

(No Model.)

3 Sheets—Sheet 1.

A. R. MARTIN.
PRINTING ATTACHMENT FOR PAPER ROLLS.

No. 605,061.

Patented May 31, 1898.

Fig. 1.

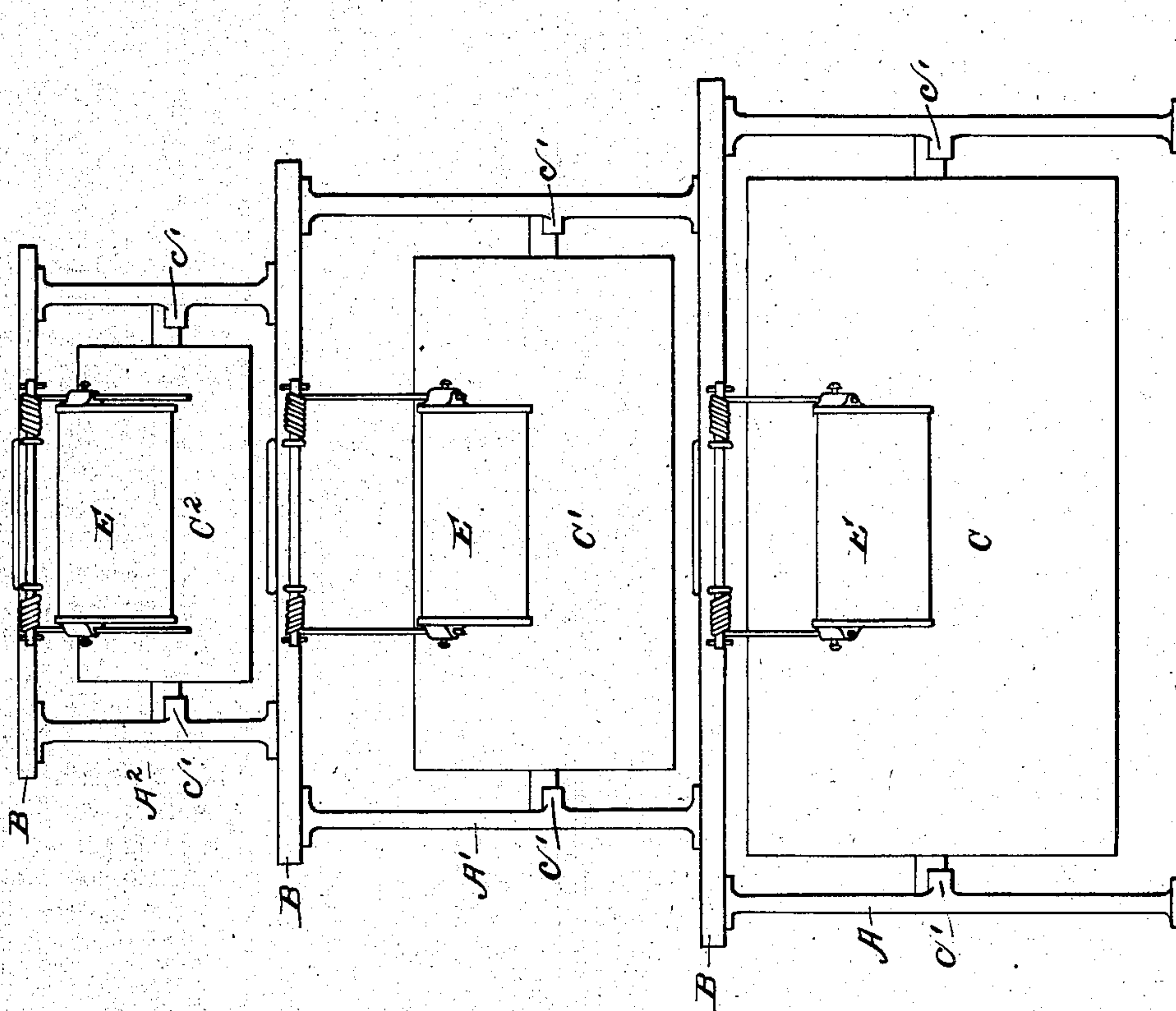
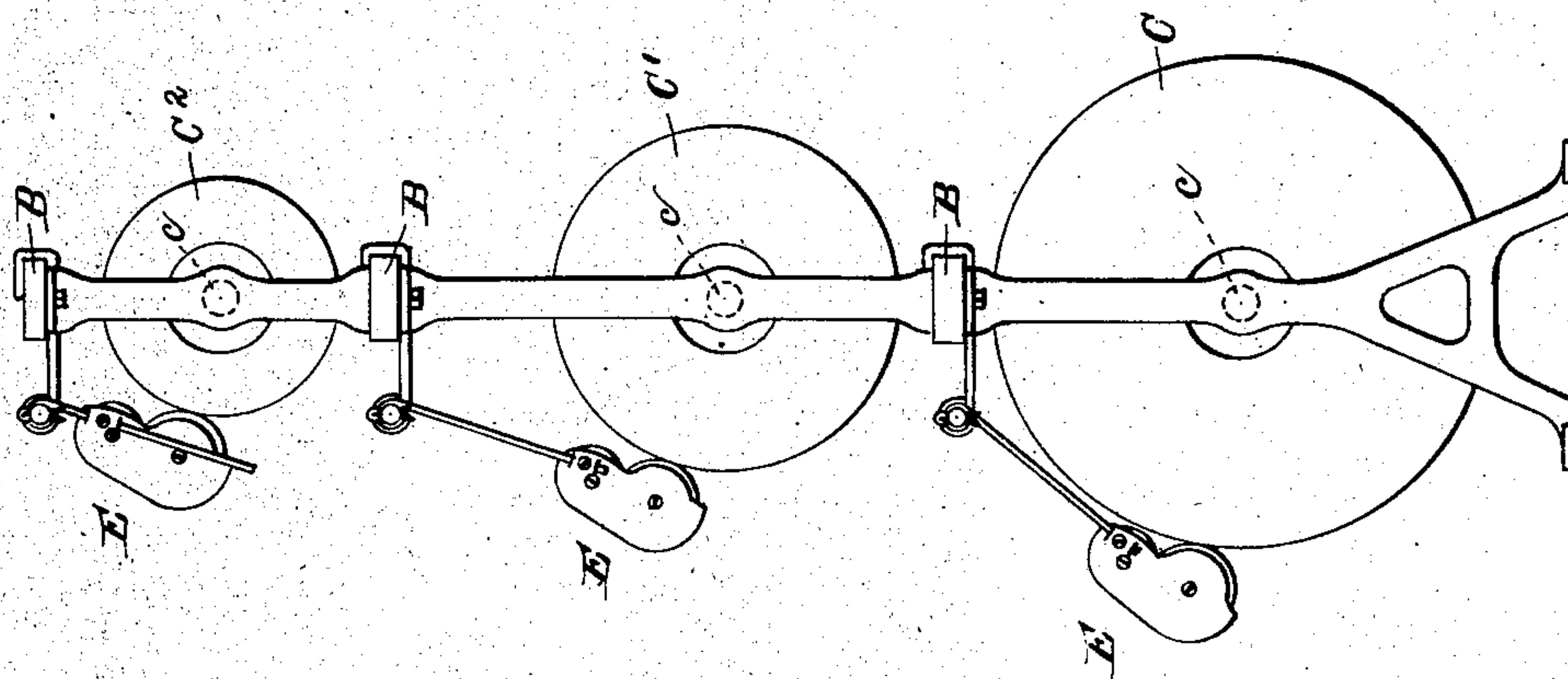


