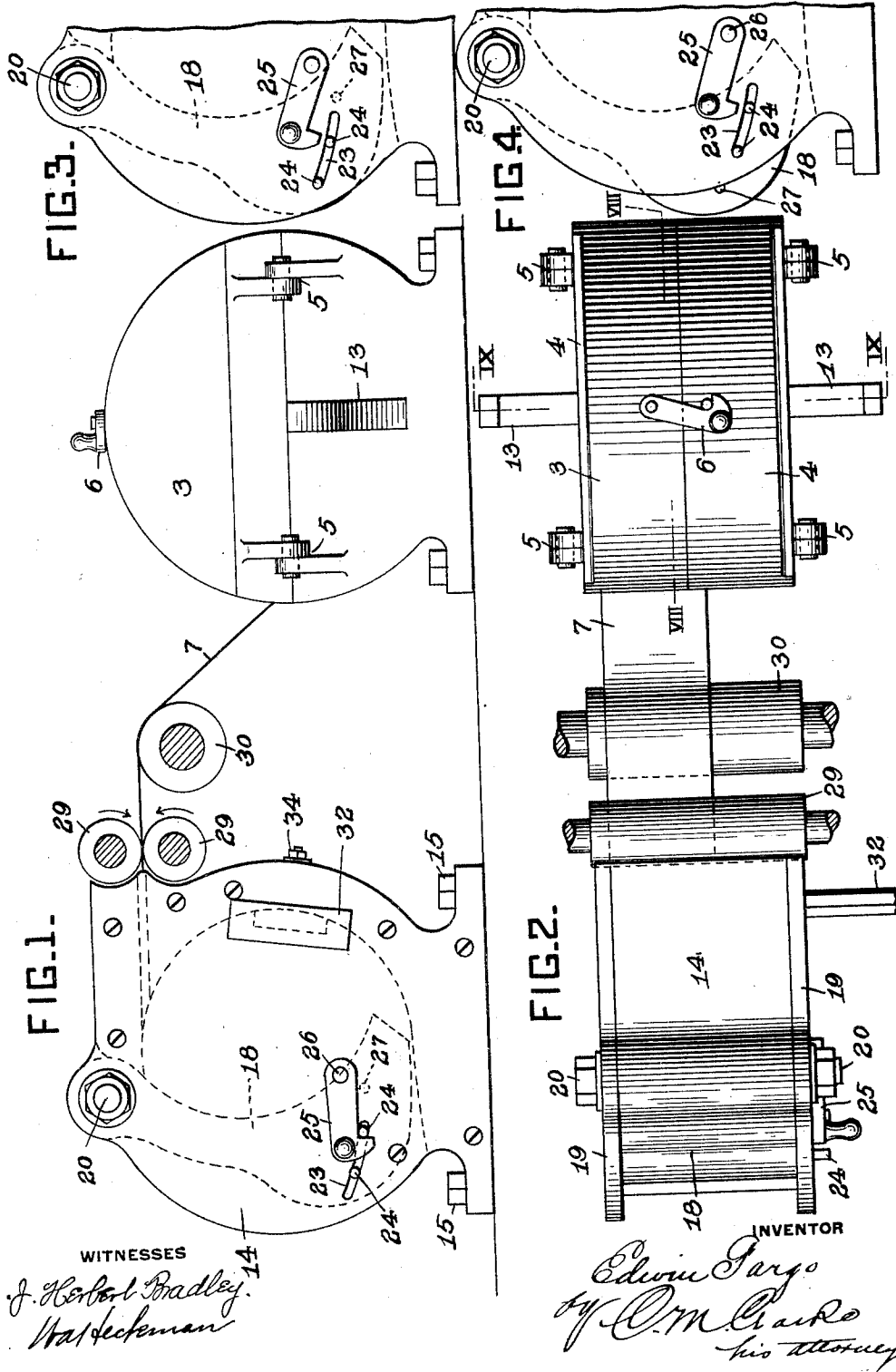
