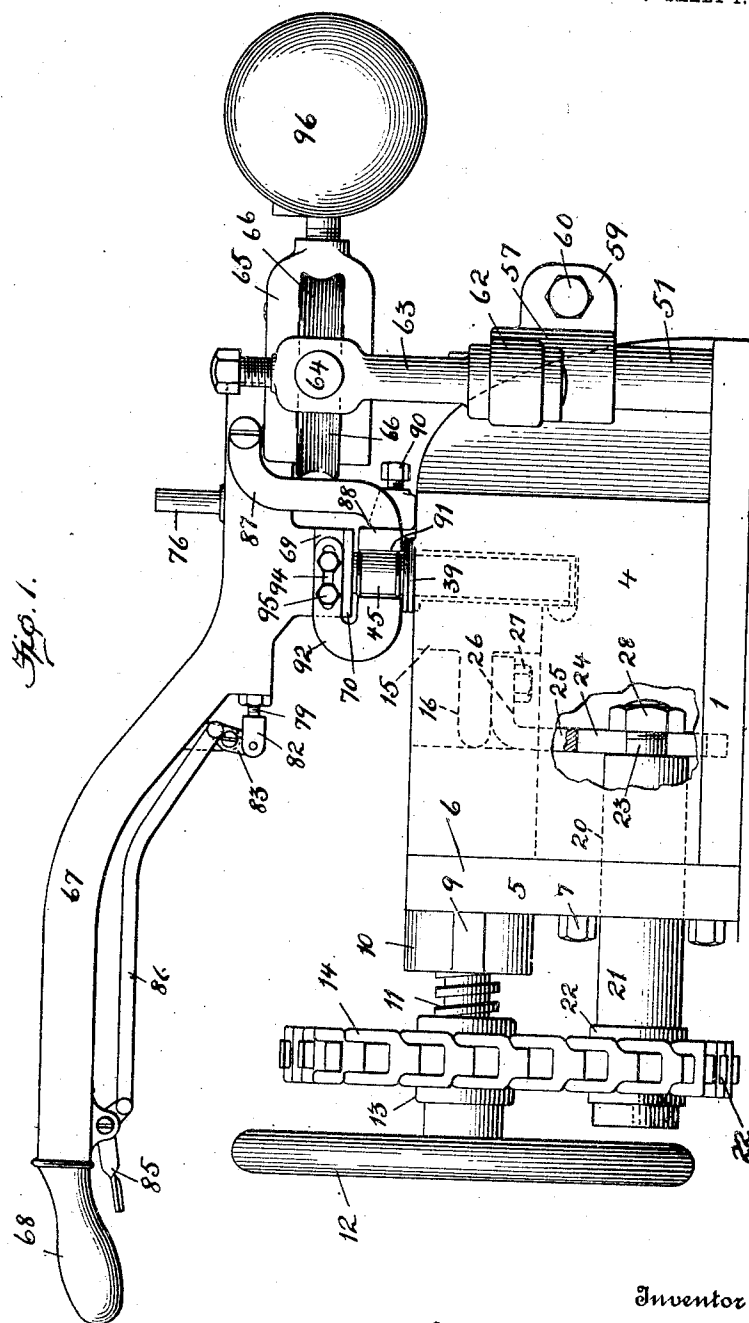


H. P. McMILLAN.
MACHINE FOR CEMENTING BRUSH BRISTLES.
APPLICATION FILED APR. 20, 1912.

1,037,830.

Patented Sept. 3, 1912.
4 SHEETS—SHEET 1.



