

No. 732,700.

PATENTED JULY 7, 1903.

C. J. BELLAMY.
HANDWRITING BOARD.
APPLICATION FILED MAR. 14, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

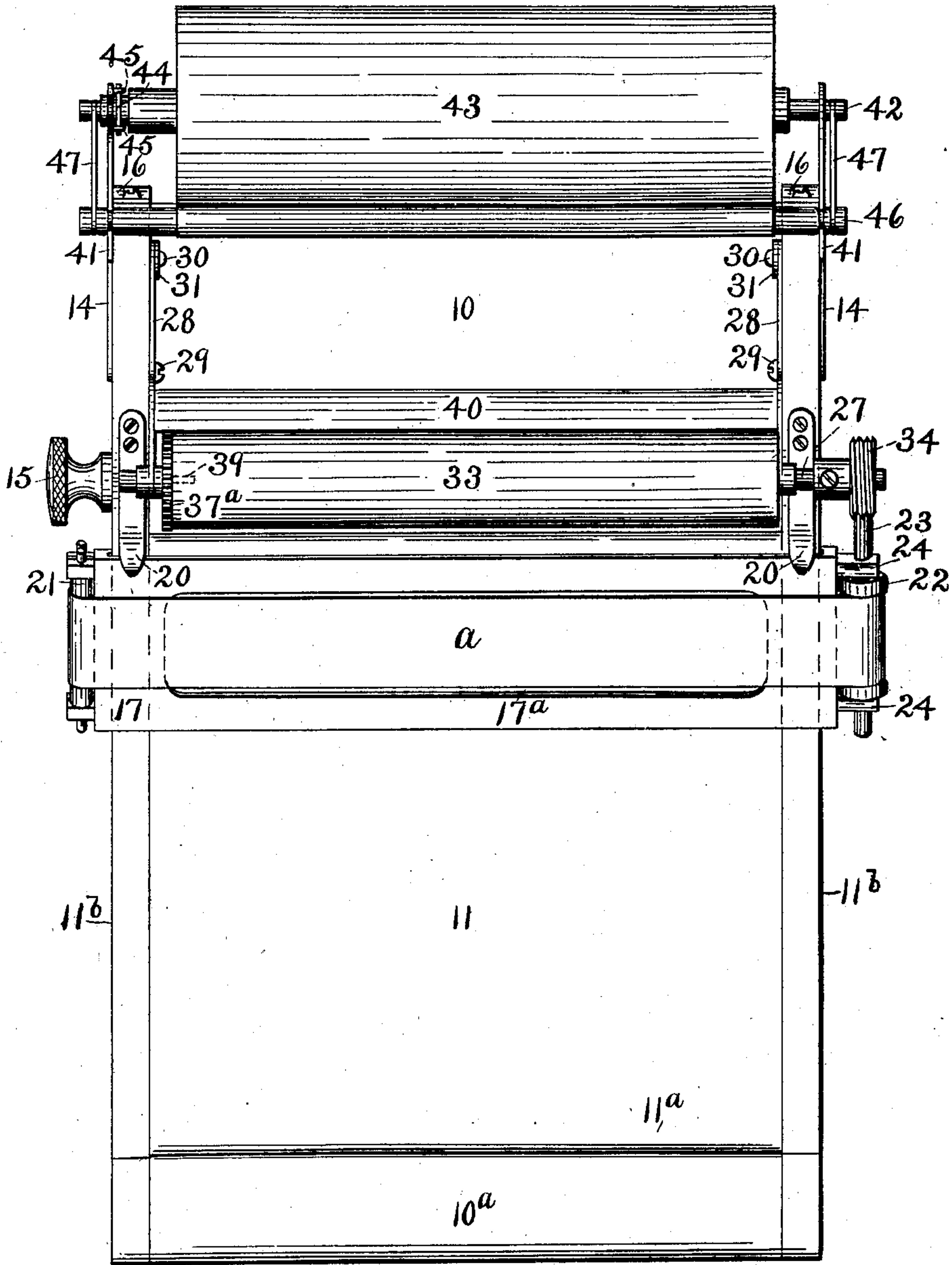


FIG. 1.

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2 SHEETS—SHEET 2.

NO MODEL.

