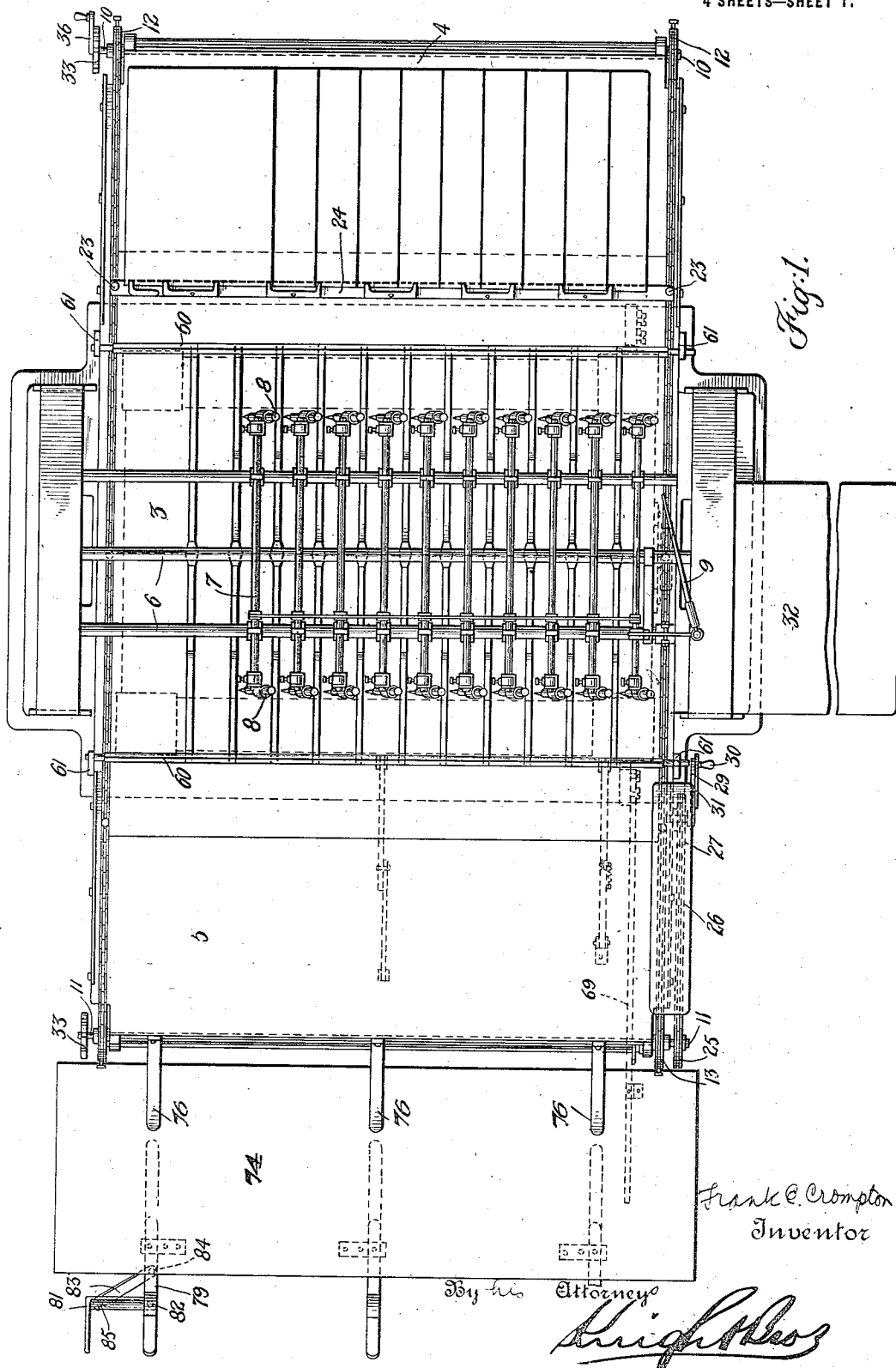


1,230,872.

F. E. CROMPTON.
MULTIPLEX WRITING MACHINE.
APPLICATION FILED JUNE 21, 1916.

Patented June 26, 1917.

