

(No Model.)

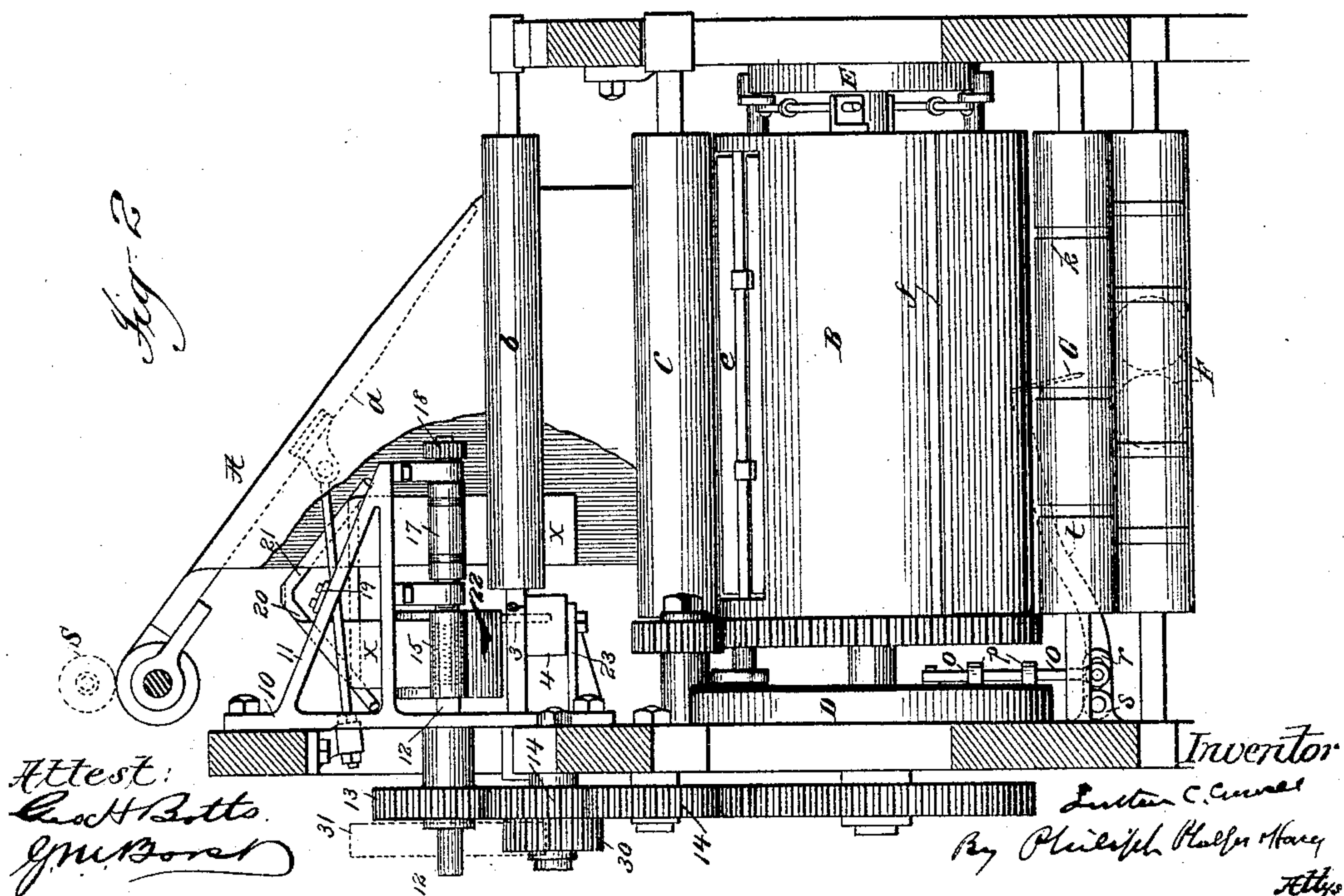
