C. W. SMITH.

FOLDING STAND.

APPLICATION FILED OCT. 13, 1914.

1,173,051.

Patented Feb. 22, 1916.

4 SHEETS—SHEET 1.

Fig. 1.

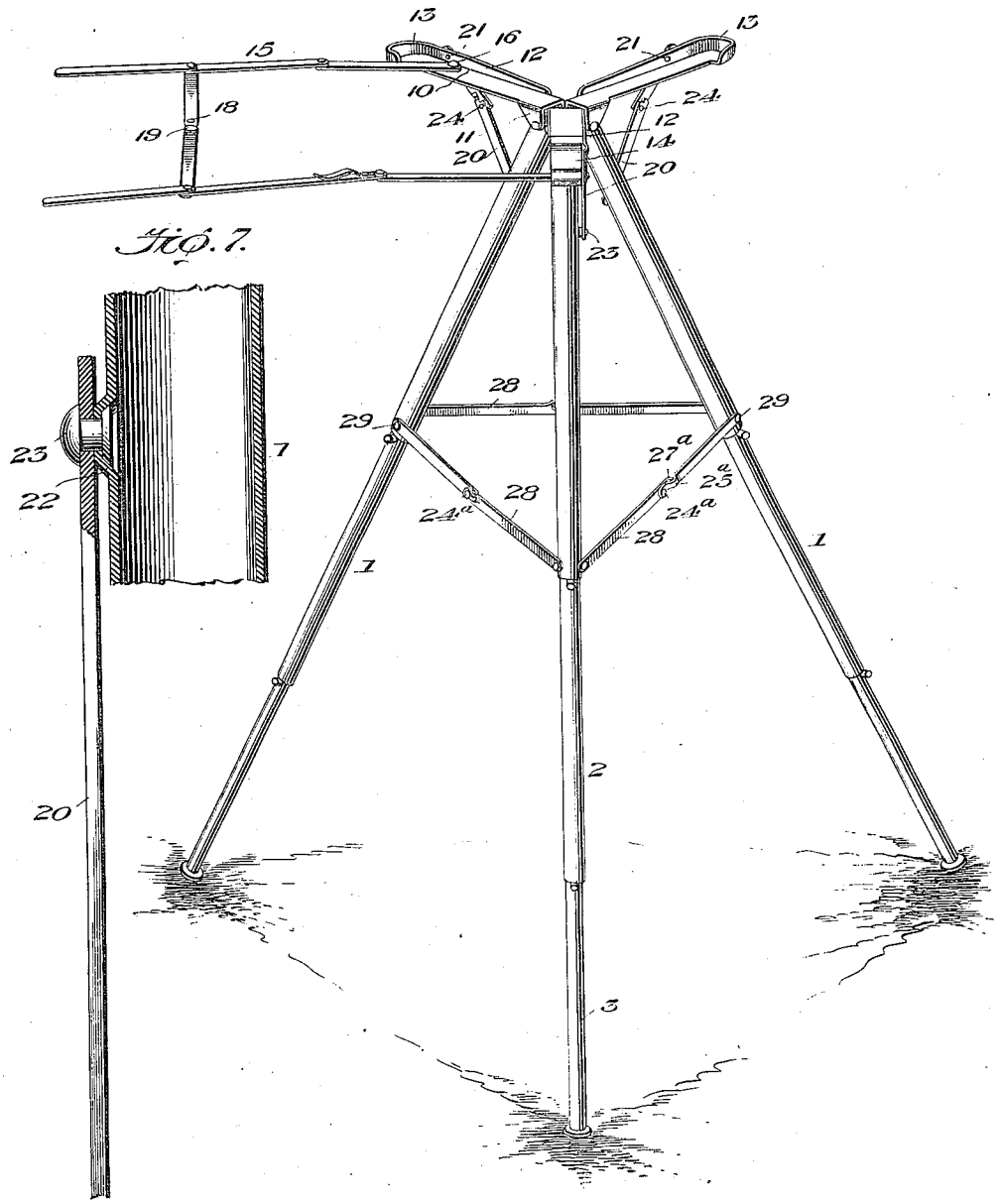


Fig. 7.

