C. E. WISE.

PORTABLE HAND TOOL FOR APPLYING BINDING MATERIAL TO RECEPTACLES.

APPLICATION FILED NOV. 17, 1917.

1,276,301.

Patented Aug. 20, 1918.

3 SHEETS—SHEET 1.

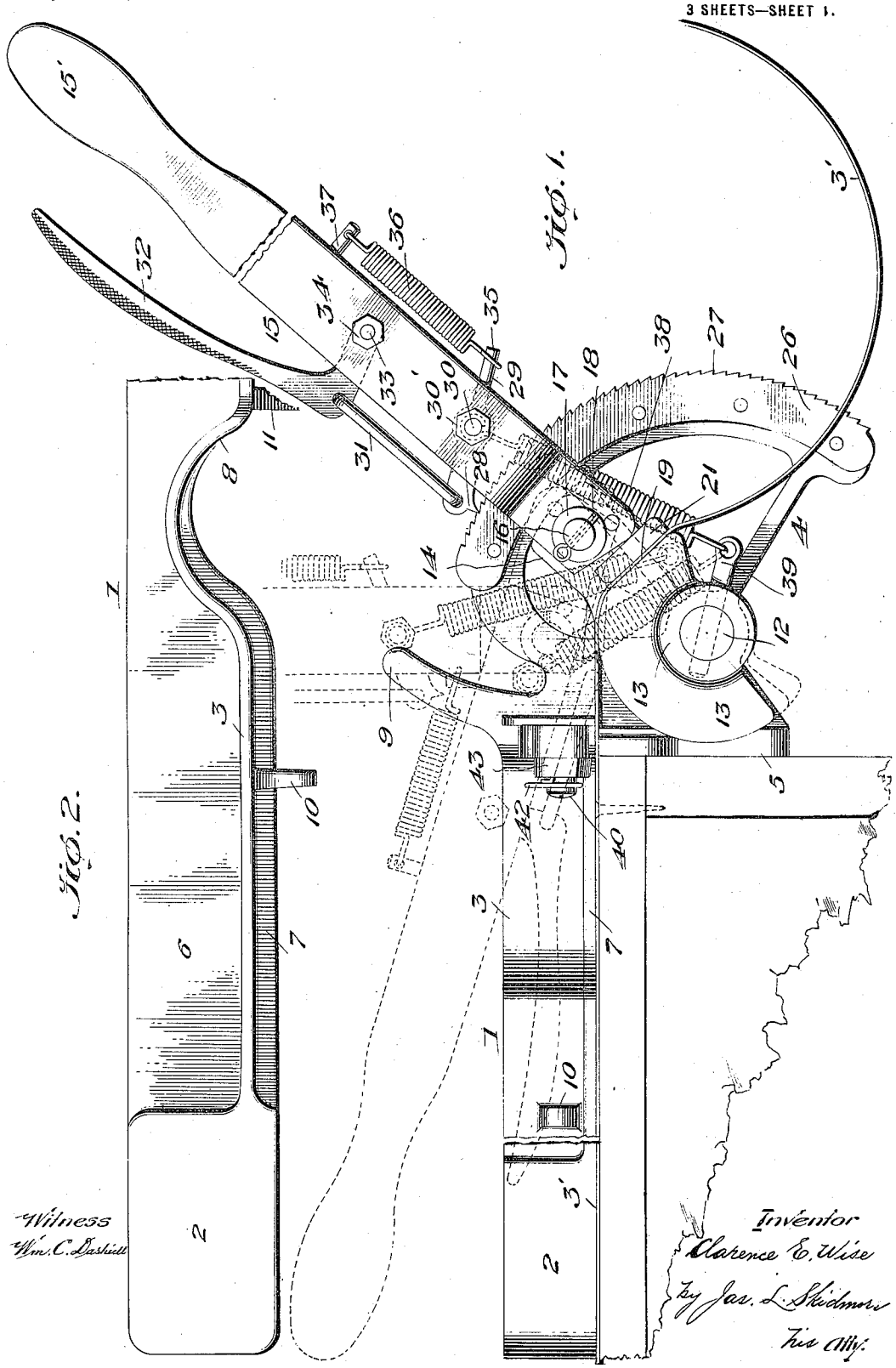


Fig. 1.

