

(No Model.)

6 Sheets—Sheet 1.

J. A. BONSACK.

PRINTING ATTACHMENT FOR CIGARETTE MACHINES.

No. 377,447.

Patented Feb. 7, 1888.

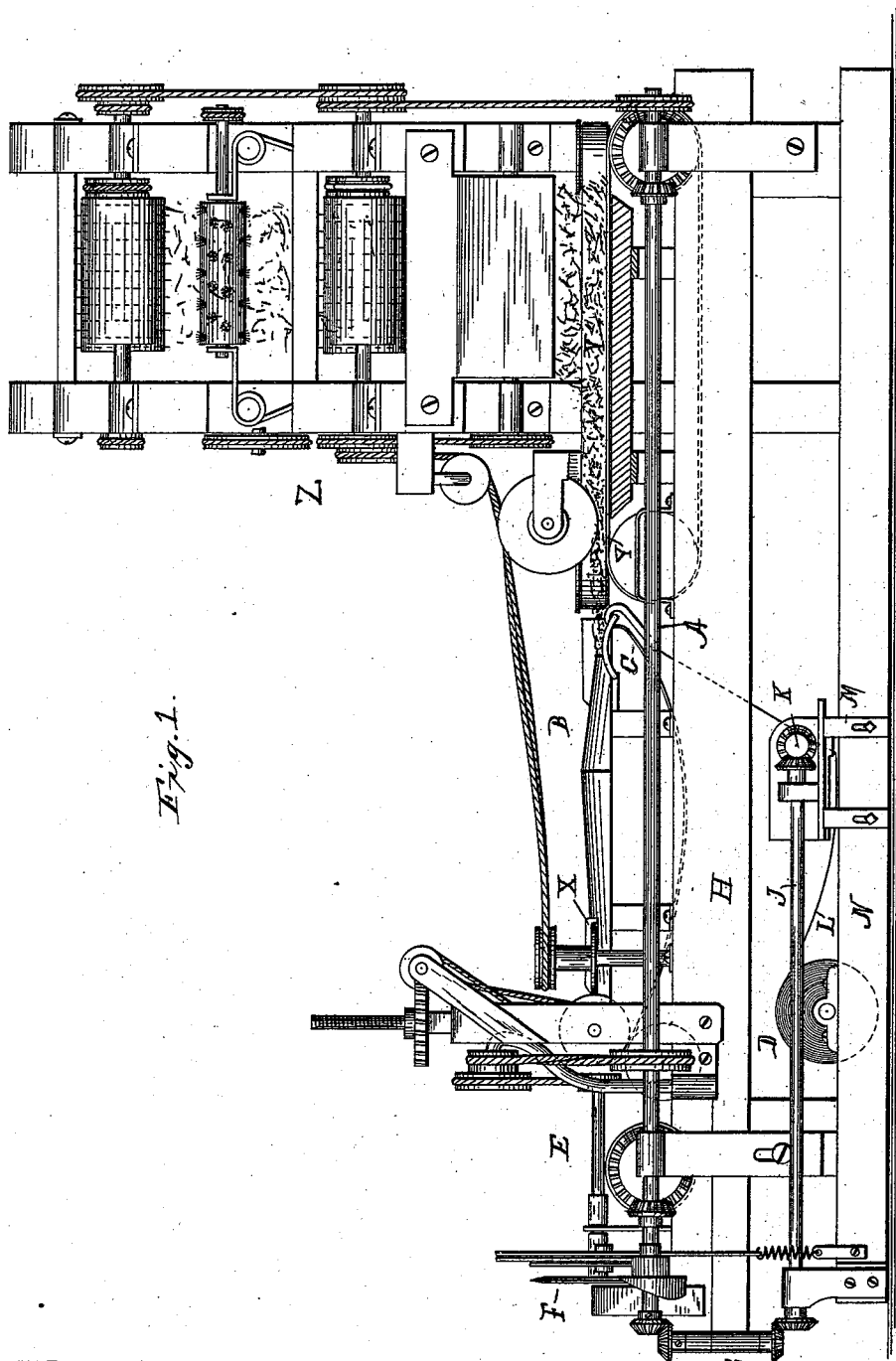


Fig. 1.

Witnesses.
Chas. R. Burr.
J. B. Harris

Inventors
James A. Bonsack
by Church & Church
his Attorneys.

(No Model.)

