

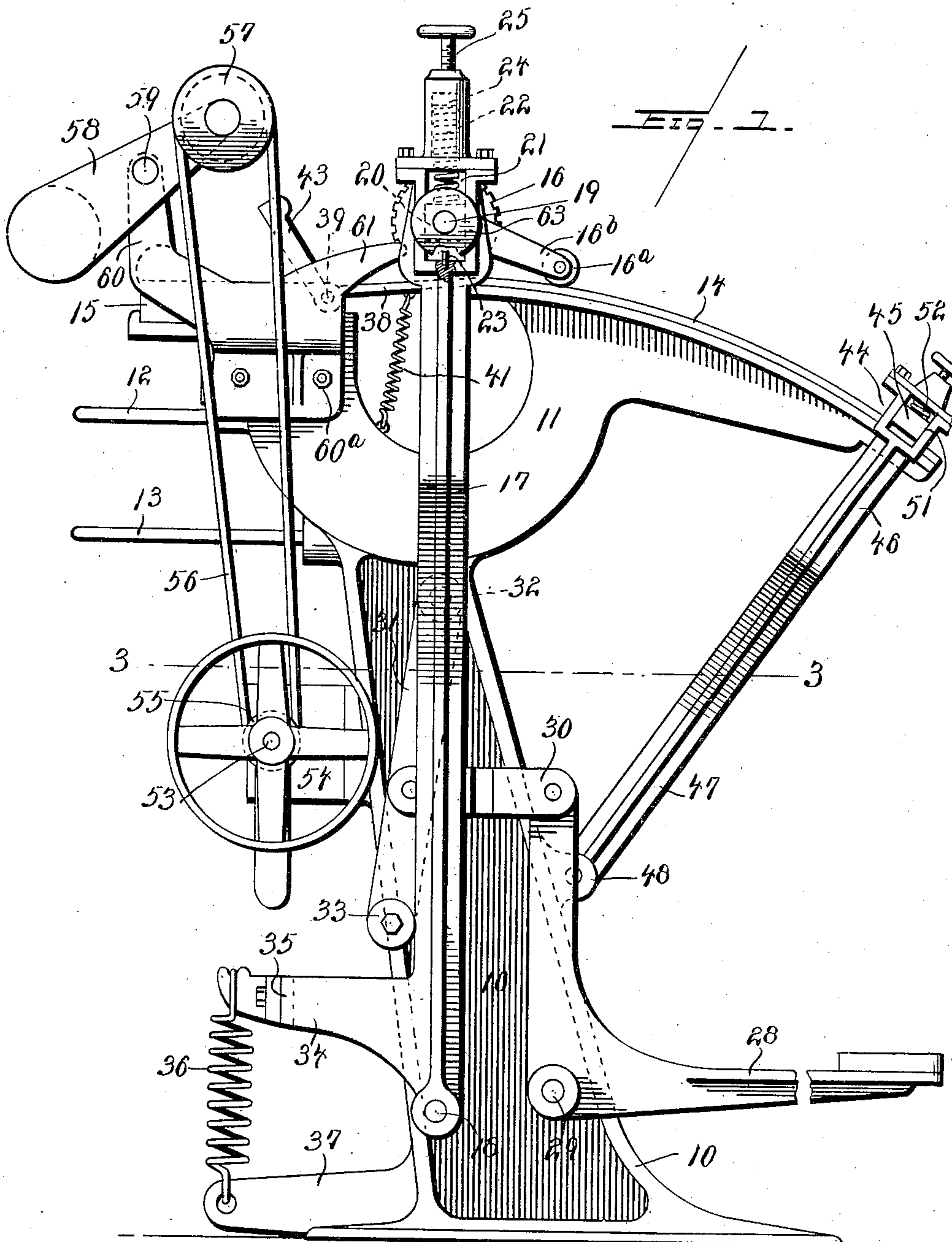
No. 859,058.

PATENTED JULY 2, 1907.

A. R. GUSTAFSON.
STARCHING MACHINE.

APPLICATION FILED AUG. 9, 1905, RENEWED MAY 21, 1907.

