

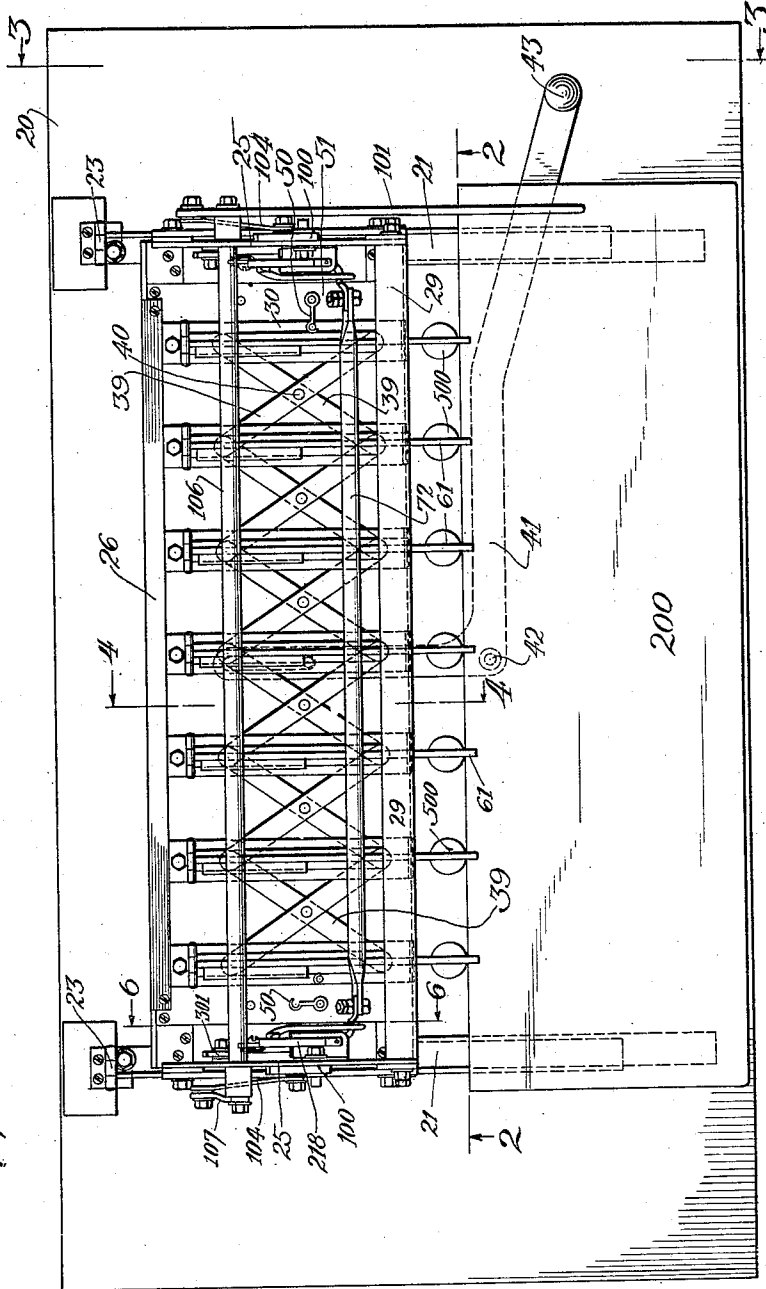
E. T. BENSON.
MARKING MACHINE.
APPLICATION FILED MAR. 28, 1921.

1,423,903.

Patented July 25, 1922.

7 SHEETS—SHEET 1.

Fig. 1.



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7 SHEETS—SHEET 2.

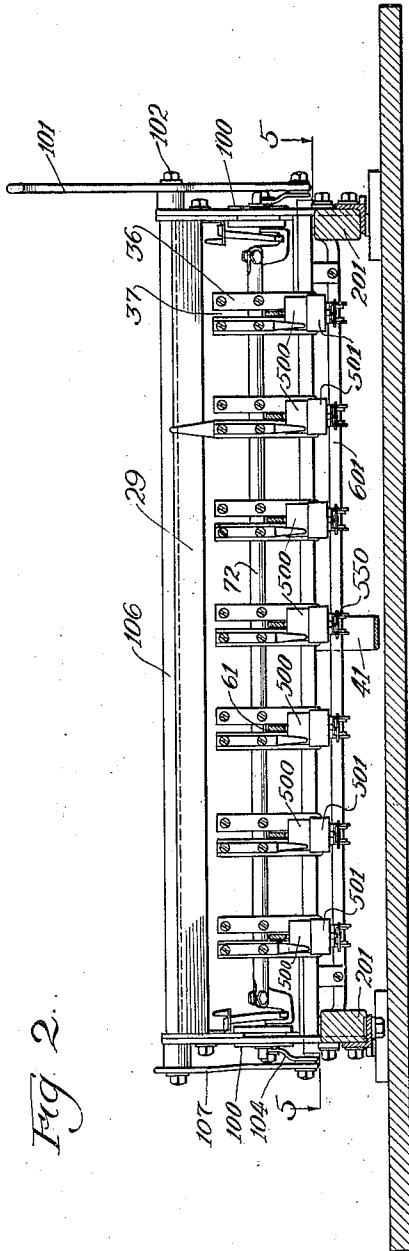


Fig. 2.