Witnesses

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4 SHEETS—SHEET 2.

Fig. 2.

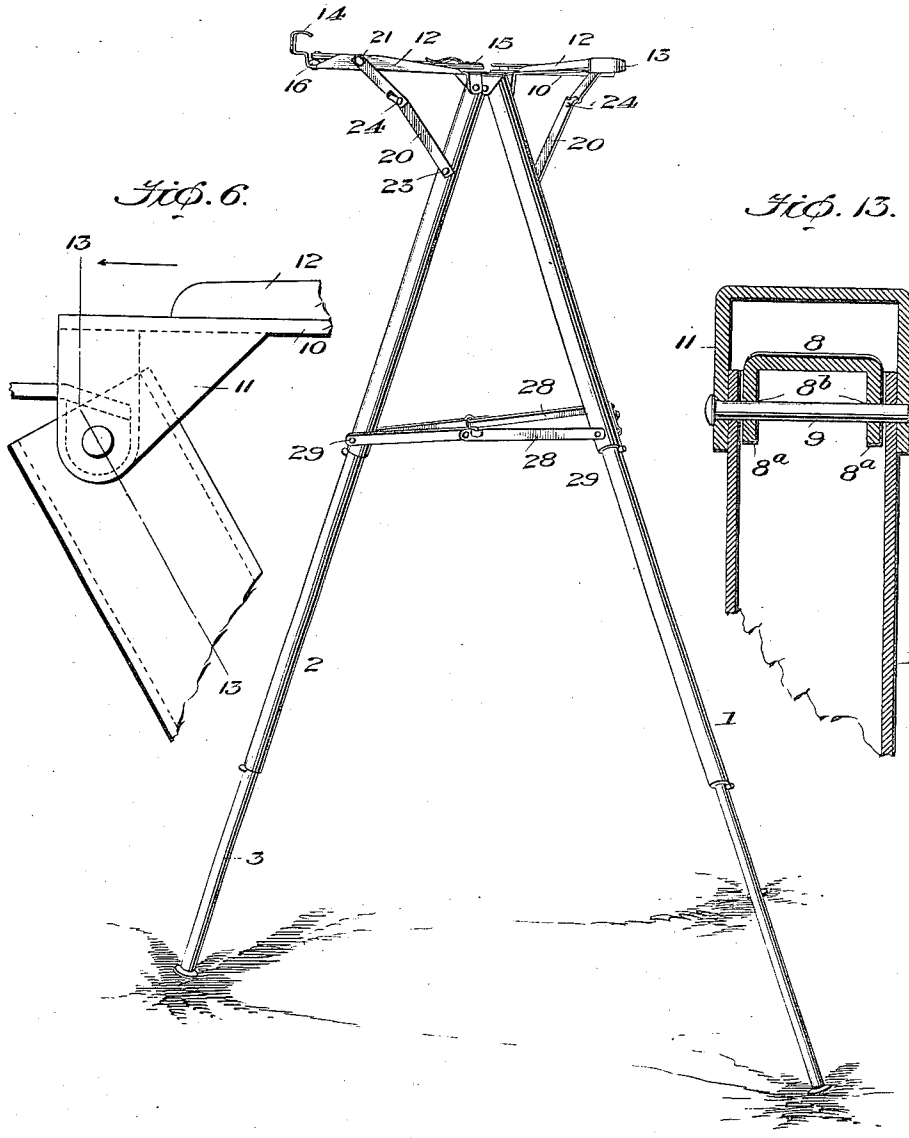


Fig. 6.

Fig. 13.

Witnesses

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4 SHEETS—SHEET 3.

Fig. 3.