4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

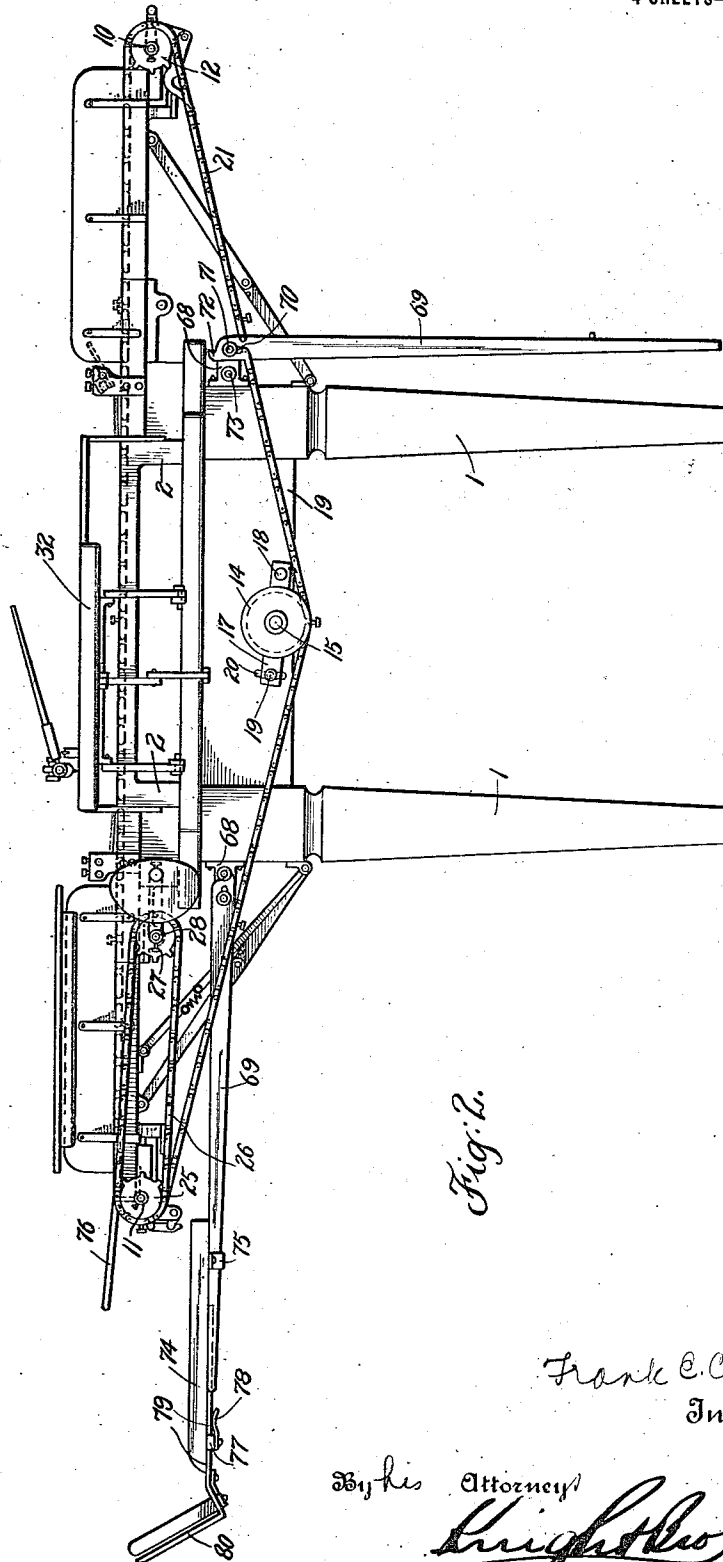


Fig. 2.

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Inventor.