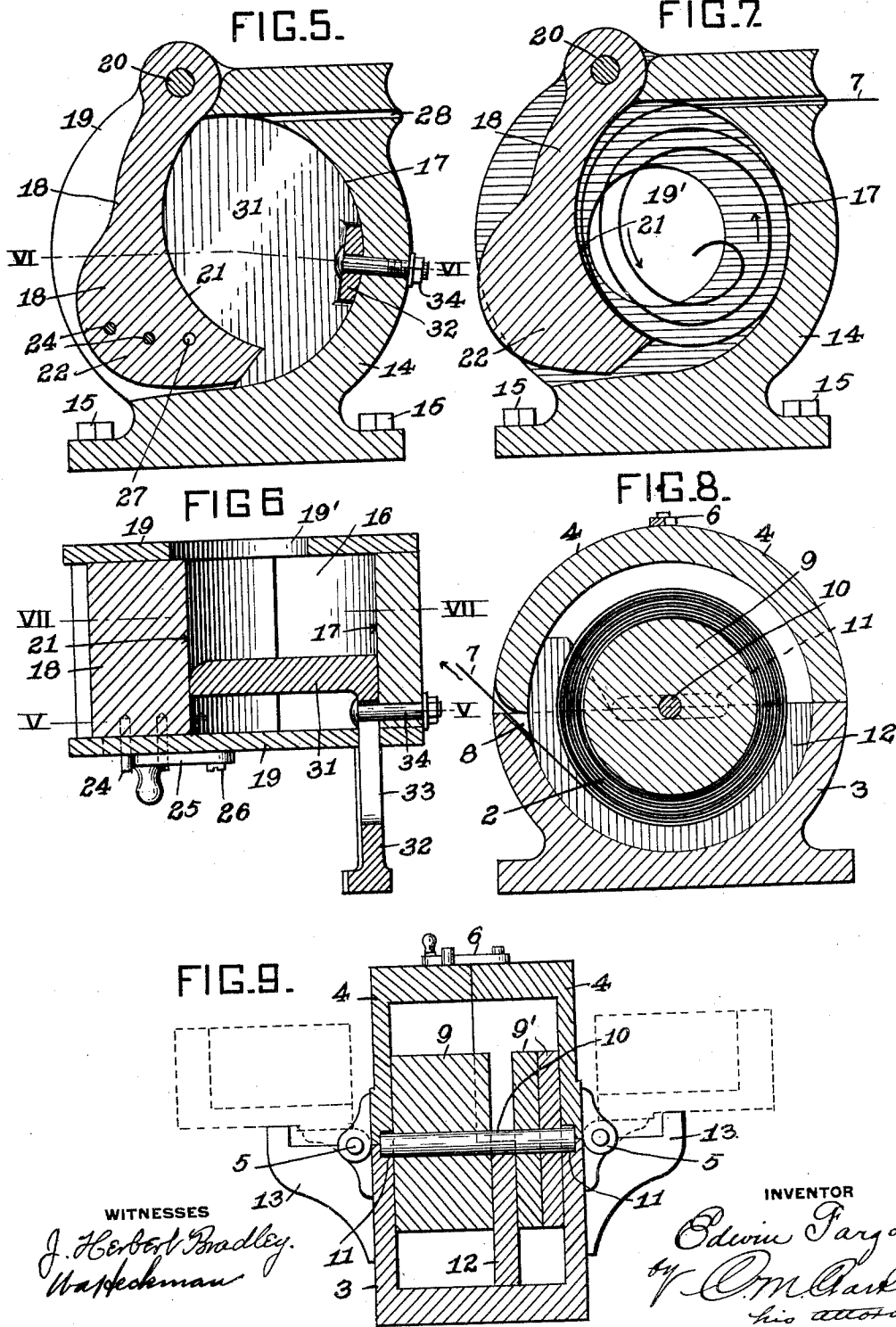