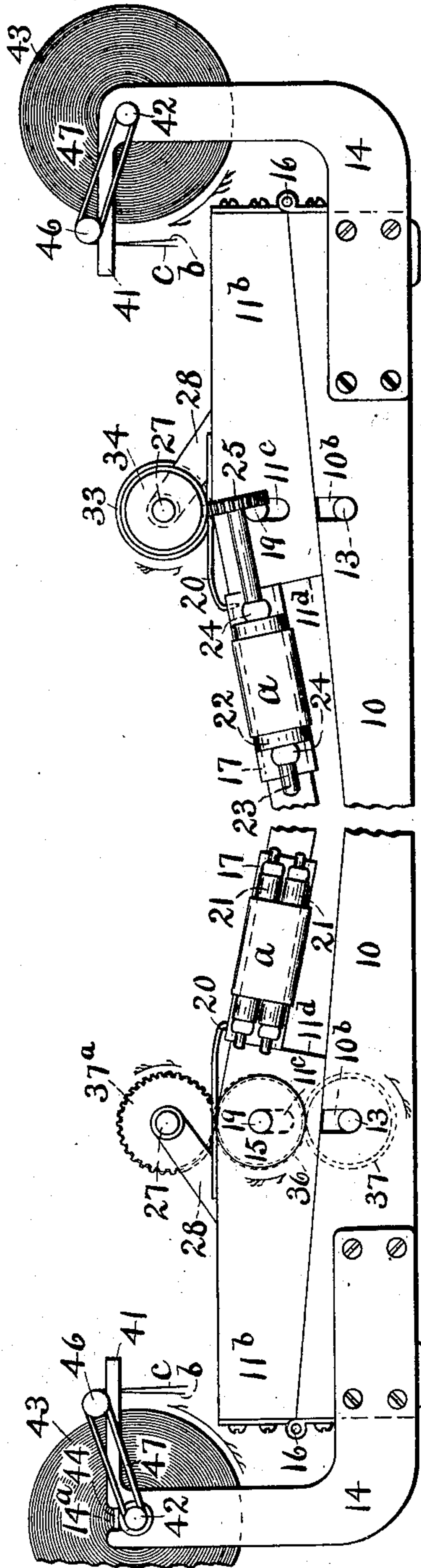


FIG. 1

FIG. 2

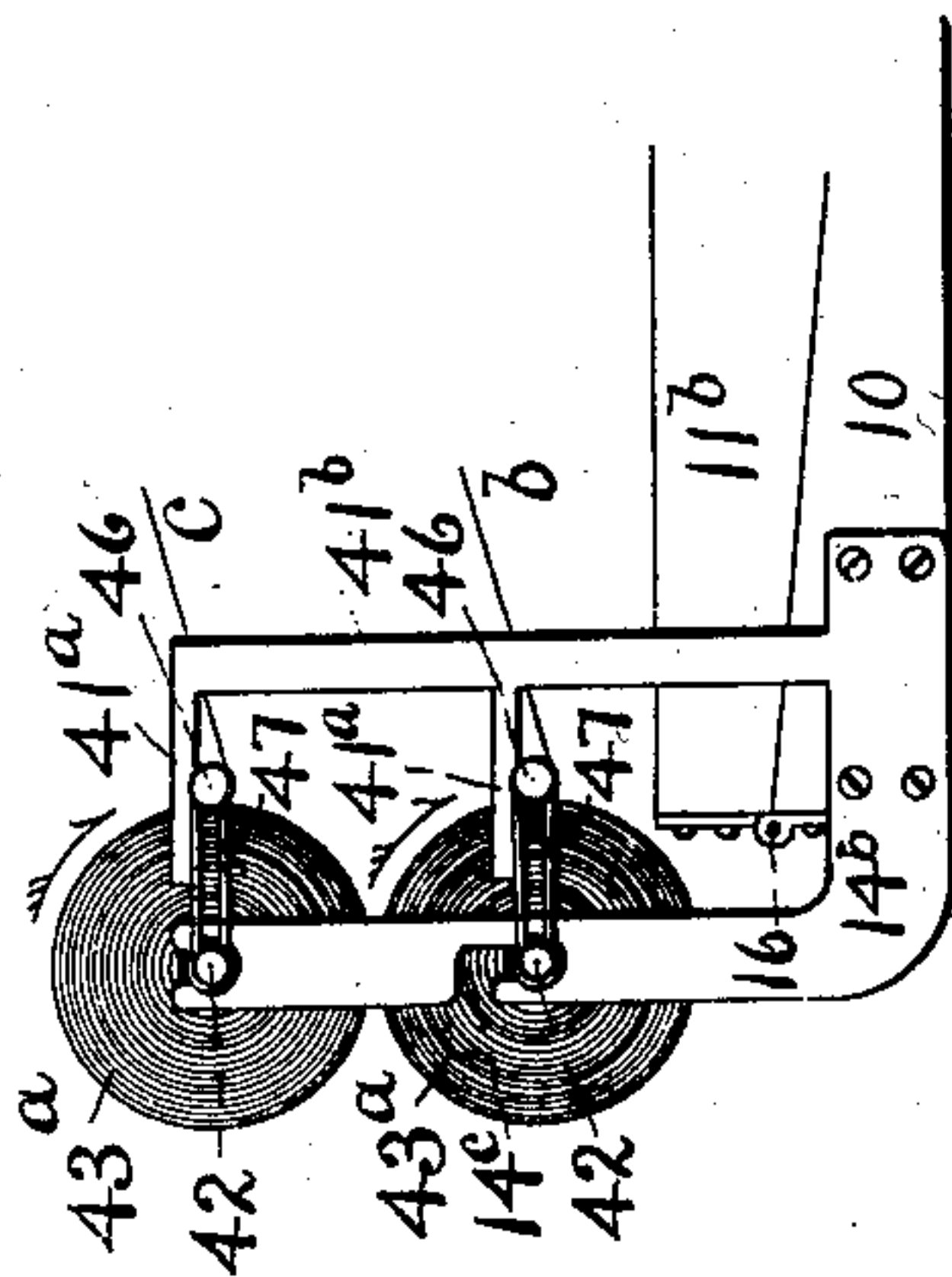


FIG. 3

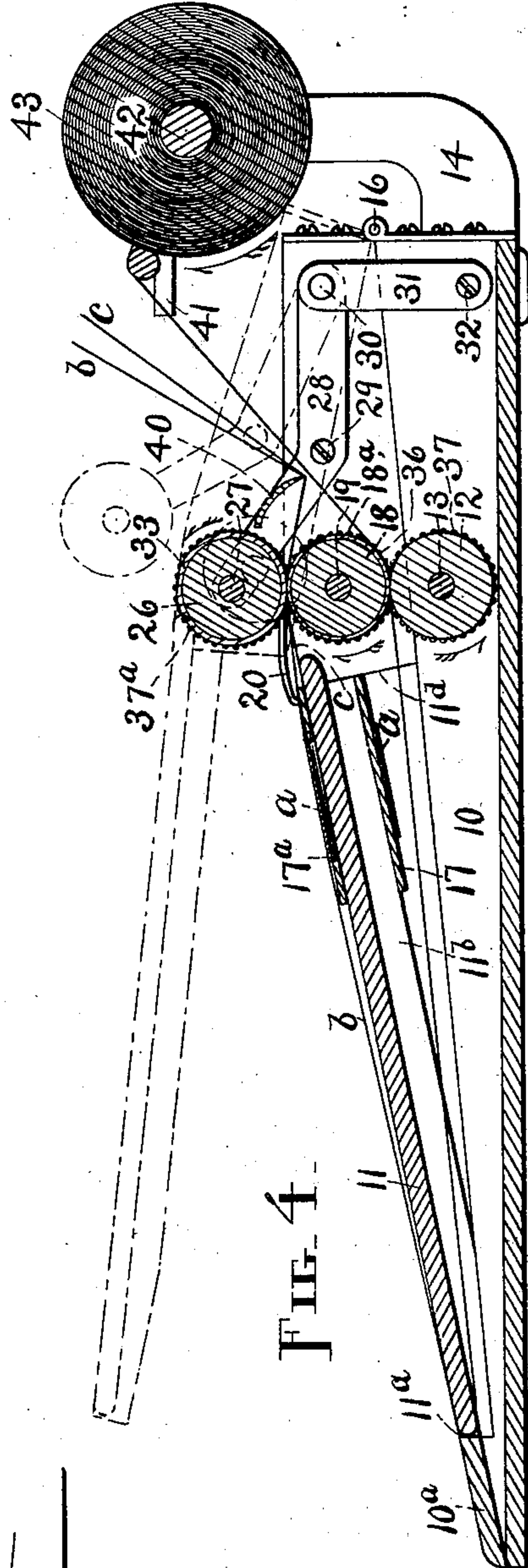


FIG. 4

Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES J. BELLAMY, OF SPRINGFIELD, MASSACHUSETTS.

HANDWRITING-BOARD.

SPECIFICATION forming part of Letters Patent No. 732,700, dated July 7, 1903.

Application filed March 14, 1902. Serial No. 98,165. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. BELLAMY, a citizen of the United States, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Handwriting-Board, of which the following is a specification.

