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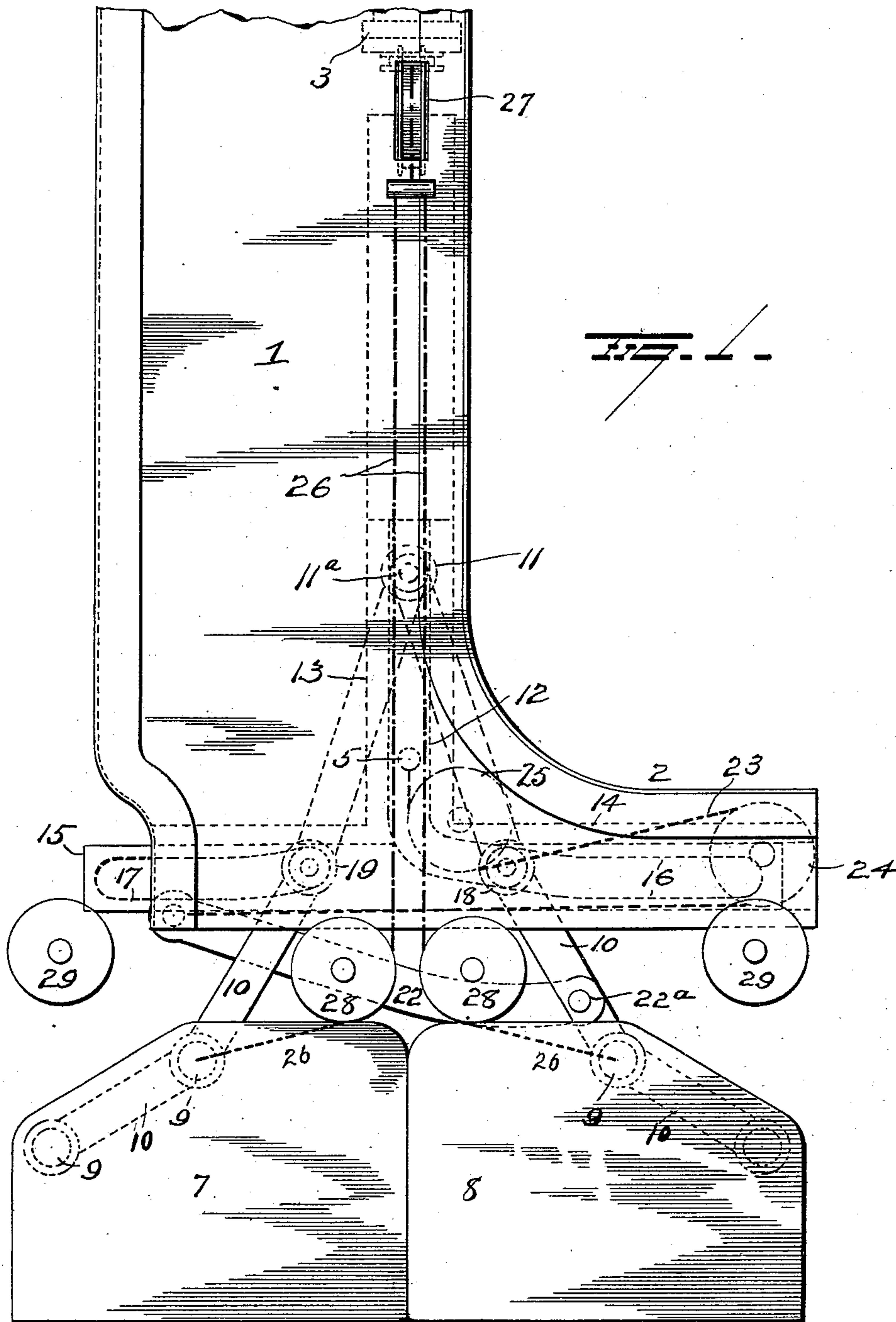
Patented Nov. 18, 1902.

G. H. HULETT.
BUCKET.

(Application filed Mar. 12, 1902.)

(No Model.)

