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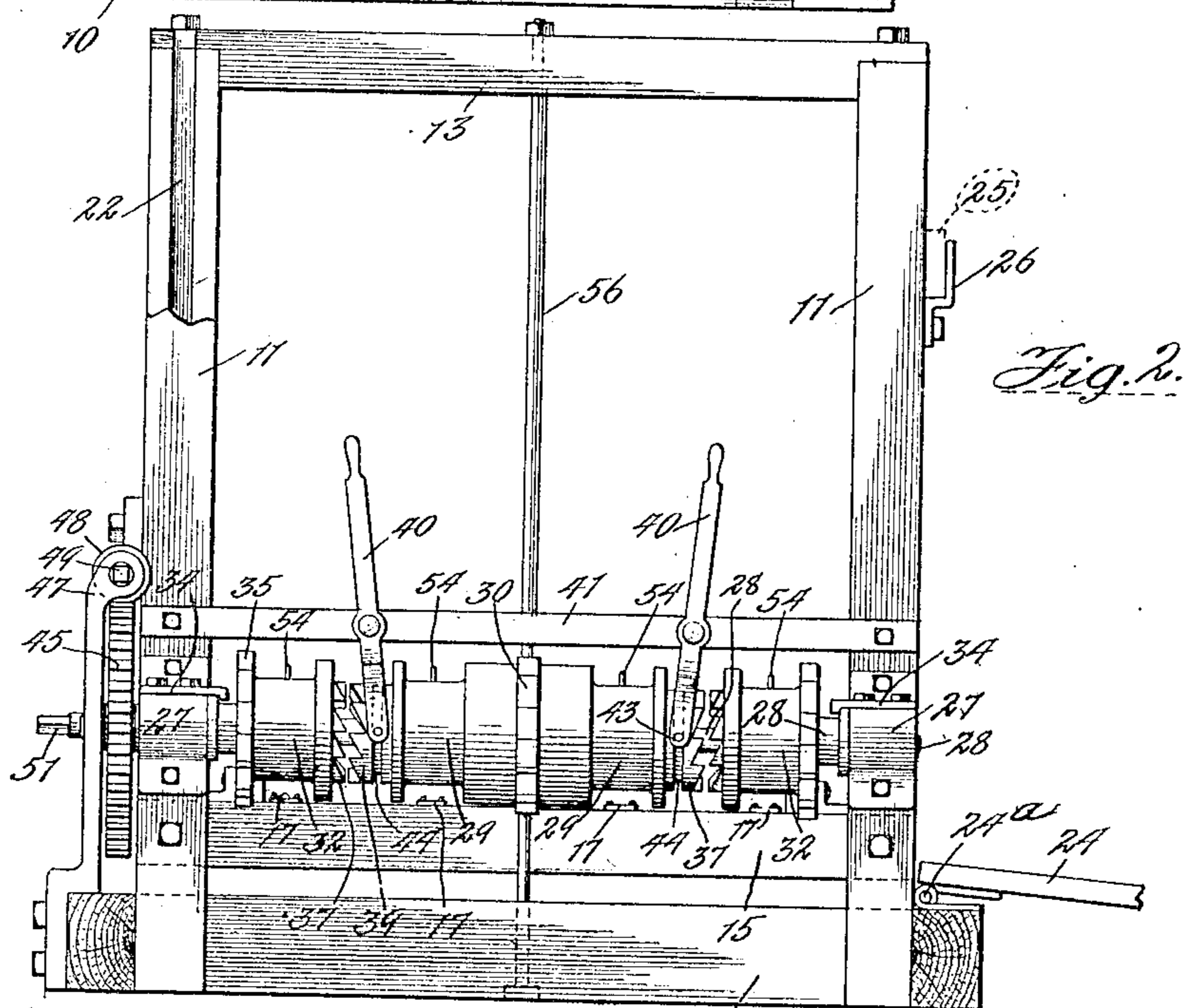
