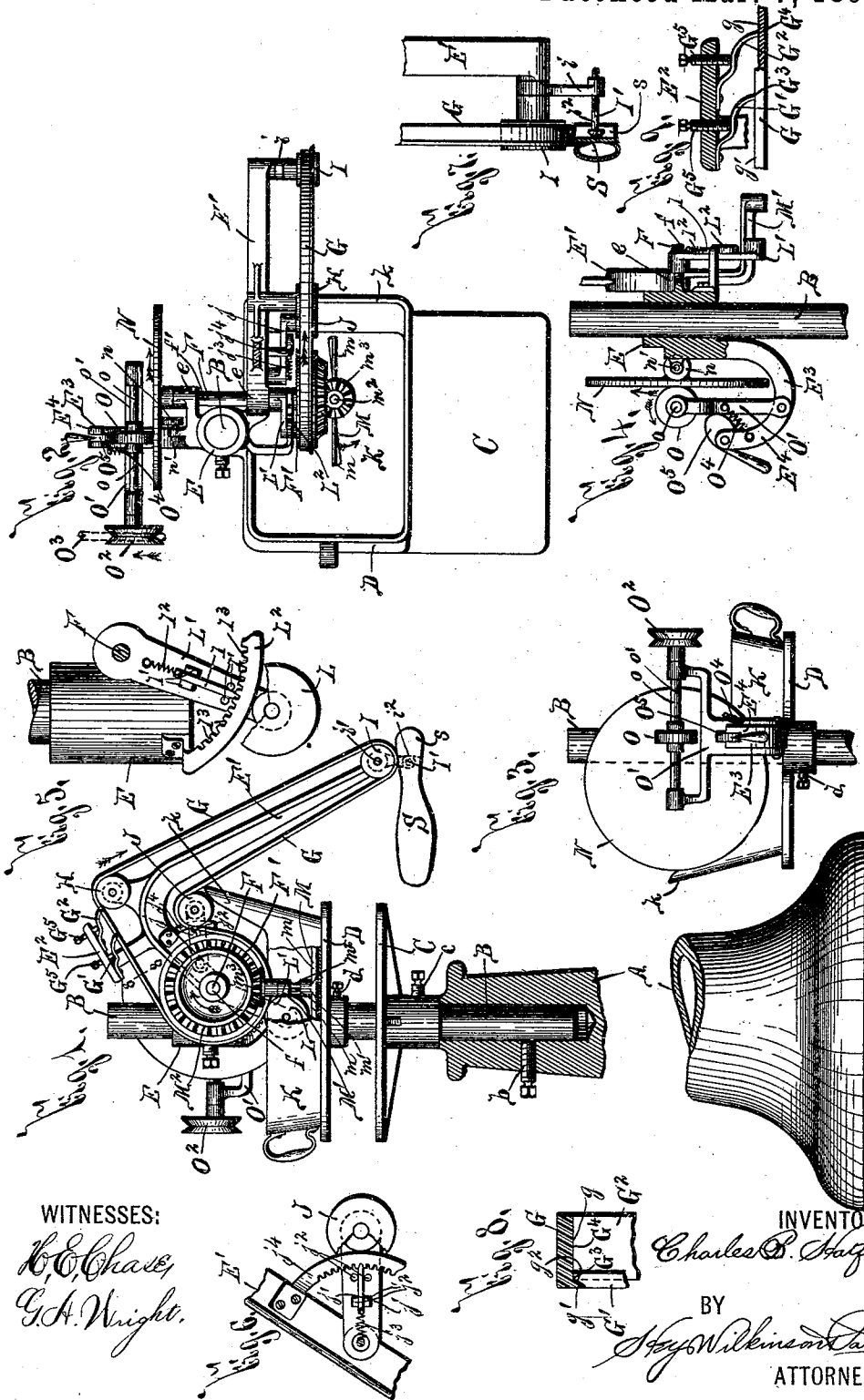


(No Model.)

C. B. HATFIELD.
SOLE INKING MACHINE.

No. 492,798.

Patented Mar. 7, 1893.



WITNESSES:

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SOLE-INKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 492,798, dated March 7, 1893.

Application filed March 29, 1892. Serial No. 426,934. (No model.)