Witnesses

Edwin L. Bradford
H. Furd. Vogt

Inventor

Hugh P. McMILLAN

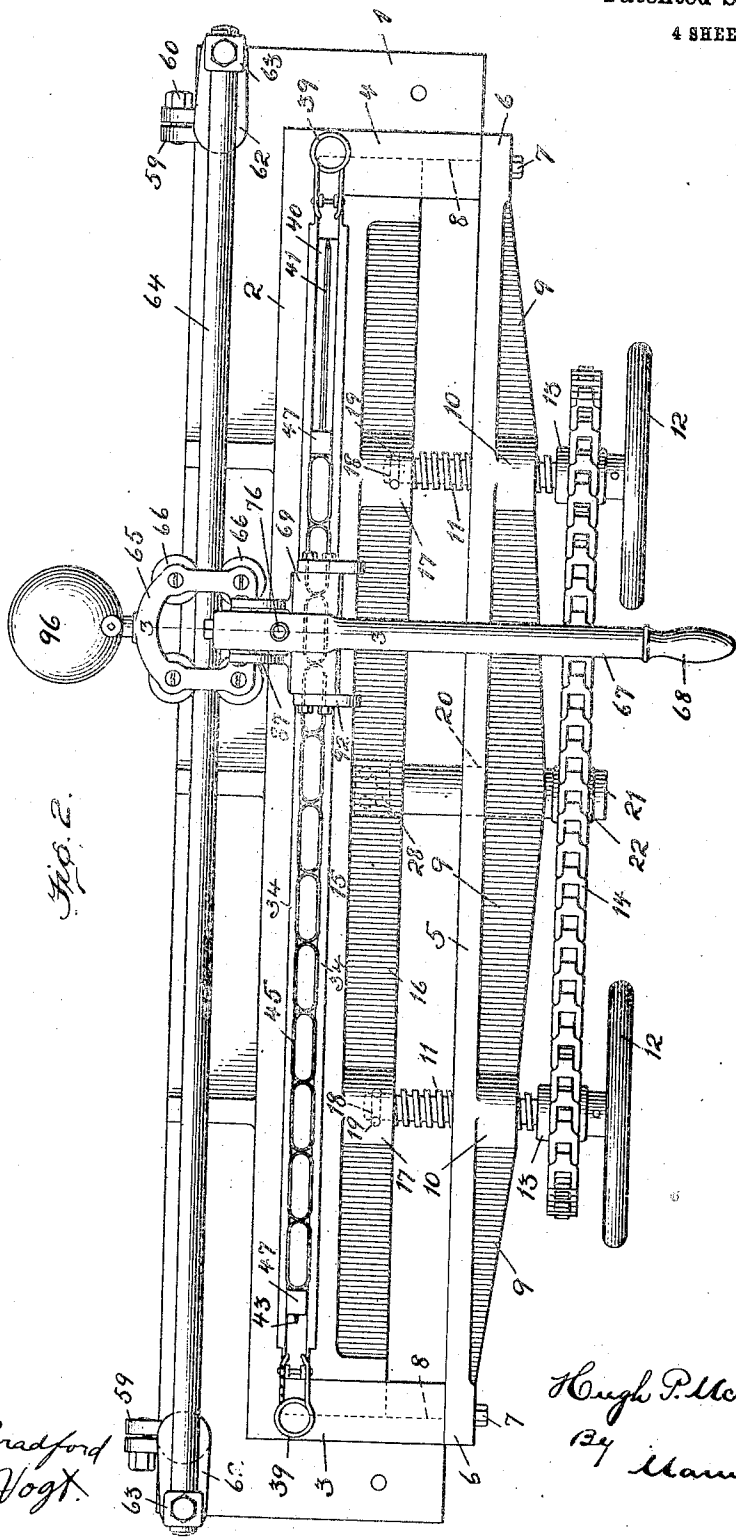
Mann & Co.

Attorneys

H. P. McWILLAN.
MACHINE FOR CEMENTING BRUSH BRISTLES.
APPLICATION FILED APR. 20, 1912.

1,037,830.

Patented Sept. 3, 1912.
4 SHEETS—SHEET 2.



Witnesses
Edwin L. Bradford
G. Ferd. Vogt.

