July 23, 1935. H. E. TAUTZ 2,009,304

COMBINATION GUARD AND SUPPORT FOR JOINTER FENCES

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FIG. 1.

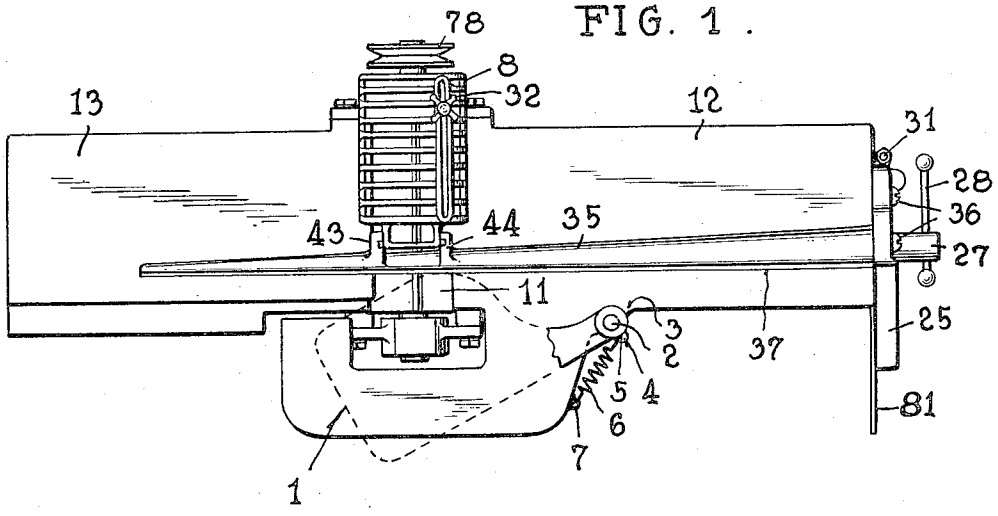
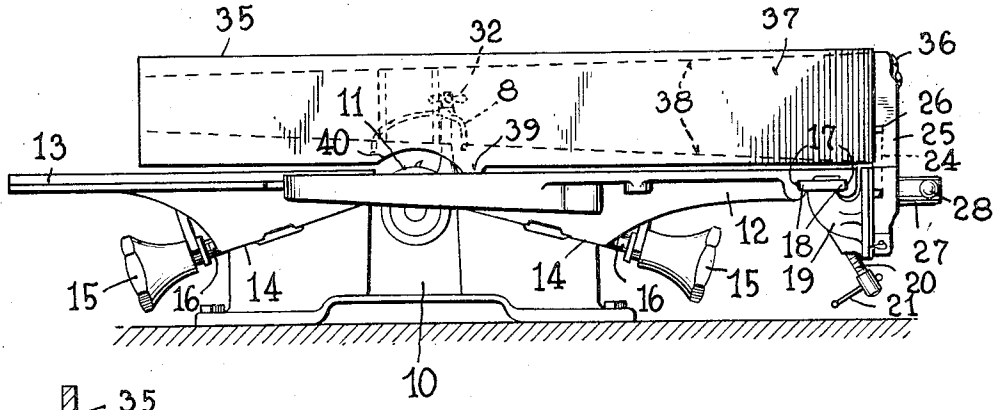


FIG. 2.



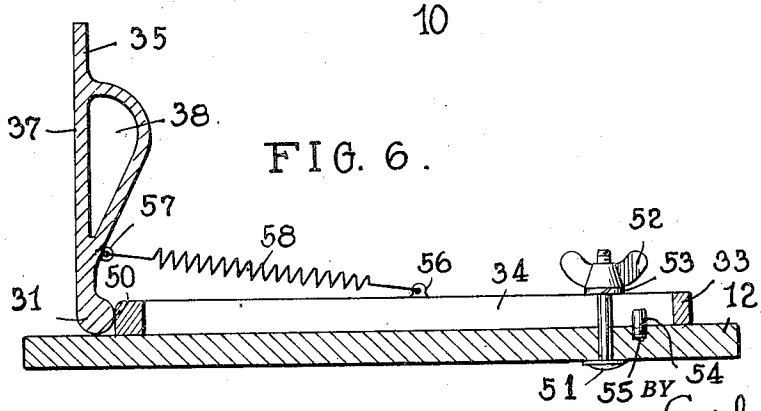


FIG. 6.

HERBERT E. TAUTZ,
INVENTOR

BY Carl A. Hellmann,
ATTORNEY

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FIG. 3.

