

No. 645,642.

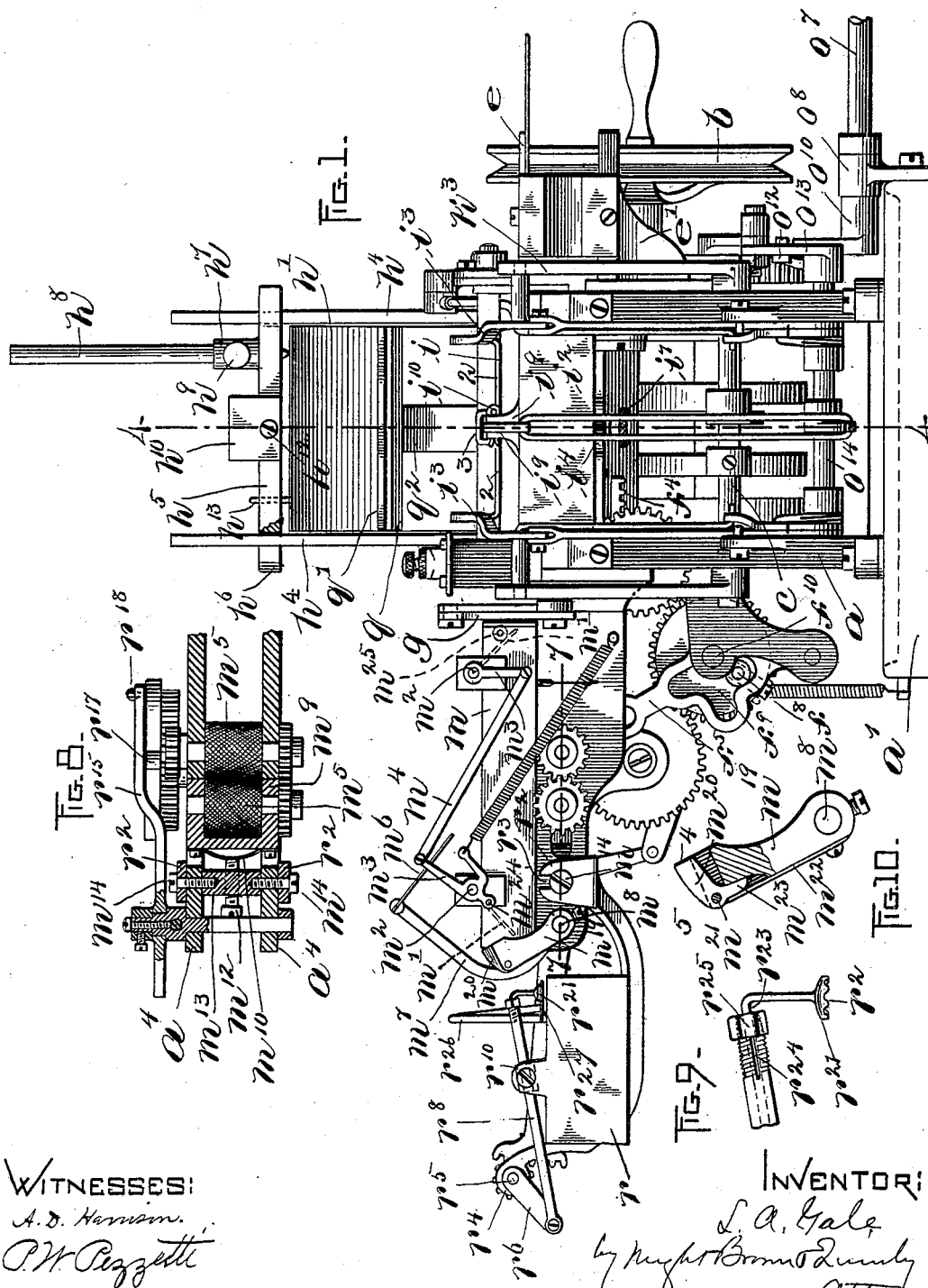
Patented Mar. 20, 1900.

L. A. GALE.
STRAP COVERING MACHINE.

(Application filed Mar. 6, 1899.)

(No Model.)

6 Sheets—Sheet 1.



WITNESSES:

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P. M. Pezzetti.

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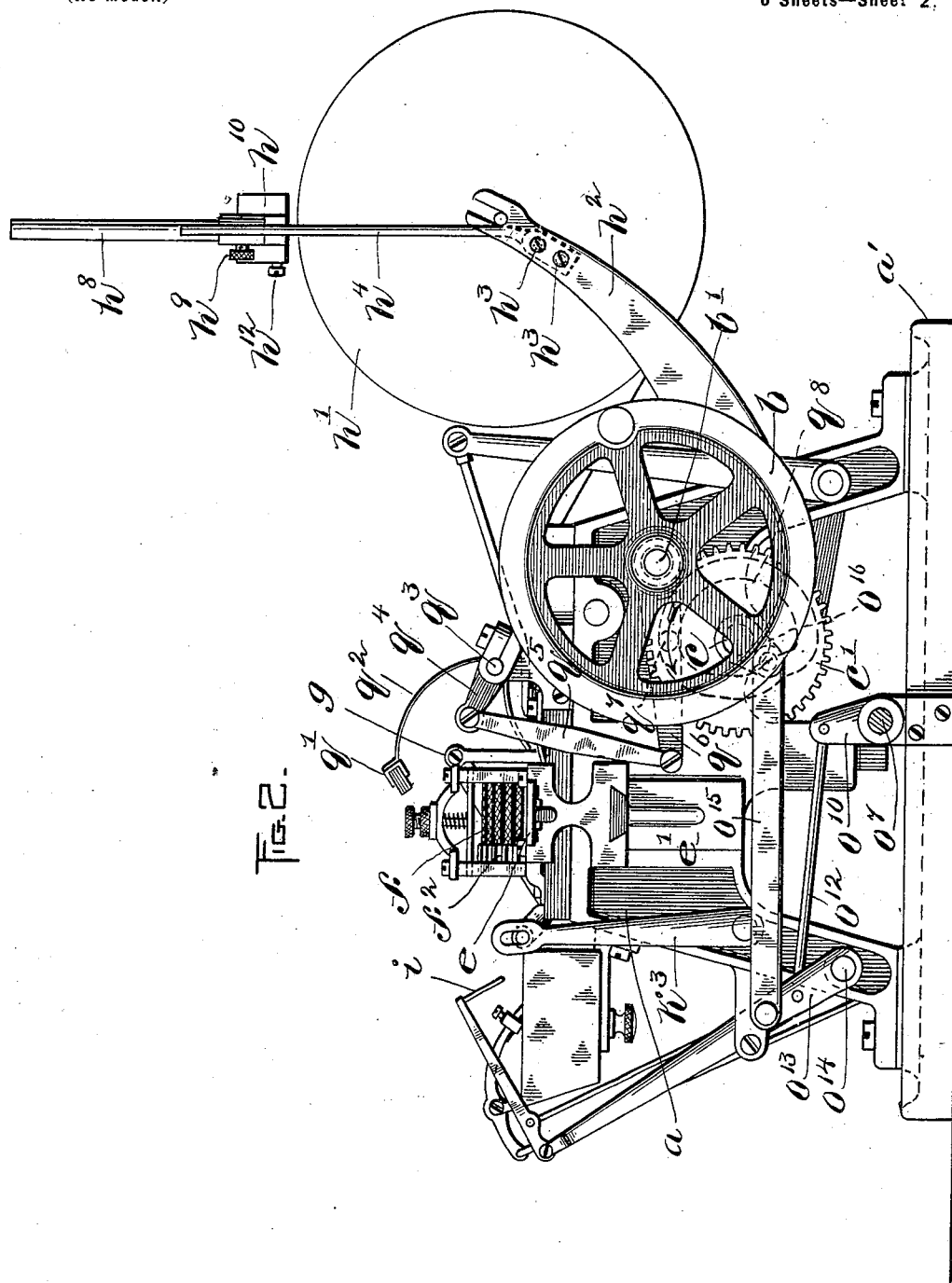
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6 Sheets—Sheet 2.