Fig. 2.

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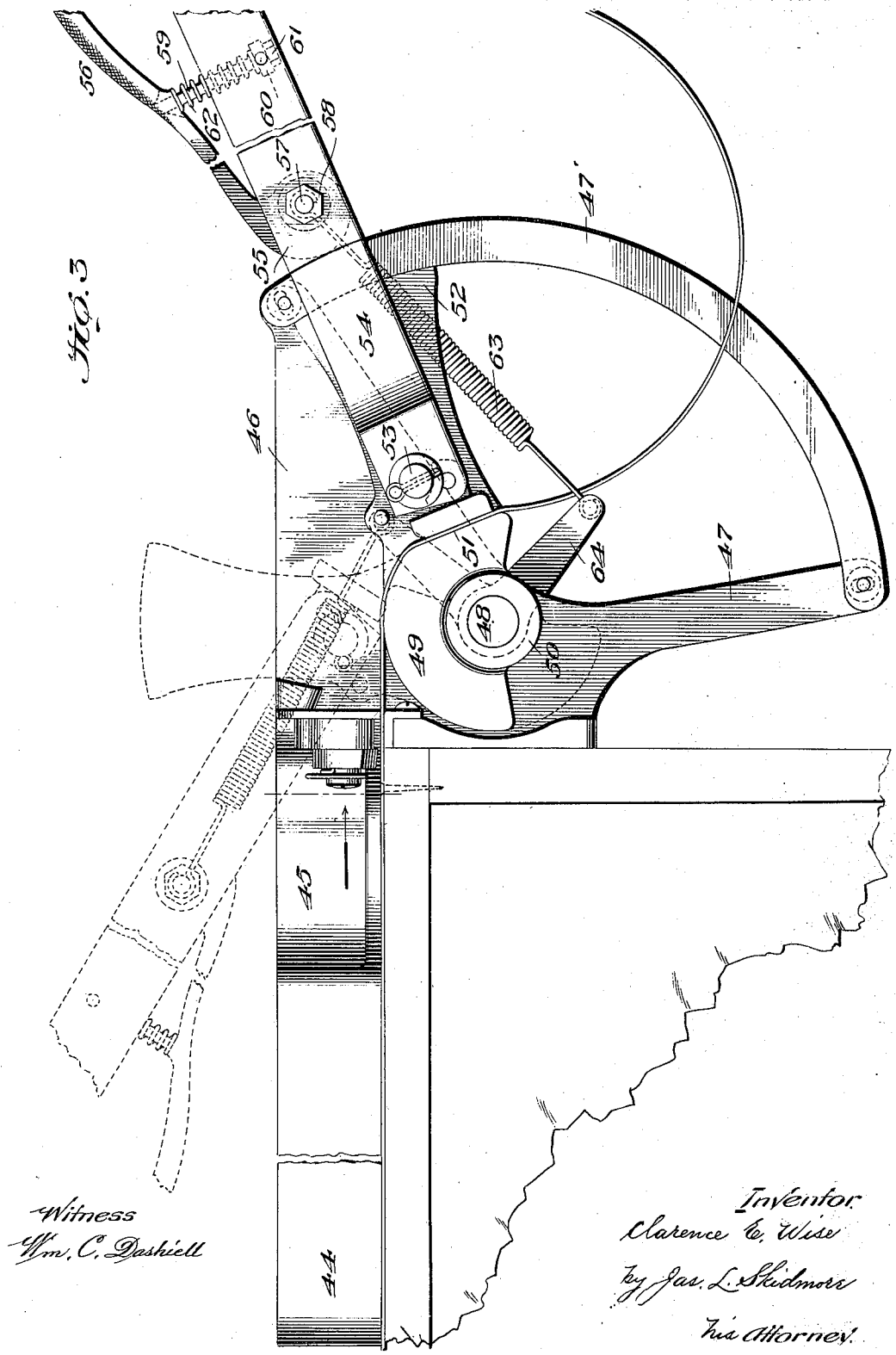
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3 SHEETS—SHEET 2.

