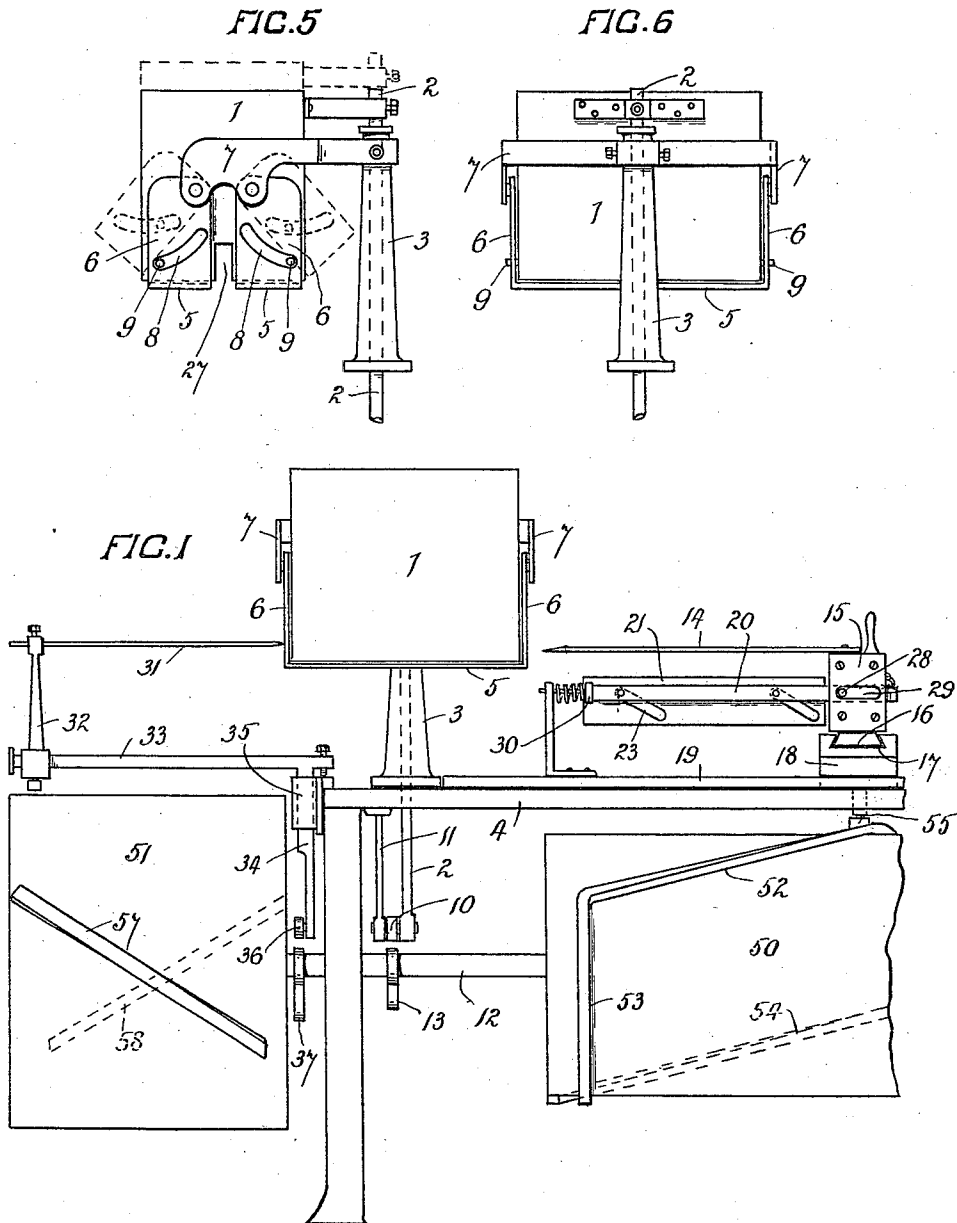


S. G. ROSEMAN.
BRUSH MAKING MACHINERY.
APPLICATION FILED OCT. 25, 1911.

1,045,325.

Patented Nov. 26, 1912.