4 SHEETS—SHEET 1.



WITNESSES:

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M. A. Schmidt

INVENTOR

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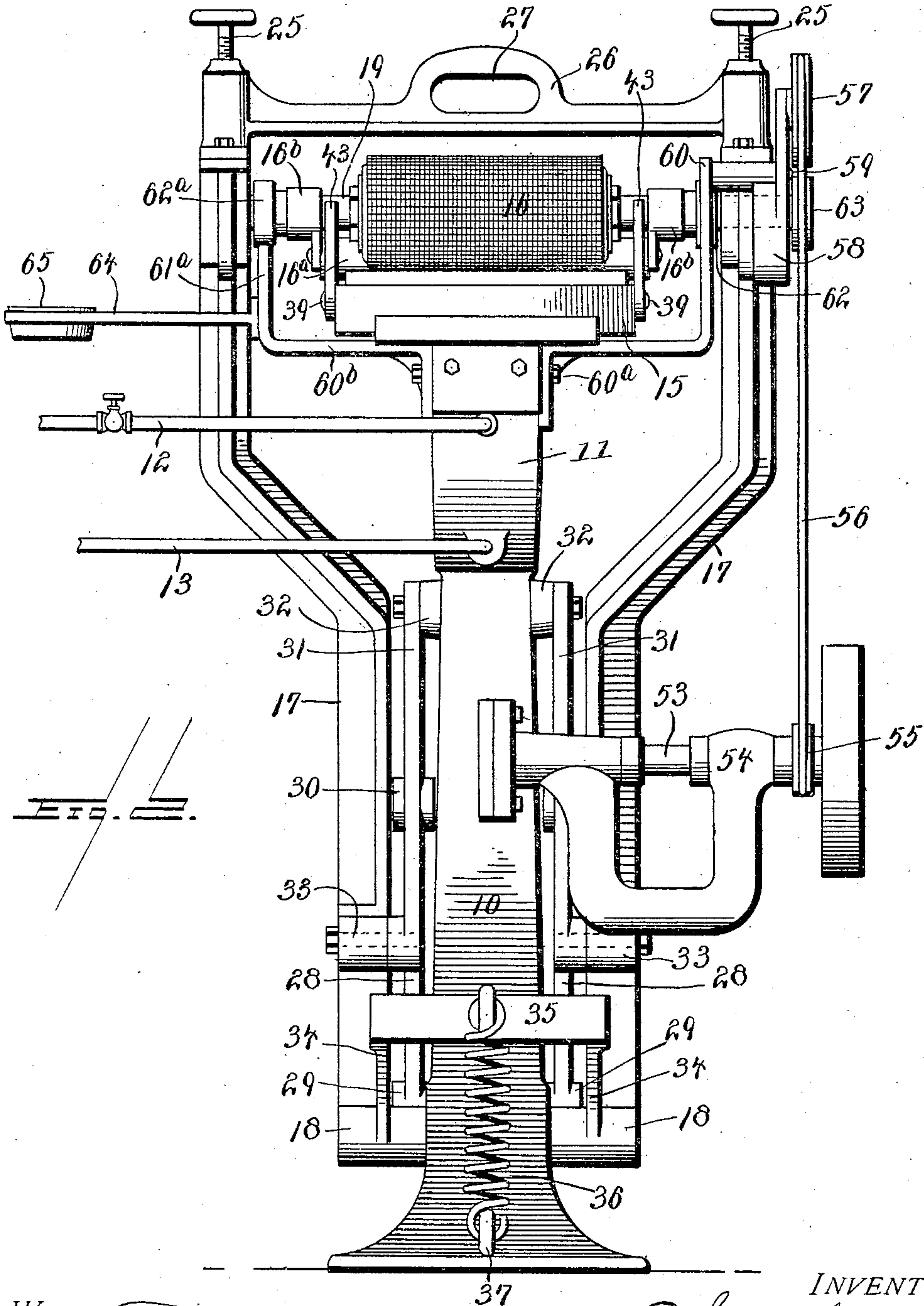