Fig. 2.



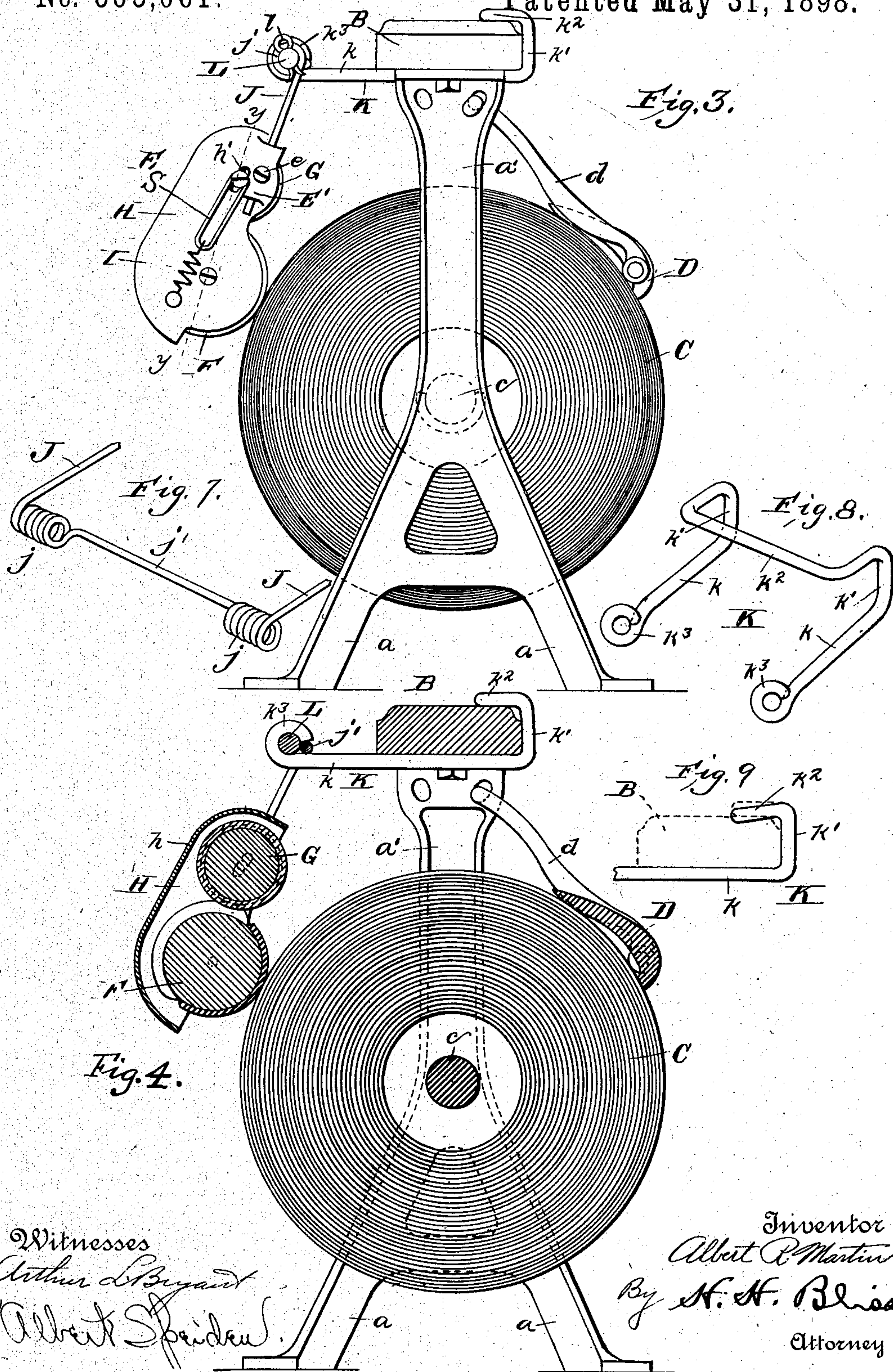
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3 Sheets—Sheet 2.

No. 605,061.