Fig. 3



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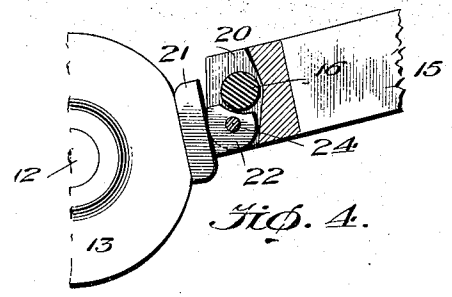


Fig. 4.

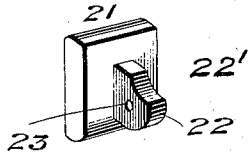


Fig. 5.

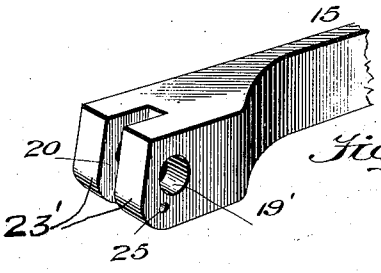


Fig. 6.

Fig. 7.

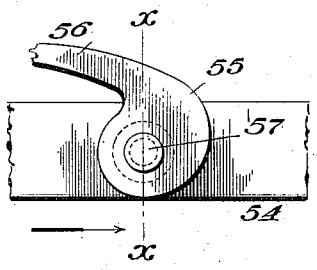


Fig. 8.

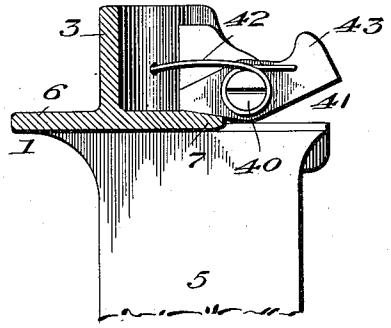
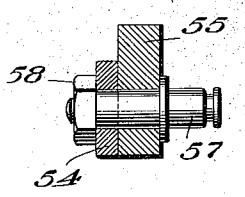


Fig. 9.



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UNITED STATES PATENT OFFICE.

CLARENCE E. WISE, OF WASHINGTON, DISTRICT OF COLUMBIA.

PORTABLE HAND-TOOL FOR APPLYING BINDING MATERIAL TO RECEPTACLES.

1,276,301. Specification of Letters Patent. Patented Aug. 20, 1918.

Application filed November 17, 1917. Serial No. 202,517.

To all whom it may concern:

Be it known that I, CLARENCE E. WISE, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Portable Hand-Tools for Applying Binding Material to Receptacles, of which the following is a specification.

This invention relates to a hand tool for stretching and tightening wire, cord, rope, metallic tape and like material, and holding said material in a taut, stretched and tightened condition, and is especially designed for use in applying a binder element such as metallic tape around boxes and like receptacles, when the same are being assembled and strengthened for shipping purposes, said invention constituting an improvement on the binder element tightening mechanism set forth in an application filed by me under date of May 31", 1916, bearing Serial No. 100,929.

The main object of my invention is to provide a simple, economical, durable, and thoroughly efficient hand tool device which may be readily carried in the hand or pocket of the operator, to be utilized for the purpose of applying a binding and strengthening element to a box or like receptacle by stretching and tightening said element around the receptacle, and firmly holding the element in its taut and stretched condition until it is fastened to said receptacle.

Another object of the invention is to furnish a portable hand tool for applying a binder element to various types of boxes and receptacles which can be readily and quickly operated, and rapidly released from its operative position.

