

No. 896,504.

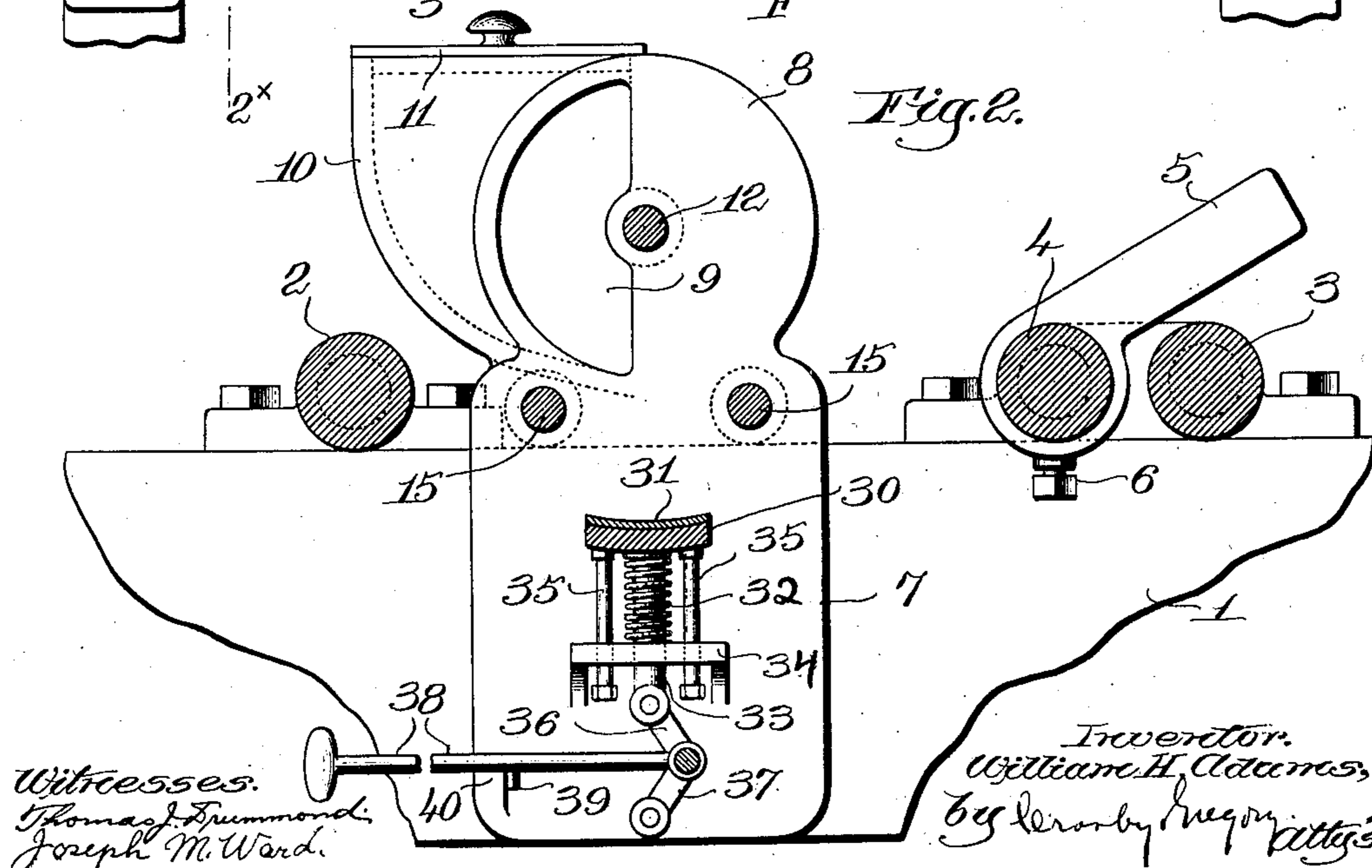