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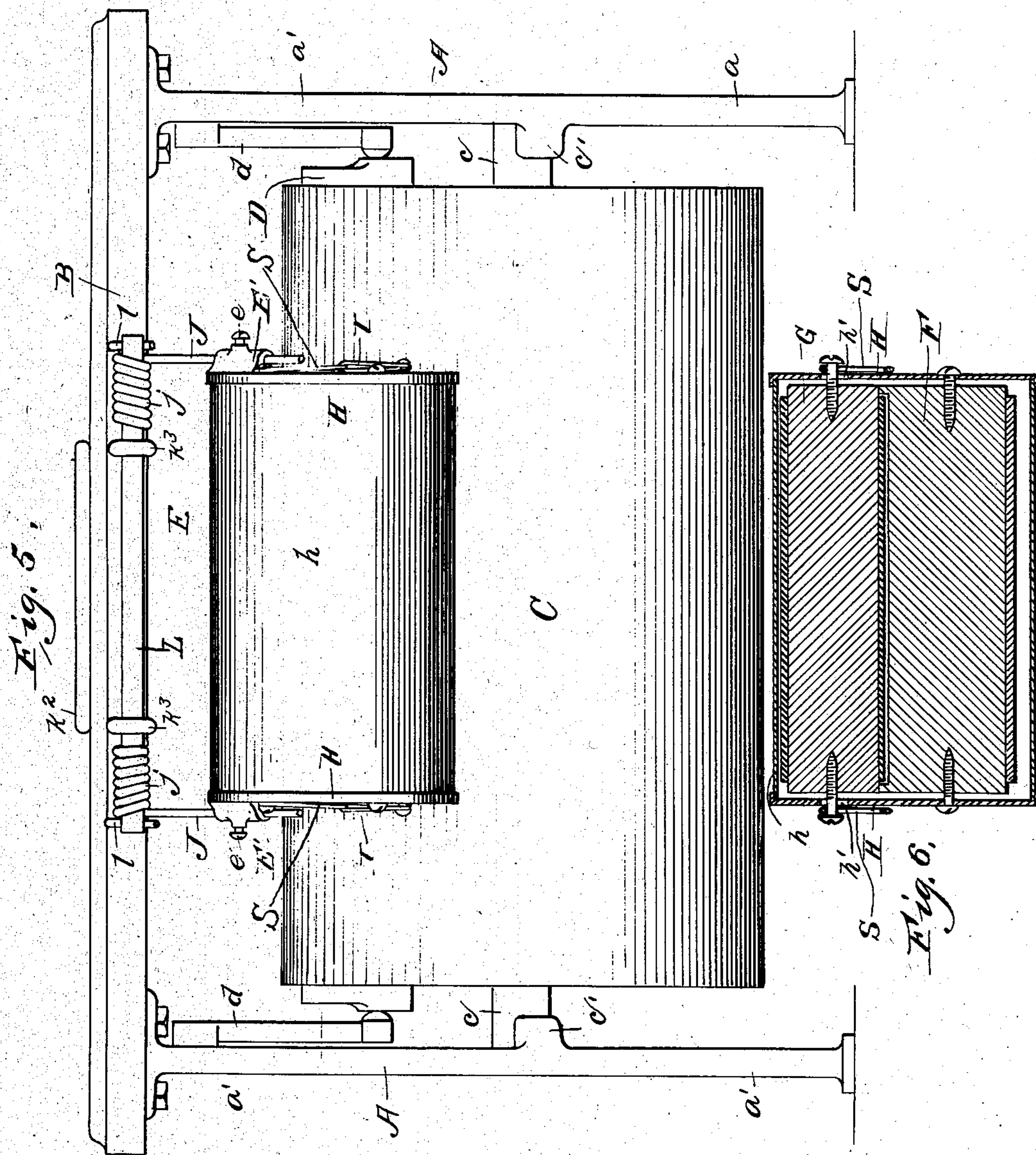
3 Sheets—Sheet 3.

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Albert Spender

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UNITED STATES PATENT OFFICE.

ALBERT R. MARTIN, OF BEAVER FALLS, PENNSYLVANIA, ASSIGNOR TO THE
AUTOMATIC ROLLER PRINTER COMPANY, OF SAME PLACE.

PRINTING ATTACHMENT FOR PAPER-ROLLS.

SPECIFICATION forming part of Letters Patent No. 805,061, dated May 31, 1898.

Application filed April 12, 1897. Serial No. 631,853. (No model.)

To all whom it may concern:

Be it known that I, ALBERT R. MARTIN, a citizen of the United States, residing at Beaver Falls, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Printing Attachments for Paper-Rolls; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is a front elevation of a mechanism embodying my improvements. Fig. 2 is an end elevation. Fig. 3 is an end view of a form in which use is made of but a single roll of paper. Fig. 4 is a transverse vertical section of the construction shown in Fig. 3. Fig. 5 is a face view of the device in Figs. 3 and 4. Fig. 6 is a section on the line *y y* of Fig. 3. Figs. 7, 8, and 9 are detail views.

