

(No Model.)

2 Sheets—Sheet 1.

R. A. PAINE & D. BAKER, Jr.
CYLINDER STRIPING MACHINE.

No. 414,568.

Patented Nov. 5, 1889.

FIG - I -

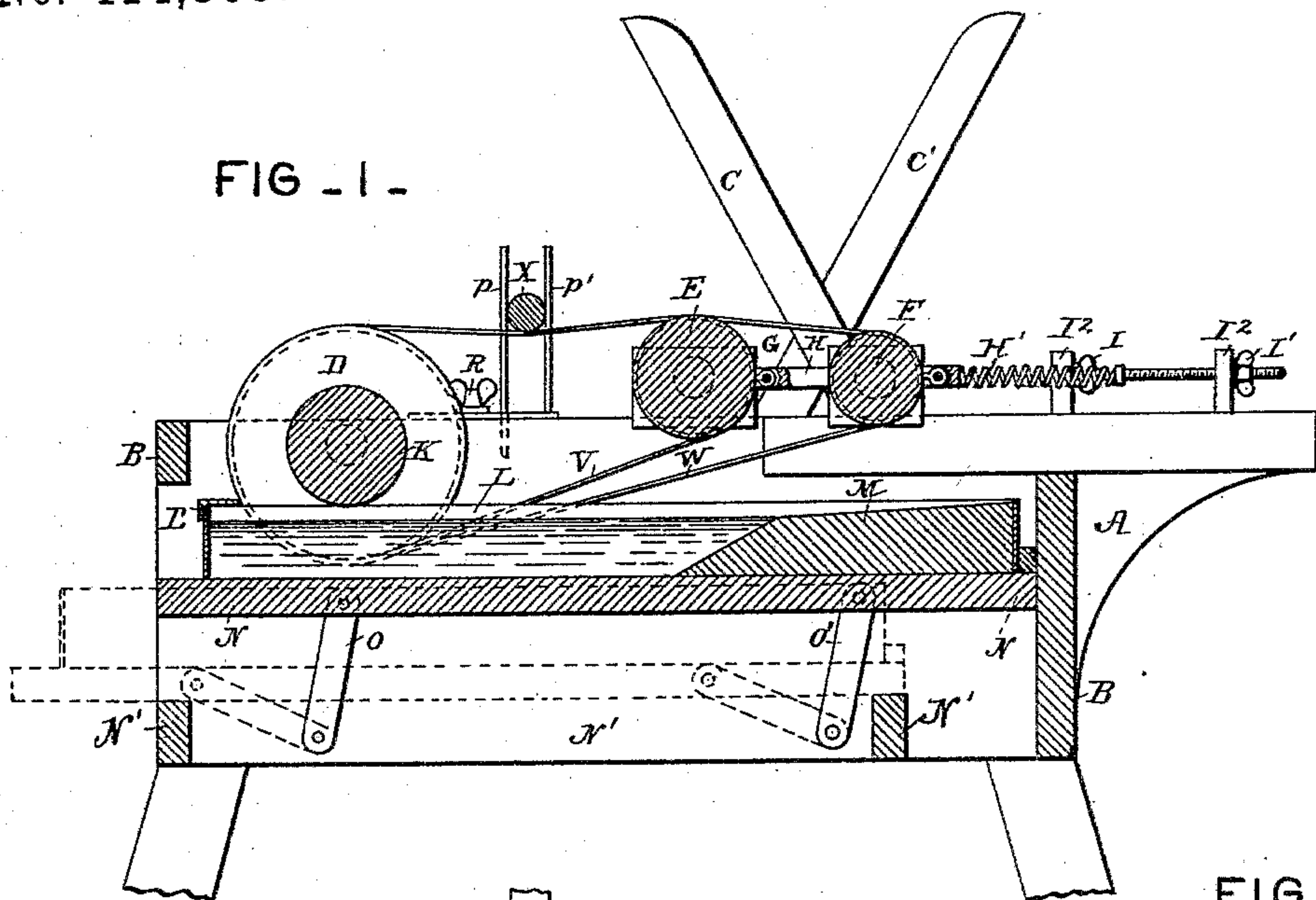
