J. Turner,

Leather Machine,

No. 13,071. Patented June 12, 1855.

Fig: 4

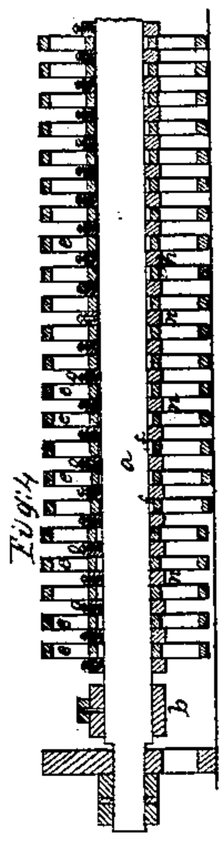


Fig: 5

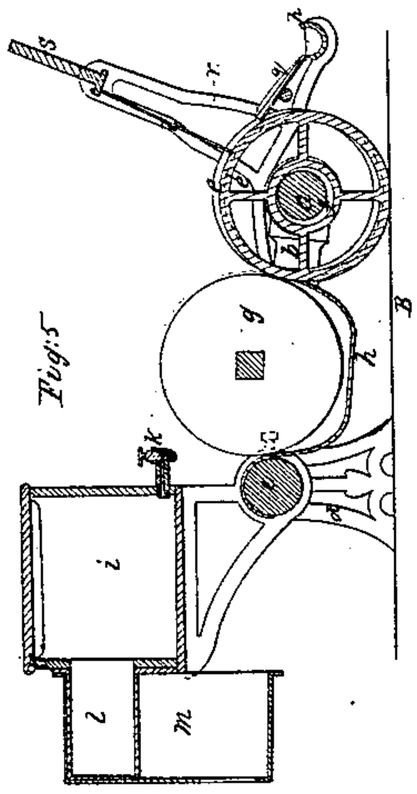


Fig: 6

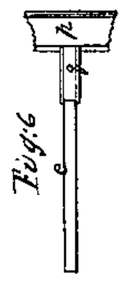


Fig: 3.