My invention relates to improvements in boards or small desks for writing upon by hand in which separable rollers and other peculiarly constructed and arranged members are employed, all as hereinafter fully described, and especially pointed out in the claims; and the objects of my improvement are, first, to produce a handwriting-board with which continuous strips of paper or detached sheets, or both, may be used and a copy made, if desired; second, to provide means for more advantageously utilizing paper wound into rolls for writing purposes; third, to provide means for the convenient and rapid handling of the paper used in connection with the board, either for original writing or original writing and copying purposes; fourth, to furnish means for blotting ink when used, the operation taking place without extra effort on the part of the writer at the time the paper is moved for a new line; fifth, to obviate the necessity of other movement of the writer's hand except across the paper, the effect being, in fact, that the pen or pencil traverses only the width of a single line back and forth during the whole time consumed in writing, since the paper is moved longitudinally instead of the hand holding the writing implement; sixth, to effect a saving in time and labor, and, seventh, to provide a convenient, light, durable, and serviceable board or desk with which to accomplish the objects herein set forth. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of my board or desk; Fig. 2, a left-side view of the working parts of the same; Fig. 3, a right-side view of the working parts; Fig. 4, a longitudinal vertical section of the whole device, showing the bed raised and the operating-rollers separated in broken lines; and Fig. 5, a reduced side view of a modification, showing two rolls of paper and a different arrangement of the tension appliance.

Similar figures and letters refer to similar parts throughout the several views.

The base 10 of this board or desk may be constructed substantially as shown in the drawings, the side pieces thereof being preferably downwardly inclined from back to front. The base 10 may terminate at its forward end in a toe 10^a, between which and the adjacent end of the writing-bed 11 when in its normal position is a space or slot 11^a for the passage of paper. A roller 12 has its shaft 13 journaled in the sides of the base 10 at the rear of a vertical line drawn downward from the back of the bed 11, slots 10^b being provided for said shaft, so it can be easily removed, if desired. Paper-roll supports 14 14 are secured to the rear of the base 10 for the purpose presently to be described.

The writing-bed 11 has sides 11^b 11^b, which rest upon the sides of the base 10 at their front and rear terminals. The rear ends of the sides 11^b are pivoted or hinged at 16 16 to the rear ends of the base 10. The bed 11 is so arranged in relation to the base 10 as to present a suitable and convenient writing-surface when in its normal position. Front portions of the sides 11^b are cut to uniform sizes for the accommodation of a copying-ribbon carrier 17 and to afford convenient means for grasping the bed when it is desired to raise the same. An actuating-roller 18 has its shaft 19 journaled in the sides 11^b back of the bed, slots 11^c being provided in said sides to permit vertical movement to said shaft. The roller 18 normally rests upon the roller 12, and its periphery may consist of rubber, be roughened or covered with sandpaper 18^a in order to more firmly grip the paper that comes in contact therewith. A knurled knob 15 is fixed to the left-hand end of the shaft 19 to be used for turning the roller 18 and coacting parts.

The manifolding device consists of a carrier 17 and a ribbon *a*. The carrier 17 comprises end pieces connected by upper and under plates and is adapted and arranged to be passed over the front end of the bed 11 and moved against the shoulders 11^d 11^d on the sides 11^b, being held in place by spring-catches 20 20, which have their rear ends fastened to the upper edges of said sides and their downwardly-turned front terminals ar-

ranged to enter openings in said carrier and bed. The upper plate of the carrier is thin and slotted at 17^a, as best shown in Fig. 1, the slot being preferably a little wider than the copying-ribbon *a*. This slotted plate should clear the bed sufficiently to permit of the introduction of a strip or sheet of paper between said plate and bed. The ribbon *a* is an endless band passing around the carrier 17, which has rolls 21 21 or their equivalent at one end and a roll 22 at the other end for the accommodation of said ribbon. The inside only of the ribbon *a* should be treated with copying material, as ink or carbon. The roll 22 has a shaft 23, journaled in posts 24 24, projecting from the carrier 17, and a gear 25 is fast on the rear end of said shaft.

A roller 26 has its shaft 27 journaled in the arms 28 28, pivoted at 29 29 to the bed sides 11^b. The rear end of each arm 28 is pivoted at 30 to a link 31, which has its base pivoted at 32 to a side of the base 10. The roller 26 is preferably covered with a blotter 33 and so suspended by the arms 28 that said blotter touches the sandpaper cover of the roller 18. Above the gear 25 and normally meshing therewith is a worm 34, fast on the shaft 27.

It will now be understood that motion may be imparted to the rollers 12 and 26 from the roller 18 by frictional contact, also to the ribbon *a* through the medium of the worm and gear or any suitable mechanical equivalent of the same. If it is desired, however, to secure positive connections between the afore-said rollers, gears may be provided, as shown, a gear 36 on the shaft 19 meshing with gears 37 and 37^a on the shafts 13 and 27, respectively, by which positive movement is imparted to the rollers 12 and 26.