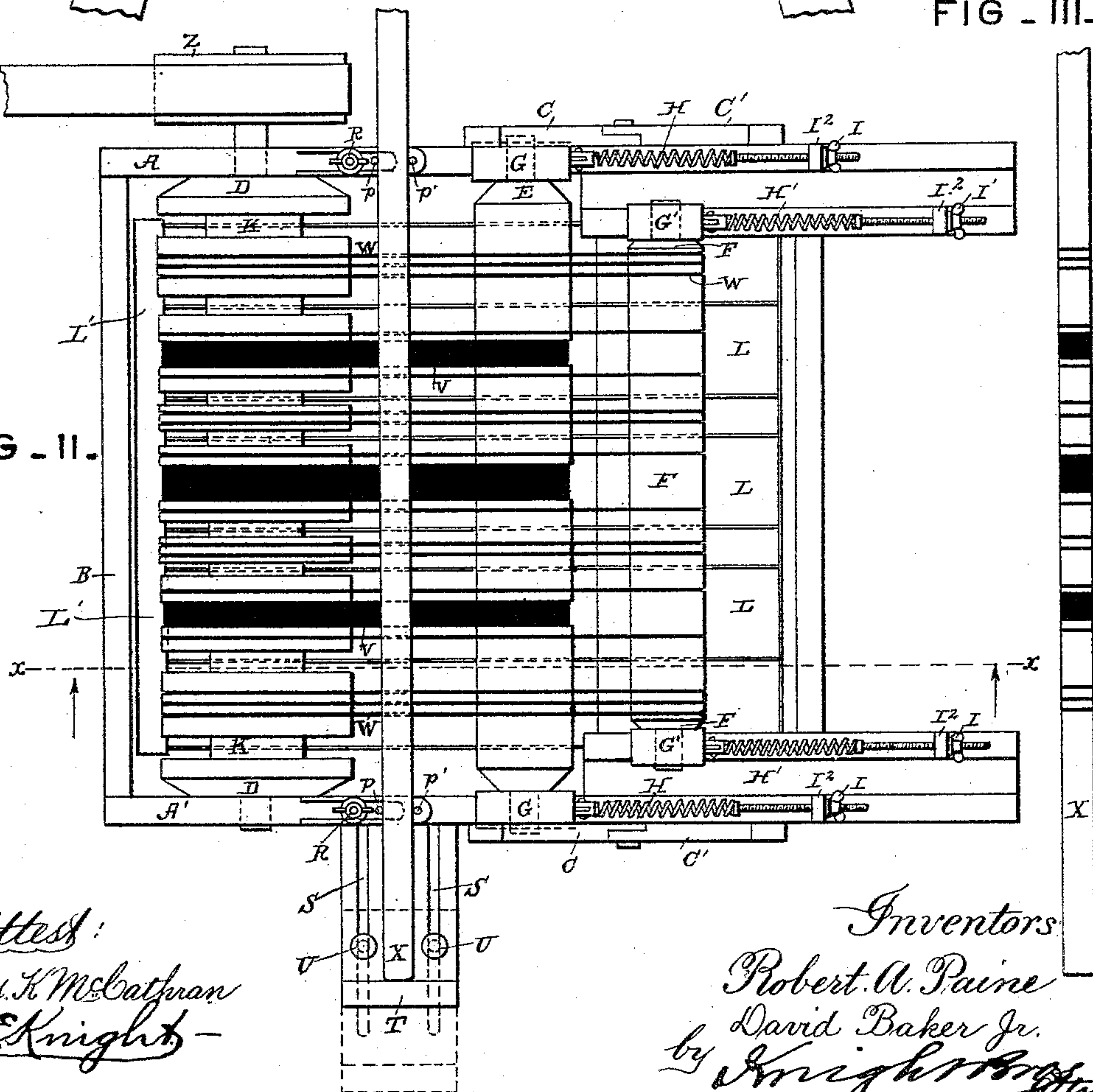


FIG - III -

FIG - II -



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2 Sheets—Sheet 2.

