

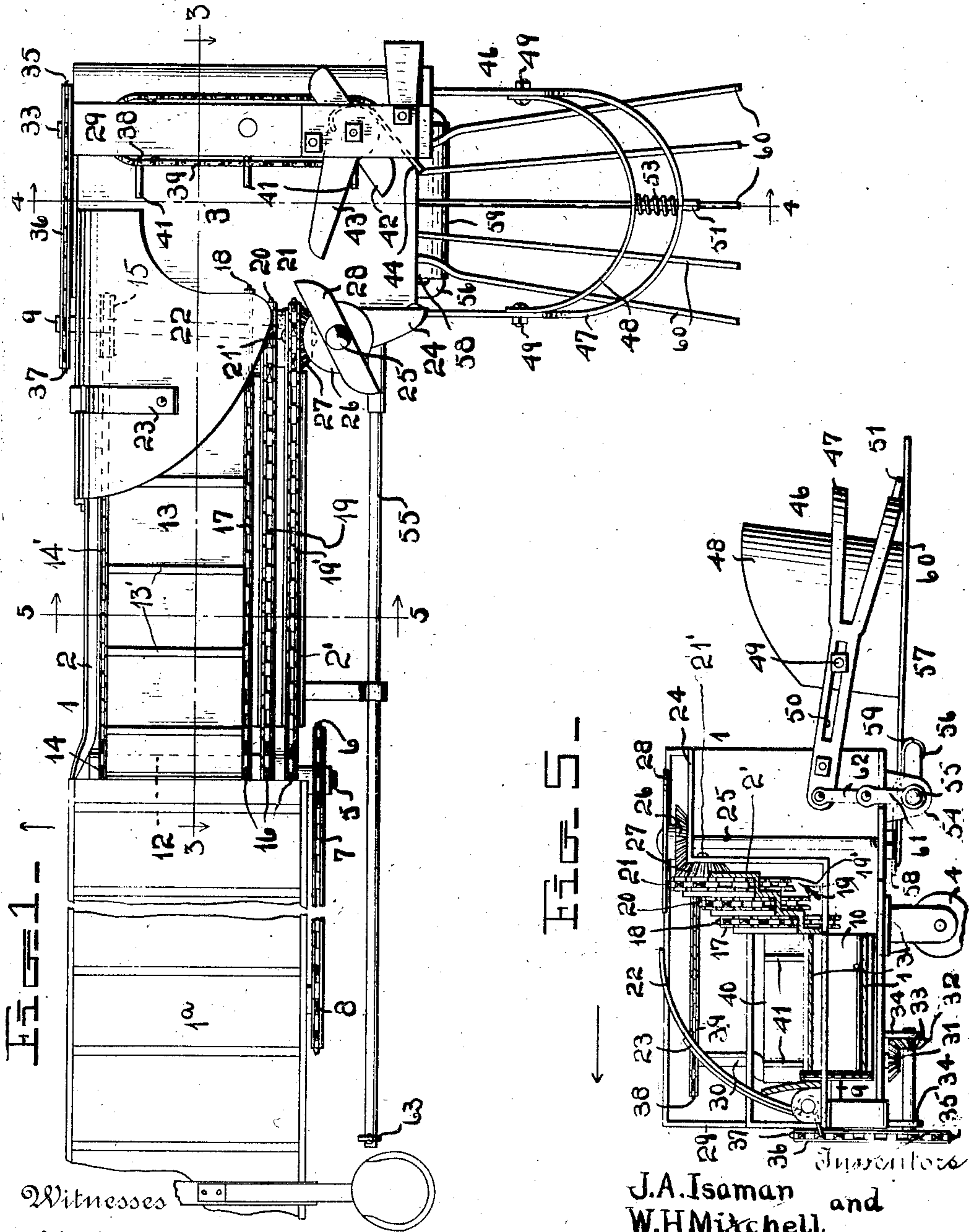
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PATENTED SEPT. 10, 1907.

