(No Model.) 8 Sheets—Sheet 1.

T. C. DEXTER.

PAPER FOLDING MACHINE.

No. 526,859. Patented Oct. 2, 1894.

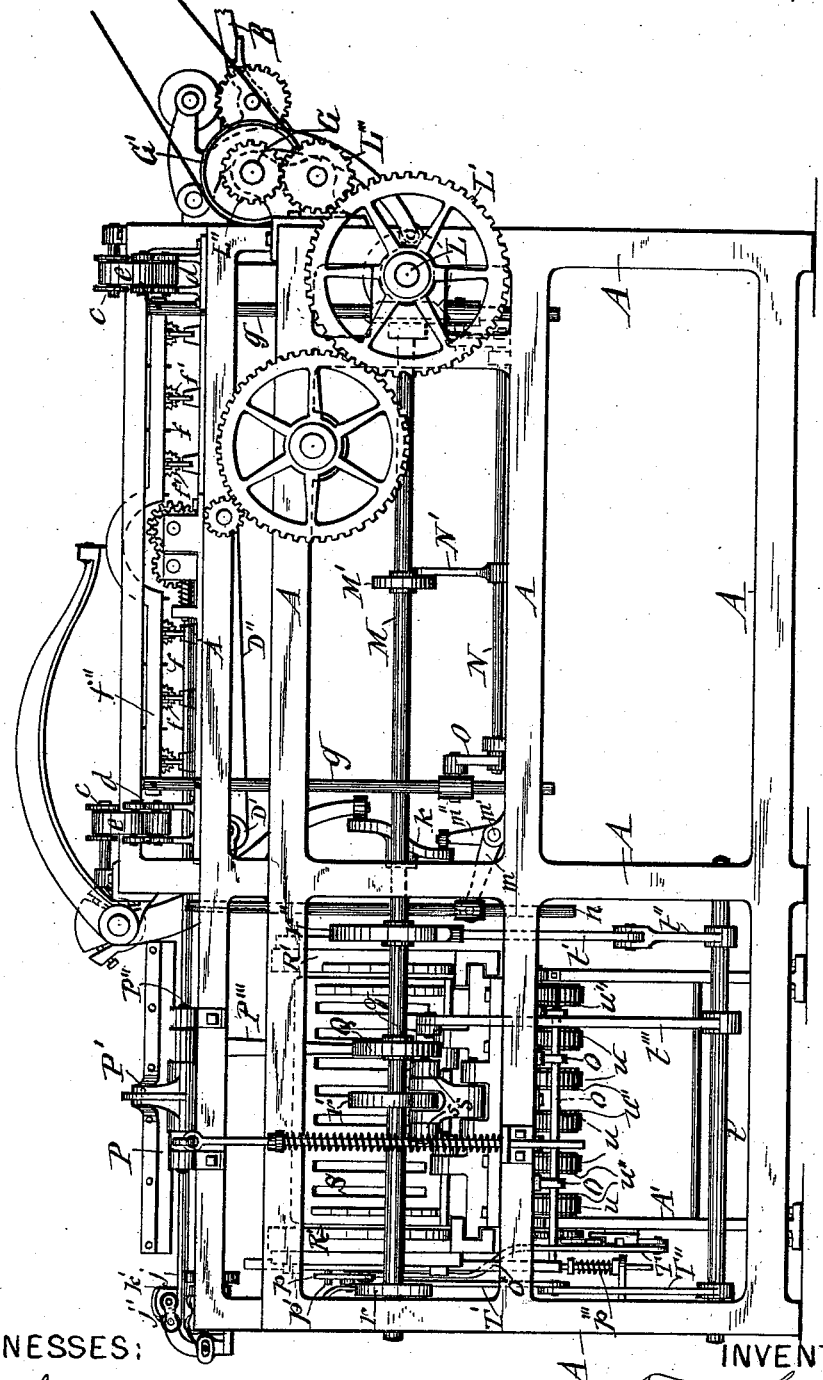

Fig. 1.

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INVENTOR:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 8 Sheets—Sheet 2.

T. C. DEXTER.

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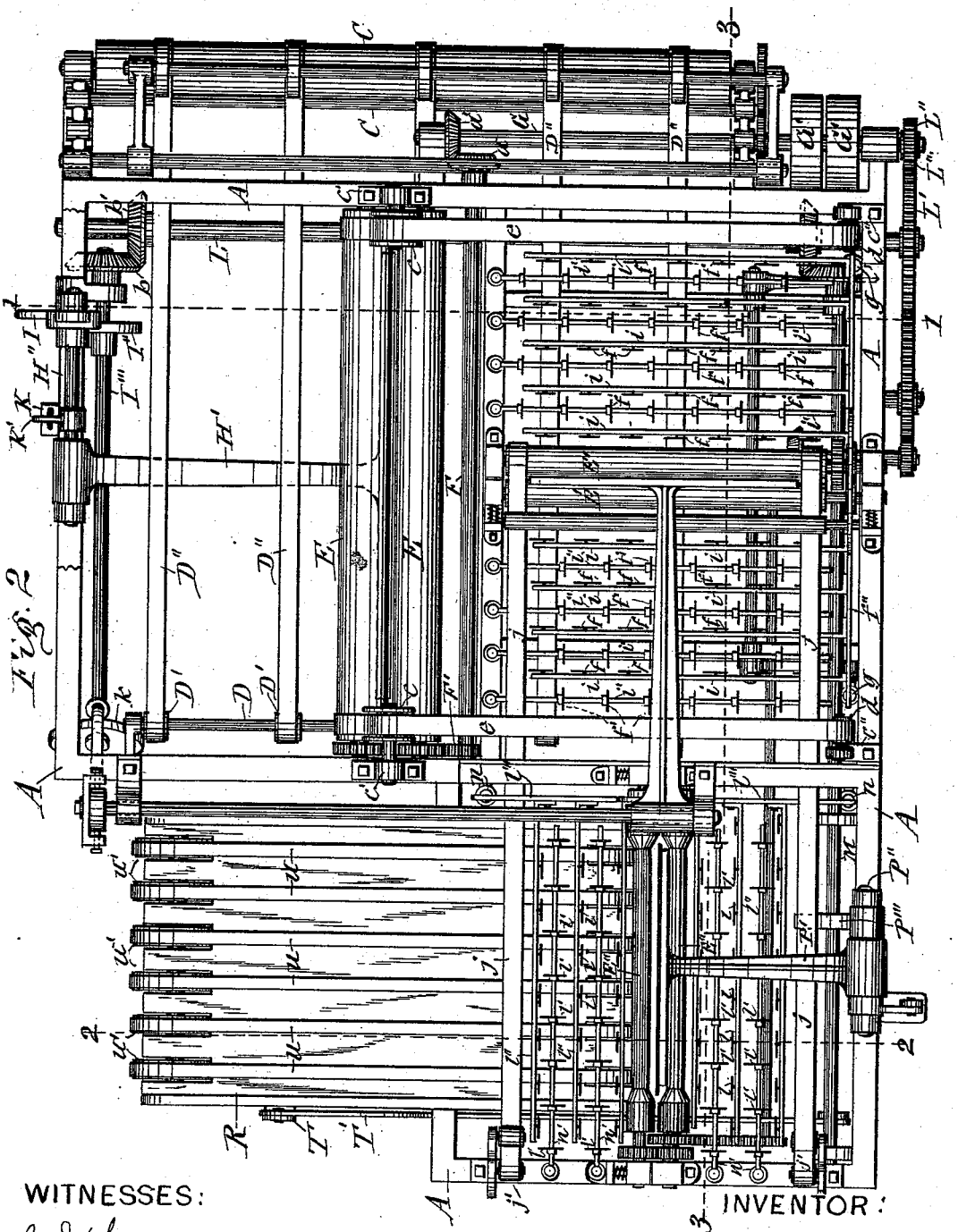