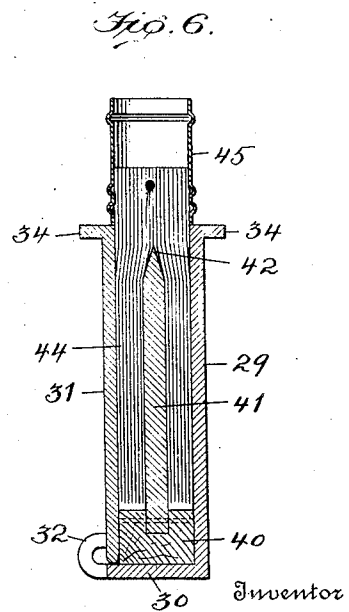
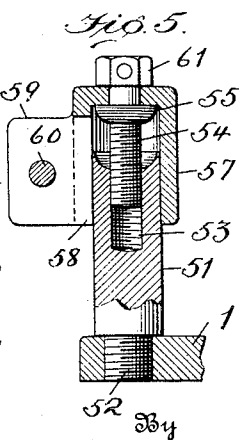
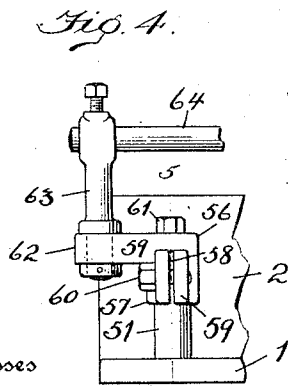
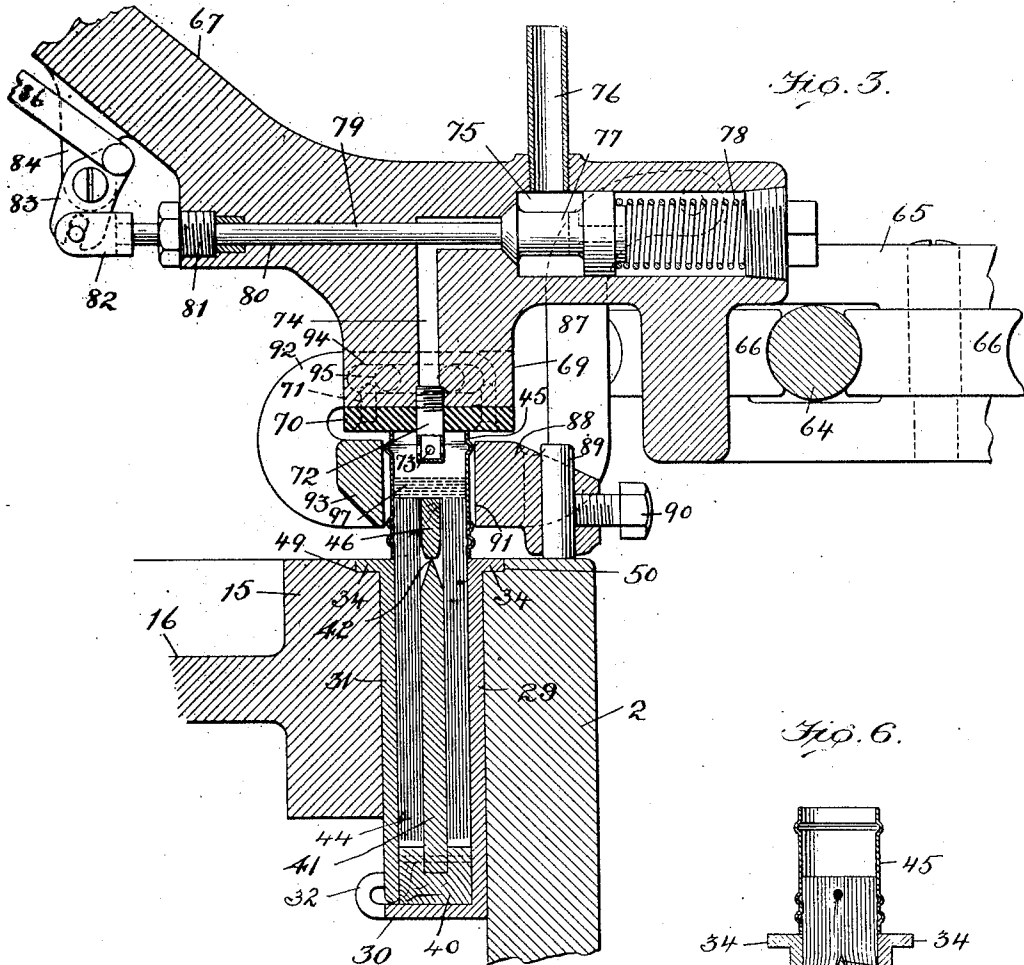
Inventor
Hugh P. McWillan
By Mann & Co.,
Attorneys.

H. P. McMILLAN,
MACHINE FOR CEMENTING BRUSH BRISTLES.
APPLICATION FILED APR. 20, 1912.

1,037,830.

Patented Sept. 3, 1912.

4 SHEETS—SHEET 3.



Witnesses

Edwin L. Bradford
& Ferd. Vogt

Hugh P. McMillan
Mann & Co.

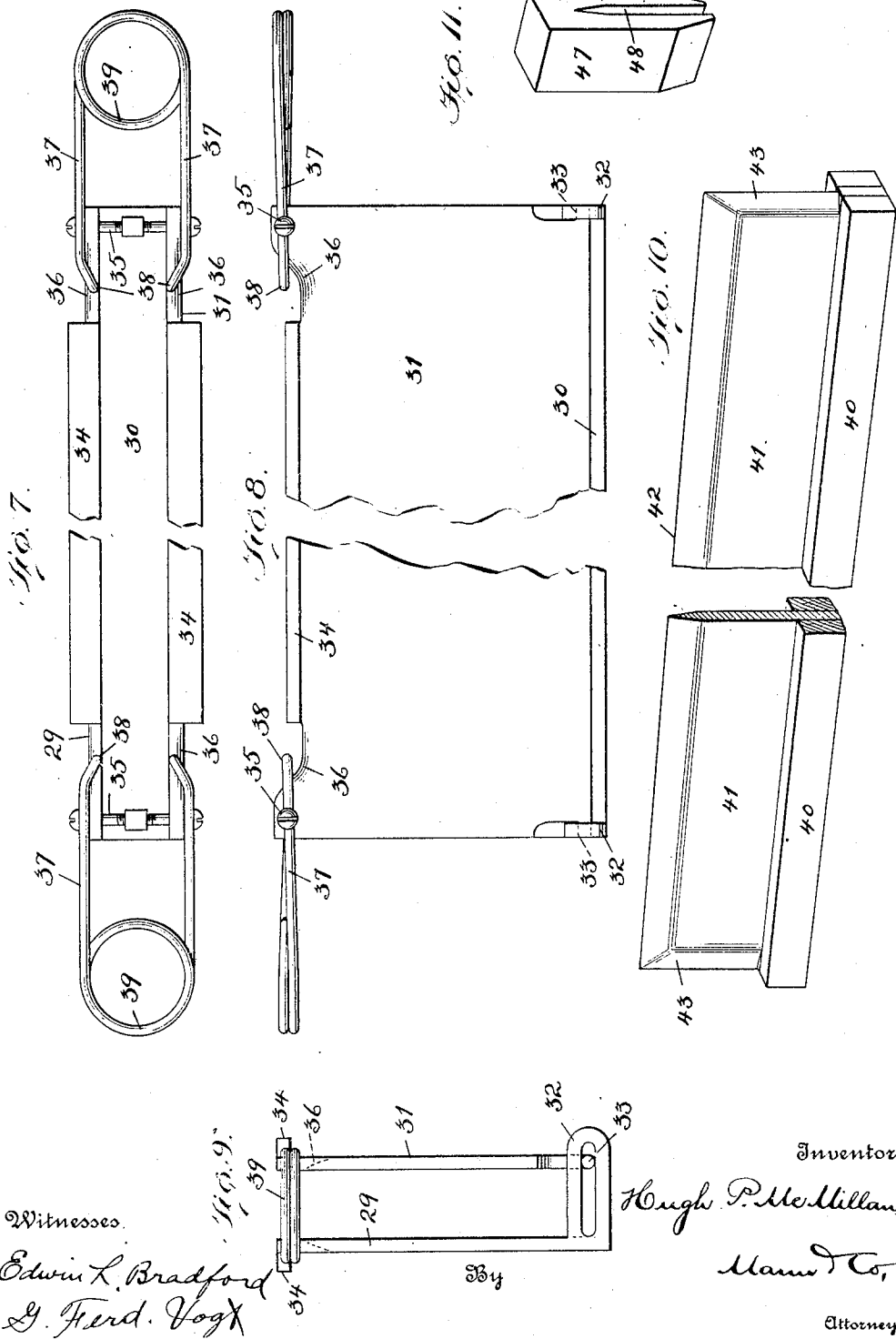
Attorneys.