By his Attorney,

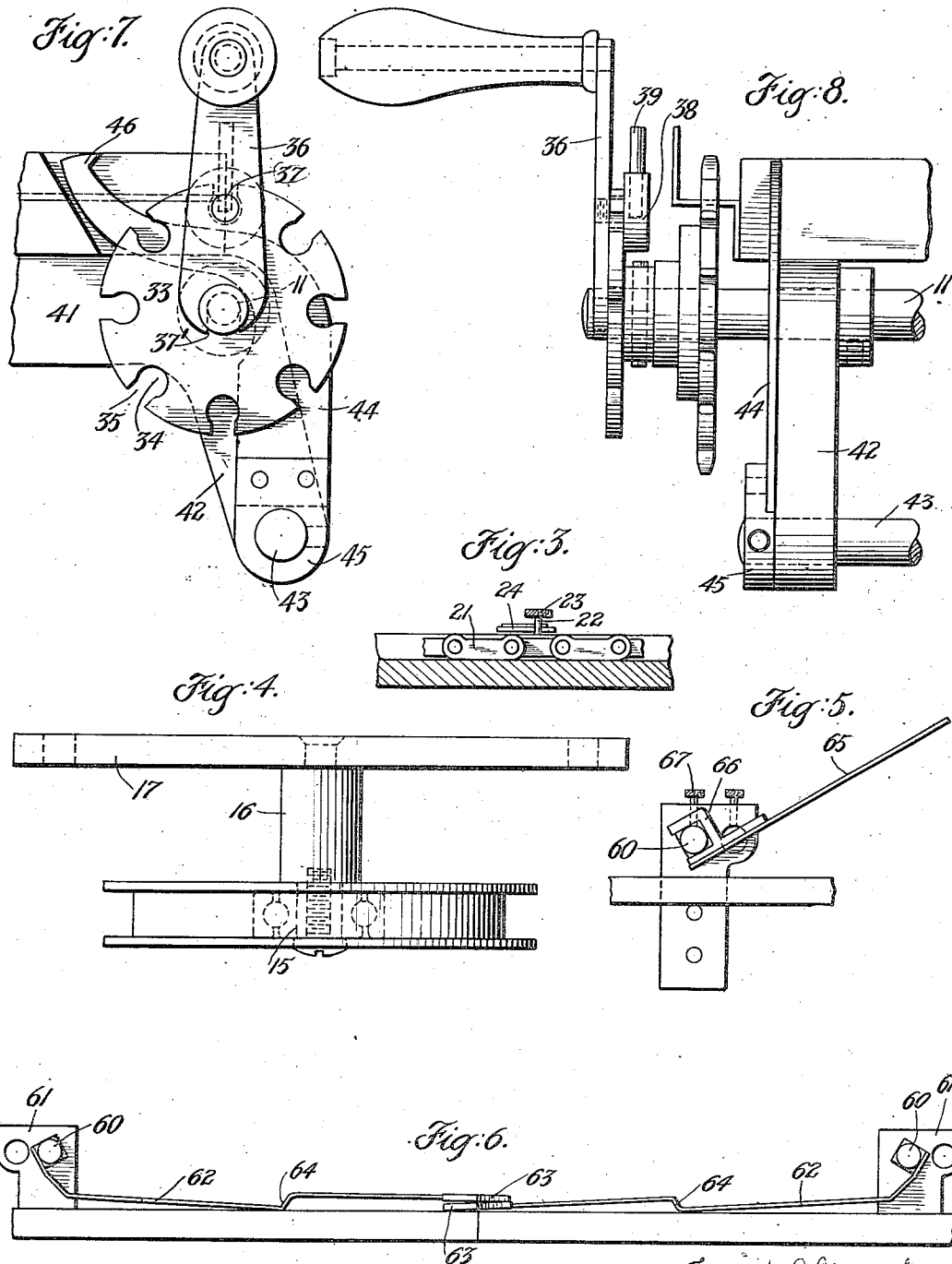
Knight & Co.

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4 SHEETS—SHEET 3.