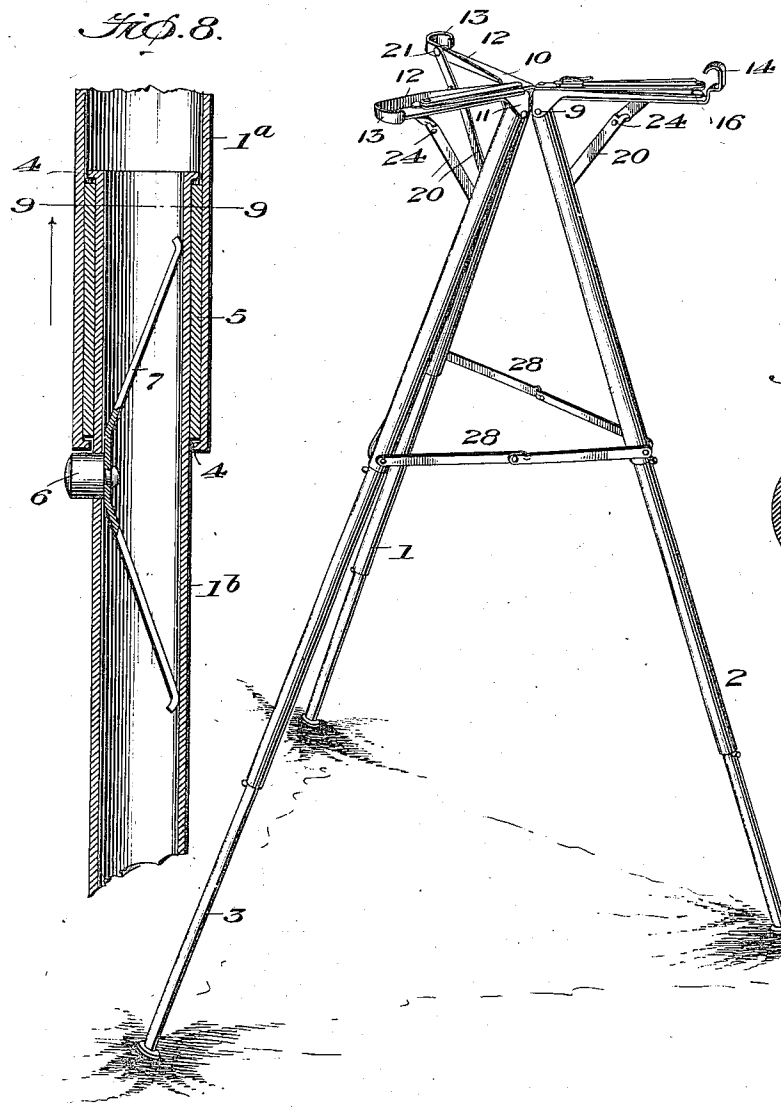
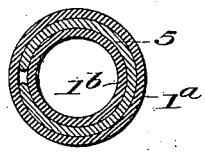


Fig. 8.

Fig. 9.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 5.

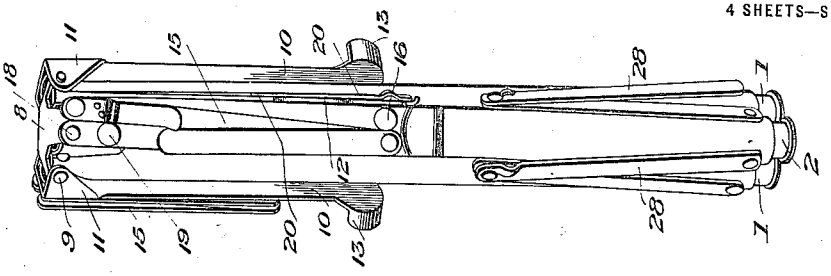


Fig. 10.

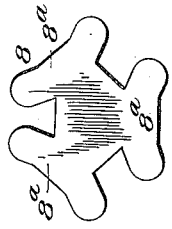


Fig. 11.

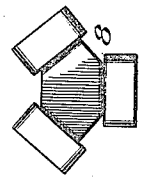


Fig. 4.

Fig. 14.

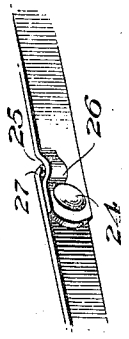
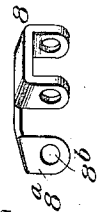


Fig. 12.