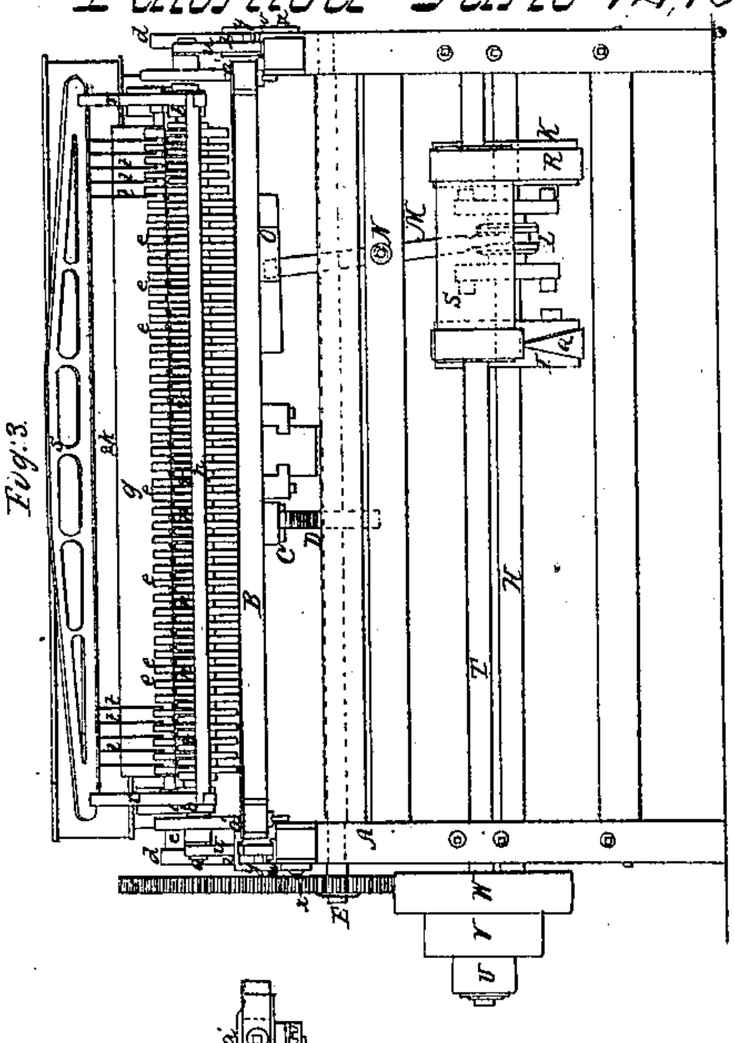


Fig: 7

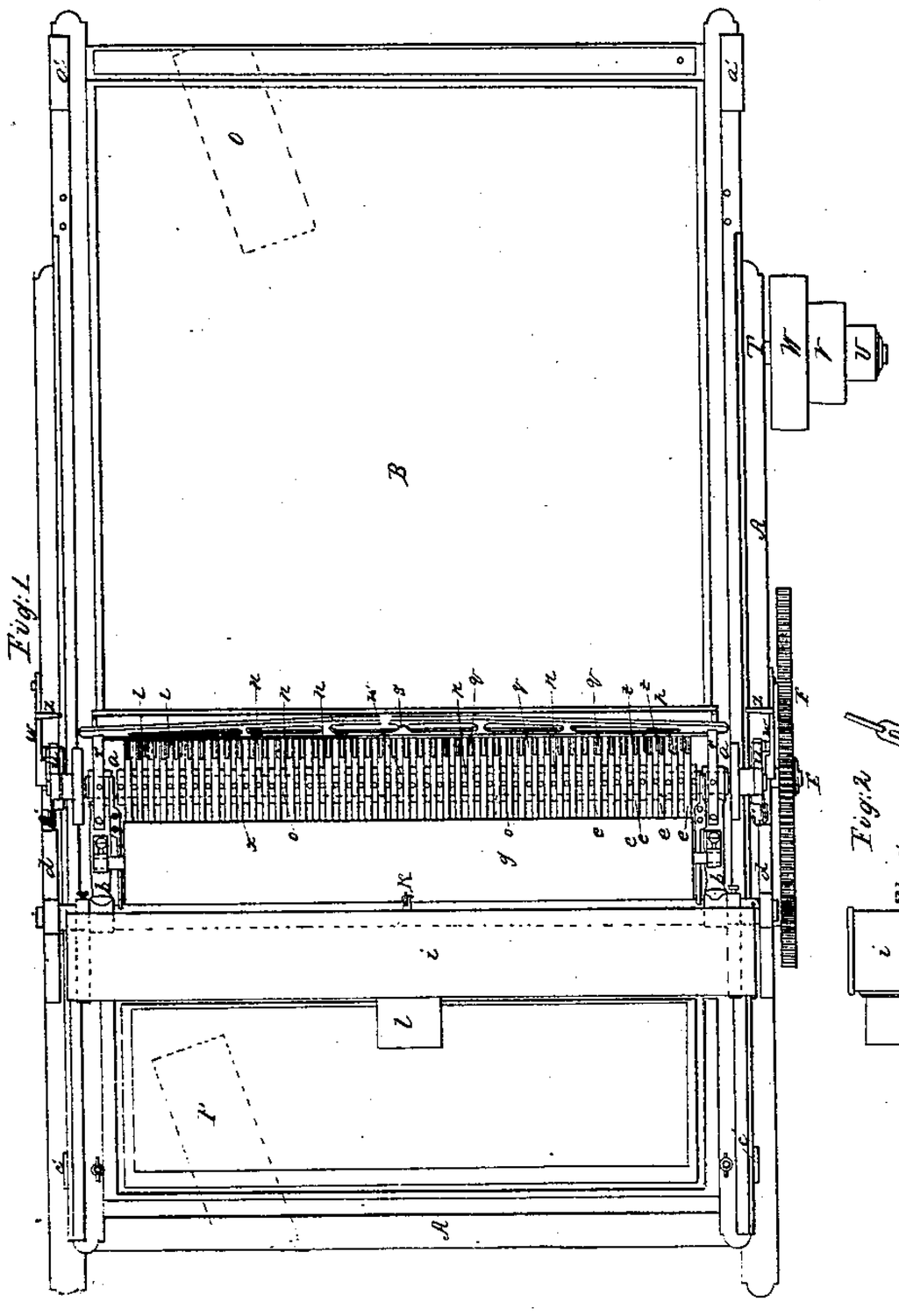
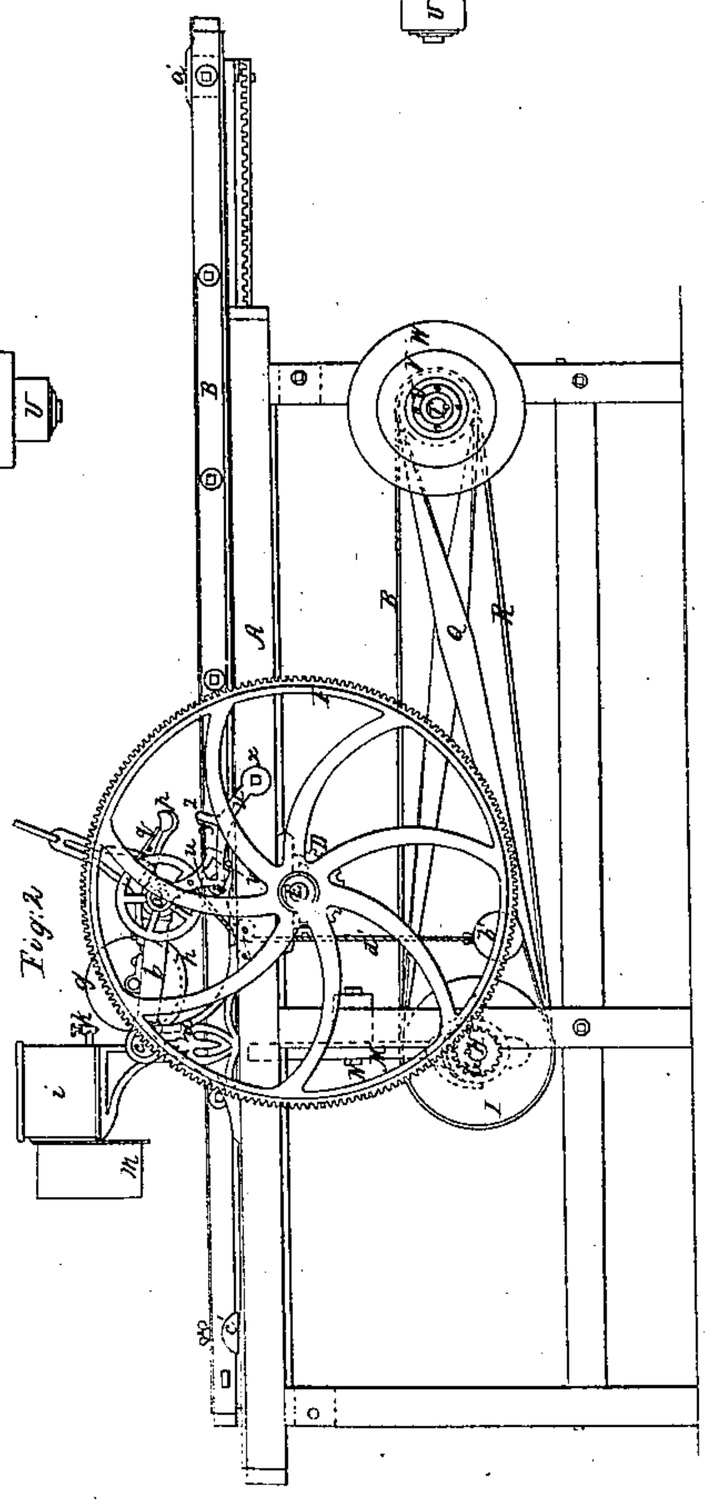


Fig: 2



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSHUA TURNER, JR., OF CHARLESTOWN, MASSACHUSETTS, ASSIGNOR TO A. BENNETT AND W. COVELL.

