E. H. TAYLOR.

PAPER BOX MACHINE.

APPLICATION FILED NOV. 19, 1913.

1,161,996.

Patented Nov. 30, 1915.

5 SHEETS—SHEET 1.

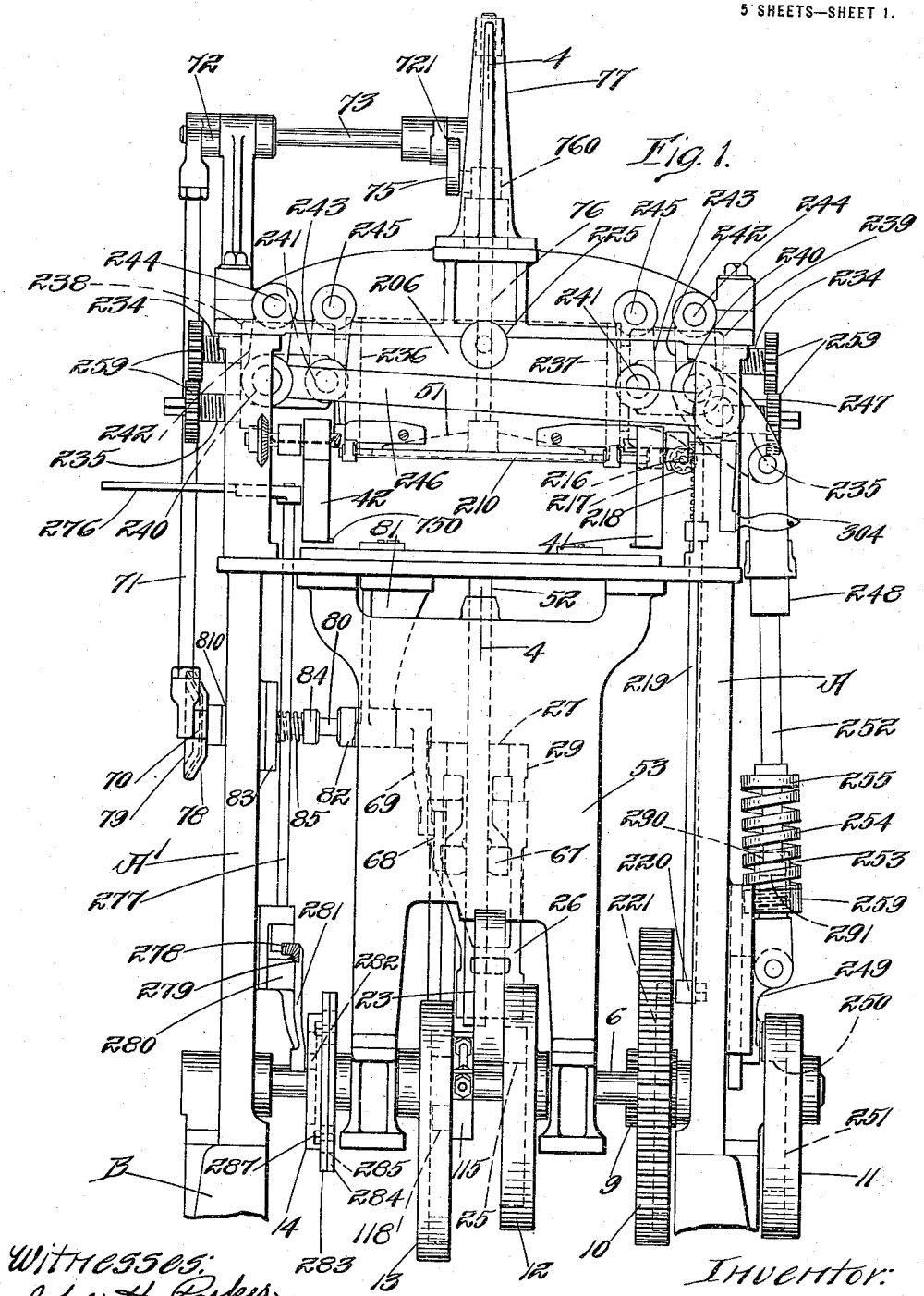

Fig. 1.