Frank E. Crompton
Inventor

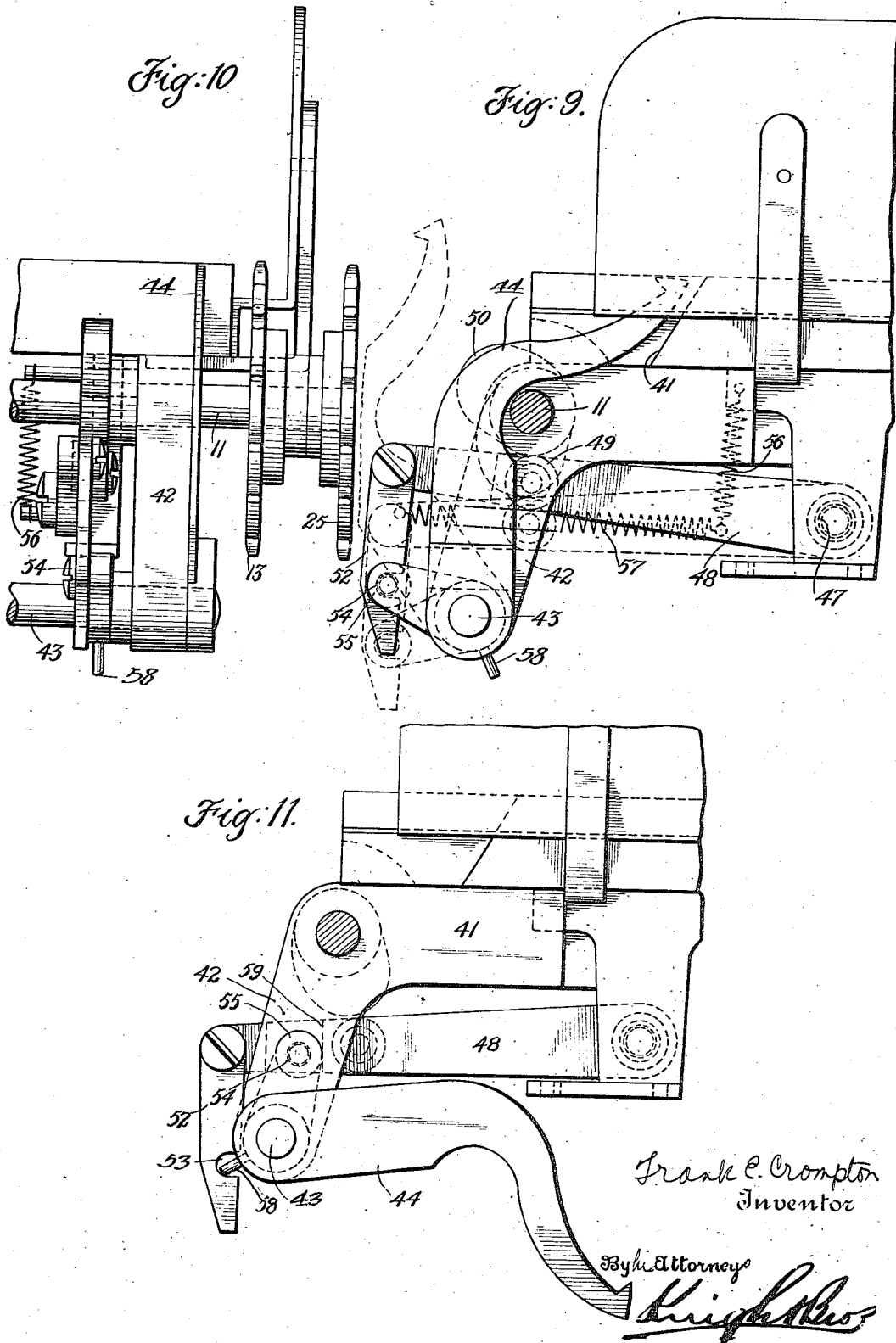
By his Attorney

Knight

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4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

FRANK E. CROMPTON, OF BROOKLYN, NEW YORK, ASSIGNOR TO SIGNATURE COMPANY,
OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MULTIPLEX-WRITING MACHINE.

1,230,872.

Specification of Letters Patent. Patented June 26, 1917.

Application filed June 21, 1916. Serial No. 104,929.

To all whom it may concern:

Be it known that I, FRANK E. CROMPTON, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Multiplex-Writing Machines, of which the following is a specification.

This invention relates to multiplex writing machines of the same general character as that forming the subject matter of prior Patents No. 880,950, dated March 3rd, 1908 and No. 1,008,099, dated November 7th, 1911. Machines of this type embody a suitable writing plate or table together with a carriage for carrying a plurality of writing members provided with a common monitor handle by means of which said writing members are simultaneously moved.

The general object of the invention is to provide an improved construction, combination and arrangement of parts in a machine of this character which will widen its field of usefulness, increase the facility with which the machine can be operated, and in general render the action thereof more efficient. One of the objects of the invention is to provide an improved construction according to which series or groups of documents may be fed into position to be written upon from either side of the machine. Another object is to provide improved means for confining the documents in near relation to the writing plate or table as they are fed into and out of position to be written upon, said confining means being reversible. Other means are provided for gradually straightening out any papers which do not lie flat as they are fed into the machine. Another object is to provide improved means for removing the document holders from the endless conveyer. Another object which relates more especially to large sized machines, is to provide improved conveyer operating mechanism. Another object is to provide improved means for temporarily supporting an auxiliary frame work at either side of the machine. Other and further objects will appear in the specification and be pointed out in the appended claims, reference being had to the accompanying drawings, which exemplify my invention in a preferred embodiment.

In the drawings,

Figure 1 is a top plan view of the preferred embodiment of my invention shown on the drawings;

Fig. 2 is a side elevation of the same;

Fig. 3 is a fragmentary detail, partly in side elevation and partly in section;

Fig. 4 is a top plan view of a slack take-up pulley with its supporting bar or bracket;

Fig. 5 is an elevation of a detail;

Fig. 6 is a side elevation of the document confining means;

Fig. 7 is a front elevation of the detachable crank and one of the document-holder kick-off levers; at the discharge end of the machine according to Fig. 1 and at the side farthest from the operator's table 32;

Fig. 8 is a side elevation of the same;

Fig. 9 is a front elevation of one of the document kick-off units, it being a view at right angles to Fig. 10 with sprockets 13 and 25, and a portion of shaft 11 removed;

Fig. 10 is a side elevation of the same;

Fig. 11 is a view similar to Fig. 9 with the parts shown in different positions.

In the embodiment of my invention shown on the drawings, suitable means including the pedestals 1, are provided for mounting the frame or bed plate 2 of the multiplex writing machine, said machine including a writing plate or table 3, (see Fig. 1) and extensions 4 and 5. Said extensions 4 and 5 are arranged with their upper surfaces in a plane common to the upper surface of the writing plate or table 3 so that either of said extensions 4 and 5 may serve as the document-receiving table while the stacking board 74 (to be hereinafter referred to) may be mounted adjacent the other of said extensions. In this way the machine may be completely adapted within a few minutes to feed documents therethrough in either direction. A pen carriage comprising tubular bars 6 and transverse thereto, a plurality of bars 7, which carry the writing members 8, suitable means for controlling the operation of the writing members 8, include a monitor handle 9. The pen carriage is supported by anti-friction bearings to permit an easy universal movement under the direction of the monitor 9. Journaled in the outer ends of the extensions 4 and 5, are sprocket shafts 10 and 11, which carry

