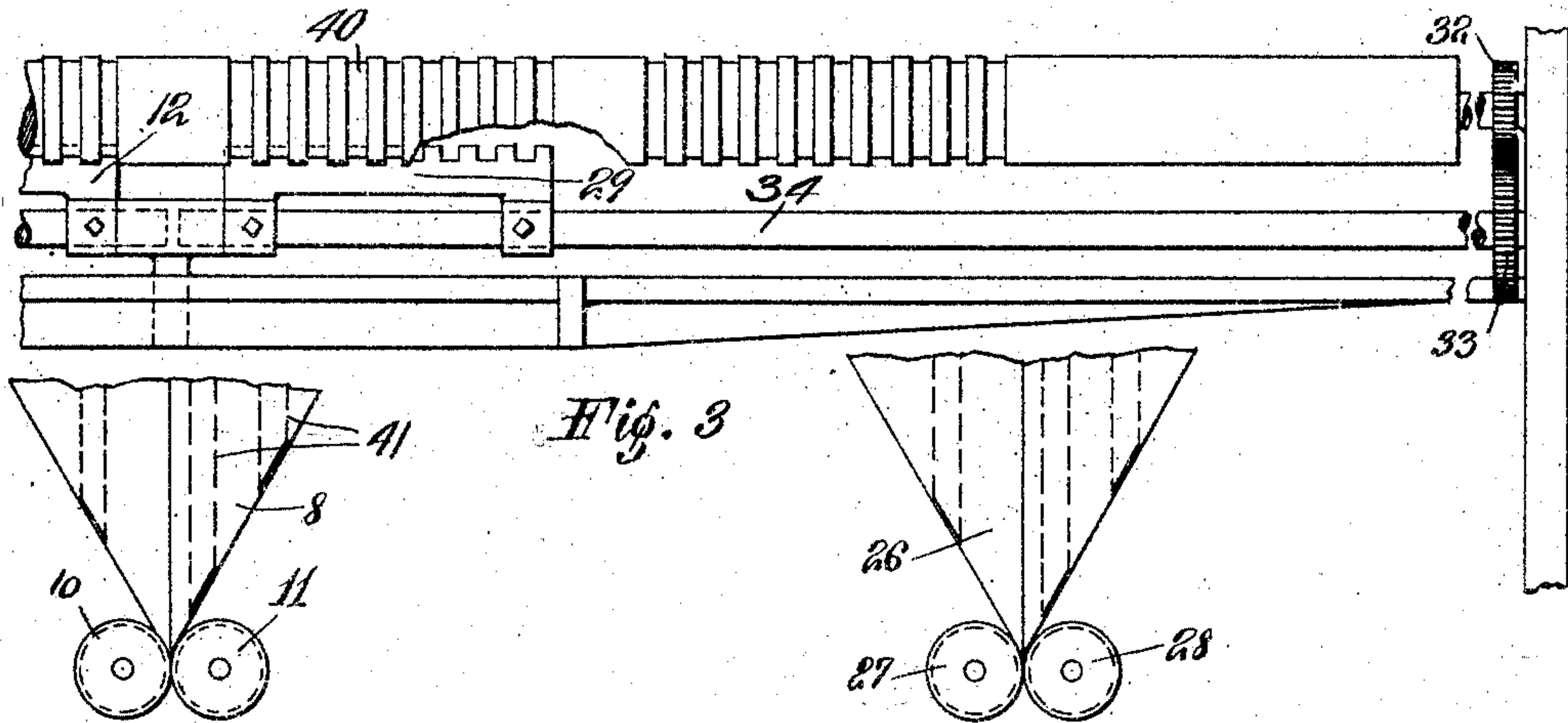
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WEB FOLDING AND ASSOCIATING DEVICE.

APPLICATION FILED NOV. 14, 1904.

3 SHEETS—SHEET 3.



Witnesses
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Anna Husemann

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UNITED STATES PATENT OFFICE.

WALTER SCOTT, OF PLAINFIELD, NEW JERSEY.

WEB FOLDING AND ASSOCIATING DEVICE.

No. 864,434.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed November 14, 1904. Serial No. 232,764.

To all whom it may concern:

Be it known that I, WALTER SCOTT, a citizen of the United States of America, and a resident of Plainfield, Union county, New Jersey, have invented certain new and useful Improvements in Web Folding and Associating Devices, of which the following is a specification.

My invention relates generally to web folding and associating devices, and its chief object is to avoid the necessity of separating webs after they have been associated in order to paste them together.