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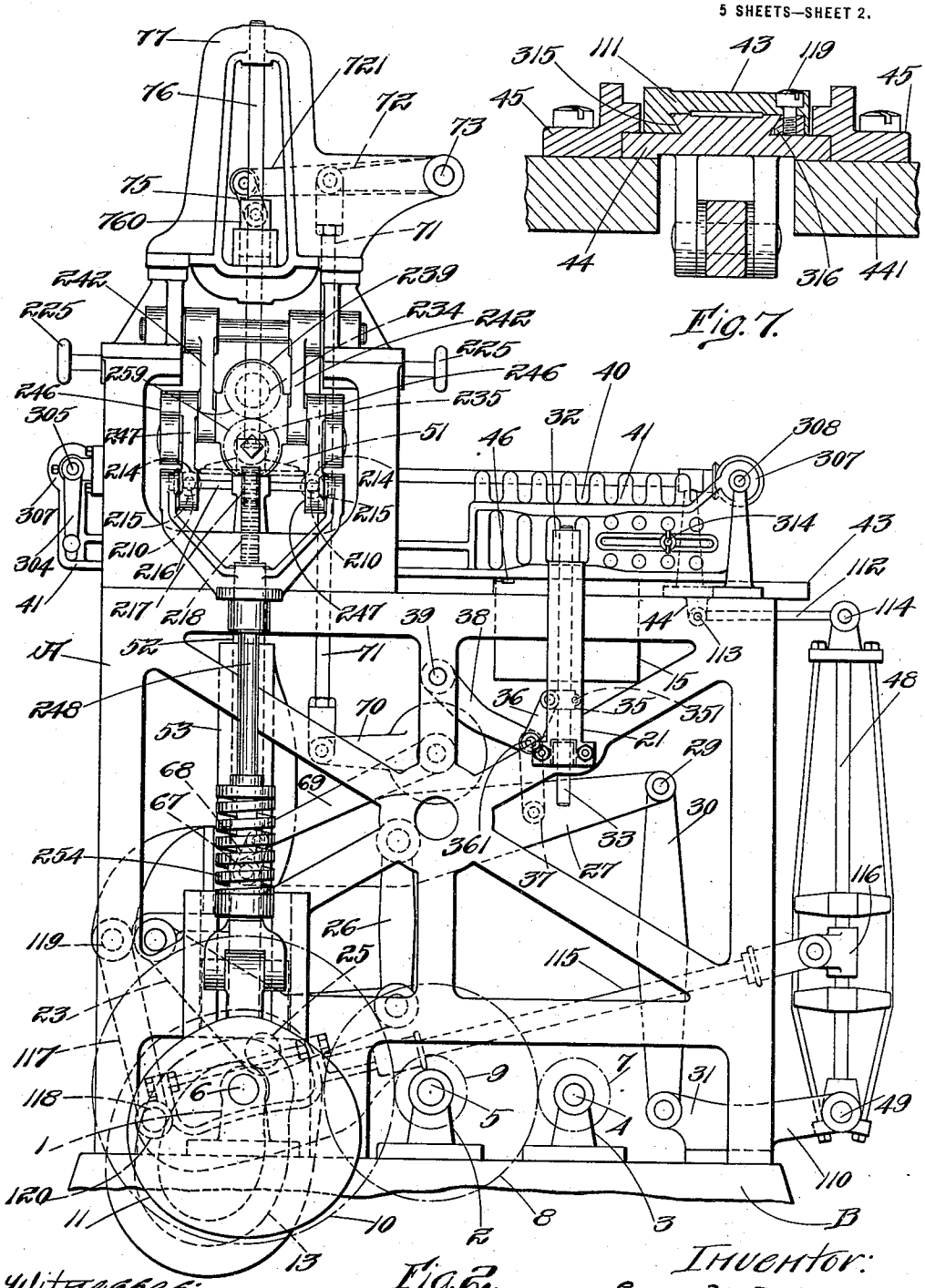

Fig. 7.

Fig. 2.

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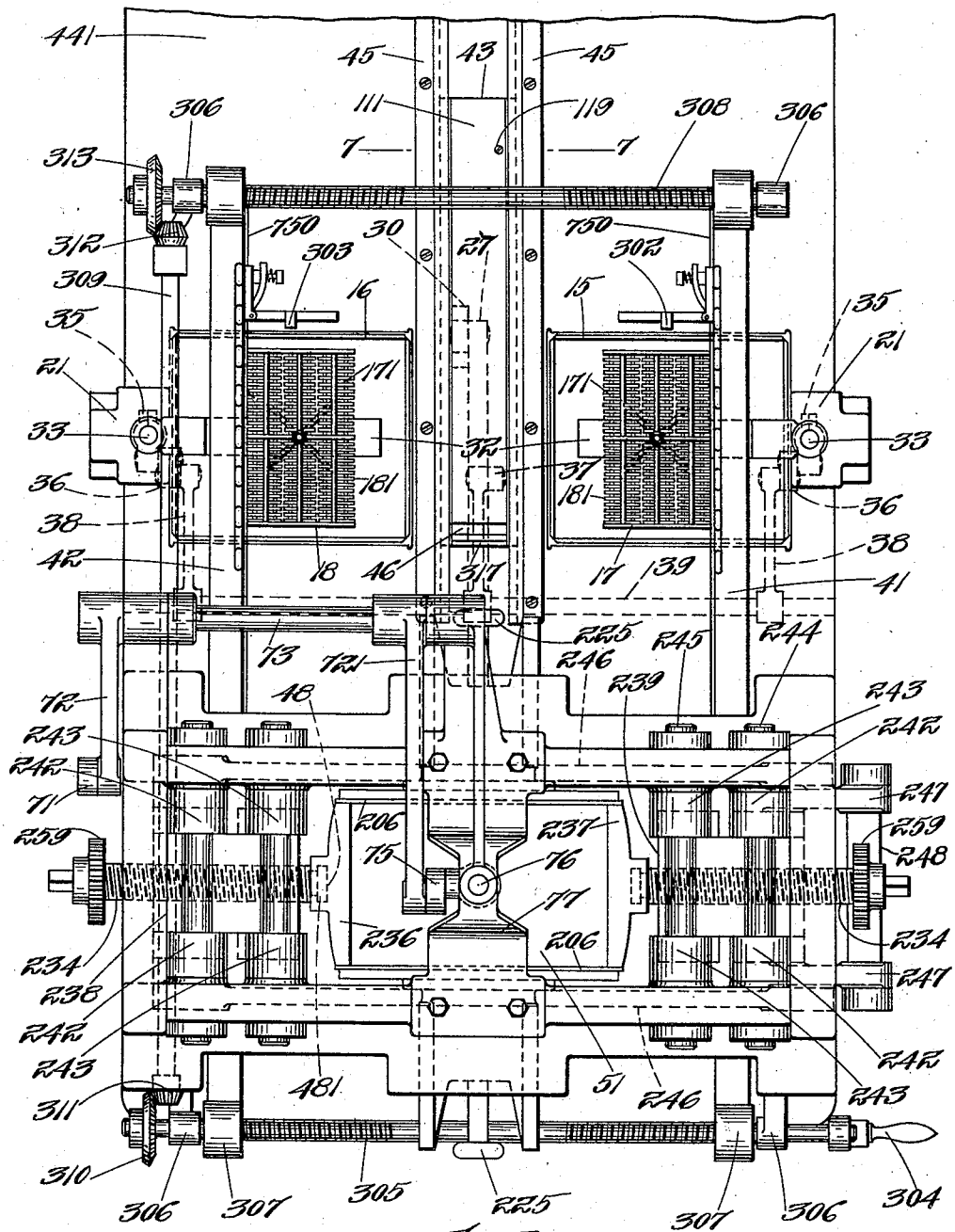

Fig. 3.