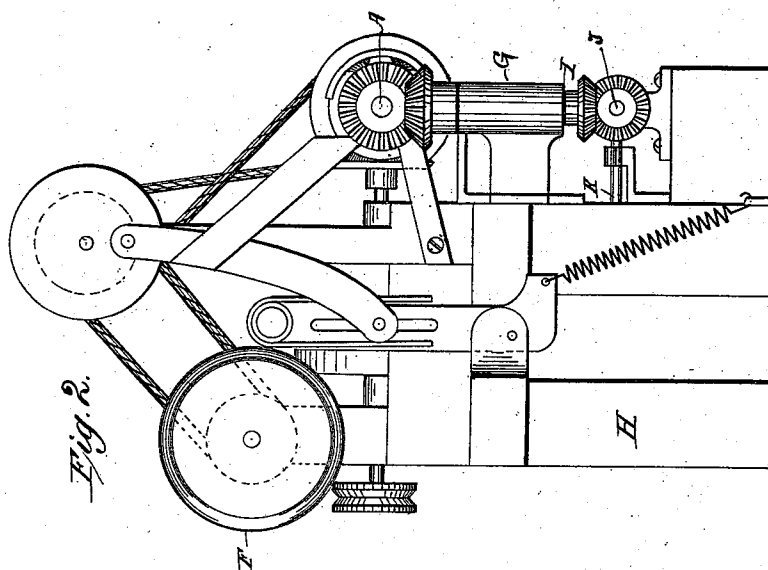
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WITNESSES:

W. W. Hollingsworth
A. G. Lyne.

INVENTOR:

J. A. Bonsack
BY *Munn & Co.*
ATTORNEYS.

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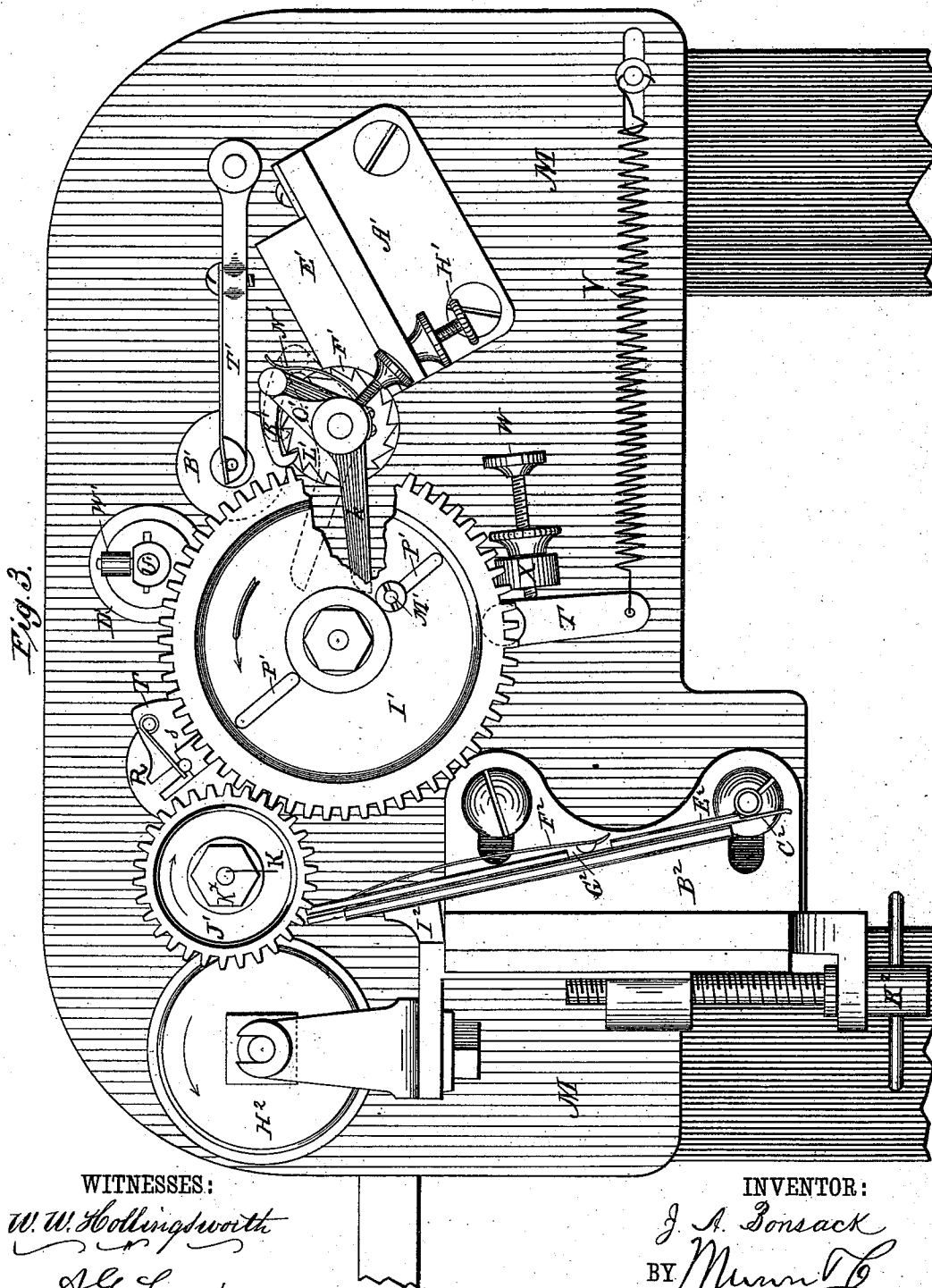
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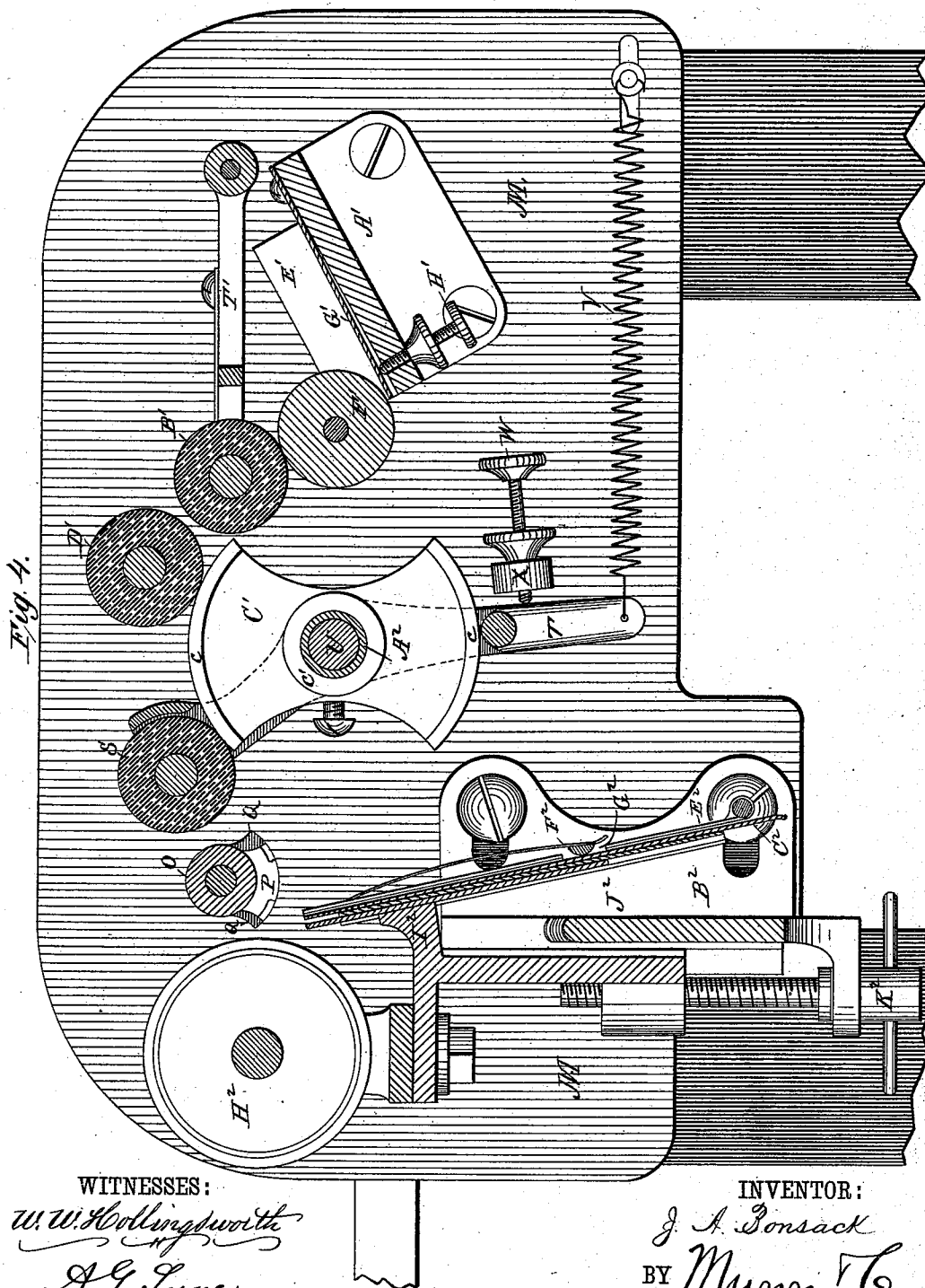
6 Sheets—Sheet 4.