spaced sprocket wheels 12 and 13. In the front and rear of the writing machine, and below the writing plate or table, is a grooved pulley 14 journaled on a stub shaft 15, which, as shown in Fig. 4, constitutes a reduced portion of a post 16 which is secured to a bar or support 17. As shown in Fig. 2, each of these bars 17 is pivoted on a pin 18, carried by a rail 19, which constitutes a portion of the rigid framework for supporting the machine. The other end of the bar 17 carries a clamping screw 19 which moves in a slot 20 for adjusting the position of the pulley 14. Running on the sprockets 12 and 13 and around the slack take-up pulley 14, is a chain 21, said chain being provided at regularly spaced intervals with outwardly projecting posts or projections 22, with enlarged heads 23, which are adapted to interengage with the document holders 24. As shown in Fig. 3, the upper runs of the chain 21, run in slots extending through the plate or table 3 and extensions 4 and 5. Suitable means for delivering power to the conveyer comprising the parts just described, are provided by a sprocket 25 keyed to the outer end of the shaft 11, said sprocket 25 being adapted to cooperate with a chain 26 which also passes about a sprocket 27 keyed to a shaft 28 upon which is also keyed a crank arm 29, provided with a handle 30. A guard 31 serves to protect the hand of the operator during use. It will be noted from an inspection of Figs. 1 and 2, that the handle 30 is disposed adjacent to the arm support or rest 32 so that while the right hand manipulates the monitor 9, the left hand may operate the handle 30. According to the embodiment of my invention shown on the drawings, the shaft 10 carries at one end a slotted disk 33, each of the slots in said disk as shown best in Fig. 7, comprising an inner part-circular recess 34, having a contracted outer opening 35. A crank arm 36 is provided with an open ended slot 37 which slides over the neck formed in the outer end of the shaft 10. Threaded into the crank arm 36 is a clamping screw 37 which carries an enlargement 38 provided with an outwardly projecting pin 39 which adapts said screw to be tightened or loosened so that after the crank arm 36 has been adjusted to any desired one of the slots in the disk 33, it may be secured in place until it again becomes necessary to alter its position. A similar slotted disk 33 may be keyed to either end of the shaft 11, the crank arm 36 being transferable thereto when desired. From this description, it will be understood that when the conveyer is moved in either direction by the operation of cranks 29 or 36, the adjustable pulleys 14 serve to maintain the necessary degree of tension which permits the sprocket drive in either direction. As shown in Figs. 7, 8, 9, 10 and 11, a rigid portion of the base frame or bed plate includes the side bars 41 within which the shafts 10 and 11 are journaled, said side bars being provided with downwardly deflected extremities 42 which journal the rock shafts 43 adjacent opposite ends of the machine. Suitable means for displacing the document holding clamps from the endless conveyer are provided as follows: At each end of the machine oppositely arranged kick-off arms or levers 44 are provided with hub portions 45 which are keyed to the rock shafts 43. As shown best in Figs. 7 and 9, each of these kick-off levers comprises a substantially vertical portion and a horizontally deflected portion provided at its upper end with a hook 46 which normally lies below the path of the document holding clamps which serve to convey the documents in series or groups into position to be written upon. At either end of the machine, each rock shaft is operated by the following mechanism. A pin 47 carried by the base frame or bed plate serves to journal a cam lever 48 at one end. Said cam lever carries a cam roller 49 which is periodically depressed by the cam 50, keyed to the shaft 11. Pivotaly connected to the outer end of the cam lever 48 is a link 52 which has a recess 53 adjacent to its lower end, said recess being normally adapted to receive the neck of a stud 54 which is carried by the outer end of an arm 55 which is keyed on the rock shaft 43. Cam lever 48 is acted upon by a spring 56 which tends to hold the roller 49 in engagement with the cam 50. At the same time, the link 52 is acted upon by a spring 57 which tends to retain the link 52 in engagement with said stud 54. On the other hand, when the kick-off arm or lever 44 is not to be used, it is thrown into the position shown in Fig. 11 in which a pin 58 carried by the hub portion of said arm or lever 44 is engaged by recess 53. It will appear from this description that the kick-off levers 44 on the side of the machine toward which the documents are being fed, may be thrown around into reverse positions shown in Fig. 11, where they are locked by the links 52 acting in the capacity of latches, the outer end of each lever arm 55 being in abutment with a shoulder 59. Referring now to Figs. 1 and 6, oppositely disposed rods 60 are journaled in brackets 61 and carry a plurality of document holding clamps or strips 62, said strips being oppositely arranged in series and provided with enlargements 63 at their extremities which overlap one above the other. Intermediately of the rock bars 60 and the enlargements 63, said holders are provided with downwardly projecting shoulders 64 which normally rest upon said documents. From an inspection of Fig. 6, it will be seen that if the documents are fed under the