H. P. McMILLAN.
MACHINE FOR CEMENTING BRUSH BRISTLES.
APPLICATION FILED APR. 20, 1912.

1,037,830.

Patented Sept. 3, 1912.

4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

HUGH P. McMILLAN, OF BALTIMORE, MARYLAND, ASSIGNOR TO WILLIAM A. TOTTLE AND MORTON P. TOTTLE, OF BALTIMORE, MARYLAND, COMPOSING THE FIRM OF WM. A. TOTTLE & CO.

MACHINE FOR CEMENTING BRUSH-BRISTLES.

1,037,830.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed April 20, 1912. Serial No. 692,210.

To all whom it may concern:

Be it known that I, HUGH P. McMILLAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have
 5 invented certain new and useful Improvements in Machines for Cementing Brush-Bristles, of which the following is a specification.

This invention relates to an improved machine for applying cement under pressure to bunches of brush bristles to cement them together.

In carrying out the invention the machine shown is designed to sustain the work, which
 15 may consist of a plurality of articles, with that portion exposed to which the cement is to be applied, and to provide a nozzle which may be moved or advanced at will whereby the entire exposed surface or plurality of surfaces may be subjected to a blast whereby to force the cement into the work in a simple and expeditious manner.

The invention also contemplates the use in some instances of an improved workholder in which the work is set up and then
 25 bodily placed in the machine whereby to enable the cementing to be accomplished rapidly and with certainty.

With these general objects in view and other objects and advantages as will hereinafter be pointed out the invention is illustrated in the accompanying drawings, wherein,

Figure 1, shows an end elevation of a machine embodying the features of the invention. Fig. 2, is a top plan view of the same. Fig. 3, is an enlarged vertical cross-section through the machine as if taken on the line 3—3 of Fig. 2. Fig. 4, shows a
 40 detail of the one of the adjustable brackets for supporting the end of rod which carries the nozzle-carriage. Fig. 5, is an enlarged vertical section through the same,—the section being taken on the line 5—5 of Fig. 4.
 45 Fig. 6, shows an enlarged vertical section through the work holder showing a piece of work in place therein. Figs. 7, 8 and 9 are respectively a top plan, a side elevation and an end elevation of the work holder.
 50 Fig. 10, shows a perspective detail, broken away at the intermediate portion of a sup-

porting blade to be used for sustaining certain classes of work in the holder, and Fig. 11, is a detail perspective view of a block for holding the work at the ends when the
 55 latter is in the work holder.

In the drawing the numeral, 1, designates a bed or base plate which in the present instance is of a general rectangular shape, and from which there projects vertically an inclosure frame which comprises a comparatively long wall, 2, extending longitudinally on the base plate and two rigid end walls, 3, and, 4, respectively which extend at right angles to and from opposite ends of the
 65 said wall, 2. A detachable front plate, 5, has its lower edge against the base plate and its ends, 6, are seated against the vertical front edges of the end walls, 3, and, 4, and said plate extends vertically and forms
 70 a front wall of the inclosure frame. Suitable screws or bolts, 7, serve to rigidly secure the front plate, 5, in place against the end walls, 3, and, 4. The end walls, 3, and, 4, are provided with suitable horizontal
 75 guideways, 8, shown in broken lines in Fig. 2, for a purpose presently to be described.

