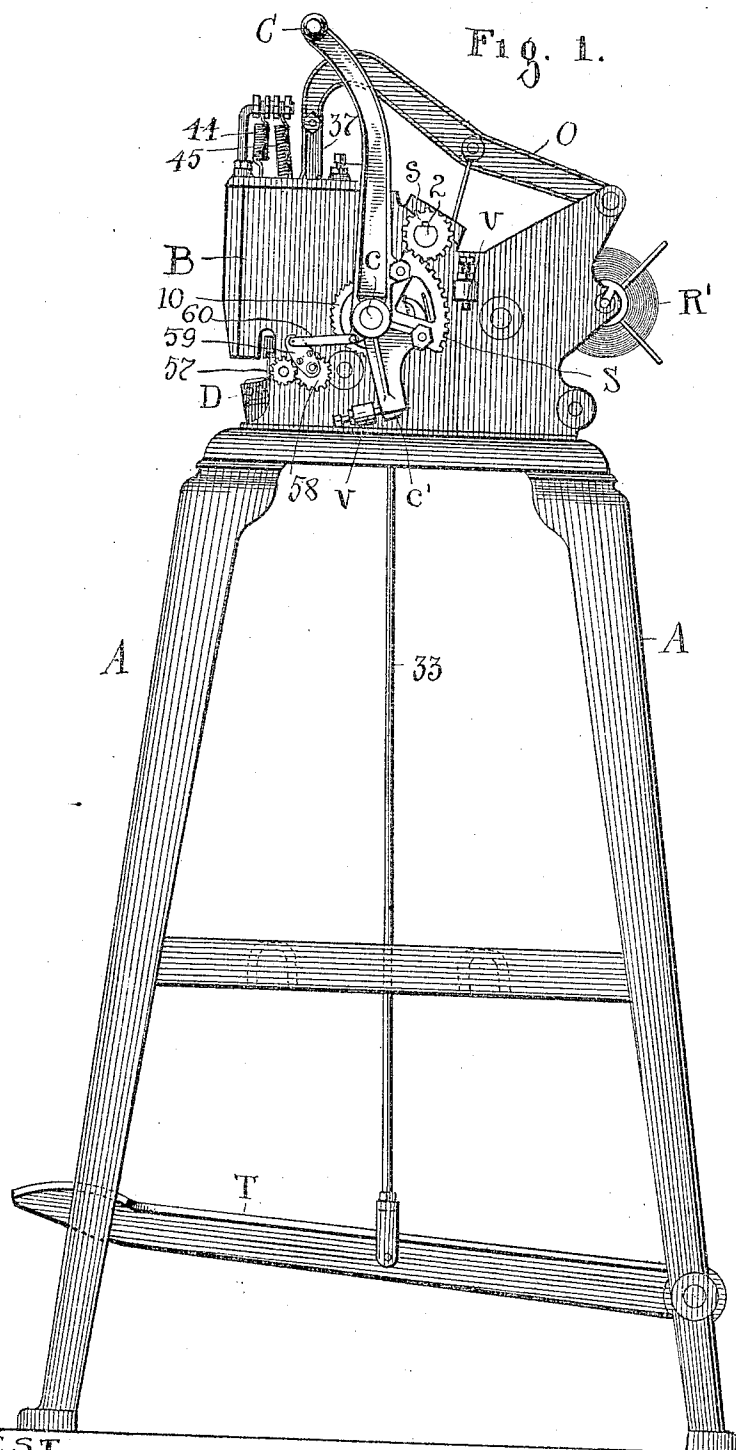


957,420.

F. W. HALL.
TAGGING MACHINE.
APPLICATION FILED AUG. 15, 1907.

Patented May 10, 1910.

8 SHEETS—SHEET 1.



ATTEST.
E. M. Fisher.
F. C. Musson.

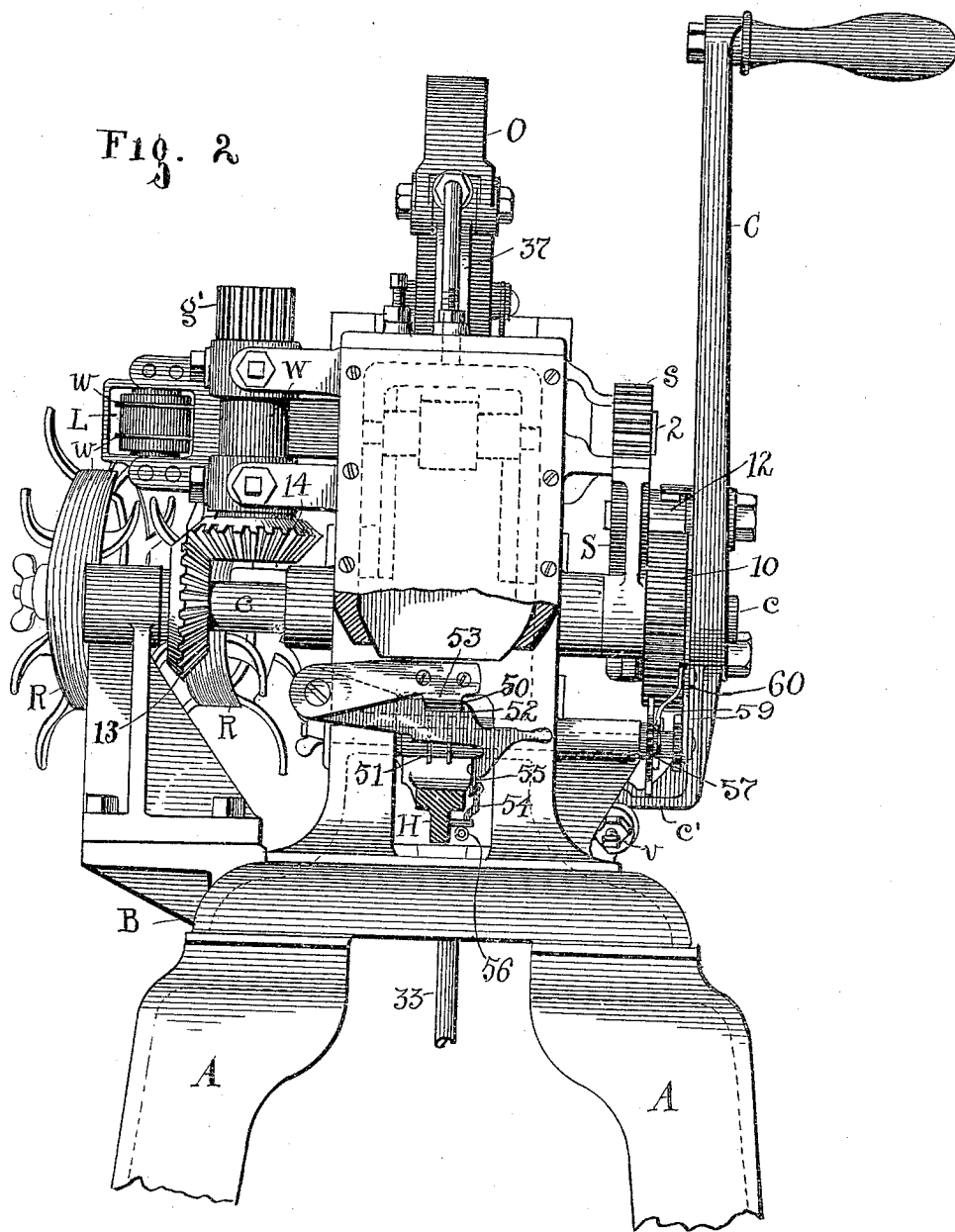
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8 SHEETS—SHEET 2.