Fig. 2.

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(No Model.) 8 Sheets—Sheet 3.

T. C. DEXTER.

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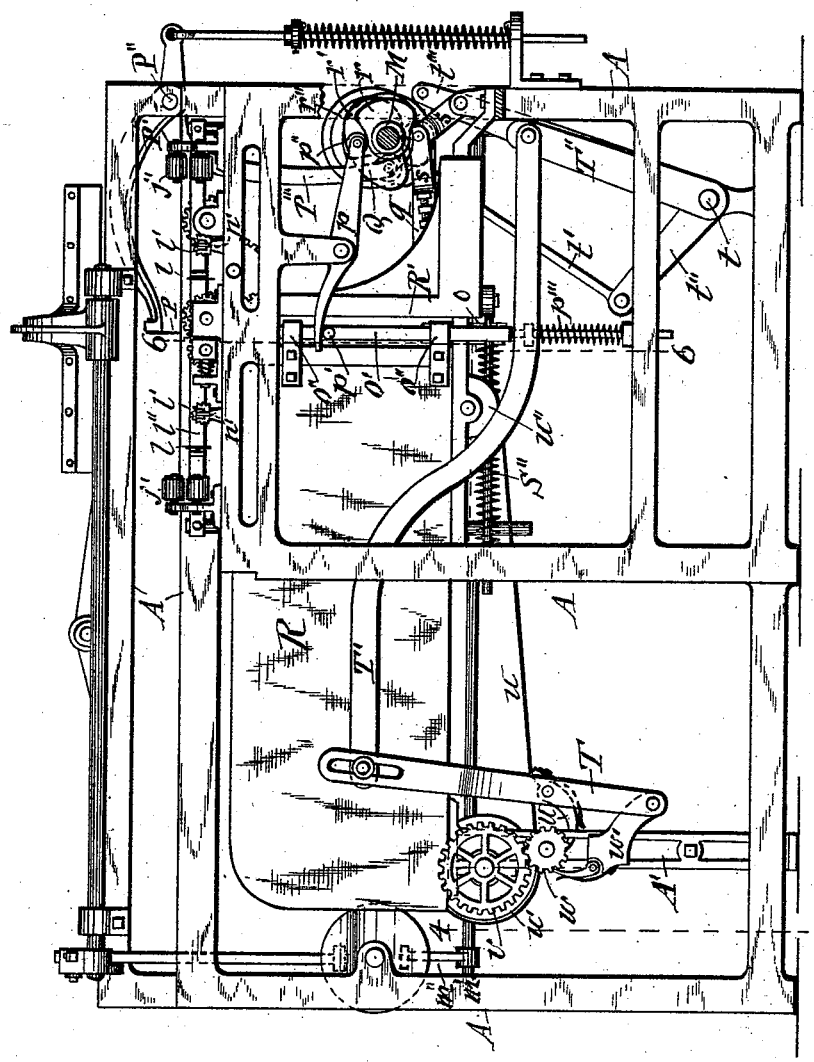

Fig. 3

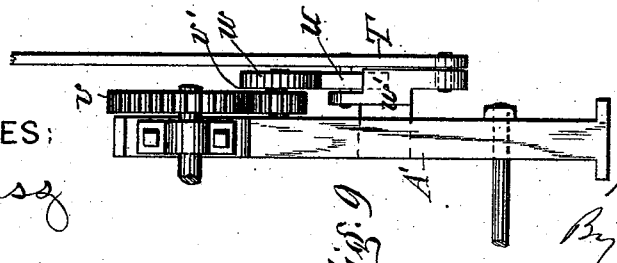

Fig. 9

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(No Model.) 8 Sheets—Sheet 4.

T. C. DEXTER.

PAPER FOLDING MACHINE.

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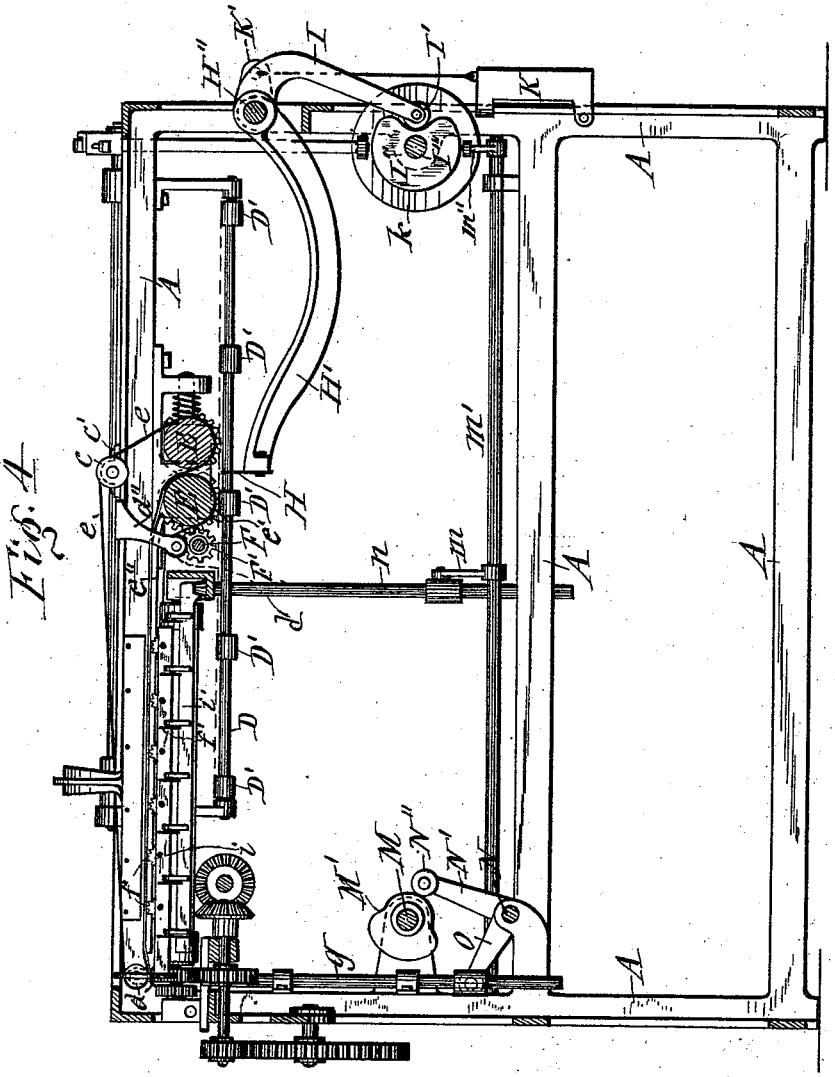

Fig. 4.