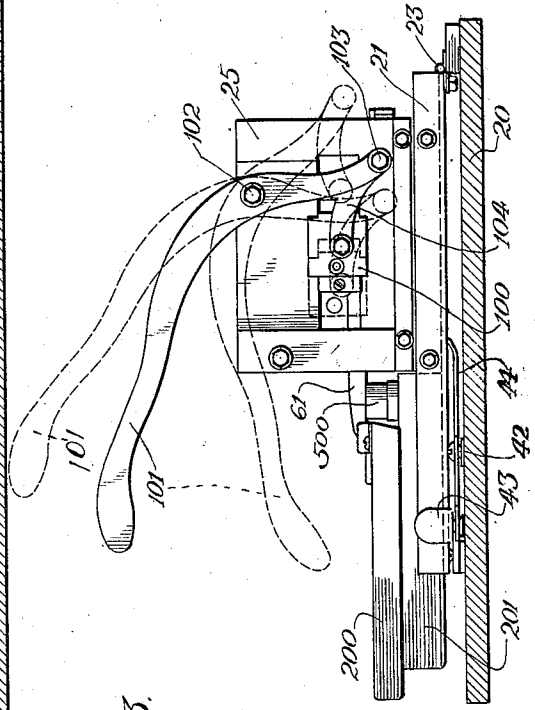


Fig. 3.

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7 SHEETS—SHEET 3.

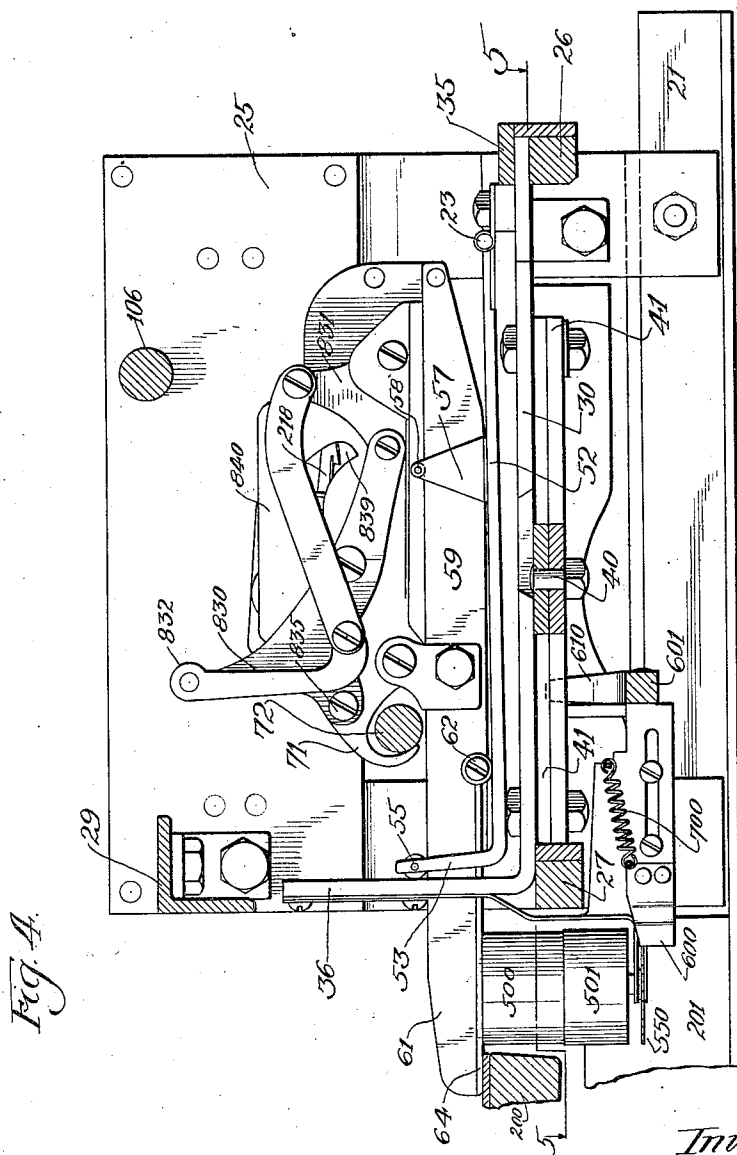


Fig. 4.