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8 SHEETS—SHEET 3.

Fig. 3.

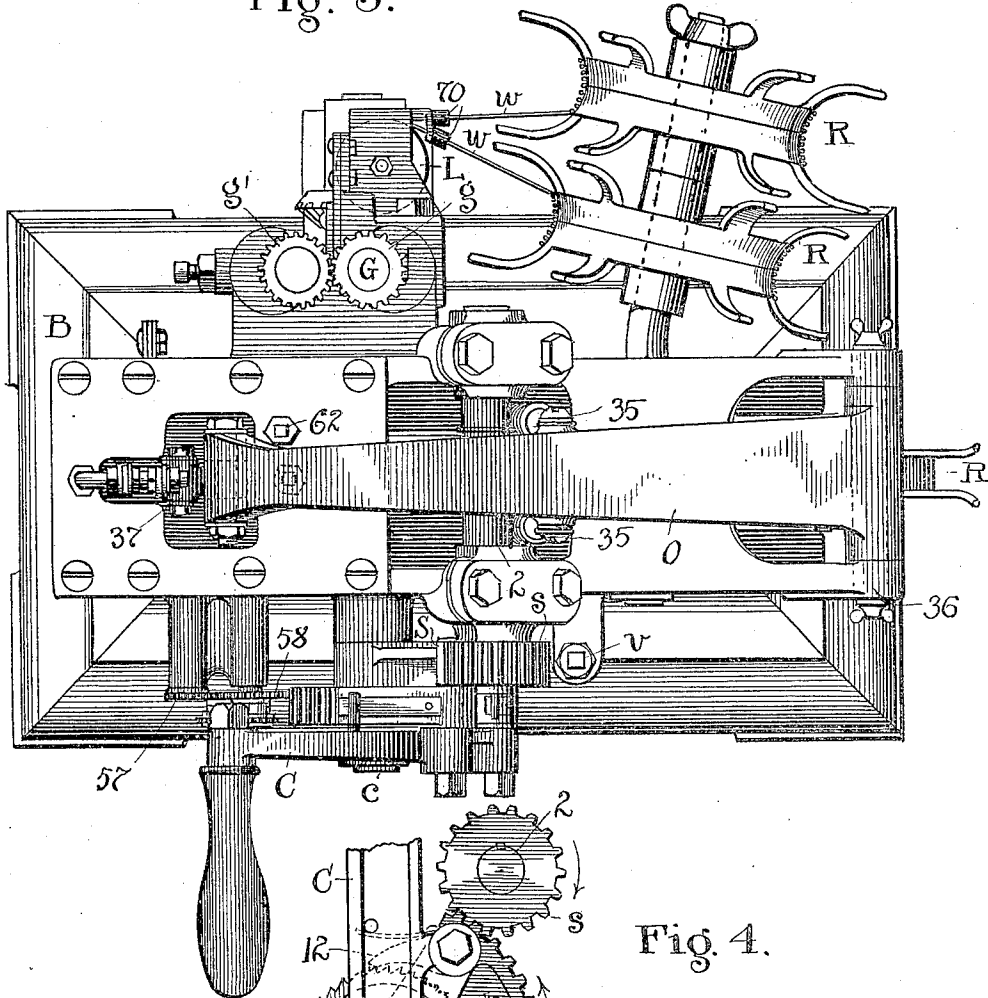
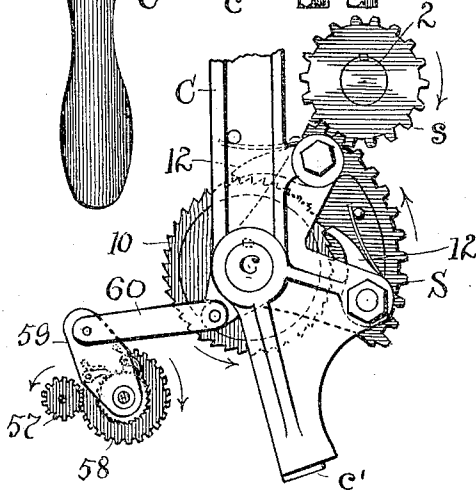


Fig. 4.