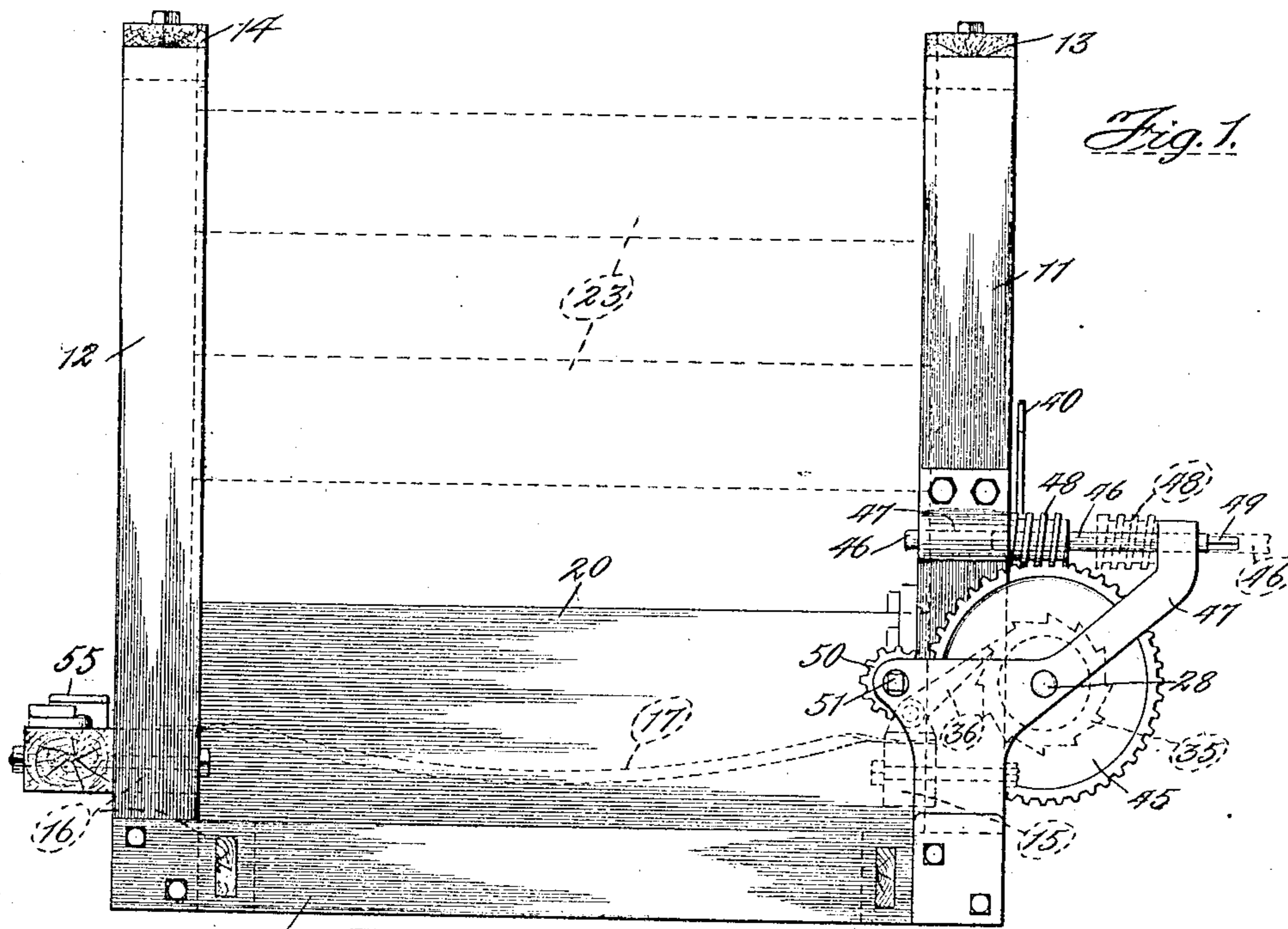
PATENTED OCT. 29, 1907.