The front plate, 5, is provided with a web, 9, which extends horizontally between the opposite ends thereof and said web is provided with enlargements, 10, which form
 80 bearings that extend from the front to the rear thereof. These bearings or enlargements, 10, are screw-threaded internally so that screw posts, 11, may extend there-
 85 through and be made to travel longitudinally therein when said posts are turned. For convenience in turning the posts the latter are provided on their outer ends with hand wheels, 12, and suitable sprocket
 90 wheels, 13, are rigidly attached to the posts in order that they may turn with the same and carry a sprocket chain, 14, which extends from one sprocket to the other in order that both sprockets may be given a
 95 like rotation by the operation of turning one or the other of said hand wheels. This arrangement insures that the longitudinal movement of the posts through the bearings, 10, will be alike and to the same extent.
 100

A clamping plate, 15, is located in the inclosure between the wall 2, and plate, 5,

and in the present instance this plate extends horizontally from end wall, 3, to end wall, 4, so that its ends may be guided by said two end walls. This clamping plate has a horizontal web or flange, 16, substantially midway, in the present instance, between its upper and lower surfaces and at each side of the center, and between the center and each end, said web or flange, 16, is provided with enlargements, 17, in which sockets are formed. These sockets are so placed that the inner ends of the screw posts, 11, may enter therein. The post-ends that enter the sockets are smooth circumferentially and are free of screw threads and the smooth end has a circumferential groove, 18, so that suitable keys or pins, 19, may be passed through the enlargements, 17, and have a portion of their circumferential surfaces project into the groove, 18, whereby to secure the clamping plate and posts together but allow rotation of the posts in the sockets. It will thus be obvious that by turning the posts, the latter will travel longitudinally through the bearings, 10, and move the clamping plate, 15, toward or from the front plate, 5.

It is desirable that some means be provided to enable the slack in the sprocket chain, 14, to be taken up, and to provide for this adjustment, the front plate, 5, has a bearing opening, 20, extending therethrough, as shown in broken lines in Figs. 1 and 2, of the drawings so that a post or stem, 21, may extend horizontally therethrough. This post or stem carries an idler, 22, which in the present instance has the form of a sprocket wheel which has position between the lower and upper stretches of the chain, 14, so that the lower stretch of said chain may be engaged by the idler to keep the chain taut. As the screw posts, 11, travel horizontally when they are revolved, the sprockets, 13, carried thereon, and the chain, 14, will also move in or out with the screws. It is therefore necessary to provide some means to enable the idler, 22, to move in or out with the chain and posts, 11, so as to maintain the idler and sprockets in alignment. By referring to Fig. 1, it will be seen that the inner end of the stem, 21, has a reduced pin-end, 23, that projects through a vertical slot, 24, in a depending bracket, 25. This bracket has a laterally-turned upper end, 26, which is secured by means of screws, 27, to the under side of the web, 16, of the clamping plate, 15, so the bracket will hang pendantly from the web. A nut, 28, engages the reduced pin-end, 23, of the stem and by binding against the walls of the bracket slot, 24, rigidly secures the stem in the adjusted position. A suitable opening in the bed plate, 1, allows the lower end of the bracket to move back and forth with the clamping plate.

The work to which the cement is to be applied is to be clamped indirectly by the plate, 15, and in the case of cementing bristles in brushes it is desirable, in order that the work may be handled expeditiously and rapidly, to first set up the work in a holder and then place the holder with a number of brush structures in the machine where the cementing operation may be conducted on the several brush structures successively.

The detailed construction of the holder is best illustrated in Figs. 6 to 10 inclusive of the drawings, to which reference will now be made.

The holder has a stationary vertical wall, 29, a bottom, 30, and a movable wall, 31. In the present instance the bottom and stationary wall are formed integrally and a slotted arm, 32, extends toward the movable wall, 31, so as to form a support for suitable pins, 33, that project from the said movable wall into the slot. The slotted arms and pins are preferably located adjacent to the bottom of the holder so the movable wall will swing from its lower edge. At the upper edges, each of walls, 29, and, 31, is provided with a lateral outwardly-extending flange, 34, for a purpose presently to be explained and at opposite ends said walls are loosely connected by a bolt, 35, which limits the movement of one wall with respect to the other in a direction away from each other, but allows the walls to be drawn toward each other.

Between the flanges and the ends the upper edges of the walls 29, and, 31, are provided with inclined, beveled or cam surfaces 36, and suitable spring clips have two arms, 37, which are pivotally connected to the walls, 29, and, 31, by means of the bolts, 35, and each arm has an intumed-end, 38, which coacts with the surface, 36, to force the walls inwardly. A coil 39, is provided in the clip to give the necessary spring pressure to the arms.

For convenience in maintaining brushes in an upright position in the holder there is provided a blade-strip, 40, which seats flat on the bottom, 30, of the holder and said strip carries a vertically-projecting blade, 41, which has a beveled horizontal upper edge, 42, and beveled vertical ends, 43. This blade has a substantially central position between the walls, 29, and, 31, of the holder and the beveled edges enable the brush bristles to be readily divided by merely passing the flag-ends or free ends thereof across said beveled edges.