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E. M. Fisher.
J. D. Museum

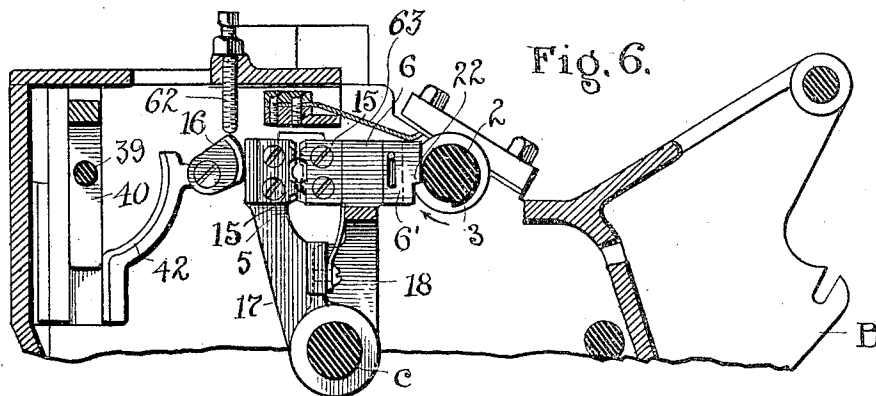
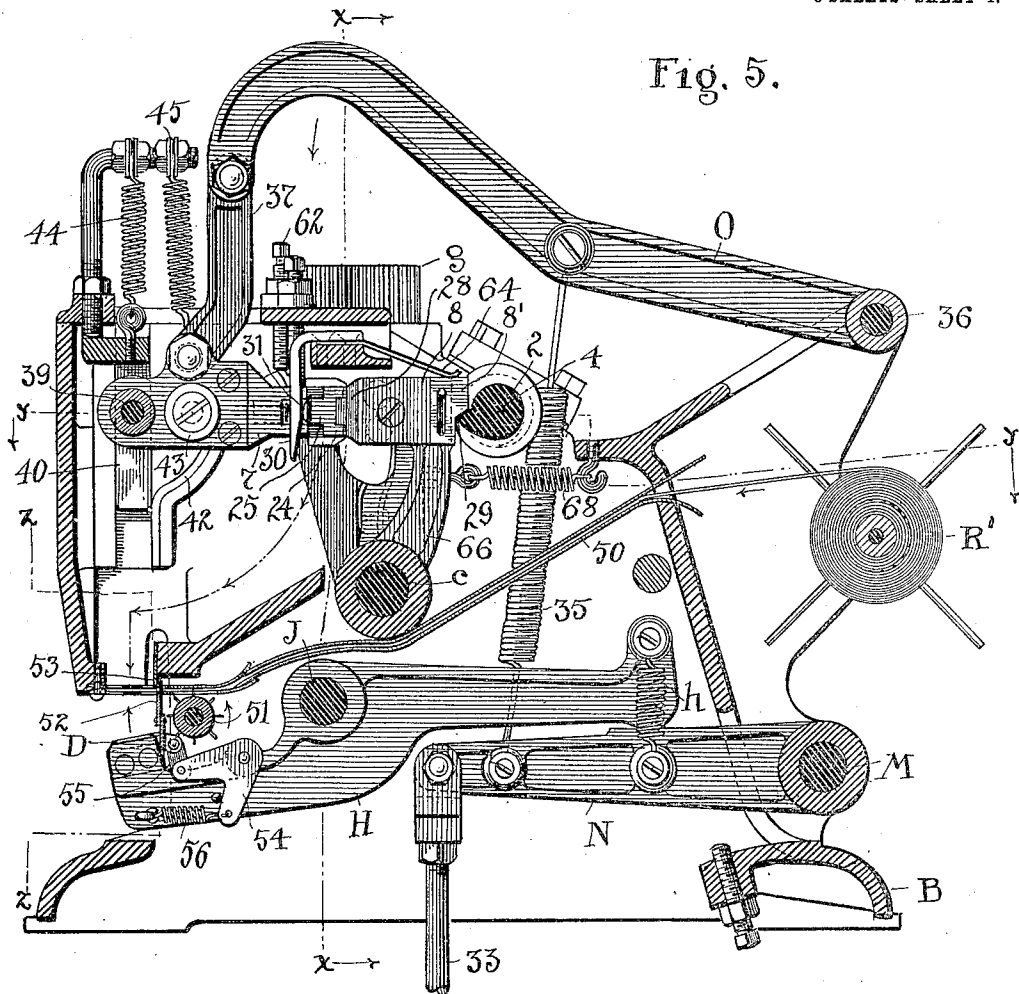
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8 SHEETS—SHEET 4.