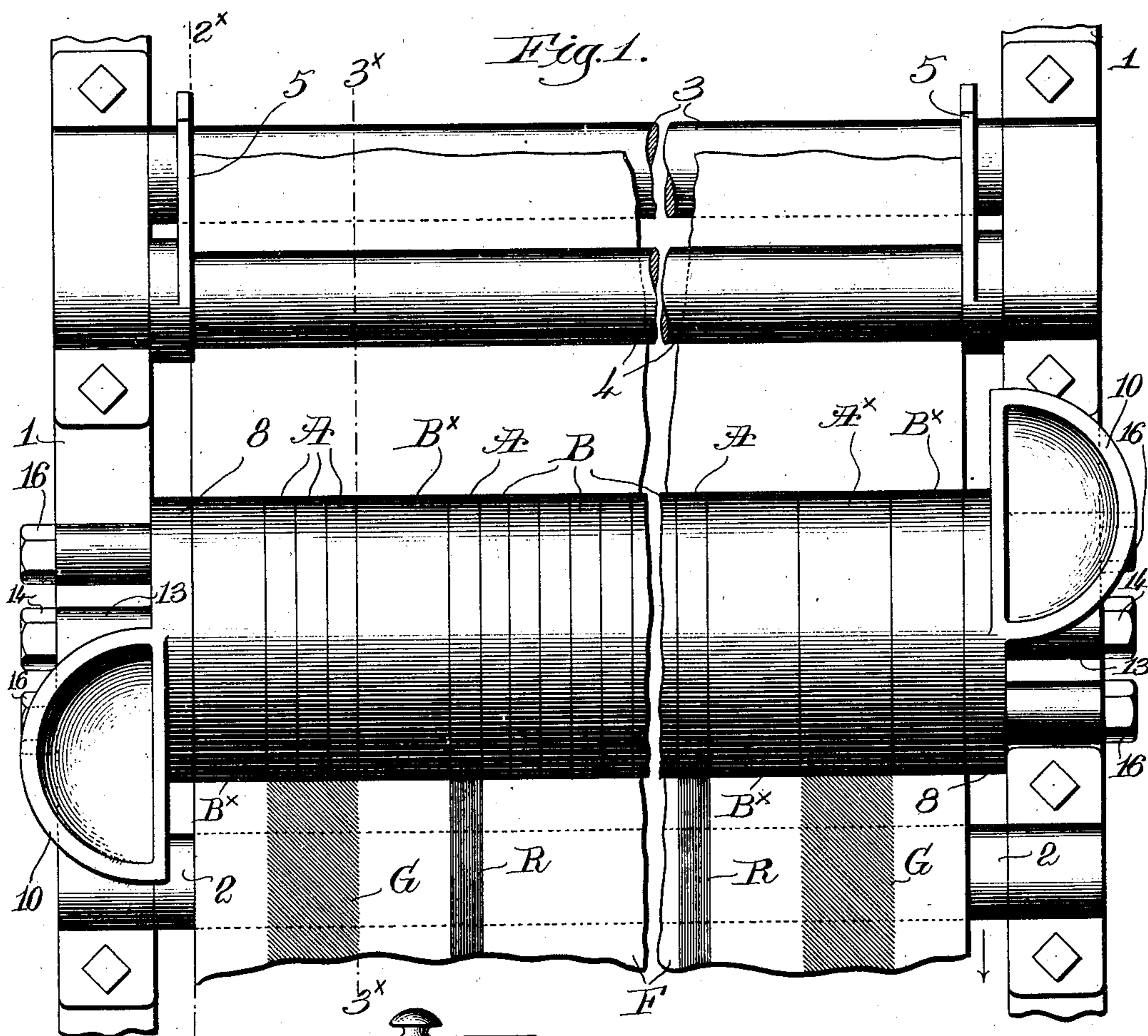
PATENTED AUG. 18, 1908.