J. F. FOLEY.

MACHINE FOR BUNDLING OR COMPRESSING BROOM CORN.

APPLICATION FILED MAR. 22, 1907.

2 SHEETS—SHEET 1.



Witnesses:

*Wm. D. Perry*  
*Wm. J. Goehman Jr.*

Inventor:

*James F. Foley*  
*by Brown & H. R. R. R.*

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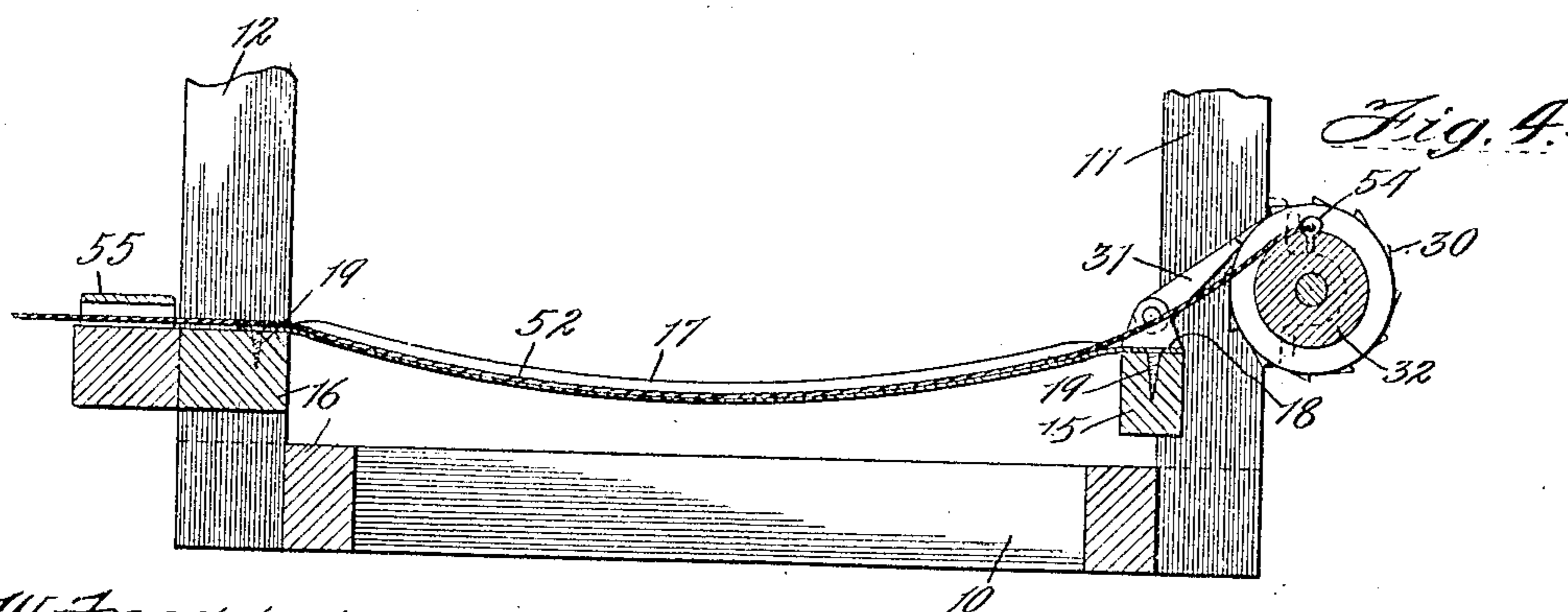
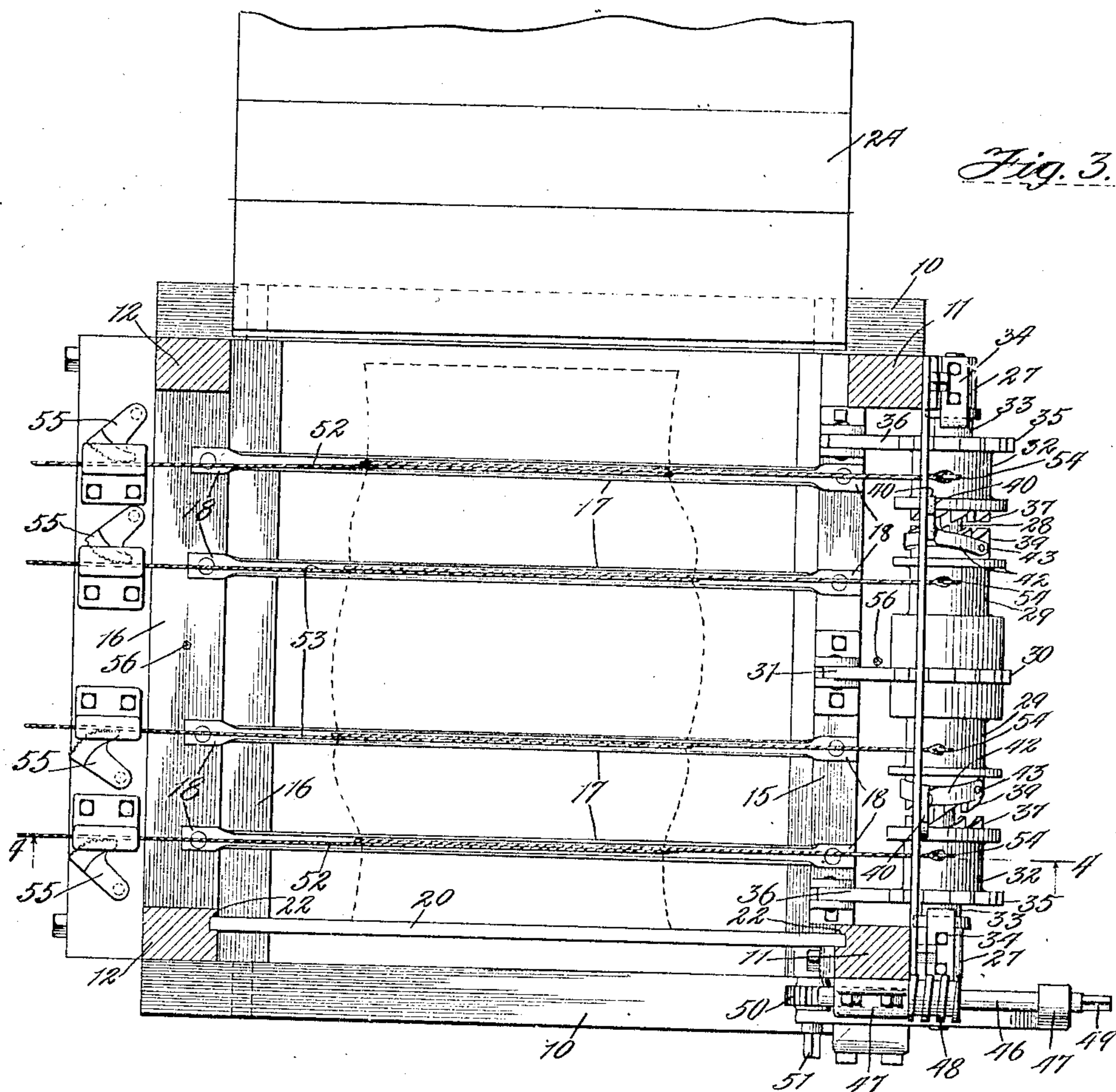
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*Wm. D. Perry*  
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Inventor:

*James F. Foley*  
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# UNITED STATES PATENT OFFICE.

JAMES F. FOLEY, OF CHICAGO, ILLINOIS.

## MACHINE FOR BUNDLING OR COMPRESSING BROOM-CORN.

No. 869,358.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed March 22, 1907. Serial No. 363,979.

*To all whom it may concern:*

Be it known that I, JAMES F. FOLEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Bundling or Compressing Broom-Corn and the Like, of which the following is a specification.

This invention relates to machines for bundling or compressing broom corn and the like, and the primary object of the same is to provide an improved, simple and efficient machine of this character for bundling broom corn and the like and for compressing the same to the desired density.

A further object is to provide improved means for compressing the bundle substantially equal throughout its entire length.

A further object is to provide improved means for applying pressure at intervals throughout the length of the bundle and improved means whereby the pressure at certain points may be increased without necessarily increasing the pressure at the other points.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating an exemplification of the invention, and in which:—

Figure 1 is a side elevation of an improved machine of this character constructed in accordance with the principles of this invention. Fig. 2 is a front elevation of Fig. 1. Fig. 3 is a top plan view of Fig. 2, showing one side of the frame lowered for the removal of the bundle or shock. Fig. 4 is a detailed sectional view on line 4—4 of Fig. 3.

Heretofore, in compressing broom corn into bundles or shocks, considerable difficulty has been experienced in that when the shocks are placed into position to be compressed and the bundle is formed, the latter will be thicker or larger at a point intermediate its ends owing to the fact that the branches of the stalks are so located as to cause the body of the bundle to be larger when the ends are compressed. In order to overcome this objection and difficulty, this improved machine has been provided for compressing the bundle substantially equal throughout its length and to cause additional pressure to be exerted upon the enlarged or thickened portion without necessarily increasing the pressure at the other points, so that when the bundle or shock is compressed and bound it will be of substantially the same diameter or density throughout its entire length.