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WITNESSES:

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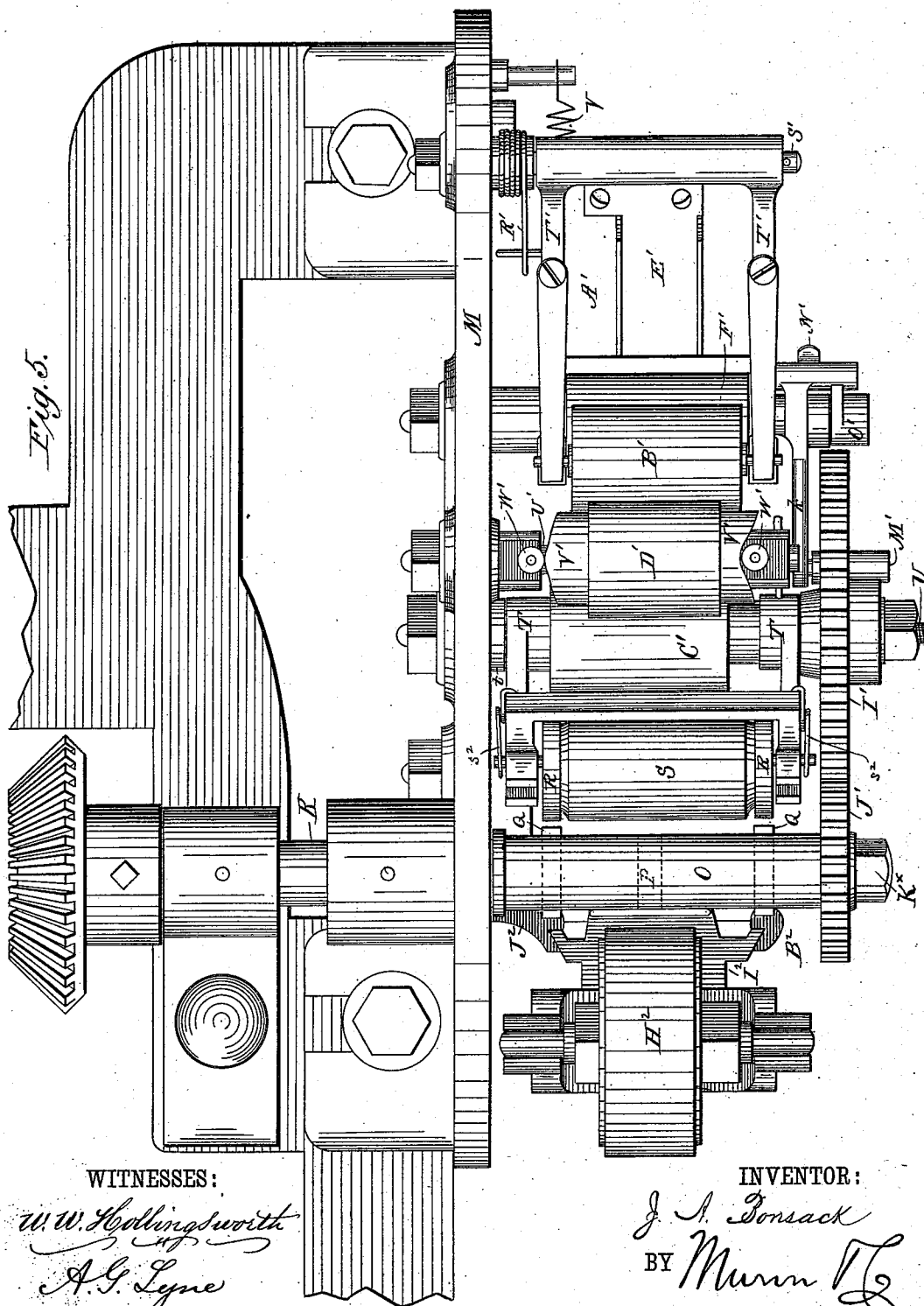
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J. A. BONSACK.