4 Sheets—Sheet I.



WITNESSES
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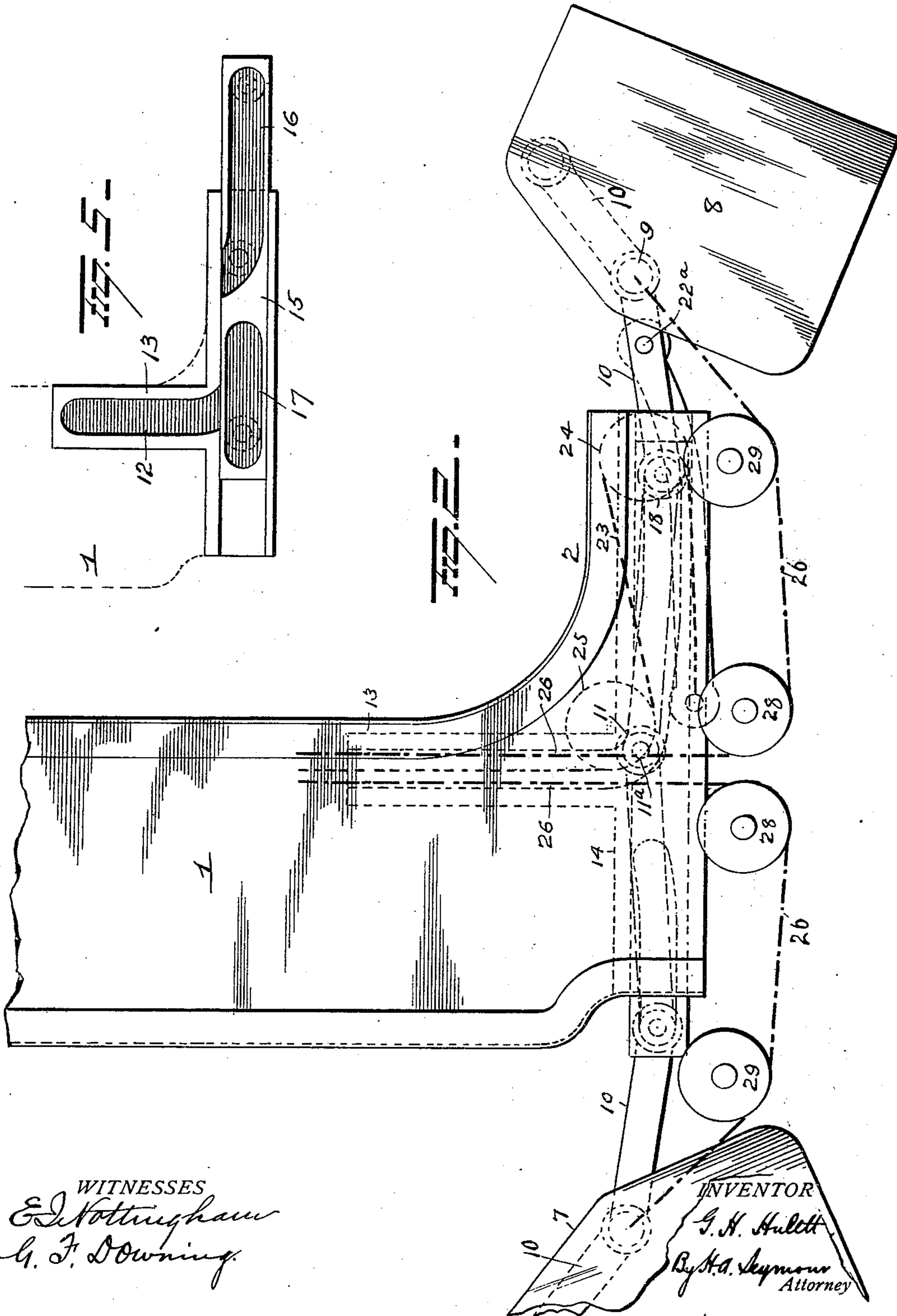
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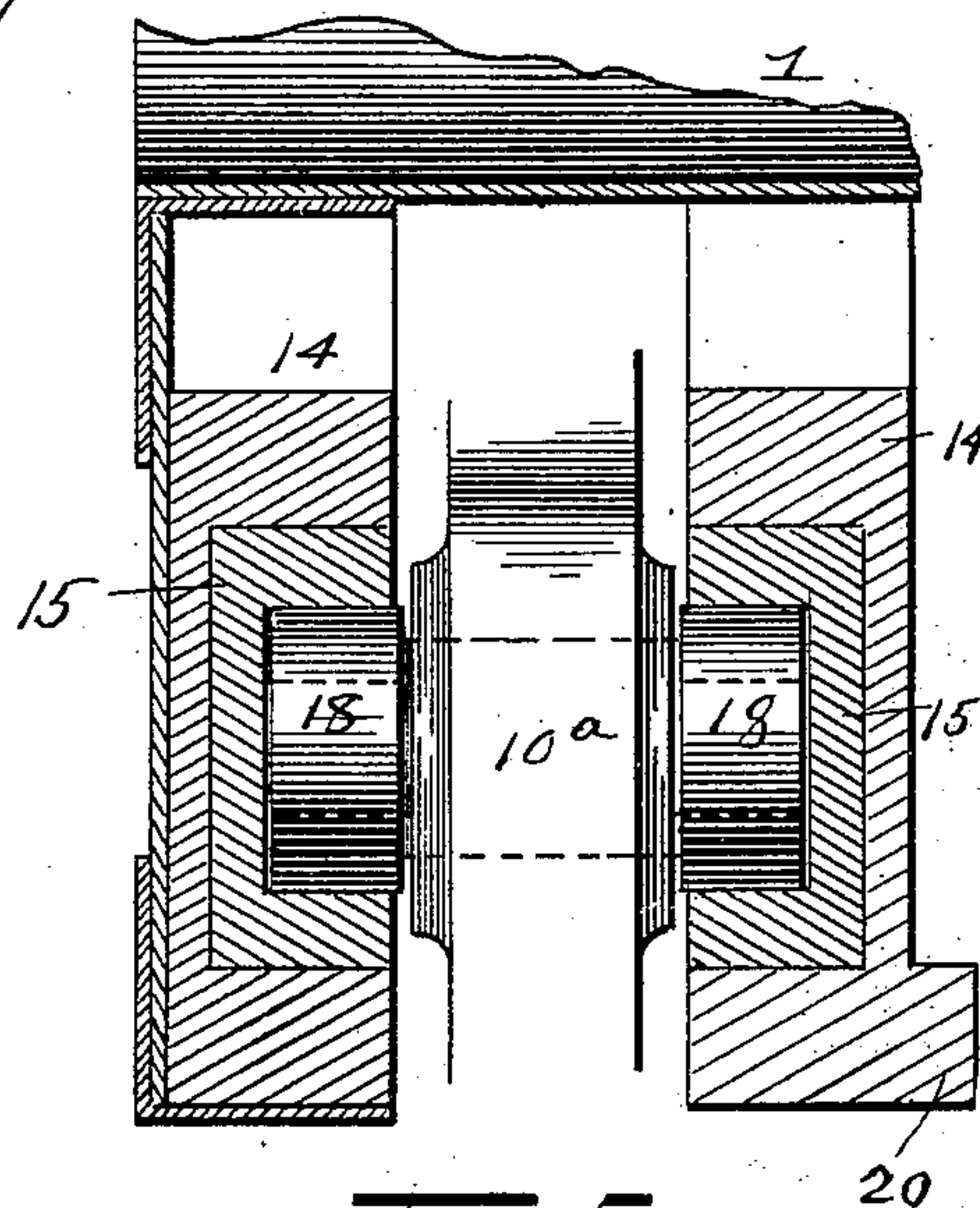