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(No Model.) 8 Sheets—Sheet 5.

T. C. DEXTER.

PAPER FOLDING MACHINE.

No. 526,859. Patented Oct. 2, 1894.

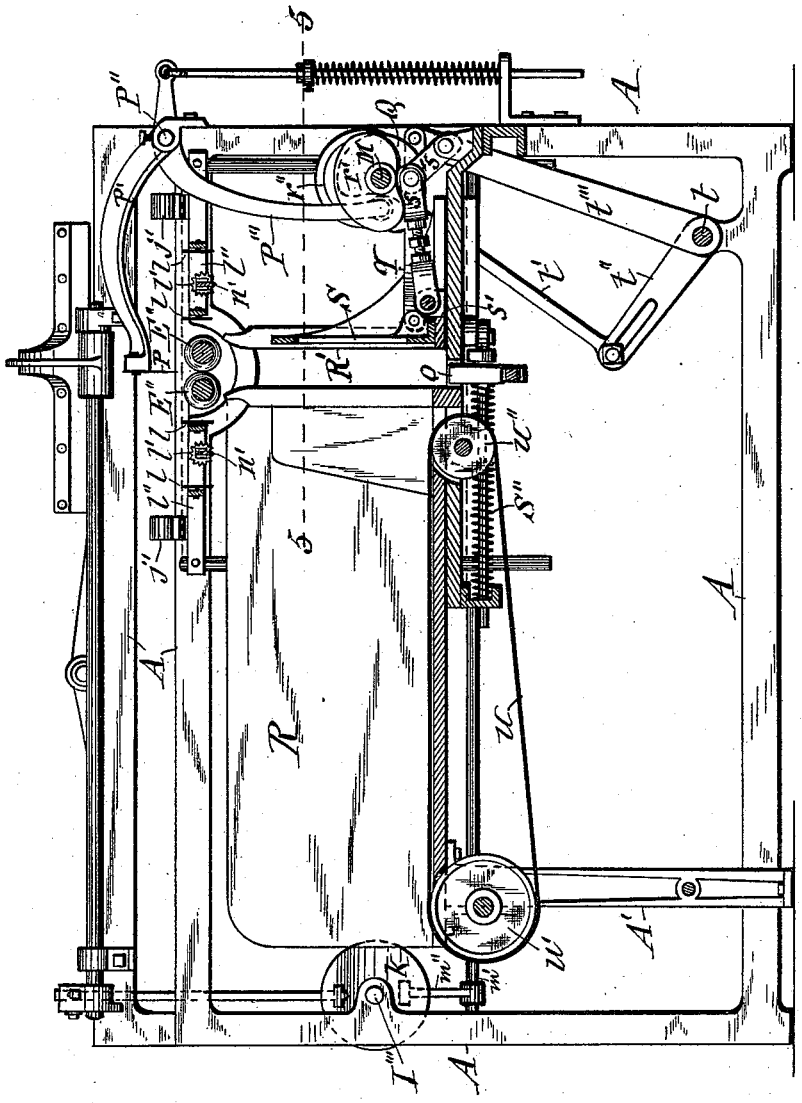

Fig. 5.

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(No Model.) 8 Sheets—Sheet 6.

T. C. DEXTER.

PAPER FOLDING MACHINE.

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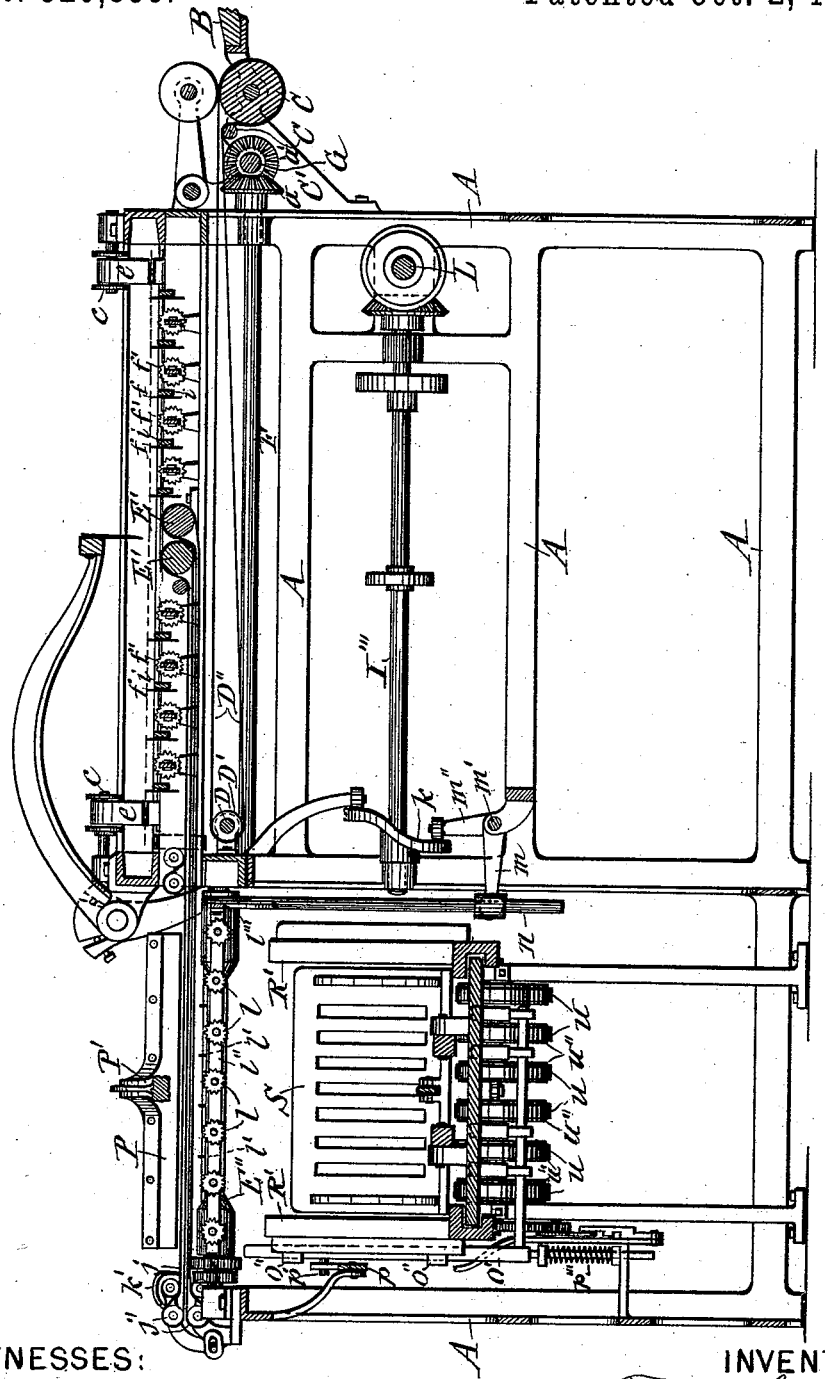