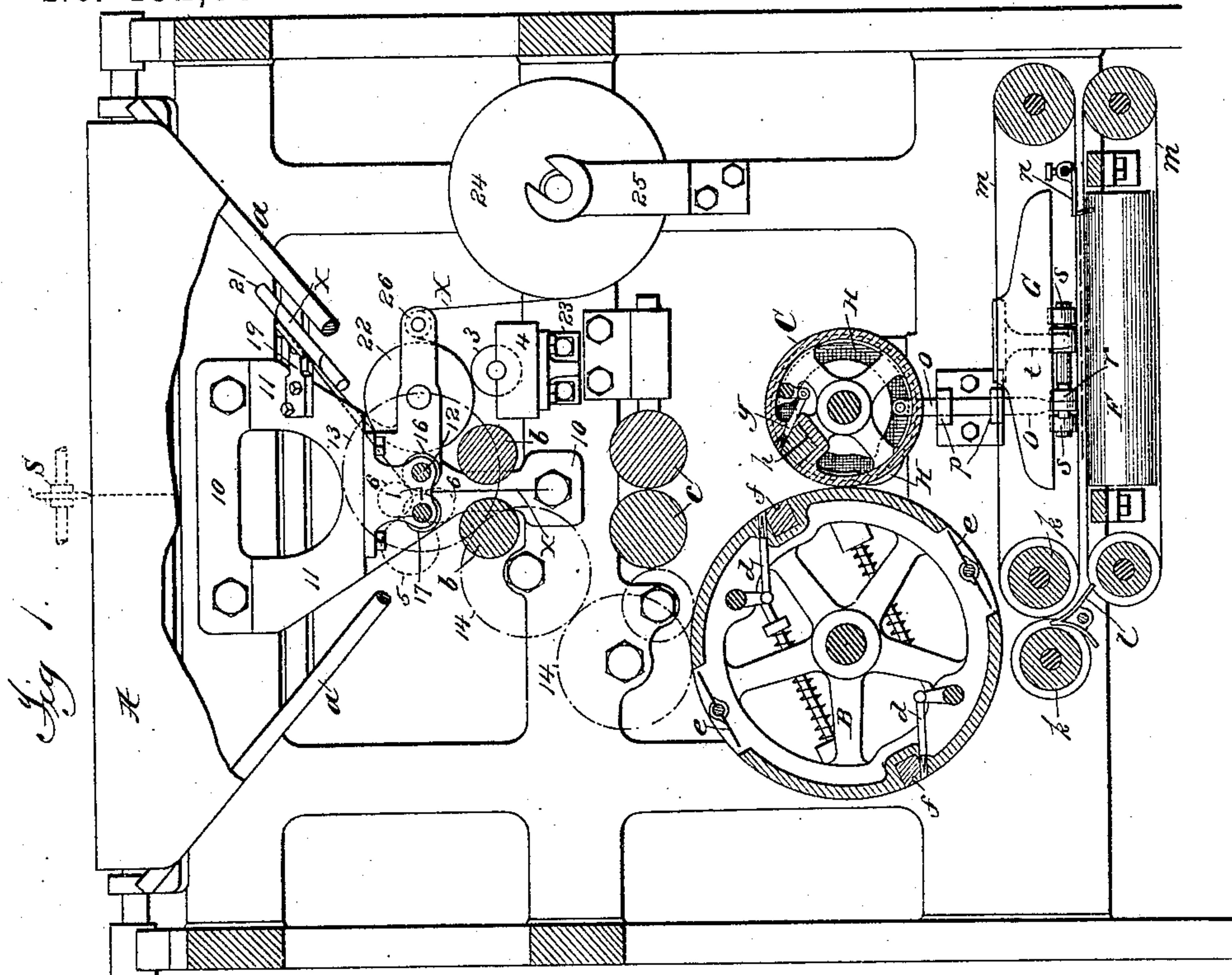
2 Sheets—Sheet 1.

