

S. W. J. F. & N. Palmer,

Mangle,

N^o 61,018

Patented Jan. 8, 1867.

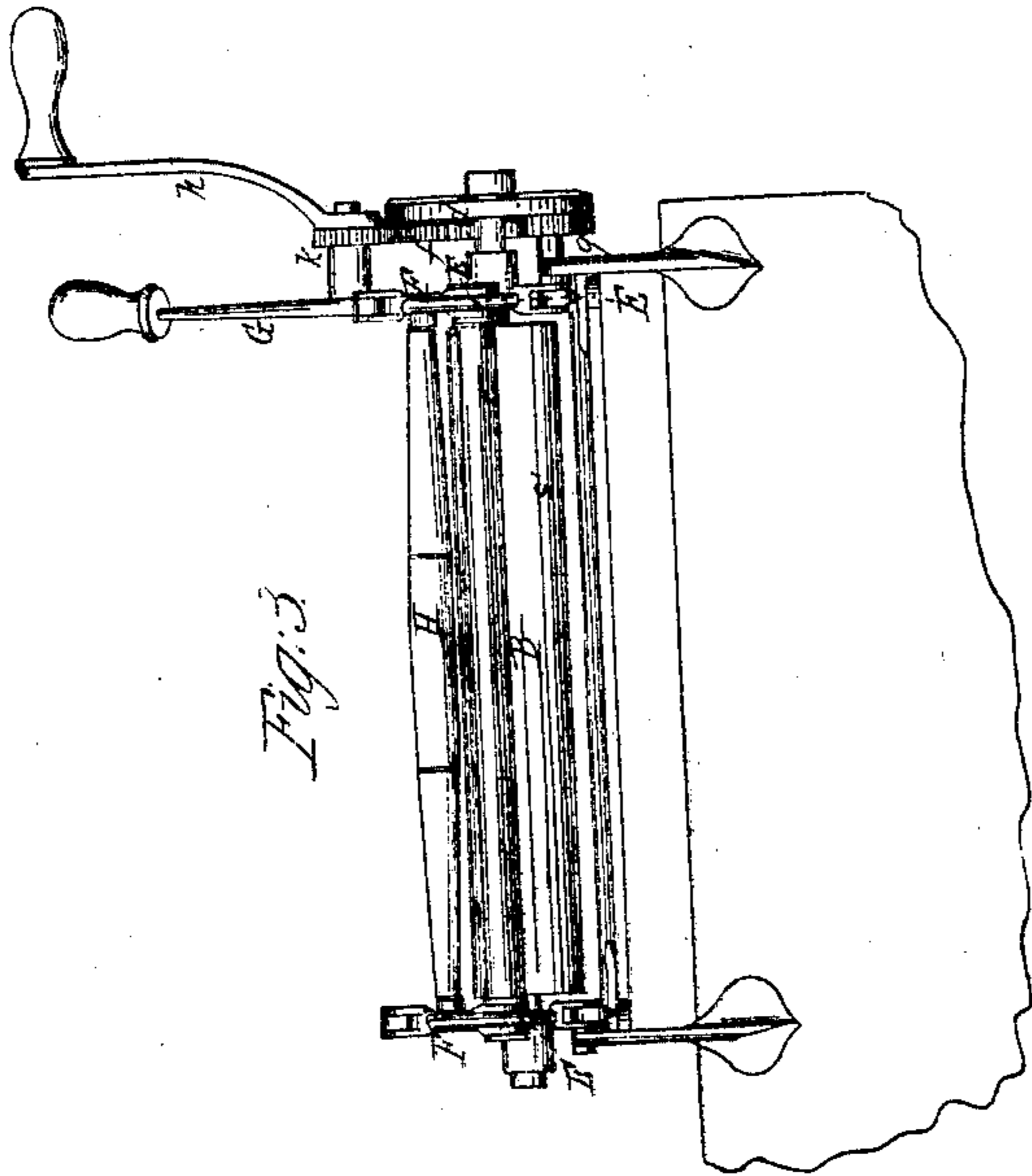