bars 62, they will be gradually wedged under yieldable pressure as they pass into position to be written upon by the writing members. When documents enter from the right, the right hand bars 62 are disposed with their enlargements 63 under the enlargements of the left hand bars. Also when said documents are fed in from the left, the left hand bars will be disposed beneath the right hand bars. As shown best in Figs. 2 and 5, a deflector plate 65 carried by a plurality of brackets 66, may be mounted on either of the rods 60, said deflector plates serving to gradually depress the documents as they pass onto the writing plate or table in the event that such documents offer a tendency to curl or crumble. As shown in Fig. 1, the rods 60 are rounded for a considerable portion of their lengths adjacent the brackets 61 to adapt them to be adjusted laterally so that the positions of the clamping bars 62 may be regulated to suit the intervals on the documents to which the signatures are to be applied. As shown in Fig. 5, set screws 67 may be applied to hold said rods in any position to which they may be adjusted. Referring now to Fig. 2, the uprights 1 carry spaced brackets 68. Oppositely disposed rods 69 provided with slots 70 are adjustably mounted on studs 71 carried by brackets 68, said slots 70 adapting the rods 69 to be shifted endwise after being raised slightly above the horizontal, to move hooks 72 into engagement with lugs 73, said rods 69 then occupying the position shown at the left of Fig. 2. A stacking board 74 is provided with strips or sockets 75 which slidably receive the rods 69. As shown in Fig. 2, the stacking board 74 is arranged below the strips or bars 76 which project from the edge of the table extension 5. Stacking board 74 is provided with a plurality of strips or sockets 77 with inwardly projecting springs 78 which impinge upon strips 79 which extend outwardly and are provided with upwardly deflected ends 80. As shown best in Fig. 1, each of the strips 79 is provided with an angle iron or strip 81 which is pivotally connected at 82 to the strip 79 and is retained either at one side or the other of the strip 79 by means of a link 83 which is pivoted at 84 and releasably engages the angle iron 81 at 85. It will be seen that the angle iron 81 and the deflected extremity 80 of each strip 79, constitute pile gages for the documents.

In preparing documents for signature, according to the present embodiment of my invention, binder strips or bars are provided for holding the documents to be signed or inscribed in regular order as they are passed through the machine. As shown in Figs. 1 and 3, these binders 24 are engaged by the studs or pins 23 carried by the endless chain conveyers 21. These conveyers may be

driven from the crank 36 by the assistant who is feeding the documents to the machine, or said crank 36 may be removed from the feeding in end of the machine as shown in Fig. 1 and applied to the sprocket shaft 11 at the delivery end to be turned by the assistant who is taking the signed documents from the machine, or if it becomes necessary for a single person to perform all of these operations, the operator may drive the machine with his left hand by means of the crank 29 and handle 30 while the documents may be signed by his right hand. As the documents pass into the machine, they pass under the inclined plate 65, being thus confined to a narrow compass as they pass under the retaining bar 62. The parts having been properly set to bring the signature spaces of the different documents under the respective signing members 8, the said movement is interrupted long enough for a signature to be made. As the documents pass over the extension 5, and out onto the overhanging rods 76, they are readily grasped by an attendant and stacked against the gages 80 and 81, after which said documents are removed in a pile and the binder strips or clamping bars removed therefrom. As shown in Fig. 2, the stacking table at the right end of the machine may be removed when the documents are being fed into the machine from that end. The rods 69 are then permitted to swing into a vertical position out of the way of any of the operators. In machines of this character as formerly constructed, the employment of endless chains with slack in the lower runs, made it impossible to reverse the action of the machine. This difficulty is entirely overcome in the present machine, so that it becomes possible to reverse the movement of the conveyer by merely reversing the direction of revolution of any one of the cranks or handles. According to the arrangement of the parts shown in Figs. 1 and 2, the documents are arranged on the right end for feeding in and kicked out at the left end. In order to feed in from the left end and kick out from the right end, as is found to be desirable under certain conditions, the rods 69 at the right end are raised. The stacking board 74 with its attachments, is then mounted on the rods 69 at the right end while the rods 69 at the left end are lowered out of the way. The kick-off arms or levers 44 on the right end are then released and moved into operating position while the kick-off arms or levers on the left end are secured in inoperative position.

I claim:

1. In a machine of the character described, a document-supporting table, a plurality of writing members arranged to simultaneously write upon documents respectively disposed beneath said members, and

means movable in either of two opposite directions and adapted to convey documents prearranged in groups, the arrangement of documents in each group corresponding to the arrangement of said writing members.

2. In a machine of the character described, a writing plate or table provided with extensions arranged along different edges of said plate or table, a plurality of writing members suspended above said plate or table, a monitor handle for simultaneously operating said writing members, and means for conveying a group of documents from one of said extensions on to said plate or table and from said plate or table on to the other of said extensions, said conveying means being adapted to reverse its direction of feed to convey a group of documents from said other extension on to said plate or table and from thence on to the first mentioned extension.