L. C. CROWELL.

PRINTING ATTACHMENT FOR THE DELIVERY MECHANISM OF WEB
PRINTING MACHINES.

No. 452,596.

Patented May 19, 1891.



(No Model.)

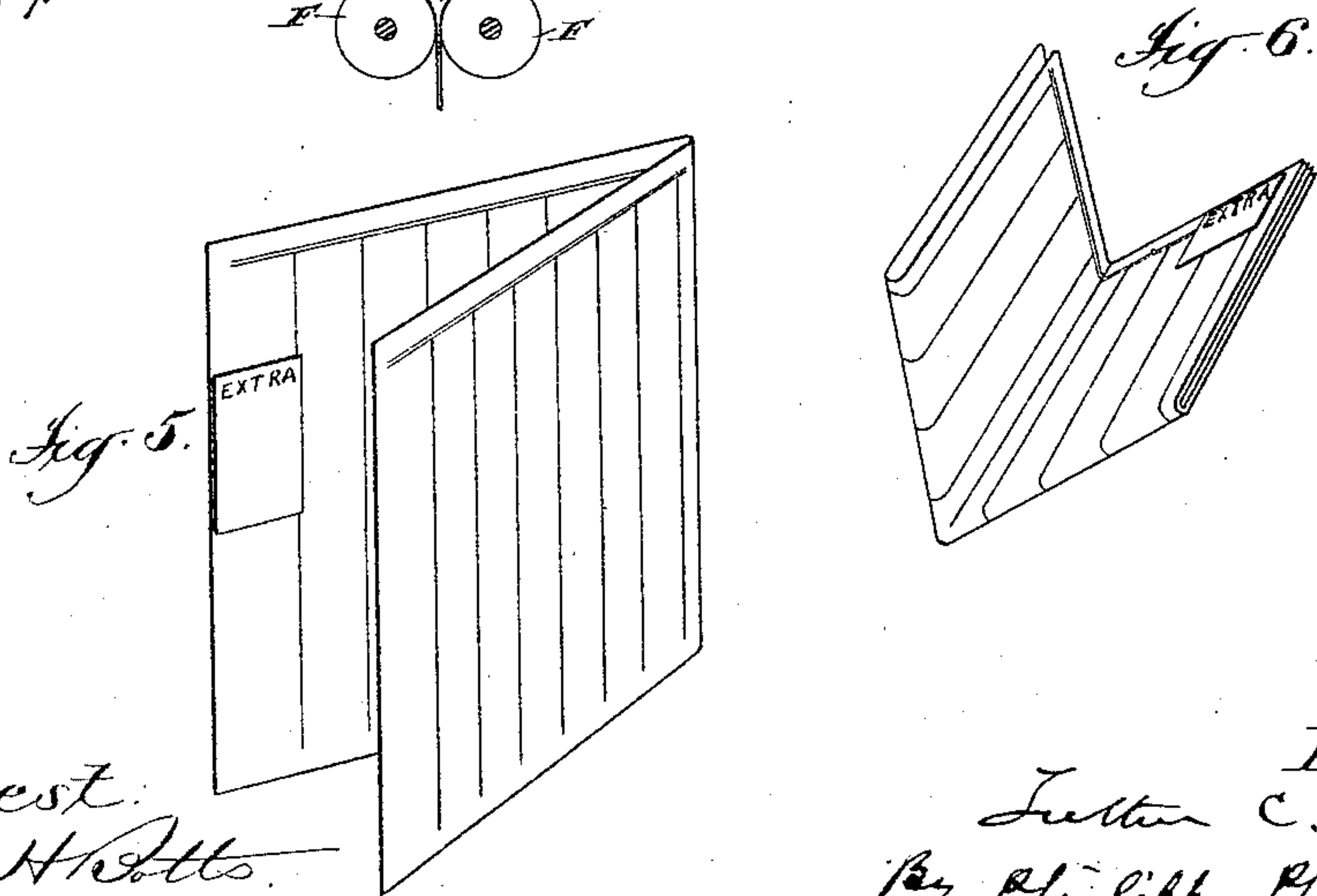
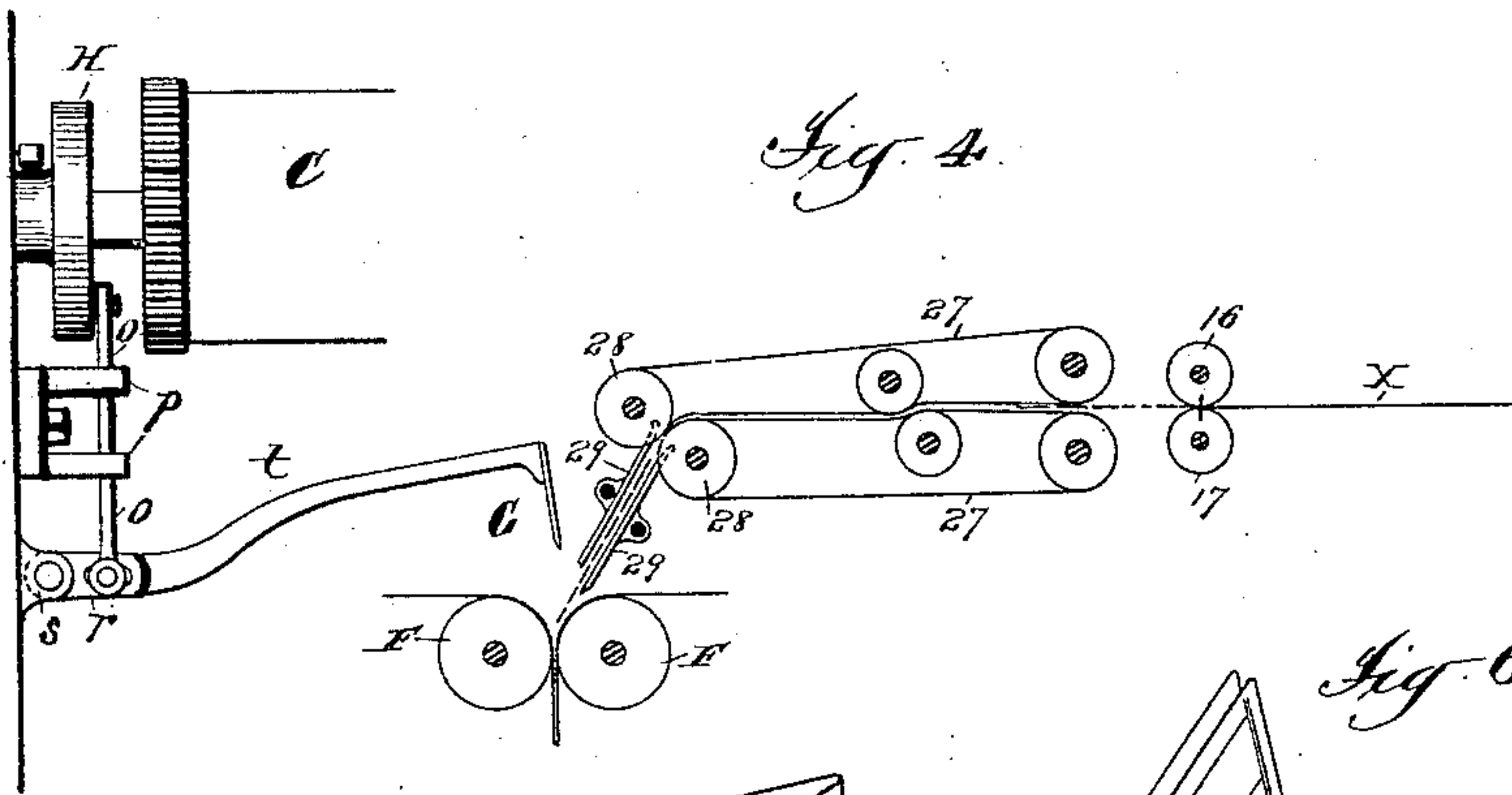
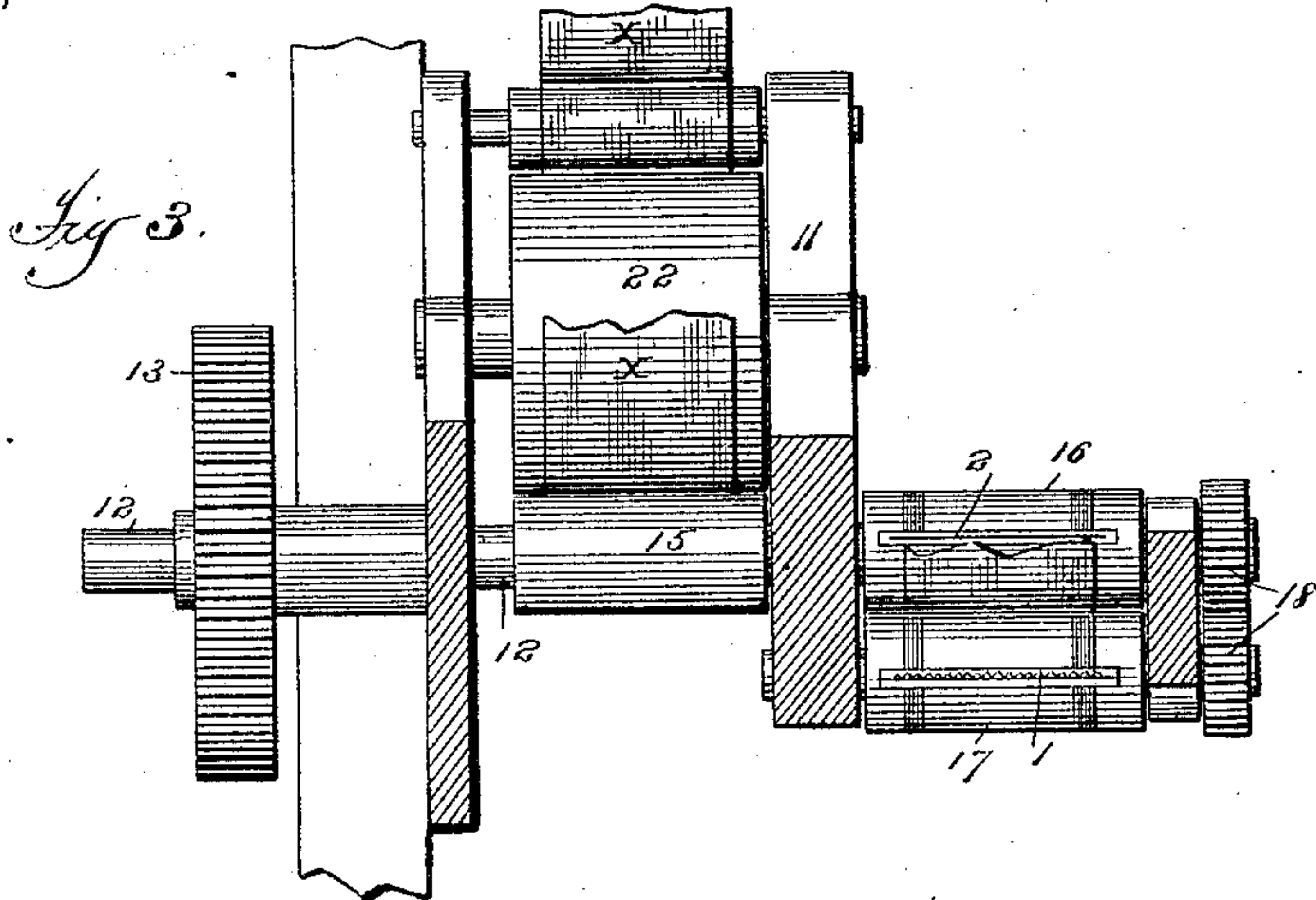
2 Sheets—Sheet 2.