To all whom it may concern:

Be it known that I, CHARLES B. HATFIELD, of Utica, in the county of Oneida, in the State of New York, have invented new and useful
5 Improvements in Inking-Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 inking machines particularly applicable for applying ink to the edges of the soles of boots, shoes, slippers and similar articles, and it has for its object the production of a simple and effective device, which is particularly eco-
15 nomical in manufacture and practical in operation: to this end it consists, essentially, in an endless belt for applying the ink, an applying drum or roller for supporting the inking belt when applying the ink to the sole
20 edge, a drum for actuating the inking belt, an ink reservoir, an adjustably mounted ink feeder for conveying the ink to the endless belt, and in the detail construction and arrangement of the parts, all as hereinafter
25 more particularly described and pointed out in the claims.

In describing this invention, reference is had to the accompanying drawings, forming a part of this specification, in which like letters
30 indicate corresponding parts in all the views.

Figure 1 is an elevation, partly in section, of my invention, representing the general construction and arrangement of the parts. Fig. 2 is a top plan view of the parts as shown
35 at Fig. 1. Fig. 3 is a detached rear elevation of the upper extremity of my inking machine. Fig. 4 is a detail side elevation partly in section, representing particularly the main shaft, the shaft for driving the inking belt, and the
40 connecting mechanism between said shafts. Figs. 5 and 6 are, respectively, detail elevations of the adjustably mounted ink feeding roller and the adjustably mounted supporting roller for the inking belt interposed be-
45 tween its driving drum and the applying roller. Fig. 7 is a detail view of the applying roller, the guide or support for the shoe when being inked and the detached end of the arm for supporting said parts. Fig. 8 is a detail view
50 showing the inking belt in cross section and the scrapers for the belt in elevation; and

Fig. 9 is a detail sectional view representing the construction and operation of the scrapers.

It is well known that the edges of the soles of boots, shoes, slippers, &c., must, in the
55 manufacture of said articles, be first inked or blackened before being burnished or finished. This ink is usually applied by hand, and the cost of manufacture is necessarily increased, as, even rapid operators can apply
60 but a limited amount of the ink when proper care is taken to apply it only to the edge and not upon the adjacent portion of the shoe upper. I am aware, however, that machines
65 have been devised for inking shoe sole edges, which are not yet in general use, as their construction is somewhat complicated, and their operation impractical, and more or less un-
certain.

My invention is designed to quickly and
70 automatically apply the ink to the sole edge upon the presentation thereof by an attendant, its construction is simple and effective, and the ink applying device, which consists of an endless belt passed over an applying
75 roller, is so arranged and constructed that all portions of the sole edge are readily and quickly inked without the slightest liability of applying the ink to the shoe upper.

—A— represents any suitable form of base
80 or frame having an upright rod —B— suitably secured thereto as by a set screw —b—.

Upon the upright —B— is a bracket —C— of desirable form, size and construction, for
85 supporting a number of shoes in convenient proximity to the operator. This bracket is movable lengthwise upon the upright, and is secured in position by any suitable fastening means, as a set screw —c—.

Directly above the work supporting bracket
90 —C— is a second bracket —D— also adjustably secured by a set screw —d—, and of any desirable form, size and construction.

Above the bracket —D— upon the upright
95 —B— is a bearing or head —E— for supporting the operating parts of my invention. This head is also of desirable form size and construction, and extending through hubs —e—
e— thereof is the horizontal shaft —F— arranged with one end —f— directly above the
100 bracket —D—.

Upon the end —f— of the shaft —F— is a

drum —F'— for driving the ink applying belt —G— in the direction shown by the arrows at Figs. 1 and 2. This ink applying belt may be constructed of any suitable flexible material and is an essential feature of my invention, and as best seen at Fig. 8 it is formed with the substantially flat ink applying face —g—, and a rib or shoulder —g'— projecting at substantially right angles from one edge of said face and formed with an ink applying face —g²—. The rib or edge —g'— bears upon the upper face of the sole edge and thereby serves as a guide for the shoe, thus greatly facilitating inking of the shoes, adding to the practicability of my machine, and enabling the operator to ink a far greater number of sole edges than would be possible were the belt unprovided with said edge.

The belt —G— is passed over the upper idler roller —H— around the ink applying roller or drum —I— and above an adjustably mounted pressure roller —J— for varying the frictional engagement of the belt —G— with the drum —F—. The rollers —H— and —I— are supported on an arm —E'— extending upwardly and then downwardly from the head or bearing —E— and the drum or roller —I— is of smaller diameter than the drum —F'— to enable the ready inking of the edge of the contracted portion of the sole, which, it is well known, is more or less curved and is usually inked thoroughly, only with considerable difficulty.