Referring more particularly to the drawings and in this exemplification of the invention, this improved machine comprises a suitable base 10 of any desired size and configuration, and extending upwardly from

the corners thereof are standards or uprights 11—12. These standards or uprights may be of any desired height, and secured across the upper ends thereof are cross-bars 13—14.

Secured in any desired manner and extending across the base 10, and with their extremities connected respectively to the uprights or standards 11—12, are cross-bars 15—16 and these cross-bars are preferably located a short distance above the base 10 and serve as supports for the members 17, which latter constitute the support for the material to be compressed. Any suitable number of these members 17 may be provided and are preferably spaced from each other. In this exemplification of the invention four of these members 17 are employed, and each is preferably constructed of metal preferably of a channel formation, the extremities of which are open and flattened as at 18. These members 17 are also preferably of a semi-circular formation and are so arranged that the body portion thereof will stand between the cross-bars 15—16 with the flattened portions 18 resting respectively upon the upper faces of said bars, and these members may be held or secured in position in any desired or suitable manner, preferably by means of screws or nails 19 passing through the flattened portions 18 and into the cross-bars 15—16.

Secured between the standards 11—12 adjacent one side of the base is a board or member 20 which is preferably of a height to extend some distance above the adjacent member 17, and the standards 11—12 above the board or member 20 are preferably provided with cooperating channels or grooves 22 adapted to receive the ends of suitable boards or members 23 (shown in dotted lines in Fig. 1) which extend between the standards or uprights and form a closure for the side of the frame. Pivotaly mounted between the standards or uprights 11—12 on the other side of the frame work is a suitable door or closure 24. This door or closure is preferably hinged at its lower end, as at 24<sup>a</sup> shown more clearly in Fig. 2 of the drawings so that it may be tilted down into the position shown in Fig. 3 to permit the bundle being removed from the machine. When in its closed or upright position, the sides of the door or closure 24 will stand between the adjacent uprights or standards 11—12 extending for substantially the entire length thereof, and said door or closure may be held against displacement in any desired or suitable manner, preferably by means of a bar or rod 25, which extends across the outer face of the door or closure and rests in suitable brackets or supports 26 on the adjacent uprights or standards 11—12.

Journaled across the front of the frame, and in suitable brackets 27, which latter are preferably secured to the uprights 11 is a shaft 28, and secured to this shaft for rotation therewith, preferably intermediate the ends thereof, is a double drum or pulley 29, which latter is

preferably provided with ratchet teeth 30 adapted to be engaged with a suitable pawl or dog 31 pivotally mounted upon a suitable support, and said pawl or dog 31 is adapted to lock the shaft 28 against retrograde movement. Loosely mounted upon the shaft 28 and adjacent each end of the drum or pulley 29 is a drum or pulley 32 which are preferably provided with a circumferential groove 33, in the ends thereof adjacent the standards 11 and secured to a suitable support such as the brackets 27, are clips 34, the ends of which are adapted to enter the respective groove 33 in the drum or pulley 32 to hold said drums or pulleys against longitudinal movement on the shaft 28. These drums or pulleys 32 are each provided with ratchet teeth 35 adapted to be engaged by suitable dogs or pawls 36 pivotally mounted upon a suitable support and said dogs or pawls are adapted to lock the drums or pulleys 32 against retrograde movement.

The drums or pulleys 32 are each provided with ratchet faces 37, and said ratchets are located preferably adjacent the respective faces of the double drum or pulley 29. Slidingly mounted upon the shaft 28 and between the respective ends of the drum or pulley 29 and the drum or pulley 32 is a clutch member 39 which is provided with ratchet teeth adapted to cooperate with the ratchet faces 37 of the respective drum or pulley 32. These clutch members 39 are preferably keyed to the shaft 28 so as to rotate therewith, and when the clutch members 39 are in the position shown in Figs. 2 and 3 of the drawings, shaft 28 will rotate independent of the drums or pulleys 32, but when the clutch members 39 are moved into such a position that the ratchet faces thereof will engage the respective ratchet faces 37, the drums or pulleys 32 will be locked for rotation with the shaft 28.