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Attest:
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UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF BROOKLYN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROBERT HOE, STEPHEN D. TUCKER, THEODORE H. MEAD, AND CHARLES W. CARPENTER, OF NEW YORK, N. Y.

PRINTING ATTACHMENT FOR THE DELIVERY MECHANISM OF WEB-PRINTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 452,596, dated May 19, 1891.

Application filed February 24, 1890. Serial No. 341,380. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Printing Attachments for the Delivery Mechanism of Web-Printing Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to printing-machines, its object being to provide means whereby each main sheet may be provided with a small extra sheet, and, further, to provide means whereby such a sheet may be inserted between the plies of the main sheet as it passes through the delivery mechanism.

In newspaper-work it is frequently desirable to insert news received after the forms have been made up or during the printing of an edition. In the web-printing machines heretofore in use it has been necessary, in case of the receipt of such late news, to change the plates or to print a supplement sheet of a size approximating that of the main sheet, which is often far in excess of the requirements of the news to be added. This change of plates involves much labor, consumes considerable time, and necessitates the stoppage of the machine if the printing of the edition has already been commenced. This delay is of great importance, as the printing of the issue is always delayed until the last moment in order to include therein the news up to as late a time as possible. I avoid all such delay by providing a simple attachment to the delivery mechanism, by which each sheet of the issue may be provided with a small extra sheet, the attachment being constructed and arranged so as to occupy but a small space in the machine and not interfere in any way with the ordinary operations thereof and to permit the addition of the extra sheet without stopping the machine. The use of this extra sheet for the purpose of adding late news is but one of the many important advantages obtained by my invention. The extra affords also a convenient and very desirable means of advertising, the pasting of a small sheet upon any part of the main sheet of the paper

attracting attention immediately, thus serving as an advertising medium of especial value. Another use to which the extra may be put is that of printing any special matter which is not to form a permanent part of the paper, but which is to be removed therefrom and used for any purpose. Such matter is at present used to a great extent in the various voting contests of many newspapers, in which a vote is printed in the paper to be cut therefrom and returned to the publishers. A similar use is found during elections, in which it is the practice of newspapers to publish tickets of their respective parties, the tickets to be cut from the papers and deposited as votes. Various other uses of this extra will readily suggest themselves, those mentioned being but a few of the most important.

For a full understanding of my invention a detailed description of mechanism embodying the same will now be given, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional elevation of the delivery end of a web-printing machine, parts being broken away to show the extra attachment. Fig. 2 is a section taken on the line 2 of Fig. 1, showing the attachment in side elevation and the lead of the webs. Fig. 3 is an enlarged detail. Fig. 4 shows a modified form of my invention and the application of the attachment to another form of folder, and Figs. 5 and 6 show products of different form.