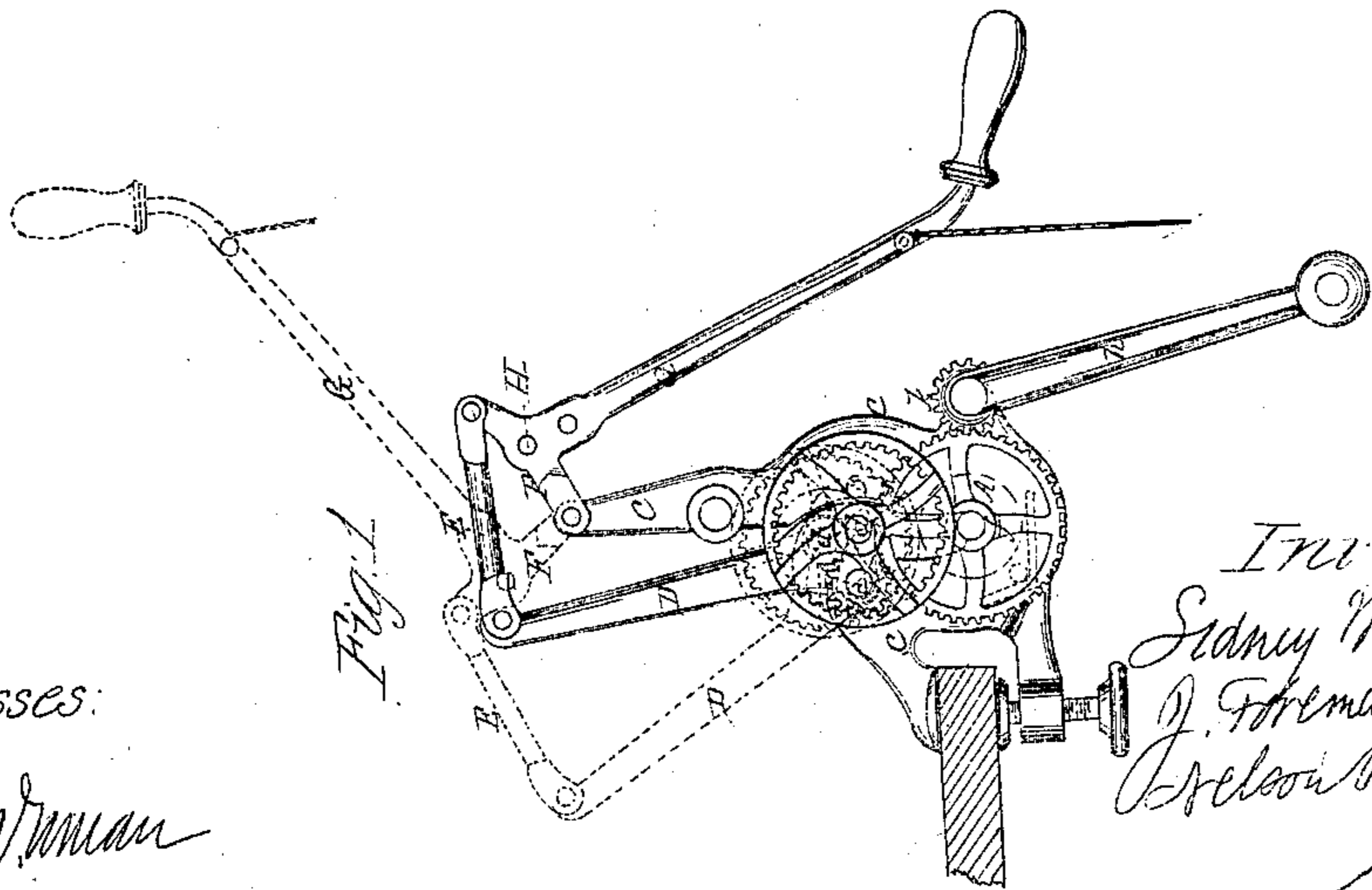
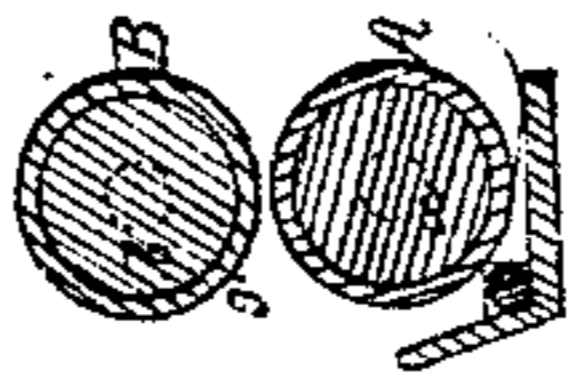


Fig. 2.