Fig. 6.

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(No Model.) 8 Sheets—Sheet 7.

T. C. DEXTER.

PAPER FOLDING MACHINE.

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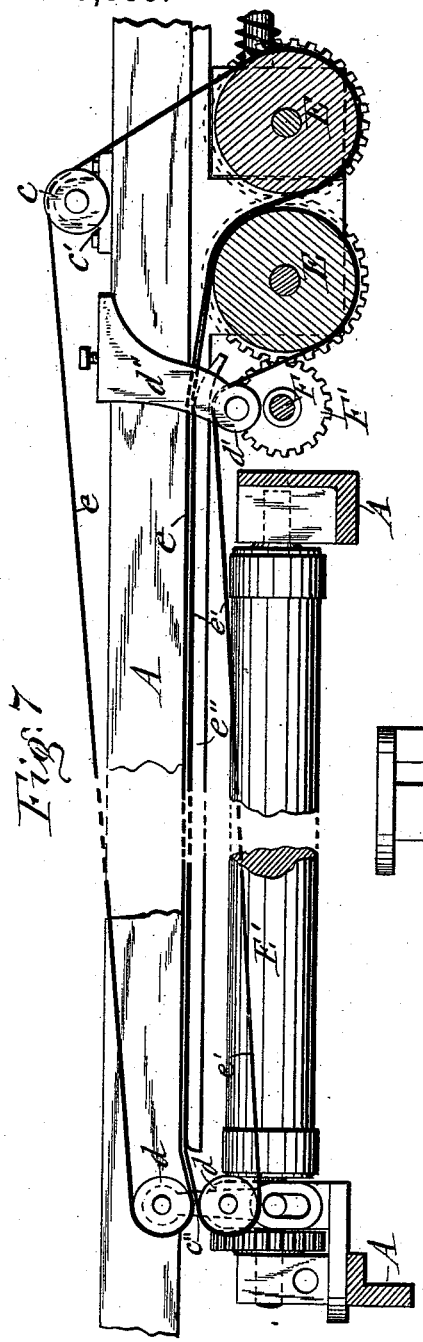

Fig. 7

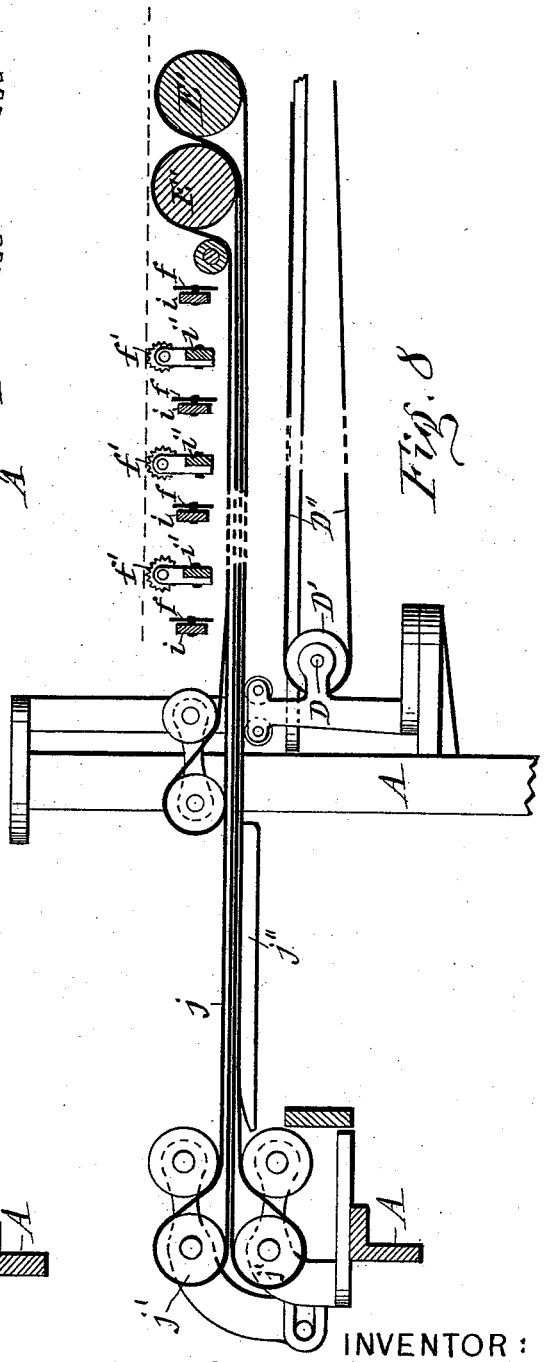

Fig. 8

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(No Model.) 8 Sheets—Sheet 8.

T. C. DEXTER.

PAPER FOLDING MACHINE.

No. 526,859. Patented Oct. 2, 1894.

