

H. S. REYNOLDS.

MACHINE FOR WIRING VESSELS.

No. 328,615.

Patented Oct. 20, 1885.

Fig. 1.

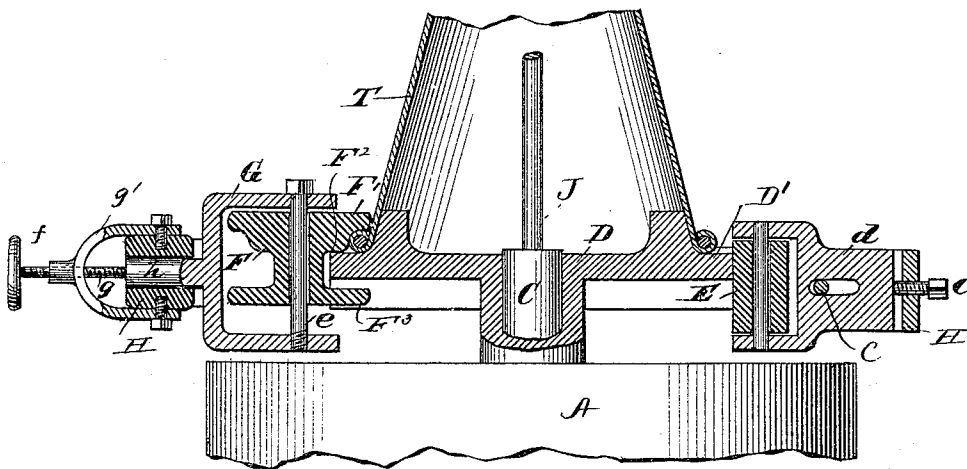
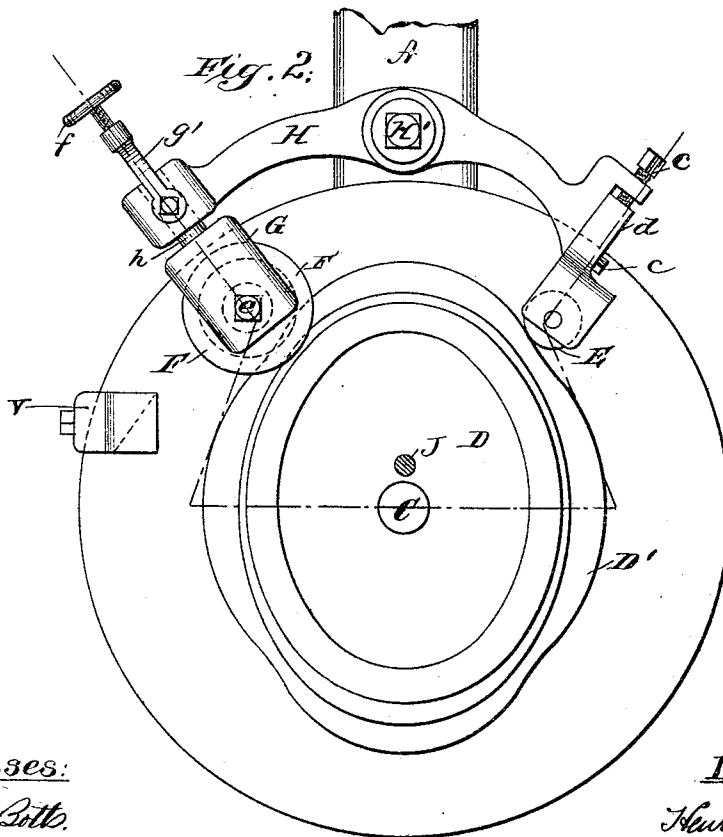


Fig. 2.



Witnesses:

Geo. H. Bitts.

E. A. Finckel.

Inventor:

Harry S. Reynolds

By his Attorney
Ernest C. Webb

(No Model.)