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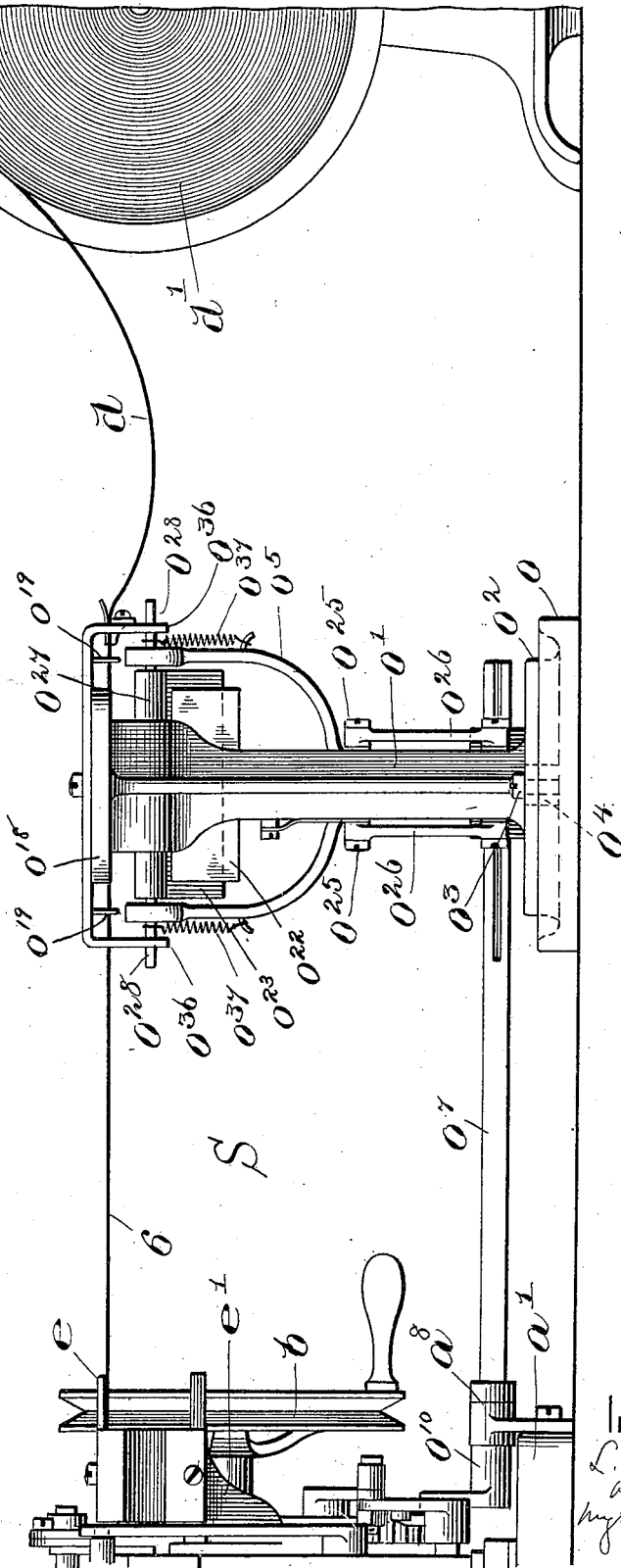
6 Sheets—Sheet 3.

FIG. 3.