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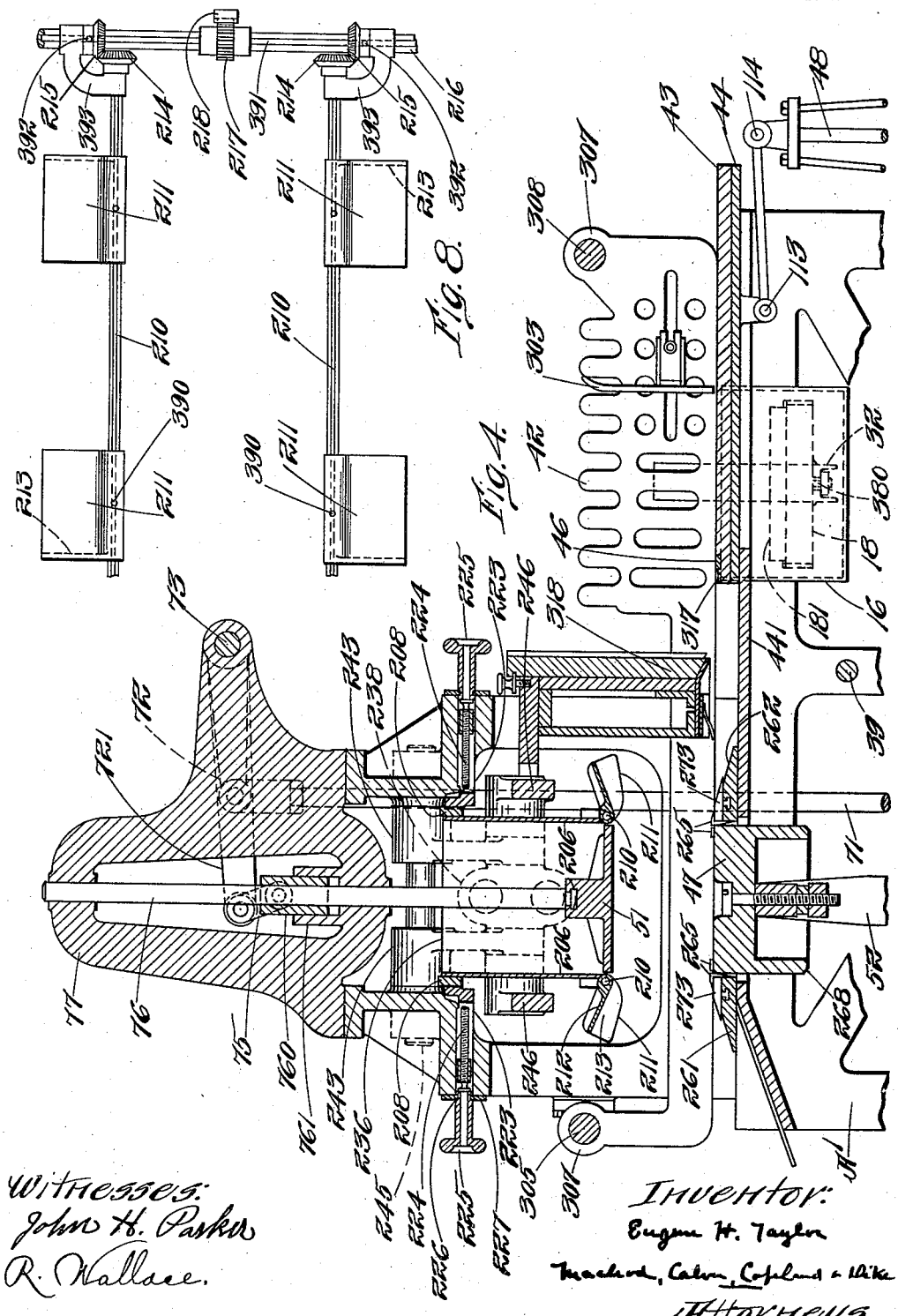

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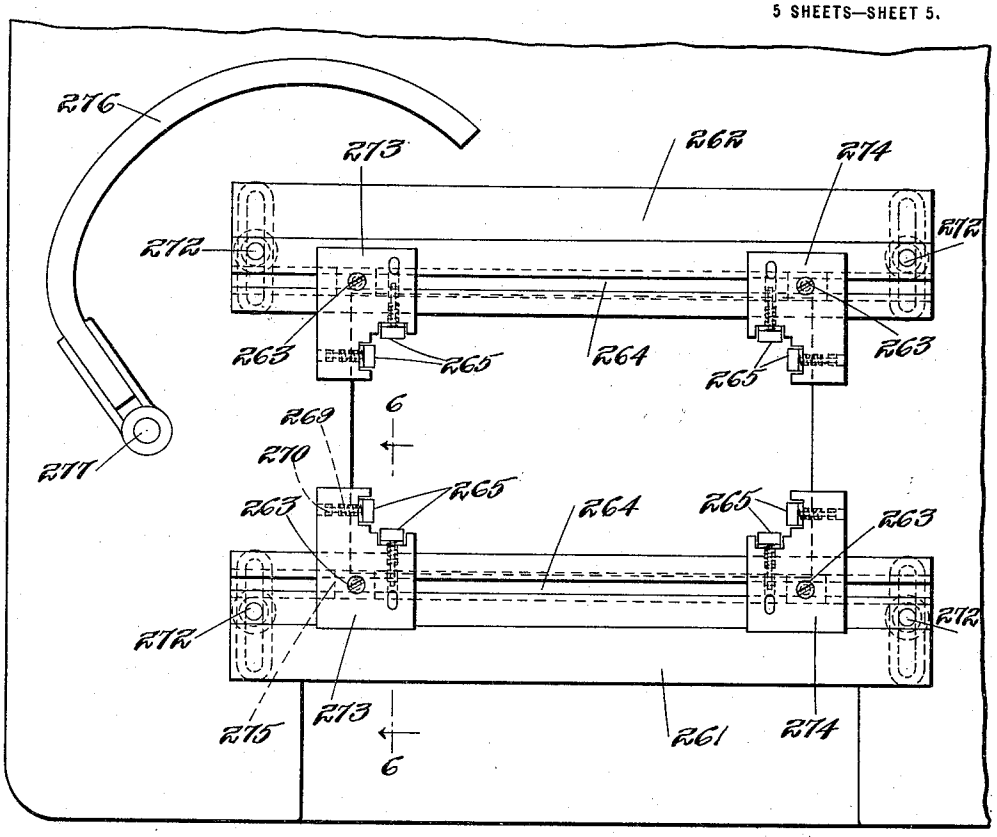

Fig. 5.