A further object of this invention is to so construct my improved hand tool device that it will retain its proper position when placed upon a box or similar receptacle, and the binder element may be readily and quickly adjusted at one side of the tool to its required position between the gripping members when it is desired to stretch, tighten and secure the said element to the box or receptacle.

Still further objects of my invention are to provide a portable hand tool having a weighted base member carrying means for gripping, tightening, and severing the binder element; means whereby the gripping handle may be readily folded backward and caused to rest upon the said weighted base member, and means for firmly securing and retaining the binder element in its taut, stretched and tightened condition after the operating or gripping handle is released.

The foregoing and such other objects as may appear from the ensuing description are attained by the novel features of construction, combination, location and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims appended hereto, it being understood that slight changes in the form, proportions, and minor details of the construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings which form a part of this specification it will be seen that:—

Figure 1, is a side elevation of the improved hand tool embodying my invention, showing the said tool supported on a receptacle or box in the act of gripping a binder element and holding it in a stretched and tightened condition, and illustrating in dotted lines the positions the gripping handle assumes when folding it to its forward or folded position.

Fig. 2, is an enlarged plan view of the base member of my improved tool showing its rear end portion broken away.

Fig. 3, is a side elevation of a slightly modified form of my novel hand tool showing the said tool applied in a similar manner to that shown in Fig. 1, and illustrating by dotted lines the position the operating parts assume when the gripping handle is caused to assume its forward folded position.

Fig. 4, is a side view of the gripping members showing in section the inner end of the operating handle.

Fig. 5, is a perspective view of the gripping shoe removed from the operating handle.

Fig. 6, is a perspective view of the inner end portion of the operating lever or handle.

Fig. 7, is a detail side view showing a portion of the operating handle shown in Fig. 3, with the locking cam secured thereto.

Fig. 8, is a detail sectional view through a portion of the base member, showing the binder element severing mechanism secured thereto, and

Fig. 9, is a detail sectional view taken on the line x—x, Fig. 7.

Similar numerals of reference are employed to designate corresponding parts throughout the several figures of the drawings.

In carrying out this invention as illustrated and which shows a preferred construction, reference now being had to Fig. 1, of the drawings, the numeral 1 indicates the base member of my improved hand tool, having a solid thickened or weighted inner end portion 2, an integral upright longitudinal rib 3 extending from the said weighted portion to the rear end of the base, said base terminating at its rear portion with a quadrant member 4, and an integral depending member 5. The upright rib 3 is provided near its rear end portion with an inward curve or semicircular contour adapted to form a recess, whereby convenient access may be afforded for the tacking or otherwise suitably securing the binder element 3′ to the receptacle in its stretched and tightened condition and before it is severed. Extending laterally from the lower portion of said rib at the rear thereof is an integral portion 6, which terminates at its rear end with the inner end of the quadrant member while its front end portion terminates into the weighted end 2, and projecting laterally from the lower or bottom portion of the rib at the front thereof is an integral portion 7, which merges into the upright rib at the point 8. The said rib 3 is also provided with an upright rearward inclined integral member 9, for the purpose hereinafter described, and a laterally projecting integral member 10, constituting a rest for the handle when in its folded position, and serving as a stop to limit the upward movement of the binding element. The depending member 5 of the base is provided with a lateral extension or shoulder 11, upon which the binder element rests when applied to the tool.

The body portion of the quadrant member 4, is provided with an opening adapted to receive and form a bearing for the shaft 12, to which is rigidly secured a drum-sector or movable member 13 provided with a hub-portion 13′, said sector having secured thereto or formed integral therewith an extension 14, to which the operating handle or lever 15 having a hand grip portion 15′ is pivotally and eccentrically secured by the pin 16 with respect to the drum-sector, the handle being fastened to said pin 16 by a suitable washer 17, and cotter pin 18, which is passed through an opening in the pin 16 with the ends of the cotter pin resting in contact with the face of said washer. At a suitable point 19 the peripheral surface of the drum-sector is flattened to form a gripping surface for the reception of the wire, tape or other suitable binding element preparatory to the stretching, tightening, and securing of the same to a receptacle.