Witnesses

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UNITED STATES PATENT OFFICE.

CARLETON W. SMITH, OF NEW YORK, N. Y., ASSIGNOR TO COLLAPSO PRODUCTS COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FOLDING STAND.

1,173,051. Specification of Letters Patent. Patented Feb. 22, 1916.

Application filed October 13, 1914. Serial No. 866,446.

To all whom it may concern:

Be it known that I, CARLETON W. SMITH, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Folding Stands, of which the following is a specification.

This invention relates to folding stands and is an improvement on the folding stand or table set forth in the application of Harry A. Stone, Serial No. 796,288, filed October 20, 1913.

The objects of the present invention are to simplify, strengthen, make more durable, cheapen, and render more stable a folding stand of the general type set forth in the application of Harry A. Stone, Serial No. 796,288, and also to eliminate all castings, solder, and screws throughout the stand and knife edges spun at the joints of the telescopic legs now in use.

The invention consists first, of an improved stand having its legs so arranged that the center of gravity of the stand and of an object supported thereby, such as a typewriter, is thrown forwardly toward the operator so that when the stand is in use, particularly when supporting a typewriter, the center of gravity will be so located that it will be extremely difficult to accidentally tip the stand over. This is accomplished by having the leg which is positioned at the front of the stand when the latter is in use, somewhat shorter than the other legs and, preferably, by the provision of telescopic legs, one of the sections of the front leg of which is shorter than corresponding sections of the other legs of the stand. This invention is also brought about by the combination of the legs with an improved center member or head, whereby the arrangement of the legs is permitted without interfering with the collapsibility or foldability of the legs.

Another feature of the invention, without regard to the relative lengths of the foldable legs, is an improved center member or head and the manner in which it is pivotally connected to the legs; further, the combination of the legs, improved center member, and foldable arms which constitute the skeleton top, the head or center member, legs, and arms, being pivotally connected by the same pivot, in each instance. By providing a rivet pin for this pivotal connection, I do away entirely with a screw-bolt or screw connection at this point and obviate loosening or detachment. The construction of the head or center member from a single blank, stamped into an improved form, providing ears which enter the upper ends of the legs, and by forming the folding arms as stampings with ears which straddle the legs, and the provision of the rivet pivots, forms a very strong, light, and for all practical purposes, indestructible joint for connecting the legs and arms together so that they are adapted for folding.

The foldable arms are stampings which are possessed of great strength by the provision of a web or flange at one edge thereof which terminates in a cup or fitting at the end of the arm for the accommodation of the feet or other parts of the typewriter to be supported thereby. When the stand is constructed with tripod legs and three foldable arms constituting its skeleton top, two of the arms will be provided with the cups or fittings and the remaining arm with a hook or clip adapted to engage the front of the frame or other part of the typewriter, the rear legs or parts of the latter being seated in the cups.

When an extension, foldable leaf is provided, as set forth in the application of Harry A. Stone, Serial No. 796,288, the sections thereof are connected by rivet pivots to two of the arms, thereby preventing loosening such as occurs with a screw-bolt pivot.

The foldable braces connecting the foldable arms to the legs have an improved locking joint, whereby the sections thereof may be arranged angularly to each other, that is, in offset relation and downward pressure on the arms tends to keep the joint of the foldable braces locked. These braces are connected by rivet pivots to the flanges of the arms and by an improved rivet pivot connection to the tubular legs, the rivet being headed on the outside of the brace and the leg having a punched or pressed-up nib through which the rivet passes, whereby the rivet is countersunk in the inner wall of the tube and no interference is offered to the telescoping of the legs.

The invention consists, further, in the provision of rivet pivots, as just set forth, for connecting the lateral foldable braces to the legs.