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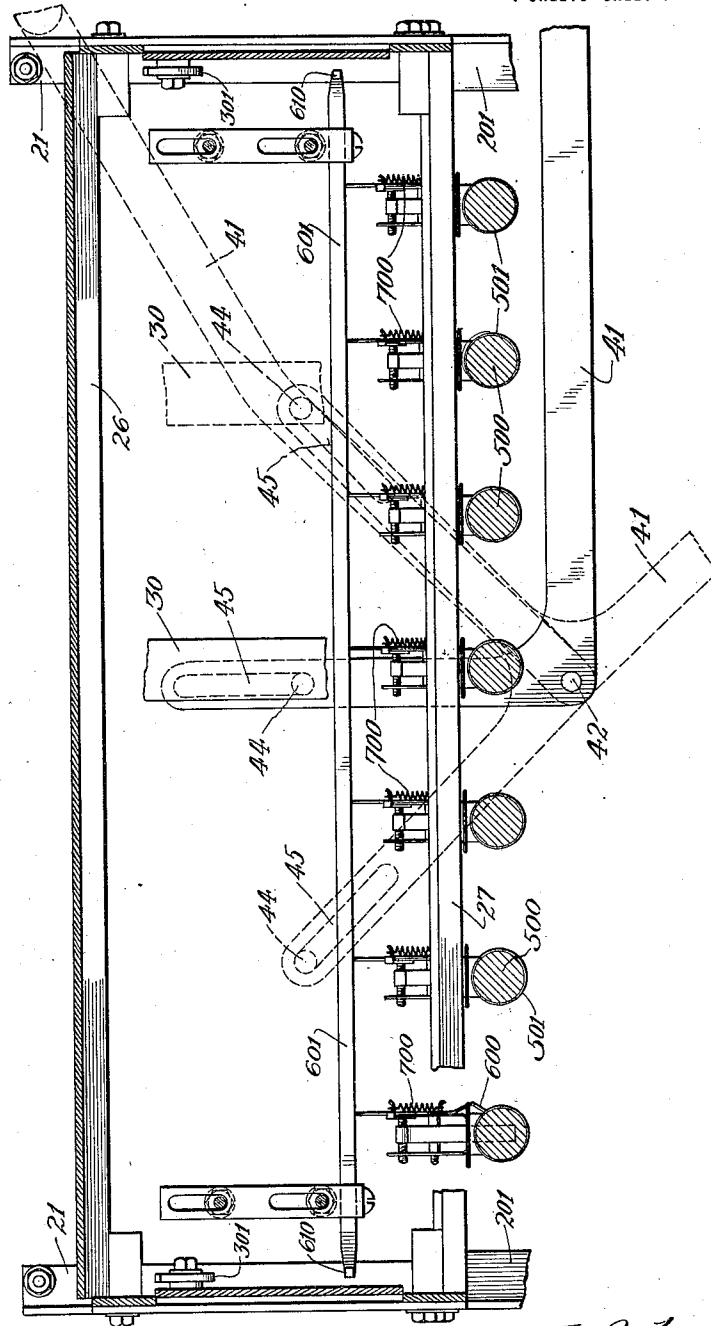
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7 SHEETS—SHEET 4.

Fig. 5.



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7 SHEETS—SHEET 5.

Fig. 6.