The operating lever 15 is eccentrically mounted with respect to the drum-sector 13, the pivot pin 16 with which it is secured to said drum-sector passing through the opening 19′, formed in the bifurcated lower end portion 20 of said lever, and eccentrically pivoted within the bifurcated end of the lever is the binder element gripping member or shoe 21, provided with an extension 22, having an opening 23 therethrough, adapted to receive a pin 24 passing through the opening 25 in said lever for securing the shoe thereto, the gripping surface of said shoe accurately conforming with the peripheral gripping surface of the drum-sector, and the width of the shoe 21 is substantially the same as the width of the peripheral surface of the drum-sector. It has been found desirable to construct the pivot pin 16 of material considerably greater in diameter than the size of the pivot pin 24, for the reason that the pin 24 does not bear any strain but merely serves as a pivot for the hinge connection between the shoe and operating lever 15, while the pin 16 acts as a fulcrum by which pressure is imparted in the manner hereinafter referred to.

To the inner face of the rear portion of the quadrant, which in contour describes an arc of a circle, is suitably but fixedly secured a metal bar or plate 26 of similar contour, provided on its outer peripheral edge with a series of ratchet teeth or notches 27, adapted to be engaged by the inner end 28 of a rocking ratchet pawl 29, pivoted by a pin 30 and fastened by the securing nut 30′ to the operating lever 15, the inner end portion of pawl 29 being connected by a rod 31 to the pawl operating member 32, which is pivoted to the operating lever 15 by a pin 33, and secured by the fastening nut 34, while to the rear end portion 35 of said ratchet pawl is connected one end of an expansible spring 36, the other end of said spring being secured to a pin 37 fixed to the operating handle, the function of said spring 36 being to normally retain the pawl 29 in engagement with the ratchet teeth or notches 27 in the usual well known manner. When it is desired to move the lever 15 forwardly a suitable distance for the purpose of securing a grip upon the binder element, pressure is imparted to the end portion of the pawl operating member 32, which causes the pawl to

be disengaged from the teeth or notches 27 and permits the lever and drum-sector to be readily moved to the desired position.

An expansible spring 38 has one end suitably secured to the outer end portion of the pin 30 carried by the operating lever, while its other end is connected to the outer end of a bar 39, which is fixedly secured to the shaft 12. The purpose of this spring is to insure gripping contact with the binder element between the gripping shoe and drum-sector when the parts are in the position shown by full lines, Fig. 1; further, when the operating lever is caused to assume the vertical position shown by dotted lines, the pin 30 will contact with the upright projection formed on the base member, when by further forward movement of the lever the spring will exert a downward pull on the lever, and cause it to assume the folded position shown by dotted lines, with the pawl operating handle resting upon the lateral projection formed on the base member, and the pin 30 resting within a recess or opening formed in the upright rib of the base member, as is clearly shown in Fig. 1.

By reference to Figs. 4 and 5 of the drawings, it will be seen that the gripping shoe 21 is provided with an extension 22, having a cut-out or recessed portion 22′, which partly embraces the lever pivot pin 16, and the said shoe being eccentrically pivoted with respect to the lever permits a limited rocking or swinging movement of said shoe, the outer end portion of the extension 22 being adapted to engage with the pin 16, thus constituting a stop to limit its outward rocking movement while the lower end of the lever limits the inward movement of the shoe, thereby always retaining the shoe in its proper gripping position, and the lower rear portion of the lever is provided with a cam surface 23′, which is adapted to contact with the upper surface of the gripping shoe so as to impart intense gripping power to the said shoe.