MACHINE FOR RULING LEATHER.

Specification of Letters Patent No. 13,071, dated June 12, 1855.

To all whom it may concern:

Be it known that I, JOSHUA TURNER, Jr., of Charlestown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Machine for Striping Leather; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of such drawings, Figure 1, denotes a top view of my said machine. Fig. 2, is a side elevation of it. Fig. 3, is an end view of it. Fig. 4, is a longitudinal and vertical section of its series of striping wheels and their shaft. Fig. 5, is a transverse section of the inking or coloring apparatus, one of the striping wheels, the scraping mechanism thereof, and the mechanism employed to maintain a striping wheel out of action upon the bed and coloring wheel whenever the same may be necessary, as will be hereafter described.

The object of my machine is to produce parallel stripes upon a skin or piece of leather for the purpose of enabling the same to be converted into shoe bindings, and although I apply my machine to the striping of skins of leather, it is equally applicable to striping a sheet or sheets composed of a different material. I do not intend to be understood that my machine will answer to stripe a sheet composed of any material, but that it is applicable not only to the striping of sheets of leather, but may also be applied to stripe sheets of paper, cloth or various other materials.

A skin of leather not only varies in its thickness, but is liable to have holes in it. Skins used for bindings also vary in thickness from one another. These inequalities are to be taken into view in the construction of an automatic machine for striping them and they have been duly considered by me as will be hereinafter perceived.

In Figs. 1, 2 and 3 of the drawings, A, denotes the frame of the machine, which supports a carriage bed or table B, upon the top surface of which a skin is laid previous to and during the operation of striping such skin. The upper surface of the said bed, if necessary may be covered with a sheet of india rubber cloth, leather or some other suitable yielding or elastic material. The said bed or table, B, is to be sustained on the frame, A, in such manner as to enable it to be moved freely in a longitudinal and rectilinear direction and with a reciprocating movement, such being produced by any proper mechanism. That which I employ is represented in the drawings. It consists in part of a rack, C, fixed to the underside of the bed. Into the said rack a pinion D, (see Figs. 2 and 3) engages, the same being fixed upon the horizontal shaft, E, which is extended transversely of the frame of the machine as seen in the drawings. The said shaft, E, carries a gear wheel, F, which engages with a pinion, G, fixed upon a transverse shaft, H. On the shaft H, are two pulleys, I, K, (see Figs. 2 and 3,) and a clutch, L, the latter being placed between said pulleys and moved by means of a lever, M, so as to clutch either of the pulleys to the shaft, as occasion may require. The said lever turns on a fulcrum at N, and is operated or turned by the action of one or the other of two cams affixed to the under side of the bed, B, as represented by dotted lines at, O, and P, in Fig. 1. While the bed is moved in one direction, one of these cams is caused to meet the lever and move it so as to throw the clutch L, into action with the pulley, I. So while the carriage B is moving in the opposite direction, the other cam operates on the lever, M, so as to throw the clutch into engagement with the pulley, K. Endless bands, Q, R, pass respectively around the pulleys, I, K, and a drum S fixed upon a horizontal drawing shaft, T, which carries a set of driving pulleys as seen at, U, V, W, in Figs. 1, 2 and 3.