1,099,543.



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UNITED STATES PATENT OFFICE.

EDWIN FARGO, OF WILSON, PENNSYLVANIA.

COILING APPARATUS.

1,099,543.

Specification of Letters Patent.

Patented June 9, 1914.

Application filed April 17, 1913. Serial No. 761,727.

To all whom it may concern:

Be it known that I, EDWIN FARGO, a citizen of the United States, residing at Wilson, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coiling Apparatus, of which the following is a specification.

My invention relates to an apparatus or machine for coiling or reeling metal, in the form of flat sheets or strips, and has for its object to provide an apparatus of this class by which the metal may be coiled loosely in a roll, the several layers whereof are sufficiently loose or spaced apart to permit of free circulation of the fluid in pickling or similarly treating the metal subsequently.

The invention also embodies an improved unreeling machine, from which the sheet metal in tightly wound form, on a supporting drum or core, is taken to the loose winding machine.

Ordinarily, sheet metal or, as it is known, "flat" metal is wound in tightly compacted rolls or bundles which have to be first unrolled or unwound and then re-rolled by hand or otherwise, for the purpose of providing sufficient looseness in the roll to admit of exposure of all of the surfaces and successful pickling operation, and such manipulation is very laborious and expensive and more or less unsatisfactory in not providing for even spacing.

In my invention, I utilize a shell or casing having a generally cylindrical interior, embodying an adjustable gate portion, adapted to receive the metal as it is introduced by a forced feed and to automatically form it into a loose roll by the controlling action of the interior cylindrical faces of the casing and gate, without the assistance of any central winding shaft or core. Incidentally, the metal is usually first unwound from a previously wound roll within a holder and drawn therefrom by feed rolls, such a machine forming a part of the entire apparatus as herein shown and described, although the invention is not necessarily dependent upon any particular manner of previous preparation of the metal or its manner of introduction to the coiler.

In the drawings illustrating one preferred form of the invention,—Figure 1 shows the complete apparatus in side elevation. Fig. 2 is a plan view of the apparatus shown in Fig. 1. Figs. 3 and 4 are partial views of the coiler in elevation, showing different po-

sitions of the controlling gate. Fig. 5 is a sectional view of the coiler itself, taken on the line V, V, of Fig. 6. Fig. 6 is a horizontal sectional view of the coiler, taken on the line VI, VI, of Fig. 5. Fig. 7 is a vertical longitudinal sectional view on the line VII, VII, of Fig. 6. Fig. 8 is a similar view of the uncoiling machine, taken on the line VIII, VIII, of Fig. 2. Fig. 9 is a transverse sectional view on the line IX, IX, of Fig. 2.

As stated, the metal to be loosely coiled or wound is usually first wound or rolled in a compact bundle or coil 2 which may be placed within a suitable holder 3 having removable side portions 4, 4, hinged at 5, 5, and brought together at the top and there held by any suitable latch device 6, from which the strip 7 of metal is drawn outwardly through slot 8 for introduction to my improved coiling machine. The coil 2, depending on its width, is wound upon a supporting drum or core 9 having additional sections 9' for increasing or reducing its width, and a supporting shaft 10, the ends of which rest in and may roll along supporting trackways 11 in the upper edge portion of casing 3. A supplemental adjustable intervening support 12 may also be provided, which at the same time acts to space the cores 9 and 9' apart. The sides 4 when open rest on supporting brackets 13, providing for ample clearance to the interior.

The coiling machine comprises a casing 14 which may be conveniently made of cast metal and secured upon a suitable foundation by bolts 15 or otherwise, providing a substantially rigid housing for the purpose intended. This housing or casing is hollow, having a cylindrical interior 16 within a stationary interior cylindrical face or wall 17 of the desired curvature and dimensions to receive and contain the metal as it is introduced, and to coil it inwardly into a loosely wound bundle, by the confining effect of the inner surfaces against which the incoming or advancing end portion of the strip 7 engages.

At any suitable point or location on the machine, and preferably at its uppermost portion, the stationary interiorly curved wall 17 terminates and its circular continuity is provided by means of an adjustable wall section 18 forming an opening and closing gate. This adjustable section is hinged or pivoted between the sides 19 of the case on a hinge bolt or pin 20, its inner periph-

eral face 21 being curved to substantially the same radius as that of the permanent interiorly curved surface 17. One of the sides 19 is centrally open for inspection, as at 19'.

5 When the adjustable section or gate 18 is located in its several operative positions, as indicated in Figs. 1, 3, 4, 5 and 7, it thereby provides, with the main housing, a continuously curved more or less cylindrical interior.

10 For the purpose of reinforcing and increasing the weight of the adjustable gate section 18 its lower portion is thickened or reinforced, as at 22, at which point the pressure of the incoming metal is most forcible, and for the purpose of fixedly locating the hinged section one of the sides 19 of the main housing is slotted, as indicated at 23, for the purpose of introducing one or more
20 pins or studs 24 into the side of the adjustable gate section, one of which studs or pins is positively held by engagement of a latch 25 pivoted at 26 on the side of the casing. By this means the gate section may be positively retained against the pressure of the incoming strip and may be released when the strip is partly coiled for partly opening the gate by throwing up the latch 25, releasing its pin, the other pin 24 then moving out
30 to the end of slot 23 and an additional pin 24' being inserted in one of the several holes 27 for engagement by the latch 25. The gate may be again released for further outward travel by now withdrawing the front pin engaging the end of the slot, whereupon the gate will move out slightly until arrested by the latch. Upon releasing the latch from this pin after additional coiling within the case, the pin will again arrest the gate by
40 engaging the end of the slot, at which point the face 21 of the gate will be in substantial circular formation with the permanent wall 17.