It will be readily perceived that the operating lever 15, is pivotally secured to the extension 14 which forms a part of the drum-sector 13, and when the said lever is moved slightly forward with the tooth of the pawl 29 in engagement with one of the ratchet teeth, such movement will cause a rearward rocking movement of the drum-sector thereby leaving a space between the gripping end of the lever and the gripping surface of the drum-sector, thus releasing the gripping action on the binding material without releasing the pawl from the ratchet, since the forward movement of the lever and the rearward movement of the drum-sector are simultaneous, said movements simultaneously cause a downward movement of the bar or rod 39, which moves with the drum-sector and the outer end 35 of the pawl 29 carried by the lever, thereby expanding the springs 36 and 38, and immediately upon the release of the lever the tension of said springs cause the lever to resume its gripping position, as shown in Fig. 1.

Pivotally secured to the base member 1 in any desirable manner and of any preferred construction by a suitable pivot pin 40 is a binder element shearing or severing member 41, and surrounding said pivot pin is a spring 42, one end of which is secured to said base member and the other outer end suitably secured to the outer shearing arm 43 of the severing member for the purpose of normally holding said arm above and out of contact with the binder element, but when it is desired to sever the binder element after it has been sufficiently stretched, tightened and fastened it is simply necessary to strike the upper surface of the shearing arm of the severing member a sharp blow with a hammer or other suitable tool when the shearing arm will be caused to move downwardly, thus shearing and entirely severing the said binding material.

Reference now being had to the modified construction of hand tool shown in Fig. 3 of the drawings, the numeral 44 designates the weighted or solid forward end portion of the base member which merges at its rear end into an outwardly recessed portion 45 formed with an upright rib and a laterally projecting flange on either side of the upright rib, said upright rib terminating at its rear end with the extension 46, and depending downwardly and outwardly from the body portion of the base member is an extension 47, each of said extensions 46 and 47 being provided with an elongated slot for the reception of a pin, shown by dotted lines in said Fig. 3, adapted to movably secure to the said extensions a metal plate or bar 47′ formed in the arc of a circle and provided with an upper and lower bearing surface for the purpose hereinafter more fully set forth.

The body portion of the base member is provided with an opening adapted to receive and support a shaft 48, to which shaft is suitably secured a sector-drum or movable member 49, having a hub portion 50, and a flattened gripping surface 51, and formed integral with said sector-drum or suitably and rigidly secured thereto is an outward extension 52, to which is eccentrically pivoted with respect to the sector-drum by a pin 53 an operating lever or handle 54, said lever being provided with a cam 55 having an extension 56, forming an operating handle for said cam which is pivotally secured to the operating lever by a pin 57, and securing nut 58, the cam operating handle being connected to the lever 54 by a pin or rod 59, which passes through a lateral extension 60 carried by the lever and to the

threaded end of said pin 59 is secured a nut 61, the pin or rod 59 being surrounded by an expansible spring 62, one end of said spring resting in contact with the under side of the cam operating handle and the other end engaging the upper surface of said lateral extension 60, this spring serving to force the cam 55 into frictional engagement with the outer bearing surface of the bar or plate 47', while the inner surface of the said bar or plate will simultaneously have frictional engagement with the outer bearing surface of the extension 52, thereby firmly locking the operating lever and insuring the retention of the binding material in its stretched and tightened condition, as shown in the drawings, until the said material has been suitably fastened to the receptacle and severed.

One end of an expansible spring 63 is secured to the outer end of the pin 57 carried by the operating lever, the other end of said spring being secured to the outer end of a projecting arm 64, the inner end of said arm being rigidly secured to the outer end portion of the shaft 48; thus it will be readily perceived that this spring is so connected that it coöperates with the lever to increase the frictional contact of the cam 55, and the extension 52 with the upper and lower bearing surfaces respectively, of the metal plate or bar 47', and when the lever is caused to assume the folded position illustrated by dotted lines, Fig. 3, the said spring exerts a downward pull upon the lever and holds it out of engagement with the drum-sector, but when the operating lever is moved upward or rearwardly for the purpose of gripping the binding material which has been passed over the drum-sector the force of the spring will be exerted to cause a partial rotation of the drum-sector, thereby causing the parts to assume the gripping operation and become properly alined in the manner shown by full lines, Fig. 3, and thereby increasing the frictional contact of the locking contact surfaces hereinbefore referred to.