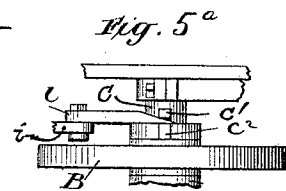
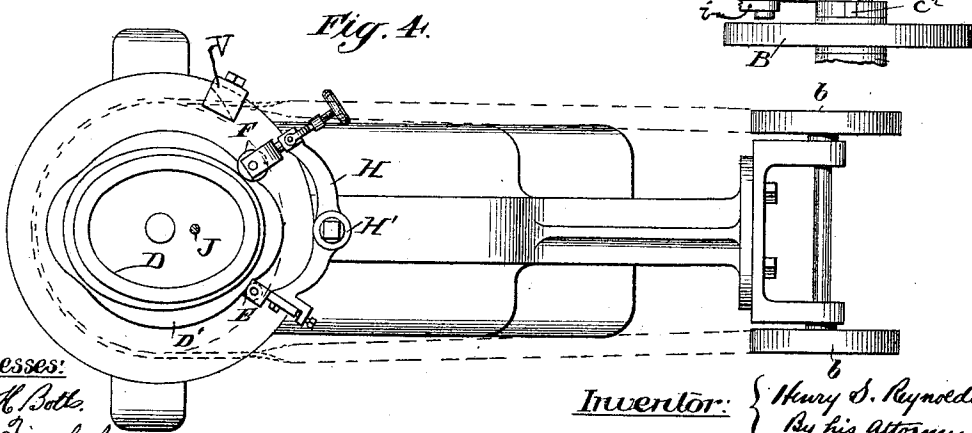
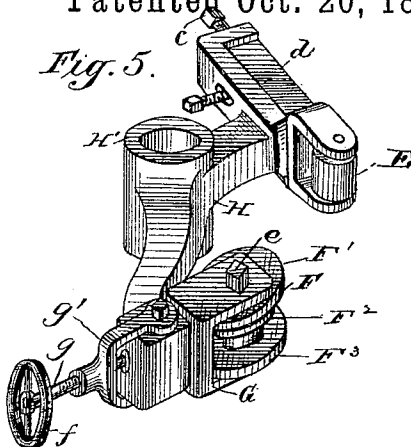
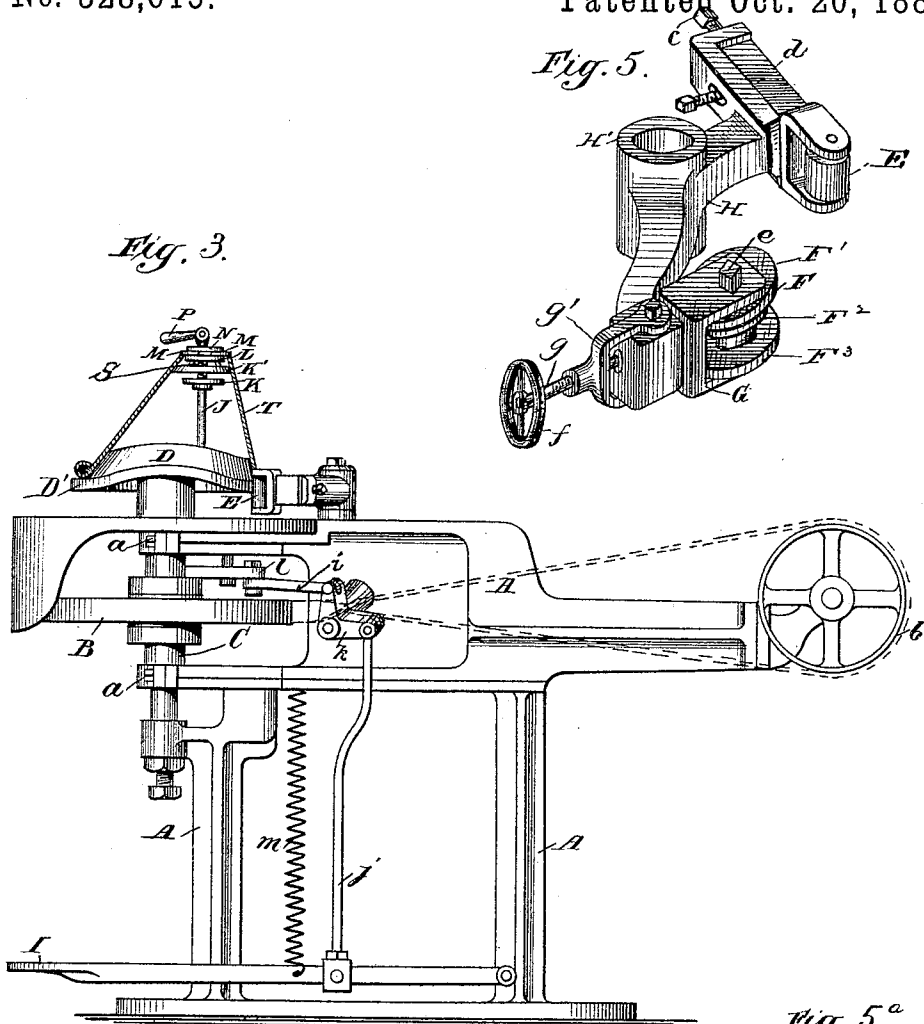
3 Sheets—Sheet 2.