3 SHEETS—SHEET 1.



WITNESSES
John H. Stoving.
Wm. H. Derrigan

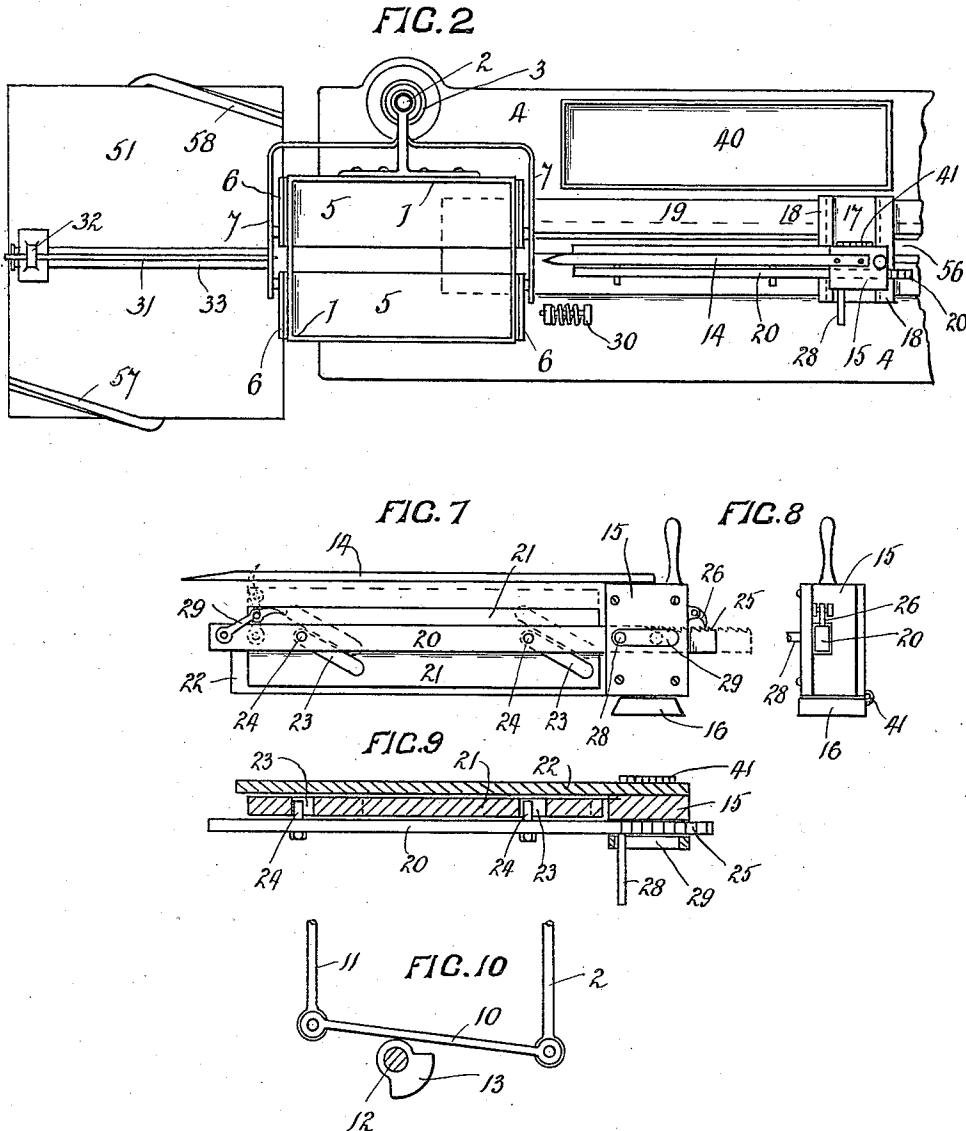
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WITNESSES
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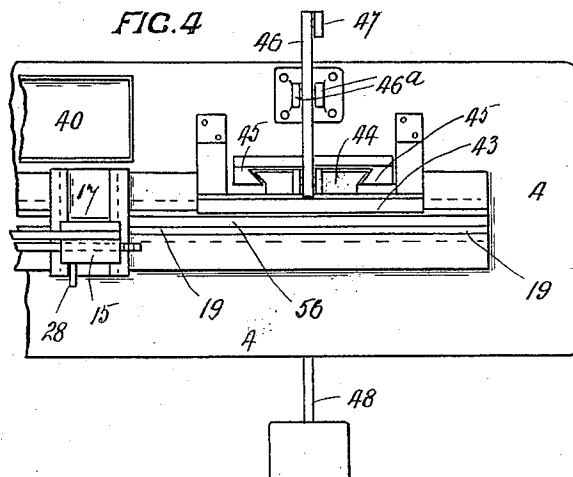
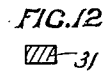
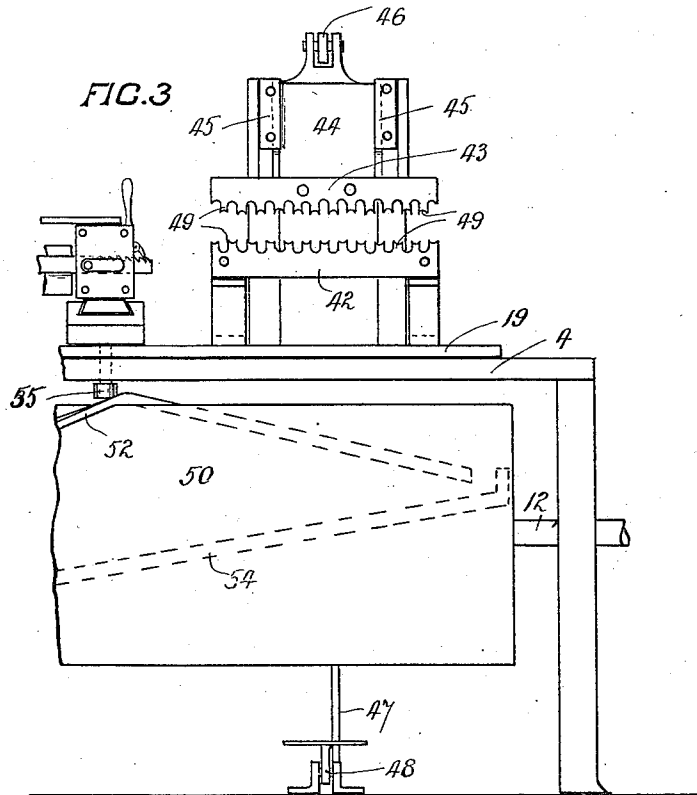
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3 SHEETS—SHEET 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