To this end the invention comprises the features of construction and combinations of parts hereinafter described.

In the accompanying drawings the invention is shown in a concrete and preferred form, although its embodiment may vary widely without departing from the spirit and scope of the invention.

In the said drawings: Figure 1 is an end elevation of a machine embodying my invention. Fig. 2 is a view looking in the direction of the arrow 2 in Fig. 1. Fig. 3 is a detail view of the pasting mechanism adjacent to the former folders, partly broken away to facilitate the illustration thereof. Fig. 4 is a diagrammatic view of the web showing the relation of the printed matter to the pasting lines. Fig. 5 is also a diagrammatic view showing the relation of the printed matter to the pasting lines and the cutting lines on the web.

Similar characters of reference indicate corresponding parts in the different views.

1 indicates a web as it comes from a printing couple, and any number of superposed webs desired may of course be used, and for this reason I have shown a second web as 2 coming from another printing couple. The cylinders of the printing machine are arranged with the columns lengthwise of the axis of the cylinder, and may be two, three or four pages wide, as desired, four plates following each other in succession around the circumference of the cylinders.

3 indicates a pasting blade which receives paste from the fountain 4 and applies transverse lines of paste to the inner side of the web 1, the entire width of the web. 5 is another transverse paste blade which receives paste from the fountain 6 and applies a transverse line of paste on the inner side of the web 2, the entire width of the web. These lines of paste may be either continuous or in the nature of dots or dashes.

12^a indicates a paste fountain extending across the machine. 12 and 29 are paste blades which receive their supply of paste from this fountain and apply transverse lines of paste to the outer side of the web 1. The paste blades 3, 5 and 29 apply paste to each second margin of the printed webs, which are the margins to form the central part of the book, when folded, the sheets when cut off being in lengths of two pages each and the webs being severed in the margins alternating

with the pasted margins. The paste blade 12 applies a transverse line of paste to every fourth margin of the web; that is to say, on every other margin, pasted by the pasting blade 3 for the purpose of pasting two sections of the web following each other together to form a complete signature. The edges of all the pasters revolve at or about the same speed as the webs of paper while they are in contact with them.

The two webs meet as they travel over the rollers 7, and in this way two or more superposed webs may be pasted together.

8 indicates a former folder or associator of a well known construction for folding or associating the right and left hand sections of the web passing over the same. A suitable slit as 9 is located at a suitable point as adjacent to the roller 7, for slitting the web into two sections so that the said sections may be associated by means of the former 8 between the rolls 10 and 11. If only one web is to be folded, the paste line applied by the paster 3 will paste the two sections of the web together when folded or associated, while if two superposed webs are folded the paste applied by the paster 3 will paste the two superposed webs together and the paste from the paster 5 will paste the two sections together when folded or associated.

13 indicates a cutting, collecting and folding cylinder, in this instance of a size equal to three lengths of sheets to be cut off, each sheet consisting of two pages, and is adapted to cooperate with the cutting cylinder 14 and the folding cylinder 15. The cylinder 13 is provided in this instance with three female cutting grooves 16, 17 and 18 and with three sets of impaling pins or other sheet taking devices, 19, 20 and 21, each located just in the rear of the female cutting grooves or members. It is further provided with three creaser blades 22, 23 and 24 adapted to cooperate with the nipper folders 25 on the cylinder 15. The cylinder 14 is provided with a male cutting member 14^a. The parts are so arranged that only every other sheet or pack of sheets will be folded off and transferred to the cylinder 15.

In case the web or webs printed are more than two pages wide, a second former folder as 26 may be used adapted to associate or fold the web or webs between the rolls 27 and 28, from whence the webs pass over the rollers 30 and 31 down to the cylinder 13 where it is associated with the web coming from the former 8.

The paster 29 is suitably driven by means of the gears 32 and 33 and is mounted on the shaft 34. It will be noticed that this shaft extends all the way across the former 26, and half way across the former 8, so that the pasting blade may be located so as to apply transverse lines of paste to the right hand section of the web on its outer side on the former 8, or to the left hand section of the web on the former 26, also on its outer side. The pasting blade 12 is operated by any suitable means

as by the eccentric gears 35 and 36, which latter in turn are driven by the gears 37 and 38. Instead of having the pasting device 12 apply paste before the web reaches the roller 7, it may be positioned so as to apply paste to the web after it has passed over the said roller 7. In that case, the slitter might conveniently be located as indicated at 39. It will of course be understood that if the slitter were located there when several formers are used, it would still be necessary to have a slitter located adjacent to the roller 7 in order to slit the web into two sections one for each former folder. The formers and rollers over which the web passes are suitably grooved in a well known manner to avoid rubbing off the paste. Thus if the web is pasted before it reaches the roller 7, it is necessary to provide the said roller with a longitudinal groove as 40^a, but that is only possible where the said roller 7 is a multiple of the printing cylinders. Otherwise it is necessary to provide it with circumferential grooves as 40.