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Witnesses:
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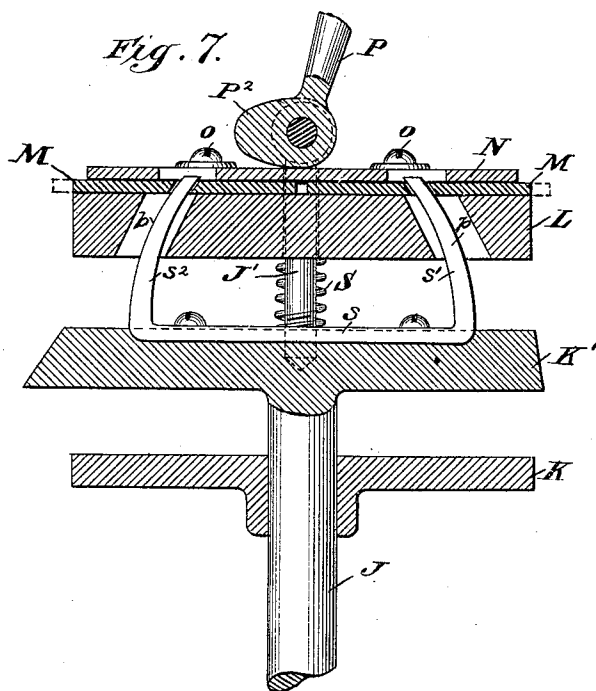


Fig. 6.

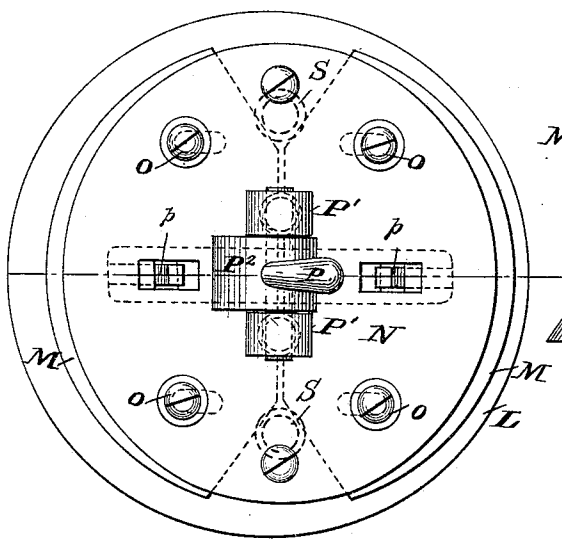
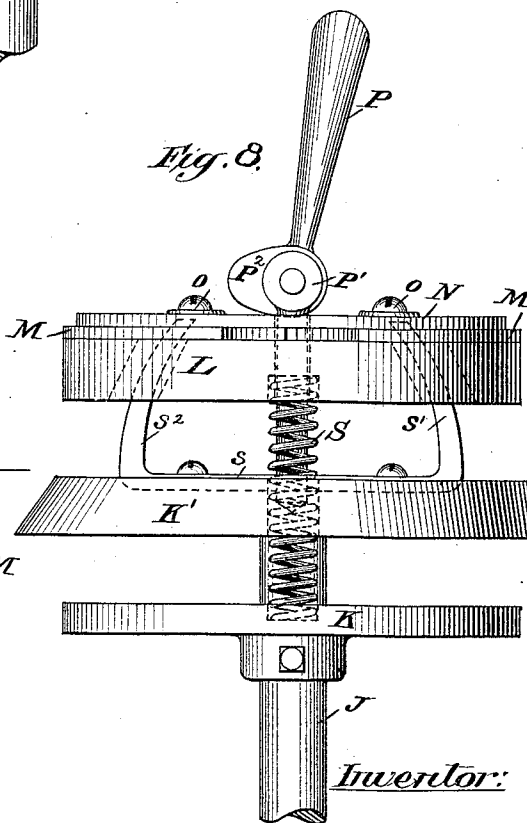


Fig. 8.



Witnesses:

A. L. Curand,
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Inventor:

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Ernest W. Webb

UNITED STATES PATENT OFFICE.

HENRY S. REYNOLDS, OF BROOKLYN, NEW YORK.

MACHINE FOR WIRING VESSELS.

SPECIFICATION forming part of Letters Patent No. 323,615, dated October 20, 1885.

Application filed November 12, 1884. Serial No. 147,734. (No model.)

To all whom it may concern:

Be it known that I, HENRY S. REYNOLDS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Wiring Vessels, of which the following is a full, clear, and exact description.

This invention relates to certain novel mechanism for wiring sheet-metal vessels.