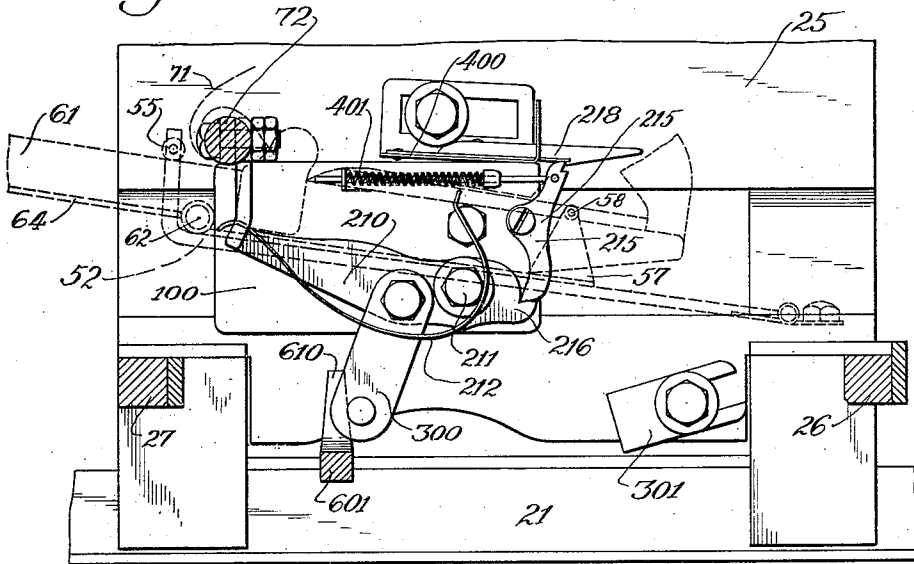
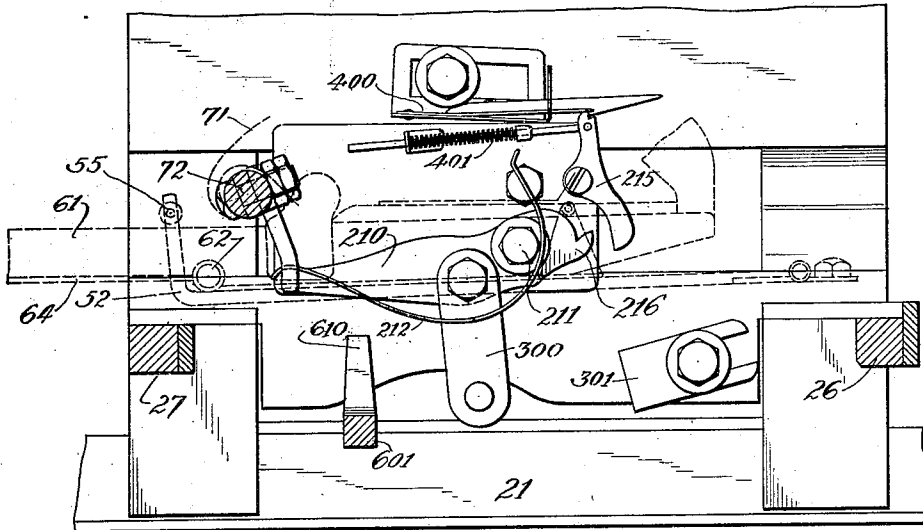


Fig. 7.



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7 SHEETS—SHEET 6.

Fig. 8.

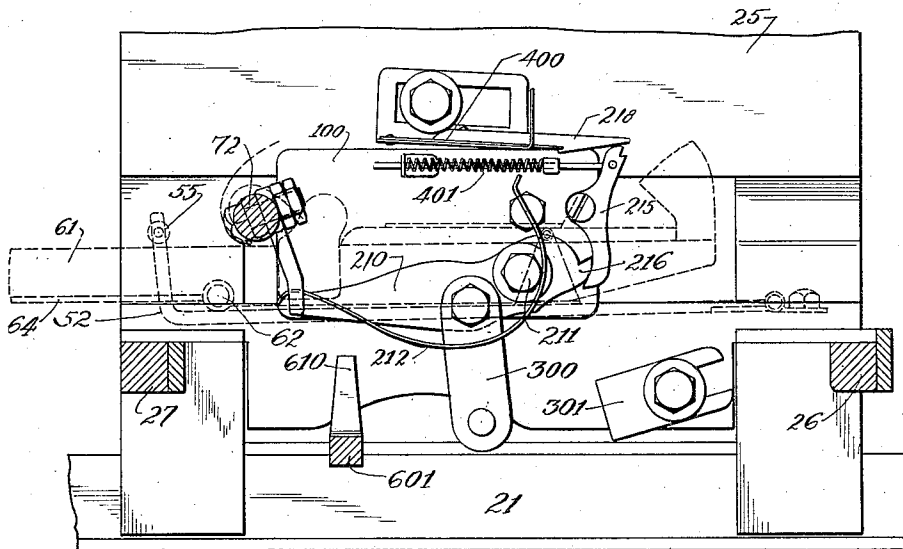
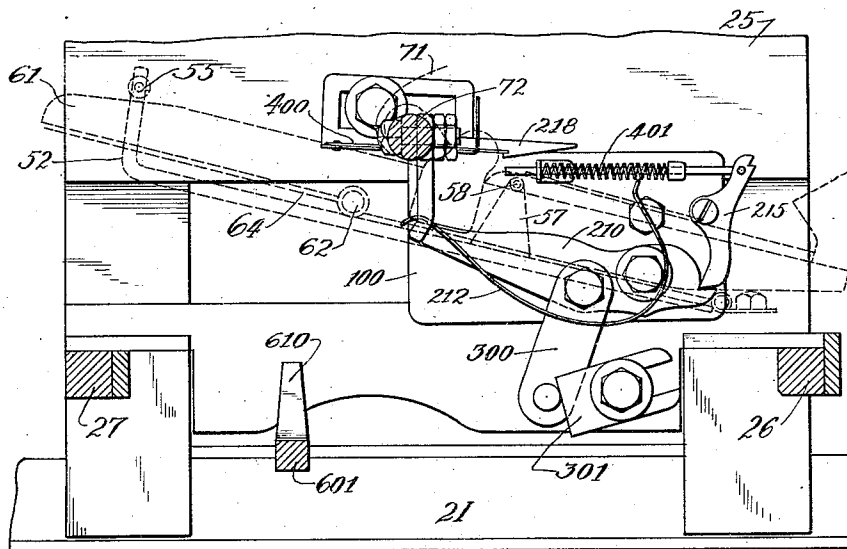


Fig. 9.