My invention consists, still further, in an improved joint between the tubular sections of the legs, whereby a relatively long and snug, yet easy sliding, joint is provided to resist wear and stresses and to prevent the leg sections from pulling apart. Heretofore knife edges have been provided on telescopic joints, and these soon result in wear and looseness of the parts. My improved leg joint contemplates the provision of a split bushing or sleeve between the telescopic sections and the provision of flanges on them to coöperate with the ends of the sleeve, but not to contact with the other telescopic section. This joint eliminates all the disadvantages of the old form of joint and partly corrects any variations of the overall diameter of the tubes.

The lateral braces which connect the legs are provided with rivet pivot joints and the same improved stop connection as provided on the braces for the arms.

The invention consists, still further, in the provision of an improved spring-actuated button or latch for holding the telescopic sections in extended condition.

An embodiment of the invention is set forth fully hereinafter, the novel features being recited in the appended claims.

In the accompanying drawings: Figure 1 is a front perspective of the complete stand and leaf opened out and facing the observer ready for use; Fig. 2, a side elevation thereof, the leaf being folded; Fig. 3, a perspective, the leaf being folded, looking toward the opposite side of the stand; Fig. 4, a plan view, the leaf being extended; Fig. 5, a perspective showing the stand when completely folded or collapsed; Fig. 6, a detail of the joint between a leg, arm and the center member; Fig. 7, a detail of one of the rivet pivot connections between a brace and a leg; Fig. 8, a longitudinal detail section showing one of the joints and button latches for the legs; Fig. 9, a section on line 9—9, Fig. 8; Fig. 10, a face view of the blank for the head or center member; Fig. 11, a plan view of the head or center member; Fig. 12, a side elevation thereof; Fig. 13 a section on line 13—13, Fig. 6; and Fig. 14, a detail of the joint of each brace.

The legs of the stand are composed of telescopic tubular sections adapted to be extended as shown in Figs. 1, 2 and 3, or collapsed as in Fig. 5. The legs which are at the rear when the stand is in proper position to support a typewriter are shown at 1, and the front leg, the one nearest the person using the stand when typewriting, is designated 2. Referring to Figs. 2 and 3, it will be observed that the effective length of the leg 2 is less than that of the legs 1 and consequently, the center of gravity of the stand, and hence of the typewriter supported thereby, is thrown forwardly toward the leg 2 and toward the operator, so that accidental rearward tipping of the stand is minimized. The shorter length of the leg 2 preferably exists in the lowermost telescopic section thereof, 3 in order that all three of the upper sections of the legs 1 and 2 may be of the same length and collapse neatly together as shown in Fig. 5, but I do not limit myself to making the section 3 the short one, as the invention in this respect broadly consists in the leg 2 being shorter, as an entirety and when extended, than the rear legs 1. The joint between the telescopic sections of the legs is shown in Fig. 8. Each section, 1^a, 1^b, is provided with a flange 4, the flange of the inner section extending outwardly and that of the outer section extending inwardly. Snugly and accurately encircling, but slidable on the section 1^b, is a split or open seam sleeve 5 which is of such thickness in relation to the flanges 4 that it prevents the edges of said flanges from engaging the inner surface of section 1^a and the outer surface of section 1^b, respectively. This sleeve just fills the space between the said sections and it is of a sufficient length to afford a wide bearing or engagement of the sections when extended, sliding upon each other, or collapsed. Furthermore, a button latch 6 is provided in section 1^b at a point where it will engage the end of section 1^a when the sections are drawn out to substantially the full distance permitted by the sleeve 5. The joint is, therefore, very strong, rigid, and because the bearing is long and the flanges 4 do not bear on the tube section, cutting or wearing of the sections is minimized. The button latch 6 is riveted to a bowed steel spring 7 located inside the section 1^b, the latch being urged by said spring through an opening in the said section.