My invention is practically directed to the wiring of vessels of irregular shape—such as coal-hods, for instance—which have heretofore been generally wired by hand.

The object of my invention is the production of a machine by which the wiring of coal-hod bodies and other vessels of irregular shape can be accomplished with great rapidity, and with equally as good, if not better, results than have heretofore been attained by the best hand-work.

To enable others skilled in the art to make and use my said invention, I will now proceed to describe the same by reference to the accompanying drawings, in which—

Figure 1 is an enlarged sectional view of a portion of the machine and wiring mechanism. Fig. 2 is a top plan view of the same. Fig. 3 is a side view, in elevation, of a machine embodying my improvements. Fig. 4 is a top plan view of Fig. 3. Fig. 5 is an independent perspective view of the mechanism for upsetting the edge of the vessel and binding it over the wire. Fig. 5^a is a side elevation of a detail hereinafter set forth. Fig. 6 is a top plan view; Fig. 7, a section taken on the line *xx*, Fig. 6; and Fig. 8, a side view, in elevation, of the mechanism for holding the vessel during the wiring operation.

Similar letters of reference designate like parts in all the figures of the drawings.

In the drawings, A A A designate the frame work of the machine; B, the driving-wheel, and C the main shaft of the machine supported in journals *a a*. This driving-wheel B is set on the main shaft below the working-table, and is driven from pulleys *b b*, for example, by suitable belting, as indicated in dotted lines, Fig. 3. The driving-wheel is adapted to be engaged with or disengaged from the main shaft by means of a key, *c*, (see Fig. 5^a),

which can be raised from or lowered into a slot, *c*², formed in the main shaft, by mechanism which will be hereinafter fully described.

The holder D has a cam or eccentric, D', the two conforming practically in outline to the shape of the vessel to be operated on, and said holder and cam are keyed to the shaft C above the working-table and revolve with said shaft.

H is an arm or yoke pivoted to the framework at H', and having at one end a roller, E, to travel upon the cam D', and at the other a grooved or forming roller, F, which is held by the engagement of the roller E with the cam D' up to the said cam and the holder D. The roller E is connected to the arm H by a forked block, *d*, adjustably secured thereto by set-screws *e e*, so as to regulate the pressure of the roller F, and said roller F rotates upon a pin, *e*, in a bracket, G, which is swiveled by stem *h* in the end of arm H, the bracket being secured in such position by a set-screw, *g*, having, say, a hand-wheel, *f*, for operating it, to force it against the holder. This construction permits the bracket to turn, so as to allow the roller to adjust itself to its work. The set-screw *g* may be advantageously held to the arm H by a yoke, *g'*. The roller F is longitudinally shorter than the pin *e* and the width of the bracket G, and may therefore rise and fall in said bracket by sliding on its pin, so as to follow the vertical variations in the cam D', for illustration of which see Fig. 3. The roller F has its head F' made with a sort of ogee overhanging the upper edge of the cam D', and with its shoulder F² engaging the said edge of the cam. The ogee is shaped to turn the edge of the hod over its wire, as shown in Fig. 1. The foot F³ of roller F projects underneath the cam D', the distance between the foot and the shoulder F² being somewhat greater than the width of the cam to allow play of the roller. The shoulder and foot, in conjunction with the upper limb of the bracket G, serve to cause the roller to follow the variations in elevation of the cam and keep the roller to its work.

I is a treadle pivoted to and connected by an elevating-spring, *m*, with the framework. A rod, *j*, leads from said treadle to a bell-crank or elbow, *k*, fulcrumed to the frame-

work and connected by a link, *i*, with a dog, *l*, which engages the key *c'* to lift it from the key-slot *c''* to disconnect the driving-wheel B and shaft C to allow the latter to rest.

- 5 J designates a vertical rod fixed to the holder D to support the mechanism for holding the vessel during the wiring operation. This mechanism, which is shown in detail by Figs. 6, 7, and 8 of the drawings, consists of two
10 cylindrical plates, *k k'*, fixed to the rod J, and a plate adapted to slide on a smaller vertical rod, *J'*, fixed in the plate *k'*. This sliding plate is made in three parts, consisting of a lower portion, L, a central portion com-
15 posed of two semicircular plates, M M, and a cap, N, held together by set-screws *o*. The parts L M N are slotted at *p*, the slots in the plates M M being smaller than those in the cap or the plate L; but the slots *p* in each are
20 in line with those in the others and are inclined toward the center.