Witnesses:

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SIDNEY W., J. FOREMAN, AND NELSON PALMER, OF AUBURN, NEW YORK, ASSIGNORS TO THEMSELVES AND DAVID LYMAN, OF MIDDLEFIELD, CONNECTICUT.

Letters Patent No. 61,018, dated January 8, 1867.

IMPROVED MANGLE.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that we, SIDNEY W., J. FOREMAN, and NELSON PALMER, of Auburn, in the county of Cayuga, and State of New York, have invented certain new and useful Improvements in Mangles; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a mangle constructed in accordance with our invention.

Figure 2, a transverse vertical section of the mangle rolls; and

Figure 3 is a top or plan view of the machine.

Our invention consists, first, in forming the surface of the rolls of a mangle of vulcanite or hard rubber. When mangle rolls are made of wood, the moisture which is pressed from the clothes or other articles passing between them, soon causes them to lose their polish, and to become rough and swollen, thus rendering them unfit for use as mangle or ironing rolls. On the other hand, when metal rolls are employed, the dampness or moisture of the clothes soon causes them to rust; while the soda or alkalies, which are used in washing, attack the metal, and corrode or eat into it. The use of metal in this connection is, therefore, quite as objectionable as that of wood, and even more so, for the rust on the rolls is apt to mark and stain the articles which are brought in contact with them. It is, consequently, a great desideratum to construct rolls of a material which will not rust or corrode, and which will always present a hard and smooth surface. To accomplish this, we have made the rolls, or that part of them which comes in contact with the clothes or other articles to be smoothed, of vulcanite or hard rubber, the use of which is attended with none of the disadvantages consequent upon the employment of other material, as above mentioned; for it is not affected in any way or degree by water or moisture, and is not attacked by the salts or alkalies used in washing, preserving at all times a smooth, hard surface, admirably fitted for mangling purposes.

Our invention also consists in the arrangement of the gear for transmitting motion between the rollers, whose axes must necessarily be at variable distances from each other. Under this arrangement the gear-wheels, mounted on the ends of the two rollers, do not mesh directly with one another, but engage with an auxiliary wheel or pinion; and, while the centres of motion of the two rollers are at variable distances with respect to each other, the distance between them and the centre of motion of the auxiliary gear is fixed and unchangeable. The latter wheel or pinion constitutes, therefore, the intermediary through which motion is communicated from one roll to the other, and by means of which the rollers are revolved at an equal rate of speed, no matter what may be the distance between them.

Our invention further consists in the arrangement and combination, with the adjustable and movable roller of the mangle or other like machine, of a system of levers for regulating and graduating the pressure upon the article passing between the rolls.

To enable those skilled in the art to fully understand and to use our invention, we will now proceed to describe it by reference to the accompanying drawings.

In fig. 2 is shown the construction of the mangle rolls. They consist each of a mandrel or shaft, *a* and *b*, of metal or other suitable material, upon which is cemented or otherwise secured a sleeve or casing of hard rubber, *A* and *B*, of any desired or suitable thickness. These rollers are provided at their ends with journals, which have their bearings in the machine, as shown in fig. 1. The lower roll, *A*, is arranged in the frame *C* in the usual manner. The upper and adjustable roll, *B*, has its bearings in the lower and shorter arms of levers, *D*, pivoted to the frame *C*, so that their pivotal points, *c*, shall be eccentric to the bearings of the roller *B*, as may be likewise seen in the combined wringer and mangle, for which Letters Patent, No. 45,071, were issued to SIDNEY W. and J. FOREMAN PALMER, two of the parties to the present application, on the 15th November, 1864. The levers *D* extend upward above the frame, and are jointed at their upper ends to link-pieces or levers, *E*. The lever *E*, on that side of the machine, preferably, where the gear mechanism is located, is jointed at its other to one end of a lever, *F*, the other end of which is pivoted to the top of the frame *C*, and from the centre of which, or thereabouts, extends a lever handle, *G*. A compound lever is thus formed which, when the handle *G* is raised or lowered, will raise or lower in a corresponding degree the roll *B*, which, as above explained, is hung in the