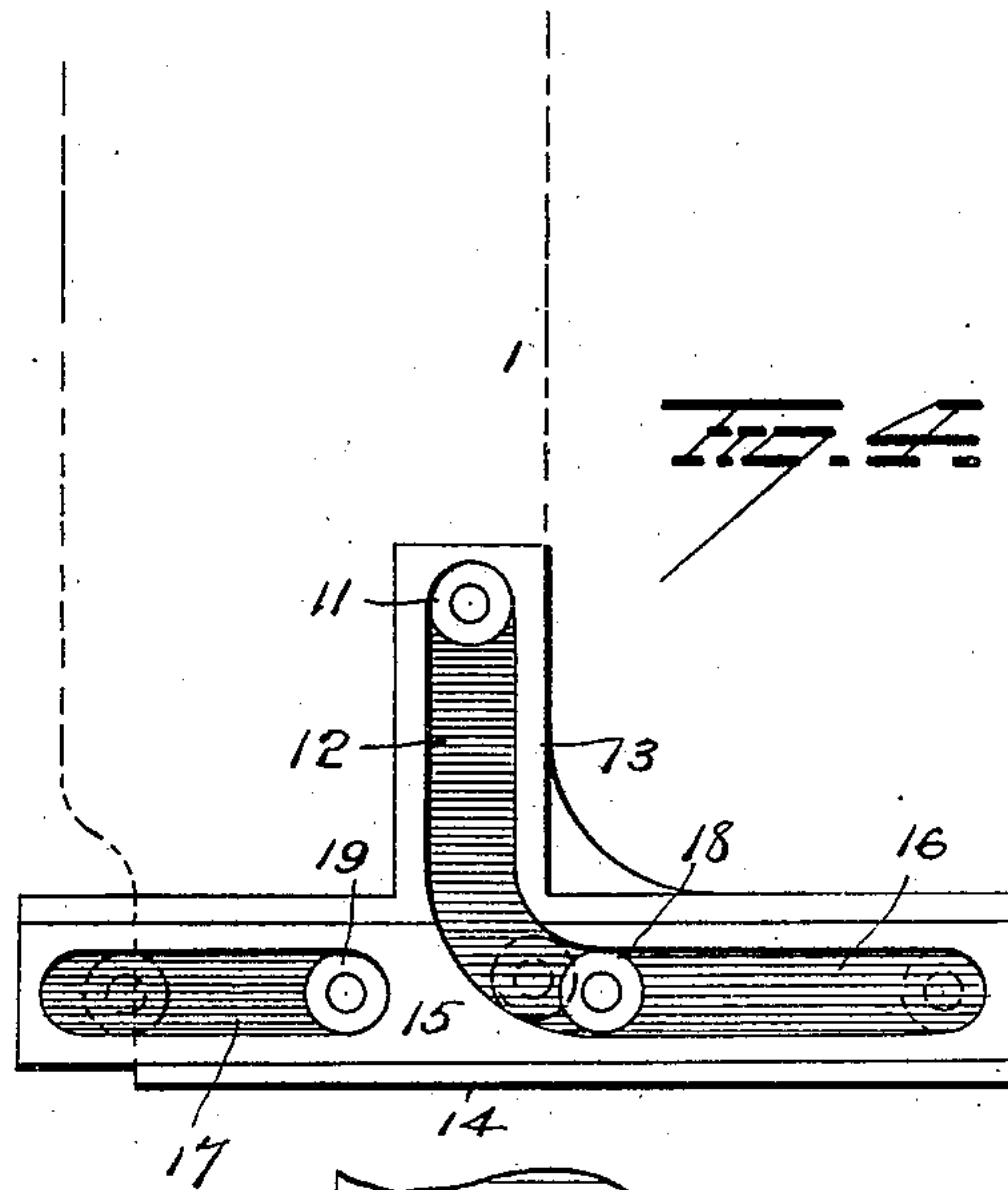
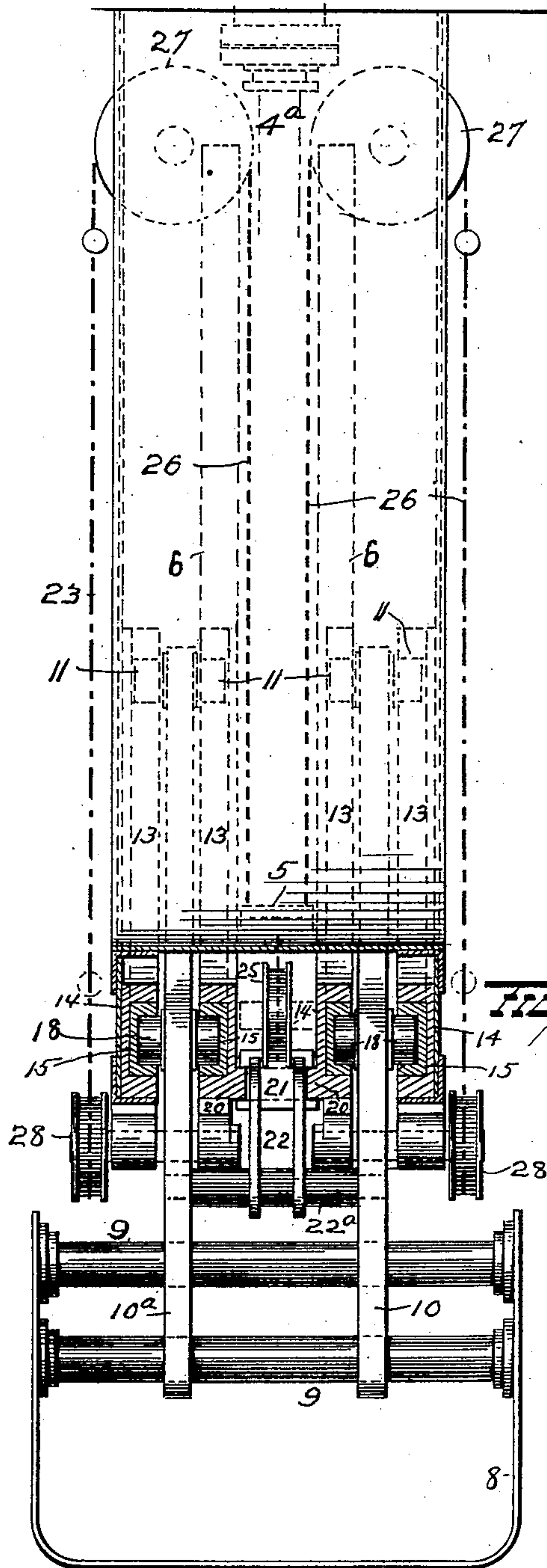