The support —j—, best seen at Figs. 1 and 6, for the roller —J— may be of desirable construction, and is here shown as a link or arm having one end hinged to the arm —E'— of the head —E— and the other provided with a suitable catch —j'— movable in bearings —j²— and forced by a spiral spring —j³— into engagement with engaging notches in an arc —j⁴— supported on the arm —E'—.

—I'— represents a guide or support, best seen at Figs. 1 and 7, for the shoe —S— when being inked. As preferably constructed, this guide consists of a lever —i— having one end loosely hinged upon the spindle —i'— of the applying roller —I— and the other provided with a projecting lug —i²— having its end arranged directly beneath the inking belt —G— in a plane perpendicular to the spindle —i'—.

In operation, the user of my machine brings the shoe into a substantially horizontal plane, as shown at Fig. 1, with the center of the sole in contact with the projecting end of the lug —i²— and forces the shoe inward toward the upright —B— as the ink is applied to its edge. In inking boots, shoes &c., it is desirable to ink a slight portion of the heel upon which the adjacent end of the sole is usually lapped, and this desirable result is readily effected by my peculiar construction of guide or support —I'— since as is evident, before the heel —s— of the shoe —S— engages the end of the stop lug —i²—, as seen at Figs. 1 and 7, the required amount of the heel is engaged as the

stop —i²— is within a perpendicular to the point of contact of the shoe and inking ribbon. If, however, the required amount of the heel is not inked when the guide engages the end of the lug —i²— it is evident that as the lever —i— is loosely hinged on the spindle —i'—, it may be readily swung upward and the shoe forced inward the required distance or else the rear end of the shoe may be swung slightly upward into a slightly inclined plane.

—G'—G²— represent scrapers mounted upon the upper extremity of a supporting arm —E²— for bearing against the ink carrying surfaces —g—g²— of the belt —G— and preventing the passage of lumps or thickened portions of the ink to the applying roller —I—. These scrapers may be of any desirable form, size and construction to attain the desired result, are preferably formed with the respective scraping edges —G³—G⁴— and may be adjusted by screws —G⁵—.

Upon the bracket —D— is the ink reservoir —K— which is of desirable form, size and construction, being preferably provided with the upwardly projecting arm —k— for catching the drippings from the belt when passed over the drum —F'— and the rollers —H— and —I—.

—L—, Figs. 1 and 5, represents the ink feeder which, although it may be of desirable form size and construction, is here illustrated as a roller driven by frictional contact with the belt —G—, and supported upon a movable arm —L'— hinged upon the shaft —F—. Upon this arm is a movable catch —l— guided in bearings —l'— and forced by a spring —l²— into engagement with the teeth —l³— of an arc —L²— secured to the head —E—. The ink feeding roller —L— is thus adjusted by its supporting arm —L'— so as to project the required amount within the ink to supply the belt —G— with the necessary amount of ink, and it will be evident that when so adjusted it is firmly held in position and may be readjusted at will.

The ink used for sole edges is extremely liable to thicken or clog, and to obviate this result I provide an ink agitator —M—, which may be of desirable form, size and construction.

As here illustrated, the agitator consists of arms —m—m— adjustable lengthwise by a key —m'— upon one end of a shaft —m²— journaled in an arm —M'— secured to the head —E— and having its opposite end provided with a bevel pinion —m³— meshing with a gear —M²— on the shaft —F— preferably formed integral with the drum —F'—. The arms —m—m— are adjustable lengthwise upon the shaft —m'— in order that the agitator may be revolved in close proximity to the ink feeding roller —L—.

Motion may be conveyed to the shaft —F— in any desired manner, but I have here illustrated as connected thereto a particularly applicable construction of power transmitting mechanism consisting of a disk —N— rigidly

secured to the rear end $-f'$ of said shaft, and an adjustably mounted driving wheel or pulley $-O$ diametrically adjustable across the face of the disk.

$-n$ represents an anti-friction pulley, which is mounted on a spindle $-n'$ so as to bear against the inner face of the disk $-N$ and form an abutment therefor.