Referring to Figs. 1 to 3, it will be seen that the delivery mechanism to which my invention is applied is of ordinary form, and a brief description of this delivery mechanism will suffice. The longitudinal folder is of the common form, consisting of the former provided with its internal turners *a*, over which the web passes to and between the external turning-rolls *b*, and thence to the feeding and folding rolls *c*, by which the fold is completed, and whence the longitudinally-folded web is led to the cutting and collecting cylinders *B C*, which may be of any ordinary form.

As shown, the cutting, collecting, and folding cylinders are of substantially the construction shown and described in my prior patent, No. 419,834, dated January 21, 1890, the

cylinder B being provided with the sheet-holding pins *d*, the folding-blades *e*, and cutting-groove *f*, and the cylinder C with the sheet-holding pins *g* and the cutting-blade *h*, the mechanism of the cylinders B C being operated, respectively, by the stationary cams D E, mounted in the frame of the machine. The sheet or sheets is or are folded from the cylinders B C between the folding-rolls *k*, whence they pass over the guide *l* to the control of the tapes *m*, by which, if no additional fold is to be imparted, they are carried to the fly at the side of the machine. Under the control of the tapes *m* the sheets are carried over a pair of folding-rolls F, between which, when desired, they may be folded by the folding-blade G, an adjustable stop *n* being provided to cooperate with the blade G when the sheets are to receive the second longitudinal fold. For operating the blade G the shaft of the roll C is provided with a cam H, which engages a bowl on the end of a rod *o*, sliding through fixed guides *p* in the frame of the machine, and having at its lower end a slotted connection with a crank-arm *r* on a short shaft *s*, extending transversely of the machine. This shaft *s* carries a second crank-arm *t*, to the end of which the folding-blade G is secured.

Referring now to the parts embodying my invention, 10 is a bracket secured to the inner frame of the delivery end of the machine and provided with arms 11, extending forward beneath the folder. This bracket and its arms provide a support for the printing, feeding, and turning mechanism of the extra attachment. Supported in the arms 11 is a shaft 12, carrying at its rear end outside the frame a gear-wheel 13, which is operated from a gear on the end of the shaft of cylinder B through a series of intermediates 14. This shaft 12 carries next the frame of the machine a printing-roller 15, and its forward end beneath the former carries a roll 16, which rotates in contact with a roll 17, likewise carried in arms 11, the roll 17 being driven from roll 16 by means of intermeshing gears 18. These rolls 16 17 form feeding and perforating rolls for the strip forming the extra web *x*, the rolls being provided, respectively, with the usual groove 2 and perforating-blade 1. These rolls are also provided with narrow rubber bands 32 at each end to grip the edges of the paper for feeding.

On the bracket 10, attached to one of the arms 11, is secured a turner consisting of two bars 20 21, set at an angle to each other in a vertical plane, so that the web from the printing-roller 15 passes upward over the bar 20, across the turner, and downward over the bar 21 to the feeding and perforating rolls 16 17.

Mounted to rotate in contact with the printing-roll 15 is the impression-roll 22, against the surface of which rotates also the pasting-roll 3, receiving paste from a paste-fountain 4, secured to a bracket 23, extending inward from the frame of the machine, this pasting-roll being constructed, as shown in Fig. 2, to

lay a narrow line of paste on the edge of the extra.

The printing-roll 15 may be inked by any suitable means. I prefer, however, to use an ordinary aniline-roll and form-rolls for conveying the ink to the type-roll, the ink and form rolls being shown, respectively, in dotted lines at 5 6 in Fig. 1.

The extra web X is led from a web-roll 24, mounted on a bracket 25 in the frame of the machine, over a conducting-roll 26, downward around the impression-roll 22, where it receives a line of paste from the paste-roll 3, thence upward between the printing-roll 15 and impression-roll 22, where it is printed, and passes thence upward between the turning-bar 20, across the turner, and downward over the turning-bar 21 to the perforating and feeding rolls 16 17, where it is perforated. From the rolls 16 17 the web, partially severed, passes between the external turning-rolls *b* to the feeding and folding rolls *c* for the main sheet. The mechanism for feeding the extra will be geared to run at a lower rate of speed than the rolls *c*, so that as the leading edge of the web X reaches the rolls *c* it will be separated by the accelerated rolls on the line of perforation, and will thus, as the main sheet passes between the folding-rolls, be inserted between the plies of the main sheet and pasted thereto, as shown in Fig. 5.