W. H. ADAMS.

APPARATUS FOR STRIPING FABRIC.

APPLICATION FILED JAN. 16, 1908.

2 SHEETS—SHEET 1.



Witnesses:
Thomas J. Drummond.
Joseph M. Ward.

Inventor.
William H. Adams,
by Leroy H. Gregory, atty's.

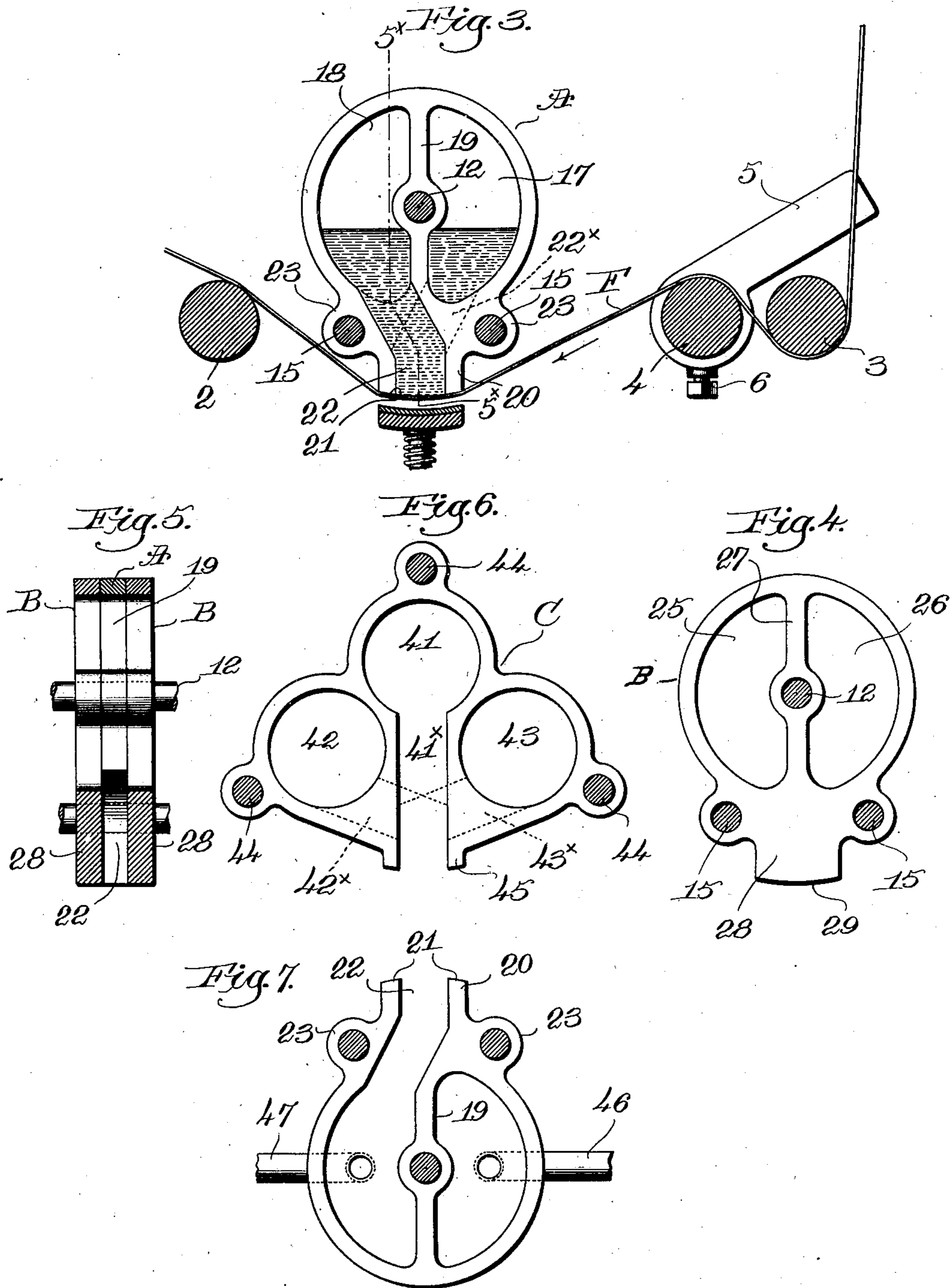
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UNITED STATES PATENT OFFICE.

WILLIAM H. ADAMS, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO EASTERN FINISHING WORKS, OF LAWRENCE, MASSACHUSETTS, A PARTNERSHIP.

APPARATUS FOR STRIPING FABRIC.

No. 896,504.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed January 16, 1908. Serial No. 411,053.

To all whom it may concern:

Be it known that I, WILLIAM H. ADAMS, a citizen of the United States, and resident of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Apparatus for Striping Fabric, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of novel apparatus for striping flexible fabric, such as textile material, paper, oil-cloth, so constructed and arranged that the striping material may be applied to the fabric in several colors or combinations of color at a single passage or operation.