3. In a machine of the character described, a writing plate or table provided with extensions arranged along different edges of said plate or table, a plurality of writing members suspended above said plate or table, a monitor handle for simultaneously operating said writing members, means for conveying a group of documents from one of said extensions on to said plate or table and from said plate or table on to the other of said extensions, said conveying means being adapted to reverse its direction of feed to convey a group of documents from said other extension on to said plate or table and from thence on to the first mentioned extension, and a stacking board provided with means for detachably connecting it to the machine adjacent either of said extensions.

4. In a machine of the character described, a writing plate or table, a plurality of writing members suitably mounted to simultaneously write on a plurality of documents arranged in a group on said writing plate or table, extensions arranged along opposite edges of said writing plate or table from either of which a group of documents may be fed into position on said writing plate or table, conveying means movable in either direction across said writing plate or table and said extensions and adapted to move said documents in a group, supports connected to said machine and adapted to carry stacking boards adjacent the outer edges of said extensions, and a stacking board adapted to be releasably connected to said supports adjacent to either of said extensions.

5. In a machine of the character described, a document supporting table, a plurality of writing members, means for simultaneously operating said writing members, means for temporarily binding documents into a group, and conveying means movable in either of two opposite directions and adapted to en-

gage said temporary binding means to move said documents into and out of position to be written upon.

6. In a machine of the character described, the combination with a plurality of writing members, of means for controlling the movements of said writing members, means for temporarily binding documents into a group, an endless conveyer adapted to engage said binding means to move said documents into writing position, and means for moving said conveyer in either direction, said conveyer being provided with slack take-up means.

7. In a machine of the character described, the combination with a plurality of writing members, of means for controlling the movements of said writing members, means for temporarily binding documents into a group, an endless conveyer adapted to engage said binding means to move said documents into writing position, and means for moving said conveyer in either direction, said conveyer being provided with slack take-up means, said slack take-up means including an adjustably mounted member, and means journaled on said member and having running engagement with said conveyer.

8. In a machine of the character described, the combination with a writing table, of an endless belt conveyer for conveying documents over the surface of said table, a plurality of writing members, means for controlling the movements of said writing members, a movable support, a slack take-up pulley journaled on said support in running contact with said endless conveyer, and means for moving said endless conveyer backward or forward to move said documents across said writing table in either of two directions.

9. In a machine of the character described, a plurality of writing members, a monitor operatably connected to said writing members for simultaneously controlling their movements, means for conveying documents to said writing members, said conveying means being provided with power transmitting elements at points distant from said monitor, and hand-operated means disposed adjacent to said monitor and intermediately of said monitor and one of said power transmitting elements, said hand-operated means being connected to said power transmitting element.

10. In a machine of the character described, a writing plate or table, a plurality of writing members suitably mounted to simultaneously write on a plurality of documents arranged in a group on said writing plate or table, extensions arranged along opposite edges of said writing plate or table from either of which a group of documents may be fed into position on said writing plate or table, conveying means movable in

either direction across said writing plate or table and said extensions and adapted to move said documents in a group, supports connected to said machine and adapted to carry stacking boards adjacent the outer edges of said extensions, and a stacking board adapted to be releasably connected to said supports adjacent to either of said extensions, said stacking board being provided with reversible gages against which the documents are stacked in groups.

11. In a machine of the character described, a plurality of writing members, means for simultaneously operating said writing members, temporary binders for holding groups or series of documents to be fed under said writing members, a conveyer provided with means for engaging said binders, movable arms for disengaging said binders from said conveyer, and means for periodically operating said arms, said operating means comprising a rock shaft upon which said arms are mounted, and a periodic cam movement for rocking said shaft.

12. In a machine of the character described, a plurality of writing members, temporary binders for holding groups or series of documents to be written upon by said writing members, means for simultaneously moving said writing members, a conveyer comprising parallel shafts, sprockets keyed to said shafts, and chains meshing with said sprockets and provided with means for engaging said binders, a rock shaft adjacent to each of said shafts, arms mounted on said rock shafts for disengaging said binders from the conveyer, means for locking said rock shaft, and means for locking said arms in inoperative position.

13. In a machine of the character described, a plurality of writing members, temporary binders for holding groups or series of documents to be written upon by said writing members, means for simultaneously moving said writing members, a conveyer comprising parallel shafts, sprockets keyed to said shafts, and chains meshing with said sprockets and provided with means for engaging said binders, a rock shaft adjacent to each of said shafts, arms mounted on said rock shafts for disengaging said binders from the conveyer, means for rocking said rock shaft, and means for locking said arms in inoperative position, each of said arms being bent to provide a portion which normally rests below and parallel to the path of said conveyer and which projects downwardly in its locked position.