shorter arms of the levers D. It will be understood that this system of levers is the same on both sides of the frame, with the exception of the lever-handle G, which need only be attached to one set of levers, motion being communicated to the levers on the other side of the frame by a rod or shaft, H, which extends from the point where the handle G is attached to the lever F to a corresponding point on the lever F on the other side of the frame. The levers on both sides of the frame are thus moved alike by the lever handle, which may be actuated by hand, weights, or other means which will readily suggest themselves. On one side of the machine, the journals of the rollers A B extend out from the frame, and have mounted on them gear-wheels. The wheel *d* of the upper roll is an internal gear-wheel, while the lower wheel *f* has its teeth formed upon its exterior. These gears do not mesh with one another, but with a third or intermediate gear, *g*, which is arranged and secured in place so that its axis shall be the pivotal point *e* of the levers D. Now, as the centres of motion of the upper roll B and levers D are at a fixed and unchangeable distance from each other, it follows, of course, that the distance between the gears *d* and *g* will be likewise fixed and invariable; and as the gear *f* of the lower roll A also meshes at all times with the intermediate pinion *g*, the latter thus constitutes the medium for communicating motion from one roll to the other, no matter at what distance the rolls are from each other. The crank or handle *h*, by which the rollers are revolved, may be mounted on the hub of the lower wheel *f*, or it may be arranged in connection with an auxiliary gear, *k*, so as to obtain more power. The gears may be either on one or on both sides of the machine, with an additional shaft and pinion extending from the wheel *g*, to transmit motion to the gear on the other side of the frame. This arrangement, however, need only be used when it is necessary to obtain a considerable increase of power. The construction and arrangement of the gear are such that there is a great gain in power over ordinary gearing employed for like purposes. Under our invention, the toothed wheels *d f* may be of any diameter not exceeding the sum of the diameters of the two rolls A B. One of the wheels is an internal gear-wheel, and the other has its teeth formed upon its exterior. They mesh with a pinion which, in order to gear with both, must engage with the external gear-wheel, and then extend out far enough to fit in the internal gear of the other wheel. It follows, therefore, that when thus arranged, the two wheels do not lie in the same vertical plane, but that, in order to avoid interfering with each other, they are placed so as to be partly side by side, as shown in the drawings, the one lapping over the other. The great increase in the diameter of the wheels which this arrangement admits of, causes, of course, a correspondingly great increase of lever power, and enables the rolls to be revolved with comparative ease. We prefer, for the sake of convenience and accuracy, to use the internal or female gear, *d*, as the mould in which to cast the external gear *f*. In this way the two gear-wheels have the same diameter of pitch, and will move entirely in unison. This gearing is therefore well adapted for mangles, wringers, or other machines in which the rollers are required to move with regularity and in unison. If it be necessary to vary the speed of the two rolls—i. e., if it be desired to produce friction between them—then of course the diameters of the wheels may vary. If it be desired, letters or ornamental devices may be engraved or cut in either one or both of the mangle rolls, as shown at *s*, figs. 2 and 3, so that the articles passing between the rolls shall receive the impression of the device, which will appear upon it in relief. In this manner towels, napkins, and other articles may be marked with the name of the owner, or ornamented with devices of any desired pattern.

Having described our invention, and the manner in which the same is or may be carried into effect, what we claim, and desire to secure by Letters Patent, is—

1. The application to the rollers of mangles of hard rubber or vulcanite, substantially in the manner and for the purposes described.
2. Combining and connecting the lever frames, in which the stationary and movable rollers are hung, by a system of links and levers, arranged substantially as described, so that the same may be actuated by hand, weights, or otherwise, substantially as and for the purposes herein shown and described.
3. In combination with the movable roller when hung in the short arms of angular levers for the purpose of adjustment with reference to the stationary roller, we claim the internal and external gear-wheels, and intermediate pinion, under the arrangement shown and described, so that the said gear-wheels, while at variable distances from each other, shall bear fixed and invariable relations to the said pinions, substantially as and for the purposes set forth.
4. We claim the method of gearing the rolls of mangles, or other like machines, when arranged so as to move with equal or different velocities, but at variable distances from each other, by mounting upon the said rolls, respectively, internal and external gear-wheels, which mesh with an intermediate pinion, stationary with relation to said rolls, substantially as shown and set forth.
5. In a mangling machine, we claim marking and ornamenting the material passing between the mangle rolls, by means of letters or other devices or designs, cut or formed in intaglio in one or both of said rolls, substantially as herein shown and described.

In testimony whereof we have signed our names to this specification before two subscribing witnesses.

S. W. PALMER,
J. F. PALMER,
NELSON PALMER.

Witnesses:

HORACE T. COOK,
A. POLLOK.