Directly over the bed, B, and across the same I place a shaft, *a*, see Figs. 1, 2, and 3, such shaft being sustained by means of two arms, *b*, *b*, affixed to and projecting from a horizontal shaft, *c*, whose journals are supported by standards (as seen at *d*, *d*,) elevated upon the frame, A, the shaft *a* being free to be moved either upward or downward. On the shaft, *a*, I place a series of wheels, *e*, *e*, each of which has an eye or central passage *f*, made through it, whose diameter is greater or about a quarter of an inch larger than that of the shaft, *a*, the object of such being to enable the wheel not only to play freely up or down with respect to the bed, B, or a skin placed thereon, but also to maintain it (the said wheel) in contact with an inking or coloring roller, *g*, ar-

ranged with respect to the series of wheels, *e*, *e*, and with its journals supported on the bars, *b*, *b*, as seen in the drawings. Under the said cylinder or roller *g* there is an inking or coloring trough, *h*, said roller being made to revolve within the same. In rear of and above the roller and the said ink trough I place a color fountain or reservoir, *i*, which may be provided with a faucet, *k*, through which the coloring liquid may be suffered to flow and drop into the trough, *h*, as occasion may require. If necessary the reservoir, *i*, may be provided with an extension, *l*, under which there may be a chamber, *m*, for the reception of a lamp or other means of applying heat to the bottom of said extension, *l*, so as to heat the contents of the reservoir *i*. Each of the wheels, *e*, *e*, is separated from that which is directly next to it by an annulus or ring, *n*, fixed upon the shaft, *a*, by means of a screw as seen at, *o*. These annuli or rings not only serve to keep the striping wheels at their proper distances asunder, but maintain them in vertical planes during their operations.

Alongside and in front of the series of striping wheels there is arranged a receiving trough *p*, its position being represented in Figs. 1, 2, 3, and 5. From the rear edge of such receiving trough to each of the striping wheels, *e*, a small trough scraper, *g*, extends, that end of the scraper which rests upon the wheel being made or formed so as not only to scrape the periphery, but along the two edges or sides of the wheel a short distance from its periphery. The object of so applying the scraper not only to the periphery but to the two sides of the wheel (the same being more particularly represented in Fig. 6) is to remove from the said edges and periphery any surplus ink or coloring matter and thereby cause the wheel to print an even stripe. Each of the scrapers, *q*, should be so applied to the trough *p*, as not only to enable it to play fully up and down or accommodate itself to the movements of its wheel, *e*, but to continually maintain its contact with the said wheel, *e*, and also discharge the surplus coloring fluid or ink into the receiving trough *p*. The standards or frames *r*, *r*, by which the trough *p*, is supported serve to sustain a cross bar, *s*, from which depends a series of hooks or hooked wires as seen at, *t*, *t*, the object of the wires being to hook under the rims of any one or more of the striping wheels, *e*, *e*, and lift and maintain such wheels out of action with the bed or surface to be striped and the coloring roller, *g*, as circumstances may require. As every machine of this kind should be constructed of a size or width sufficient for striping the widest as well as the narrowest skin of the kind generally used, it will often be found necessary or useful to throw out of action some one or more of the striping wheels and this may be accomplished by means of the bar, *s*, (arranged as shown in the drawings) and its depending hooks.

In Figs. 3, 4 and 5, is seen the method of elevating the wheels, *e*, *e*, by their suspension hooks, *t*, *t*. If desirable the periphery of each of the striping wheels may be scored or grooved with parallel grooves extending entirely around it and this for the purpose of holding the coloring matter or fluid to good advantage.

In connection with the series of striping wheels and the bed or table of the machine I employ a mechanism not only for raising said wheels above a skin resting on the bed and after such skin has been striped by them, but for maintaining them entirely off the skin during the backward movement of the bed, the skin being striped during the forward movement of the bed under the striping wheels and said wheels being lifted up as soon as the striping operation has been completed. Such mechanism I shall now proceed to describe.