J. A. ISAMAN & W. H. MITCHELL.
SHOCKING ATTACHMENT FOR BINDERS.

APPLICATION FILED MAY 24, 1906.

3 SHEETS—SHEET 1



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3 SHEETS—SHEET 2.

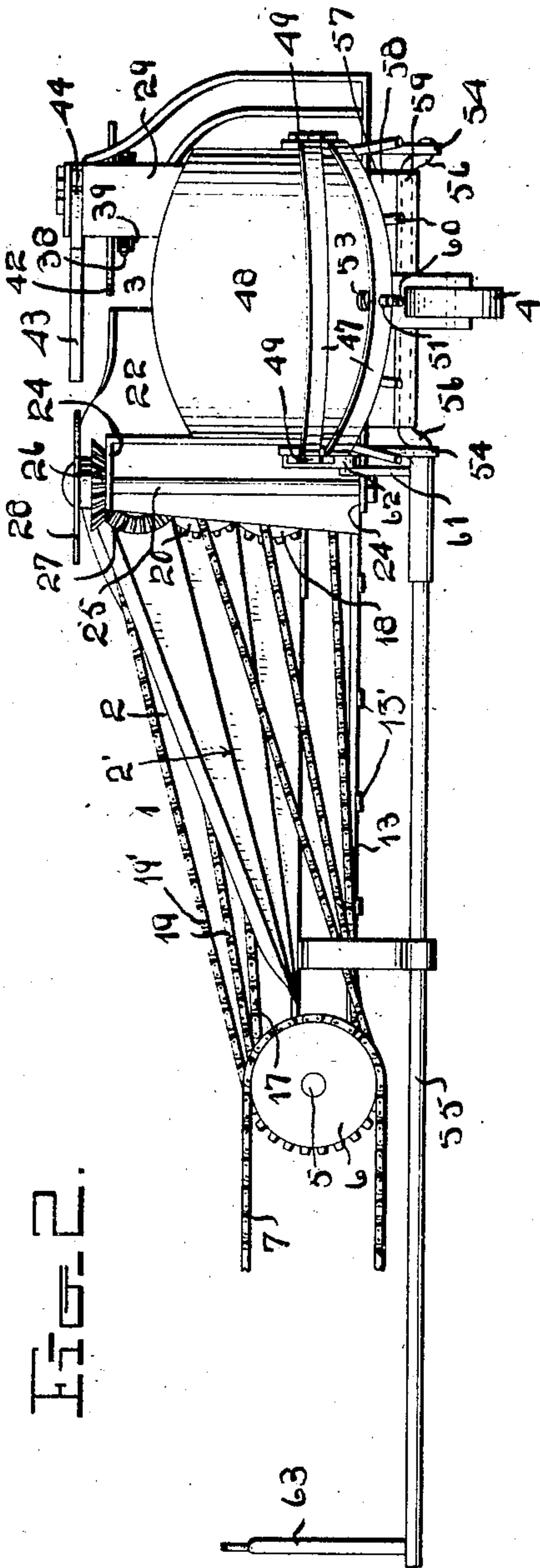
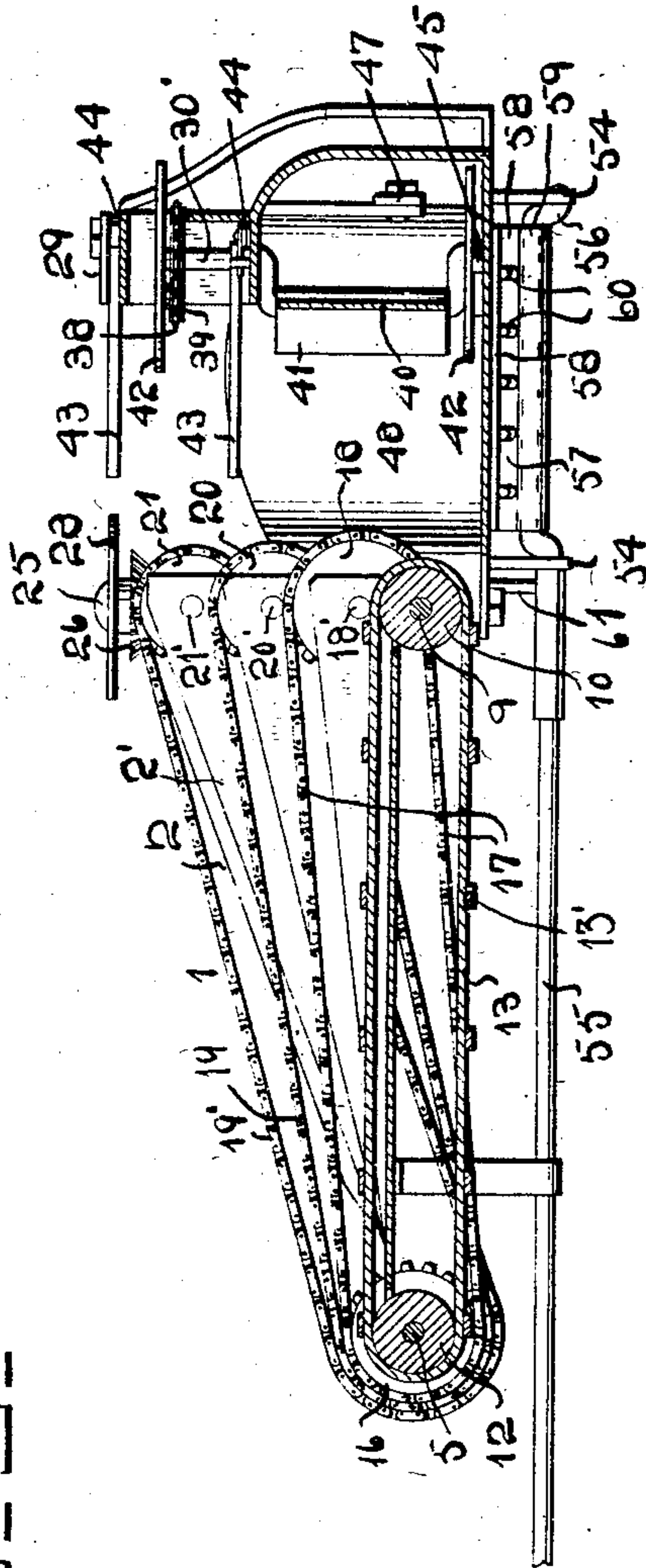