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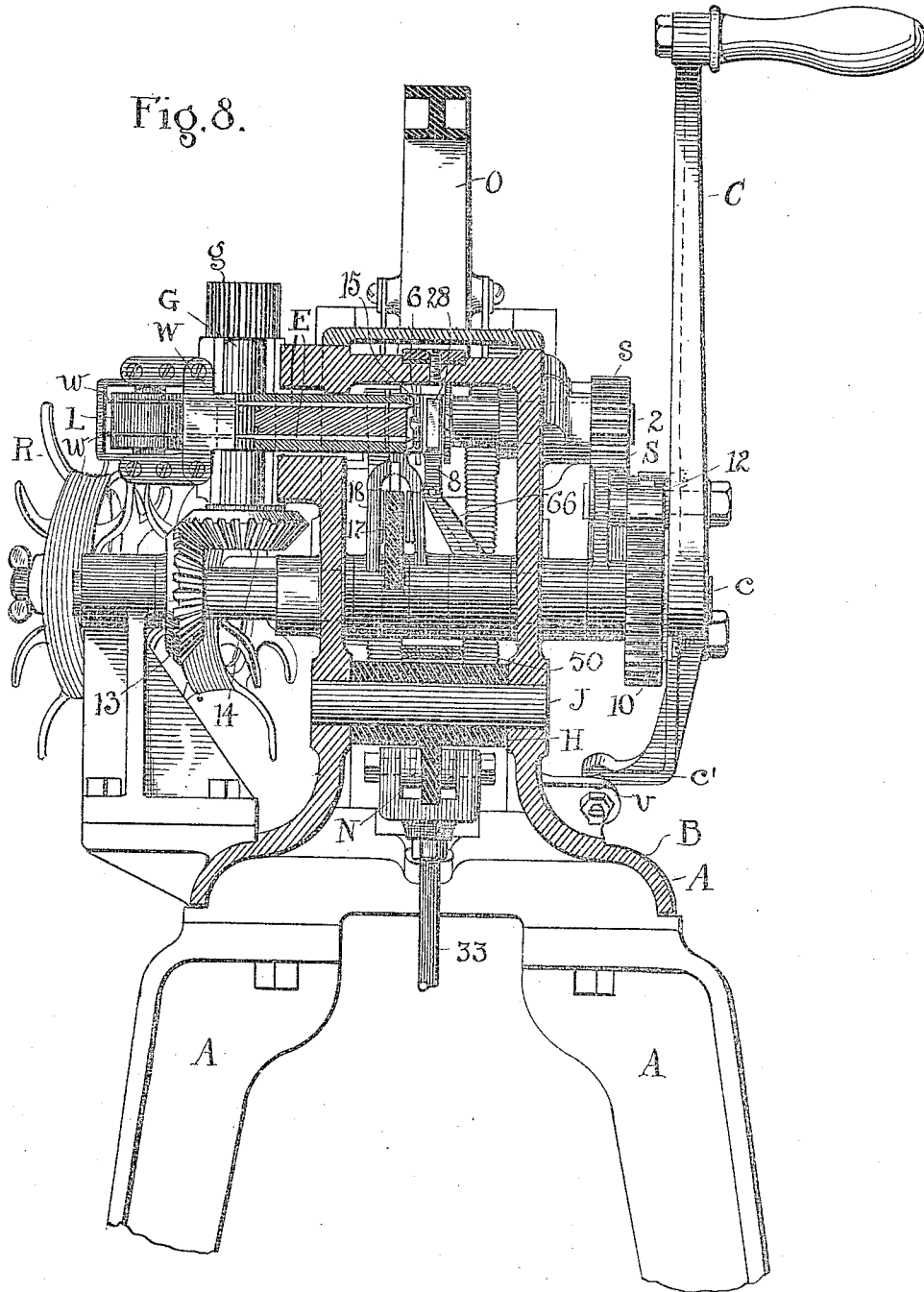
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Patented May 10, 1910.

8 SHEETS—SHEET 6.

Fig. 8.



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957,420.

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8 SHEETS—SHEET 7.

Fig. 9.

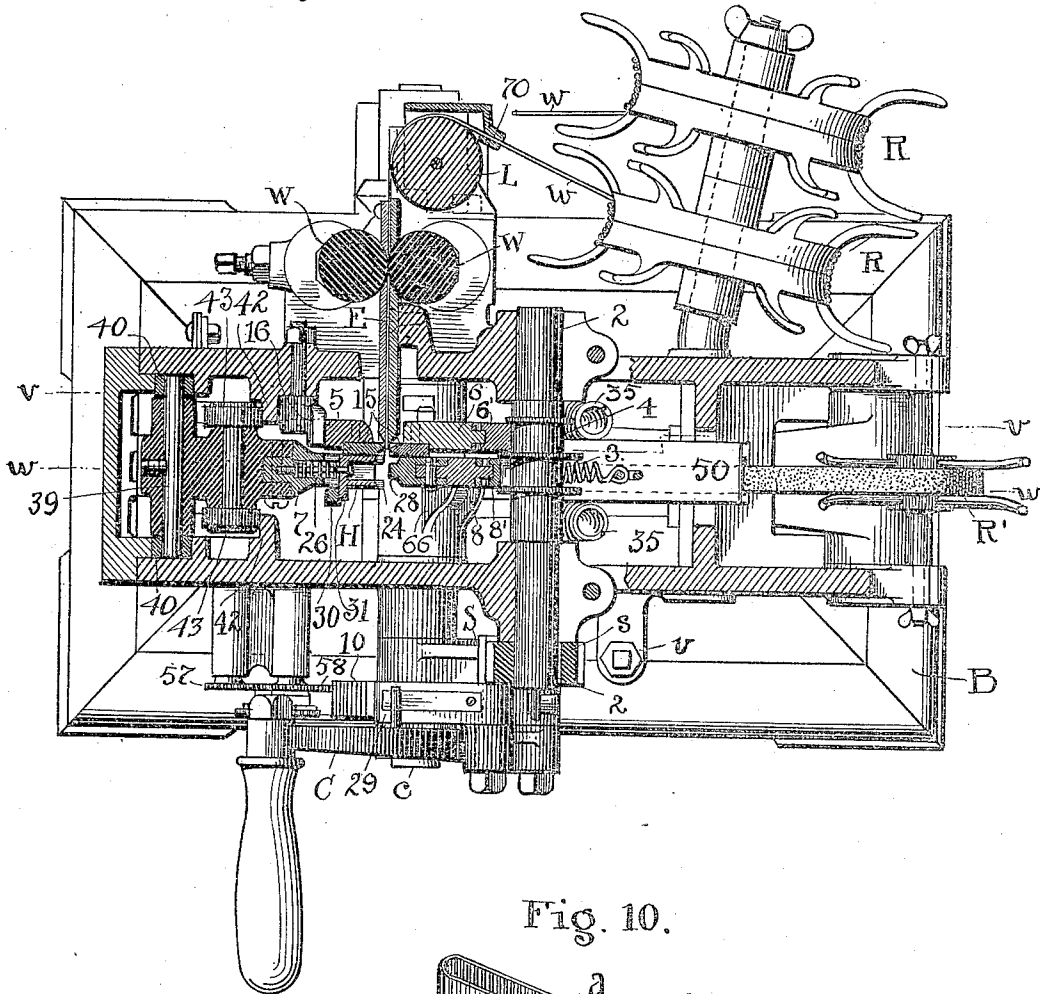
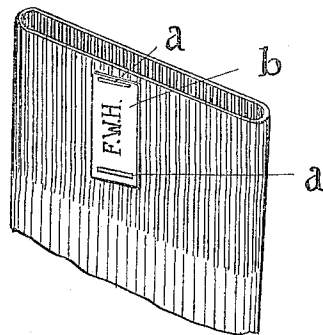