Fig. 10

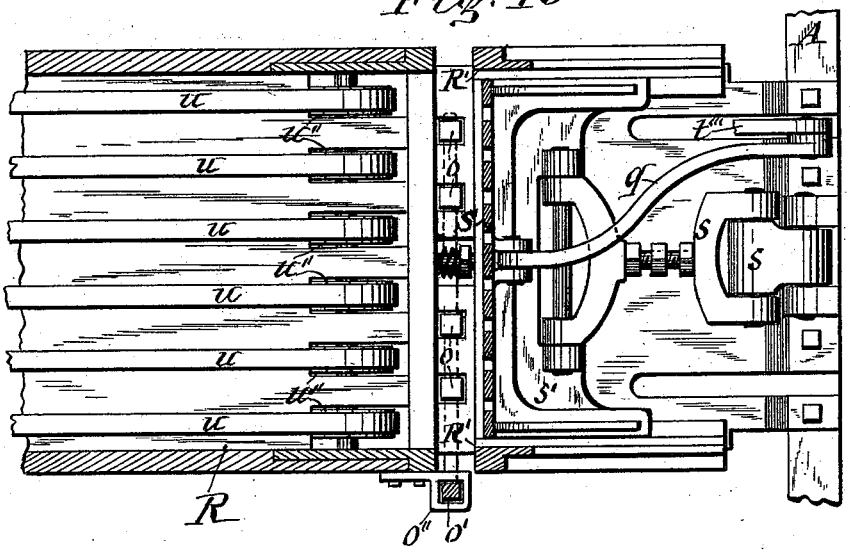
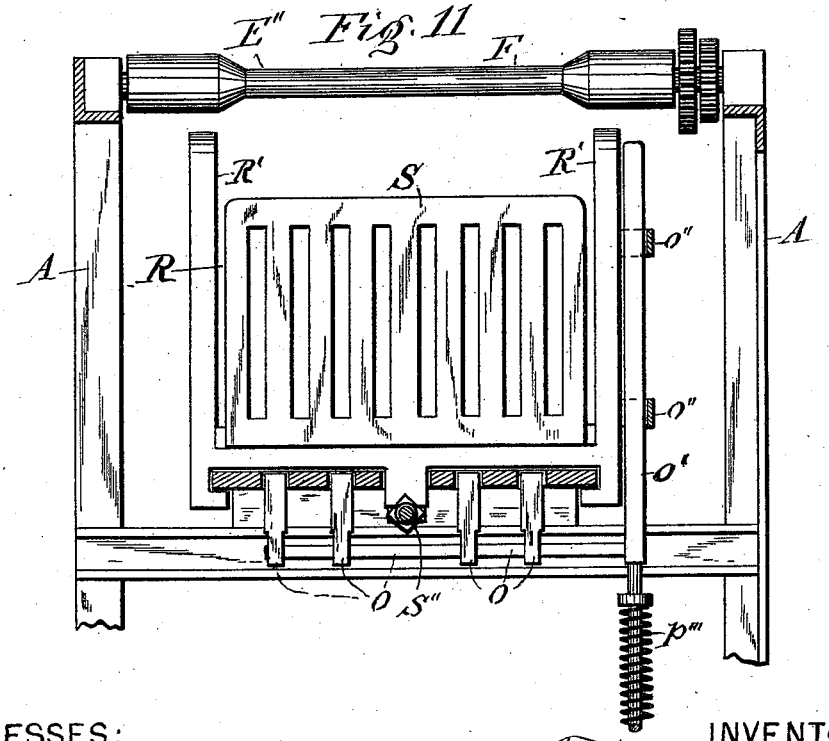


Fig. 11



WITNESSES:

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INVENTOR:

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

TALBOT C. DEXTER, OF FULTON, NEW YORK, ASSIGNOR TO THE DEXTER FOLDER COMPANY, OF SAME PLACE.

PAPER-FOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 526,859, dated October 2, 1894.

Application filed October 16, 1893. Serial No. 488,303. (No model.)

To all whom it may concern:

Be it known that I, TALBOT C. DEXTER, of Fulton, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Paper-Folding Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

The object of this invention is to provide a machine which shall be capable of folding highly illustrated papers or papers containing large prints as they issue from the printing press, or very soon after they are printed, and to fold the sheets without offsetting or smearing the same with the inks of the prints.

Heretofore it has been necessary to place the printed sheets in a heated dry room and keep them there for several hours to dry the prints preparatory to passing the sheets through the folding machine, and even then, where said machine is equipped only with tapes for carrying the sheets from one part of the folder to another, there has been experienced great difficulty in preventing the tapes from marking the paper, as by repeated contact of the tapes with the prints said tapes become smeared with ink and are very apt to leave their impressions on the sheet. It is well understood that in the printing of such papers the inside thereof may be printed some little time in advance of the outside, thus giving ample opportunity for the ink on the inside pages to become thoroughly dried and consequently obviating the liability of their offsetting when that side of the sheet is brought in contact with rapidly moving tapes.

My improved folding machine is organized to receive and carry the printed sheets with their dry sides down and riding upon the feed tapes which convey said sheets to the first fold-gage of the machine, and instead of arranging the first fold rollers underneath the plane of the feed tapes as heretofore my improved machine has said rollers disposed above said plane, and the folding blade or knife beneath this plane to drive the sheet up between the aforesaid fold-rollers. For this reason I also reverse the former method of piling the sheets on the feed-board by placing the sheets with their dry sides down and passing them in that condition to the aforesaid feed-tapes. The feed-tapes are arranged in lines with the blank spaces of the sheets in transit and are thus free from liability of becoming smeared with ink, and the first fold-rollers fold the sheet with the dry side inward. From the first fold-rollers the sheet is carried over the second fold-rollers through which it is passed downward in the usual manner and is thereby folded on a line at right angles to the first fold, and from beneath the second fold-rollers it is carried over the third fold-rollers which are at right angles to the second fold-rollers, and again fold the sheet and pass it down from the rollers to the packing box.

To obtain the necessary grip on the paper to carry the same from one set of folding-rollers to the next and through the rollers, I employ upper and lower marginal tapes which take hold of the paper only at the blank margin thereof and travel over arched surfaces which cause the tapes to pinch the paper so as to drag it along by its margins and bring it in position to receive the next fold. This means of transmitting the paper constitutes one of the salient features of my invention, whereby I dispense with all tapes except those which take hold of the margins or blank portions of the paper, and to prevent the sheets from sagging between these tapes I provide two series of pivoted star-wheels which support the sheet in transit from one set of folding-rollers to the next and permit free travel of the sheet without danger of smutting or offsetting the sheet, one of said series of star-wheels being disposed at right angles to the companion series and mounted on a vertically movable frame to allow the sheet to rest upon the set of star-wheels which are axially parallel with the folding-rollers to which the sheet is brought, thus obviating tearing the sheet or marring the printed matter. I furthermore guard against injuring and smearing the prints by setting the folding-rollers slightly apart and carrying the paper between said rollers by the tapes running on the rollers and engaging the margin of the paper.