Fig. 2.

Fig. 2.



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3 SHEETS—SHEET 3.

FIG-4-

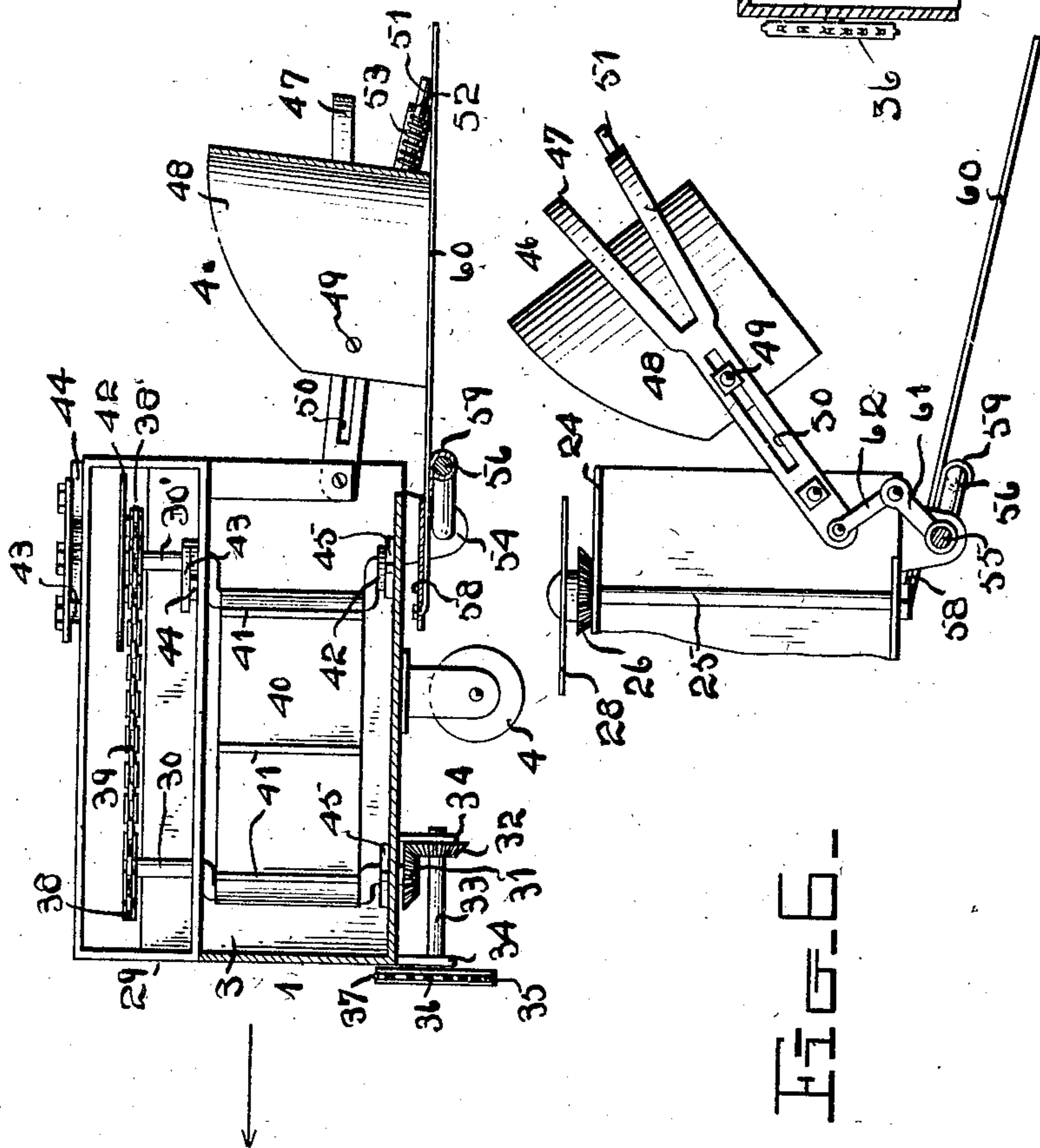


FIG-7-

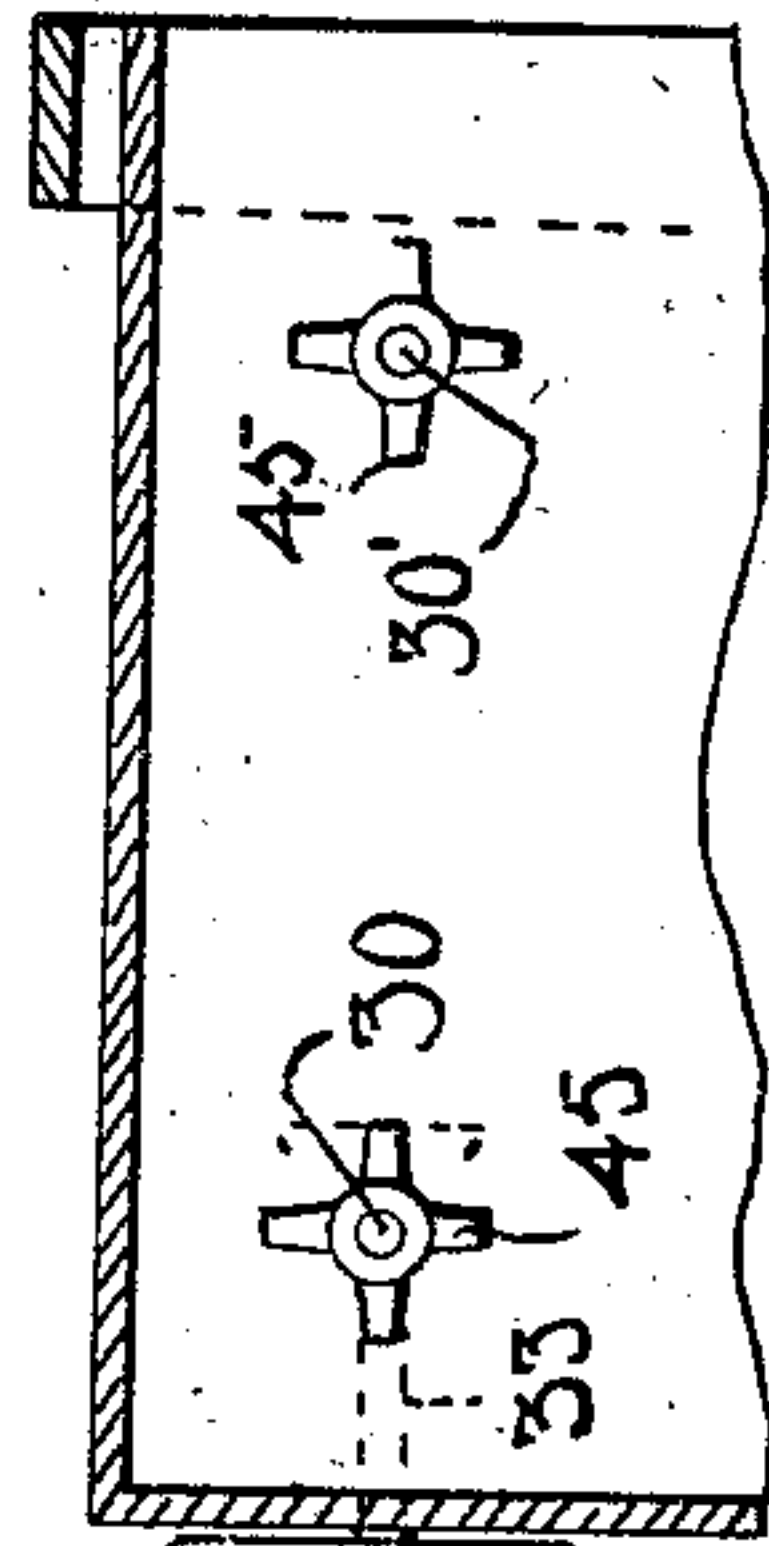


FIG-6-

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UNITED STATES PATENT OFFICE.

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SHOCKING ATTACHMENT FOR BINDERS.

No. 865,902.

Specification of Letters Patent.

Patented Sept. 10, 1907.

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To all whom it may concern:

Be it known that we, JOSHUA A. ISAMAN and WILLIAM H. MITCHELL, citizens of the United States, residing at Aurora, in the county of Hamilton and State of Nebraska, have invented certain new and useful Improvements in Shocking Attachments for Binders; and we do 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.

This invention relates to improvements in shock attachments for binders.

The object of the invention is to provide a device of this character adapted to be connected to a binder frame, whereby the bundles discharged from the binder will be caught and collected and deposited in the form of a shock.

A further object of the invention is to provide a shock attachment which will be comparatively simple in construction, strong and durable, and efficient and reliable in operation, means being provided whereby the discharging mechanism may be conveniently operated by the driver of the binder.

With the above and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a plan view of the attachment, showing the same applied to a binder; Fig. 2 is a rear view of the same; Fig. 3 is a vertical, longitudinal sectional view through the endless conveyer on the line 3—3 of Fig. 1; Fig. 4 is a vertical, cross sectional view on the line 4—4 of Fig. 1; Fig. 5 is a similar view on the line 5—5 of Fig. 1; and Fig. 6 is a detail view, showing the delivery mechanism in position for discharging a shock of bundles.