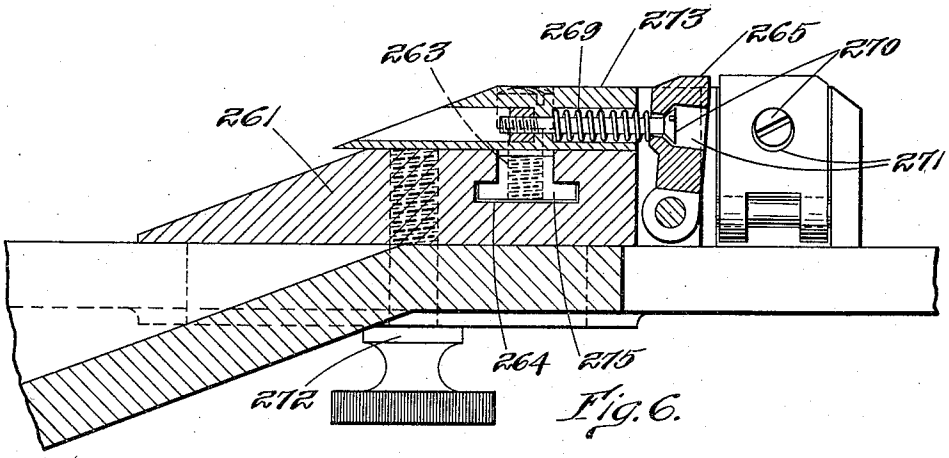

Fig. 6.

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UNITED STATES PATENT OFFICE.

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PAPER-BOX MACHINE.

1,161,996. Specification of Letters Patent. Patented Nov. 30, 1915.

Application filed November 19, 1913. Serial No. 801,972.

To all whom it may concern:

Be it known that I, EUGENE H. TAYLOR, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Paper-Box Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object a paper box machine for the construction of boxes or covers from a single blank of material which has previously been properly died out and creased, scored or wetted.

The machine embodying my present invention is of the general type shown and described in my prior Patent No. 541,953, granted July 2, 1895 and the various groups of working instrumentalities are in general arranged and combined as shown in that patent.

Properly prepared blanks are placed in in adjustable hopper which is provided with a carrier over movable pasters or wetting members. The carrier feeds the lower most blank forward between a vertically movable box form and follower. The vertically movable box form and follower then compress the bottom of the box between them and the sides and ends of the box are folded automatically into position by appropriate members and the pasted surfaces thereof are thereupon subjected to pressure to set the glue or paste. The box form and follower then move downwardly and separate, and the completed box is removed from the box form by means of members known as shedder plates. Thereafter, the finished box is ejected from the machine.

As the machine shown in the accompanying drawings is in general like the machine shown in my before mentioned patent, it has not been thought necessary to describe all of the details of the machine, but reference may be had to the said patent for further explanation.

My invention will be fully understood from the following description taken in connection with th accompanying drawings and the novel features thereof are pointed out and clearly defined in the claims at the close of the specification.

Referring to the drawings, Figure 1 is a front elevation of a machine embodying my invention. Fig. 2 is an elevation of the right-hand side of the machine as seen in Fig. 1. Fig. 3 is a top plan view of the machine. Fig. 4 is a section of the upper part of the machine taken on line 4—4 of Fig. 1. Fig. 5 is a plan view enlarged showing the shedder plates and box ejector. Fig. 6 is a section enlarged of a shedder plate and shedder block carrier on line 6—6 of Fig. 5. Fig. 7 is a section taken on line 7—7 of Fig. 3. Fig. 8 is a plan view in detail on a larger scale of the corner turners.

Having reference to the drawings, and particularly to Figs. 1, 2 and 3, there is shown a frame of suitable construction and design to support the operating parts of the machine. The frame consists of the sides A and A′ secured to a base B adapted to support the feeding devices, as will hereinafter be described. The base B is provided at each side with journal supports 1, 2 and 3, as shown in Fig. 1 which are of common form and construction and support shafts 4, 5 and 6. The shaft 4 may be driven in any well known manner, as for instance by a belt and pulley drive. Adjacent the side frame A and secured to the shaft 4, is a pinion 7 which engages with a gear 8 on the shaft 5, the shaft 5 is also provided with a pinion 9 which meshes with a gear 10 secured to the main shaft 6 all as clearly appears in Fig. 2. I provide the main shaft 6 with cams 11, 12, 13 and 14 in order to give suitable movements to the operating parts of the machine. Certain instrumentalities in the machine are operated from a single lever 27, which for convenience I call the main lever, one end of which is pivoted at 29 to the upper end of a movable fulcrum 30. The lever 27 is given its oscillation about the point 29 by means of a cam 12 which acts on a cam roll 25 pivoted to an elbow lever 23, said lever 23 being connected by a link 26 to said lever 27. The mechanism for pasting the box blanks prior to the folding operation is shown in Figs. 2, 3 and 4. It consists primarily of paste pans 15 and 16, in which are paster frames 17 and 18 which carry transverse members 171 provided with pasters 181 in general as shown and described in my prior Patent No. 541,953 referred to above. The pasters have a perpendicular reciprocating motion which causes them to dip into the adhesive in the