Referring to Figs. 6, 10, 11, 12 and 13, the open-ended uppermost tubes of the legs 1 and 2 are pivotally connected by an improved head or center member 8 whose appearance as a blank is as shown in Fig. 10, the parts 8^a becoming the correspondingly numbered ears of the complete head of Figs. 6, 11, 12 and 13. The ears 8^a enter the open ends of the upper leg sections and are connected thereto by rivet pivots 9, which pass loosely through the holes 8^b of the ears 8^a. The rivets cannot become accidentally loosened and have an advantage over the screws heretofore used for connecting the legs to the center member while also dispensing with the heads heretofore fitted in the upper ends of the legs as proposed in the application of Harry A. Stone, Serial No. 796,288. The foldable arms 10 are stampings having ears 11 which straddle the upper ends of the legs and are pivoted thereto and to the head 8 by the same rivet pivots 9 that connect the head 8 to the legs. I thereby dispense with

one set of pivotal connections, cheapening manufacture and giving greater strength. The respective arms 10 are arranged to fold down on the legs and in alinement therewith. Those of the arms which are pivoted to the rear legs 1 have a flange 12 which gives them great strength, said flange being formed into a cup or retainer 13 at the outer end of the arm arranged to receive the feet of a typewriter, or the like. The remaining arm, which is pivoted to the leg 2 has a flange 12, but instead of being provided with a cup, has a hook or clamp 14 adapted to engage the front of the frame of the typewriter.

Preferably, a foldable extension leaf 15 whose sections or parts are adapted to fold on two of the arms 10, is provided, the sections thereof being connected by rivet pivots 16 to the arm. This leaf is of substantially the construction set forth in the aforesaid application of Harry A. Stone, Serial No. 796,288 and in his Patent No. 1,065,476, dated June 24, 1913, as well as in other applications, and I do not, therefore, lay claim thereto, but I have found that this leaf may be advantageously connected by the rivets 16, instead of by screws and that the sections thereof are advantageously connected, in a detachable manner, by a joint consisting of an aperture 17, a stud 18, and a headed retainer stud 19, whereby the parts may be readily locked in cross connected relation, or disconnected for the folding of the sections on top of the arms to which they are connected.

The arms 10 are rigidly supported from the legs by braces 20 which are riveted and pivotally connected to the flanges 12 at 21 and to the legs in the manner shown in Fig. 7. The tubular leg section is punched up or struck out, as at 22, and the brace 20 is pivotally connected thereto by a rivet 23 whose base is disposed within the hollow interior of the boss 22 and whose outer end is headed over the brace 20. The brace is, therefore, spaced away from the surface of the tube or leg and is pivotally connected thereto by a permanent rivet which does not project into the interior of the tube or in any manner interfere with the sleeve 5. The sections of the brace 20 are connected by a rivet 24 and these sections are arranged to be disposed at an angle to each other, that is, with the pivots 21, 23 and 24 out of alinement, the joint at 24 being offset inwardly from a line drawn through the pivots 21 and 23. One section of the brace 20 has a struck-up part 25 forming a shoulder 26 which is adapted to engage the angular end 27 on the other section, these parts constituting a stop to limit the inward movement of the joint 24.

The legs 1 and 2 are connected by braces 28 which are jointed by rivet 24^a and have a stop composed of parts 25^a and 27^a, similar to the parts 24, 25, and 27, except that the braces 28 are arranged to have their parts constitute continuations of each other as it is not necessary for the joint to be offset when these braces are extended. The braces 28 are connected to the legs by rivet pivots 29 of the form shown in Fig. 7.

If the stand is in extended condition, the legs can be telescoped by pressing in the button latches 6, after which, the arm braces may be folded to bring the arms alongside the legs and the braces 28 may then be folded, whereupon the folded stand will appear as in Fig. 5, the sections of the extension leaf having been previously folded on their arms.

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

1. In a folding stand, the combination of a plurality of legs, a head or center member having parts entering or overlapping the legs, a foldable top comprising independent foldable arms adapted to fold alongside the legs, and pivots constituting a common means for connecting the arms, center member and legs together.

2. In a folding stand, the combination of a plurality of tubular legs, a head or center member having parts entering the open upper ends of the legs and pivoted thereto. and a foldable top comprising independent foldable arms which are pivotally connected to the pivots aforesaid and are adapted to fold downwardly outside and alongside the legs.