SAMUEL GEORGE ROSEMAN, OF POINT CHEVALIER, AUCKLAND, NEW ZEALAND.

BRUSH-MAKING MACHINERY.

1,045,325.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed October 25, 1911. Serial No. 656,624.

To all whom it may concern:

Be it known that I, SAMUEL GEORGE ROSEMAN, subject of the King of Great Britain, residing at Point Chevalier, Auckland, in the Dominion of New Zealand, have invented new and useful Improvements in Brush-Making Machinery; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention has been devised with the object of providing a machine by means of which the fiber used in the manufacture of brooms and brushes may be formed into the usual bunches used for insertion into the broom heads or stocks to make the broom or brush.

The machine designed provides for the fiber being first separated from a mass thereof in a uniform layer for one end of such layer being treated with a cement by means of which the ends of the fiber may be caused to adhere together, and then for the layer having its cement treated ends subjected to the operation of squeezing jaws by which the layer is divided into separate bunches of the desired size.

In fully describing the invention reference will be made to the accompanying drawings, in which:—

Figure 1 is a front elevation of the left hand portion of the machine. Fig. 2 is a plan thereof. Fig. 3 is a front elevation of the right hand portion of the machine. Fig. 4 is a plan thereof. Figs. 5 and 6 are end and back elevations respectively of the magazine for retaining the mass of fiber. Fig. 7 is a side elevation. Fig. 8 an end elevation, and Fig. 9 a sectional plan of the means for parting off and removing a layer of fiber from the magazine. Figs. 10, 11 and 12 are detail views that will be afterwards explained.