paste pans and apply it to the box blanks. The paster frames 17 and 18 are each supported on a paster frame carrier 32 which are in turn secured to the upper ends of paster reciprocating rods 33 slidable in the guide 21 as shown in Figs. 2, 3 and 4. The paster frame carriers 32 have a slotted connection 380 with which the adjustment of the paster frames longitudinally of the carriers is afforded in order to permit the frames to be adjusted for box blanks of various sizes. The reciprocating paster rods which are mounted on the sides A and A' of the frame are each provided with a collar 35 adjustably secured thereto as shown at 351 to which is connected a link 36, said links being secured to a cross shaft 361 on the end of a guide lever 38 secured to the cross shaft 39 journaled in the sides A and A' of the frame. The cross shaft 361 is actuated by the main lever 27 through a link 37. The rotation of the cam 12 causes the main lever 27 to rock on the movable fulcrum 29 by means of the link 26 and the elbow 23 previously described. This in turn causes the reciprocation of the rods 33, as above described, which gives the desired motion to the paster frames 17 and 18.

In order that the box blanks may be conveniently retained in the proper position for the pasters, I provide a hopper 40, having sides 41 and 42, said sides being provided with back plates 302 and 303 which extend inwardly a short distance from the sides and retain the rear end of the blanks in place. The sides 41 and 42 of the hopper are readily adjustable for box blanks of various sizes by means of the shafts 305 and 308 shown in Fig. 3, and are provided with guides 750 for supporting the edges of the blanks. These shafts, are on the front and the back of the machine respectively and are supported and restrained from longitudinal movement by the journals 306 secured to the frame and are both provided with oppositely disposed screw threads which engage the correspondingly screw threaded bearings 307 of the sides 41 and 42 of the hopper. The hopper sides are formed with forwardly extending bars which contain the screw threaded bearings which engage the front shaft. The aforesaid shafts are simultaneously operated by means of the shaft 309 which extends from the front to the rear of the machine and which has thereon bevel gears 311 and 312 which mesh with bevel gears 310 and 313 respectively said last two mentioned gears being on the front and back shafts 305 and 308. I provide a suitable handle 304 on the front shaft 305, and both shafts are rotated together by it. The rear plates 302 and 303 of the hopper are also adjustable by a slot and pivot connection 314 in the sides 41 and 42 of the hopper.

The box blanks while in the hopper rest on a feeder which feeds each blank into the folding mechanism, after paste has been applied to it. The feeder 43 consists of a feeder carriage 44 supported on a bed plate 441 secured to the frame of the machine. The feeder carriage 44 carries a feeder plate 111 with which it is slidably connected for the purpose of adjustment by means of the bevel portions 315, 316, as plainly appears from Fig. 7. To the table 441, adjacent the feeder carriage 44, are secured side guides 45 along and between which the feeder carriage is reciprocated, as will hereinafter be described. The forward end of the feeder plate 111 is beveled at 317 to form a member which passes beneath the edge of the lowermost box blank of the pile of blanks resting on the feeder in the hopper and insures contact of the blank with a feeder block 46 which is secured to the reciprocating feeder plate at the rear of the bevel referred to and which rises above the bevel sufficiently to engage the edge of one blank. The forward thrust of the feeder plate places the lowermost blank on the forming block 47, the remaining blanks being retained in the hopper by means of a gate 318. The gate 318 is situated at the front side of the hopper and is of the type shown and described in my previous Patent No. 541,953, being provided with an opening at its lower edge sufficient to permit of the passage of a single blank.

Reciprocation of the feeder 43 is accomplished by means of the feeder lever 48 pivoted at 49 on the extension 110 of the bracket 31, the free end of the lever 48 being secured to the feeder carriage 44 by means of a link 112 pivoted at 113 and 114, as shown in Figs. 2 and 4. The lever 48 is in turn operated by a cam 13 by means of the connecting rod 115 pivotally secured on one end to the collar 116 on the lever 48 and suitably supported by a swinging lever 117 pivoted to the frame and the connecting rod at 119 and 120 respectively, said connecting rod being provided at its other end with a suitable cam roll 118 to enter and be actuated by the cam 13. The length of the feeder and therefore the position of the front edge of the feeder at the end of its forward stroke is adjusted by moving the feeder plate 111 on the feeder carriage 44 and securing it by means of the set screw 119. The adjustment should be such that the bottom of a box blank will be correctly deposited by the feeder on the forming block 47, all as fully set forth in my prior patent.

At 47 and 51, see Figs. 1 and 4 particularly, are shown the box form and follower respectively. These members may be made solid, in which case a separate form and follower for each size of box to be made is required or they may be made adjustable in

the manner well known to those skilled in the art, in which case no additional forms are required for boxes within a certain range of size. The box forms 47 and the follower 51 are both vertically movable but the box form has a greater travel than the follower to permit the insertion and removal of the box blank and finished box respectively, as will hereinafter be described.

The movements of the box form and follower with relation to each other are as follows: When the box blank is fed forward the form and follower are both at their extreme lowest positions and are separated. The box form then moves upward until the box blank is in contact on the lower side with the box form and on the upper side with the follower. Then the form and follower continue to move upwardly together. They then stop while the box is being folded, and afterward continue their upward movement to the top of the stroke at which point they rest to permit the pressing to take place. Thereafter they move downwardly together to the extreme lowest position of the follower where the follower stops and the box form continues its downward movement to its lowest position. The box form 47 is supported on the upper end of the forming block bar 52 located in the guide 53, the rear of the guide 53 being cut away to expose a portion of the bar 52. The forming block bar 52 is pivoted at 67 to the main lever 27 which is actuated as hereinabove described, causing the forming block to be given the required reciprocation. It will be seen that the construction is such that the box form is given a positive movement in both directions and that the travel of the box form is considerably greater than the travel of the cam roll 25. To the pivot 67, is secured a short link 68 which also engages one end of the lever 69, which oscillates the lever 70 through a clutch mechanism to be described later. The lever 70 is connected by a link 71 to an arm 72 of a rock shaft 73. The other arm 721 of said rock shaft 73 is connected by a short link 75 to the dash pot plunger 760 which surrounds the rod 76 which has on its lower end the follower 51. The plunger 760 enters the dash pot 761 near the lower end of its stroke and lessens the strain when the machine is being run at high speed. This rod 76 is suitably guided in a bracket 77 forming a part of the machine.