- Fixed to the plate *k'* is a flat piece of spring metal, *s*, having its ends *s' s''* turned up and curved inward to form spring-fingers. P designates a lever pivoted in bearings P' on the cap N, and having a cam-shaped portion, P², and S S designate two springs extending through the plate *k'*, and each bearing at one end in recesses in the bottom of the plate L, and
30 at the other end in recesses in the top of the plate *k*.

- The operation of wiring a vessel—a coal-hod, for instance—by the mechanism described is as follows: The coal-hod, which at this stage
35 of its manufacture usually consists of a vessel open at both ends, is placed on the holder D in an inverted position. The lever P is then pressed down until its cam-shaped portion P² bears against the cap N and forces the parts L M N to slide down on the rod *J'*, against the opposition of the springs S S, until the fingers *s' s''* enter the slots *p* and force the plates M outward, so that they bear on top of the upper edge of the hod and hold it firmly to its seat
45 on the holder D, as shown by Fig. 3, in which the hod T is shown. In order to provide for the free movement of the plates M when the curved fingers bear against them through the inclined slots, I form elongated slots in the plates M where the set-screws *o* pass through said plates, as shown by dotted lines in Fig. 6. The operator then inserts one end of a strip of wire of suitable length in the guide V, so that it bears against the lower edge of the hod at the point where the roller F will
50 first come in contact with the hod. He then presses the treadle I downward with his foot, whereby the dog *l* is drawn away from the hub of the driving-wheel B, disengaging the key *c'*, and permitting it to drop into the slot and engage the driving-wheel B with the shaft C, which immediately revolves with the wheel. The rotary motion thereby imparted to the cam and holder is transferred to the rollers E and F, and
65 the last-named roller F engaging the edge of the hod turns it over the wire and binds the said wire to such hod. Upon the comple-

tion of this operation the treadle is released, flies up, and operating the dog *l* disengages the shaft and pulley B by withdrawing key *c'*, and so stops the machine until another hod or vessel can be put in place on the holder. The lever P is then raised, removing the pressure of the cam-shaped portion P² from the cap N, and the springs S S force the parts L M N upwardly on the rod *J'*, and as these parts rise above the fingers *s' s''* the plates M M are drawn in by the pressure of the curved fingers in the inclined slots. The wired hod can then be removed and another
80 hod inserted and the operation just described repeated.

In performing the operation the holder D only makes one revolution, and hence it is necessary before starting to wire a number of
85 hods to adjust the rollers E F very carefully. When in operation, the sliding of the roller F up and down on its pin *e*, as it follows the conformation of the holder D, imparts a rocking motion to the bracket G, and the latter
90 must be journaled, so as to take this motion freely.

The rollers E F can also be adjusted from time to time to compensate for any lost motion caused by wearing of the bearing-surface
95 of the holder D.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A machine for wiring vessels of irregular shape, comprising a holder shaped to receive the body of the vessel, a cam shaped conformably with the holder and connected therewith, and means to rotate them, a pivoted arm carrying at one end a roller, in contact with the cam to move said arm, and having swiveled in its other end a wiring-roller engaging said cam, and by it moved to follow its shape, substantially as and for the purpose set forth.

2. The combination of a driving-shaft, a holder shaped to receive the mouth of a vessel of irregular contour which is to be wired, a rotary cam, a swinging arm, a roller in one end of said arm in contact with said cam to transmit the motion of said cam to said arm, and a wiring-roller having longitudinal play in the other end of said arm, and confined to the cam to follow the variations in height of the vessel, and movable by the action of the cam on the other roller to follow variations in width of the mouth of the vessel, substantially as set forth.

3. The combination of a rotary holder shaped in vertical and transverse section to receive a vessel to be wired, a cam, a main driving-shaft, an arm swinging on a fixed pivot, a roller on one end of said arm in contact with said cam, whereby the motion of said cam is imparted to the other end of said arm, a wiring-roller in the last-named end of said arm pivotally connected therewith and having a longitudinal movement thereon and in operative connection with the holder, substantially as set forth.

4. A machine for wiring vessels while open
at both ends, comprising a holder to receive
one end of the vessel, and a clamping device
rising from said holder, and having movable
5 plates and means to project them over the
other end of the vessel, and to force them down
upon it, substantially as set forth.

5. The combination, with a holder, of a
clamping device rising therefrom, and con-
10 sisting of fixed members K K', and a movable

member suitably connected to the fixed mem-
bers, and provided with plates M M, and
means, substantially as described, to move
them, as and for the purpose set forth.

In testimony whereof I have hereunto set my 15
hand this 10th day of October, A. D. 1884.

HENRY S. REYNOLDS.

Witnesses:

ARTHUR C. WEBB,
ERNEST C. WEBB.