The upper portion of the housing 14 is
45 provided with a transverse horizontal slot 28 into which the strip is introduced under the forcing action of feed rolls 29, 29, preferably located closely adjacent to the outer end of the slot so as to avoid the possibility
50 of buckling the metal, and driven at any suitable speed to lead the strip thereinto under forced feed over a supporting roller 30 from casing 3.

For the purpose of gaging the width of
55 the machine to admit of flats of different widths, I provide an inner adjustable wall 31 conforming to the curvature of the inner back surface 17 of the cylindrical casing wall, its front portion being curved in conformity with the inner curved face 21 of gate 18, and spaced backwardly therefrom sufficient to admit of the inward gravitating adjustment of the gate. Said adjustable wall is mounted by means of a laterally extending handle portion 32 provided with a

slot 33 engaged by bolt 34 extending through the rear wall of the housing and which may be tightened to hold the adjustable wall 31 in the desired position. By this means I am enabled to coil the metal with its edge portions in alinement and thus insuring symmetrical formation of the bundles. If desired, the wall 31 may be entirely removed so as to utilize the full width of the interior of the casing.

The operation of the invention will be readily apparent from the foregoing description. The incoming strip 7 passing through slot 28 engages by its front end against the curved face 21 of gate 18, being guided thereby inwardly into cylindrical formation, passing around against correspondingly curved face 17, coiling itself loosely within the next outer layer continuously as long as the operation is carried on, the gate 18 being gradually adjusted outwardly as the size of the coil increases.

When the entire strip is fed in by the rolls 29, the gate 18 is thrown upwardly on its hinge 20, the opening being sufficiently large to admit of the removal of the wound bundle, which is then taken to the pickling tank or elsewhere for storage, and the machine is then ready for another operation.

The particular advantage of the construction resides in the automatic formation of the metal into a loosely wound bundle by the controlling action of the curved interior faces of the housing and its adjustable gate without the use of any supplemental forming or winding devices.

The machine is comparatively simple in construction and operation, strong and durable and not liable to get out of order. It may be changed or varied in different details or modified to suit various conditions of use, and all such changes are to be considered as within the scope of the following claims.

What I claim is:

1. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion forming a continuation of its inner cylindrical wall, substantially as set forth.

2. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion forming a continuation of its inner cylindrical wall, and means for holding said gate portion in various positions.

3. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion forming a continuation of its inner cylindrical wall, and an adjustable edge-guiding device within the housing, substantially as set forth.

4. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion forming a continuation of its inner cylindrical wall, an adjust-

able edge-guiding device within the housing, and means for fixedly holding it in position, substantially as set forth.

5 5. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion provided with an inner curved face, and means for setting said gate in varying positions.

10 6. Coiling apparatus comprising a cylindrically chambered housing having an adjustable gate portion provided with an inner curved face and a counterweighted reinforcing portion, and means for setting said gate in varying positions.

15 7. In a coiling apparatus, the combination of a cylindrically chambered housing having an entrance slot, a pivoted gate forming a confining wall of the housing, and mechanism for holding the gate in progressively advanced positions.

20 8. In a coiling apparatus, the combination of a cylindrically chambered housing having an entrance slot, a pivoted gate forming a confining wall of the housing,

and a laterally adjustable wall within the housing for adjusting the width of the opening therein. 25

9. In a coiling apparatus, the combination of a cylindrically chambered housing having an entrance slot, a pivoted gate forming a confining wall of the housing, and a laterally adjustable wall within the housing for adjusting the width of the opening therein having means for securing it in position. 30

10. The combination with a holding housing having means for rotatably supporting a tightly rolled coil of metal, of a loose coiling housing having a hollow cylindrical interior, and feed rollers for drawing the metal from the holding housing and forcing it into the loose coiling housing, substantially as set forth. 35 40

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

EDWIN FARGO.

Witnesses:

C. M. CLARKE,

FRED'K STAUB.