The material is applied to the fabric in stripes of an exact and unvarying width and relation to each other, and I have so constructed the apparatus that the arrangement or pattern of the stripes can be readily altered and practically any desired arrangement and width of striped and unstriped portions of the fabric may be readily attained.

The material to be applied in stripes to the fabric may be paint, varnish, stain, chemicals, starch colors, mordants, dyes, etc., as may be desired, and a plurality of stripes differing from each other in color or character can be applied simultaneously.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view, centrally broken out, of a striping apparatus embodying one form of my present invention, the fabric being shown as passing through the apparatus; Fig. 2 is a vertical section on the line 2^x—2^x, Fig. 1, looking toward the left, showing one of the end-closing members or plates for the multi-chambered receptacle which contains the striping material; Fig. 3 is a like section on the line 3^x—3^x, Fig. 1, showing in side elevation one of the multi-cellular striping members or elements composing the receptacle for the striping material; Fig. 4 is a side elevation of one of the separating members; Fig. 5 is a sectional detail on the line 5^x—5^x, Fig. 3, looking toward the right, to more clearly illustrate the structure of the striping member; Fig. 6 is a side elevation of a modified form of striping member; Fig. 7 is a transverse sectional de-

tail through the receptacle for striping material, illustrating a modification whereby the striping material may be delivered under pressure.

The fabric to be treated is run from bales or previously wound rolls across suitable fabric-supports some of which are arranged to deliver striping material, as will be explained, and thence to suitable drying means, which may be of any desired character and form no part of my present invention.

Upon suitable side-frames 1 arranged in parallelism I mount guide-rolls 2, 3, between which the striping mechanism is located, the fabric F being shown in Fig. 3 as passing under the roll 3 and up over a bar 4, then under and across the fabric-supports of the striping mechanism and up over the guide-roll 2. The bar 4 has mounted upon it the hubs of upturned edge-guides 5, held in laterally adjusted position on the bar by set-screws 6, the edge-guides acting upon the longitudinal edges of the fabric and directing it accurately in its passage through the apparatus.

In accordance with my invention I have devised a built-up or sectional receptacle having a plurality of chambers for the striping material, the receptacle being preferably composed of a series of multi-cellular members or sections, conveniently made as flat metallic plates and assembled in close contact side by side. Some of the members have a passage leading from one of the cells and terminating in an external fabric-support or sustaining portion, while others have blank portions instead of passages, but in order that the utility of the apparatus may be increased I prefer to make all of said members similar and of the same contour externally, so that they can be interchanged or reversed, as will be explained.

Upon each of the side-frames 1 I erect an end-closing plate 7 having an upturned and substantially circular head 8, Fig. 2, provided with a substantially semi-circular opening 9 which communicates with a cup-like inlet 10, but as shown in Fig. 1 the inlet 10 at one side of the apparatus is opposite the blank portion of the head 8 at the opposite side, as will be understood.

A cover-plate 11, Fig. 2, may be provided for each of the inlets, to prevent the entrance of dust or other impurities. The heads are centrally apertured to receive a tie-rod 12

extended through hubs 13 on the exterior of the heads and set up by suitable nuts 14, and two more tie-rods 15, see Figs. 2 and 3, are provided, located symmetrically with relation to and below the centers of the heads, the rods 15 being set up by suitable nuts 16. Between the heads and upon the several tie-rods I string or assemble the series of multicellular members which form the multi-chambered receptacle for striping material. Each member, whether it be a striping member A, Fig. 3, or a separating member B, Fig. 4, is of the same external contour and is provided with openings or cells which register when the members are assembled.