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4 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

GEORGE H. HULETT, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO WEBSTER, CAMP AND LANE COMPANY, OF AKRON, OHIO.

BUCKET.

SPECIFICATION forming part of Letters Patent No. 713,987, dated November 18, 1902.

Application filed March 12, 1902. Serial No. 97,934. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. HULETT, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Buckets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in excavating or dredging buckets, and more particularly to buckets for use in loading and unloading apparatus and improved mounting and operating mechanism therefor, the object of the invention being to provide a bucket of this character which will be so constructed and mounted as to facilitate the opening of the bucket-sections and when so opened can be drawn toward each other to inclose the material to be removed, the sections being drawn along with a powerful scooping or shoveling action to effectually gather the most obstinate of materials.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation illustrating my improvements, showing the bucket closed. Fig. 2 is a similar view showing the bucket open. Fig. 3 is a view in vertical section, and Figs. 4, 5, and 6 are views illustrating details of the guides for bucket-sections. Fig. 7 is a sectional view on the line *y y* of Fig. 8, and Fig. 8 is a section on the line *x x* of Fig. 7.

1 represents the hollow leg of an unloading apparatus having a laterally-projecting foot 2 at its lower end and supporting and preferably inclosing a hydraulic operating-cylinder 3, having the ordinary piston, piston-rod 4^a, projecting through the lower end thereof, and a cross-head 5, secured on the lower end of said rod and mounted to move between parallel vertical guides 6, located centrally in the leg 1.

7 8 represent the two sections of the bucket, which are preferably of the shape shown and provided in their upper ends with cross-bars 9,

which serve to strengthen the bucket-sections, and to the bars 9 on the respective sections upwardly projecting and inclined frames or supports 10 10^a are secured, so as to have no movement independent of the bucket-sections. The frames or supports 10 10^a are provided at their upper ends (where the bars of the respective bucket-sections are pivotally connected by pins 11^a) with rollers 11, the rollers 11 being mounted on the pins 11^a and all of the pins disposed in alinement. The rollers 11 are mounted in vertical grooves or slots 12 in guide-brackets 13, four of which being provided, two for each pair of frames or supports 10 10^a, and are secured in the leg 1 and have integral guides 14 at their lower ends projecting laterally from both sides of the vertical portion thereof and at right angles thereto. In these last-mentioned guides 14 slides 15 are mounted to move longitudinally, and each slide is provided in one end with a groove or slot 16, curved at its inner end, as shown, to aline with the vertical slot or groove 12 when the slide is in its normal position, and in the opposite end of all of said slides straight grooves or slots 17 (in the same horizontal plane as the main portions of slot 16) are made.

Between the ends of the frames or supports 10^a, connected with bucket-section 8, and on opposite sides of said frames or supports rollers 18 are mounted to revolve and are located in the slots 16, while similar rollers 19 are provided on the other frames or supports 10, connected with bucket-section 7, and are movably mounted in the slots 17.

The inner guide-brackets 13 are provided at their lower ends on their adjacent faces with horizontal guides 20 for a slide 21, to which links 22 are pivotally connected at one end and at their other end are connected to a bar 22^a, secured between frames or supports 10^a. To this slide 21 a chain or cable 23 is secured, said chain passing around a pulley 24 in the foot 2, thence down and around a pulley 25 and up to and secured to the cross-head 5, so that when said cross-head is elevated it will force the bucket-sections apart, as will be hereinafter explained.