The driving roller $-O$ is mounted on a shaft $-o$ journaled in a movable support $-O'$ hinged to a projecting arm $-E^3$ of the bracket or head $-E$. The power transmitting wheel or roller $-O$ is rendered adjustable by means of an ordinary feather $-o'$ and at the outer end of said shaft is a pulley $-O^2$ which is constantly driven in the direction shown by the arrow at Fig. 2, by any desirable form of mechanism as a belt $-O^3$ shown by dotted lines.

A spring or other suitable device $-O^4$ secured to the upturned end $-E^4$ of the arm $-E^3$ rocks the arm $-O'$ backwardly and withdraws the wheel $-O$ from engagement with the disk $-N$ when desired to stop the movement of the inking belt. A cam $-O^5$ is mounted on the upturned bracket end $-E^4$ and serves to force said arm $-O'$ forwardly and operatively engage the wheel $-O$ with the disk $-N$.

The operation of my invention will be readily perceived from the foregoing description and upon reference to the drawings; it will be particularly noted that the parts are simple in construction and operation, and that the ink is constantly agitated in the reservoir, continually supplied to the inking belt and applied by that portion of the inking belt passing over the applying roller.

My invention is not limited to the inking of sole edges as it is applicable for other purposes, and if desired, a belt unprovided with a projecting shoulder, or rib may be used particularly when inking welt sewed shoes although when the described form of belt is used for this purpose, the ink may be removed from the face $-g^2$ of the rib or shoulder $-G'$ by any suitable construction of wiper bearing thereagainst and unnecessary to illustrate or describe herein.

It is evident that the detail construction and arrangement of the parts of my invention may be somewhat varied from that shown and described; hence I do not limit myself to such detail construction and arrangement.

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

1. In an inking machine, the combination of an endless belt having an ink applying face, a projecting rib or shoulder extending outwardly from said face, and an ink feeder for supplying the ink to the belt, substantially as and for the purpose specified.

2. The herein described ink applying device for shoe edges and similar articles, the same consisting of an endless belt having an inking face, and a projecting shoulder ex-

tending outwardly from one edge of said face, substantially as and for the purpose set forth.

3. In a shoe inking machine, the combination of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, and a support arranged at the other side of the belt for supporting the shoe during the application of the ink, substantially as and for the purpose set forth.

4. In a shoe inking machine, the combination of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, a support arranged at the other side of the belt for supporting the shoe during the application of the ink, and an adjustably mounted ink feeding roller bearing against said belt, substantially as specified.

5. In a shoe inking machine, the combination of a supporting frame; of an endless inking belt for engaging the shoe and applying the ink directly thereto, a shoe support consisting of an arm having one extremity hinged to the frame and the other movably mounted in proximity to said belt for supporting the shoe during the application of the ink, and an ink feeder for supplying the ink to the belt, substantially as described.

6. In a shoe inking machine, the combination of a supporting frame; of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, and a support consisting of an arm having one extremity hinged to the frame and the other arranged normally at the opposite side of the belt for supporting the shoe during the application of the ink, substantially as and for the purpose described.

7. In a shoe inking machine, the combination of an endless inking belt for engaging the shoe and applying the ink directly thereto, an ink feeder for supplying the ink to the belt, an adjustable support for said ink feeder, a catch for holding said support in its adjusted position, and a spring bearing against said catch, substantially as and for the purpose herein set forth.

8. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller; of a revoluble disk mounted on said shaft for rotating the same, and an anti friction roller bearing against the face of said disk for preventing lengthwise movement of the shaft, substantially as and for the purpose described.

9. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller; of a revoluble disk mounted on said shaft for rotating the same, and an

actuating wheel movable toward and away from said disk for frictionally engaging and rotating the same, substantially as set forth.

10. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller; of a revoluble disk mounted on said shaft for rotating the same, an actuating wheel movable toward and away from the revoluble disk and adapted to bear there-against, a movable support for said disk, and a cam for forcing said wheel against the disk, substantially as and for the purpose set forth.

11. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying

roller, and an inking belt movable over said drum and roller; of a revoluble disk mounted on said shaft for rotating the same, a main driving shaft extending crosswise of said disk, and an actuating wheel movable lengthwise on said shaft for revolving the disk, and a cam for forcing said wheel against the disk, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 7th day of March, 1892.

CHARLES B. HATFIELD.

Witnesses:

CLARK H. NORTON,
S. M. BAXTER.