

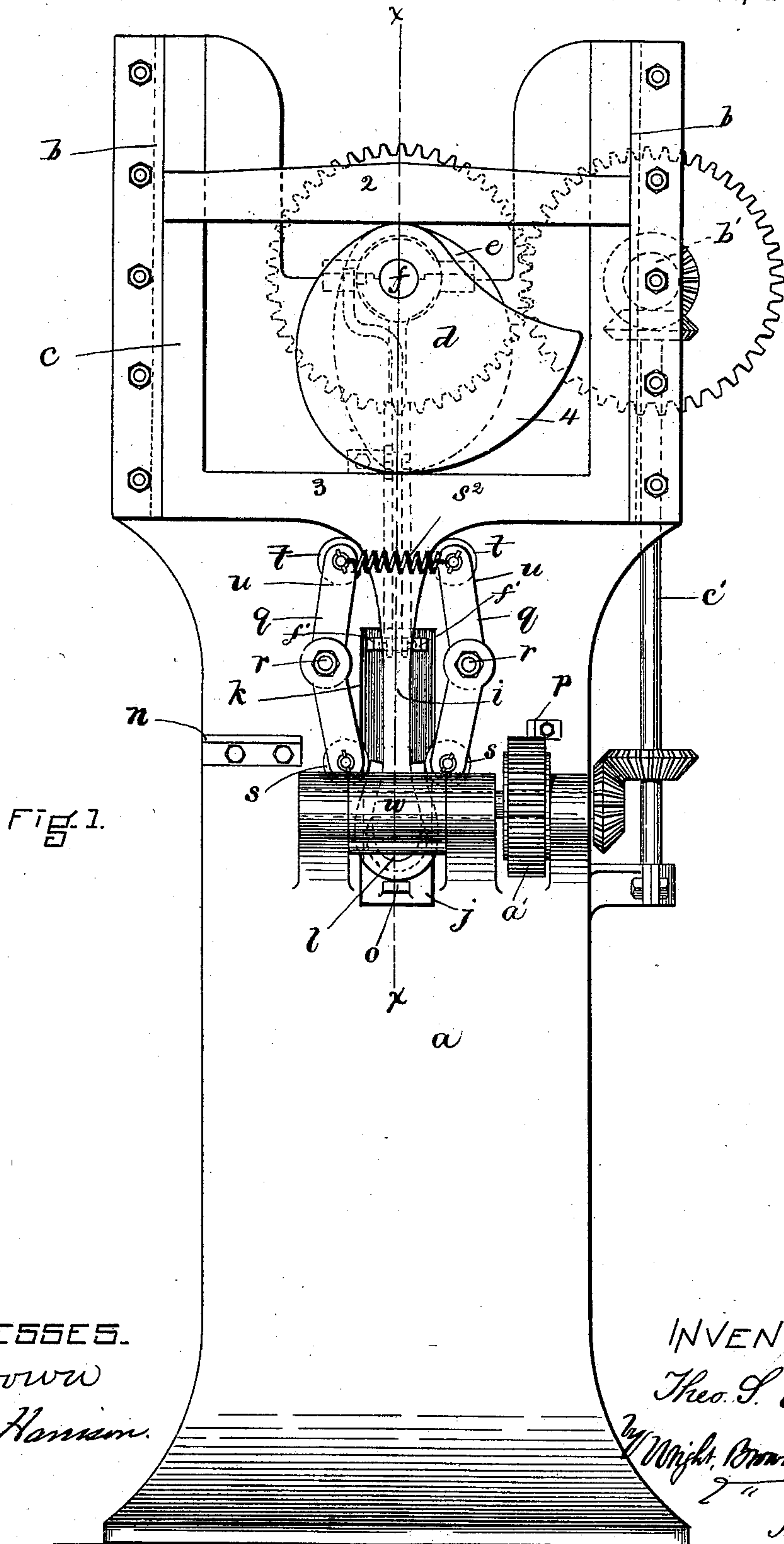
(No Model.)

3 Sheets—Sheet 1.

T. S. VERY.
HORSESHOE MACHINE.

No. 364,689.

Patented June 14, 1887.



WITNESSES.
H. Brown
A. D. Harrison.