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WITNESSES:

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(No Model.)

6 Sheets—Sheet 6.

J. A. BONSAACK.

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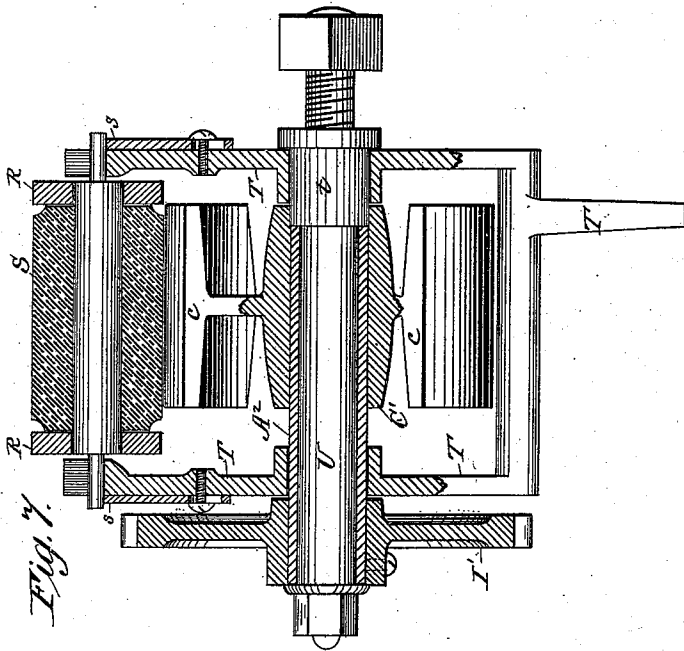


Fig. 7.

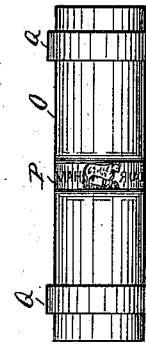


Fig. 8.

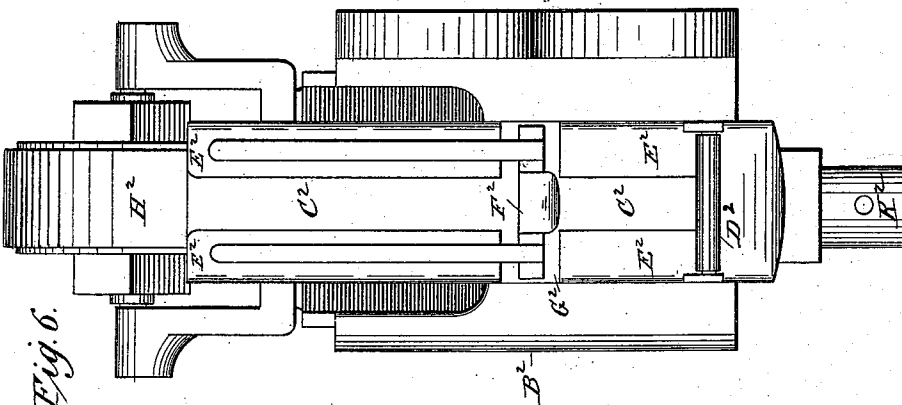


Fig. 6.

WITNESSES:

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INVENTOR:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES ALBERT BONSAK, OF BONSAK'S, ASSIGNOR TO THE BONSAK
MACHINE COMPANY, OF LYNCHBURG, VIRGINIA.

PRINTING ATTACHMENT FOR CIGARETTE-MACHINES.

SPECIFICATION forming part of Letters Patent No. 377,447, dated February 7, 1888.

Application filed March 21, 1884. Serial No. 125,088. (No model.) Patented in England October 25, 1884, No. 14,149.

To all whom it may concern:

Be it known that I, JAMES ALBERT BONSAK, of Bonsak's, in the county of Roanoke and State of Virginia, have invented a new and useful Improvement in Printing Attachments for Cigarette-Machines, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, forming part of this specification, a portion of the invention herein shown and described having been the subject-matter of Letters Patent of Great Britain No. 14,149, granted October 25, 1884.