When the brushes are placed in the holder the bristles, 44, are preferably encircled at their butt-ends with a ferrule, 45, and in some instances a plug, 46, is provided at the center of said butt-ends of the bristles. When the brushes in this unsecured but partially assembled condition are placed in the

holder the walls, 29, and, 31, of the latter are in a spread-apart condition to permit the ready insertion of the brush-bristles. At this time the spring arms, 37, and ends, 38, thereof will have the position shown in Figs. 7, 8, and 9 of the drawings and after the brushes are in place, suitable elastic end blocks, 47, having vertical slots, 48, are forced down over the blade, 41, as shown in Fig. 2, and serve to sustain the brushes at opposite ends of the row. After the brushes have been placed in the holder, — one or more holders being filled while another holder is in the machine for cementing, as will presently be explained, the spring arms, 37, are turned on the bolts, 35, — the ends, 38, thus being forced down over the inclined, beveled or cam surfaces, 36, and the walls, 29, and, 31, are thereby moved toward each other to temporarily lock the bristles between said walls. This operation results in the coiled ends, 39, of the spring clamps turning upwardly and they thus serve as loops or hand-grasps by which the holder may readily be lifted.

The holders with the brushes therein are lifted into the machine and to do this with precision and insure best results, the upper edge of the clamping bar, 15, and the upper edge of wall, 2, are provided with recesses, 49, and, 50, respectively which receive the flanges, 34, on the walls 29, and, 31, of the holder, as best shown in Fig. 3, of the drawing. After the holders are in place one or the other of the hand wheels, 12, is grasped by the operator and turned so as to move the clamping plate, 15, against the movable wall, 31, of the holder and by moving said wall clamp, the bristles in the holder. By providing the beveled upper edge, 42, on the blade, 41, the pressure on the bristles will be gradually reduced from the beveled portion up to the butt-ends which is desirable in the cementing as will presently appear.

The devices for forcing the cement into the bristles will now be explained, reference being made particularly to Figs. 1 to 5; inclusive of the drawings.

A post, 51, has a screw-threaded lower end, 52, see particularly Fig. 5, which screws into the bed plate, 1, and in the present instance two of these posts are provided so that one of them may be located near one end and the other adjacent to the other end of said bed plate. Each post has a screw-threaded socket, 53, in its upper end and a threaded bolt, 54, enters said socket and has an annular rigid collar, 55, thereon which has position above the upper end of the said post.

A bracket 56, has a tubular socket, 57, which fits down over the upper end of post, 51, and one side of the socket is provided with a vertical slot, 58, from the opposite sides of which clamping lugs, 59, project.

A bolt, 60, passes through the lugs, 59, and may be turned so as to draw the lugs toward each other, thus binding or clamping the socket about the post to hold it rigidly thereon. An opening is provided in the upper end of the socket 57, so as to allow the bolt, 54, to project therethrough and a head, 61, is keyed, or otherwise secured, on the end of the bolt and at the upper side of the tubular socket, as shown in Fig. 5. The construction just described enables the tubular socket and bracket to be vertically adjusted on the post, 51, by simply turning the bolt, 54, after which the bolt, 60, may be tightened to lock the socket in the adjusted position.

The bracket, 56, has a horizontally-projecting arm, 62, which sustains a vertical post, 63, and as two of these posts are provided, — one at each end of the bed-plate, 1, as shown in Fig. 2, they will together form a support for a horizontal rod or bar, 64, which extends from one post to the other and in an elevated position above the wall, 2, of the framed inclosure.

A carriage, 65, is provided with two sets of rollers, 66, which are shaped to conform to the circumference of the rod, 64, so as to engage the latter and enable the carriage to be readily moved along the rod. This carriage has an arm, 67, extending over the work holder and also over the clamping plate, 15, and its outer end terminates in a handle, 68, which is readily accessible to the operator.

The arm, 67, has a horizontal extension, 69, or equivalent device, on its under side to which a sealing material, 70, such as rubber is attached. In the present instance this sealing material has the form of a block and is secured to the bottom surface of the extension, 69, by means of screws, 71, as shown in broken lines in Fig. 3.

An air nozzle, 72, passes through the sealing material, 70, and is screwed into the bottom side of the extension, 69. The lower end of this nozzle is provided with air outlet ports, 73, and the upper end of the nozzle communicates with a passage, 74, which extends through the arm and opens into a chamber, 75, which is supplied with air under pressure by means of a pipe or tube, 76, to which latter a flexible tube (not shown) connects.

A valve, 77, is located in the chamber, 75, and seats against the end of passage, 74, so as to normally prevent the air passing from tube 76, through chamber, 75, and into passage, 74. A spring, 78, presses against one end of the valve, 77, and keeps it seated. The valve, 77, is provided with a stem, 79, which extends along the passage, 74, then passes through a bearing, 80, in the arm and finally out through a stuffing box, 81. The outer end of this stem is provided with

a head, 82, so that a lever, 83, which is pivotally sustained by a lug, 84, on the bottom of the arm, may engage the said head to move the same inwardly against the action of the spring, 78, and thus unseat valve, 77, and allow air to pass through passage, 74, to the nozzle.