14. In a machine of the character described, a plurality of writing members, temporary binders for holding groups or series of documents to be written upon by said writing members, means for simultaneously moving said writing members, a conveyer comprising parallel shafts, sprock-

ets keyed to said shafts, and chains meshing with said sprockets and provided with means for engaging said binders, a rock shaft adjacent to each of said shafts, arms mounted on said rock shafts for disengaging said binders from the conveyer; a cam-operated lever for each rock shaft, and means for connecting said cam lever to said rock shaft.

15. In a machine of the character described, a plurality of writing members, temporary binders for holding groups or series of documents to be written upon by said writing members, means for simultaneously moving said writing members, a conveyer comprising parallel shafts, sprockets keyed to said shafts, and chains meshing with said sprockets and provided with means for engaging said binders, a rock shaft adjacent to each of said shafts, arms mounted on said rock shafts for disengaging said binders from the conveyer, a cam-operated lever for each rock shaft, and means for connecting said cam lever to said rock shaft, said arms being movable into inoperative position and adapted in such position to lock said cam lever.

16. In a machine of the character described, a plurality of writing members, temporary binders for holding groups or series of documents to be written upon by said writing members, means for simultaneously moving said writing members, a conveyer comprising parallel shafts, sprockets keyed to said shafts, and chains meshing with said sprockets and provided with means for engaging said binders, a rock shaft adjacent to each of said shafts, arms mounted on said rock shafts for disengaging said binders from the conveyer, a cam-operated lever for each rock shaft, and means for connecting said cam lever to said rock shaft, said arms being movable into inoperative position and adapted in such position to lock said cam lever, each cam lever being provided with a stop for limiting the displacement of said rock shaft.

17. In a machine of the character described, the combination of a writing plate or table, of a plurality of writing members arranged above said plate or table, means for simultaneously operating said writing members, means for conveying groups or series of documents into and out of position to be written upon by the respective writing members, and means for holding said documents in position on said writing plate or table, said holding means including members yieldably engaging said documents on opposite sides of each of said writing members.

18. In a machine of the character described, the combination of a writing plate or table, of a plurality of writing members arranged above said plate or table, means for simultaneously operating said writing members, means for conveying groups or se-

ries of documents into and out of position to be written upon by the respective writing members, and means for holding said documents in position on said writing plate or table, said holding means comprising transverse rods disposed above said plate or table, and yieldable bars mounted thereon and extending inwardly.

19. In a machine of the character described, the combination of a writing plate or table, of a plurality of writing members arranged above said plate or table, means for simultaneously operating said writing means, means for conveying groups or series of documents into and out of position to be written upon by the respective writing members, and means for holding said documents in position on said writing plate or table, said holding means comprising transverse rods disposed above said plate or table, and yieldable bars mounted thereon and extending inwardly, each of said bars being constructed and arranged to engage documents at its extremity and at a point immediately of the rod on which it is mounted and its extremity.

20. In a machine of the character described, the combination of a writing plate or table, of a plurality of writing members arranged above said plate or table, means for simultaneously operating said writing means, means for conveying groups or series of documents into and out of position to be written upon by the respective writing members, and bars for holding said documents in position on said writing plate or table, said bars being oppositely mounted in pairs, the inner ends of each pair overlapping with one resting upon the other.

21. In a machine of the character described, a writing plate or table, a plurality of writing members, a monitor for moving said writing members simultaneously, a conveyor for groups or series of documents to be written upon, said conveyor being provided with a crank shaft, a slotted disk

keyed to said crank shaft, and a crank having one end slotted to slide over said crank shaft and carrying means adapted to interlock with each of the slots in said disk. 50

22. In a machine of the character described, a plurality of writing members, means for moving said writing members simultaneously, means for feeding series or groups of documents to be written upon by said writing members, an auxiliary stacking board or table arranged at one edge of said machine, and means releasably connected to said stacking board for gaging the position of said series or groups of documents, said gaging means comprising a plurality of straps or bars having their outer ends deflected upwardly, and angular arms adjustably connected thereto. 55

23. In a machine of the character described, a plurality of writing members, means for moving said writing members simultaneously, means for feeding series or groups of documents to be written upon by said writing members, an auxiliary stacking board or table arranged at one edge of said machine, said stacking board being provided with a plurality of sockets, bars or rods releasably mounted in said sockets, and arms or gages adjustably connected to the outer ends of said bars or rods. 60 65 70 75

24. In a machine of the character described, a plurality of writing members, means for moving said writing members simultaneously, means for feeding series or groups of documents to be written upon by said writing members, an auxiliary stacking board or table arranged at one edge of said machine, and means releasably connected to said stacking board for gaging the position of said series or groups of documents, said stacking board or table movably suspended on the machine and provided with releasable means for holding it in operative relation thereto. 80 85

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