This invention relates to printing attachments for printing brands on continuous cigarette-wrappers in connection with machinery for making cigarettes from a continuous roll of tobacco.

In the drawings, Figure 1 is a side elevation of the invention, partly in section, showing a cigarette-machine provided with my printing attachment. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of my printing attachment. Fig. 4 is a sectional view of the same. Fig. 5 is a plan view of my printing attachment. Fig. 6 is a detail of my printing attachment, showing the mechanism for guiding the paper while being printed. Fig. 7 is a detail showing the inking apparatus, and Fig. 8 is a detail showing the type-cylinder.

Figs. 1 and 2 represent part of a cigarette-machine as shown and described in my Letters Patent of the United States No. 247,795, dated October 4, 1881, in which figures A indicates the main driving-shaft of the machine; B, the wrapping tube or device for folding the wrapper around the tobacco-filler; C, the endless belt arranged in said tube; D, the spool carrying the continuous strip of paper for wrapping the continuous roll of tobacco; E, the continuous cigarette, and F the cutting-disk for severing the continuous cigarette into suitable lengths. Z represents, generally, the devices for shredding the tobacco, loosening it, and working it into a filler for the cigarette, and Y the endless traveling bands that receive the tobacco from the loosening apparatus Z and form it into a continuous filler for the cigarette. X represents the pasting-wheel, receiving its supply of paste from a reservoir

and applying it to the edge of the paper band projecting up through a slot in the wrapping-tube, as described in my prior patents referred to. All these parts are the same as those in my prior patents of March 8, 1881, No. 238,640, and October 4, 1881, the latter being an improvement on a portion of the machine shown in the former. The construction and operation of these parts will be readily understood from the above-named patents.

The object of my present invention is to provide a printing attachment by which any given brand may be printed at intervals on the continuous strip of paper with which the roll of tobacco is wrapped in such manner that when the continuous cigarette is severed into given lengths or cigarettes proper each cigarette will bear the printed brand.

To provide means for connecting the printing attachment with the cigarette-machine, I secure an arm, G, to the frame H of the cigarette-machine, and in this arm support a vertical shaft, I, which is geared at its upper end with the main shaft A and at its lower end with a shaft, J, which is arranged below and parallel with the shaft A. The shaft J is geared with the shaft K of the printing attachment, all the several gearings being so timed as to give the proper number of revolutions to the shaft K of the printing attachment for securing the desired result. L indicates the strip of paper, which passes through the printing attachment as it is drawn off the spool D and through the wrapping-tube B.

The printing attachment is supported in a suitable frame, M, which is bolted to the beam N of the frame-work of the cigarette-machine. On the shaft K, supported in the frame M, is secured a removable type-cylinder, O, having a circumference equal to the desired length of a cigarette and provided with a raised type-form, P, for printing the desired brand, which form is arranged transversely on the circumference of the said cylinder, so that the brand shall be printed longitudinally on the strip of paper, L. The type-cylinder can be removed and another substituted by removing the nut K^x on the end of the shaft and the gear J'. The type-form is placed at the center of the cylinder and on opposite sides of the form,

and near the ends of the cylinder are formed two segmental projections, Q, which are parallel with the type-form and slightly longer than the latter. These projections at every revolution of the cylinder O are adapted to engage by frictional contact with the peripheral surfaces of the two disks R at the ends of the inking-roller S, to rotate said roller while the type-form is in contact therewith. The said projections are made longer than the type-form in order that the motion thereby communicated to the inking-roller S may begin before the type-form comes in contact with said roller and continue until the type-form is out of contact with the same, to prevent smearing the types. The inking-roller S, is supported in grooves in the ends of slotted plates s', the latter being adjustable outward and adapted to be secured in adjusted position by means of screws passing through slots in them and into the frame T, on which they are mounted. A small spring, s'', also mounted on the frame T, holds the shaft of the inking-roller in the grooves, as will be readily understood, but permits the plate and shaft to be moved outward when desired. The frame T is loosely mounted on a stud, U, parallel with the shaft K, and is provided at its lower end with a retaining-spring, V, which tends to move the roller S toward the printing-cylinder. The roller S is adjusted toward and from said cylinder by means of a set-screw, W, supported in a projection, X, on the frame M, and bearing against the lower end of the frame T. The necessity for adjusting the inking-roller S by the screw W or bearings s may arise from the use of a larger or smaller printing-cylinder, according as a long or short cigarette is required. The disks R of the roller S are to be made removable, in order that as the material forming the body of said roller shrinks and reduces the diameter of the roller, as usually happens, other disks of smaller diameter may be substituted, so that the body of the roller may be kept in position for proper contact with the type-form.