If the roller 26 is used for blotting purposes as well as to assist in actuating the paper, some suitable means should be provided for replacing the blotter 33 with a clean one when occasion requires. Such means may be provided by merely fitting the shaft 27 tightly into the roller 26 and gear 37^a, but not so tightly that the shaft cannot be withdrawn by the exertion of a little force. A pin 39, Fig. 1, projects from the gear 37^a into the adjacent end of the roller 26 to lock these parts together. By simply withdrawing the shaft 27 from its bearings and from the gear 37^a and roller 26 after the bed 11 has been raised sufficiently for the worm 34 to clear the gear 25 the old blotter on said roller can be replaced or a new roller and blotter substituted for the old, when the parts are reassembled as before.

A straight-edge or knife 40 connects the two arms 28 back of the roller 26, against which the paper is torn off after being written upon.

I prefer to use rolls of paper with my writing-board, (either one-strip or two-strip rolls,) each of which consists of one or more continuous strips of paper wound upon a shaft

which projects beyond the ends of the roll, or the paper may be rolled up and provided with trunnions instead of having a shaft extending clear through the same, it only being essential that there shall be a suitable holder for the roll having projections at the ends, substantially as shown. Each support 14 has a forwardly-extending stop or arm 41 and an opening at the top for the reception of a trunnion or one end of a shaft 42 of the paper-roll 43, the trunnions or ends of the shaft preferably projecting beyond the supports. One of the supports may be slotted, as shown at 14^a, for the ready insertion and removal of the paper-roll shaft.

A simple but effective appliance for regulating the tension of the paper when drawn from or rewound on the roll 43 is found in the rod 46 and the elastic bands 47 47, by which said rod is retained against said roll, said bands being passed over the ends of said rod and the exposed terminals of the roll trunnions or shaft 42, preferably outside of the supports 14. Springs or other resilient means may be substituted for the elastic bands. Stops or arms 41 are provided for the rod 46, which is caused to bear against the same by the pull of the paper, both resilient means and stops being required to keep the rod in place and accomplish the desired results. It may be best to cross the bands 47 in order to cause the rod 46 to rotate in the opposite direction to that of the roll 43, thus avoiding the friction between the paper and said rod which would otherwise be present.

Assuming that it is desired to write from a roll of paper and to make a copy of what is written, the operation is as follows: Take a roll of paper 43, comprising two continuous strips *b* and *c*, and insert its shaft 42 in the supports 14, place the tension-rods 46 on the arms 41, with the bands 47 over the ends of said shaft and rod, and lead the free ends of the two strips of paper upward from the bottom of the roll over said rod, then downward between the rollers 12 and 18, forward around the front of the bed 11, through the slot 11^a, and above the bed to the carrier 17, where the strips separate. It is necessary to raise the bed 11 in order to get the paper around the front end thereof; but before this point is reached the paper may be actuated forward after being introduced between the rollers 12 and 18 by turning said rollers. Now insert strip *c* beneath the upper plate of the carrier 17 and the ribbon *a* and pass strip *b* over the same, thence lead both between the rollers 18 and 26 and out beneath the knife 40, the rollers being turned to assist in the operation. The three actuating-rollers furnish a very effectual means for handling the paper, being positive and uniform in action. The middle and bottom rollers draw the paper from the rear, and at the same time the middle and top rollers draw it from the front, the top roller being serviceable for this purpose

whether covered with and used as a blotter or not. In order to facilitate the insertion of the paper into the writing-board or to straighten it after being inserted, it is desirable or necessary to raise the bed 11, which operation releases the paper from the rollers, leaving it free to be properly adjusted. The changes which take place when the bed is raised are as follows: The roller 18 drops away from the roller 26, since the shaft 19 now rests in the bottom of the slots 11^c. The gears 36 and 37^a are disconnected, yet the roller 18 is elevated clear of the roller 12 and the gear 36 clear of the gear 37, and the arms 28 still further separate the rollers 26 and 18 and disconnect the worm and gear which drive the ribbon *a*. When the bed is allowed to descend again, the several parts assume their normal positions and the board is ready to commence writing upon. The writing implement traverses the paper strip *b* above the carrier-slot 17^a, and each line written thereon is copied on the strip *c* below the ribbon *a*. When one line is finished, the right hand is raised an instant, while the knob 15 is turned with the left hand and clean sections of paper presented for the next line, and so on until the bill, letter, or other matter is completed, the right hand always remaining in the vicinity of the ribbon. From time to time, as desired, the written matter is torn off with the assistance of the knife 40. When ink is used, the writing is dried as it passes beneath the blotter 33. The slotted plate of the carrier prevents rubbing between the paper and ribbon, which travel at right angles to each other.