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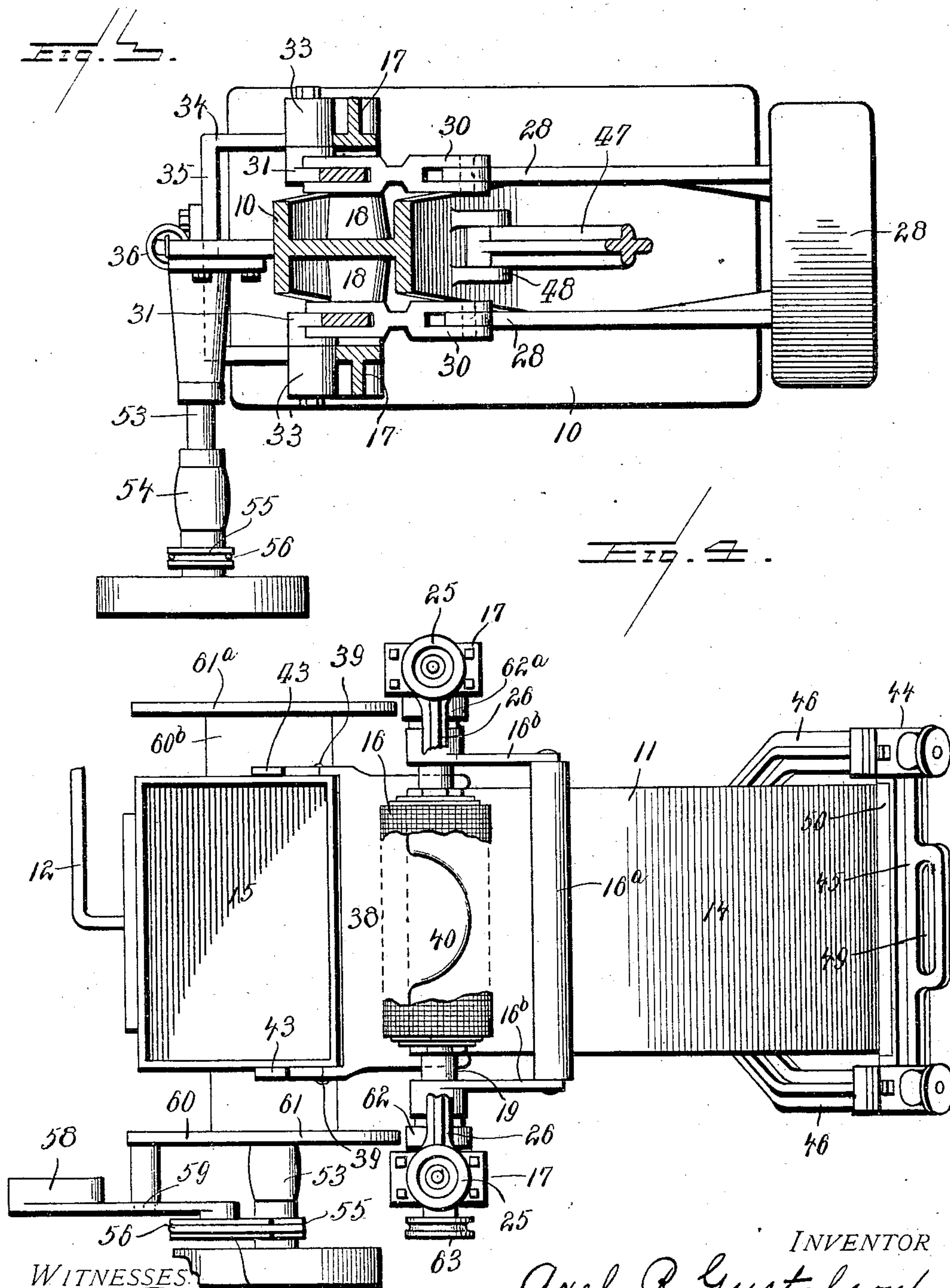
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4 SHEETS—SHEET 3.