In the drawings I have shown the main frame or support as being similar to that now commonly and largely in use in stores. It is formed of end uprights or standards *A A*, having one or more legs *a* for fastening it to a counter or other suitable support, an upwardly-extending bar *a'*, and one or more cross-bars *B*. In Figs. 1 and 2 a mechanism is shown in which three rolls of paper can be supported. In this case supplemental uprights or standards *A'* and *A''* are employed. Frequently these are arranged as shown—that is to say, those of each pair are supported upon and secured to the cross-bar *B* of the main frame below, and preferably they become smaller in size upward through the series in order that several rolls of paper of differing widths can be carried therein ready for use. Of course it will be understood that the details of this framework can be varied as is desired without affecting the essential parts of the invention.

C C' C'' indicate the rolls of paper which are primarily wound or placed upon a central shaft or support *c*. The latter is mounted in open bearings at *c'* either in the form of lugs upon or slots in the standards *A*, as may be preferred. The paper upon each roll can be

removed by drawing upon the free end, and any desired length can be torn or cut off by means of the cutting-bar *D*, which normally presses against the roll and is supported by hinge-arms *d*.

For the purpose of printing upon the paper advertisements or other characters I combine with the above-described parts the following devices.

E indicates as a whole a printing mechanism. This comprises a printing-roll *F* and an inking-roll *G*, these being both mounted in a common support. As shown, this support consists of end plates *H* and a connecting wall or housing *h*. As shown, the printing-roll *F* is mounted upon a fixed axis in the lower part of this housing or carrier, and the inking-roll *G* is above it. The shaft or gudgeons of the latter extend through slots at *h'* in the end plates *H*, so that there can be a limited play of the inking-rollers toward and from the printing-roller. Normally the inking-roll is held against the printing-roll by means of springs or elastic draft devices at *I*.

In the drawings I have shown links *S* interposed between the springs *I* and gudgeons of the printing-roll.

One of the objects of the present invention is to provide printing mechanisms of a character such that they can be made in large number each similar to the others and yet be adapted for use in connection with rolls of paper of differing diameters and widths and shall also be adapted to print uniformly no matter at what distance they may be placed in relation to the axis of the roll of paper. This I have accomplished principally by combining with the printing mechanism *E* a carrier and devices for moving it inward of such nature and so related to it that it can be readily adjusted relative to its carrier and relative to the axis of the paper-roll, so as to attain the ends above described. Again, I have succeeded in simplifying and cheapening mechanisms of this sort by so arranging the parts that the carrier which directly supports the printing mechanism shall be in one with the spring or bracing device, which tends to force the printing-roll against the paper.

J J indicate arms or bars which extend upward from the printing mechanism. They

are fitted to the latter by means of tubes or sleeves at E', the latter carrying set-screws *e* or their equivalents for firmly fastening the printing device and the carriers J. The screws can be loosened at any time, and the parts for printing can be placed higher or lower, as may be desired, to attain the best results. As shown, these carriers J are the downward-projecting parts of a spring-rod—that is to say, the rod of which they are formed is at *j j* bent to form two coils, with a relatively straight central connecting-arm at *j'*. This spring-carrier is not connected to the framework in the manner heretofore followed in making devices of this class, but in a way which I have been led to as a result of experience with those of the earlier sort. K indicates as a whole a main support for the printing mechanism. It is formed of a heavy rod or wire having the horizontal arms *k*, bent to provide the legs *k'*, the joining-loop *k²*, and the eyes *k³*. The loop *k²* is primarily bent downward somewhat toward the parts *k*, so that it shall be capable of exerting a powerful grip upon the cross-bar B of the roll-frame and can therefore be utilized as the entire means of detachably and adjustably fastening the printing mechanism.

The above-described spring-carrier J *j j'* is detachably connected to this support K as follows: The connecting-rod *j'* between the spring-coils *j* is laid upon the top of the arms *k*, and the latter provide an abutment against which the spring acts in its work of forcing the printing-roller against the paper. A removable shaft or mandrel L is inserted through the spring-coils *j* and through the eyes *k³* of the top support and after insertion is fastened by means of cotter-pins or keys *l*.