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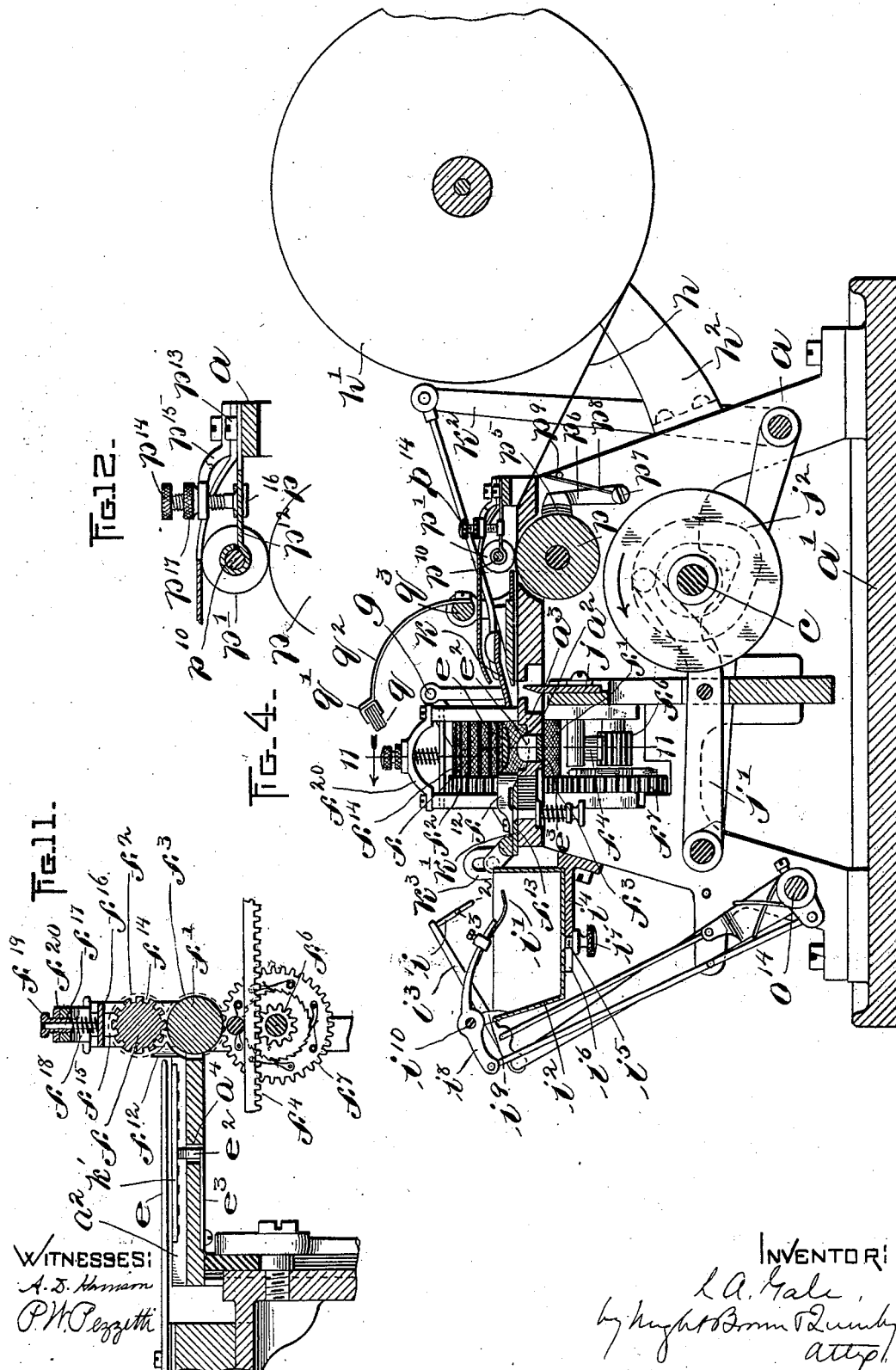
Patented Mar. 20, 1900.

L. A. GALE.
STRAP COVERING MACHINE.

(Application filed Mar. 8, 1899.)

(No Model.)

6 Sheets—Sheet 4.



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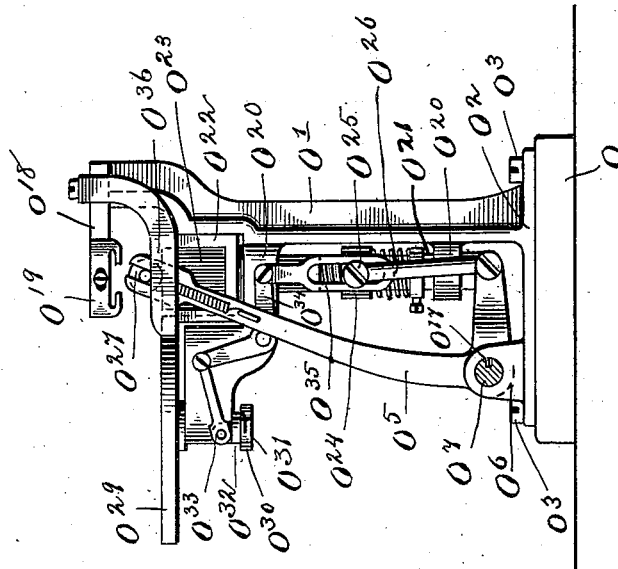
L. A. GALE.
STRAP COVERING MACHINE.

(Application filed Mar. 6, 1899.)

(No Model.)

6 Sheets—Sheet 5.

FIG. 5.



WITNESSES:

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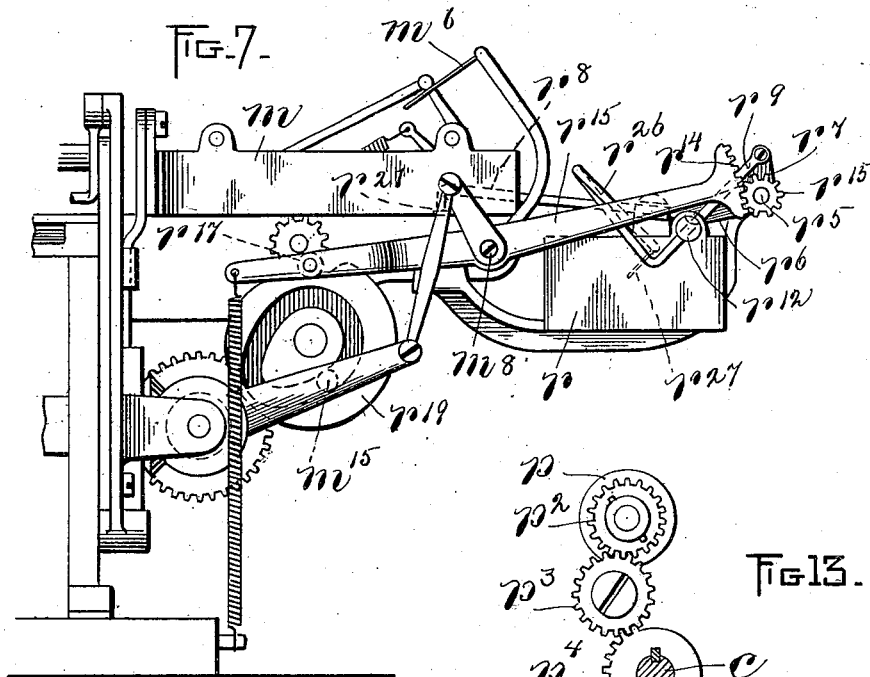
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Patented Mar. 20, 1900.

(Application filed Mar. 6, 1899.)

6 Sheets—Sheet 6.



INVENTOR:
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UNITED STATES PATENT OFFICE.

LABURTON A. GALE, OF MALDEN, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SHAWMUT MACHINERY COMPANY, OF BOSTON, MASSACHUSETTS.

STRAP-COVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 645,642, dated March 20, 1900.

Application filed March 6, 1899, Serial No. 707,890. (No model.)

To all whom it may concern:

Be it known that I, LABURTON A. GALE, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Strap-Covering Machines, of which the following is a specification.

This invention has relation to machines for applying a covering to boot and shoe straps with the object of keeping them from being soiled in the process of manufacture and handling of the boot or shoe.