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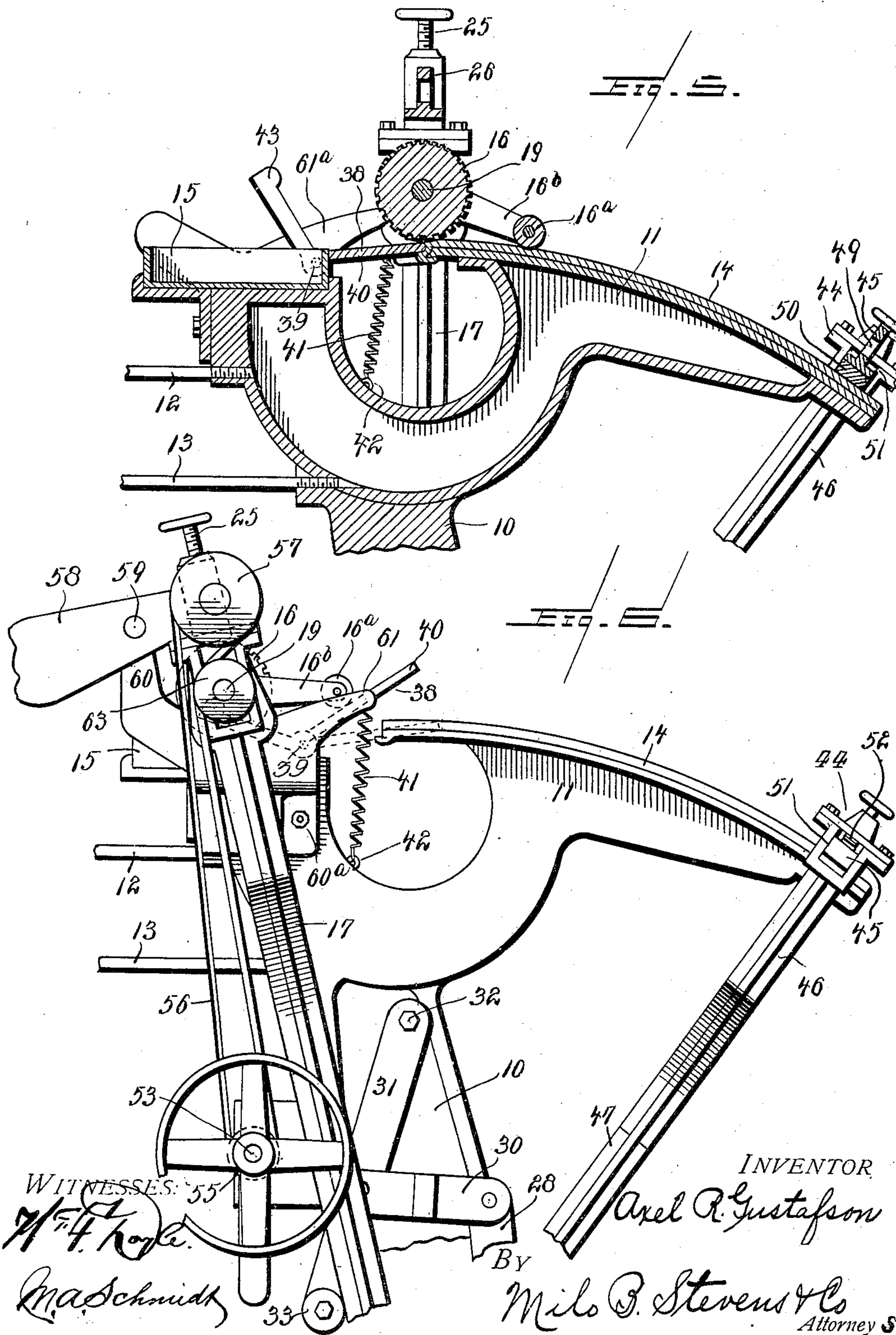
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4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

AXEL R. GUSTAFSON, OF CHICAGO, ILLINOIS.