Fig. 10.



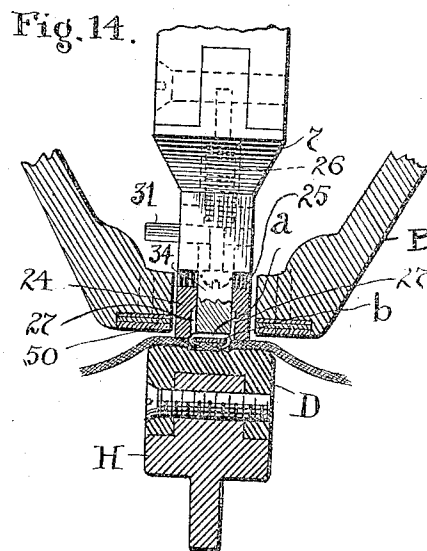
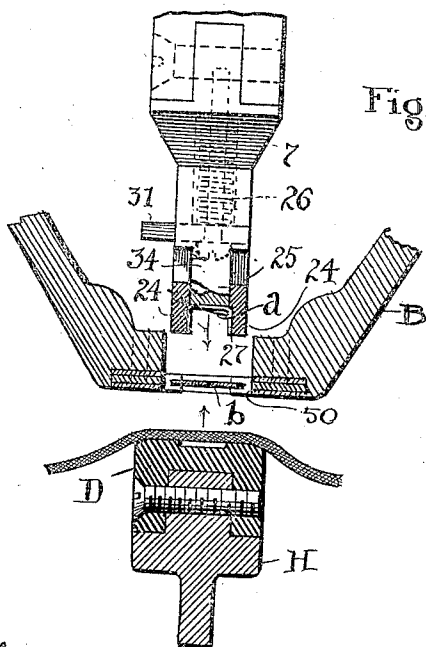
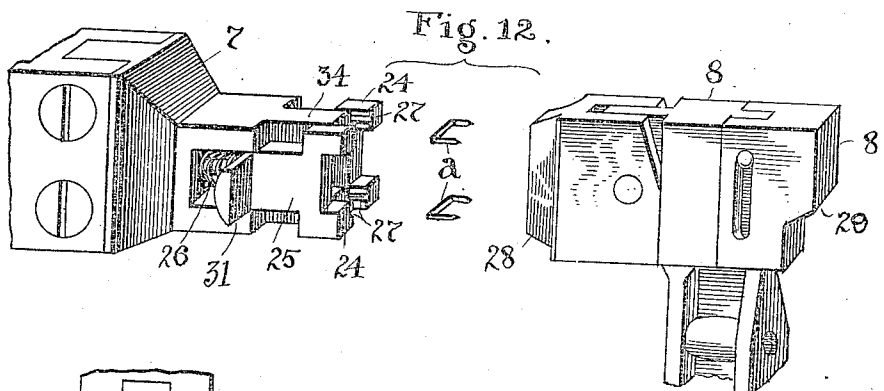
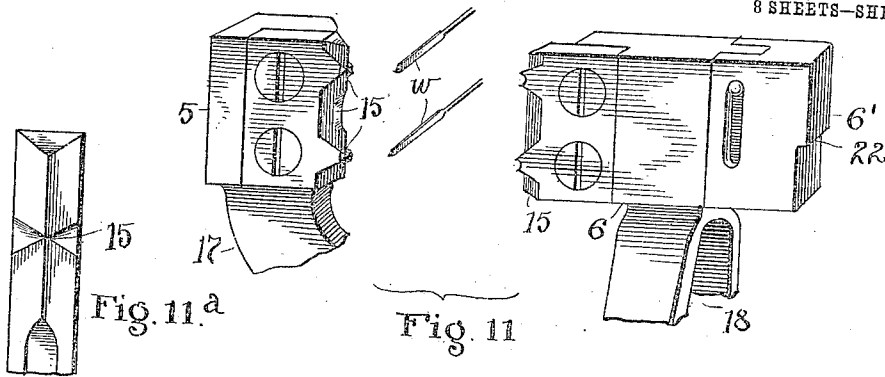
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Patented May 10, 1910.

8 SHEETS—SHEET 8.



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UNITED STATES PATENT OFFICE.

FRANCIS W. HALL, OF WICKLIFFE, OHIO.

TAGGING-MACHINE.

957,420.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed August 15, 1907. Serial No. 388,653.