Besides the inking-roller S, the inking apparatus comprises the fountain A', the roller B', for transferring the ink from the fountain-roller, the segmental cylinder C', on which the ink is spread by the roller B', and the distributing-roller D'. The fountain consists of an inclined receptacle, E', open at its lower end, and a roller, F', adapted to close said open end. In the bottom of the receptacle E' is secured an elastic gage-plate, G', the free end of which is adapted to be held nearly in contact with the roller F' by a set-screw, H', in the bottom of the receptacle. The roller F' is adapted to receive an intermittent movement from a gear-wheel, I', supported by the stud U, which meshes with a smaller gear-wheel, J', on the shaft K, and a pawl, K', which is made to act on a ratchet, L', secured to the said roller by means of a pin, M', set in a slot, P', in the wheel I'. The pawl K' is loosely mounted on the stud-supporting roller

F', and has an arm, k, against which the pin M' is moved as the wheel I' revolves. A spring, N', returns the pawl to its normal position after being acted on by pin M', and a stop, O', secured to said stud, prevents the arm k from being thrown out of reach of the pin by the spring. The pin or pins M' (for there may be more than one) are set adjustably in radial slots P' in the wheel I' to vary the extent of their action on the arm k, according to the extent of movement desired for the fountain-roller. As the ink escapes from the receptacle E', it is carried up by the fountain-roller, and is thence taken up by the transfer-roller B'. This roller rests upon the fountain-roller F', and is held in uniform contact therewith by a spring, R', connected to a stud, S', and to the frame T', carrying the roller, which frame is loosely supported on the said stud, and is adapted to oscillate thereon, to allow the roller to be lifted out of contact with the fountain-roller. When the segmental cylinder comes in contact with the transfer-roller, it lifts said roller and its frame T' upward, to disengage the roller from the fountain-roller before rotating the same. The roller B' thus transfers its ink to the surfaces of said segments, upon which surfaces it is then distributed by the distributing-roller D', which likewise is rotated intermittently by contact with the segmental cylinder. The distributing-roller is mounted on a stud, U', above the segmental cylinder, and is adapted to receive a longitudinal movement at the same time it is rotated by means of cams V' at its ends, which are arranged in engagement with transverse rollers W', supported on the stud U'. The ink being thus distributed on the segmental cylinder, the inking-roller S, as the segmental cylinder comes in contact therewith, will be properly supplied with ink for inking the types of the printing cylinder.

The segmental cylinder C' is formed with two segments, c, and has a hub, c', by which it is rigidly secured to a sleeve, A', which is loosely mounted on the stud U. This sleeve is rigidly secured to the hub of the wheel I' and forms a bearing for one side of the frame T, in which the inking-roller is supported, while the other side of the said frame is supported on an enlarged part, t, of the stud U.

The object of forming the cylinder C' in segments c, as above described, is to adapt the inking-roller to be operated in turn by the segmental cylinder and the printing-cylinder without the necessity of moving the inking-roller back and forth between said cylinders, or of multiplying the parts for securing the desired result. Both the type-cylinder and the segmental cylinder operate intermittently upon the inking-roller, these cylinders being timed so as to act upon the roller in turn, one rotating it first in one direction and then the other in the opposite direction.

B² indicates the guide for the strip of paper L. This guide consists of a plate, C², supporting a roller, D², in its lower end, and having

grooves B^2 for receiving the edges of the strip of paper. The guide is provided with a tensioning device, F^2 , consisting of a cross-piece connected to two flat springs, and adapted to rest in a transverse recess, G^2 , in the plate C^2 . The entire width of the strip of paper passes under and in contact with the cross-piece, and as it leaves the guide it passes over the roller H^2 , by which it is held in proper position for taking the impression from the printing-cylinder. The roller H^2 and guide B^2 are connected, the latter removably to an arm, I^2 , which is adapted to slide vertically in a support, J^2 , attached to the frame M , and is provided with a set-screw, K^2 , by which it is held at any desired adjustment. With this construction the roller and guide are adapted to be adjusted to accommodate the roller to printing-cylinders of different diameters without disturbing the relative arrangement of the roller and paper-guide with respect to each other. The guide plate is made removable to allow a broader or a narrower one to be used, as the width of the strip of paper may require.