The clutch mechanism previously referred to is such that the lever 69 may be moved through a portion of its travel without moving the lever 70 but at a predetermined point will pick up and thereafter move the said lever 70. The clutch mechanism consists preferably in a pair of clutch plates 78 and 79, the clutch plate 79 being secured to the outer end of the shaft 80, the other end of which is secured to the arm 69. The other clutch plate 78 lies between the frame and the clutch plate 79 and is provided with an arm 70 which is connected to the lower end of the vertical follower operating rod 71. The shaft 80 is supported in a bracket 81 secured to the frame of the machine and in a sleeve 810 which is a part of the clutch plate 78. A collar 84 is secured to the shaft 80 and a spring 85 is interposed between the said collar and the collar 83 secured to the frame. The bracket 81 is formed on the side face with a cam surface which contacts with a corresponding cam surface on a cam 82 fast on the shaft. The cams are arranged with high points on their adjacent surfaces which are in contact when the arm 69 which is connected to the main lever 27 operating the former is in a position shown in Fig. 2. While the cams are in this position the clutch plate 79 secured to the end of the shaft 80 is held out of contact with the clutch plate 78. The cam surfaces are so arranged that when the former 47 has been moved upwardly to the follower 51 by the main lever 27 the rotation of the shaft 80 by the arm 69, also connected with the main lever 27 will cause the high points on the cam surfaces to become disengaged thereby permitting the spring 85 to move the shaft 80 slightly to the right as shown in Fig. 1 and cause the clutch plates to grip. In other words the arrangement of the cams is such that during a part of the upward movement of the former the clutch plate 78 which is connected with the follower is out of contact with the clutch plate 79 thereby permitting the former to move alone and during the rest of the former movement the plates are in contact, thereby causing the former and follower to move in unison. In the same way on the downward stroke the former and follower move in unison to a pre-determined point at which the cams disengage the clutch plates 78 and 79 against the pressure of the spring 85 when the former completes the rest of its movement alone. This construction is important for it renders the movements of the follower positive and insures the proper working of the machine.

It will be noted from the description hereinabove set forth that the pasters, follower and forming block are all operated and given their essential movements by one cam. I regard this as a very important feature of my invention for the reason that it simplifies the mechanism essential to the operation of the machine shown and described in my previous Patent No. 541,953, and diminishes the cost of the machine while permitting it to be run at higher speed.

Having reference now to the folding mechanism referred to above there is shown at 206 side plates which carry the corner turners 211, said side plates being mounted

adjacent the follower 51 on cross blocks 208. The side plates are preferably relatively thin so that they will bend slightly under pressure. In the lower end of each of these side plates is journaled a rock shaft 210 on which the aforementioned corner turners 211 are mounted. The corner turners are similar to those shown and described in my Patent No. 541,953 and consist in general of a side 212 and an end piece 213 situated at right angles to the side, as shown in Fig. 4. I provide a longitudinally adjustable mounting of the corner turners on the rock shaft 210 consisting of a slot and pin connection 390, so that they may be properly located for various sizes of box blanks. In order that the corner turners may be moved to fold the sides of the box blank down onto the form and that the ends of said turners may tuck the flaps of the box blanks under the ends of the blank, a bevel gear 214 is secured to the end of each of the shafts 210 which engage bevel gears 215 on the shaft 216, said last mentioned shaft being journaled to the frame. A pinion 217 mounted on the shaft 216 engages a rack 218 on the upper end of a reciprocating member 219 suitably guided in the frame and driven by the cam roll 220 in a cam path 221 on one face of the gear 10 all as clearly appears in Fig. 1. The shaft 216 is provided with a longitudinal slot 391 and the gears 215 are loosely mounted on said shaft and are each provided with a pin 392 which engages the slot thus causing the gears to rotate with the shaft 216 and at the same time permitting longitudinal adjustment thereon. The bevel gears 215 and 214 are held in mesh by the brackets 393 in which the shaft 216 and 210 are loosely mounted as shown in Fig. 8. This construction freely permits the adjustment of the side plates 206 for box blanks of various sizes. Adjustment of the side plates is readily accomplished by means of adjustment screws 224, each having a suitable hand wheel 225 which engages a shank 223 guided in the frame and secured on its inner end to a cross block 208. Each adjustment screw 224 has an annular groove 226 engaged by a collar 227 which is in turn secured to the frame, thereby preventing longitudinal movement of the adjustment screw.

The forming block 47 is moved upwardly by the cam 12 into contact with the follower 51 and both are then moved upwardly a short distance by said cam into the proper position for the corner turners to turn down the sides of the box blank on the sides of the forming block 47, and bend the flaps with which the sides of the box blank are provided, around ends of the forming block. Then the forming block and follower move upwardly again bringing the ends of the box blank in contact with the lower edge of pressure plates situated adjacent each end of the forming block. The continued upward movement of the box blank past the pressure plates causes them to turn the ends of the box blank down against the forming block and over the flaps of the sides which have been already tucked in by the corner turners, the corner turners meantime having been returned to the position shown in Fig. 4 by the mechanism hereinbefore described.