To close the bucket, chains or cables 26 are provided. These chains or cables are secured

at one end to the cross-head 5, extend upward and pass over pulleys 27, thence down to outside of the leg 1 and around pulleys 28, and are secured to the cross-bars 9. Idle pulleys 29 are also provided at the lower end of the leg 1 and foot 2 to receive these chains or cables 26 when the bucket is opened and serve to facilitate a direct pull of the sections when chains or cables 26 are pulled by the lowering of cross-head 5, as will now be explained.

The operation of my improvements is as follows: To open the bucket, pressure is applied in cylinder 3 to raise the piston therein, and consequently raise the cross-head 5 on piston-rod 4^a. This raising of cross-head 5 exerts a pull on chain or cable 23 to draw the slide 21 and links 22 along the guide 20, thus forcing bucket-section 8 away from section 7. This moving of section 8 serves to draw the frames or supports 10^a outward, moving the rollers 18 toward the end of slots or grooves 16, and hence drawing down the rollers 11 and pivotal connection of frames or supports 10 and 10^a, and through the medium of frames or supports 10 and rollers 19, moving in slots 17, the bucket-section 7 will be simultaneously moved as section 8 is moved by links 22. When the bucket-sections are moved far enough to bring rollers 18 and 19 to the ends of the respective slots 16 and 17, the bucket will be opened to the position shown in full lines in Fig. 2, and unless it is desired to reach farther to one side for material this opening will be sufficient and the bucket can be closed, as hereinafter explained, to take up the material; but should it be desired to reach farther to one side a continued pull on chain 23 after the roller 18 has reached the end of slot or groove 16 the slide 15 will be moved longitudinally, carrying the bucket to the position shown by dotted lines in Fig. 2, as the rollers 11 have been moved down into the slots 16 and do not interfere with this moving of the slide 15. To close the bucket, pressure is applied in cylinder to lower piston-rod 4^a and cross-head 5 and a pull exerted on chains or cables 26, which latter, as above explained, pass around pulleys 27 and 28 and when the bucket is open around pulleys 29, so that a direct pull is allowed the chains or cables. The first movement will be to draw the bucket-sections and slide 15 to the position shown by full lines in Fig. 2, when the vertical slots or grooves 12 will aline with grooves 16, so that a continued pull on chains 26 serves to raise rollers 11 in vertical slots 12 and draw rollers 18 and 19 to the inner ends of slots 16 and 17, thus not only pivoting the bucket-sections, but drawing them toward each other to exert a scraping action and effectually gather the material, however obstinate it may be. The inner end of slot 17 is also preferably curved slightly upward, so that a downward pressure on frames or supports 10 will readily start the outward movement of rollers 19.

A great many slight changes and alterations might be made in the general form and ar-

rangements of the parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a bucket comprising two sections, a frame or support rigidly secured to each bucket-section, a vertical guide and a horizontal guide for each frame or support and means for permitting pivotal movement of the upper ends of said frames or supports.

2. The combination of a bucket comprising two sections, of frames or supports each secured at one end to a bucket-section so as to have no movement independently of the movement of the latter, and means moving the lower ends of said frames or supports vertically and laterally.

3. The combination with a bucket comprising two sections, and a leg, of a frame or support rigidly secured to each of said bucket-sections, each of said frames or supports having a horizontal and a vertical bearing in the leg.

4. The combination with a leg and a bucket comprising two sections, said leg having vertical elongated guides and horizontal elongated guides, of two frames or supports pivotally connected together at their upper ends and having bearings coincident with said pivotal connection, in the vertical guides, said frames or supports rigidly secured at their lower ends to the respective bucket-sections, and means on each frame or support to travel in the horizontal guides in the leg.

5. The combination with a leg having vertical and lateral guides and a bucket comprising two sections, of a frame or support rigidly secured at one end to each bucket-section and having bearings in the vertical guides, each frame or support also having bearings in the one of the lateral guides in the leg, and means for moving said frames or supports to open and close the bucket.

6. The combination with a leg having vertical and horizontal or lateral guideways and a bucket, of a frame rigidly secured to said bucket and engaging the vertical and horizontal or lateral guideways in the leg.