The shaft, *a*, carries at each end of it a sectoral or rocker arm, *u*, which has a catch pin, *v*, extended from it as seen in Fig. 2. This catch pin operates in connection with a lever catch, *w*, that turns upon a fulcrum *x*, extended from the frame A, as seen in Fig. 2. Each side of the frame has such a lever catch applied to it, the said catch having an arm, *y*, extended up from it carrying a stud or projection, *z*, which is made to extend inward from it, as seen in Figs. 1 and 3. There is a cam or lifter, *a*, applied to the top surface of the bed, B, and near each of its two rear corners as seen in Figs. 1 and 2. This lifter operates in connection with the stud, *z*. When carried against said stud by and during the forward movement of the bed, B, it raises said stud and so as to lift the catch, *w*, above the pin, *v*, and allow a weight, *b′*, to so act upon the sectoral rocker arm, *u*, as to so move it on the frame, A, as to cause it to elevate the series of striping wheels and keep the same elevated some distance above the bed and until a stud, *c′*, is carried by the bed and during its backward movement, against the arm, *u*, or a pin projecting therefrom, so as to move said arm out of its upright and into an inclined position and thereby caused the striping wheel to descend toward and upon the surface of the bed; the catch, *w*, in the meantime being elevated by and dropped upon the pin, *v*.

I would remark that the weight, *b′*, is attached to a cord, *d′*, which runs over a pulley, *e′*, and is fastened to the rocker arm, *u*, as seen in the drawings. In order that the series of striping wheels may be elevated, a weight, *b′*, may be applied to each of the arms, *u*, and if necessary each of

said arms may have a catch, *w*, with a lifter *a'*, and stud, *c'*, to operate it as hereinbefore specified.

In using the above described machine, the skin is laid upon that half of the table, B, on which the lifters (*a'*), are situated. This done, the machine is set in motion so as to carry the skin in contact with and under the striping rollers, which by their action upon it will impart to its upper surface regular and parallel stripes of color, the striping mechanism being raised off the bed on completion of such striping, and maintained in such position during the return movement of the bed, and until the skin has been moved entirely away from underneath it. The cylinder or roller, *g*, is revolved in its vat or trough, *h*, by the pressure and rotary motion of the striping wheels against it (the said roller) and while so revolving it will impart color or ink to the peripheries of said wheels.

From the above it will be seen that however irregular in thickness the skin may be, or whatever may be its thickness or whether it have one or more holes in it or not, the striping mechanism will correctly perform its functions, each striping wheel acting independently of the others in such manner as to conform itself to the surface against and upon which it passes and still rest against its coloring wheel under all such changes or movement of it in vertical directions.

I do not claim the combination of a printing roller with a movable bed, but what I do claim is—

1. My improved manner of combining each of the striping wheels of the above described machine with its movable bed and inking or coloring roller, the same consisting in applying said striping wheel to its shaft in such manner as to enable it to rotate on the same and to play freely thereon in any direction in a plane perpendicularly thereto and to such extent as to accommodate itself to the changes in the surface of the leather or article to be striped as specified, and at the same time keep in close contact with its coloring roller or cylinder.

2. I also claim combining with the series of striping wheels arranged together and on a shaft as described, a mechanism for raising and maintaining either one or more of them out of action with the surface to be striped and the coloring roller during the movements of the remainder of such wheels and the bed and surface to be striped under them as specified—such mechanism being a cross bar or frame, S, and its set of suspension hooks, *t*, *t*, *t*, arranged, supported, and made to operate substantially as described.

3. I also claim combining with the series of striping wheels and the bed, a mechanism not only for raising said wheels from a skin resting on the bed and after it has been striped by them but for maintaining them entirely off the skin during the backward movement of it and the bed as specified, the said mechanism being a rocker arm, *u*, with its weight, *b'*, the catch or latch, *w*, the lifter, *a'*, and the projection, *c'*, as applied to either one or both ends of the shaft, *a*, and made to operate as hereinbefore explained.

4. I also claim combining with a series of striping wheels a spout or receiver *p*, and peripheral and side or edge scrapers, *q*, operating with respect to the spout and wheels substantially in manner and for the purpose as specified.

In testimony whereof I have hereunto set my signature this second day of March, A. D. 1855.

JOSHUA TURNER, Jr.

Witnesses:

R. H. Eddy,

F. P. Hale, Jr.