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7 SHEETS—SHEET 7.

Fig. 10.

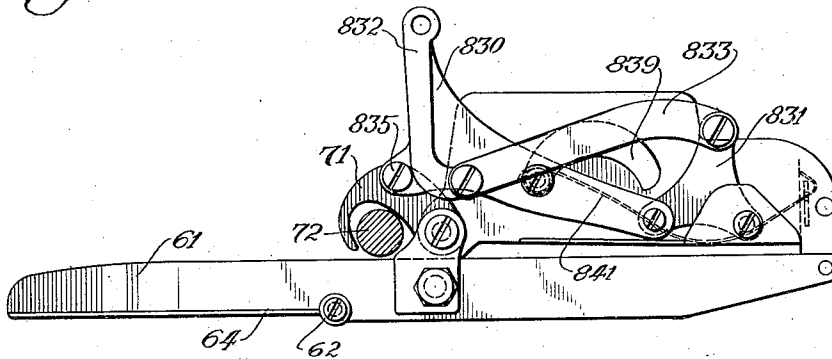


Fig. 11.

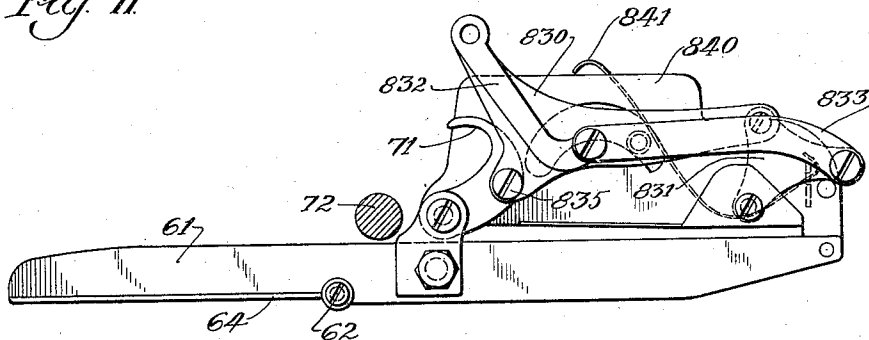
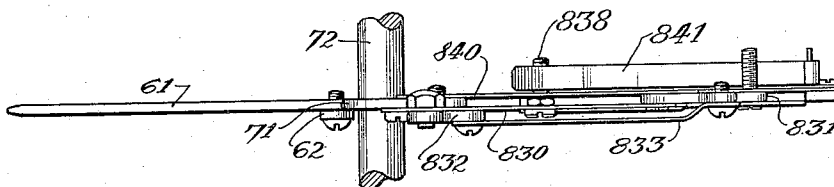


Fig. 12.



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Att'ys.

UNITED STATES PATENT OFFICE.

EMIL T. BENSON, OF CHICAGO, ILLINOIS.

MARKING MACHINE.

1,423,903.

Specification of Letters Patent. Patented July 25, 1922.

Application filed March 28, 1921. Serial No. 456,213.

To all whom it may concern:

Be it known that I, EMIL T. BENSON, a citizen of the United States, residing at 1537 North Leavitt Street, Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Marking Machines, of which the following is a specification.

This invention relates to improvements in marking machines and more especially to a machine adapted for equally spacing marks throughout a predetermined distance (within the range of the machine). The machine may be used, for example, for marking the edge of a coat or other garment to indicate the proper location of button-holes to be made therein.

The device comprises, in general, a framework in which is slidably mounted a series of diagonal levers pivoted together in the middle and at the ends, resembling in construction a lazy-tongs. Connected to the lazy-tongs and equally spaced thereon is a series of marking devices, each of such devices being provided with a marking finger adapted to be moved out over the cloth or other material to be marked, and dropped on to the cloth and then drawn back thus marking the cloth. Means are provided for so operating the marking fingers simultaneously. Means are also provided for extending or shortening the lazy-tongs through the range of the machine, thus separating or bringing closer together the marking devices attached thereto. The marking devices are equally spaced on the lazy-tongs, and there is but one such marking device for each bar of pivoted levers comprising the lazy-tongs. By this construction the marking devices are always equally spaced throughout the length of the lazy-tongs regardless of the amount of their extension. The other details of the construction of the device and its manner of operation will appear more fully as I proceed with my specification.