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FIG - V -

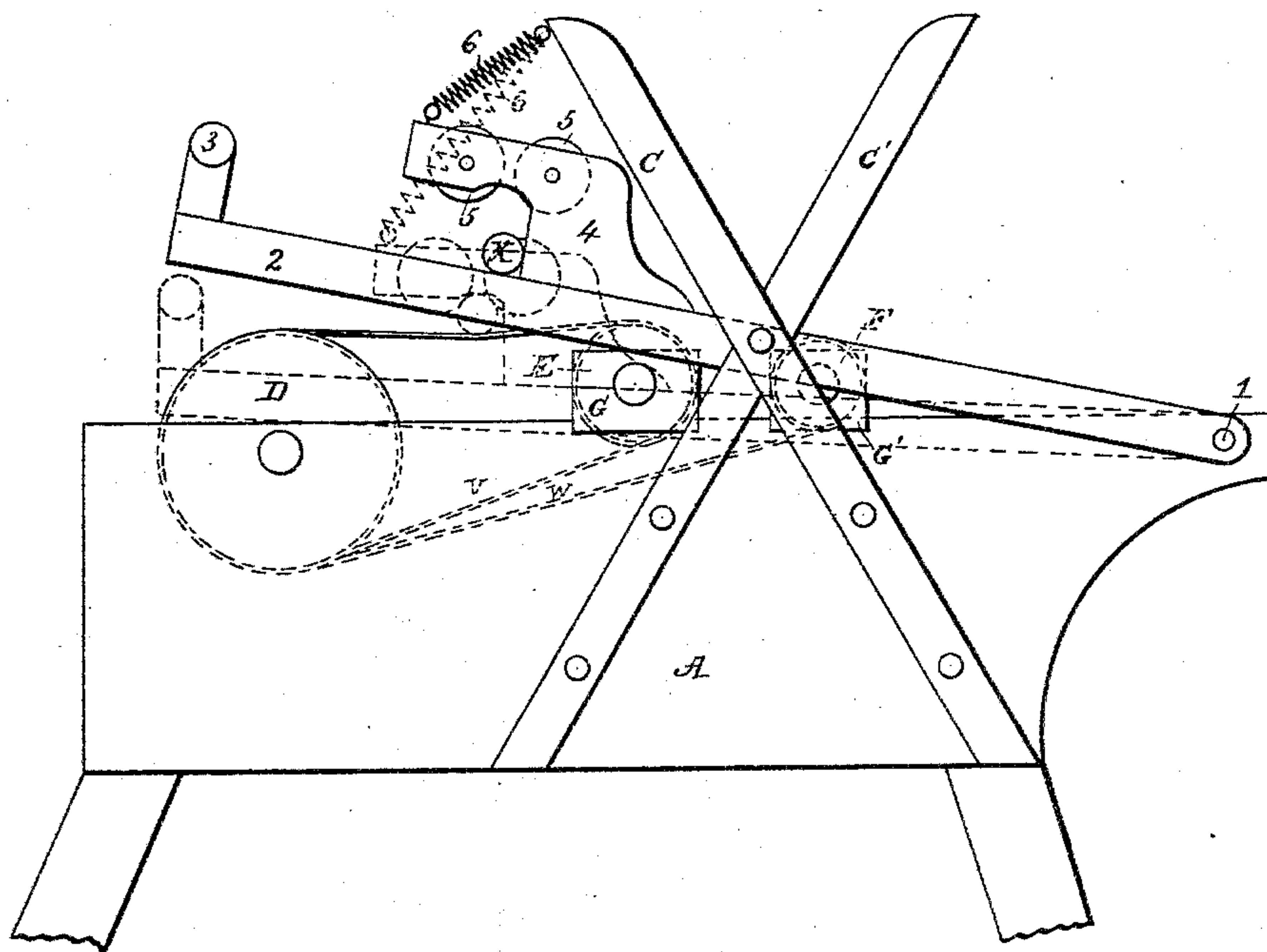
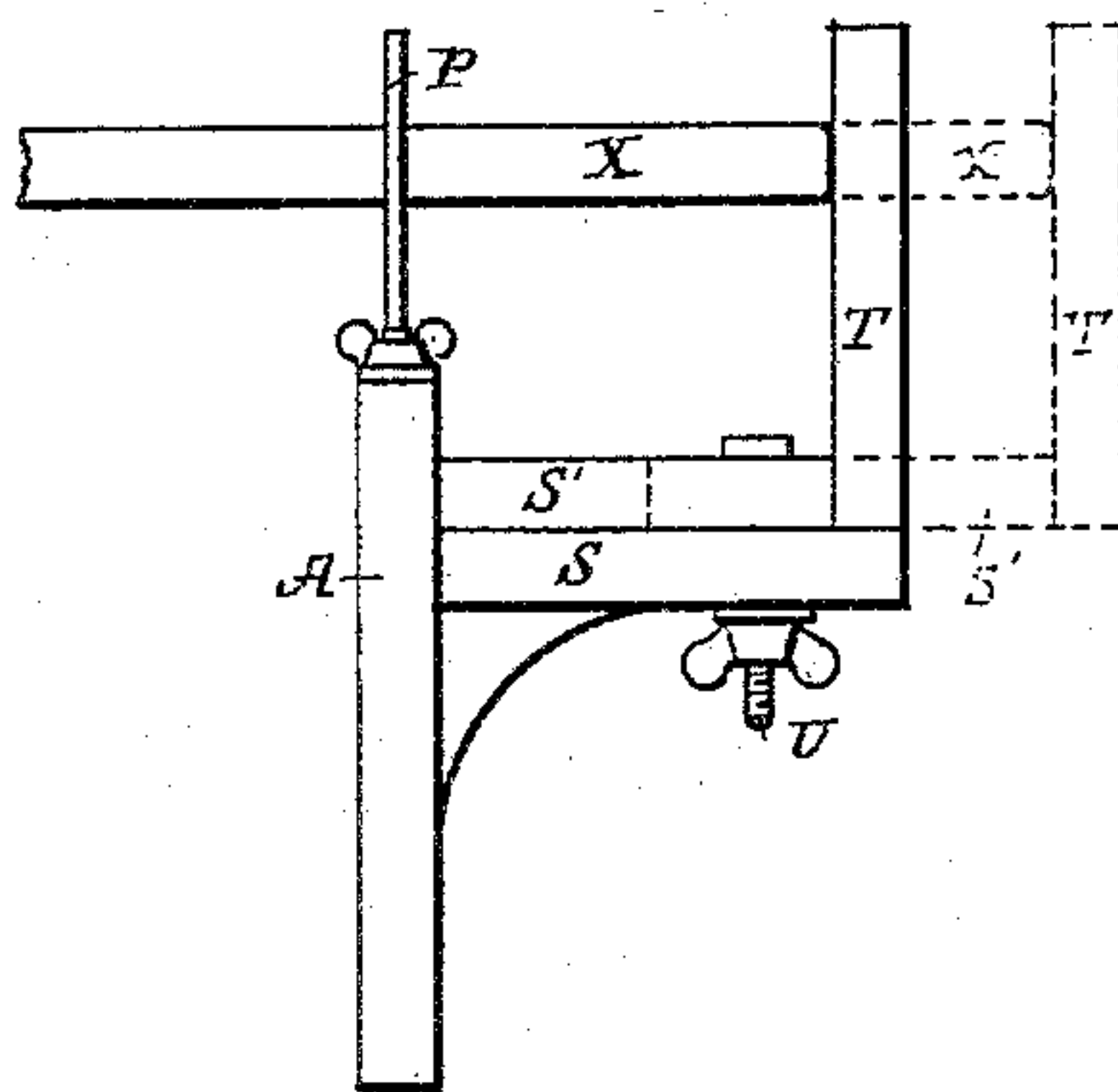