7. The combination with a leg having vertical and horizontal guideways, and two bucket-sections, of means for first moving said bucket-sections laterally in opposite directions and then moving both of said bucket-sections laterally simultaneously in the same direction.

8. The combination with a leg having a vertical guideway and a horizontal or lateral guideway, and a bucket, of a frame rigidly secured at one end to said bucket and having a

bearing at its other end in said vertical guideway, said frame or support also having a bearing intermediate of its ends, in the horizontal or lateral guideway.

5 9. The combination of a leg having vertical and lateral guideways, a bucket comprising two sections or scoops each having a frame or support rigidly secured thereto, each
10 frame or support having a vertically-movable bearing and a horizontally-movable bearing in said guideways, whereby a downward movement of the vertically-movable bearing causes a separation of the scoops.

15 10. A bucket comprising two sections having frames or supports rigidly secured thereto and pivotally connected together, and rollers carried by the frames or supports of the bucket-sections and horizontal guides for said rollers.

20 11. A bucket comprising two sections, frames or supports projecting up from the respective bucket-sections and pivotally secured together, a vertical guide in which the pivoted connection of said frames or supports
25 is movable, horizontal guides, and rollers carried by the frames or supports and movable in said horizontal guides.

30 12. The combination with a leg and a bucket comprising two sections, of upwardly-projecting frames or supports on the respective bucket-sections, pivotally connected together, and carrying rollers, a vertical guide on the leg to guide the movement of said rollers, rollers carried by the frames or supports between their ends, horizontally-slotted guides
35 on the leg to receive said last-mentioned rollers and said slots inclined upward at their inner ends.

40 13. A bucket comprising two sections having frames or supports rigidly secured thereto, projecting upward therefrom and pivotally secured together at their upper ends, and a guide for the pivoted upper ends of said frames or supports.

45 14. A bucket comprising two sections having frames or supports secured thereto, projecting upward therefrom and pivotally secured together, rollers on said pivoted connection, rollers on the rods between their ends,
50 horizontal guides for said last-mentioned rollers and a vertical guide for the first-mentioned roller.

55 15. The combination with a leg and a bucket comprising two sections, of frames or supports secured to the bucket-sections projecting above the same and pivotally connected together, rollers on said frames or supports, said leg having vertical grooves or slots in which said rollers move, rollers on said frames
60 or supports between their ends, said leg also having horizontal grooves or slots in which said last-mentioned rollers move, and means

for forcing the bucket-sections apart and pulling them together.

16. The combination with a leg and a bucket 65 comprising two sections, of frames or supports secured to the bucket-sections projecting above the same and pivotally connected together, rollers on said frames or supports mounted in vertical guides or slots in said 70 leg, a slide mounted to move horizontally in said leg and having grooves or slots therein, one of which is curved and normally communicates with the first-mentioned groove or slot, rollers on the respective frames or supports mounted to move in the slots or grooves 75 in the slide, and means for forcing said bucket-sections apart and together.

17. The combination with a leg and a bucket composed of two sections, of frames or supports secured to the bucket-sections projecting above the same and pivotally connected together, rollers on said frame or support and mounted in vertical guides or slots in said support, a slide mounted to move horizontally 85 in said support and having grooves or slots therein, both of which are curved at their inner ends and one communicates with the vertical slots or grooves when the slide is in normal position, rollers on the frames or supports movable in said slots or grooves in the 90 slide, means for pulling the bucket-sections apart thus drawing the first-mentioned rollers down into one of the slots in the slides and then moving the slide longitudinally to 95 carry the bucket to one side, and means for closing said bucket and drawing the parts back to their former positions.

18. The combination with a leg and a bucket comprising two sections, of frames or supports 100 secured to said sections projecting upward therefrom and pivotally connected together, rollers on the frames or supports movable in guides in the leg, links mounted to slide on the leg and connected to one of said bucket-sections, a cross-head, means for raising and lowering the same, a chain connecting said cross-head and links and passed around pulleys on the leg so that when said cross-head is moved in one direction the links will be 105 moved to separate the bucket-sections, and chains connecting said cross-head and bucket-sections and passed around pulleys so that when the cross-head is moved in the opposite direction the bucket-sections will be drawn 115 together.

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

GEORGE H. HULETT.

Witnesses:

W. G. PITKIN,

W. H. SHEPARD.