INVENTOR—
Theo. S. Very.
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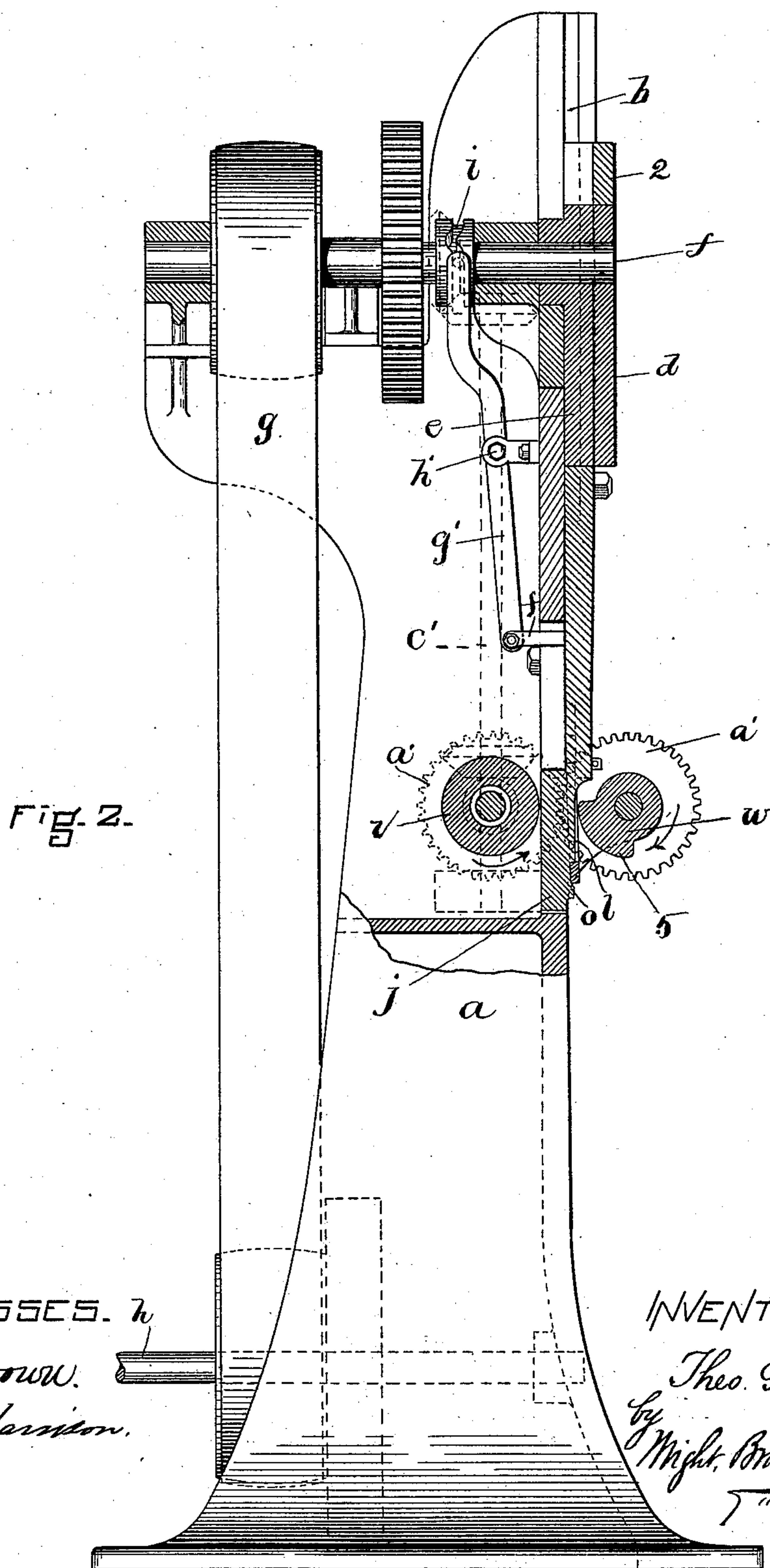
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