What I claim is—

1. A printing attachment for cigarette-machines, consisting of an impression-roller, a type-cylinder, an inking-roller adapted to come in contact therewith, an ink-fountain, and a segmental cylinder on which the ink received from the fountain is distributed, said cylinder also adapted to come in contact with the inking-roller of the type-cylinder, substantially as described.

2. The combination, with the type cylinder and the inking-roller in contact therewith, of the segmental cylinder, the ink-fountain, and the roller mounted therein, the distributing-roller, and the swinging roller mounted between the distributing and fountain rollers and adapted to be moved out of contact with the latter and into contact with the former by the segmental cylinder, substantially as described.

3. The combination, with the type-cylinder, the segmental cylinder on which the ink is distributed, and the inking-roller mounted in a frame pivoted upon the shaft of the segmental cylinder, of the spring for keeping said frame pressed toward the type-cylinder and the inking-roller in contact therewith, substantially as described.

4. The combination, with the type-cylinder, of the inking-roller, the frame supporting the same in its upper end, the segmental cylinder, the sleeve and the shaft supporting said cylinder and frame, the cylinder being secured to the sleeve and the frame loosely mounted on the sleeve at one side and on the shaft at the other, and the spring connected to the lower end of the frame, substantially as described.

5. The combination of the type-cylinder having the segmental portions at the sides of the type-form, the inking-roller having disks at its sides adapted to be engaged intermittently by said projections, and the segmental

cylinder geared with the type-cylinder and adapted to come in contact with the inking-roller alternately with the type-cylinder, substantially as described.

6. The combination, with the type-cylinder having the segmental projections at the sides of the type-form, and the inking-rollers having the removable disks adapted to engage the segmental projections, of the segmental cylinder geared to the type-cylinder, substantially as described, and for the purpose specified.

7. The combination, with the segmental cylinder and the fountain-roller, of the transfer-roller, its supporting-frame hung on a shaft and provided with a spring for holding it normally in engagement with the said fountain-roller, the said parts being so arranged that the contact of the segmental cylinder with the transfer-roller will lift said roller out of contact with the fountain-roller in the act of rotating the transfer-roller, substantially as described.

8. The combination, with the type-cylinder, of the grooved guide-plate having a roller at its lower end, a tension device, substantially as described, and the roller for sustaining the strip of paper in proximity to the type-cylinder, substantially as described.

9. The combination, with the type-cylinder, of the grooved guide-plate having the roller at its lower end, and a tension device, substantially as described, fitted in a recess in said plate, the roller for supporting the strip of paper, said last-mentioned roller and the guide-plate being mounted on the same support, and means for adjusting said support toward and from the type-cylinder, substantially as described.

10. In a cigarette-machine of the kind described, the combination of a folder for folding the continuous web of paper and the contained tobacco into a cigarette, a device, substantially as described, for pasting the edges of the cigarette thus formed, and suitable printing devices for printing suitable letters or characters upon the web of paper while in motion, as set forth.

11. In a cigarette-machine of the kind described, the combination, with the folder for folding a continuous wrapper of paper around a tobacco-filler, and a device, substantially as described, for pasting the edges of the cigarette thus formed, of a type-cylinder arranged in proximity to the web of paper and adapted to imprint suitable letters or characters upon the web while in motion, substantially as described.

12. In a cigarette-machine of the kind described, in which a continuous web of paper is folded around a tobacco-filler, a suitable printing device for imprinting letters or characters upon said paper, the folder for folding the paper around the tobacco filler, devices, substantially as described, for pasting the edges of the folded wrapper, and a knife or cutter arranged relative to the printing device, so as

to sever the cigarette into suitable lengths, each having the letters or characters imprinted thereon, substantially as described.

13. In a cigarette-machine, the combination,
5 with the conveying-belt, of devices for forming the tobacco into a continuous roll, means for appropriately printing or stamping the sheet at regular intervals, devices for folding the paper around the tobacco, a pasting appa-

ratus, a device for completing and finishing the cigarette by folding down the pasted edge, and devices for severing the continuous cigarette, substantially as described.

JAMES ALBERT BONSAK.

Witnesses:

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