3. In a folding stand, the combination of a plurality of tubular legs, foldable braces connecting the legs together, a head or center member having parts entering or overlapping the open upper ends of the legs and pivoted thereto, a foldable top comprising independent foldable arms which are pivotally connected to the pivots aforesaid and are adapted to fold downwardly outside and alongside the legs, and foldable braces connecting the arms to the legs and adapted to fold alongside of them.

4. In a folding stand, the combination of legs, a head or center member having ears which are pivoted to the legs, a folding top comprising independent foldable arms having ears pivoted to the legs, and foldable braces for supporting the arms from the legs.

5. In a folding stand, the combination with a head or center member having ears, of foldable legs pivoted to the ears, a top comprising independent foldable arms provided with ears pivoted to the legs and adapted to fold down alongside of them or to be extended in general lateral arrangement, and jointed foldable braces connecting the respective arms to the legs to which they are pivoted.

6. In a folding stand, the combination with a head or center member, of foldable

legs pivoted thereto, a top comprising independent foldable arms pivoted to the legs and adapted to fold down alongside of them or to be extended in general lateral arrangement and having a flange at one side thereof, and jointed foldable braces pivoted to the flanges of the respective arms and to the legs to which said arms are pivoted.

7. In a folding stand, the combination of foldable legs, and a top composed of independent foldable arms pivoted to the legs, certain of the arms being provided with a flange at their side and end to form cups or retainers for the feet of a typewriter, and another of the arms having a foot or clip adapted to engage a typewriter, and also provided with a flange extending lengthwise of said arm.

8. In a folding stand, the combination with a tubular leg, of a brace, said leg having a boss punched or struck up from its interior outwardly, and a rivet-pivot whose base lies in the boss, whose shank extends through the boss and the brace, and which is headed on the brace, or vice versa.

9. A telescopic leg for stands, comprising telescopic tubular leg sections respectively provided with outwardly and inwardly extending flanges, and a sleeve loosely surrounding the inner leg section and slidable thereon and slidably contained within the outer leg section between the aforesaid flanges, said sleeve being of a thickness sufficient to prevent the inner edges of the flanges from touching the inner surfaces of the leg sections opposite thereto.

10. A telescopic leg for stands, comprising telescopic tubular leg sections respectively provided with outwardly and inwardly extending flanges, a sleeve surrounding the inner leg section and contained within the outer leg section between the aforesaid flanges, and a spring-actuated button latch carried within the inner one of the leg sections and arranged to project therethrough and engage the outer leg section when the flanges are disposed substantially at the ends of the said sleeve.

11. A telescopic leg for stands, comprising telescopic tubular leg sections respectively provided with outwardly and inwardly extending flanges, and a longitudinally split sleeve loosely surrounding the inner leg section and slidable thereon and slidably contained within the outer leg section between the aforesaid flanges, said sleeve being of a thickness sufficient to prevent the inner edges of the flanges from touching the inner surfaces of the leg sections opposite thereto.

12. A folding stand comprising telescopic legs, jointed braces having rivet-pivot connections to the legs and adapted to hold said legs in spread arrangement, a head or center member having parts received in the upper open ends of the legs, a foldable top composed of free arms adapted to be arranged laterally or to fold alongside the legs, rivet-pivots connecting the arms, the legs, and the center member together, and foldable braces having rivet-pivot connections with the arms and legs and adapted to support the arms in lateral arrangement when said braces are extended.

13. A tripod stand having one of its legs shorter than its remaining legs, said legs being relatively foldable, braces connecting said legs, and a foldable top consisting of independent foldable arms projecting freely and adapted to fold alongside the legs or to be disposed laterally in braced relation to the legs.

14. A multi-legged stand composed of telescopic legs and a top, the lowermost section of one of the legs being shorter than the lowermost sections of others of the legs.

15. A multi-legged stand whose legs are connected at their upper parts at a point offset from the projected center of a polygon whose angles are defined by the lower ends of the legs.

In testimony whereof, I hereunto affix my signature in presence of two witnesses.

CARLETON W. SMITH.

Witnesses:
HARRY A. STONE,
ARTHUR M. IVES.