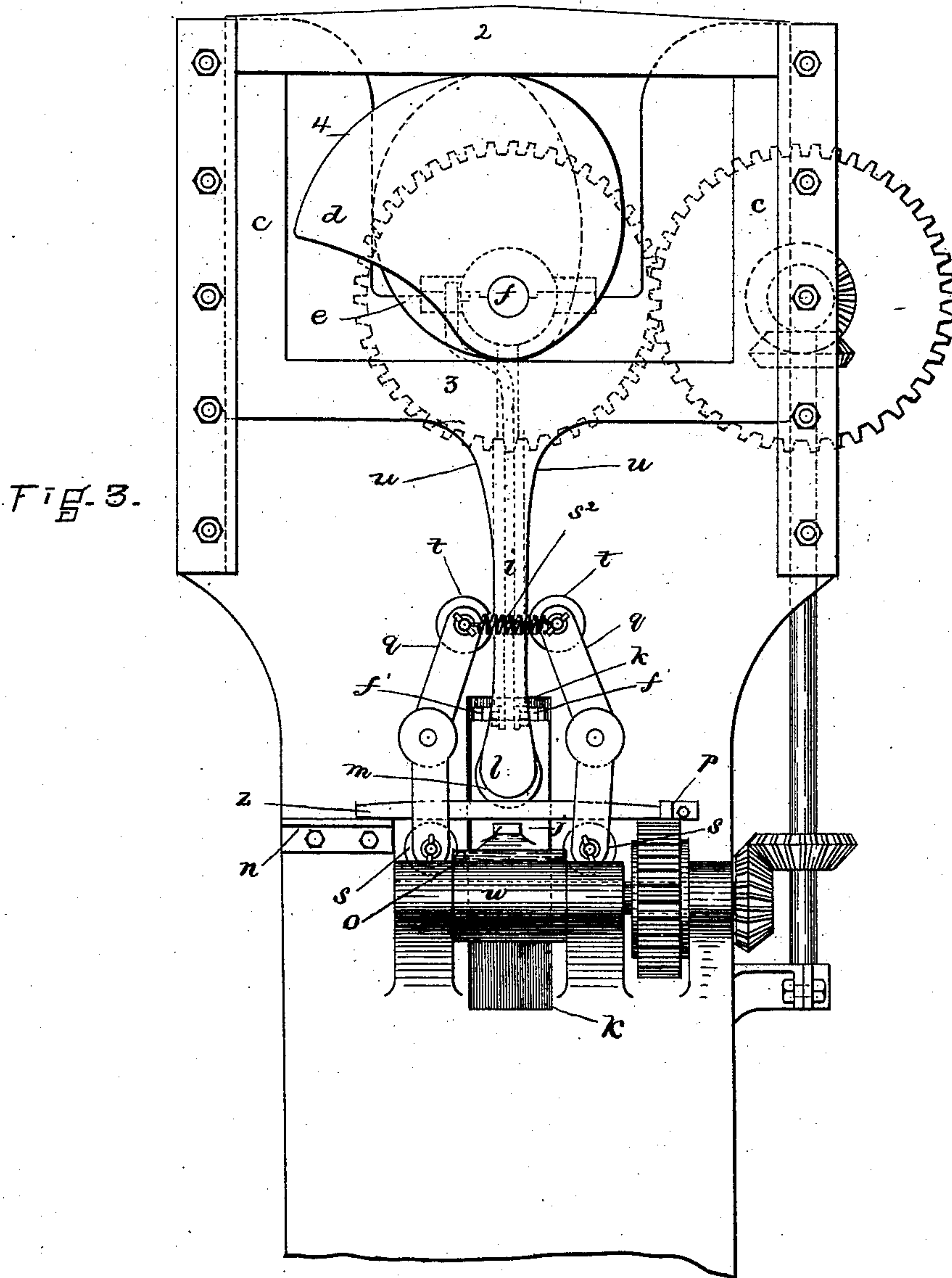
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UNITED STATES PATENT OFFICE.