The pressure plates 236 and 237, the means of operation and adjustment of which I regard as an important feature, are each provided with two screw shafts 234 and 235 one above the other (see Fig. 1) to which they are rotatably secured. In each pressure plate, I form an under-cut slot 48 which is engaged by a head 481 formed on the end of the screw shafts. This is seen in Fig. 3. The screw threaded shafts 234 and 235 on the left of the machine as shown in Figs. 1 and 3 pass through and engage correspondingly threaded holes in the block 238 while the screw threaded shafts on the right-hand side of the machine engage correspondingly threaded holes in the block 239. One shaft of each of said pair of shafts on opposite sides of the machine is provided with right-hand screw threads, while the other shaft of each pair of shafts is provided with left-hand threads. Simultaneous adjustment is obtained by pinions 259 secured to the ends of the shafts and rotated by the squared end with which one of each pair of shafts is provided, so that when the shaft is rotated the pressure plates are moved toward or away from the box form. The two shafts give a proper bearing to support the strain to which the parts are subjected. The blocks 238 and 239 are each provided on two sides with trunnions 240 and 241 which engage links 242 and 243 suspended from the frame on pivots 244 and 245, thereby supporting the blocks in a horizontal position and permitting them to be moved for a short distance toward and away from each other. The trunnions 240 (on each side of the block 238 only one of said trunnions being shown in Fig. 1) carry the end of a long link 246, the other end of said link being pivoted midway of a link 247. The link 247 is pivotally secured at one end to the end of the trunnions 240 of the block 239, the free end of said link being attached to the reciprocating pressure connecting rod 248. This construction forms a so-called inverted toggle joint movement of the links 247 causing the blocks 238 and 239 to be moved toward and away from each other.

It will be seen that by the use of the inverted toggle joint construction, I am enabled to obtain an equal pressure on each pressure plate, which is important for the

proper operation of the machine. Furthermore, a yielding pressure is obtained by means of the construction of the connecting rod 248 which will now be described. This rod is connected at its lower end with a sliding member or cam roll carrier 249 bearing a cam roll 250 which engages the cam path 251 in the cam 11. The connecting rod itself is of the telescope type comprising a plunger rod 252 provided with a head 291 and a plunger cylinder 253 having an inwardly extending flange 290 which prevents the head 291 of the plunger from escaping from the cylinder. A spiral spring 254 is retained between the collar 255 on the plunger and the collar 259 threaded on the cylinder 253 so as to be capable of longitudinal adjustment, thereby permitting the tension of the spring to be varied.

From the construction, just described it will be seen that any desired pressure may be brought to bear upon the ends of the box blank to cause them to adhere firmly to the paste covered flaps. Sufficient pressure having been given to firmly secure the sides and ends of the box together, the cam 11 separates the pressure plates and the cam 12 causes the forming block and follower to return together to the position shown in Fig. 4, where the follower remains stationary and the forming block continues downward and by so doing brings the box in contact with the shedder plates, which will now be described.

The shedder plates 261 and 262 shown in Figs. 4, 5 and 6 are preferably oppositely placed, as shown in Fig. 5 and are positioned and adjustably secured to the frame as will hereinafter be described. Each shedder plate supports two shedder carriers 273 and 274 secured to it by means of a bolt 263 which is threaded into a T-head member 275 loosely fitting in a slot 264. Each shedder carrier is in turn provided with dogs or shedders 265 pivoted on the carrier by means of lugs. The shedders are pressed outwardly from the shedder carrier by means of a spring 269 with which each is provided said spring being adjusted by the screw 270, the head of which is located in the pocket 271, the stem loosely fitting a hole in the shedder block to allow for the oscillation of the same, all as is clearly shown in Fig. 6. In order that the shedder plates 261 and 262 may be adjusted for forming blocks of various sizes I provide slot and pin connections 272 with the frame as shown in Fig. 5. The shedder carriers 273 and 274 are also adjustable relatively to each other by means of the T-head member bolt and slot connections referred to above, the T-head members being frictionally held in place by the nuts 275.

The shedder plates and shedder carriers should be so adjusted that the shedders contact with the lower edge of the forming block 47. This lower edge is beveled as shown at 268 in Fig. 4, so that the shedders are pushed back against the springs by the downward movement of the box form 47. They are then held tightly against the sides of the form by the springs 269 and engage the lower edge of the box and remove it from the box form. While I have described in detail my preferred construction, it is obvious that the shedders do not need to be located at the corners of the forming block, but may equally well be situated in any given number and position about its sides, as desired.

The ejector mechanism consists of a curved ejector 276 mounted on the upper end of the oscillating shaft 277. Said shaft is carried in suitable bearings secured to the frame of the machine and is provided at its lower end with bevel gear sector 278 which engages a bevel gear sector 279 oscillatable about the pivot 280. The bevel gear sector 279 is provided with an arm 281 carrying at its lower end a cam roll 282 engaging a cam 14 which is located on the shaft 6 and revolves therewith. It will be seen that the revolution of the shaft causes the oscillation of the ejector which is preferably through an angle somewhat larger than ninety degrees. The timing of the ejector may be varied by shifting the position of the cam plate 283 on a plate 284 upon which the cam plate is mounted. For this purpose the plate 284 is slotted as shown at 285 in Fig. 1 and bolts 287 secure the two parts together.

From the foregoing description it will be seen that the various groups of working instrumentalities described herein are in general arranged and combined as in a machine shown in my prior patent referred to, but that certain novel features, both of operation and construction are embodied in the present machine which further insure its proper operation.

What I claim is:

1. In a paper box machine the combination of a form having a specified path of reciprocation, a follower having a path of reciprocation coincident with a portion of that of the form, a paster having a specified movement, a common actuating member for all of said members, and a clutch between said common actuating member and said follower.

2. In a paper box machine, the combination of a form having a specified path of reciprocation, a follower having a path of reciprocation coincident with a portion of that of the form, a paster having a specified movement, a reciprocating member actuating said form, said reciprocating member being connected with said paster to operate the same and mechanism connecting said re-

ciprocating member with said follower whereby it moves the follower for a portion only of the movement of the form.

3. The combined form, follower, and paster operating mechanism, comprising a main lever having a predetermined movement, a reciprocating member operated by said lever and secured to the paster, a reciprocating member operated by said lever and secured to the former, a reciprocating member secured to the follower, and a clutch between said last mentioned reciprocating member and said main lever, whereby the main lever moves the said reciprocating member for a portion only of the movement of the main lever.