Any suitable means may be provided for shifting the clutch members 39, a suitable and efficient means for accomplishing this purpose comprising the operating levers or handles 40 which are pivotally secured to a suitable support 41, and said operating levers 40 are preferably provided with yoke extremities 42 (see Fig. 3 of the drawings) having projections 43 therein adapted to enter suitable grooves 44 in the clutch members 39.

Secured to one extremity of the shaft 28 is a suitable gear wheel 45, by means of which the shaft 28 may be rotated.

A shaft 46 is mounted in suitable bearings 47, and secured to said shaft is a worm gear 48 and said worm gear is adapted to mesh with the teeth of the gear wheel 45 as shown more clearly in Fig. 1 of the drawings. The end of the shaft 46 is preferably angular as at 49 and adapted to receive a suitable wrench by means of which the shaft 46 may be rotated. The rotation of the shaft 46 will impart motion to the worm gear 48 to rotate the gear 45 and the shaft 28.

The shaft 46 is mounted in the bearings 47 for longitudinal movement whereby the worm gear 48 may be bodily moved out of engagement with the gear wheel 45 to the dotted position as shown in Fig. 1 of the drawings.

A suitable pinion wheel 50 is journaled in suitable bearings adjacent the gear wheel 45, and said pinion 50 is placed in such a position as to engage the gear 45. The extremity 51 of the axle of the pinion 50 is preferably angular in shape and adapted to receive a suitable wrench by means of which the pinion 50 may be ro-

tated to rotate the gear 45 and the shaft 46 when the worm gear 48 is moved out of engagement with the gear 45 and into the position shown in Fig. 1 of the drawings for the purposes to be set forth.

The double drum or pulley 29 is preferably located adjacent one extremity of the central members 17, and the drums or pulleys 32 are respectively located adjacent the corresponding extremities of the outer members 17. Suitable flexible members 52, such as ropes or cables or the like are secured by one extremity to the drums or pulleys 32, and similar flexible members 53 are secured by one extremity to the double drum or pulley 29. Any suitable means may be provided for securing the extremities of these flexible members to their respective drum or pulley. A suitable and efficient means for accomplishing this purpose comprises an eye bolt 54 which is secured to the respective drum or pulley and the free extremities of the flexible members are inserted in the eye of the respective bolt and secured thereto. The body portions of these flexible members 52—53 are adapted to rest in the respective channel shaped members 17 and extend for the entire length thereof and beyond the outer extremities. Any suitable means may be provided for securing the free extremities of the flexible members. A suitable and efficient means for accomplishing this purpose comprises clamping members 55, one of which is secured adjacent each of the members 17 and into which the extremity of the respective flexible member is adapted to be inserted.

In operation the flexible member is placed within or threaded through the respective channel shaped member 17, and its free end is inserted within the clamping member 55 as shown more clearly in Fig. 4 of the drawings, and the flexible member being unwound from the respective drum or pulley, after which the side boards or members 23 are removed and the door or closure 24 is placed in the position as shown in Figs. 2 and 3. With the flexible members in position the broom corn is placed upon the members 17 and in such a position that the butt ends thereof will rest against the member 20 and the frame is filled with the broom corn to a depth substantially equal to the height of the member 20. After this portion of the broom corn has been straightened by the operator, one of the members 23 may be placed in position by inserting the ends thereof in the grooves or channels 22 and allowing it to rest upon the upper edge of the member 20. When in position, more broom corn is placed in the frame work and the same operation is performed until the frame work has been substantially filled with broom corn, that is, until the broom corn reaches the upper edge of the uppermost board or member 23. The machine being thus full of broom corn, the door or closure 24 may be closed and secured in its closed position. The extremities of the flexible members 52—53 are then removed from the clamping members 55 and the flexible member passes upwardly over the top of the broom corn, then down again in front of the pile of broom corn and is then threaded through the channel member 17, the formation of this member readily permitting the extremity of the flexible member to pass under the pile of broom corn. After the extremity of the flexible member has been passed under the pile of broom corn it is again placed in the clamping member 55 and se-

cured in position. Rotation may be then imparted to the shaft 46. If the worm gear 48 thereon is in the position shown in dotted lines in Fig. 1, the shaft may be pushed forward until the worm engages the gear 45 and when in engagement with said gear, as shown in full lines in Fig. 1, the continued rotation of this shaft will, through the medium of the gear 45, impart rotation to the shaft 28. The drums or pulleys 32 being locked for rotation with the shaft, said drums together with the double drum or pulley 29 will also rotate with the shaft 28 to wind the end of the respective cable upon the drum, which will draw the flexible members 52—53 tightly around the broom corn, compressing it into a shock or bundle.