Referring to Figs. 1 and 3 the striping members A are made as a flat plate having a body of mainly circular outline, with openings or cells 17, 18 divided by a central, upright bar 19, Fig. 3, provided with an aperture for the tie-rod 12, the lower part of the body being shown as enlarged to form a fabric-support 20 convexed at its outer end at 21, with a passage or outlet 22 leading from the cell 18 to the outer end or mouth of the support. At opposite sides of the fabric-support 20 ears 23 are formed, apertured to receive the tie-rods 15, the ears and the fabric-support being symmetrical with relation to a vertical line through the dividing bar or wall 19. That is, the striping member is reversible, and by reversing the position of a member in the assembled series its outlet passage 22 will be made to lead from one or the other of the two parallel and separated, elongated chambers formed by the registering cells 17 and 18. Supposing that the fabric is to be provided with green stripes G, Fig. 1, and red stripes R, and that the green coloring matter is to be contained in one chamber and the red coloring matter in the other chamber. Then all of the striping members which are to deliver green color to the fabric will be set as in Fig. 3, for instance, and the inlet 10 at the left, Fig. 1, will communicate with that end of the chamber formed by the cells to the left of the bar or wall 19, Fig. 3, but those members which are to deliver red color will be reversed, so that the outlets will assume the dotted line position 22^x, Fig. 3. In other words, such outlets will lead from the chamber formed by the registering cells at the right of the wall 19, such chamber having the right hand inlet 10, Fig. 1, communicating therewith.

The thickness of a striping member may be equal to that of the width of the stripe to be made thereby, as at A^x, Fig. 1, for the right hand green stripe G, or a plurality of said members may be assembled side by side to make a single stripe, three of such members A being shown in Fig. 1 as grouped together to form the left hand green stripe. Each of the narrow red stripes is shown as

produced by a single one of the thinner members, such as A, but it will be remembered that in position the green-striping members are set reversely from the red-striping members. It will be understood that in practice I prefer to make the outlet passage 22 from one to the other flat face of the striping member, as a slot in the plate A leading from a cell 18 to the outer end of the part 20.

When the members are assembled together all of the fabric-supports or parts 20 will be in longitudinal alinement from one to the other end of the receptacle, and at the lower side or bottom thereof, Figs. 1 and 3, so that the striping material will flow out by gravity upon such portions of the fabric F as are drawn across the delivery mouths of the fabric-supports on the striping members. The striping medium is introduced from time to time to the chambers through the cup or funnel-like inlets 10, a suitable level being maintained in the chambers by renewing the contents as necessary. Interspersed among the striping members in predetermined order, according to the character or arrangement of the striping, are a number of separating or dividing members, one of which is shown separately at B, Fig. 4, corresponding in contour to the members A, and having cells 25, 26 separated by a central wall 27 through which the tie-rod 12 passes. The lower portion of the member is made blank or unslotted at 28, but convexed at its end at 29, and perforated for the tie-rods 15, and it will be manifest that neither cell has any outlet. One or more of the separating members are used between striping members, according to the width of the part of the fabric which is not to be treated with the striping material.

In Fig. 1 I have shown quite a large number of the relatively thin members B assembled between the two striping members for the red stripes R, and a single thicker member B^x separating the green and red stripe-producing members, but said striping members could be as well separated by one or more intervening members B. When the members are assembled side by side it will be clear that by the multi-cellular structure a plurality of elongated, parallel and separated chambers will be formed, and that the side walls of the delivery passages or outlets 22 will be formed by the blank portions 28 of the adjacent separating members. This is clearly shown in Fig. 5, and by setting up the tie-rods the series of members are tightly clamped together between the end-closing plates, forming a rigid, tight receptacle chambered for the striping material.

A great variety of patterns or stripe arrangements can be secured by my invention, for it will be clear that the combinations or orders in which the striping and separating members are arranged are of wide range. A plurality of colors, or materials differing in

other characteristics, can be applied to the fabric at a single passage or operation, insuring perfect "register" and obviating completely any overlapping of colors or smearing, as is very apt to occur when a plurality of striping operations have to be performed upon the same fabric.