Although, as before stated, I prefer to use continuous-strip rolls of paper with my writing-board, either one or two strips being wound to form the rolls, there may be exceptions to this rule. A single-strip roll may be employed either when no copy is required or when the original writing is to be done on detached sheets and the copy taken on the strip from the roll. When it is desired to make both the original and copy on continuous strips, either the two-strip roll may be used, as explained, or two single-strip rolls, as shown in Fig. 5 and hereinafter described. In case roll-paper is to be used for copying only, separate or detached sheets being used for the original, the paper from a single-strip roll is led beneath the upper plate of the carrier 17 and the ribbon and each separate sheet placed over the same, the strip and sheet passing under the roller 26 together. When no copy is desired and a single-strip roll used, the carrier 17 is removed by raising the catches 20 and slipping said carrier off over the front end of the bed. The paper-roll may be dispensed with and separate sheets for both original and copy can be used, of course, or separate sheets without copy.

The tension appliance not only provides for the proper feeding of the paper from the roll, but prevents twisting or bagging when the

unused paper is rewound and also prevents unwinding or slacking when the roll is removed from the supports and laid aside. As the paper is unwound and the roll consequently decreases in diameter the tension-rod is drawn nearer the center by the elastic bands, which constantly press said rod against the roll or toward the roll-holder. The rewinding may be accomplished by turning the several rotary members in directions opposite to those indicated by the arrows, or the bed may be raised and only the paper-roll turned for the rewinding.

During the process of writing when the ribbon *a* is employed every time the rollers 18 and 26 are turned said ribbon is actuated and a fresh portion brought into service, so that practically the whole is likely to be utilized in time.

In place of double-strip paper-rolls two single-strip rolls 43^a may be employed, as shown in Fig. 5, supports 14^b (only one being shown) being provided for them. In the support 14^b shown is an additional slot 14^c for the shaft of the lower roll. In this case the stops consist of arms 41^a, extending from uprights 41^b, (only one being shown,) which rise from the bases of said supports. This is simply a modification to show that the stops need not be connected with the members that directly support the rolls. The upper roll comprises the strip *c* or copy-strip and the lower roll the strip *b* for the original.

A further modification of the tension appliance is also shown in Fig. 5, being one of position or where each rod 46 is below instead of above the stops, and each strip passes from the top of the roll downward beneath said rod; but in this case said strip should then be led away horizontally or upwardly in order to obtain the best results. In any event it is essential that the tension-rod be caused to bear against the roll or toward the roll-holder by the resilient members and against the stops by the pull of the paper passing around said rod after it is drawn from said holder, and it does not matter just how the resilient members, stops, or roll are arranged, provided this end is attained. There is no reason why the two single-strip rolls and their tension appliances should not be arranged in substantially the same way as the two-strip roll and its tension appliance, and vice versa. The ends of the paper from the two single-strip rolls are brought together and then fed through the device in a similar manner as the paper from the double-strip roll.

I wish to include and cover any modifications and changes other than those shown and described which do not depart from or violate the spirit of my invention, but are merely departures in form or size or are mechanical equivalents of what is herein set forth.

It is not to be understood that because I do not herein claim the tension appliance separately or independently the same is abandoned, for I have so claimed this appliance

in another application filed on even date with the filing of this application.

What I do claim as my invention, and desire to secure by Letters Patent, is—

5 1. In a handwriting-board, the combination with a suitable bed, of a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to tension the former toward said
10 holder, and stops against which the rod is caused to bear by the pull of the paper as it is drawn from said roll and partly around the rod.

2. In a handwriting-board, the combination
15 of a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to tension the former toward said holder, stops
20 against which the rod is caused to bear by the pull of the paper as it passes from the roll partly around the rod, and means to handle said paper after leaving the roll and rod.

3. In a handwriting-board, the combination
25 of a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to tension the former toward said holder, stops
30 against which said rod is caused to bear by the pull of the paper as it is drawn from said roll and partly around the rod, and a series of rolls adapted to handle the paper after it leaves the roll and rod.

4. In a handwriting-board, the combination
35 of a holder for a roll of paper, having supporting projections, supports for said projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, stops against which
40 the rod is caused to bear by the pull of the paper as it passes from the roll partly around the rod, and separable actuating-rollers mounted in normally operative relation with each other, substantially as set forth.