STARCHING-MACHINE.

No. 859,058.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed August 9, 1905. Renewed May 21, 1907. Serial No. 374,911.

To all whom it may concern:

Be it known that I, AXEL R. GUSTAFSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Starching-Machines, of which the following is a specification.

This invention is a starching machine and has for its object to provide a machine whereby shirts may be readily starched, especially so as to provide a uniform distribution of the starch.

The invention consists in a presser for holding the neck portion of the shirt, and also a stand or frame provided with a segmental bosom-board or table over which the starch-distributing roller works, together with certain other novel features of construction to be hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a side elevation and Fig. 2 a rear elevation of the machine. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a plan view. Fig. 5 is a central vertical sectional view of the upper portion of the machine. Fig. 6 is an elevation showing the starch-distributing roller in a different position from that shown in Fig. 1.

Referring specifically to the drawings, 10 denotes a stand which supports the parts to be described. At the top of the stand a steam-chamber 11 is formed having an inlet 12 and an outlet 13. The front end of the steam-chamber is segmental shape on top and forms the bosom-board on which the shirt is held during the starching operation. The bosom-board is covered with a suitable padding 14. At the rear end of the steam-chamber is a pan 15 containing the starch.

The means for distributing the starch over the shirt consists in a roller 16 carried by arms 17 pivoted to the sides of the stand 10, as at 18. The shaft 19 of the roller 16 has its bearings in blocks 20 sliding in recesses 21 formed in the upper ends of the arms 17. The recesses 21 contain coiled springs 22 which bear on the blocks 20, whereby the roller is yieldingly held in contact with the shirt when the machine is in operation. At the bottoms of the recesses 21 are screw-studs 23 which are adjustable to limit the downward movement of the blocks 20. The tension of the springs 22 is regulated by blocks 24 bearing on the ends thereof, said blocks being operated by screw-spindles 25. The top of the arms are joined by a cross-piece 26 having a handle 27 whereby the said arms may be swung on their pivots to carry the starching-roller over the shirt. However, the preferable way of operating the roller is by means of a treadle 28 pivoted at 29 on the stand, and connected by a link 30 to a second link 31 which is connected at one end, as at 32, to the stand 10. The opposite end of the link 31 is fitted with a roller 33 which engages the edge of the arm 17. Each of the

arms 17 is connected in this manner with the treadle. When the treadle is depressed, the links 31, by means of the connections 30, swing on their pivots 32, and the pressure of the rollers 33 on the arms 17, causes the latter to swing on their pivots 18, whereby the roller 16 is carried over the bosom-board 14. The lower ends of the arms 17 are provided with lateral extensions 34 which are joined by a cross-piece 35 to which a spring 36 is fastened, the other end of the spring being made fast to an arm 37 extending from the stand. The purpose of this spring is to return the arms when pressure on the treadle is removed.

The neck portion of the shirt is clamped to the bosom-board by a presser 38 which is pivoted as at 39 to the starch pan 15. The front end of the presser has an extension 40 which overlaps the rear edge of the bosom-board. This end of the bosom-board is recessed to conform to the neck of the shirt, and the part 40 extends into the recess. The presser is operated by a coiled spring 41 fastened thereto and to any suitable place on the frame of the machine. The rear end of the presser is provided with extensions 43 for a purpose to be hereinafter described.

A clamp for the lower end of the shirt is indicated at 44, said clamp comprising a cross-bar 45 working in recesses formed in the outer ends of two branches 46 of an arm 47 pivoted to the stand as at 48. The cross-bar 45 is provided with an operating handle 49. That portion of the cross-bar which engages the shirt has a wood facing 50 to prevent injury to the shirt. The recesses in the branches 46 in which the cross-bar works, contain springs 52 which bear on said cross-bar so that the latter yieldingly engages the bosom-board. The tension of the springs 52 is adjustable in the same manner as the springs 22. The clamp depends for its action upon the springs 52. In operation, the handle 49 is taken hold of and the cross-bar pulled out or up and the clamp is swung over the foot of the bosom-board. The handle is then released, and the bar springs down upon the shirt on the board and clamps it thereon.