In the apparatus illustrated in Figs. 1 to 4 two separate chambers are provided and hence two different colors may be used, or striping materials of different characters may be used, but if desired the apparatus can be used to stripe with a single color or material. Should the chambers have a surplus of striping material therein when a piece of fabric has been finished it is desirable to temporarily stop all the outlet passages while another length or piece is being attached, as by so doing waste of striping medium is prevented. Under the convex ends of the parts 20, 28 of the striping and separating members I mount an elongated concaved stop 30 preferably faced with rubber 31 and lifted by springs 32 into forcible engagement with the under face of the fabric. Plungers 33 rigidly secured to the stop, at or near its ends, pass through the springs and slide in brackets 34, Fig. 2, secured to the plates 7, guide-rods 35 on the stop also sliding in the brackets. Normally the springs will hold the rubber facing 31 in position to press the fabric tightly across the mouths of the outlets 22 and firmly against the adjacent ends 29 of the parts 28 of the separating members, effectually cutting off or stopping any delivery of striping material, the fabric being held taut across the delivery mouths at all times, whether at rest or when in motion. To retract the stop any suitable means may be employed, such as a toggle 36, 37 connected with the plungers, the joint of the toggle having a handle 38 attached thereto and provided with a lug 39, Fig. 2. When the stop is to be rendered inoperative the handle 38 is pushed to the right, Fig. 2, to break the toggle and draw down the plungers 33 compressing the springs 32, the lug 39 then catching against a fixed detent 40, as shown. To elevate the stop the handle is lifted to disengage the lug 39 from its detent and the springs 32 will operate immediately to lift the stop and close the mouths of the outlets.

I may make a multi-chambered receptacle with more than two chambers, by slightly changing the general shape of the members composing such receptacle, and in Fig. 3 I have shown a striping member C for a three-chambered receptacle, said member having three circular cells 41, 42, 43, and apertures 44, shown in section. A fabric-support or extension 45 is shown, symmetrically located so that the several supports will aline when the members are assembled. The cell 41 is shown as connected by an outlet passage or slot 41^x with

the mouth of the extension 45, to deliver striping material from the chamber formed by the registering series of cells 41. Members which are arranged to deliver material from the cells 42 or 43 are made of the general contour and size as that shown in Fig. 6, but with the dotted passage 42^x or 43^x positioned according to the required cell, it being manifest that separate striping members must be used for the central and side cells, as they are not interchangeable, but the members having the outlet communicating with a side cell are reversible, as will be obvious. The separating members will be tri-cellular, as shown in Fig. 6, but the other portion thereof will be solid, or unslotted, as in the member B shown in Fig. 4.

In the apparatus so far described the striping material is gravity fed, but if desired the feed may be under pressure. This can be readily arranged by turning the receptacle shown in Figs. 1 and 3 half way round, as in Fig. 7, with the fabric-supporting portions 20 uppermost, and closing tightly both ends of each of the chambers. Striping material would then be introduced under pressure to one chamber through a pipe 46, and to the other chamber through a pipe 47, and as the fabric is drawn over the convex end 21 of the support the pressure will force the material upward and upon the under face of the fabric. When pressure is shut off the material at once settles back in the chambers, so that no stopping or closing means is required for the mouths of the outlet passages.

My invention is not restricted to the precise construction and arrangement herein shown and described as the same may be modified in various particulars without departing from the spirit and scope of my invention as set forth in the appended claims.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In apparatus for striping fabric, a multi-chambered receptacle for striping material comprising a series of multi-cellular striping and separating members assembled side by side in predetermined order with their cells registering, each member having a fabric support thereon, the support on each striping member having an outlet communicating with one of the cells of such member, and a closure for each end of the series, each closure having an inlet communicating with one of the chambers of the receptacle, the several outlets delivering striping material to the fabric as it is drawn across the outer ends of the supports.

2. In apparatus for striping fabric, a multi-chambered receptacle for striping material having closed ends and comprising a series of multi-cellular striping and separating members assembled side by side in

predetermined order with their cells registering, forming a plurality of separated chambers extending continuously from end to end of the receptacle, each striping member having an outlet communicating with one of the cells of such member, and means to support the fabric as striping material is delivered thereto from the several outlets.

3. In apparatus for striping fabric, a multi-chambered receptacle for striping material having closed ends and comprising a series of multi-cellular striping and separating members assembled side by side in predetermined order with their cells registering, forming a plurality of separated chambers extending continuously from end to end of the receptacle, each striping member having a fabric support thereon provided with an outlet communicating with one of the cells of such member, the fabric to be striped resting against the outer ends of the supports as the several outlets deliver striping material to the fabric, and inlets to introduce striping material to the chambers of the receptacle.

4. In apparatus for striping fabric, a multi-chambered receptacle for striping material comprising a series of interchangeable, multi-cellular members assembled side by side in a predetermined order with their cells registering and each having an external fabric-support, the outer ends of the supports sustaining the fabric as it is drawn forward to be striped, some of the supports having outlets communicating with one or another chamber of the receptacle, to deliver striping material therefrom to the fabric, and means to close the ends of the receptacle.