THEODORE S. VERY, OF BOSTON, MASSACHUSETTS.

HORSESHOE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 364,689, dated June 14, 1887.

Application filed October 14, 1886. Serial No. 216,224. (No model.)

To all whom it may concern:

Be it known that I, THEODORE S. VERY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Horseshoe-Machines, of which the following is a specification.

This invention relates to that class of horseshoe-machines in which a bar previously cut into the proper length for a shoe is bent around a former and seated or beveled on its hoof-bearing side.

The invention has for its object to provide a simple and effective machine of this class; and to this end it consists in the several improvements, which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification, Figure 1 represents a front view of my improved machine after the bar has been bent around the former. Fig. 2 represents a section on line *xx*, Fig. 1. Fig. 3 represents a front view before the bending operation.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a* represents the supporting-frame having at its upper portion vertical guides or ways *bb*, between which is fitted to slide a vertical yoke or frame, *c*. The upper and lower cross-bars, 2 and 3, of said yoke are not in the same plane, one being offset from the other, as shown in Fig. 2, so that the upper cross-bar, 2, bears on a cam, *d*, and the lower cross-bar, 3, bears on a cam, *e*, said cams being located side by side and affixed to a shaft, *f*, which is journaled in bearings in the upper portion of the frame *a*. Power is communicated to said shaft by a belt, *g*, or other suitable means, from a shaft, *h*, journaled in the lower portion of the frame. The rotation of the shaft *f* causes the cams *d e* to act alternately on the cross-yoke *c*. The cam *d* acts on the upper cross-bar, 2, and raises the yoke. The cam *e* acts on the lower cross-bar, 3, and depresses the yoke after it has been raised by the cam *d*. The portion 4 of the perimeter of the yoke-raising cam *d* is concentric with the axis of the cam, said portion being adapted to hold the yoke motionless in its raised position for a brief period, for a purpose hereinafter explained.

Formed on or affixed to the lower cross bar,

3, of the yoke is a downwardly-projecting arm, *i*, having affixed to its lower end a block, *j*, fitted to slide in an aperture, *k*, in the frame *a*. To the front side of said block is affixed a former, *l*, having the shape of the inner edge of a horseshoe. Extending around the toe portion of the former is a seating-die, *m*, formed to impart the usual seat or bevel to the hoof-bearing side of a horseshoe on the former.

n represents a bracket or rest affixed to the frame *a* in position to support one end of a bar of iron under the former *l* when the latter is raised.

o represents a rest on the block *j* below the former, said rest being on the same level as the rest *n* when the former is raised, so that both rests co-operate in supporting and guiding the bar when it is being inserted into the machine prior to the bending operation. The longitudinal position of the bar is determined by a stop or gage, *p*.

q q represent levers pivoted at *r r* to the frame *a*, and having at their lower ends rollers *s s*, which are arranged to co-operate with the rests *n o* in supporting the horseshoe-bar, the highest positions of said rolls being on the same level as the rest *n*. The upper ends of the levers *q q* have rollers *t t*, which are pressed by a spring, *s'*, against the opposite edges of the bar *i*. Said bar has inclined portions *u u* at its upper end, which portions act upon the rollers *t t* and move the levers *q* when the yoke is descending, and thereby cause the rolls *s s* at the lower end of the levers to swing inwardly and bend the heel portions of the shoe against the sides of the former, as shown in Fig. 1.

v w represent continuously-rotated rolls, located at opposite sides of the sliding block *j*, to which the former *l* is affixed, said rolls being journaled in suitable fixed bearings on the frame *a*. The roll *v* has a continuous periphery and supports the rear surface of the block *j*. The roll *w* has a part of its periphery cut away, so that only the portion 5, composing about a quarter of the circumference of said roll, has the same radius as the roll *v*, said portion 5 being arranged to bear against the shoe after it has been bent around the former and press the shoe against the seating-die *m* when the former with the shoe thereon is ascending from its lowest position. The acting

portion 5 of the roll *w* is carried away from the plane in which the shoe moves when the former is descending, so that said acting portion does not touch the shoe until it has been
5 completely bent around the former and is about to be raised.

The shafts of the rolls *v w* are connected by gears *a' a'*, and power is communicated to the roll *v* from the shaft *f* by means of a shaft, *b'*,
10 geared to the shaft *f* and a shaft, *c'*, connected by bevel-gears with the shaft *b'*, and with the shaft of the roll *v*. The rolls *v w* are thus rotated in the directions indicated by the arrows in Fig. 2.