My improved folding machine also embodies

other novel auxiliary devices employed for the aforesaid purpose and mechanisms for actuating the same as hereinafter more fully described; and my invention furthermore consists in a novel construction of the packing box connected to the folding machine to receive the folded paper, and organized to compress the folds of said paper, all as hereinafter more fully explained and set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a paper-folding machine embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is an elevation of that end of the machine to which the packing box or apparatus is attached. Figs. 4 and 5 are vertical transverse sections respectively on lines 1, 1, and 2, 2, in Fig. 2. Fig. 6 is a vertical longitudinal section on line 3, 3, in Fig. 2. Fig. 7 is an enlarged side view of the tapes which carry the paper from the first folding-rollers to the second folding-rollers. Fig. 8 is an enlarged side view of the devices which convey the sheet of paper from the second to the third folding-rollers. Fig. 9 is an end elevation on line 4, 4, in Fig. 3 showing the mechanism for transmitting motion to the paper conveying tapes of the packing box. Fig. 10 is an enlarged horizontal section on line 5, 5, in Fig. 5, illustrating more fully the mechanism for operating the paper compressing devices, and Fig. 11 is a transverse section on line 6, 6, Fig. 3.

Similar letters of reference indicate corresponding parts.

—A— represents the main supporting frame of the paper folding machine, and —B— the feed-board upon which the printed paper is piled preparatory to passing the same to the folding machine, only a small end portion of said board being shown in Fig. 6 of the drawings.

C—C— denote the rollers which extend along the end of the folding machine adjacent to the feed-board and are mounted in bearings on brackets —C′—C′—, attached to the frame —A—. A shaft —D— mounted on the said frame beyond the first folding rolls and parallel with the rollers —C—C— carries a series of pulleys —D′—D′— and upon these pulleys and aforesaid rollers run the endless tapes —D″—D″—. Above these tapes and parallel therewith are the first set of folding-rollers —E—E— mounted in suitable bearings attached to the frame —A— and geared to rotate with their adjacent sides upward, said motion being transmitted to the rollers by means of a shaft —F— parallel with said rollers and journaled in suitable bearings on the frame (not necessary to be shown) and having fixed to one of its ends a pinion —F′— which meshes with the gear of one of the folding rollers, as shown in Fig. 2 of the drawings. To the opposite end of said shaft is fastened a miter gear —*a*— which meshes with a similar gear —*a*′— fastened to the shaft —G— to which the driving pulleys —G′—G′— are attached.

Normally beneath the plane of the tapes —D″—D″— and parallel with the folding rollers —E—E— is the folding-blade —H— which pushes the central portion of the sheet of paper, up between the folding rollers as soon as said sheet has arrived at its requisite position under said rollers. Said folding-blade is attached to the arm —H′— which is fastened at its outer end to a rock-shaft —H″— which shaft receives its motion by means of an arm —I— fixed to the shaft and having pivoted to its free end a roller —I′— by which it bears on a cam —I″— attached to a rotary shaft —I‴— as shown in Fig. 4 of the drawings. Said roller is held in contact with the cam by means of a weight —K— hung on an arm —K′— projecting horizontally outward from the rock-shaft —H—″. The shaft —I‴— receives its rotary motion by means of the miter pinion —*b*—, attached thereto and meshing with the pinion —*b*′— attached to the shaft —L— which extends across the machine and has fastened to its outer end, a gear-wheel —L′— driven by a pinion —L″— fastened to the driving shaft —G— and an intermediate pinion —L‴— as shown more clearly in Fig. 1 of the drawings. I do not however limit myself specifically to such mechanism for transmitting motion to the rock-shaft —H″— as it is obvious that the same may be varied without departing from the spirit of my invention. Over the ends of the folding rollers —E—E— and axially parallel therewith are rollers —*c*—*c*— pivoted to gudgeons on brackets —*c*′—*c*′— mounted on the frame.

To brackets —*c*″— attached to the side of the frame —A— farthest from the first folding rollers are pivoted two pairs of rollers —*d*—*d*—, each of which pairs has the rollers disposed one over the other and in line with one of the rollers —*c*—. Near the side of the folding roller —E— facing toward the rollers —*d*—*d*— and in line with the latter are pulleys or rollers —*d*′—*d*′— pivoted to hangers —*d*″—*d*″— as shown in Fig. 7 of the drawings.

The folding rollers —E—E— are set a sufficient distance apart to allow two thicknesses of tape to run between them. Upon each of the upper rollers —*d*— and —*c*— and corresponding ends of the folding roller —E— farthest from the roller —*d*—, runs an endless tape —*e*— which passes from the bottom of said folding roller up and over the top of the companion roller —E—. Upon each of the lower rollers —*d*— and —*d*′— and corresponding end of the folding roller —E—, runs another tape —*e*′—, the upper part of which is maintained contiguous to the lower part of the tape —*e*— by means of a longitudinal guide —*e*″— upon which the said portions of the tape ride, said guide being in a plane slightly above a line drawn from the top of the folding roller to the top of the lower outer roller —*d*—. By means of the two guides, the two sets of tapes —*e*—*e*′— are caused to

obtain a firm grip upon the margins of the paper which is drawn up between the folding rollers —E—E— by the tapes running on the ends of said rollers, which tapes thence carry the folded paper along to its requisite position over the second folding rollers —E'—E'—.

The folding rollers —E—E— being held apart as aforesaid, prevents the paper from coming in contact with the rollers in the process of being folded, thus guarding against the smearing of the rollers with ink from the prints on the paper and also protecting said prints, and this protection is continued during the transit of the paper from the first to the second folding rollers by the tapes —*e*—*e'*— having the sole frictional holds on the margins or blank portions of the paper. To prevent the paper from sagging during the said transit, I employ two series of pivoted star-wheels —*f*— and —*f'*— under the plane of the travel of the paper, the wheels of one series being pivoted to horizontal bars —*i*—*i*— in such a manner as to allow them to revolve in planes parallel with the line of the travel of the paper from the first folding rollers —E—E— to the second folding rollers —E'—E'—. The other series of star wheels —*f'*— is pivoted to horizontal bars —*i'*—*i'*— and disposed to revolve in planes at right angles to the star-wheels —*f*—. The supporting bars —*i*—*i*— of the star-wheels —*f*— which revolve parallel with the line of travel of the paper, are arranged between the bars —*i'*—*i'*— and attached to a vertically movable frame —*f''*— mounted on vertical guide-rods —*g*— which receive intermittent reciprocating motion by mechanism hereinafter described. The other bars —*i'*—*i'*— are secured stationary to the frame —A— and support the star-wheels —*f'*—*f'*— so as to bring their top edges in a plane to support the main portion of the paper and prevent it from sagging while being drawn through the second folding rollers —E'—E'—. The vertically movable bars —*i*—*i*— rise to carry their star-wheels —*f*—*f*— to project above the tops of the other star-wheels —*f'*—*f'*— while the paper is traveling from the first folding rollers —E—E— to a position directly over the second folding rollers —E'—E'—. Said paper is thus held out of contact with the star-wheels —*f'*—*f'*— during the aforesaid travel of the paper. As soon as the paper has arrived at the gage which arrests the motion of the paper directly over the second folding rollers, the bars —*i*—*i*— drop and allow the paper to rest upon the star-wheels —*f'*—*f'*— which allow the paper to freely pass through the second folding rollers. By the employment of the described star-wheels the paper in transit is supported without danger of blurring or marring the printed illustrations, owing to the free revoluble motion of said wheels and their minimum contact with the paper. This feature of supporting the paper in transit combined with the propulsion of the paper by traveling tapes taking hold only of the marginal or blank portions thereof, is a very important part of my present invention.