41 indicates the grooves on the former folder to prevent the paste from rubbing off in a well known manner. Likewise, the rollers 10 and 11 are provided with either circumferential grooves 42 or longitudinal grooves 43 to prevent the paste from rubbing off while the web is passing between the said two rolls.

If desired, the pasting device which applies paste to the outer side of a portion of the web on every fourth margin may be located so as to supply paste to the web after it has passed over the former folder. This is indicated in Fig. 2, where 44 indicates the paster mounted on the shaft 44^a which is rocked by means of the lever 44^b operated by the cam 44^c, so as to cause the said paster to oscillate between the fountain 44^d and the web. The parts could also be arranged in any other manner to effect the same result.

Assuming now that the webs 1 and 2 are two pages in width, they will then, in their passage, receive transverse paste lines on every other margin throughout their entire width on the inner side of the webs. These paste lines are indicated by *a* and *b* in the diagrams. When the web 1 reaches the paster 12, it will receive a transverse paste line on the outer side of the left hand portion of the web. The webs 1 and 2 in passing over the roller 7 will be superposed and will from thence pass around over the former folder 8 and will be associated together between the rolls 10 and 11. By this means the paste lines *b* will have pasted the two superposed webs together in every second margin while the paste lines *a* will have pasted the right and left hand sections of the webs together also in every second margin while the paste line *c* applied to every fourth margin on the outside of the left hand portion of the web will be exposed adjacent to the cylinder 13.

As the webs pass between the cylinders 13 and 14, they are severed into sheets, two pages in length, or are cut in every other margin *d* alternating with the margin to which the paste lines have been applied, by the pasters 3 and 5. Inasmuch as the paster 12 applies a paste line on every fourth margin only, it will be understood that every other sheet or pack of sheets cut off by the cylinders 13 and 14 will be unpasted so far as its outer surface is concerned, while every other sheet or pack of sheets will be pasted on its outer surface or on the surface adjacent to the cylinder 13. As

previously stated, the parts are so arranged that only every other sheet or pack of sheets will be folded off and transferred to the folding cylinder 15. The unpasted sheets or pack of sheets which are cut off between the cylinders 13 and 14 are carried around and transferred back by the cylinder 13 until it meets the pasted portion of the web, the said pasted portion of the web then being associated with the unpasted sheet or pack of sheets and cut off into a sheet or pack of sheets of the same size as the sheet previously cut off, and both are then carried around by the cylinder 13 and folded off on the cylinder 15.

If the web is three pages wide, a portion of the web will pass over the former folder 26, and in that instance the pasting device 29 will be used. This pasting device 29 may supply paste either to the outside of the right hand portion of the web passing over the former folder 8, or it may supply paste to the outside of the portion of the web passing over the former folder 26. Or the said pasting device could supply paste to both the outside of the right hand portion of the web passing over the former folder 8, and to the outside of the portion of the web passing over the former folder 26, and this transverse paste line applied by the paster 29 will paste the webs together as they are associated between the cylinders 13 and 14 where both the webs coming from the former folder 8 and the web coming from the former folder 26 will be cut off together into sheet lengths.

If the web is three pages wide and there is no web on the right hand portion of the former folder 26, then no paste should be applied to the inner side of the web 2 by the paster 5, inasmuch as this paste line serves to paste the right and left hand sections of the web passing over the same former folder together. If, on the other hand, the web is four pages wide, then paste would be applied by the paster 5 to that portion of the web which passes over the former folder 26. In this case, the action after the two portions of the web are associated between the rolls 27 and 28, will be the same as previously described, and the action of the parts on the two webs coming from the two former folders, after they meet between the cylinders 13 and 14, will be the same as previously described.

Some of the elements, such as the slitters, and pasters, have been shown to a very large extent diagrammatically, but inasmuch as these elements are so well known in the art, it is not thought necessary to elaborate the illustration of the same.

The word "former" should be construed to mean any folder or angle bar or any associator or half of a former, and the word "web" should be construed to mean either a web or a portion of a web.