An actuating lever, 85, is pivotally carried on the arm, 67, in close proximity to the handle, 68, and a link-bar, 86, connects the said lever, 85, with the lever, 83, so that by moving the lever, 85, with the fingers, the operator may actuate the valve, 77, and allow air to pass to the nozzle. Obviously, upon releasing the lever, 85, the valve, 77, will be seated by the spring, 78, and the air thus cut off.

The arm, 67, pivotally sustains the upper ends of two pendant arms, 87,—one at each side thereof, and the lower ends of these pendant arms carry a horizontal bar, 88, which has position over the upper surface of frame wall, 2, and to one side of the ferrules, 45, which bind the root-ends of the bristles. This bar, 88, has a vertical passage therein in which a vertical pin, 89, is inserted and said pin is adjustably secured in said passage by means of set bolt, 90, which passes through the bar and binds against the pin. By vertically adjusting the pin, 89, the front vertical surface, 91, of the bar may be made to take a position close to but slightly spaced from the side of the ferrule, 45, as best illustrated in Figs. 1 and 3, for a purpose which will presently be explained.

The extension, 69, which is carried by and extends horizontally beneath the arm, 67, sustains at each end an arm, 92, and said arms, 92, curve downwardly below the sealing material, 70, and carry a horizontal plate 93. The arms each have a horizontal slot, 94, so that set screws, 95, may be passed therethrough into the ends of the extension, 69, and thereby provide for an adjustment of said arms, 92, and plate, 93, whereby the latter may be moved toward or from the wall of the ferrule, 45. After an adjustment of the arms, 92, and plate, 93, has been made the same are rigidly secured in the adjusted position and will retain that position with respect to the arm, 67, and move with the latter.

From the foregoing explanation it will be understood that the bar, 88, has position slightly spaced from but at one side of the ferrule and that plate, 93, will have position at the other or opposite side of the ferrule but also slightly spaced from the latter. It will thus be seen that the bar and plate merely form vertical stop walls at opposite sides of the ferrule but being spaced slightly from the ferrule walls will allow the latter to yield slightly outwardly before they come in contact with and are stopped by said bar

and plate. In no sense therefore are the bar and plate a clamp because they do not engage and clamp the ferrule walls to prevent the latter from bulging but are so adjusted as to allow a slight bulging for a purpose which will now be explained.

After the work, in the present instance the bristles with the ferrule around the butt-ends, is placed in the work holder and the latter seated in the machine, the hand wheels, 12, are turned which results in moving clamp plate, 15, against the movable wall, 31, of the holder so as to compress the bristles against the blade, 41. The ferrules, 45, will then have position in a straight line as shown in Fig. 2, with their open ends uppermost. While this is going on, the bar, 67, will be swung back using the rod, 64, as a pintle and the weight, 96, counter-balances the weight of the arm, 67. The carriage, 65, is now moved along the rod, 64, so as to present the bar, 67, at the first ferrule in the rod.

Cement, 97, may be placed in each ferrule in suitable quantity on top of the butt-ends of the bristles in any suitable way and the operation will then proceed as follows:

The operator will grasp handle, 68, and swing bar, 67, down so that nozzle, 72, will enter the endmost ferrule of the row. In doing this the sealing material, 70, will be seated on the upper edge of the ferrule, 45, and form a sufficiently tight joint to prevent the escape of air at that point. The operator will then actuate the lever, 85, near the handle, 68, so as to unseat valve, 77, whereupon air will pass from chamber, 75, through passage, 74, to nozzle, 72, and out through the ports, 73, into the ferrule, 45. The admission of air under pressure to the ferrule and on top of the cement will spring the side walls of the ferrule outwardly and in doing so will relieve the upper or root-ends of the bristles, 41, from some of the ferrule pressure thus enabling the air to more readily force the cement down through the bristles toward the lower edge of the ferrule. It is at this point in the operation that the bar, 88, and plate, 93, serve a useful function in that they form stops at opposite sides of the bulged ferrule to limit the outward movement of the latter and this is their sole function.

It will be understood that from the lower or flag-ends of the bristles to the upper beveled portion, 42, of the blade, 41, the bristles are clamped close together and that from said bevel, 42, upward the butt-ends are relieved somewhat of the clamping pressure during the cement forcing operation, because of the bulging of the ferrule, therefore the cement will more readily find its way through the butt-ends of the bristles because the air will pass down through said ends and carry the cement with it.

After one brush has been treated as above described, the arm, 67, will be raised sufficiently to enable the nozzle, 72, to clear the ferrule and the carriage, arm and attached parts will be shifted on the bar, 64, so as to bring the nozzle over the next ferrule whereupon the operation will be repeated. These operations will therefore be repeated until the entire row of brushes have been cemented and the holder will then be removed and another filled with brushes to be cemented will be substituted.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In a cementing apparatus the combination with means to clamp the work, of means for forming a seal about that part of the work where the cement is to be applied and traveling means movable along the clamped work for supplying air under pressure to the sealed portion of the work.