5. In a handwriting-board, the combination
45 of a holder for a roll of paper, with a series of rollers normally in contact with each other and adapted to handle the paper as it comes from said roll, a suitable base and a writing-bed hinged or pivoted thereto, and means to
50 separate said rollers when said bed is raised, substantially as set forth.

6. In a handwriting-board, the combination
55 with an actuating-roller, of a blotting-roller mounted in operative relation therewith, a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, and stops
60 against which the rod is caused to bear by the pull of the paper after it is drawn from the roll and passes partly around said rod.

7. In a handwriting-board, the combination
65 of a holder for a roll of paper, with a rod, resilient means to cause said rod to bear against said roll, stops against which the rod is caused to bear by the pull of the paper, a suitable base and a bed hinged or pivoted thereto, a

series of rollers normally in contact with each other mounted in said base and bed, adapted to handle the paper as it comes from said
70 roll, and means to separate said rollers and release said paper when the bed is raised, substantially as set forth.

8. In a handwriting-board, the combination
75 of a holder for a roll of paper, a suitable base and a bed hinged thereto, a vertically-movable actuating-roller journaled in said bed, a removable actuating-roller adapted for blotting purposes normally located above and in operative relation with said first-mentioned
80 roller, supporting-arms for said removable roller, pivoted to said bed, and links pivotally attached to said arms and base, substantially as set forth.

9. In a handwriting-board, the combination
85 of a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, stops against which the rod is caused to bear
90 by the pull of the paper as it is drawn from the roll and passes partly around the rod, a suitable base and bed, arms carried by said bed, and three separable actuating-rollers normally in operative relation, said rollers
95 being mounted in said base, bed and arms, for the purpose set forth.

10. In a handwriting-board, the combination
100 of a holder for a roll of paper, with a rod caused to bear against said roll by resilient means, stops against which said rod is caused to bear by the pull of the paper, a suitable base and a bed pivotally connected thereto, an actuating-roller mounted in said bed, a detachable blotting-roller mounted in nor-
105 mally operative relation with said actuating-roller, and means to separate said rollers when the bed is raised, substantially as set forth.

11. In a handwriting-board, the combina-
110 tion with a suitable base and an actuating-roller mounted therein, of a bed hinged to said base, an actuating-roller mounted for vertical movement in said bed, arms pivoted to the bed, links pivoted to said arms and
115 base, and a third roller journaled in the arms, all of said rollers being in normally operative relation but adapted to be separated when the bed is raised, substantially as set forth.

12. In a handwriting-board, the combina-
120 tion with a suitable base and a bed pivotally connected thereto, of an actuating-roller mounted in said bed, arms pivoted to said bed, a roller normally held by said arms in operative relation with said actuating-roller,
125 and links pivoted to the arms and bed, whereby the roller held by the arms is moved away from the actuating-roller when the bed is raised, substantially as set forth.

13. In a handwriting-board, the combina-
130 tion with a suitable base and a bed pivotally connected thereto, of an actuating-roller mounted in arms pivoted to said bed and connected by pivoted links with said base, a sec-

ond actuating-roller normally in operative relation with said first-named roller, journaled in slots in said bed and adapted to be supported by the bases of said slots when the bed is raised, for the purpose set forth.

14. In a handwriting-board, the combination with a suitable base and a bed pivotally connected thereto, of an actuating-roller mounted to permit of vertical movement in said bed, arms pivoted to the bed, a roller normally held by said arms in operative relation with said actuating-roller, and links pivoted to said arms and base, for the purpose set forth.

15. In a handwriting-board, the combination with the base, of a writing-bed hinged or pivoted to said base, and a series of coacting rollers normally in contact with each other mounted in operative relation with said base and bed, and means to separate said rollers when the bed is raised, substantially as set forth.

16. In a handwriting-board, the combination with the base and a bed hinged or pivoted thereto, of a holder for a roll of paper, a rod caused to bear against said roll by resilient means, stops against which said rod is caused to bear by the pull of the paper, a series of paper-handling coacting rollers normally in contact with each other mounted in operative relation with said base and bed, and means to separate said rollers when the bed is raised, substantially as set forth.

17. In a handwriting-board, the combination with a bed and means to actuate strips or sheets of paper over the same, of a copying-ribbon, a carrier therefor having a slotted face, and means to actuate said ribbon across said carrier transversely to the movement of the paper on said bed.

18. In a handwriting-board, the combination with a bed, of a copying-ribbon, a detachable carrier therefor having a slotted face, and means to actuate said ribbon across said carrier transversely to the movement over said bed of the paper through and on which the copy is to be taken.