The words "outer side" and "inner side" as used in connection with the paste lines applied to the webs are of course purely relative in their nature, for if the arrangement of the parts were changed, the paste lines could be reversed or placed on the other side of the web. The claims should be construed accordingly.

What is claimed is:

1. The combination of means for applying paste in a transverse line to every fourth successive margin of a web, means for severing the said web in two-page sheet lengths so that every other sheet severed has a transverse paste line in the margin forming the center of the book, and whereby every other sheet severed is unpasted, and means

for transferring the unpasted sheet cut from the said web back to the pasted portion of the web and associating the two together.

2. The combination of means for applying paste transversely to the inner surface of a web in every other successive margin, means for associating two portions of the web, means for applying paste in a transverse line to every fourth successive margin of the web on one of the outer surfaces thereof, means for severing the said web portions in two-page sheet lengths so that every other sheet severed has a transverse paste line in the margin forming the center of the book, and whereby every other sheet severed is unpasted, and means for transferring the unpasted sheet cut from the said web portions back to the pasted portion of the web and associating the two together.

3. The combination of means for applying paste transversely to the inner surface of a web in every other successive margin, means for slitting the web, means for associating the slit portions of the web, means for applying paste in a transverse line in every fourth successive margin of the web on one of the outer surfaces thereof, means for severing the said web portions in two-page sheet lengths so that every other sheet severed has a transverse paste line in the margin forming the center of the book, and whereby every other sheet severed is unpasted, and means for transferring the unpasted sheet cut from the said web portions back to the pasted portion of the web and associating the two together.

4. The combination of means for applying paste in a transverse line to the inner surface of a web, means for applying paste in a transverse line to the outer surface of a portion of the web, means for slitting the web longitudinally, means for bringing the slit portions of the web together, means for severing the web, and means for transferring an unpasted sheet cut from the said web back to a pasted portion of the web and associating them together.

5. The combination of means for applying a transverse line of paste to the inner surface of a web, means for slitting the web longitudinally, means for bringing the slit portions of the web together, means for applying a transverse line of paste to the outer surface of one of the portions of the web, cutting and collecting means arranged to conduct an unpasted sheet cut from the said web back to a pasted portion of the web and associating the two together.

6. The combination of means for associating a plurality of webs, means between said webs for applying paste to one of them along a transverse line, means for slitting said webs longitudinally, means for applying paste along a transverse line to the outer surface of one portion of the webs, means for severing the webs, and means for transferring a pack of sheets having an unpasted outer surface back to an outer pasted portion of the webs and associating them together.

7. The combination of means for associating a plurality of webs, means between said webs for applying paste to one of them along a transverse line, means for slitting said webs, means for applying paste along a transverse line to the outer surface of one portion of the webs, cutting and collecting means for severing the said webs transversely into sheets and for transferring back a pack of sheets whose outer surface is unpasted to a web, whose outer surface is pasted, and associating them together.

8. The combination of means for associating a plurality of webs, means for applying paste in transverse lines to the webs so that by slitting the webs longitudinally and by bringing the slit portions together, all the slit portions will be pasted together, means for cutting the web and for transferring sheets whose outer surface is unpasted back to a pasted portion of the web and associating them together.

9. The combination of means for applying a transverse line of paste to each second margin of printed webs, means for associating the webs, means for slitting the webs, means for associating the slit portions of the webs, means for applying transverse lines of paste to each fourth successive margin of the outer surface of one portion of the web, means for cutting the webs transversely, and means for associating the cut portion whose outer surface is unpasted with the pasted portion of the web.

10. The combination of means for applying a transverse line of paste to each second margin on the inner side of printed webs, means for associating the webs, means for slitting the webs, means for associating the slit portions of the webs, means for applying transverse lines of paste to each fourth successive margin of the outer surface of one portion of the webs, means for cutting the webs transversely on every other margin alternating with the paste lines in every second margin, and means for associating the unpasted cut portion with the pasted portion of the web.

11. The combination of means for applying a transverse line of paste to each second margin on the inner side of a printed web, means for associating the several portions of the webs, means for applying transverse lines of paste to each fourth successive margin of the outer surface of one portion of the web, means for cutting the webs transversely in every other margin alternating with the paste lines applied to each second margin, and means for associating the unpasted cut portion with the pasted portion of the web.

12. The combination of means for applying a transverse line of paste to each second margin on the inner side of a printed web, means for associating the several portions of the web, means for applying transverse lines of paste to each fourth successive margin of the outer surface of one portion of the web, means for cutting the webs transversely in every other margin alternating with the paste lines applied to each second margin, and means for associating successive cuts of the same web together.