2. In a cementing apparatus the combination with clamping means, of means for forming a seal about that portion of the work where the cement is to be applied; means for applying air under pressure to the sealed portion of the work and means movable from one point to another along the clamped work for sustaining the air-supplying means.

3. In a cementing apparatus the combination with work-clamping means, of means movable from one point to another along the work while the latter is clamped and carrying a sealing means for forming a seal about the clamped work, and means also carried by said movable means for applying air under pressure to the sealed portion of the clamped work.

4. In a cementing apparatus the combination with means to clamp the work, of means for forming a seal about that part of the work where the cement is to be applied; traveling means movable from point to point along the work while the latter is clamped for applying air under pressure to the sealed portion of the work and means movable with said traveling means for controlling the passage of air to the sealed work.

5. In a cementing apparatus the combination with a clamp to hold the work with those portions that are to be cemented in a uniform line or relation, of a traveling seal; means for guiding the seal during its movement from point to point along the clamped work in a line parallel with the arrangement of the work, and means movable with the seal from point to point along the work for applying air under pressure to the sealed portion of the work.

6. In a cementing apparatus the combination with a clamp to hold the work, of a guide extending parallel with the clamp,

means movable along the guide to form a seal with the work and means carried by said movable means for applying air under pressure to the sealed work.

7. In a machine for cementing the bristles of a brush which bristles are provided with a ferrule at one end, the combination with a clamp to engage the bristles, of stops spaced from and at opposite sides of the ferrule to allow the wall of the ferrule to spring outwardly a limited distance; means for sealing the open end of the ferrule and means for applying air under pressure to the ferrule to spread the latter and force cement into the bristles while the ferrule is spread.

8. In a machine for forcing cement into the ferrule-bound end of a bunch of bristles, the combination with means to support a plurality of ferrule-bound bunches of bristles of means movable along the ferruled-end of the bristles in succession to supply air under pressure to the ferrules one after another.

9. In a machine for forcing cement into the ferrule-bound ends of bunches of bristles, the combination with means to support a plurality of ferrule-bound bunches of bristles in a row, of means movable from one ferrule to another along the row to seal the open ends of the ferrules and means also movable along the row of ferrules for applying air under pressure to the ferrule-bound ends of the bristles.

10. In a machine for forcing cement into the ferrule-bound ends of bunches of bristles the combination with means to clamp a row of bristle-bunches, of a guide extending parallel with the row of bristles; means movable along the guide for successively sealing the ferrules on the row of bristle bunches and means movable with said sealing means for applying air under pressure to the ferrule-bound ends of the bristles.

11. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of means for sealing the open end of a ferrule and means movable lengthwise of the row of ferrules for applying air under pressure to the ferrules in succession.

12. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of means movable in a direction at right angles to the row of ferrules for sealing the open ends thereof and means movable lengthwise of the row of ferrules for applying air under pressure to the sealed ferrules.

13. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of means

movable in a direction at right angles to the row of ferrules for sealing the open ends thereof; means movable lengthwise of the row of ferrules for applying air under pressure to the sealed ferrules and means carried by said latter means for controlling the escape of air to the ferrules.

14. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of means for sealing the open ends of the ferrules; means at opposite sides of and normally spaced from the ferrule to limit the outward bulging of the ferrules, and means for applying air under pressure to the sealed ferrules.

15. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of a guide extending in a direction substantially parallel with the row of clamped bristles; a carriage movable along said guide; means sustained by and movable with the carriage for sealing the ferrules and means also movable with the carriage for applying air under pressure to the sealed ferrules.

16. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of a guide extending in a direction substantially parallel with the row of clamped bristles; a carriage moving along said guide; means sustained by and movable with the carriage for sealing the ferrules; means movable

with the carriage for forming stops at opposite sides of the ferrule to limit the outward bulging of the latter and means movable with the carriage for applying air under pressure to the sealed ferrules.

17. The combination with means for clamping a plurality of ferrule-bound bunches of bristles in a row with the open ends of all the ferrules exposed, of a guide extending in a direction substantially parallel with the row of clamped bristles and a carriage movable along said guide; means sustained by and movable with the carriage for sealing the ferrules; adjustable means movable with the carriage and sustained at opposite sides of the row of ferrules to form side stops; means movable with the carriage for applying air under pressure to the sealed ferrules and means for controlling the passage of said air.

18. In a brush cementing apparatus the combination with a portable holder to sustain a plurality of ferrule-bound bunches of bristles in a row with the ferrules exposed, of a blade in the holder to divide the bristles of the row of bristle bunches; means for clamping the bristles against the blade, means for sealing the ferrules and means for applying air under pressure to the sealed ferrules.

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

HUGH P. McMILLAN.

Witnesses:

G. FERD. VOGT,

CHARLES B. MANN, Jr.