In carrying out the invention the magazine 1 for holding the fiber is mounted upon a pillar 2 arranged to slide up and down within a standard 3 fixed upon the table 4. This magazine is formed as a box the width of which is made to approximate to the length of the fiber so that the fiber may be laid lengthwise across within the box. The bottom 5 of the box is divided into two halves and these halves are attached to side pieces 6 pivotally hung upon the brackets 7 extending forwardly from the standard 3 and overlapping the side pieces 6. These

side pieces extend up outside the ends of the box and each one is formed with the curved groove 8 therein extending upward and inward toward the center. Small pegs 9 are fixed to the magazine and project out through the respective grooves. When therefore the magazine is raised by elevating the pillar 2, these pegs 9 engaging with the curved slots 8 will cause the side pieces to swing outward, carrying with them the bottom halves 5 and thus uncovering the bottom of the magazine, as indicated by the dotted lines in Fig. 5. When the magazine is lowered again, the bottom halves 5 will be caused to swing in beneath the magazine. The magazine is adapted to be lifted in this manner by means of the appliances shown in Figs. 1 and 10. The bottom of the pillar 2 is carried through the table 4 and is attached to one end of a connecting bar 10, the other end of which is articulated to a bracket 11 depending from the table 4. The main power shaft 12 of the machine extends across beneath this bar 10 and upon it is fixed the cam 13 which, as the shaft is rotated, engages with the bar 10 to lift it and thus to elevate the pillar 2, and then to drop it and allow the pillar to drop back again.

The means for dividing off a layer of the fiber contained within the magazine consist in a needle 14 that is made of sufficient length to extend across the full length of the magazine and is secured at one end upon a block 15. This block is attached to a slide block 16 mounted in a slide 17 formed in a slide head 18 and extending transversely across the table 4 and which slide head is itself mounted in a slide 19 extending longitudinally along the top of the table 4. The block 15 is thus with its slide block 16, adapted to move transversely across the table in the slide 17 and with the slide head 18 is adapted to be moved longitudinally to and fro along the table.

Fitting within the front of the block 15 is a long flat bar 20 which at its outer end passes freely through a bearing formed in the block and is made capable of longitudinal sliding movement therein. Arranged beneath the needle 14 is the clamping plate 21. This plate fits against the back face of the bar 20 and is retained in position by means of the plate 22 extending from the block 15. The clamping plate 21 is formed

with the inclined slots 23 arranged to extend at an angle down its face, and pins 24 are fixed to the bar 20 and pass into these respective slots. The movement of the bar 5 in an outward direction will thus cause the pins 24 to engage with the inclined faces of these slots and thereby to elevate the plate 21 in the manner shown by the dotted lines in Fig. 7.

10 The top surface of the outer end of the bar 20 is formed with the ratchet teeth 25 and a pawl 26 is pivoted to the outer face of the block 15 and engages with these teeth. When therefore the bar is moved along to 15 elevate the plate 21, it will be retained in the position to which it moves by means of this pawl and the plate 21 will thus be retained in the elevated position beneath the needle 14. By lifting the pawl, the bar will be 20 freed, when the weight of the plate 21 will cause it to fall and draw the bar 20 back to its original position.

The needle 14 is so adjusted in its height and position that when the block 15 is moved 25 along the table in toward the magazine, the needle will pass in through an opening 27 made in the middle of the end of the magazine at a height from the bottom thereof equal to the layer of fiber to be divided 30 off, and when thus it has been moved in, such layer divided off from the mass resting upon the bottom 5, by the needle, is adapted to be clamped between the needle and the clamping plate 21 by causing such 35 clamping plate to rise. This rise is therefore adjusted to take place when the needle has been moved right in and is caused by providing the bar 20 with a long pin 28 projecting from its front face and out through 40 the slot 29 made in the block 15, and by arranging a spring stop 30 on the table in the line with the movement of this pin as the block 15 moves into the magazine. This pin therefore, when the block reaches the end of 45 its travel, will engage with the stop 30 and by this engagement the bar 20 will be pushed back relatively to the block 15 in order to elevate the clamping plate.

Situated upon the reverse end of the 50 magazine to that upon which the dividing needle is placed, is the retaining needle 31. This retaining needle is made of sufficient length to extend across the full length of the magazine and it is supported at its outer 55 end in a standard 32 mounted to slide to and fro on a bar 33 extending longitudinally with the table 4. This bar 33 is fixed to a vertical bar 34 carried in a guide bearing 35 fixed on the table end. The lower end of the 60 vertical bar is provided with a small roller 36 with which the cam 37 fixed on the power shaft 12 is adapted to engage. This cam as the shaft rotates will therefore raise the bar 33 and needle 31 and the distance 65 through which it is raised and the time of

its raising is arranged to synchronize with the distance and time of raising the magazine by the elevation of the pillar 2.