15 The operation of the machine is as follows: The yoke *c* being raised, as shown in Fig. 3, a bar, *z*, to be converted into a shoe, is moved by an attendant, or by automatic means, along over the rest *n*, and over the rollers *s s*, until its
20 end strikes the stop *p*, the rest *o* on the block *j* being between the rollers *s s*, and preventing the end of the bar from dropping between said rollers while it is being fed forward. While the bar is being thus introduced the
25 the yoke *c* and former *l* are held motionless in the raised position shown in Fig. 3 by the concentric portion 4 of the cam *d*, so that, although the shaft *f* and its cams rotate continuously, there is a sufficient stoppage of the
30 yoke and former to permit the insertion of the bar. The yoke and former are then depressed by the cam *e*, the former being thus caused to force the central part of the bar downwardly between the rolls *s s*, thus gradually bending
35 it into a U shape. When the inclined portions *u u* reach the rolls *t t*, they swing the levers, so as to move the rolls *s s* inwardly, as shown in Fig. 1, thus causing the rolls
40 *s s* to bend the heel portions of the shoe inwardly against the inclined sides of the former. During the downward movement of the former and the bending of the shoe the acting portion 5 of the roll *w* is not in contact with the shoe; but as soon as the bending
45 is completed, and just as the yoke and former commence to rise, said acting portion comes in contact with the heel portions of the shoe, as shown in Fig. 2, and exerts a rolling pressure on the entire length of the shoe while
50 the latter is rising, thus pressing the toe portion of the shoe against the seating-die *m*, and causing the latter to seat or bevel the hoof-bearing side of the shoe. During this operation the roll *v* supports the rear side of the
55 block *j*, and enables it to move easily upward, notwithstanding the lateral pressure exerted on it by the roll *w*. When the former has been raised to its point of rest, the completed shoe is removed from it by fingers *f' f'*, arranged to
60 strike the heels of the shoe above the block *j* and knock the shoe from the former. Said fingers are connected with the lower end of a lever, *g'*, which is pivoted at *h'* to a bracket on the frame *a*, and has a stud at its upper end,
65 which enters a cam-groove, *i'*, in a disk on the

shaft *f*, said groove being formed to give the lever two quick oscillating movements when the former is raised and at rest, thus forcing the fingers *f' f'* outwardly and immediately
70 withdrawing them.

It will be seen that this machine is simple in its construction and efficient in its operation, is not liable to become deranged, and can be operated by the aid of cheap labor, the attendant having only to supply the bars
75 to be bent.

It is also to be noted that the machine may be operated by rotating rolls *v w* in directions opposite to that indicated in the drawings, and that other similar changes may be
80 made without departing from the nature or spirit of the invention.

I claim—

1. In a horseshoe-machine, the combination of the supporting-frame having an aperture, *k*,
85 the block *j*, fitted to slide in said aperture and provided with the former and the seating-die, means for reciprocating said block, former, and die, and the positively-rotated rolls *v w*, located at opposite sides of said block, the
90 said roll *w* having an interrupted periphery, as set forth.

2. The combination of the supporting-frame, the movable block *j*, having the former, means
95 for reciprocating said block and former, the rest *n*, affixed to the frame, the rest *o* on the block *j*, the bending-rolls having their upper portions in line with the rests *n o* when the latter is raised, and means for oscillating said
100 rolls, as set forth.

3. The combination of the supporting-frame, the yoke fitted to slide in guides on said frame, and having the upper and lower cross-bars, 2
3, offset from each other, the continuously-rotated cams *d e*, arranged to bear, respectively,
105 against the bars 2 and 3, said cam *d* having a concentric portion, 4, the arm *i*, supporting the former, and having the inclines *u u*, and the bending-levers *q q*, arranged, as described, to be operated by said inclines, and provided
110 with the rolls *s s*, arranged to co-operate with the former in bending a horseshoe-bar, as set forth.

4. The combination of the reciprocating former, the mechanism which co-operates
115 therewith in bending a horseshoe-bar, the cam *d*, formed to hold the former at rest in a raised position, the shoe-removing fingers arranged to knock the shoe from the former while the latter is held at rest by the cam *d*,
120 and devices, substantially as described, for operating said fingers, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 11th day of October,
125 1886.

THEODORE S. VERY.

Witnesses:

ARTHUR W. CROSSLEY,
A. D. HARRISON.