In that form of device embodying the features of my invention shown in the accompanying drawings Fig. 1 is a plan view of the device, Fig. 2 is a view taken as indicated by line 2 of Fig. 1, Fig. 3 is a view taken as indicated by line 3 of Fig. 1, Fig. 4 is a view taken as indicated by line 4 of Fig. 1, Fig. 5 is a view taken as indicated by line 5 of Fig. 2, Fig. 6 is a view taken as indicated by line 6 of Fig. 1, Figs. 7, 8 and 9 are views similar to Fig. 6 showing the

parts in altered positions, Fig. 10 is a view of one of the marking fingers constituting a part of the device showing the manner of attaching same to the operating rod, Fig. 11 is a view similar to Fig. 10 showing the parts in altered positions, and Fig. 12 is a plan view of the parts shown in Figs. 10 and 11.

As shown in the drawings, the device comprises a flat base or platform 20. Attached to the base 20 at one side by the hinged connections 23, are two parallel supporting arms formed of angle iron extending substantially across the width of the base 20. Mounted on each of the arms 21 near its hinged end is a vertically arranged rectangular shaped frame 25. The lower corners of the frames 25 nearer to the hinges 23 are joined by a supporting member 26. The other lower corners are similarly joined by a supporting member 27. The upper corners of the frames 25 farther from the hinges 23 are likewise connected by an angle iron supporting member 29.

Extending crosswise between, and supported by the supporting members 26 and 27, are a series of flattened bars forming parts of the marking devices. I have indicated these flattened bars by 30. Each of the bars 30 has one end arranged to slide in a suitable groove or guide 35 formed in the supporting member 26, and has its other end bent upwardly as indicated by 36, bifurcated as indicated by 37 and supported on the supporting member 27.

Pivotaly connected to the undersides of the bars 30 is a lazy-tong arrangement of diagonal levers 39 pivoted together in the middle and ends as indicated by 40 and 41 respectively. The connection between the lazy-tong levers and the bars 30 is as follows: Each pair of pivot pins forming the pivots 41 is connected to one of the bars 30, one of such pivot pins extending upwardly through a hole in the bar and the other through a slot; so that the bars 30 will always remain parallel as they are separated or brought closer together with the movement of the lazy-tongs. All of the slots in the bars 30 are located at their ends nearer to the support 26; and such slots permit the necessary movement toward each other of the pivots 41 as the lazy-tongs are extended and vice versa.

Any suitable means may be provided for extending or contracting the lazy-tongs. As

here shown, such means comprise a bell crank lever 41 pivoted at 42 to the base 20, having one end provided with an operating handle 43 and the other end provided with a slot 45 adapted to engage a pivot pin 44 projecting downwardly from the under side of the center bar 30. One of the end bars 30 is fastened in any suitable manner to the frame; so that movement of the lever 41 will move the center bar 30 and consequently extend or contract the lazy-tongs. As shown, the bar 30 at the end of the frame near to the handle 43 is fastened by a hook 50 connecting it to a flat plate 51 mounted on the supports 26 and 27 at the end of the frame nearer to the handle 43. It is obvious, however, that the bar 30 at the other end of the frame can be fastened if desired so that the opposite end will be free.

Mounted on each of the bars 30 is a marking device constructed as follows: Since the construction of all these marking devices is similar I will describe in detail but one. Hinged to the bar 30 at its end nearer to the support 26 is a flattened arm 52 lying above the bar 30 extending parallel therewith, a little shorter than the bar 30 and turned upwardly at its end as indicated by 53 and bifurcated. Pivotally supported between the ends of the furcations is a small roller 55. The arm 52 is also provided near its hinged end with an upwardly extending guiding fork 57 provided with a small anti-friction roller 58 located between the ends of the prongs. Slidably mounted on the arm 52 is a marking bar 59 adapted to slide in the guiding fork 57 and between the furcations of the upwardly turned end 53 of the arm 52. The bar 59 is of sufficient length to extend beyond the up turned end 53 of the arm 52 and through the up turned bifurcated end of the bar 30, and beyond such parts terminating in the marking finger 61. Each marking bar 59 is also provided on its under side with a small roller 62 adapted to decrease friction between it and the arm 52 upon which said marking bar slides. The under side of the marking finger 61 is provided with an inserted fiber strip 64 for the purpose of supplying a surface better adapted than metal to receive chalk for marking purposes. Each of the marking bars 59 is provided with a hook 71 adapted to engage an operating bar 72. Movement of the operating bar 72 causes movement of the marking bars 59 and consequent chalking of and marking by the marking fingers 61. The details of this operation will be described hereafter.