At 53 is indicated a shaft which is journaled in a bearing 54 extending from the stand. This shaft has a pulley 55 which is connected by a belt 56 with a pulley 57. This pulley 57 is carried by a weighted arm 58, pivoted as at 59 on a bracket 60 which is bolted to the steam-chamber as at 60^a. The belt 56 extends loosely around the pulleys, and is for a purpose to be hereinafter described. The bracket 60 is also formed with a cam 61 which is arranged to extend into the path of a roller 62 on the shaft 19. A similar cam 61^a is formed on a bracket 60^b bolted to the steam-chamber on the side opposite the one to which the bracket 60 is bolted. This cam 61^a is also arranged to extend into the path of a roller 62^a on the shaft 19. One end of the shaft 19 extends beyond the arm 17 and is fitted with a pulley 63

which extends into the path of the belt 56 for a purpose to be hereinafter described.

In the operation of the machine, steam is turned into the chamber 11 to give the proper temperature to the bosom-board and other parts. Upon releasing the treadle 28 the spring 36 draws the arms 17 rearwardly so that the pulley 63 engages the belt 56, which upon being tightened by the pressure of the pulley 63 thereagainst, imparts motion to the starching-roller 16 which is now extending into the pan. The object in rotating the roller is that its entire surface may receive the starch. As the roller travels rearwardly toward the pan 15, the shaft 19 engages the rear extensions 43 of the presser 38 and lifts up the front end of the same, which permits the shirt to be placed on the bosom-board and after which the clamp 44 is applied. The treadle 28 is now depressed which swings the arms 17 forwardly and carries the starching-roller 16 over the shirt. As soon as the shaft 19 leaves the extensions 43 of the presser 38, the spring 41 draws said presser down against the rear end of the bosom-board and securely clamps the shirt thereto. This clamping action takes place before the starching-roller reaches the shirt, so that the shirt will not be disarranged when the starching-roller reaches the same. Said roller engages the shirt with a spring pressure which is readily regulated by the screws 25. When the roller reaches the end of the bosom-board, the treadle is released after which the arms 17 are returned to the starch pan through the action of the spring 36, as heretofore explained, the starching-roller 16 being again rotated within the pan to receive a new supply of starch in the same manner as heretofore described. When the shaft 17 rides over the rearward extensions 43 of the presser, it removes the front end thereof from the shirt to permit removal of the latter, the clamp 44, of course, being also disengaged. The cams 61 and 61^a

are for the purpose of lifting the starching-roller from the shirt, and also to lift said roller out of the pan upon its forward movement.

At 64 is indicated a bracket extending from the frame of the machine and which bracket carries a pan 65 containing means for cleaning, dampening or wiping the article during the process of starching.

At 16^a is indicated a small roller or follower which is pivoted by arms 16^b to the shaft 19. The purpose of this roller is to assist in spreading the starch, and also to prevent it from running over the shirt below the bosom thereof, in the event of the roller 16 taking up an excessive quantity of starch. The surplus starch will be confined between the two rollers, and upon their return movement the roller 16^a will assist to spread the starch over the bosom of the shirt.

Having thus described my invention what is claimed as new and desired to be secured by Letters Patent, is:

1. In a starching machine, the combination with a stand provided with a bosom-board, of an arm pivoted to the stand and having at its outer end recessed branches, and a spring-pressed cross-bar working in the recesses, and engageable with the bosom-board for clamping the article thereto.

2. The combination with a starching machine having a bosom-board which is recessed at its rear end, and a starching roller working over the board, of a pivoted clamp having at its front end an extension fitting in the recess and engaging the edge of the board for clamping the article thereto, and said clamp having at its rear end extensions, which are engageable by the starching-roller shaft for releasing the clamp.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AXEL R. GUSTAFSON.

Witnesses:

BENJAMIN ETTTELSON,
H. G. BATCHELOR.