5. In apparatus for striping fabric, a multi-chambered receptacle for striping material comprising a series of symmetrical, interchangeable and reversible multi-cellular members clamped side by side in desired arrangement with their cells registering and each having an external fabric-supporting portion in longitudinal alinement, the fabric-supporting portion of some of said members having an outlet communicating with one of the cells of its member, the reversal of position of such a member changing the chamber of the receptacle with which the outlet communicates.

6. In apparatus for striping fabrics, an elongated, built-up receptacle having a plurality of separated chambers closed at their ends and adapted to contain striping material, the receptacle comprising multi-cellular members assembled side by side in predetermined order with their cells registering to form the continuous chambers and external, convex-ended tubular fabric-supports on said assembled members, some of the supports communicating with one chamber of the receptacle and other supports commu-

nicating with a different chamber, combined with manually-controlled means to press the fabric to be striped against the delivery ends of the tubular supports and stop simultaneously the delivery of striping material therefrom.

7. In apparatus for striping fabric, a built-up receptacle for striping material comprising a series of separable multi-cellular striping and separating members assembled side by side in predetermined order with their cells registering, to form a plurality of continuous, distinct chambers extending the length of the receptacle, means to close the ends of the chambers, and an inlet for each chamber, each striping member having an outlet communicating with one of its cells, to deliver to the fabric striping material from the corresponding chamber of the receptacle.

8. In apparatus for striping fabric, an elongated multi-chambered and built-up receptacle for striping material said receptacle comprising a series of multi-cellular members assembled side by side with their cells registering, said members having longitudinally alined and radially arranged extensions convexed at their outer ends to sustain the fabric to be striped, some of the extensions having cell outlets communicating with one chamber of the receptacle and other extensions having cell outlets communicating with a different chamber, the lateral distance between adjacent outlets determining the width of the portions of the fabric which are not to receive striping material.

9. In apparatus for striping fabric, a multi-chambered receptacle for striping material composed of a series of interchangeable, multi-cellular members having parallel opposite faces and provided with rod-receiving apertures, each member having an external fabric-supporting portion, some of said portions having outlets communicating with one or another chamber of the receptacle, end-plates to close the chambers, each plate having an inlet to one of the chambers, and tie-rods extended through the end-plates and the intervening multi-cellular members to clamp all of said parts rigidly together.

10. In apparatus for striping fabric, a multi-chambered receptacle for striping material composed of a series of flat, multi-cellular metallic members assembled face to face and each having an external fabric-support, the members varying in thickness and being arranged in predetermined order, according to the width and arrangement of the striping to be produced, some of the fabric-supports having outlets communicating with one chamber and other of the supports having outlets communicating with a different chamber.

11. A member for a built-up, multi-chambered receptacle for striping apparatus, com-

prising a symmetrically shaped, flat and multi-cellular open body and an external fabric-supporting portion.

5 12. A member for a built-up, multi-chambered receptacle for striping apparatus, comprising a flat, annular body having an internal web dividing it into separated open cells, and an external, radial fabric-supporting portion.

10 13. A member for a built-up, multi-chambered receptacle for striping apparatus, comprising a symmetrically shaped, flat and multi-cellular open body and an external fabric-supporting portion, having an outlet passage therein communicating with one only of the cells.

15 14. In apparatus for striping fabric, a plurality of adjacent, separated chambers to contain striping material, a series of longitudinally alined fabric-supports exterior to the chambers, and delivery passages in said sup-

ports, each passage connecting the outer end of the support with one of the chambers.

15. In apparatus for striping fabric, a plurality of adjacent, separated chambers to 25 contain striping material, a series of longitudinally alined fabric-supports exterior to the chambers, and delivery passages in said supports, each passage connecting the outer end of the support with one of the chambers, 30 combined with guides in front of and behind the series of fabric-supports, to sustain the fabric as it is drawn forward across the ends of the said supports, and adjustable edge-guides for the fabric. 35

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

WILLIAM H. ADAMS.

Witnesses:

FREDERICK GRIFFIN,
GEO. M. LITTLEFIELD.