The normal lowered position of the needle 31 is so adjusted that it shall be just above 70 the level of the dividing needle 14 in order that when the dividing needle has been moved in to the magazine to divide off a layer of the fiber from the bottom, and the retaining needle 31 is then moved in to the 75 magazine by sliding its pillar 32 in along the bar 33, such retaining needle will slide along the top of the dividing needle and thus lie between it and the mass of fiber above. In order to provide against any 80 fiber lying or becoming entangled between the two needles, the needles are preferably made of the cross sectional shapes shown in Figs. 11 and 12. In these the dividing needle 85 (Fig. 11) is made with a groove 38 extending along its upper face and the needle 31 is made to pass into such groove.

In the operation of the machine, the dividing needle is first moved into the maga- 90 zine and a layer of fiber in the bottom of the mass of fiber clamped between it and the clamping plate. The needle 31 is then moved in so as to underlie the main mass of fiber. The magazine and this needle are 95 then elevated simultaneously and the bottom of the magazine opened out in the manner described. The layer held in the clamp is thus freed so that it may be moved along 100 the table in the clamp by sliding the block 15 back.

In order to prevent any likelihood of the fiber held in the clamp being drawn out from the inner end thereof, the small retaining 105 finger 29 (Fig. 7) is used. This finger is pivotally connected both to the clamping plate 21 and bar 20 and in the normal condition thereof will lie below the level of the clamping plate top. When the plate is 110 raised, the finger will be caused to turn up and to extend up across the space between the plate and the needle in the manner shown by the dotted lines.

A pan 40 adapted to contain the pitch or cement for treating the fiber ends is fixed 115 on the table 4 at the back of the needle block 15. This block is hinged to its slide 16 as at 41, in such a manner that it may be turned over in a rearward direction. When therefore the layer has been removed and is held in the clamp, the block may be moved 120 back in the slide 17 and then turned over and one end of the layer caused to dip into the pitch or cement so as to be saturated thereby. The clamp may then be restored to its original position. 125

At the reverse end of the table to the magazine, are situated the bunching jaws 130 (Figs. 3 and 4). These consist of a pair of jaws 42 and 43 arranged one above the other longitudinally along the table. The lower

jaw 42 is fixed while the upper jaw is fixed on a plate 44 mounted in vertical slides 45 supported on the table. These jaws are retained normally apart, as shown in Fig. 3 but the upper jaw is adapted to be lowered on to the lower jaw by means of the rocking beam 46 mounted in the bearings 46^a, attached at one end to the plate 44 and at its other end connected by means of the connecting rod 47 with the foot lever 48. By depressing this lever, the jaw 43 will be lowered and on releasing the lever, it will be raised again. Each jaw is formed with the teeth 49 shown and having semi-circular depressions in their outer ends and at the inner ends of the spaces between them. The teeth on the one jaw are so disposed as to pass between those on the other and thereby when the jaws are closed together, to form a number of circular apertures. Consequently when one end of the fiber layer is arranged between the jaws, and the jaws are closed, such layer will be divided off into a number of separate bunches equaling in number the number of teeth in each of the jaws. The jaws are arranged so that after the layer has been dipped in the cement pan 40, and the clamp moved along the table, the treated end of the layer will pass between the open jaws, and thus when the jaws close, the bunches formed will be squeezed tightly together so that the cement will cause the fibers composing them to adhere firmly together in the manner desired. After the bunches have been thus formed, they may be released from the clamp by dropping the clamping plate 21 in the manner already described.

The means for sliding the clamp and the retaining needle shown in the drawings consist respectively in a drum 50 mounted beneath the table upon the power shaft 12 and the drum 51 also mounted on the power shaft beneath the bar 33. The drum 50 is provided with the cam plates 52, 53 and 54 fixed on its periphery and so positioned and arranged that they will engage with a lug 55 depending from the slide head 18 and passing through the slot 56 that extends along the slide 19. These cam plates are so arranged that the plate 52, as the drum rotates, will first engage with this lug and force it and the slide head along the slide toward the magazine to cause the needle 14 to pass into it, the plate 53 will then retain it in such position while the magazine is being raised clear of the clamp, and the plate 54 will then engage with the lug and will carry the slide head back to the other end of the table again.