It will be readily understood that the upper and lower bearing surface of the movable bar or plate 47', as well as the engaging surface of the cam 55 and extension 52 may be of any suitable width to furnish the required force of frictional contact between the said parts.

When it is desired to release the cam and extension 52 from engagement, it is simply necessary to exert inward or downward pressure upon the operating handle of the cam, when the operating lever will be free for further rearward movement, or it may be folded forward and caused to assume the position shown by dotted lines.

The gripping shoe carried at the lower end of the operating lever, and the severing device, such as illustrated in Fig. 3, being of substantially the same form and construction as has been hereinbefore described, further description of these parts is not deemed necessary.

It will be understood that any suitable material to be operated upon or used in connection with my improved portable hand tool may be readily and quickly passed over the lateral extension of the base member and between the gripping surfaces from one side of the tool.

It will be obvious that if desired my novel hand tool may be constructed without the severing mechanism secured thereto.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A portable hand tool for applying binding material to receptacles comprising a weighted base member, a drum sector carried by said base-member having a flattened gripping surface, and an operating lever secured to the drum-sector carrying a pivoted gripping shoe adapted to rigidly clamp the binding material to the gripping surface of the drum sector.

2. A portable hand tool for applying binding material comprising a base member, a drum sector supported by said base member having a flattened gripping surface formed on its periphery, an operating lever eccentrically pivoted to and carried by said sector, and a gripping shoe pivoted to said lever adapted to firmly clamp the binding material between said shoe and the sector gripping surface.

3. A portable hand tool comprising a base member, a movable member secured to said base member, an operating lever eccentrically pivoted to said movable member, and a rocking gripping shoe eccentrically pivoted to said lever.

4. A portable hand tool comprising a base member, a drum-sector carried by said base member, an operating lever eccentrically pivoted to said sector having a bifurcated lower end portion, a rocking gripping shoe provided with an extension fitted into said bifurcated end portion, said shoe being eccentrically pivoted to said lever.

5. A portable hand tool comprising a base member, a movable member secured to said base member, an operating lever eccentrically pivoted to said movable member, said lever having a cam-shaped lower surface, and a rocking gripping shoe pivoted eccentrically to said lever adapted to be acted upon by the cam surface of said lever.

6. A portable hand tool comprising a weighted base member, a drum-sector secured to and carried by said base member, an operating lever eccentrically pivoted to the sector, and a gripping shoe eccentrically pivoted to the lower end of said lever.

7. A portable hand tool comprising a base

member, a drum-sector carried by the base member, an operating lever eccentrically pivoted to the sector, a rocking gripping shoe eccentrically pivoted to the lever, and means for limiting the rocking movement of said shoe.

8. A portable hand tool comprising a weighted base member, a drum sector carried by the base member, an operating lever eccentrically pivoted to the sector and having a cam-shaped lower surface, and a gripping shoe eccentrically pivoted to said lever and adapted to be acted upon by the cam surface of the lever.

9. A portable hand tool comprising a drum sector having a flattened gripping surface and an outward extension, an operating lever eccentrically pivoted to said sector, a gripping shoe eccentrically pivoted to said lever and adapted to conform with the gripping surface of the sector, and means for limiting the movement of the pivoted shoe.

10. A portable hand tool comprising a base member, a drum-sector fastened to and supported by the base member, an operating lever eccentrically pivoted to said sector and provided with a bifurcated lower end portion, a movable gripping shoe eccentrically pivoted to said end portion, means for limiting the rocking movement of said shoe and tension means connecting said sector and operating lever.