The extra feeding and perforating rolls may be placed in any position widthwise of the web A, so that the extra will be imposed upon the main sheet either at the edge, as shown, or at any point between the edge and the central fold. By adjusting the lead of the "extra" web relatively to the main web it is evident that the position of the extra may be varied lengthwise of the sheet, as desired.

It may sometimes be desirable to furnish a main sheet with two or more extras at different points lengthwise of the sheet. This may readily be done by varying the speed of the supplemental mechanism. When the sheets are to be collected, also, it is thus possible to provide only each alternate sheet with the extra, so that a product of the machine, though consisting of two sheets, shall contain but one extra. Any suitable means may be used for thus increasing or diminishing the speed of the extra web. I have shown in Fig. 2 a convenient construction, in which the shaft of the intermediate 14, next the gear 13, is provided with a second smaller gear 30. The shaft of the printing-roller is extended beyond the gear 13 to afford support for a larger gear 31, (shown in dotted lines in Fig. 2,) which meshes with gear 30. By removing gear 13 from its shaft and substituting gear 31 the speed of the extra mechanism will be varied, and by other combinations of gears any desired adjustment may be obtained.

It will be understood that, as is common in delivery mechanism, the web may be split by a slitter S, as shown in dotted lines in Figs. 1

and 2, before passing over the longitudinal folder. In this case the main sheet will be formed from two webs, the extra being inserted between the plies, as before.

5 Other common methods of associating two webs to form a single sheet may be used, as my invention is not to be limited to the special form of delivery mechanism shown, and the insertion of the extra sheet between the plies
10 of the main sheet, as the plies are brought together, being applicable whether the sheet is formed from a single folded web or two webs.

From an inspection of Figs. 1 and 2 it will be seen that almost the entire extra mechanism
15 is placed out of the way beneath the former and that this location of the attachment enables the extra sheet to be led downward in a direct vertical line between the plies of the main sheet, which thus guide it slightly.
20 This combination of the supplemental mechanism with the longitudinal folder is, therefore, the preferred construction; but it is to be understood that the supplemental mechanism may be combined with other parts of
25 the main delivery mechanism and placed in any desired position relative to the lead of the main web without departing from my invention.

I have shown in Fig. 4 the combination of
30 my extra attachment with another part of the delivery mechanism, the extra being inserted between the plies of the main sheet as the latter is folded between the rolls F, so as to be upon the outside of the sheet when
35 opened, this form of product being shown in Fig. 6. In this case also, as with the construction shown in Figs. 1 to 3, the extra may be severed from the web X by the accelerated feeding and folding rolls for the main
40 sheet; but I have shown a construction by which the extra is entirely severed prior to reaching the rolls F F and associated with the main sheet under separate sheet form. In this construction the web X, after passing
45 the perforating-rolls 16 17, passes into the control of tapes 27, by which it is carried forward to the rolls 28, between which the sheet is nipped and severed from the web, the rolls 28 and tapes 27 being accelerated to a speed
50 beyond that of feeding-rolls 16 17. From the rolls 28 the severed extra passes between guides 29 to the folding-rolls F, where it is inserted between the plies of the main sheet. It is evident that in this construction also
55 the number of the extras imposed upon the main sheet and the position of the extra thereon may be varied, as previously described. By the use of two attachments, one with each folder, as shown, it is evident that one extra
60 may be placed on the inside and another on the outside of the main sheet.

It is evident that many changes may be made in my attachment. Thus the pasting mechanism may be omitted and the extra be
65 simply inserted between the plies of the main sheet, or the perforators may be omitted and a web of previously-perforated paper be em-

ployed. The special form of mechanism may be varied widely and other common forms of printing attachments, such as a numbering
70 mechanism, may be added, if desired. Many other modifications will suggest themselves to one skilled in the art.

While I have shown and described one form of mechanism for printing one side of the extra web, it will be understood that my invention is not to be limited to any special form of printing mechanism, but that other forms of printing mechanism may be substituted either to print but one side or to perfect the
80 web.

I have shown and described the extra as inserted between the plies of the main sheet during the process of folding, and I prefer this because the extra is thus held in position
85 during attachment by pressure between the plies of the sheet and may, moreover, be introduced and held in position without pasting. It will be understood, however, that my invention is not to be limited to this feature,
90 but covers, broadly, the combination with the delivery mechanism of the extra mechanism as claimed independently of any special manner in which the extra is associated with or attached to the main sheet.
95

I do not claim herein the printing, turning, and perforating and feeding mechanism shown, as this is covered by my patent, No. 446,329, granted February 17, 1891.