FIG - IV -



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UNITED STATES PATENT OFFICE.

ROBERT ALEXANDER PAINE AND DAVID BAKER, JR., OF RICHMOND,
VIRGINIA.

CYLINDER STRIPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 414,568, dated November 5, 1889.

Application filed April 29, 1889. Serial No. 308,964. (No model.)

To all whom it may concern:

Be it known that we, ROBERT ALEXANDER PAINE and DAVID BAKER, Jr., citizens of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have
5 invented certain new and useful Improvements in Cylinder Striping-Machines; and we do hereby declare the following specification, taken in connection with the accompanying drawings, which form a part thereof, to
10 be a full, clear, and exact description of our improvements, such as will enable others skilled in the art to which it appertains to make and use the same.

15 The invention has relation more particularly to a machine designed to paint broom-handles, hubs, spokes, and objects of like shape in a series of bands of variegated colors regular or irregular in width, as desired;
20 and to this end it consists of a series of similarly-grooved adjustable cylinders mounted upon shafts in a suitable frame and carrying cords or bands, or both, arranged according to the pattern to be painted. In connection with
25 these cylinders adjustable color-pans are used, into which the face or faces of one of the cylinders dip and so submerge the cords and bands into the coloring-matter. The cords and bands convey the coloring-matter
30 to the object to be painted, which object rests upon the cords and bands between suitable vertical adjustable stays or guides. If an excess of the coloring-matter should adhere to the cords and bands, it is removed by a
35 suitable scraper arranged at the top of the color-pans, bearing against the cords and bands where they run in the grooves of the cylinders. When worked by hand, the cylinders are rotated by the adhesion of the ob-
40 ject to be painted to the paint-conveying belts, the object being turned by hand. When operated by power, the operation is reversed, the cylinders being rotated by suitable gearing and the object rotated by adhesion to the
45 bands, said object being held in position by a suitable frame having friction-rollers to facilitate the turning of the object, or both object and cylinders may be attached to the power

and rotated in the same or opposite direction.

In order that the invention may be more fully understood, we will now proceed to describe the same with reference to the accompanying drawings, and then more particularly point out in the claims the novel features therein.

In said drawings, Figure I is a side elevation of the improved machine having the side piece removed. Fig. II is a plan, the supply-rack for holding the articles to be painted
60 being omitted. Fig. III is a view of a broom-handle painted by our improved machine. Fig. IV is a side view of the adjustable end guide. Fig. V is a side elevation of a modification of our improvement, being arranged
65 for running by power.

A A' are side pieces, and B B cross-pieces, forming the frame of the machine.

C C' are pieces forming a rack over the machine for holding the unpainted articles.

70 D is a large roller or cylinder, and E F are two smaller rollers or cylinders grooved to suit the patterns and carrying cords W and bands V in said grooves for conveying the paint to the object being painted. The
75 large roller D has also a series of deeper grooves K K, so arranged as to allow the faces of the roller to dip into the paint contained in a series of color-pans L L. The
80 sides of these color-pans fit into the deep grooves K K of this large roller between the grooved faces carrying the bands and cords. The cylinders E F are mounted in sliding
85 blocks G G and G' G', respectively, which blocks are held in place and the bands and cords held taut by means of spiral springs H H and H' H', attached to said blocks, said
90 spiral springs being regulated by set-screws I I and I' I', operating on screw-threaded rods attached to the springs. These set-

In practice we have found it necessary to provide separate adjustable rollers or cylinders for the bands and cords, for the reason that the bands and cords do not shrink alike
95 when wet, and it would be impossible to keep

both bands and cords taut by using but one adjustable roller. The color-pans LL extend under all of the cylinders, but have a slanting partition or bottom M under the rollers E
 5 F for catching the drip paint when the scrapers are not used and it is desired to apply a heavy coat of paint to the article. These color-pans (which are of the number and sizes to suit the bands and pattern) rest on
 10 an adjustable platform N. This platform N is supported when not in use upon a second stationary platform N', forming part of the frame. The two platforms are connected by four hinged blocks or links O O', &c., which
 15 links limit the movement of the platform N and bring the color-pans L into position under the rollers when the machine is to be used. These links O O', &c., are so arranged that when the platform N is in its raised position, the upper hinged points are past the
 20 perpendicular lines from the lower hinged points, thus forming a lock to hold said platform in the desired position to lessen the liability of its falling to its lower position.