The drum 51 is provided with the cam plates 57 and 58 adapted to engage with the pillar 32 and one of which, as the drum rotates will carry such pillar in along the bar, while the other will move it back again.

These various cam plates for operating the clamp and retaining needles and the cams for controlling the raising and lowering of the magazine and the needle 31 are so arranged in regard to each other that for each complete rotation of the shaft 12, the sequence of operations will be as follows. The clamp will first be moved from the right hand end of the table into the magazine, the retaining needle will then be moved in, the magazine and retaining needle raised and held raised, while the clamp travels back sufficiently far to clear the magazine when the magazine and retaining needle will be dropped, the clamp will then continue its travel to the right hand end of the machine and the retaining needle will be moved out from the magazine.

In this specification the term "fiber" has been used in its general sense and must be taken to represent also hair or other of the well known materials used in a similar manner in brush and broom making.

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

1. In brush making machinery, means for use in bunching fiber and the like, consisting in a box or magazine adapted to hold the fiber, and having a shifting bottom, a slide head, a dividing needle on the slide head adapted to be moved through the box above the box bottom and to divide a layer of fiber from the bottom of the fiber, a clamping plate carried on the slide head and adapted to be raised to clamp the fiber layer between it and the dividing needle, a retaining needle adapted to be moved in along the magazine above the dividing needle, and means for raising the magazine and retaining needle together and for shifting the bottom of the magazine.

2. In brush making machinery, means for use in bunching fiber and the like, the same consisting of a magazine adapted to have the fiber laid transversely therein, a vertically moving pillar upon which the magazine is mounted, a bottom for the magazine divided longitudinally into halves, means whereby the raising of the magazine will cause the bottom halves to turn out from beneath it, a slide arranged longitudinally beneath the magazine, a slide head mounted therein, a dividing needle mounted on the slide head and extending longitudinally with the magazine, means for moving such slide head to cause the dividing needle to pass into one end of the magazine and to extend across its length, a standard mounted upon a slide bar on the reverse side of the magazine, a retaining needle secured upon such standard and adapted to be moved in across the magazine above the dividing needle, and means whereby the retaining needle and the magazine may be raised together, substantially as specified.

3. In means for use in bunching fibers, a magazine for holding the fiber, a vertically sliding pillar upon which the magazine is secured, a bottom for the magazine divided
5 longitudinally into halves, side pieces to which the halves are respectively attached and extending up the outside of the magazine ends, and formed with curved slots therein, fixed brackets arranged adjacent to
10 the magazine ends upon which such side pieces are pivotally suspended, pins extending from the magazine ends and entering the curved slots and means for elevating the pillar, substantially as and for the purposes
15 herein specified.

4. In means for use in bunching fibers, the combination with a magazine adapted to hold the fiber, of a slide head mounted to move beneath the magazine, a dividing
20 needle adapted to enter one end of the magazine and to extend across its length, secured upon the slide head, a clamping plate arranged beneath the needle and formed with inclined slots therein, a bar mounted in
25 front of such plate and capable of longitudinal sliding movement in the slide head, pins upon the bar extending into the inclined slots in the clamping plate and sup-

porting such plate and means whereby the bar may be moved in the slide head when 30 the dividing needle enters the magazine, substantially as and for the purposes herein specified.

5. In means for use in bunching fibers the combination with a magazine secured upon a 35 vertically moving pillar, and a dividing needle adapted to enter one end of the magazine and a clamping plate adapted to be raised, of a retaining needle, a vertical
40 standard to which the retaining needle is secured, a bar extending longitudinally with the magazine upon which the standard is mounted to slide in order to cause the needle
45 to enter the opposite end of the magazine above the dividing needle, and means whereby the slide bar and the pillar carrying the magazine may be raised together
through the same distance, substantially as and for the purposes herein specified.

In testimony whereof, I have signed this 50 specification in the presence of two subscribing witnesses.

SAMUEL GEORGE ROSEMAN.

Witnesses:

W. ALEXANDER,

M. E. BROWN.