11. A portable hand tool comprising a base member, a drum-sector carried by the base member, an operating lever eccentrically pivoted to the sector, a movable gripping shoe eccentrically pivoted to the lever, and an extension formed on said shoe for limiting the movement of the shoe.

12. A portable hand tool comprising a base member, a drum-sector secured to the base member provided with an extension, an operating lever pivoted to the sector, a movable gripping shoe eccentrically pivoted to the lever, an expansible spring secured to said extension and lever, and an extension formed on the shoe for limiting its movement.

13. A portable hand tool for applying binding material to receptacles comprising a drum-sector having a flattened gripping surface, an operating lever eccentrically pivoted to the sector, a movable gripping shoe secured to the lever for firmly clamping the binding element to the sector, and means for locking the binding element when in its stretched and tightened condition.

14. A portable hand tool for applying binding material to receptacles comprising a drum sector having a flattened gripping surface, an operating lever eccentrically pivoted to the sector, a gripping shoe secured to the lever for clamping the binding element to the sector, means for locking the binding element when in its taut condition, and means for releasing the binding element without unlocking the lever.

15. A portable hand tool for applying binding material to a receptacle comprising a base member, a drum-sector secured to the base member, an operating lever eccentrically pivoted to the sector, a rocking gripping shoe pivoted eccentrically to said lever, and means for folding the operating lever to rest in contact with the said base member.

16. A portable hand tool for applying binding material to receptacles comprising a weighted base member, a drum-sector supported upon the base member having a flattened gripping surface, an operating lever eccentrically pivoted to the sector, a gripping shoe pivoted to the lever, means for locking the lever when the binding element is gripped and in its taut condition, and means for releasing the binding element without unlocking the lever.

17. A portable hand tool comprising a weighted base member having an upright rib and recessed portion, and a lateral projection forming a rest and stop, a drum sector secured to the base member, and an operating lever eccentrically pivoted to the sector having a movable gripping shoe pivoted eccentrically thereto.

18. A portable hand tool comprising a weighted base member provided with a longitudinal upright rib, a recessed portion near the outer end of the base, and a lateral projection formed on said rib and serving as a rest and stop, a drum-sector secured to the base member, a gripping shoe pivoted to the lever, and a severing device secured to said base member.

19. A portable hand tool for applying binding material to receptacles, comprising a drum sector, clamping means coöperating with said sector, means for locking said clamping means in its clamped position, and means for releasing the binding material without unlocking the locking means.

20. A portable hand tool for applying a binder element comprising a base member, a drum-sector carried by said member having a flattened gripping surface, a single means for gripping the binder element against the flattened surface, and tension means connecting said sector and gripping means to retain the single means in its gripped position.

21. A portable hand tool for applying binding material comprising a base member, a drum-sector supported by said member, means carried by said sector for clamping the binding material against the same and adapted to move said sector to stretch the material simultaneously with the clamping operation, and tension means connecting the said sector and clamping means to lock the clamping means in its clamped position.

22. A portable hand tool for applying a

binder element comprising a movable drum-sector, means for clamping the binder element against said sector and adapted to move said drum to stretch the binder element, and tension means for connecting said sector with the clamping means to move said clamping means to either side of its pivotal point.

23. A portable hand tool for applying a binder element comprising a movable drum sector, means carried by said sector for clamping the binder element against the same and adapted to move said sector to stretch the binder element simultaneously with the clamping operation, and tension means connecting the said sector and clamping means to lock the clamping means in its clamped position.

24. A portable hand tool for applying a binder element comprising in combination a weighted base member, of a movable member carried by said base member, and means secured to the movable member for clamping the binder element against said movable member, and tension means for locking the binder element in its clamped and stretched position.

25. A portable hand tool of the character described having a weighted base member with a recess formed therein near its outer end portion, a longitudinal upright rib formed integral with said base member, a lateral extension formed on said rib to retain the binding material thereunder, and means carried by said base member for stretching, and tightening the binding material.

CLARENCE E. WISE.