The present invention is an improvement on the strap-covering machine shown in United States Patent No. 594,181, granted to W. C. Rand November 23, 1897; and it has for its object to improve the general construction and operation of said machine, as will be more fully hereinafter described in the specification and pointed out in the claims.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a front elevation of a strap-covering machine constructed in accordance with my invention without the printing mechanism. Fig. 2 represents a right-hand end elevation of said machine. Fig. 3 represents a front elevation of the printing mechanism, a portion of the webbing-roll from which the strap or webbing unwinds, and a portion of the main part of the machine. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 represents a left-hand end elevation of the printing mechanism. Figs. 6 and 7 represent detail rear elevations of the left-hand end of the machine, showing certain parts in different positions. Fig. 8 represents a section on line 8 8 of Fig. 1. Fig. 9 represents a detail side elevation, on an enlarged scale, of the strap-end paster. Fig. 10 represents a detail side elevation, partly in section, on an enlarged scale, of the trip-arm for the strap-centering gage. Fig. 11 represents a section on line 11 11, Fig. 4. Fig. 12 represents an enlarged detail section of the presser-roll for the paper-strip feed, together with its mountings. Fig. 13 represents a view of the gearing for actuating the paper-feed roll.

The same reference characters indicate the same parts in all the figures.

The general structure and operation of the machine are briefly as follows:

a is the frame of the machine, mounted on a bed *a'*, and *b* is the drive-pulley, on whose shaft or stud is a pinion meshing with a gear *c'* on a main shaft *c*. The webbing or strap to be covered and cut into boot-straps unwinds from a roll *d*, and after passing, when it is desired to imprint or mark it, through a printing mechanism it enters the main body of the machine beneath a former *e*, which consists of a flat-topped blade attached to a former-carrier *e'*, which receives vertical motion from a suitable arm engaged by a cam on the shaft *c*. Beyond the former *e* the webbing passes between feed-rollers *f f'*, which receive an intermittent motion and serve to feed the covered webbing forward to a severing-knife *g*. When the former *e* is raised, a strip *h* of covering material, such as paper, unwinds from a roll *h'*, is fed forward beneath the former and the strip of webbing which lies underneath it, a paster *i* deposits adhesive material on the edge of the paper, the former *e* descends into a groove or path *a²* cut for it in the folding bed or table *a³*, Fig. 4, clamping the paper and webbing beneath it, a knife *j*, moved by an arm *j'*, which is engaged by a path-cam *j²* on the shaft *c*, rises and severs a portion of the paper strip sufficient to form the cover for the webbing, and folding-plates *k k'* (the plate *k* actuated by arms *k²*, oscillated by a cam on the shaft *c*, and the plate *k'* actuated by arms *k³*, oscillated by a second cam on said shaft) operate to wrap the severed portion of paper over the top of the former *e*. The folding-plates are then retracted, the former *e* rises, and the feed-rolls *f f'*, which are provided with intermeshing gears *f² f³*, are set in motion by the movement of a rack *f⁴*, operated by an oscillatory arm *f⁵*, the said rack meshing with a pinion *f⁶* on the shaft of a gear *f⁷*, which meshes with the gear *f³* on the lower feed-roll. The covered portion of the webbing is thereby fed forward into a guide or trough *m*, and after a predetermined length, sufficient for one boot or shoe strap, has been fed the feed-rolls stop and the knife *g* descends and severs the webbing. Movable gaging-fingers *m' m'*, attached to rock-

shafts $m^2 m^2$, which have arms $m^3 m^3$ attached to their ends and connected by a link m^4 , so as to move in unison, then engage the ends of the paper sheath or cover on the severed portion of webbing and operate to position said cover properly on the strap. The covered strap thus positioned is finally forced down and folded between said rolls by means of a doubling-blade m^6 , mounted on a rock-arm m^7 , attached to a rock-shaft m^8 , and the ends of the strap, to one of which paste or cement has been applied by mechanism herein-after to be described, are stuck together in the passage of the strap through the doubling-rolls.

The machine as thus far described is substantially the same as that shown in the afore-said patent to Rand, to which reference may be had for a detailed description of the action of the machine and its several parts.

When it is desired to print the name of the manufacturer, the name of the shoe, or such matter upon the boot-straps, the webbing d before entering the main body of the machine may be passed through a printing mechanism constructed as follows:

o is a suitable bed, and o' is a standard supporting the printing mechanism and having a base o^2 attached by screws $o^3 o^3$ to the bed o , said screws passing through elongated slots o^4 in the base o^2 .

o^5 is a bell-crank lever mounted between ears o^6 on the standard-base and attached to a rock-shaft o^7 . The said rock-shaft is journaled in a bearing o^8 , projecting from the bed a' of the main portion of the machine, and is oscillated through the medium of mechanism including an arm or crank o^{10} , attached to the end of the shaft and connected by a link o^{12} with a second arm o^{13} , mounted on a rock-shaft o^{14} , said second arm being connected by a link o^{15} with a crank o^{16} , secured on the main shaft c . The bell-crank lever o^5 , by whose oscillation the parts of the printing mechanism are operated, is keyed by a spline o^{17} to the rock-shaft o^7 and is permitted to slide thereon in the direction of the length of the shaft.

The printing mechanism, as will be noted in Fig. 3, is mounted at a distance from the former e , so as to provide an unobstructed drying-space S between the printing mechanism and the former, and thus leave a portion of webbing 6 exposed between said printing mechanism and the former without contact with the mechanism of the machine, and in practice the length of this drying-space is made substantially equal to the length of a severed boot-strap, so as to allow the ink deposited on the webbing by the printing mechanism to dry before reaching the wrapping mechanism. Thus while one length of webbing to the right of the knife g , Fig. 1, is being acted upon by the wrapping mechanism the next length (represented by the numeral 6 in Fig. 3) is left free and exposed to contact only with the air in the drying-space, so as to

dry the ink before it reaches the wrapping mechanism, and a third length is receiving the imprint of the printing mechanism.

The length of webbing fed beneath the knife g at each operation of the feed-rolls $f f'$ may be varied by adjusting a wrist-pin f^8 , mounted on a plate f^9 , toward or from the center or shaft f^{10} , on which said plate rotates, the wrist-pin actuating the oscillatory arm f^5 and serving to throw the rack f^4 a greater or less distance, according to the adjustment of said wrist-pin. When this adjustment is made to vary the length of the severed strap, the printing mechanism is also shifted, so as to bring the impression at the proper place on the webbing, by loosening the screws o^8 and sliding the base o^2 , carrying the printing mechanism, along its bed o the required distance and then retightening the screws.