The drawings represent the portion of the discharge apron of the binder portion of the grain harvesting machine, with the improved apparatus associated therewith, and for the purpose of this description the portion of the improved apparatus adjacent to the binder apron is referred to as the inner end, the portion opposite the apron as the outer end; the portion toward the direction of motion of the harvester, which is indicated by arrows in Figs. 1, 4 and 5, as the forward portion; and the portion carrying the shock form as the rear end or portion.

In the drawings illustrating the embodiment of the invention, the supporting frame of the attachment is denoted as a whole at 1, one portion of the frame being preferably in trough-like form and extending from the inner or "stubble" end of the harvester, a portion of the binder apron of which is shown at 1^a, and transversely of the line of movement of the harvester. Extending rearwardly from the outer end of the frame member 2 is another trough-like frame portion 3. The

frame is secured to the discharge or "stubble" end of the binder mechanism in any suitable manner, in position to receive the bundles from the binder, and may, if required, be provided with a bearing wheel 4 beneath its outer end. The inner end of the trough 2 when connected to the binder is in position to receive the bundles discharged from the binder. At the inner end of the trough 2 is journaled a main drive shaft 5, on the outer end of which is mounted a sprocket wheel 6 which is connected by a sprocket chain 7 to a sprocket wheel 8 arranged on one of the driven shafts of the binder, the latter not being shown as it forms no part of the present invention.

At the outer end of the trough 2 adjacent to its connection with the trough 3 is journaled a shaft 9, on which is mounted a roller 10, around which and a roller 12 on the shaft 5 is adapted to travel an endless conveyer belt 13 having secured thereto a series of slats 13'. On the forward end of the shaft 5 is mounted a sprocket wheel 14, which is connected by a chain 14' with a similar sprocket wheel 15 on the forward end of the shaft 9. Near the rear end of the shaft 5 are mounted a plurality of sprocket wheels 16. Supported by the trough-like frame 2 are stub shafts 18', 20' and 21' disposed one above the other and carrying sprocket wheels 18, 20 and 21 corresponding to the chain wheels 16 of the shaft 5 and connected thereto respectively by the chains 17, 19 and 19'. The wheel 18 is considerably larger than its companion wheels 20 and 21, so that the upper stretch or side of the chain 17 will run at an upwardly trending angle from the wheel 16 from which it leads, and the wheel 20 being mounted at a higher point upon the frame than the wheel 18, its chain 19 will run at a still greater upwardly trending angle, while the wheel 21 being mounted at a still higher point upon the frame, its chain 19' will run at a still greater upwardly trending angle, as shown. The plurality of chains thus form an angular conveyer which increases in width and also in its upwardly trending angle from the inner toward the outer or discharge end of the frame portion 2. The chains serve to gradually lift or stand the bundles on end, so that when the same reach the trough 3 they pass into said trough in an upright position. The bundles are adapted to drop upon the conveyer belt 13, with the head ends of the same toward the chains 17, 19 and 19', so that when the bundles are elevated or stood on ends, the heads of the same will be uppermost.

Pivotaly mounted on one side of the trough 2 near the outer end thereof is a curved shield or guard plate 22, which projects partly over said end of the trough and is yieldingly held in this position by means of a spring 23. The guard plate or shield serves to assist in holding the bundles in an upright position when entering the trough 3 from the trough 2. Journaled in bearing plates 24 on the inner side of the trough 3 ad-

5 adjacent to the outer end of the trough 2 is a vertically-disposed shaft 25, on the upper end of which is mounted a beveled gear 26 which is adapted to mesh with a similar bevel gear 27 on the shaft 21' of the upper sprocket wheel 21 on the adjacent side of the trough 2. On the upper end of the shaft 25 above the gear 26, a bar 28 is mounted intermediate its ends, the opposite ends of the bar being beveled off or rounded on one side, as shown, said beater arm or bar being adapted to aid in moving along and aiding in feeding the bundles into the shocking mechanism.