To all whom it may concern:

Be it known that I, FRANCIS W. HALL, a citizen of the United States, residing at Wickliffe, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Tagging-Machines, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a tagging machine for laundry uses, and the invention consists in a machine adapted to automatically make and affix the tags or means for marking articles to be laundried, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the machine shown as mounted upon a frame or legs at a convenient working elevation for the operator. Fig. 2 is a front elevation of the machine, enlarged as compared with Fig. 1 and taken on cross section line $z-z$, Fig. 5. Fig. 3 is a plan view of the machine as a whole. Fig. 4 is a side view of the crank lever and certain parts immediately associated therewith, as hereinafter more fully described. Fig. 5 is a sectional elevation on a line corresponding to $w-w$, Fig. 9, and Fig. 6 is a sectional elevation on line $v-v$, Fig. 9. Fig. 7 is a view corresponding in the main to Fig. 5, but showing the parts as they appear when the treadle is operated and the parts are in position to effect the tagging. Fig. 8 is a vertical cross section corresponding to line $x-x$, Fig. 5, and Fig. 9 is a cross section in plan line $y-y$, Fig. 5. Fig. 10 shows the upper section of a stocking or hose with a tag or tape affixed thereto as contemplated by my invention. Figs. 11 to 14 are perspective views of the respective cutters, dies or formers progressively arranged and in relations as they appear in the work, as hereinafter fully described.

I am aware that various devices have been employed by laundries from time to time for placing identifying marks of one kind and another upon articles passing through their hands for laundrying, and that such devices have comprised different forms of tags and means affixed to the article temporarily or permanently, and I may especially mention a flexible metallic tag having prongs or the

like at its ends adapted to engage in the goods and carrying a fabric upon which the identifying mark is made with ink. All such devices I acknowledge and disclaim as they are entirely apart from my invention. My invention rather has to do with a new style of laundry tag or identifying medium, and a new and original machine for making and applying the same, and involves a piece of plain tape or its equivalent to which an identifying mark is applied by ink or the like and which is permanently secured to the article or goods by small and practically unnoticeable metallic staples, produced in and affixed by the machine automatically in its operations. To these ends the machine is constructed with a suitable body B upon which the operating parts are mounted and which is supported by a suitable stand, frame or structure A of any preferred form.

The marking or identifying device or medium, familiarly referred to herein as the tag, is the product entirely of this machine, and consists of two parts, the staples a and the strip or short piece of tape b fastened by said staples. These parts or members are produced respectively from coils of wire carried by reels R and R' for the wire, and R' for the roll of tape, and both wire and tape are fed to the machine automatically and simultaneously, or substantially so, and the staples are affixed at practically the same time that the tape is severed to the required length and fastened, as will hereinafter clearly appear.

Preferably, the machine is manually operated through rocking crank or lever C, plus the operation through treadle T for controlling the respective jaws or forming and clenching heads and the tape cutting mechanism. Said lever or crank C is adapted to be rocked back and forth by hand on its pivot shaft c , subject to stops v engaged by the lower projection c' of said lever which limit its rocking movements. Now, at least two distinct offices are performed by this lever, viz: the rotation of cam shaft 2, through which plunger members 6 and 8 are actuated, and wire feed rolls W are rotated and which are mounted in such close working relation that they not only serve to draw the wire from the reels but to flatten it more or less and force feed the wire laterally inward to the cutters and formers through channel E, Figs. 8 and 9. Power is applied to cam

shaft 2 from crank C by means of sector S, rigid with said crank and meshing with pinion s on shaft 2, and two cams, 3 and 4, respectively, are mounted side by side on said shaft, Fig. 9, and adapted to operate corresponding plungers 6 and 8, as we shall see. On the other line of mechanism operated from crank C and leading to the feed and flattening rolls for the wire, pivot shaft c for crank C carries a ratchet wheel 10, which is engaged by feed pawls 12 mounted on crank C and rotated thereby when the said crank is drawn forward, which imparts a corresponding movement to said rolls W through meshing bevel gears 13 and 14, Fig. 2, mounted on shaft c and shaft G respectively, the latter shaft carrying one of said rolls W and provided with a gear g meshing with gear g' on the shaft of the other roll, Fig. 3. The wire comes from the reels to said rolls over idler L. It should be understood here that as the tape requires two staples to fasten it, the staple producing and fastening mechanism is duplicate to this extent, as also clearly appears in Figs. 11 to 14, so that two staples are handled and secured with each single piece of tape. Now, having the strands of wire delivered under force feed through feed channels E, Fig. 9, the said strands being suitably spaced apart on idler L through channels E, project, first, between the opposed cutters or blades 15, secured to the opposite cutting members or heads 5 and 6, respectively, head 6 being loosely engaged with its own slidably connected and cam contacted portion 6' and head 5 being backed by fixed cam 16 to take the thrust. Both parts 5 and 6 are supported from shaft c by arms or standards, 17 and 18, respectively, on which shaft they have sleeved support, and the said cutters are fashioned with opposite substantially V shaped cutting portions in pairs, Fig. 11^a, which are adapted to point both the latter end of the staple blank that goes before, and the front end of the staple that follows, thus sharpening two points of two different staples in each wire at the same time, said blades having dual cutting places for said wires respectively. In this connection it may be explained that the outer section or portion 6' of plunger head 6 has a jointed and sliding connection with said head and is provided with a lip or shoulder 22, Fig. 6, adapted to be engaged by cam 3 when shaft 2 is reversely rotated, thus enabling said cam to lift said part 6' and pass to the rear, and to be positively engaged by said cam in its forward rotation to actuate said plunger and sever the wire. Simultaneously with this operation, or practically so, staple forming plunger 8 is pressed forward by cam 4 and the wire blanks are caught between parts 7 and 8 against the faces of dual projections 24 on substantially H