Mounted in each of the frames 25 and adapted for sliding movement therein is a block 100, the upper and lower horizontal members of the frame 25 acting as guides or slides for such blocks. The blocks 100 are adapted to be given sliding movement by

means of the lever 101 which is pivoted at 102 and has its lower end pivotally connected at 103 to the short connecting rod 104 connected to one of the blocks 100. Extending lengthwise of the machine from the pivoted point 102 is a rod 106 to which the lever 101 is fixed. The rod 106 is adapted to be rotated by movement of the lever, and has connected to its other end an arm 107 parallel to the short arm of the lever 101. The arm 107 is connected to a connecting rod 104 fastened to the other block 100; so that movement of the lever 101 will give sliding motion to both of the blocks 100 equally. The two blocks 100 are each provided with pivoted levers 210 which are connected by the operating rod 72. Each of the blocks 100 is provided with means for giving the operating rod 72 the proper motion to effect the desired marking by the marking fingers on the marking devices. Since this arrangement is the same on each of the blocks 100, I will describe in detail the construction and operation of but one. This mechanism is best shown in Figs. 6 to 9, in which the parts are shown in altered positions. As shown in Fig. 6, the block 100 is at the limit of its travel to the left, as viewed in the drawing. When in such position the operating handle is in the uppermost position as shown by the broken lines in Fig. 3, and the marking fingers 61 are fully extended and raised. The arms 52 are raised with the fingers. By extended I mean that the marking fingers are at the limit to the left, as viewed in Fig. 6, of their sliding movement on the arms 52. When in this position the fingers 61 extend beyond the line of the frames 25 and are above a board 200 supported by the strips 201 which are fastened to the free ends of the frames 21.

The board 200 is adapted to support the cloth or other material which it is desired to mark. I will assume that when in this position the marking fingers 61 are already chalked by chalk on the under surfaces of the fiber strips 64. I will assume that cloth or other material to be marked is also in place on the board 200, with the edge to be marked under the marking fingers 61. It will be noted that when in this position that the operating bar 72 having its ends attached to the levers 210 is in a raised position. The levers 210 are pivoted at 211. A spring 212 is provided adapted to rock the levers 210 in order to lower the bar 72. When the bar is in its raised position shown in Fig. 6, the lever 210 is prevented from rocking by means of the short pivoted pawl 215, the lower end of which is engaged above the short tooth 216 on the short end of the pivoted lever 210. Downward movement of the handle 101 operates, as described above, to slide the blocks 100 to the right (as viewed in Fig. 6). Such movement causes the trigger 218 mounted

on the frame 25 to engage the upper end of the pivoted pawl 215 causing its lower end to rock to the right and be released from the tooth 216. As soon as this happens the 5 spring 212 causes the operating bar 72 to drop, thus dropping the marking fingers 61 onto the material resting on the board 200. This position is shown in Fig. 7. Further downward movement of the operating lever 101 drags the marking fingers 61 across the 10 material to the right thus making the desired marks on the material. Fig. 8 shows the parts in the positions occupied after the marking fingers have moved to the right and marked the material. During this movement further rocking of the pivot pawl 215 releases its upper end from the trigger 218. Further downward movement of the operating 15 handle 101 causes further movement to the right of the blocks 100 until the downwardly depending arm 300 attached to the block 100 comes into contact with the stop 301. Still further movement serves to rock the levers 210 to again lift the operating bar 25 72 as shown in Fig. 9 until the lower end of the pawl 215 again engages the trigger 218. In this position, as shown in Fig. 9, the blocks 100 are at the limit of their movement to the right and the handle 101 is fully depressed. Raising of the handle 101 again 30 moves the blocks 100 to the limit of their movement to the left where the parts are again in position, as shown in Fig. 6, with the fingers fully extended above the board 200, ready for the next marking operation. The trigger 218 is attached to a small flat spring 400 adapted to yieldingly hold it 35 down in position to catch the upper end of the pivoted pawl 215. A small spiral spring 401 is also provided to yieldingly hold the upper end of the pivoted pawl 215 to the right (as viewed in Figs. 6 to 9) and its lower end to the left in order to engage the tooth 216.