To the upper end of the standard o' is attached a stationary overhanging impression-bed o^{18} , having guides o^{19} at its ends for guiding the webbing, and in bearings o^{20} on said standard is mounted a plunger or sliding rod o^{21} , having at its upper end a type-carrier or socket o^{22} for the type-block o^{23} . A block o^{24} is adjustably secured by screws o^{25} on said plunger and is connected by links o^{26} to the lower forked end of the bell-crank o^5 . The upper arm of said bell-crank is likewise forked, and the two portions of said arm are slotted at their ends and engaged with the trunnions o^{28} of an ink-roller o^{27} .

o^{29} is an ink plate or table receiving an intermittent rotary motion from a ratchet o^{30} , attached to its shaft and engaged by a pawl o^{31} , mounted on a rock-arm o^{32} . The said rock-arm is connected by a link o^{33} to one end of a bell-crank o^{34} , from the other end of which depends a link o^{35} , having a slot occupied by one of the screws o^{25} , attached to the block o^{24} and pivoting the link o^{26} . Thus in the latter part of the downward movement of the plunger o^{21} the stud o^{25} engages the bottom of the slot in the link o^{35} and causes the ink-plate o^{29} to be rotated one step. The ink-roll o^{27} in the forward reciprocation of the bell-crank o^5 , as the type-block o^{23} descends, passes from the ink-plate o^{29} over onto the type-block to ink the type thereon, and after it leaves the ink-plate its trunnions are supported by means of arms or brackets o^{36} , attached to the top of the standard o' and having horizontal portions for the support of said ink-roller trunnions. The ink-roll is held down against the ink-plate and against said guides by means of springs o^{37} , attached to its trunnions and to the side forks of the lever o^5 .

The core of the roll h' , from which the paper covering-strip is unwound, has its trunnions supported in arms h^2 , attached to the rear of the frame a , and secured to said arms by means of screws $h^3 h^3$ are two upright guide-rods $h^4 h^4$, projecting above the top of the roll and serving as guides for a marker-bar h^5 , having its ends recessed, as at h^6 , Fig.

1, to engage the rods. Near one end the bar h^5 is provided with a pencil-socket h^7 , in which is mounted a marking-pencil h^8 , the same being held in place by means of a thumb-screw h^9 , and at or near the middle of the bar is a weight h^{10} , adjustably held in place by a set-screw h^{12} . At the other end of the bar is a blunt pin or evening-point h^{13} for holding the marker-bar level above the roll h' , the point of the pencil h^8 projecting below the bar a substantially-equal distance with said pin. It will be seen that as the paper strip is fed and the roll h' revolved the pencil h^8 of the marker will make a continuous line or mark near one edge of the strip, this mark being on the under side of the strip as it leaves the roll, and hence on the outside of the cover of each of the finished boot-straps. The marker rests by gravity on the paper-roll and descends as the diameter of the roll decreases. It is also readily removable from its guides and may be put in place in a reverse position from that shown in Fig. 1, with the pencil at the left, so as to make a mark on the left edge of the paper instead of the right. The cover of each of the finished straps will therefore have a mark on one end of it. The object of this mark is to determine which side of the doubled boot-strap is to be placed innermost in the shoe. The woven or printed matter on the strap is usually covered up by the paper sheath or cover, so as not to be visible, and it is necessary to have some means for determining on which side or in which direction this matter reads. The improved marker is placed so that this mark will be on the ornamented side or end of the boot-strap and may be reversed, as stated, to correspond with the way in which the ornamented webbing is fed to the machine.

It will be noted in Fig. 1 that the guide-rods h^4 are placed close to the paper-roll h' , thereby keeping the paper strip as it unrolls in alinement and guiding it straight to the folding mechanism. After leaving the roll h' the paper covering-strip h passes between two feed-rolls p p' , the lower roll p being intermittently driven through the medium of a gear p^2 on its shaft, an idler-gear p^3 on a stud on the side of the machine, and a mutilated gear p^4 , attached to the main shaft c and rotating continuously therewith. In order to prevent motion of the feed-rolls by pulling of the paper or otherwise when the mutilated gear p^4 is out of engagement with the idler-gear p^3 , I provide a brake consisting, as here shown, of a brake-shoe p^5 , of leather or other suitable material, carried at the end of an arm p^6 , which is pivoted on a stud p^7 on one of the side frames of the machine, said arm having attached to it a spring p^8 , which cooperates with a fixed stud p^9 in pressing the brake against the periphery of the feed-roll p . The upper or presser roll p' , consisting of two sections mounted on a shaft p^{10} and pressing against roughened portions of the lower roll p , is provided with an ad-

justment comprising a spring-arm p^{12} , carrying and journaling the shaft p^{10} and affixed by a screw p^{13} to a portion of the frame a , and a thumb-screw p^{14} , screwing through an arm or support p^{15} , which is attached to the machine-frame and engaged at its lower end with the spring-arm a^{12} . The screw p^{14} is positively engaged with the said spring-arm, as shown in Fig. 12, the end of the screw passing through a hole in a collar p^{16} , which is bent over and around the edges of the spring-arm p^{12} , the end of the screw being headed up below said collar and abutting against the upper surface of the spring-arm. The thumb-screw p^{14} may be adjusted to give any desired pressure of the roll p' against the paper strip and when adjusted may be locked in place by means of a lock-nut p^{17} . The presser-roll may also be lifted entirely clear of the feed-roll at any time when it is desired to insert or remove the end of the covering-strip h to position the same in the feed.

In Figs. 4 and 11 is shown an improved guide for facilitating the passage of the covering-strip beneath the former e , the said guide, as here shown, consisting of a block or stud e^2 , secured to the end of a spring-arm e^3 , which is attached to the bottom of the folding-bed a^3 and projecting up through an aperture a^4 in said bed above the bottom of the groove a^2 , into which the former e descends. This stud e^2 is rounded, as shown in Fig. 4, so as to guide the advancing edge of the covering-strip h over its upper edge and below the former e , the guide preventing said strip from being obstructed by the edge of the groove a^2 or the folder k' . When the former e descends, the guide e^2 is displaced or depressed thereby against the tension of the spring e^3 . After the paper strip has passed under the former e a small quantity of adhesive material is deposited on its edge by means of the paster i . The latter is actuated by suitable arms connected with the rock-shaft o^{14} and is first retracted into contact with a paste-lifter i' , which takes paste from a vat or reservoir i^2 . The paster i is then moved forward over the folding-bed and deposits the paste which it has collected upon the edge of the covering-strip. The paster, as here represented, consists of a wire rod attached to the ends of arms i^3 , and, as shown in Figs. 1 and 4, it consists of two alined straight portions 2 2 and an upwardly-bent middle portion 3, which latter does not come into contact with the edge of the paper. The object of this construction is to paste the edges of the cover on both sides of the middle, but to leave the middle portion, where the crease or fold is made in forcing the covered strap through the doubling-rolls m^5 , unpasted. A cleaner and firmer crease is thereby made than when the adhesive material extends over the whole length of the cover. The reservoir i^2 , as shown in Fig. 4, is supported by a bracket i^4 , attached to the frame a , and has a screw-threaded stem or stud i^5 projecting down-