The vertically movable frame —*f''*— which carries the star-wheel supporting bars —*i*—*i*— derives its motion by the following mechanism, viz: To a rotary shaft —M— is fastened a cam-wheel —M'— and parallel with said shaft is a rock-shaft —N— to which is affixed an arm —N'— having a roller —N''— pivoted to its free end and bearing on the periphery of the cam-wheel and thereby transmits a rocking motion to the shaft —N—. To this rock-shaft are attached the arms —O— the free ends of which are pivotally connected to the guide-rods —*g*—*g*— of the vertically movable frame —*f''*—.

—E''—E''— denote the third folding rollers which are disposed horizontally at right angles to the second folding rollers and in a lower plane. The second folding rollers —E'—E'— are like the first folding rollers arranged a sufficient distance apart to allow two thicknesses of tape to pass between them and also to guard against contact of said rollers with the printed surface of the paper passing between the rollers. The paper is carried from beneath the second folding rollers to its requisite position over the third folding rollers to be folded downward thereat, and in said transit the paper is likewise carried and protected by top and bottom carrying tapes —*j*—*j*— running on the ends of the second folding rollers —E'—E'— and upon rollers —*j'*—*j'*— mounted on the end of the frame —A—, the top portions of the lower tapes sliding over raised guides or bridges —*j''*— which hold said portions of the tapes in close contact with the lower portions of the upper tapes as clearly shown in Fig. 8 of the drawings, and thus causing them to obtain the necessary grip upon the margins of the paper to drag the same along. The central portion of the paper thus carried along is prevented from sagging by a series of star-wheels —*l*—*l*— pivoted to bars —*l'*—*l'*— which are fastened to a vertically movable frame —*l'''*— mounted on vertical guide-rods —*n*— which are connected to arms —*m*— fixed to a transverse shaft —*m'*— mounted in bearings on the frame —A—. Another arm —*m''*— fixed to said shaft has pivoted to its free end a roller by which it bears on a cam —*k*— attached to the rotary shaft —I'''—. The arm —*m''*— thus receives an oscillatory motion, which by means of the arm —*m*— transmits a reciprocating motion to the guide-rods —*n*—.

The star-wheels of the vertically movable frame stand in planes parallel with the line of travel of the paper, and are carried alternately above and below the other series of star-wheels —*l'*— which are pivoted to stationary bars —*n'*— fastened to the frame —A—. All of these star-wheels also serve to protect the printed surfaces from being blurred. The star-wheels —*l*—*l*— are lifted in carrying the paper over the third folding

rollers, and as soon as the paper has been arrested by the gage —*k'*— the said star-wheels descend beneath the plane of the star-wheels on the stationary bars —*n'*— which are at right angles to the folding rollers —E''—E''— and allow the paper to freely pass between said rollers into which the paper is introduced by the knife —P—. This knife is fixed to an arm, P', attached to a horizontal shaft —P''— to which is also fastened a downwardly extending arm —P'''— having pivoted to its free end a roller by which it bears on a rotary cam —Q—. The rotation of this cam imparts the vertical motion to the knife and causes the same to intermittently descend to and rise from the entrance between the folding rollers —E''—E''—. Inasmuch as these rollers are not required to carry endless tapes as the first and second folding rollers, I form the third folding rollers —E''—E''— with a circumferential depression —F— extending the entire length of the main portions of the rollers and terminating short distances from the ends thereof as shown in Figs. 2 and 6 of the drawings and more clearly in Fig. 11. These rollers are set with their end portions in sufficient proximity to each other to cause them to grip the margins of the paper and draw said paper down between the rollers while the reduced main portions of the rollers are kept out of contact with the paper. Beneath said rollers is arranged my improved packing box and devices for compressing the folds of paper preparatory to passing the folded paper into the box.

—R— denotes the box in which the folded paper is to be packed. The receiving end of said box is provided with vertical side faces in line with the downward passage of the paper, and adjacent to the aforesaid side faces of the box is a vertically movable base —*o*— adapted to rise and fall to and from a level with the bottom of the interior of the box —R—. The base is attached to and carried by a vertical bar —*o'*— which slides in guides —*o''*—*o''*— and is supported in its elevated position by a suitable spring —*p'''*—. At the opposite side of the base —*o*— is a horizontally movable press-head —R'— formed with vertical walls at the end adjacent to the receiving end of the box —R—, and in line with the side-walls thereof.

Between the vertical walls of the press-head —R'— is a vertical plate —S— which is movable in a horizontal direction toward and from the box —R— independent of the press-head. The purposes of the said movable base —*o*—, press-head —R'—, and plate —S— are as follows:—The folded paper descending from between the folding rollers —E''—E''— drops vertically upon the base —*o*— which is sustained normally on a level with that of the interior of the box —R—. The base then descends a short distance to allow the bottom fold of the paper to come below the plane of the interior bottom of the box. Then the press-head moves toward the box a sufficient distance and with sufficient force to pinch between the bottoms and vertical walls of said parts the bottom and side folds of the paper, which folds are thus compressed while the printed surfaces of the paper are left without such compression and thus relieved from liability of becoming blurred or marred by frictional contact. The press-head —R'— then immediately recedes and releases the paper. Base —*o*— then rises and the plate —S— moves forward and pushes the paper into the box —R—. As soon as this is effected, the said plate recedes and the base —*o*— descends to allow the next folded paper to drop into position to be operated on as aforesaid. To impart the aforesaid motions to the base —*o*—, press-head —R'— and plate —S—, I employ the following mechanisms:— To the rotary shaft —M— are fastened two cams —*r*— and —*r'*— and an eccentric —*r''*—. A lever —*p*— pivoted to the frame —A— bears with one end on a lug —*p'*— which projects from one side of the bar —*o'*—, the opposite end of said lever having pivoted to it a roller —*p''*— by which it bears on the cam —*r*— and thus receives an oscillatory motion which intermittently depresses the bar —*o'*— with the base —*o*— attached thereto. The press-head —R'— receives motion by means of toggles —*s*—*s*— pivoted at one end to the frame —A—, and connected at the opposite end to a cross-bar —*s'*— attached to the press-head. See Fig. 10. The cam —*r'*— bearing on the top of the junction of the said toggles depresses the same and pushes the press-head toward the box —R—. A spring —S''— forces the press-head in the opposite direction. The plate —S— receives its motion from the eccentric —*r''*—, the pitman —*t'*— of which is connected to the free end of an arm —*t''*— attached to the shaft —*t*— which thereby receives a rocking motion. Another arm —*t'''*— attached to said shaft and connected at its free end with the plate —*s*— by a rod or link —*q*—, transmits a horizontal backward and forward motion to said plate. The folded and compressed papers are carried along intermittently in the box —R— by means of endless belts or tapes —*u*—*u*— extending lengthwise of the box and running on pulleys —*u'* and —*u''*— near the ends of the box, as best seen in Fig. 5 of the drawings. In order to cause said belts to move in unison with the folding mechanisms hereinbefore described, a gear-wheel —*v*— is attached to the end of the shaft of the pulleys —*u'*—, and to the post —A'— which supports the box is fastened a gudgeon on which are pivoted the ratchet-wheel —*w*— and the pinion —*v'*— which latter meshes with the gear-wheel —*v*—. To the free end of an arm —*w'*— fastened to the post —A'—, is pivoted the lever —T—, the free end of which is connected by a pitman —T'— to an arm —T''— fastened to the rock-shaft —*t*—. The lever thus receives