10 Mounted in a bearing frame 29 on the trough 3 are vertically-disposed crank shafts 30 and 30'. On the lower projecting end of said shaft 30 is mounted a beveled gear 31, with which is adapted to mesh a beveled gear 32 mounted on a short drive shaft 33 journaled in bearing brackets 34 on the under side of the trough 3, as shown. On the forward end of the shaft 33 is mounted a sprocket wheel 35, which is connected by a sprocket chain 36 to a sprocket wheel 37 mounted on the forward end of the shaft 9, by means of which motion is imparted to the crank shaft 30. On the upper ends of the shafts 30 and 30' are mounted sprocket wheels 38 and 38' which are connected by a chain 39, whereby motion is imparted to the crank shaft 30' from the crank shaft 30.

On the crank shafts 30 and 30' is arranged a bundle feeding plate 40, on which is formed a series of laterally projecting feed blades 41 which extend into the trough. When the crank shafts 30 and 30' are driven, the feed plate 40 will be alternately projected and retracted in the trough 3, thereby moving the blades 41 toward the discharge end of the trough and thus feeding the bundles along to the latter. On the upper end of the shaft 30' above the sprocket wheel thereon is mounted intermediate its ends beater arms or bars 42 which are similar in construction and operation to the beater 28 on the shaft 25, co-acting with the beater 28, as hereafter explained. In the bearing frame 29 above and below the sprocket wheel on the shaft 30' are pivotally mounted stop arms or bars 43, said bars being mounted to turn in a rearward direction against the tension of springs 44 arranged thereon, to retard the bundles and assist in holding them in position as they are fed into the shock forming mechanism. The arms 43 are held against a forward movement and will consequently hold the bundles as they are passed into the shock former, as will be understood. On the lower ends of the crank shafts 30 and 30' are mounted beater wheels 45 having radially disposed blades which are adapted to engage the bundles and aid in forcing the same along through the trough 3.

Arranged at the open rear end of the trough 3 is a shock forming mechanism represented as a whole by 55 46, said mechanism comprising a segmental or yoke-shaped frame 47, the inner ends of which are pivotally mounted on the rear end of the trough 3. In the segmental or yoke-shaped frame is slidably mounted a curved or segmental shocking plate 48, the outer sides of which adjacent to their inner edges are provided with laterally projecting bearing studs 49 which are slidably mounted in guide slots 50 formed in the sides of the segmental frame 47. On the rear side of the plate 48 is formed a laterally-projecting guide bolt 51 65 which is adapted to slide through a guide passage 52

on the rear end of the yoke frame 47, and on said yoke between the plate and frame is disposed a coil spring 53, the tension of which is normally exerted to force the plate forwardly against the bundles, which are compressed therein by the mechanism hereinbefore 70 described.

Journaled in apertured bearing brackets 54 on the lower side of the trough 3 is an operating shaft 55, in which and between the brackets 54 is formed a crank 56, on which is pivotally mounted a supporting rack 75 represented as a whole by 57 and which forms the bottom of the shocking mechanism. The rack 57 preferably consists of a plate 58 having a bearing 59 which engages the crank 56, as shown. The plate 58 has secured therein a series of outwardly-projecting fingers 80 60 which diverge toward their outer ends in the form of a fork. On the shaft 55 adjacent to the rearward side of the trough 2 is formed an upwardly projecting crank arm 61 connected by a link 62 with the inner end of the yoke-shaped frame 47, whereby when said shaft is 85 rocked, the crank arm 61 will approach the link 62, thereby tilting or raising the frame 47 and the plate 48 upwardly while the crank 56 on the shaft 55 will tilt the rack 57 downwardly, thus discharging the shock of bundles upon the ground. The inner end of the 90 shaft 55 is provided with a suitable lever or connection 63 which extends to within convenient reach of the driver, by means of which he may operate the shock forming mechanism to discharge the shock of bundles at the proper time. 95