shaped forming member 25 slidably engaged in the front portion of head 7. Said member 25 is backed by a spring 26 in head 7 which keeps said member normally in advanced position ready to receive the wire blanks which, after being pressed against faces 24 as an initial action after severing, are forced the next instant into grooves 27 on the inner sides of member 25 and bent to shape by tongue 28 of plunger 8. The said plunger 8 also has a pivotally related portion 8', with a shoulder 29 adapted to be engaged by cam 4 in both its reverse and forward movements, while head 7 is arranged and supported in such way as to be bodily movable into a vertical position over anvil D and there participate in the fixing and clenching operation of the staples upon the tape. Prior to this, however, and when plunger tongue 28 is thrust forward into staple former 25, the said former is sustained against depression by means of a stop 30, which stands behind lateral projection 31 on said former, Figs. 5 and 9 and forms a fixed backing therefor. Then as head 7 and former member 25 are bodily given a quarter turn on pivot 39 from initial position to final position, Fig. 7, said head escapes stop 30 and is free to be pressed back against spring 26 to give tongue 34 of head 7 clearance to drive the staples down and through the tape and garment and to cause them to be clenched on anvil D, Fig. 14. Obviously, the staples are tight enough in former 25 to transfer therewith to final position, Fig. 13, just before clenching occurs, and while the several movements must be separately described to be understood it will also be understood that they follow each in such close sequence that they are scarcely separable in point of time, particularly in all actions proceeding from the quick forward and backward movements of rocking crank C, through which the preparatory work is accomplished.

Assuming now that the staples have been formed and are resting in head 7, and operations through crank C are completed for the time, the said head is rotated from horizontal position, Fig. 5, to vertical descending and clenching position, Figs. 7 and 14, through depression of treadle T as the initial actuating movement. This latter operation as a whole involves the bringing together of head 7 and anvil D, as in Fig. 14, and to these ends the said anvil is provided with a carrying beam H, which is pivoted upon cross shaft or rod J approximately near its middle and connected at its opposite end by a strong spring h with treadle operated arm N, to which the treadle is engaged by connecting link or rod 33. Said arm N is pivoted at one end on cross rod M at the rear of the machine, and springs 35, Figs. 7 and 9, connect the free end of said

arm N with lever O at the top of the machine. This lever performs the important function of changing the operating positions of former head 7 from its horizontal to its vertical positions and back again as hereinbefore described, and to this end said lever is pivoted at its outer extremity on rod 36 and connected by link 37 at its other end with former head 7 in such relation to the pivot or turning point 39 of said head as will give it the desired quarter rotation in the maximum up and down movement of said lever O. In this movement of head 7 it not only swings on pivot shaft 39, Figs. 5 and 9, but said pivot shaft is engaged at its ends in a vertically slidable frame 40 which has side bars and a top cross bar and is supported in side channels in main frame or body B of the machine. Said main frame also has curved or flanged edges 42 engaged by rollers 43 on head 7, and which flanges are concentric with pivot 39. Then being turned to vertical position, head 7 is subject to a downward thrust by lever O. Retracting spring 44, Fig. 5, is engaged with the upper end of slide frame 40 to draw it up after each action, and retracting spring 45 assists in lifting head 7 upward to be swung to horizontal position again.

Now, reverting to the operating connections to or with treadle T, it will be seen that when said treadle is depressed anvil D will be raised through beam H and former head 7 rotated a quarter turn and lowered through lever O as already described, and the power exerted through said treadle and mechanism will bring the parts into the final relations shown in Figs. 7 and 14, wherein the tape is severed to the desired length and the staples are driven down and clenched thereon and in engagement with the garment or article, as shown in the finished exhibit Fig. 10. As to the matter of the tape, a feed channel 50 is provided therefor from roll on reel R', at the lower end of which channel there is a toothed feed wheel 51 adapted to draw the tape forward and to feed it along to the tape cutters 52 and 53. Said cutters are arranged to have a shearing cut, Fig. 2, and the lower cutter is operatively connected with anvil beam H by a bell-crank lever 54, which is operatively united with lower cutter blade 52 by link 55, and held in working relation by spring 56.

The tape-feed-wheel, 51, is rotated intermittently and at fixed intervals the desired distance by a line of mechanism proceeding initially from crank lever C, and comprises a shaft carrying said feed wheel 51 on which is mounted a pinion 57, meshed by gear 58, and arm 59 having an actuating pawl for the ratchet connected with gear 58, is connected by link 60 with lever C. Suitable means are associated with these parts to hold them in rotated or adjusted positions, and

the exact means shown, or their equivalent, may be used for rotating and controlling said feed wheel 51. In fact not only this particular line of subordinate mechanism may be varied or changed in its details without departing from the spirit of the invention, if substantially the same function be performed, but this is true also as to all the other parts of the machine, except, possibly, as to a few essential or main particulars, such as the shape of the formers and the like, which have to do with making and handling certain definitely formed products.

Returning now to omitted details, cam 16, Fig. 6, for taking up possible wear in the cutter on cutter head 5, is designed to be fixed in any adjustment and may be depressed for closer work by set screw 62. In the same view a spring 63 is shown for holding the cam engaged portion or part 6' of cutter head 6 normally down in working relation, and this relation is disturbed only when cam 3 is rotated reversely by a rearward throw of crank lever C, when the lip of said cam comes beneath the lip or shoulder of said part 6', relatively as seen in Fig. 5, and raises said part temporarily to pass over the same to positive acting position. A like spring 64, for a like purpose, bears on the free section 8' of plunger head 8, and said head 8 is supported from shaft 2 by arm 66. Furthermore, spring 68 between arm 66 and the main frame draws head 8 normally back in working relation with cam 4, Fig. 5.

The endless wires *w* from reels R pass through short guides 70 onto idler L, and thence said wires pass between feed and flattening rolls W, suitable tension being maintained in the wire by or through said reels.