an intermittent oscillatory motion. A pawl —U— connected to said lever engages the ratchet-wheel —*w*— and thereby imparts to the same a partial turn at regular intervals, corresponding with the motion of the folding machine. This motion is transmitted to the shaft of the pulleys —*u'*— by the pinion —*v'*— and gear-wheel —*v*—.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with two sets of folding rollers, paper-conveying tapes gripping the marginal portions of the paper, and pivoted star-wheels supporting the central portion of the paper in transit as set forth.

2. The combination of two cooperative paper-folding rollers, set apart for receiving between them two thicknesses of tape, carrying-rollers in lines with the end portions of the folding-rollers, tapes running on said end portions and carrying-rollers, and a series of pivoted star-wheels supporting the central and main portion of the paper in transit from the folding rollers substantially as and for the purpose set forth.

3. The combination, with two sets of folding rollers disposed at right angles to each other, and tapes conveying the paper from one to the other of said sets of rollers, of a vertically movable frame beneath the passage of the paper, star-wheels pivoted to said frame and in planes parallel with the line of travel of the paper, and pivoted star-wheels disposed in planes at right angles to the aforesaid vertically movable star-wheels and supporting the paper in its transit to the second folding rollers as set forth.

4. A paper-folding machine having its paper-feeding tapes arranged in lines corresponding to the blank spaces of the paper, the first folding rollers disposed above the plane of said tapes, and set apart for the passage of two thicknesses of tape, the folding-knife beneath the feeding tapes and movable upward to enter the paper between said folding rollers, carrying-rollers in lines with the end portions of the aforesaid folding rollers, tapes running on said end portions and carrying-rollers and gripping the paper at its margins, the second folding rollers at right angles to the first folding rollers, a vertically movable frame between the first and second set of folding rollers, star-wheels pivoted to said frame and disposed in planes parallel with the line of travel of the paper to support the paper in its transit from one set of folding rollers to the next set, and release said paper at the end of its movement, pivoted star-wheels disposed in planes at right angles to the vertically movable star-wheels and supporting the central portion of the paper in transit to the second set of folding rollers, and traveling tapes arranged one over the other and gripping between them the margins of the paper as set forth.

5. In combination with two sets of folding rollers, and two paper-conveying tapes running on each end portion of said rollers and on carrying rollers in lines with said end portions, bridges raised to the planes above the top of the folding rollers and supporting the upper portion of the lower tape and lower portion of the upper tape in close proximity to each other to grip the marginal portions of the paper in transit, and pivoted star-wheels supporting the central portion of the paper to prevent its sagging as set forth.

6. In a paper folding machine having a plurality of folding rollers, for folding each sheet successively, the combination of the final folding rollers provided with circumferentially enlarged end portions for gripping the paper solely at its margins and holding the main portions of the rollers out of contact with the printed surfaces of the paper, a packing box terminating with an open end under the folding rollers and a press-head movable longitudinally toward and from the end of the packing box to receive and compress between them the margins of the folded paper as set forth.

7. In a paper folding machine having a plurality of sets of folding rollers, the combination of the final folding rollers provided with circumferentially enlarged end portions to grip the paper at the margins thereof, a packing box under said rollers having vertical side-faces in line with the downward passage of the paper from the rollers, a vertically movable base for receiving the bottom edge of the descended paper, and a compressor movable horizontally toward and from the aforesaid side-faces of the box to compress the last fold of paper as set forth.

8. In a paper folding machine having a plurality of sets of folding rollers, the combination with the final folding rollers, of a packing box beneath the latter rollers having vertical side-faces in line with the downward passages of the paper, a base movable vertically to and from a level with the interior bottom of the packing box, a compressor movable horizontally toward and from the aforesaid side-faces to compress the folds of paper, and a vertical plate movable horizontally independently of the compressor and pushing the paper into the packing box as set forth.

9. In a paper folding machine having a plurality of sets of folding rollers, the combination with the final folding rollers, of a packing box beneath said rollers and provided with vertical side-faces in line with the downward passage of the paper, a base movable vertically to and from a level with the interior bottom of the packing box, a spring supporting the base in said level, a press-head movable horizontally toward and from the end of the packing box to compress the folds of the paper, a vertical plate movable horizontally independently of the press-head and pushing the compressed paper into the pack-

ing box, rotary cams and eccentric mounted on one and the same revolving shaft, and levers and pitman transmitting motion from said cams and eccentric respectively to the vertically movable base, fold-compressor and paper-pushing plate as set forth.

10. In combination with the folding rollers, packing box, paper-lifting base, fold-compressing press-head and paper-pushing plate, cams and eccentric mounted on one and the same revolving shaft, levers and pitman transmitting motion to the aforesaid base, press-head and paper-pushing plate, a rock-arm actuated by the aforesaid eccentric, pulleys at opposite ends of the packing box, belts on said pulleys traveling over the interior bottom of the packing box, a gear wheel attached to one of the pulley-shafts, a ratchet-wheel and pinion transmitting motion to said gear wheel, a lever actuated by the aforesaid rock-arm, and a pawl on said lever engaging the ratchet-wheel substantially as set forth.

11. In combination with the folding rollers, the packing box terminating with vertical faces in line with the downward passage of the paper, from the folding rollers, a press-head movable toward and from the end of the packing box, a spring forcing said press-head from the packing box, toggles pivoted at one end of the main frame and connected at the opposite end to the press-head, and a rotary cam depressing the toggles at their junction and thereby forcing the press-head toward the packing box as set forth and shown.

In testimony whereof I have hereunto signed my name this 10th day of August, 1893.

TALBOT C. DEXTER. [L. S.]

Witnesses:
JOHN J. LAASS,
FRED H. JUDD.