25 L' is a scraper attached to the edge of the pan L for removing from the bands and cords any superfluous paint, which would otherwise spoil the well-defined lines of the striped article. This scraper may have projections extending into the band and cord grooves of
 30 the large roller D, though it will usually answer the purpose to have a scraper with a straight scraping-surface, as the bands and cords practically fill the grooves in the roll and come flush with its periphery. Each of
 35 the adjustable cylinders may have scrapers bearing in the grooves on their faces by attaching the scrapers to a rod supported by a hinge at each end attached to the sliding
 40 blocks carrying the cylinder, so that the relative position of the scrapers with reference to the cylinder will be preserved no matter what the position of the cylinder.

P P' are vertical guides on side pieces A A' for confining and keeping the article X to be painted at right angles to the painting cords and bands. The guides P' P' are adjustable, having at their lower ends, arms extending at
 50 right angles, in which arms there are slots, which permit them to straddle guides P and set-screws R. These set-screws R are for adjusting the guides P', so as to allow for a small or large article to be placed between the two guides, the guides P P' being simply
 55 driven into the frame.

In Fig. IV we have shown an adjustable end guide for the article X being painted. It consists of stationary part S, attached to side piece A of the frame and held secure by a
 60 bracket, and sliding support S', having at its outer end vertical end guide T, against which the end of the article X bears. This guide is regulated the same as vertical guide P' by means of a slot S' and a set-screw U.

65 In operating the machine the article X to be painted is placed upon the painting bands

and cords between the vertical guides P P', with its end bearing against the end guide T, and then turned by the operator, who grasps the article on each side of the machine and
 70 slightly presses it downward at the same time he turns. The friction of the article X upon the bands and cords will be sufficient to cause them to move and rotate the rollers, which brings the paint up and transfers it to the
 75 article.

In Fig. V is shown a modification of our improved striping-machine adapted to be run by power. This modification is of the same
 80 general construction as the hand-power machine, the principal difference being in the addition of a device for holding the article while being painted. Two side pieces 2 2 are pivoted on each side of the machine at 1, and these two side pieces are joined at the end
 85 nearest the operator by a cross-piece 3, which serves as a handle for depressing the holder. On each of the side pieces 2, at the proper distance from the cross-piece 3, is secured a block 4, in which block two anti-friction rollers 5 5 have their bearings. This holder
 90 is held normally in a raised position by spiral springs 6, connecting the blocks 4 with the pieces C of the supply-rack. In this form of the machine the end guide T is also formed
 95 on one of the blocks 4 and can be made adjustable, as has already been described. The machine is run by power applied to the band-wheel Z on the shaft of roller D, as shown in Fig. II.

The operation of the modification is as follows: An article X is placed upon the side pieces 2 of the holder directly under the anti-friction rollers 5 of blocks 4 with its end
 100 against the end guide T. The operator then depresses the holder until the side pieces 2 come below the plane of the painting bands and belts, which will bring the article X in contact with and resting on the bands and
 105 cords, and held in place by means of the anti-friction rollers 5, which rollers revolve and lessen the friction of the revolving object. The moving cords and bands, as has before been explained, bring the paint from the
 110 color-pans and deposit it on the revolving object X. As soon as the article X is painted the handle 3 is released and the holder carrying the article returns to its normal position by the reaction of the spiral spring 6, when the article can be replaced by an unpainted
 115 one and the operation repeated.

Our improvement is more especially adapted to striping regular cylindrical objects, such as broom-handles; but it may be arranged to paint irregular objects having
 120 cross-sections at different points of different diameters or objects of polygonal cross-section. When such irregular articles are to be striped, some of the cords and bands are drawn tighter than others to allow for the
 125 irregularities, or the longitudinal contour of the cylinders may be of a pattern to corre-

spond with the longitudinal contour of the object to be striped.

By the use of cords and bands narrow and broad stripes can be painted on the object at the same operation, and when it is desired to put on stripes of one color over those of another color and of different widths and patterns it can be accomplished by two operations using different sets of rollers of different patterns for each operation. There can be as many sets of rollers as desired, each set being of a different pattern. The small cylinders E F may be substituted by a series of separate pulleys, one for each cord and band, having separate adjustable bearing-blocks, springs, and screws arranged to be transposable. The vertical guides P P' may be so arranged that the article being painted will cross the painting bands and cords at an angle less than a right angle, and by this arrangement spiral stripes will be painted upon the article, the action of the bands and cords at such an angle tending to shift the article sidewise from the end guide at the same time it rotates, and thus stripe it for a part or the whole of its length, as desired.