If it is desired to impart a rapid rotation to the gear 45 to quickly compress the broom corn at first, rotation may be imparted to the pinion wheel 50 instead of to the shaft 46, and if the power is applied by this means, the shaft may be rotated until the bundle is nearly compressed, after which power may be applied to the shaft 46.

Owing to the arrangement of the stalks or branches of the broom corn, the ends thereof will be compressed more rapidly than the central portion, and if sufficient pressure is exerted upon the ends of the bundle or shock to compress the central portion thereof to the desired density, the flexible members 52—53 would tend to cut or break the stalks. In order to overcome this objection and to apply additional pressure to the thickest portion of the shock or bundle, the drums or pulleys 32 may be unlocked from the shaft 28 by means of the operating levers 40 and the ends of the bundle will be held under the desired tension by means of the dogs or pawls 36. When these drums or pulleys 32 have been thus released, the shaft 28 may be further rotated by means of the shaft 46, and as the double drum or pulley 29 is secured for rotation with the shaft, the flexible member 53 will be further wound upon the drum or pulley 29 and will compress the central portion of the shock or bundle to the desired density and when properly compressed so that the bundle will be substantially of the same diameter throughout its length, the tension may be retained upon the said central portion by means of the dog or pawl 31. Thus it will be seen that with this improved construction of machine a greater compression may be applied to the thickest portion of the bundle or shock without necessarily increasing the compression upon the other parts. After the bundle has been thus compressed, the bale ties may be applied and secured thereto in any desired or suitable manner. A suitable and efficient manner of applying these bale ties is to thread or pass one extremity of the bale tie or band through the channel member 17, and passing same around the bundle or shock, to bring their ends in engagement so that they may be twisted or otherwise secured. After being thus secured, the flexible members 52—53 may be released from the clamping members 55, the door or closure 24 turned down to the position shown in Figs. 2 and 3, and the bundle or shock removed from the machine.

If desired, suitable bars or rods may be disposed between the uprights 11 and uprights 12 with their extremities engaging the base 10 and the respective cross-bars 13—14, to serve the purpose of preventing the

body portion of the stalks from passing through the front and rear of the frame.

In order that the invention might be fully understood by those skilled in the art, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new and desire to secure by Letters Patent is;—

1. The combination of a support upon which the material to be compressed is placed, a plurality of compression members, means for causing said members to simultaneously compress the material and means for causing one of said members to further compress the material independently of the other member. 75

2. The combination of a support upon which the material to be compressed is placed, a plurality of compression members, means for simultaneously adjusting the members to compress the material, means for retaining the members in their adjusted position to maintain the material under compression, and means for permitting an independent adjustment of one of the members to further compress the material at the point adjacent said member. 80 85

3. The combination of a supporting member upon which the material to be compressed is placed, a plurality of flexible compression members, means for simultaneously exerting a tension upon all of said members to compress the material, means for maintaining said tension, and means for independently exerting a tension upon one of the members to further compress the material adjacent said member. 90 95

4. The combination of a supporting member upon which the material to be compressed is placed, a plurality of flexible compression members, means for securing one end of said members, the body portion of said members surrounding the material, movable members operatively related to the free ends of the flexible members, means for simultaneously adjusting the members to exert a tension upon all of the flexible members to compress the material, means for securing said movable members in their adjusted positions to maintain the flexible members under tension and means whereby one of said members may be further adjusted to increase the tension of the respective flexible member to further compress the adjacent portion of the material. 100 105

5. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members adapted to surround the material, means for securing one end of the members, a plurality of drums to which the free ends of the members are respectively secured, means for simultaneously rotating the drums to wind the members thereon to exert a tension on said members to compress the material, means for preventing retrograde movement of the drums, and means whereby one of said drums may be rotated independently of the remaining drums to exert a further tension upon the respective flexible member. 110 115 120 125

6. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members surrounding the material, means for securing one of the ends of the members, a plurality of drums upon which the free ends of the members are respectively wound, means for locking the drums together, means for simultaneously rotating the drums to compress the material, means for unlocking the drums to permit one of said drums to be independently rotated, and means for preventing retrograde movement of the drums. 130

7. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members surrounding the material, means for securing one end of the members, a shaft, a drum secured for rotation with the shaft, a drum mounted loosely upon the shaft, means for locking the last said drum for rotation with the shaft, means for imparting a differential speed to the shaft, to rotate the drums to wind the flexible members thereon, means for releasing one of the drums to permit the other drum to be rotated independently thereof and means for preventing retrograde movement of the drums. 135 140

8. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members surrounding the material, means for securing one end of the members, a shaft, a drum secured for rotation with the shaft, a drum mounted loosely upon the shaft, means for locking the last said drum for rotation with the shaft, means for imparting a differential speed to the shaft, to rotate the drums to wind the flexible members thereon, means for releasing one of the drums to permit the other drum to be rotated independently thereof, and pawl and ratchet mechanism operatively related to the drums for preventing retrograde movement of the drums.

9. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members surrounding the material, means for securing one end of the members, a shaft, a drum secured for rotation with the shaft, a drum also loosely mounted on the shaft, means for locking the last said drum for rotation with the shaft, a gear wheel for rotating the shaft to wind the flexible members on their respective drums, a pinion gear meshing with the first said gear to impart motion to the shaft, a worm gear also meshing with the gear to impart a slower motion to the shaft, means for preventing retrograde movement of the drums, and means for unlocking the loose drum to permit the other drum to be rotated independently thereof.

10. The combination of a support upon which the material to be compressed is placed, a plurality of flexible compression members surrounding the material, means for securing one end of the members, a shaft, a drum secured for rotation with the shaft, a drum also loosely mounted on the shaft, means for locking the last said drum for rotation with the shaft, a gear wheel for rotating the shaft to wind the flexible members on their respective drums, a pinion gear meshing with the first said gear to impart motion to the shaft, a worm gear also meshing with the gear to impart a different motion to the shaft, means for preventing retrograde movement of the drums, and means for unlocking the loose drum to permit the other drum to be rotated independently thereof, the said worm gear being adapted to be moved out of engagement with the gear to permit the latter to be rotated by the pinion gear.

11. The combination of a support upon which the material to be compressed is placed, flexible compression members surrounding the material, means for securing one end of the members, a shaft, a fast and a loose pulley thereon, upon which the respective flexible members are adapted to be wound, means for locking the loose pulley for rotation

with the shaft, means for preventing retrograde movement of the drums, a gear wheel on the shaft, a worm gear meshing with the gear wheel to rotate the shaft, said worm gear being adapted to be moved into and out of engagement with the gear wheel, means for rotating the gear wheel at a different speed when the worm gear is out of engagement therewith, and means for releasing one of the drums to permit one drum to be rotated independently of the other drum to cause a further compression by the respective compression member.

12. The combination of a support upon which the material to be compressed is placed, said support comprising a stationary member, a flexible compression member adapted to be passed around the material, a guide for directing the flexible member under the material, means for securing one end of the compression member, means for drawing upon the free end of the flexible member to cause the same to compress the material, and means for maintaining the material under compression.

13. The combination of a frame including a support upon which the material to be compressed is placed, said support comprising spaced channeled members, a flexible member within each of the channels and extending beyond the ends thereof, said members being adapted to be passed around the material, means for securing one end of the members, means for simultaneously drawing upon the free end of the flexible members to cause the same to compress the material, means for maintaining the material under compression, and means for increasing the compression of one of said members independent of the other member.

14. The combination of a frame including a support upon which the material to be compressed is placed, said support comprising spaced channel members, a flexible member within each of the channels and extending beyond the end thereof, said members being adapted to be passed around the material so that the ends thereof will cross, means for simultaneously separating the ends of all of the members to create tension thereon to compress the material, means for maintaining the material under compression, and means for independently increasing the tension of one of said members to further compress the adjacent portion of the material.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 19th day of March A. D. 1907.

J. F. FOLEY.

Witnesses:

FRANCIS A. HOPKINS,  
CHAS. H. SEEM.