13. The combination of means for applying transverse paste lines to each second margin on the inner side of printed webs, means for associating the webs, means for slitting the webs, means for associating the slit portions of the webs, means for applying transverse lines of paste to one outside portion of the web, a cutting and collecting cylinder located on that side of the web having a transverse paste line on every fourth margin, and a cutting cylinder for cooperating with the said cutting and associating cylinder.

14. The combination of a longitudinal former, a second longitudinal former, a slit interposed between the two formers, means for applying transverse lines of paste to every fourth successive margin on the outside of one portion of one of the webs, means for associating the webs, means for severing the associated webs transversely, and means for transferring a pack of sheets whose outer surface is unpasted back to a pasted portion of the webs and associating it therewith.

15. The combination of a longitudinal folder, means for slitting the web, means for applying a transverse line of paste to the outer surface of one of the portions of the web before slitting, and means for transferring an unpasted sheet cut from the said web back to a pasted portion of the web and associating it therewith.

16. The combination of means for applying paste in a transverse line to the inner surface of a web, means for applying paste in a transverse line to the outer surface of a portion of the web before slitting, means for slitting the web longitudinally, means for bringing the slit portions of the web together, and means for cutting and transferring an unpasted sheet cut from the said web back to a pasted portion of the web and associating them together.

17. The combination of means for applying a transverse line of paste to the inner surface of a web, means for slitting the web longitudinally, means for bringing the slit portions of the web together, means for applying a transverse line of paste to the outer surface of one of the portions of the web before slitting, collecting means arranged to conduct an unpasted sheet cut from the said web back to a pasted portion of the web and associating the two together.

18. The combination of means for associating a plurality of webs, means between said webs for applying paste to one of them along a transverse line, means for slitting said webs longitudinally, means for applying paste along a transverse line to the outer surface of one portion of the webs before slitting, and means for transferring a pack of sheets whose outer surface is unpasted

back to a pasted portion of the web and associating them together.

19. The combination of means for associating a plurality of webs, means between said webs for applying
5 paste to one of them along a transverse line, means for slitting said webs longitudinally, means for applying
paste along a transverse line to the outer surface of one portion of the webs before slitting, means for severing
said webs transversely into sheets, and means for asso-
10 ciating the sheets whose outer surface is unpasted with the pasted web.

20. The combination of means for associating a plurality of webs, means for applying paste in a transverse
line on the web before slitting so that by slitting the
15 webs longitudinally and by bringing the slit portions together all the slit portions will be pasted together, means
for applying paste in a transverse line to the outer surface of one of the portions of the webs, means for sever-
ing the webs transversely into sheets and means for trans-
20 ferring the sheets whose outer surface is unpasted back to a pasted portion of the web and associating them to-
gether.

21. The combination of means for applying a transverse
line of paste to each second margin of printed webs on
25 their inner side, means for associating the webs, means
for slitting the webs, means for associating the slit portions of the web, means for applying transverse lines of
paste to each fourth successive margin of the outer sur-
face of one portion of the web, before slitting, means for
30 cutting the webs transversely, and means for associating the unpasted cut portion with the pasted portion of the
web.

22. The combination of means for applying a transverse
line of paste to each second margin of printed webs,

means for associating the webs, means for slitting the 35
webs, means for associating the slit portions of the webs,
means for applying a transverse line of paste to each
fourth successive margin of the outer surface of one por-
tion of the web before slitting, means for cutting the webs
transversely, means for associating the unpasted cut por- 40
tion with the pasted portion of the web, and means for
folding the associated cut sheets.

23. The combination of means for applying transverse
lines of paste to each second margin of the printed webs
on their inner sides, means for associating the webs, 45
means for slitting the webs, means for associating the slit
portions of the webs, means for applying transverse lines
of paste to one outside portion of the webs before slitting
in every fourth margin thereof, a cutting and associating
cylinder located on that side of the web having the trans- 50
verse paste lines on every fourth margin, and a cutting
cylinder for cooperating with the said cutting and asso-
ciating cylinder.

24. The combination of a longitudinal former, a second
longitudinal former, a slitter interposed between the two 55
formers, means for applying transverse lines of paste to
every fourth successive margin on the outside of one por-
tion of one of the webs before slitting, means for severing
the said associated webs transversely, and means for
transferring a pack of sheets whose outer surface is un- 60
pasted back to a pasted portion of the web and associating
them together.

Signed at New York, this 5th day of November, 1904.

WALTER SCOTT.

Witnesses:

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JOHN H. HAZELTON.