Having thus fully described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. In a painting-machine, the combination of a stationary roll and an adjustable roll with paint-conveying bands supported between said rolls, guides for holding the article on the bands, and color-pans into which said stationary roll and paint-conveying bands dip, the whole being mounted in a suitable frame, substantially in the manner and for the purpose set forth.

2. In a painting-machine, the combination of a stationary roll and an adjustable roll, both having a matched series of circumferential grooves, paint-conveying bands supported between said rolls and fitting into said grooves, and guides arranged to hold the article in position on the bands with an adjustable platform carrying color-pans, whereby said color-pans can be brought up into position under said rolls, substantially in the manner and for the purpose set forth.

3. In a painting-machine, the combination of a stationary circumferentially-grooved roll and a series of adjustable circumferentially-grooved rolls, several series of color-conveying bands and cords supported between the stationary roll and the adjustable rolls and fitting in the circumferential grooves, the bands being supported from one adjustable roll and the cords from another and separate one, with color-pans under said rolls from which the paint is conveyed, all mounted in a suitable frame, substantially in the manner and for the purpose set forth.

4. In a machine for painting cylindrical bodies, the combination of the frame, the series of color-pans, a stationary roll having a series of deep circumferential grooves for

the reception of the edges of the said color-pans, an adjustable platform below said rolls, upon which said pans are supported, whereby the pans can be raised into position and the face of the roll dipped into the paint, a series of adjustable rolls, sliding blocks in which said adjustable rolls have their bearings, spiral springs having adjusting-screws secured to said blocks, several series of different-sized paint-conveying cords and bands supported between the stationary and adjustable rolls, and guides attached to the frame for confining the object being painted against said cords and bands, all substantially as and for the purpose set forth.

5. In a machine for painting cylindrical bodies, the combination of a series of stationary and adjustable rolls, a series of paint-conveying bands and cords supported between said rolls, color-pans having slanting bottoms extending under all the rolls and bands to catch the drip paint and supply the paint to the bands, sliding blocks forming the bearings of the adjustable rolls, springs and adjusting-screws secured to said blocks for holding the bands and cords taut, adjustable guides for confining the article to be painted, and a suitable frame for supporting the several parts, substantially in the manner and for the purpose set forth.

6. In a machine for painting cylindrical bodies, the combination, with the frame, the rolls, and color bands and cords supported by said rolls, of an adjustable support for the color-pans, consisting of a platform N and pivoted parallel links O O', upon which the platform is supported, hinging said platform to part N' of the frame, substantially as set forth.

7. In a machine for painting cylindrical bodies, the combination, with a series of rolls and the paint-conveying pans and cords supported between said rolls, of blocks hinged to the frame of the machine, friction-rollers mounted in said blocks, whereby the article to be painted may be held against the paint-conveying bands and cords, and a pulley on the axis of one of said rolls for applying motion to the machine, substantially in the manner and for the purpose set forth.

8. In a machine for painting cylindrical bodies, &c., the combination of the stationary roll D, adjustable rolls E F, sliding blocks G G', in which the rolls E F are journaled, spiral springs H H', and set-screws I I', for adjusting the sliding blocks, cords W and bands V, supported between said rolls, adjustable platform N, color-pans L on said platform, guides for holding the article being painted in position on the bands, and suitable means for applying power to the machine, substantially as and for the purpose set forth.

9. In a machine for painting cylindrical bodies, the combination, with a series of rolls, bands and cords supported between said rolls,

and adjustable platform supporting color-
pans, of a suitable driving-wheel, a holder for
the article while being painted, consisting of
two side pieces 2, hinged to the frame at *i*,
5 having cross-piece or handle 3, and blocks 4
on their upper side, carrying friction-wheels
5 5, the whole being kept in a normally-raised
position by means of spiral springs 6 6, con-

necting blocks 4 with pieces C of the rack,
all substantially in the manner and for the 10
purpose set forth.

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DAVID BAKER, JR.

Witnesses:

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H. P. LEFEBVRE.