19. In a handwriting-board, the combination with a copying-ribbon and a carrier therefor having a slotted face, of a roller mounted on a shaft journaled in the board, and means for actuating said shaft and roller to move said ribbon across the slotted face of said carrier, substantially as set forth.

20. In a handwriting-board, the combination with a bed, of a carrier mounted thereon and provided with a slot in the top and an actuating-roll at one end, and a copying-ribbon passing around said carrier and roll, substantially as set forth.

21. In a handwriting-board, the combination with a bed, of a detachable carrier mounted thereon and provided with an actuating-roll at one end, a copying-ribbon passing around said carrier and roll, and catches adapted to engage the carrier and hold it in place, substantially as set forth.

22. In a handwriting-board, the combination with a bed, of a roller mounted on a shaft journaled therein, a carrier mounted on said bed and provided with an actuating-roll at one end, a copying-ribbon passing around said carrier and roll, and means to actuate the ribbon-roll from said shaft, substantially as set forth.

23. In a handwriting-board, the combination with a bed, of an actuating-roller mounted therein, a second roller mounted on a shaft journaled in said bed and adapted to be rotated coincidently with said actuating-roller, a carrier mounted on the bed and provided with an actuating-roll at one end, a copying-ribbon passing around said carrier and its roll, and means to actuate the ribbon-roll from said shaft, substantially as set forth.

24. In a handwriting-board, the combination of a holder for a roll of paper, a suitable bed, a copying-ribbon and a carrier therefor having a slotted face across which said ribbon is actuated transversely to the movement over said bed of the paper through or on which the copy is to be taken, and a series of rollers adapted to handle said paper as it comes from the roll, substantially as set forth.

25. In a handwriting-board, the combination of a holder for a roll of paper, having end projections, supports for said projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, stops against which the rod is caused to bear by the paper where it leaves said roll, as it passes partly around the rod, a bed over and under which the paper passes, a roller below the under reach of paper, a roller above the upper reach of paper, a third roller between the upper and under reaches of paper in operative relation with the other rollers, and a copying-ribbon on said bed between which and the upper surface of the bed the paper is caused to pass, substantially as set forth.

26. In a handwriting-board, the combination with a suitable bed, of a holder for a roll of paper, having supporting projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, stops against which the rod is caused to bear by the pull of the paper as it is drawn from the roll and passes partly around the rod, a copying-ribbon carrier on said bed, and a series of rolls adapted to handle the paper as it comes from the roll, substantially as set forth.

27. In a handwriting-board, the combination of a holder for a roll of paper, a copying-ribbon and a carrier therefor having a slotted face across which said ribbon is actuated transversely to the movement of the paper from the roll, and a series of separable rollers mounted in connection with the board, adapted to handle the paper as it comes from the roll, substantially as set forth.

28. In a handwriting-board, the combination of a holder for a roll of paper, having sup-

porting projections, a rod, resilient means connecting said rod and projections to cause the former to bear against the roll, stops against which the rod is caused to bear by the pull of the paper as it is drawn from the roll and passes partly around the rod, a series of rollers arranged to handle the paper from the roll, and a knife conveniently located to assist in severing the paper after it has passed between the rollers, substantially as set forth.

29. The combination, in a handwriting-board, of a paper-roll holder having supporting projections, with supports for said projections, a rod, resilient means to cause said rod to bear against the roll, stops against which said rod is caused to bear by the pull of the paper, a bed under and over which the paper passes, a roller below the paper, a roller above the paper, and an actuating-roller between the top and bottom reaches of paper, substantially as set forth.

30. The combination, in a handwriting-board, of a two-strip paper-roll holder having supporting projections, with supports for said projections, a rod, resilient means to cause said rod to bear against the roll, stops against which said rod is caused to bear by the pull of the paper, a bed under and over which the paper passes, a roller below the paper, a roller

above the paper, an actuating-roller between the top and bottom reaches of paper, and a copying-ribbon on said bed under which one of said strips of paper passes and over which the other strip passes before arriving at the top roller, substantially as set forth.

31. In a handwriting-board, the combination of a holder for a roll of paper, having supporting projections, supports for said projections, a rod, resilient connections between said rod and projections to cause the former to bear against the roll, stops against which the rod is caused to bear by the pull of the paper as it passes from the roll partly around the rod, a suitable base and a bed hinged thereto, arms operatively connected with said base and bed, and a series of rollers mounted in the base and bed and said arms, all normally in position to operate the paper but adapted to release the same when the bed is raised, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES J. BELLAMY.

Witnesses:

F. A. CUTTER,
STEPHEN S. TAFT, Jr.