The following means are provided for 45 chalking the fiber strips 64 on the under surfaces of the marking fingers 61. Under each of the fingers 61 is a piece of chalk 500 suitably supported in a rotatable cup 501. The cups are yieldingly held up by any suitable 50 spring arrangement so that the upper surfaces of the pieces of chalk will come into contact with the fiber strip 64 as the fingers are dragged over the cloth during the marking operation. Means are also provided for 55 rotating the cups so that the wear on the chalk surfaces will be evenly distributed. Such means comprise a toothed wheel 550 on the bottom of each cup adapted to be engaged 60 by a springing lever 600. All of the springing levers 600 are attached to a bar 601 extending lengthwise of the machine and arranged underneath the marking devices. The ends of the bar 601 are turned upwardly 65 as indicated by 610 and are adapted to be struck by the depending arm 300 from the sliding blocks 100 as they approach the end of their travel to the left, (as viewed in Fig. 6). The contact of the arms 300 with the ends 610 of the bar 601 gives the bar a 70 slight movement to the left, as viewed in Fig. 6. This movement moves all of the spring arms 600 out a short distance and their ends in contact with the teeth on the tooth wheels 550 causes a slight rotation of 75 the chalk cups and chalk. The cups rotate with sufficient friction so that as the spring arms 600 go back they will drag over the teeth and not cause reverse rotation. Spiral springs 700 are provided for returning the 80 bar 601 and the spring arms 600 to their normal position.

Means are also provided for disengaging any one of the marking fingers from the 85 operating bar 72. Such means are shown in Figs. 10, 11 and 12. They comprise the two bell cranks 830 and 831 connected by the levers 832 and 833 as shown. The bell crank 830 is pivoted to the hook 71 at 835. The bell crank 830 is also provided with a pin 90 838 extending through a curved slot 839 in a vertical plate 840. A spring 841 is adapted to engage the pin 838 to cause the hook 71 to remain in engagement with the bar 72. Movement of the pin 838 through the slot 95 839, as shown, causes the hook 71 to become disengaged. The parts are shown in this position in Fig. 11. When in this position the spring 841 will hold the pin 838 in the position shown in Fig. 11 and hold the hook 100 71 out of engagement with the bar 72.

In operation, the material to be marked is placed on the board 200 with the edge to be marked adjacent the frames 25. The lazy-tong arrangement is then extended to the 105 length which it is desired to mark. It is obvious that the marking fingers equally space off such length. The operating handle 101 is then operated as described above to lower the marking fingers onto the material, 110 drag them across it causing marks to be made and then again raise them and move them back out over the board 200 ready to mark the next piece of material.

While I have shown and described certain 115 embodiments of my invention, it is to be understood that it is capable of many modifications. Changes therefore in the construction and arrangement may be made without departing from the spirit and scope of the 120 invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible in view of the prior art.

I claim: 125

1. In a marking machine, a plurality of marking devices, means for equally spacing the marking devices through any predetermined distance within the range of the machine, each of the marking devices including 130

a marking finger, a work-supporting table, the marking fingers normally lying to one side of the work-supporting table, and means for simultaneously moving the marking fingers over work supported on the work-supporting table and bringing the same into contact with such work.

2. In a marking machine, a plurality of marking devices, means for equally spacing the marking devices through any predetermined distance within the range of the machine, each of the marking devices including a marking finger, a work-supporting table, and means for simultaneously moving the marking fingers over work supported on the work-supporting table, dropping said marking fingers to contact with the work, and sliding said fingers on the work to mark the same.

3. In a marking machine, a plurality of marking devices, means for equally spacing the marking devices through any predetermined distance within the range of the machine, each of the marking devices including a marking finger, a work-supporting table, means for simultaneously moving the marking fingers over work supported on the work-supporting table, dropping said marking fingers to contact with the work and sliding said fingers on the work to mark the same, and means for chalking the fingers while being withdrawn by such sliding movement.

4. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, and means for equally spacing said guides through any predetermined distance within the range of the machine.

5. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, and means for equally spacing said guides through any predetermined distance within the range of the machine, said means including a series of diagonal levers pivoted together in the middle and at the ends to which said guides are attached.

6. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, a work-supporting table, the marking fingers normally lying to one side of the work-supporting table, means for equally spacing the guides through any predetermined distance within the range of the machine, and means for simultaneously sliding said marking fingers on said guides to bring the said marking fingers into contact with work on the work-supporting table.

7. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, said guides being attached to a lazy-tong arrangement of diagonal levers pivoted together in the middle and at the ends, there being one guide to each pair of pivoted levers.

8. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, said guides being attached to a lazy-tong arrangement of diagonal levers pivoted together in the middle and at the ends, there being one guide to each pair of pivoted levers and said guides being equally spaced on said levers.

9. In a marking machine, a plurality of marking devices, each comprising a marking finger and a guide, said marking finger slidably mounted upon said guide, means for equally spacing the guides through any predetermined distance within the range of the machine, a work-supporting table, the marking fingers normally lying to one side of the work-supporting table, and means for simultaneously sliding said marking fingers in said guides to extend the same over work supported on the work-supporting table and lower the same into contact with such work.

In witness whereof, I have hereunto set my hand and affixed my seal this 10 day of March, 1921.

EMIL T. BENSON. [L. s.]