The former head 7 is shown as made in two parts rigidly fixed together, Fig. 12, and the forward or advance part is recessed and fashioned to receive the former member proper, 25, therein in a yielding relation against spring 26, as hereinbefore described, but said head might be unitary if preferred.

My invention herein is especially described as a laundry tagging machine, but it will be understood that it is not necessarily limited to laundry uses, and that it may be used wherever it can be advantageously employed for applying or attaching tags to garments or other articles entirely apart from a laundry.

What I claim is:—

1. In a tagging machine, a set of staple formers comprising a plunger having a loosely connected outer portion provided with a shoulder on its edge, a shaft adapted to be reversely rotated within limits and a cam thereon adapted to pass said shoulder on its reverse movement and to bear against the same in its actuating movement.

2. In a tagging machine, a set of wire cut-

ters and a set of formers to convert the wire into staples, said cutters and formers each mounted on rock arms and having a plunger member and each plunger member having a vertically spring pressed movable shouldered outer portion, and cams adapted to operatively engage said outer portions, and means to provide a limited rock movement to said cams.

3. In a tagging machine, a set of staple formers comprising a plunger having a loosely connected outer portion provided with a shoulder on its edge, a shaft adapted to be reversely rotated within limits and a cam thereon adapted to pass said shoulder on its reverse movement and to bear against the same in its actuating movement, gear and crank mechanism to actuate said shaft, and adjustable stops to fix the limit of rotation of said mechanism and shaft.

4. In a tagging machine, a pair of rolls arranged to feed dual strands of wire to the machine and guide channels for the wires, in combination with cutters mounted on rock arms to sever the wires into lengths, a pair of forming members mounted on rock arms at the side of said cutters to convert the wires into staples, separate cams to act successively upon said cutting and forming members, and an anvil, one of said forming members constructed to deliver said staples to the anvil and clench them thereon.

5. In a tagging machine, the combination of a pair of feed rolls for dual strands of wire, a shaft and gears connecting said shaft and rolls to actuate the rolls, a set of cams fixed on said shaft and a crank to rock the same, and a pair of wire cutters and a pair of staple formers pivotally mounted to rock side by side and having each a slidable member adapted to be successively engaged by said cams upon reverse movements thereof.

6. In a tagging machine, a device to form a plurality of staples from wire comprising a forming and carrying head for the staples adapted to swing downward on a pivot, a slidable carrier for said head, separate springs for each of said parts adapted to raise each to their respective positions of rest, a device upon which the said staples are adapted to be clenched and flexible means to bring said device and said staple forming and carrying head operatively together.

7. In a tagging machine adapted to secure tags by wire staples, a pair of staple forming members mounted to rotate within limits, in combination with a pivoted anvil member and spring connected means to bring said parts into operating relations together, one of said staple forming members carrying said staples and constructed to force the staples out in clenching position on said anvil member.

8. In a tagging machine, a staple form-

ing head pivoted to rotate a quarter turn and an anvil mounted on a rock member beneath said head, in combination with means to move said head and anvil toward and from each other successively and simultaneously and comprising a pivoted arm O for said head, a treadle and a pivoted treadle arm connected therewith and spring connections linking said arms together.

9. In a tagging machine, a pivoted staple forming head mounted to slide in vertical channels, and a pivotally supported anvil beneath said head, in combination with a pivoted lever and means yieldingly connected therewith and with said head and anvil respectively to move said parts toward and from each other alternately and under cushioning control.

10. In a tagging machine, a slidable staple forming head and an anvil beneath the same, a pivoted operating arm linked to said head and a pivoted supporting member for said anvil, and treadle means having yielding spring connections between the treadle and said pivoted arm and member.

11. In a tagging machine, a wire staple forming head pivotally supported to make a quarter turn and provided with a central tongue and a depressible spring pressed member projecting in advance of said tongue and constructed to form and support a plurality of staples, said member having a side projection adapted to engage a fixed part of the machine and provide a backing therefor during staple forming operations.

12. In a tagging machine, a forming head for staples having a spring pressed member provided with forward projections grooved oppositely on their inner sides and adapted to shape and hold the staples, in combination with a rock arm having a plunger member pivoted to rock thereon, and a cam to force said plunger forward against said head.

13. In a tagging machine, a staple forming head having both a pivotal and slidable mounting and provided with an end tongue and a depressible front member therein provided with dual grooved projections arranged on opposite sides of said tongue, in combination with a rocking plunger adapted to enter between said projections, and a cam to rock said plunger.

14. In a tagging machine, a staple forming head having a spring pressed forming member slidably mounted therein, in combination with a rock arm having a plunger mounted to rock within limits thereon and having a tongue adapted to enter said member and a fixed backing for both said head and its forming member adapted to take the thrusts.

15. In a tagging machine, a forming head for wire staples having a depressible forming portion, in combination with a plunger

mounted upon a rock arm and adapted to enter said head and having a vertically slidable rear portion provided with a shoulder, and an actuating cam adapted to engage said shoulder to lift said rear portion when rotated in one direction and to rock said arm when rotated in the other direction.

16. In a tagging machine, a main frame, a forming head slidably mounted in said frame and having a pivot on which it is adapted to describe a quarter turn, guide rollers mounted on said head and adapted to bear against both curved and straight guide portions on said main frame, an operating lever to depress said head, and treadle mechanism yieldingly connected with said lever, in combination with an anvil and pivoted carrying beam therefor having

yielding connections with said treadle mechanism.

17. In a tagging machine, a slidable frame and a forming head having a pivot connection therewith on which it has a quarter turn, in combination with a pivoted operating lever linked to said head and lift springs connected with said parts, and treadle means for said operating lever having a spring connection to provide a yielding pull therefor.

In testimony whereof I sign this specification in the presence of two witnesses.

FRANCIS W. HALL.

Witnesses:

E. M. FISHER,
F. C. MUSSUN.