I am aware of the fact that it has been heretofore proposed to construct supports for such printing mechanisms of one or more pieces of spring-wire extending continuously from the printing device to the frame-bar of the paper-roll, but have found serious difficulties to be incident to such construction. On the one hand, if the spring-wire is of a gage equal to that which I employ in making the holder at K the force is so great that the parts become practically inoperative and the friction is increased to such an extent that the paper is torn and marred in withdrawing it. On the other hand, if the entire support is made of spring-wire of a gage such as to be merely sufficiently powerful for properly holding the printing-roller then the top part fastened to the frame is relatively so weak that it yields in an undesirable manner under the pressure and imperfect printing results. As pointed out above, the holder K is made of relatively large spring-wire, which is of relatively low flexibility, so as to provide a strong and suitably rigid support, while the carrier J is of lighter wire having a relatively high flexibility, so that the printing mechanism will be properly held against the roll until the latter is exhausted. By

forming these parts in the way described—that is, with wire of one gage and tension and of relatively low flexibility for the top holder K and with wire of a lighter gage and tension and of a relatively high flexibility for immediate attachment to the printing device and joining them with a detachable hinged mandrel, as at L—I overcome these difficulties and at the same time provide for the immediate fastening of the attachment to any of the ordinary counter paper-supports without requiring screws or bolts, I depending merely upon the powerful grip provided by the arms at *k* and the loop at *k²*.

In case one of the spring-carriers J *j* becomes broken, losing its elasticity, it is not necessary to abandon the entire holder, as another spring can be readily inserted by withdrawing the mandrel L and applying it in the way described.

Again, by examining Figs. 1 and 2 it will be seen that an attachment of the sort above described can be applied to the paper-supports commonly in use having three or more sections, I having succeeded in so relatively arranging the parts that but little room is required and so that each attachment can be used interchangeably with either of the rolls in the tier.

Each printing device can be placed at any point desired along the paper laterally, as the gripper at *k k²*, while being powerful enough to hold the parts in any position of adjustment, is such that it can at will be placed at one point or another transversely of the frame, there being, as above said, no screws or bolts required for the fastening.

What I claim is—

1. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the spring-carrier, means for securing it to the roll-frame and the printing mechanism vertically adjustably secured to the spring-carrier, substantially as set forth, whereby it can be held in a higher or lower position.

2. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the spring-carrier having downward-extending projections, means for securing the spring-carrier to the frame, the printing-roll, the inking-roll, and the holder for the rolls having guides for adjustably receiving the said downwardly-extending projections of the spring-carrier, substantially as set forth.

3. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the spring-carrier for the printing mechanism having the coils *j j* and the abutment part *j'* integral with and situated between the coils, the spring-gripper detachably fastened to the roll-frame and provided with eyes, and the rod or mandrel L passing through the spring-coils *j* and the said eyes, substantially as set forth.

4. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the spring-actuated carrier connected to the printing mechanism, and the holder for the spring-actuated carrier, having the arms k , the legs k' and the elastic gripper k^2 connected to both legs k' and adapted to engage the supporting-frame all formed from a single piece of wire and detachably connected to the spring-carrier, substantially as set forth.

5. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism having the printing-roll, the inking-roll and the housing which holds said rolls, the carrier for said housing having the legs J , the coils j , and the abutment-arms j' all formed of a single piece of wire, and the holder K having the arms k , the eyes k^3 , the legs k' and the gripper k^2 all formed from a single piece of wire, and means for detachably fastening together the said holder and carrier, substantially as set forth.

6. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the holder formed of bent elastic metal, of

relatively low flexibility, providing a clutch detachably engaging with the roll-frame, and a carrier for the printing mechanism having a bent elastic wire or rod of relatively high flexibility, and a connecting device for detachably connecting together the said carrier and the holder which engages with the frame, substantially as set forth.

7. In a printing attachment for paper-rolls, the combination with the frame which supports the paper-roll, of the printing mechanism, the holder, K , formed of a rod, of relatively low flexibility, bent to form an elastic friction-clutch, detachably engaging with the roll-frame, and a carrier for the printing mechanism having a wire or rod of relatively high flexibility, and a hinging device interposed between the carrier of the printing-frame and the holder secured to the roll-frame, whereby the carrier and the holder can move freely relatively to each other, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT R. MARTIN.

Witnesses:

N. CURTIS LAMMOND,
WM. H. EDWARDS, Jr.