wardly from its bottom and occupying an open-ended slot i^0 in the bracket i^4 . The paste-reservoir is locked to said bracket by a thumb-screw i^7 underneath the bracket, engaging the stem i^5 . The arm i^8 , carrying the paste-lifter i' , is pivoted between ears i^9 on the front edge of the paste-reservoir i^3 , the said ears and the arm i^8 being apertured to receive a removable split pivot-pin i^{10} . By taking out the said split pin, removing the paste-lifter arm i^8 from between the ears i^9 , and loosening the thumb-nut i^7 the paste-reservoir i^3 may be readily removed and cleaned or refilled. After the edge of the cover-strip has been pasted and the former e has descended to clamp the strip beneath the webbing the knife j rises to sever the paper, and the folding-plates k k' approach and wrap the severed portion of the cover-strip over the upper surface of the former e , the pasted edge being on top. In order to set the paste and prevent the edges of the cover from separating when the folding-plates are retracted, I provide a presser which presses the pasted edges together and holds them for some time in close contact. q represents the said presser, the same consisting of a bar of yielding material, such as india-rubber, held in a socket or head q' at the end of an arm q^2 . The latter is attached to a rock-shaft q^3 , mounted in bearings on the machine-frame and having attached to its end an arm or crank q^4 , connected by a link q^5 with a lever q^6 , pivoted on the stud or shaft b' of the driving-pulley b . The lever q^6 carries a stud q^7 , engaged by a path-cam q^8 , which is cut in the inner face of the gear c' . As said gear revolves the rock-shaft q^3 is oscillated at the proper time, and the presser q descends and presses upon the folded edges of the paper cover, while the former e is depressed. The presser then resumes an elevated position, as shown in the drawings, the former e rises, and subsequently the feed-rolls f f' are set in motion to withdraw the webbing or strap and its sheath from off the former and advance them under the knife g into the trough or guide m .

The intermeshing gears f^2 f^3 on the shafts of the feed-rolls f f' are placed closely adjacent to said rolls, inside of the standards which support the rolls, as shown in Fig. 4, and in order to prevent the covered webbing from being caught in said gears in its passage between the rolls I provide a stationary guard f^{12} , Figs. 4 and 11, attaching the same by a screw f^{13} to the top of the folding-bed at one side of the feed-rolls and bending its end around parallel to the path of the webbing, said end being curved to closely follow the contour of the rolls just inside the gears thereon. By inspecting Figs. 4 and 11 it can be seen that the upper feed-roll f is deeply fluted or grooved longitudinally, as at f^{14} , and between the grooves the peripheral or tractive portions of the roll are knurled or otherwise roughened to carry the webbing. The object of these recesses in the upper feed-roll is to

provide a place for the lodgment of the excess paste which may exude from between the pasted edges of the cover as the latter passes between the rolls, and thereby prevent the fouling of the whole surface of the upper roll, which is apt to occur when the said surface is left unbroken or merely roughened. The upper feed-roll f is mounted in movable bearings f^{15} , one of which is shown in Fig. 11, and these bearings are put under adjustable spring tension to vary the pressure between the rolls; the adjustment comprising a cross-bar or yoke f^{16} , placed above the bearing-blocks and having an upwardly-projecting guiding-stem f^{17} , a spiral spring f^{18} , surrounding said stem, and an adjusting-screw f^{19} , threaded into a socket in a yoke f^{20} , spanning the upper ends of the standards which support the feed-rolls, said adjusting-screw having a lock-nut f^{21} and its lower end abutting against the spring f^{16} .

As seen in Fig. 8, one of the doubling-rolls m^5 is mounted in bearings in a movable yoke or bracket m^9 , which slides in slots in the portion a^4 of the machine-frame supporting the said doubling-rolls, and an adjustment for varying the pressure between the doubling-rolls is provided, said adjustment comprising a bow-spring m^{10} , attached to the back of the bearing or yoke m^9 , and a screw m^{12} , adapted to be adjusted to bear with different pressures against the spring m^{10} , said screw being mounted in a cross-piece m^{13} , which is attached by screws m^{14} m^{14} to the aforesaid side plates or portions a^4 of the machine-frame, which support the doubling-rolls m^5 . The screws m^{14} also serve to attach to the part a^4 of the machine-frame a paste vat or reservoir r , which is located below the level of the guide or trough m , just beyond the end of the latter, and is carried on an arm r' whose inner end is forked to form the ears r^2 r^2 , slotted at r^3 to receive the screws m^{14} . The reservoir r has on its rear edge a bearing r^4 for a rock-shaft r^5 , and to the ends of said rock-shaft are secured two short arms or cranks r^6 r^7 , set at different angles and pivotally connected to rods r^8 r^8 , sliding in oscillatory apertured blocks r^{10} r^{12} , which are pivoted on opposite sides of the reservoir r . At the rear end of the rock-shaft r^5 is secured a toothed pinion r^{13} , engaged by a gear-segment r^{14} , formed at the end of a lever r^{15} , which is fulcrumed on the rock-shaft m^8 . The lever carries at its opposite end an antifriction-roll r^{17} , which is held by a spring r^{18} against the edge of a cam r^{19} . It will be noted by reference to Figs. 6 and 7 that the cam plate or disk r^{19} has also cut in its face a cam-groove r^{20} , occupied by a roll m^{15} on an arm or lever m^{16} . The latter is connected by a link m^{17} with an arm m^{18} , mounted on the end of the rock-shaft m^8 , so that the revolution of the disk r^{19} causes the doubling-blade m^5 to be reciprocated. The cam-plate r^{19} is revolved by means of a bevel-gear c^2 , secured to the end of the main shaft c , an intermediate gear c^3 , meshing therewith,