4. In a paper box machine, the improved presser mechanism comprising oppositely disposed presser members, swinging members on which said presser members are suspended, and an inverted toggle joint operating on said presser members, to press them together.

5. In a paper box machine, the improved presser mechanism comprising oppositely disposed presser members movably supported, an inverted toggle joint operating on said members, and means for operating said toggle joint to press them together.

6. In a paper box machine, the improved presser mechanism comprising presser members, pivoted links on which each of said members is supported, an inverted toggle joint acting on said presser members, and means for operating said toggle joint to press them together.

7. In a paper box machine, the improved presser mechanism comprising suspended cross blocks, presser plates removably secured to said cross blocks, an inverted toggle joint acting on said cross blocks, and means for operating said toggle joint to press said plates together.

8. In a paper box machine, the improved presser mechanism comprising suspended movable cross blocks, presser plates adjustably secured to said cross blocks, an inverted toggle joint acting on said cross blocks and means for operating said toggle joint to press said plates together.

9. In a paper box machine, the improved presser mechanism comprising presser members capable of movement toward and away from each other, said members being acted upon by an inverted toggle joint comprising a link pivoted to one of said members and a connecting link pivotally secured at one end to the other of said members, said two links being connected at a point outside their points of connection with the presser members, a reciprocating member connected to said inverted toggle joint and a cam for operating said reciprocating member.

10. In a paper box machine, the improved presser mechanism comprising presser members, an inverted toggle joint acting on said members, and yielding means to operate said toggle joint whereby said members exert an equal and yielding pressure on the box.

11. In a paper box machine, the improved presser mechanism comprising movably supported cross blocks, presser plates supported thereby and adjustable toward and away from each other thereon, an inverted toggle joint acting on said presser plates, and a reciprocating telescopic cushion connecting rod secured to said toggle joint and comprising a plunger and a cylinder, a spring between said plunger and said cylinder and means for reciprocating said connecting rod, to cause it to exert a yielding pressure on the said inverted toggle joint.

12. In a paper box machine, the improved presser mechanism comprising presser members, an inverted toggle joint acting on said members, a reciprocating telescopic connecting rod comprising a plunger and a cylinder, said plunger having a head making a sliding fit with said cylinder, and said cylinder having an inwardly extending flange to prevent the escape of said plunger, a spring about said plunger and cylinder, an adjustable collar engaging said spring whereby its tension may be varied and means for reciprocating said connecting rod to cause it to exert yielding pressure on said toggle joint.

13. In a paper box machine, the combination with a reciprocating form and follower with corner turners mounted adjacent said members and yielding plates on one end of which said corner turners are mounted, the other end being supported by the frame.

14. In a paper box machine the combination with a reciprocating form and follower of corner turners mounted adjacent said members and yielding plates at one end of which said corner turners are mounted the other end of said plates being adjustably secured to the frame.

15. In a paper box machine the combination of a reciprocating form, a support, a shedder carrier adjustably secured to said support, a shedder movably mounted on said shedder carrier, and yielding means operating on said movably mounted shedder whereby said shedder is held in contact with said form and caused to wipe along one face thereof during a portion of its reciprocation.

16. In a paper box machine, the combination with a reciprocating form of adjustable shedder plates movably mounted shedders secured to said shedder plates and yielding means causing said shedders to be moved into contact with said form and wipe along the sides thereof during a portion of its reciprocation.

17. In a paper box machine, the combination with a reciprocating form of adjustable shedder plates, shedder carriers, shedders

secured to said shedder carriers, said shedders being yieldably mounted to contact with said form and wipe along the sides thereof during a portion of its movement of reciprocation.

18. In a paper box machine, the combination with a reciprocating form of the improved box shedding mechanism, comprising a shedder mounted adjacent the path of reciprocation of said form, a pivot on which said shedder is mounted, and a spring actuating said shedder about its pivot to cause it to project slightly into the path of reciprocation of said form to contact with said form and wipe along an outer side thereof during a portion of its movement.

19. In a paper box machine, the combination with a reciprocating form of the improved box shedder mechanism, comprising a shedder mounted adjacent the path of reciprocation of said form, a pivot upon which said shedder is mounted, a support for said pivot, and a spring interposed between said shedder and said support, said spring operating to actuate said shedder about its pivot to cause it to project slightly into the path of reciprocation of said form to contact with said form and wipe along an outer face thereof during a portion of its movement.

20. In a paper box machine the combination with a reciprocating form of an adjustable shedder plate, a shedder movably mounted on said shedder plate, and a spring operating on said movable shedder and holding it in contact with said form to cause it to wipe along one side thereof during a portion of its reciprocation.

21. In a paper box machine the combination with a reciprocating form of an adjustable shedder plate, a shedder pivotally mounted on said shedder plate, and a spring moving said shedder about its pivot and holding it in contact with a side of said form during a portion of its reciprocation.

22. In a paper box machine, the improved box shedding device comprising a plurality of adjustable shedder carriers, each of said carriers being provided with a pivoted shedder, and a spring interposed between said shedder carrier and said shedder whereby said shedder is yieldingly held in position.

23. In a paper box shedding device, the improved shedder, a pivot upon which said shedder is mounted, a support for said pivot, a spring interposed between said shedder and said support, and an adjustment screw engaging said shedder and threaded into said support whereby the position of said block and tension of said spring may be varied.

24. In a paper box machine, the combination of a form with the improved box shedding mechanism, comprising shedder plates, slot and pin connections for said shedder plates whereby they may be adjusted relatively to said form, shedder carriers on said shedder plates, slot and pin connections for said shedder carriers whereby they may be adjusted relatively to said form, said shedder carriers supporting yieldingly mounted shedders which contact with and press against said former during a portion of its stroke.

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

EUGENE H. TAYLOR.

Witnesses:
CAMERON MACLEOD,
ALICE H. MORRISON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."