The supplemental mechanism of this application is well adapted for carrying out the method of preventing fraud in the sale of newspapers and other publications set forth in my application, Serial No. 380,324, filed February 5, 1891, and the extra sheet herein described may be so attached as to form the seal
100 used in said method and the sheet to which it is attached form the sealed sheet of said application.
105

What I claim is—
110

1. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a supplemental feeding and pasting mechanism constructed to advance printed extras of less length than the main sheet and
115 of small size relatively thereto, said supplemental mechanism being located in position to attach an extra to a page of a main sheet as the latter passes through the delivery mechanism, whereby the main sheets are provided
120 with small extra sheets, substantially as described.

2. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a supplemental feeding and pasting
125 mechanism constructed and located in position to attach to a page of a main sheet a detachable printed extra of less length than the main sheet and of small size relatively thereto, whereby the main sheets are provided with
130 small extra sheets, substantially as described.

3. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a web feeding, severing, and past-

ing mechanism constructed to sever from a narrow printed web extras of less length than the main sheets and located in position to associate an extra with a main sheet and attach it to a page of the main sheet as the latter passes through the delivery mechanism, whereby the main sheets are provided with small extra sheets, substantially as described.

4. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a supplemental web-printing mechanism constructed to print upon a narrow web extras of less length than the main sheet, and web feeding, severing, and pasting mechanism constructed to sever said extras, render the same adhesive, and attach an extra to a page of a main sheet as the latter passes through the delivery mechanism, whereby the main sheets are provided with small extra sheets, substantially as described.

5. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a supplemental feeding mechanism constructed to advance sheets of less length than the main sheets and of small size relatively thereto and located in position to deliver a small sheet between the plies of a main sheet as the plies are brought together during the passage of the main sheet through the delivery mechanism, substantially as described.

6. In a printing-machine, the combination, with the delivery mechanism for the main sheets, of a supplemental feeding and pasting mechanism constructed and located in position to advance printed sheets of less length than the main sheets and of small size relatively thereto and attach to a page of a main sheet a small sheet as the latter passes through the delivery mechanism, substantially as described.

7. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental web printing and feeding mechanism constructed to print an extra, said supplemental feeding mechanism being located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, substantially as described.

8. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental web printing and feeding mechanism constructed to print an extra, said supplemental feeding mechanism being located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, and means for varying the speed of the supplemental mechanism relatively to the main mechanism, substantially as described.

9. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental web-printing mechanism constructed to print an extra, a perfo-

rator for partially severing the extra web, and a feeding mechanism run at a lower speed than the main mechanism and located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, substantially as described.

10. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental web-printing mechanism constructed to print an extra, a perforator for partially severing the extra web, and a feeding mechanism located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, said feeding mechanism being run at a higher speed than the supplemental web-printing mechanism and perforator, substantially as described.

11. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental web-printing mechanism constructed to print an extra, a pasting mechanism for laying a line of paste on the extra, and a feeding mechanism run at a lower speed than the main mechanism and located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, substantially as described.

12. In a printing-machine, the combination, with a folding mechanism for the main sheet, of a supplemental web-printing mechanism constructed to print an extra, a pasting mechanism for laying a line of paste on the extra, a perforator for partially severing the extra web, and a feeding mechanism run at a lower speed than the main mechanism and located in position to deliver the extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, substantially as described.

13. In a printing-machine, the combination, with the folding mechanism for the main sheet, of a supplemental feeding mechanism located in position to deliver an extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the folding mechanism, substantially as described.

14. In a printing-machine, the combination, with a pair of feeding and folding rolls for the main sheet, of a supplemental feeding mechanism located in position to deliver an extra between the plies of the main sheet during the process of folding the latter and in position to be associated therewith by the feeding and folding rolls, substantially as described.

15. In a web-printing machine, the combination, with the longitudinal folder and its former, of a supplemental web-printing mechanism constructed to print an extra, and a

feeding mechanism arranged to feed the extra downward inside the former and between the plies of the main sheet, substantially as described.

5 16. In a web-printing machine, the combination, with the longitudinal folder and its former, of a supplemental web-printing mechanism located inside the former and constructed to print an extra, and a feeding mechanism
10 anism arranged to feed the extra downward

inside the former and between the plies of the main sheet, substantially as described.

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

LUTHER C. CROWELL.

Witnesses:

J. J. KENNEDY,

C. J. SAWYER.