and a gear on the shaft of the cam-disk meshing with said intermediate gear. At the inner end of the rod r^8 is attached a paster r^{21} , of "crown" form, hollowed on its under side and having teeth or serrations r^{22} around its edge. The stem r^{23} of the paster r^{21} occupies a hole or socket bored longitudinally in the end of the rod r^8 , and the end of said rod is screw-threaded and split longitudinally at r^{24} to give the sides of the socket springiness. The threaded and split end of the rod is slightly tapered and is engaged by a nut r^{25} which upon being screwed onto the rod pinches the split end thereof against the stem r^{23} of the paster, whereby said paster is adjustably secured to the rod and is adapted to be extended or retracted with respect thereto. The end of the rod r^9 is looped or bent upwardly and downwardly at r^{26} , so as to pass inside of the reservoir r , and at its end is attached a flat plate or paste-lifter r^{27} . The operation of the pasting device is as follows: The paste vat or reservoir r being partially filled with a suitable adhesive paste or cement, the paste-lifter r^{27} , by the operation of its actuating mechanism, lifts a quantity of paste from the reservoir r into contact with the paster r^{21} , as shown in Figs. 1 and 6. This position of the parts is assumed before the feed-rolls $f f'$ advance the covered end of the webbing into the trough or guide m . As soon as a length of covered strap or webbing has been fed into the guide m and the feed-rolls come to rest the low portion or recess on the edge of the cam r^{19} comes beneath the roll r^{17} , the spring r^{18} depresses the inner end of the lever r^{15} , and the gear-segment r^{14} on the outer end of said lever revolves the pinion r^{13} and oscillates the rock-shaft r^5 . The parts then assume the positions shown in Fig. 7, the paster r^{21} being projected into the guide or trough m and depositing a drop of paste or cement which it has taken from the paste-lifter r^{27} upon the end of the strap or webbing. The paste-lifter r^{27} meanwhile descends into the reservoir r to obtain a fresh supply of adhesive material, and as the high part of the cam r^{19} comes under the roll r^{17} the lever r^{15} and the rock-shaft r^5 and its attached parts are again oscillated and the paster r^{21} retracted, the parts resuming the positions shown in Figs. 1 and 6. The length of strap having been severed and the cover positioned by the gages m' , the doubling-blade m^6 then descends and forces the severed portion between the rolls m^5 . The latter fold the strap, and as the strap passes down between them its ends are pressed together and are held together by the cement which has been deposited thereon. It will be noted that by merely loosening the screws m^{14} , which attach the paste-reservoir r to the machine-frame, said reservoir and the parts supported thereby may readily be removed and cleaned or refilled, this being accomplished without disturbing other parts of the mechanism.

The gages $m' m'$ are operated by means of a trip-arm m^{19} , attached to the rock-shaft m^8 . Said arm, which is shown in detail in Fig. 10, carries at its upper end a latch m^{20} , pivoted on a pin m^{21} . The end face 4 of the latch is abrupt, while its top face or edge 5 is gradually inclined or beveled. The latch is normally projected by means of a spring m^{22} , attached to the arm m^{19} and engaging the heel m^{23} of said latch. When the rock-shaft m^8 is oscillated to depress the doubling-blade m^6 , the arm m^{19} moves inwardly and its latch m^{20} engages a pin m^{24} on the heel of the arm m^{13} . The gage-arms m' are thereby brought to a vertical position to engage the ends of the cover on the severed strap or webbing, after which as the shaft m^8 continues to move to complete the stroke of the blade m^6 the pin m^{24} is released from the latch m^{20} and the gages m' are suddenly returned to their initial position by means of a spring m^{25} , attached to the arm m^3 . The return movement of the gages is limited by a stop m^{26} . When the trip-arm m^{19} returns, the pin m^{24} engages the inclined upper face 5 of the latch m^{20} and depresses said latch until the latter passes the pin, when the latch snaps back to its normal position.

I claim—

1. A strap-covering machine comprising mechanism for wrapping a strip of covering material around the strap, mechanism for feeding the strap, mechanism for severing portions of the strap of predetermined length, printing mechanism for marking the strap, said printing mechanism being separated from the wrapping mechanism by an unobstructed drying-space through which the freshly-printed portion of the strap passes without contact with the mechanism of the machine, the length of said space being substantially equal to the length of the severed portion of the strap, and connections for operating the several said mechanisms interdependently.

2. In a strap-covering machine, mechanisms for covering the strap, feeding the strap and severing portions of the strap of predetermined length, printing mechanism for marking the strap, said printing mechanism being separated from the wrapping mechanism by an unobstructed drying-space through which the freshly-printed portion of the strap passes without contact with the mechanism of the machine, the length of said space being substantially equal to the length of the severed portion of the strap, connections for operating the several said mechanisms interdependently, means for varying the length of strap severed, and means for varying the length of the drying-space.

3. In a strap-covering machine, mechanisms for covering the strap, feeding the strap, and severing portions of the strap of predetermined length, means for varying the length of strap severed, a printing mechanism for marking the strap, connections for operating

the first said mechanisms and the printing mechanism interdependently, and means for adjusting the printing mechanism toward and from the first said mechanisms to locate the printed matter at the proper place on the severed portion of strap.

4. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap, a printing mechanism for marking the strap, means for adjusting said printing mechanism toward and from the covering, feeding, and severing mechanisms, a shaft connected with the last-said mechanisms for operating the printing mechanism, and a sliding spline connection between said printing mechanism and said shaft.

5. In a strap-covering machine, mechanisms for feeding and severing the strap, mechanisms for feeding a strip of covering material and wrapping the same around the strap, and a marker adapted to mark said covering-strip.

6. In a strap-covering machine, mechanisms for feeding and severing the strap, a support for a rolled strip of covering material, mechanisms for feeding said strip and wrapping the same around the strap, a marker adapted to rest on top of the roll of covering material, and a guide mounted on the roll-support and engaging said marker.

7. In a strap-covering machine, mechanisms for feeding and severing the strap, a support for a rolled strip of covering material, mechanisms for feeding said material and wrapping the same around the strap, vertical guide-rods attached to said support, and a marker adapted to rest on top of the roll of covering material, said marker comprising a bar recessed at its ends to engage the said guide-rods and having provisions for holding a marking member.

8. In a strap-covering machine, a paper-roll, supports therefor, a marker, and a guide for said marker comprising rods on either side of the roll, said rods being placed close to the roll and acting as a guide for the unrolling strip.

9. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and means for feeding the strip, said feeding means including a feed-roll and a presser-roll for engaging and advancing the strip, an arm carrying said presser-roll, and constructed as a spring, a fixed support, and a screw passing therethrough and engaging said spring-arm, whereby the pressure of said presser-roll on the strip may be varied.

10. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and mechanism for feeding the strip, said mechanism including a feed-roll and a presser-roll for engaging and advancing the strip, an arm carrying said presser-roll and constructed as a spring, a fixed support, and a screw passing

therethrough and positively connected with the spring-arm, whereby the pressure of said presser-roll on the strip may be varied, and the presser-roll may be lifted clear of the feed-roll to allow the strip to be moved freely between the rolls.

11. In a strap-covering machine, strap guiding and feeding means, mechanism for wrapping a strip of covering material around the strap, means for severing said strip, and an intermittently-acting feed mechanism for the strip, said mechanism including a feed-roll, means for pressing the strip against said roll, a revolving segment for driving said roll, and a brake for preventing movement of said roll during the non-action of the segment.

12. In a strap-covering machine, a former, means for guiding the strap beneath said former, a folding-bed provided with a groove or recess for the reception of said former, mechanism for moving the former vertically into and out of said groove, mechanism for feeding a strip of covering material transversely beneath said former, and a yieldingly-mounted strip-guide projecting upwardly from the bottom of said groove, said guide being displaced by the depression of the former.

13. In a strap-covering machine, mechanisms for feeding and severing the strap and doubling the severed portion, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap, and a paster made in two paste-depositing sections to apply paste to the cover at either side of the point at which the covered strap is subsequently creased in the doubling mechanism.

14. In a strap-covering machine, mechanisms for feeding and severing the strap and doubling the severed portion, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap, a paste-reservoir, paster-supporting arms, a paster attached to said arms and having aligned straight portions and a middle portion bent upwardly out of line with said straight portions, whereby the paster applies paste to the cover at either side of the point at which the covered strap is subsequently creased in the doubling mechanism, and mechanism for actuating said paster-supporting arms.

15. In a strap-covering machine, mechanisms for feeding and severing the strap, mechanisms for feeding and severing a strip of covering material and wrapping the severed portion around the strap, a bracket on the machine-frame, a paste-reservoir, a separable connection between said bracket and reservoir, a paster having operating connections, and a separable fulcrum connection between said paster and the reservoir, the said construction permitting the reservoir to be independently removed from the machine.

16. In a strap-covering machine, mechanisms for guiding and feeding the strap, mech-

anisms for feeding a strip of covering material transversely beneath the strap, applying paste to said strip, severing the strip, and wrapping the severed and pasted portion around the strap to form a cover, and a reciprocatory presser for holding the pasted edges of the cover in contact after the wrapping mechanism has acted to wrap said cover.

17. In a strap-covering machine, mechanisms for guiding and feeding a strip of covering material transversely beneath the strap, applying paste to said strip, severing the strip, and wrapping the severed and pasted portion around the strap to form a cover, a rock-shaft, mechanism for oscillating the same, a presser-arm attached to said shaft, and a presser at the end of said arm composed of yielding material and adapted to hold the pasted edges of the cover in contact after the wrapping mechanism has acted to wrap said cover.

18. In a strap-covering machine, mechanisms for covering and severing the strap and doubling the severed portion, feed-rolls for advancing the strap to the severing and doubling mechanisms, intermeshing gears on the roll-shafts adjacent to the rolls, means for driving the rolls, and a stationary guard for preventing contact of the strap with the gears.

19. In a strap-covering machine, mechanisms for severing the strap, and doubling the severed portion, mechanisms for wrapping a strip of covering material around the strap, and applying paste to the cover, and feeding mechanism for advancing the covered strap to the severing and doubling mechanisms, said feeding mechanism including a feed-roll having relatively-deep recesses in its periphery for the purpose specified, and roughened tractive portions between said recesses.

20. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, a movable gage for adjusting the cover on the strap, said gage having an oscillatory arm, an oscillatory trip-arm and actuating means therefor, a catch on said trip-arm having an abrupt portion adapted on the forward stroke of the trip-arm to engage the gage-arm and release the same, and a beveled or inclined portion adapted to be engaged by said gage-arm, whereby the catch is displaced to pass the gage-arm, and a spring on the trip-arm engaging and normally projecting said catch.

21. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, a guide for supporting said portion in position to be doubled, a paste-reservoir at the end of said guide, a rock-shaft mounted in bearings on said reservoir, mechanism for oscillating said shaft, a paster for depositing paste or cement on the end of the portion of the strap to be doubled, a paste-lifter, and operating connections between said rock-shaft and said paster and paste-lifter.

22. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the covered and severed portion, means for supporting said portion in position to be doubled, a paste-reservoir, a paster for depositing paste or cement on the end of the portion of the strap to be doubled, a paste-lifter, a cam and means for revolving it, a lever having a roll engaged by said cam, and operating connections between said lever and said paster and paste-lifter.

23. In a strap-covering machine, mechanisms for covering, feeding, and severing the strap and doubling the severed portion, means for supporting said portion in position to be doubled, a paste-reservoir, a rock-shaft, a paster operatively connected with said rock-shaft and adapted to deposit paste or cement on the end of the portion of the strap to be doubled, a paste-lifter operatively connected with said rock-shaft, a pinion on the rock-shaft, a pivotal lever having a gear-segment engaged with said pinion, and means for vibrating said lever to operate the paster and paste-lifter.

24. In a strap-covering machine, a paste-reservoir, a paster-arm carrying a paster, an oscillatory bearing having a socket in which said paster-arm slides, and mechanism for imparting a reciprocatory and oscillatory motion to said paster-arm.

25. In a strap-covering machine, a paste-reservoir, a paste-lifter arm carrying a paste-lifter arranged to operate inside of said reservoir, an oscillatory bearing having a socket in which said paste-lifter arm slides, and means for imparting a reciprocatory and oscillatory motion to said paste-lifter arm.

26. In a strap-covering machine, a paste-reservoir, a rock-shaft and means for oscillating the same, a paster-arm carrying a paster, a paste-lifter arm carrying a paste-lifter, oscillatory parts supporting and forming fulcrums for said arms, and arms secured to the rock-shaft and pivoted to the rear ends of the paster-arm and paste-lifter arm, whereby a reciprocatory and oscillatory motion is imparted to the latter when the rock-shaft is oscillated.

27. In a strap-covering machine, a paste-reservoir, a paster-arm having a longitudinal socket or aperture in its end and having said end split and externally screw-threaded, a paster having a stem adapted to slide in and out of said socket, a jam-nut engaging the threaded end of the arm and adapted to pinch its split walls against the paster-stem to lock the latter to the arm, and means for actuating said paster-arm.

In testimony whereof I have affixed my signature in presence of two witnesses.

LABURTON A. GALE.

Witnesses:

R. M. PIERSON,
P. W. PEZZETTI.