By providing a shocking attachment such as is herein shown and described, the same may be readily attached to the framework of a binder to receive bundles therefrom and to conduct the same to the shock forming mechanism arranged thereon. It will be noticed 100 that the rear wall of the trough-like frame portion 2 in which are arranged sprocket chains for setting the bundles on end is formed in a series of inclined steps 2', which are adapted to prevent the sagging of the chains when engaged by the bundles. 105

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the 110 minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention, as defined by the appended claims.

Having thus described our invention, what we claim 115 as new and desire to secure by Letters-Patent, is:—

1. In a shocking device, the combination with a receiver in two portions at right angles to each other, a conveyer arranged in one of said receiving portions, means for arranging the bundles in vertical position while on 120 said conveyer, a shock former associated with said receiver, said former comprising a yoke-shaped frame connected near its forward end to the discharge end of said receiver, a curved shocking plate slidably mounted in said frame, a spring to normally force said plate from the end 125 of said receiver in opposition to the pressure of the bundles carried into said former, a packing mechanism in said receiver operating to force the bundles through said former, and a bundle supporting rack arranged beneath said former. 130

2. In a shocking device, the combination with a receiver, consisting of two communicating portions at right angles to each other, of a conveyer arranged in one of

said receiver portions, means for arranging said bundles vertically while upon said conveyer, a shock former associated with said receiver, said former comprising a yoke-shaped frame connected near its forward end to the discharge end of said receiver, a curved shocking plate slidably mounted in said frame, a spring operating to normally force the plate toward the discharge end of said receiver in opposition to the pressure of the bundles carried in said former, a packing mechanism in said receiver operating to force the bundles into said former, a bundle supporting rack arranged beneath said former, said rack comprising a series of radial projecting bars, a crank shaft journaled beneath said receiver, and means for connecting said supporting bars to said crank shaft, and means actuated by said crank shaft to elevate said former simultaneously with the lowering of said supporting bar and thereby discharging a shock of bundles.

3. In a shocking device, the combination with a receiver consisting of two communicating portions at right angles to each other, of a conveyer arranged in said receiver, a mechanism for arranging the bundles in vertical position while in the receiver, a shock former associated with said receiver, a packing mechanism operating in said receiver, said mechanism comprising a pair of vertically disposed crank shafts, a feed plate loosely mounted on said shaft, compressing blades arranged on said plate, means for operating said shafts to cause the alternating projection and retracting of said plate and its blades within said receiver, beater arms adapted to coact with said packing mechanism, stop arms arranged adjacent to the discharge end of said receiver to maintain the bundles

in said former, beater wheels mounted on said crank shafts to co-act with said packing mechanism and force the bundles in said former, a rack arranged below the former, and means whereby said former and said rack are simultaneously actuated to discharge the shock of bundles.

4. In a shocking device, the combination with a receiver, of a conveyer arranged in said receiver, a series of chains arranged in progressively inclined positions within said receiver and co-acting with said conveyer, a bundle former associated with said receiver, a packing mechanism arranged in said receiver to force the bundles into said former, means whereby said packing mechanism is actuated by the conveyer operating mechanism, a shaft arranged to operate said former, a crank arm on said shaft connected with said former whereby the latter is elevated, a bundle support arranged below said former, said support comprising a bearing plate loosely mounted on said cranked operating shaft, a plurality of radially projecting bars secured to said plate and extending beneath said former, and means connected to said shaft whereby the same is operated by the driver of the binder to simultaneously actuate said former and bundle support to discharge the shock of bundles.

In testimony whereof we have hereunto set our hand in presence of two subscribing witnesses.

JOSHUA A. ISAMAN.
WILLIAM H. MITCHELL.

Witnesses:
T. R. WORK,
C. HENRIKSEN.