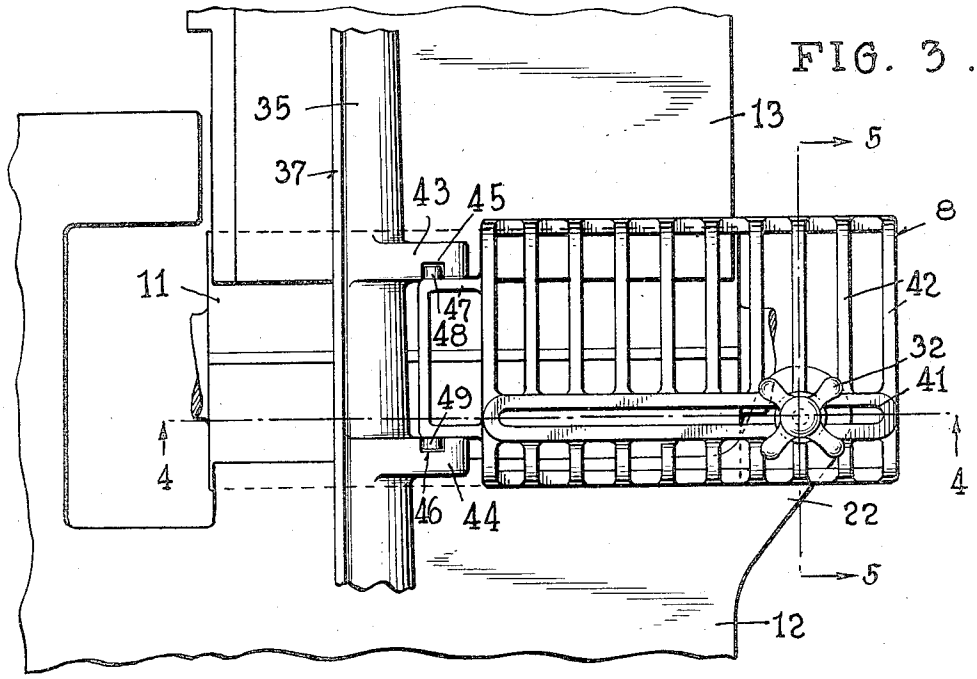


FIG. 4.

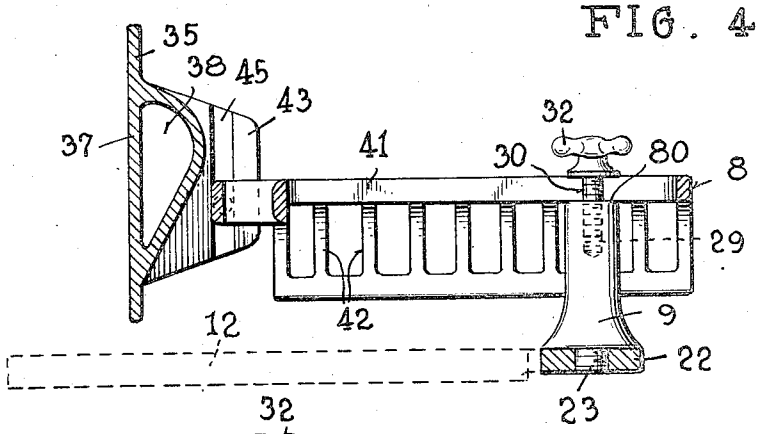
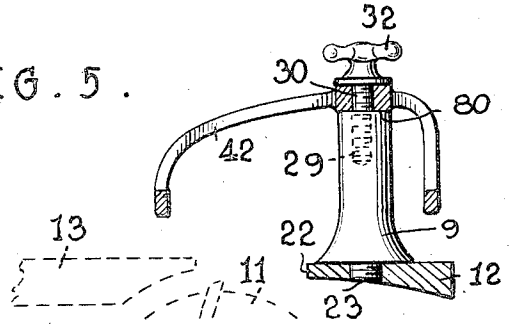


FIG. 5.



HERBERT E. TAUTZ,
INVENTOR

BY Carl A. Hellmann,
ATTORNEY

July 23, 1935. H. E. TAUTZ 2,009,304

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FIG. 7.

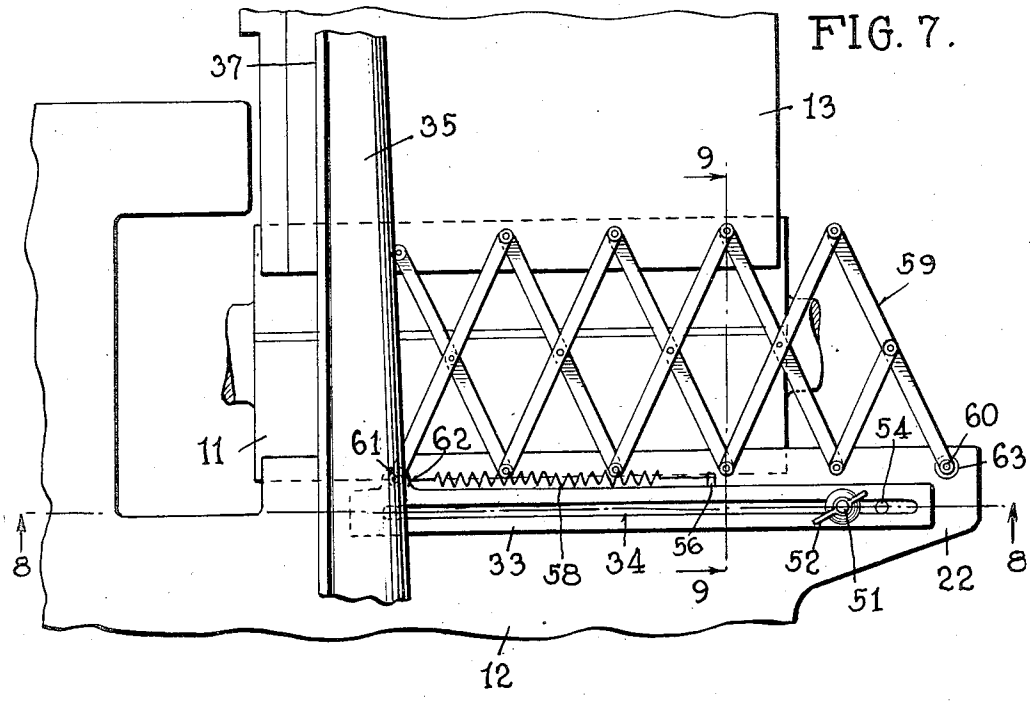


FIG. 8.

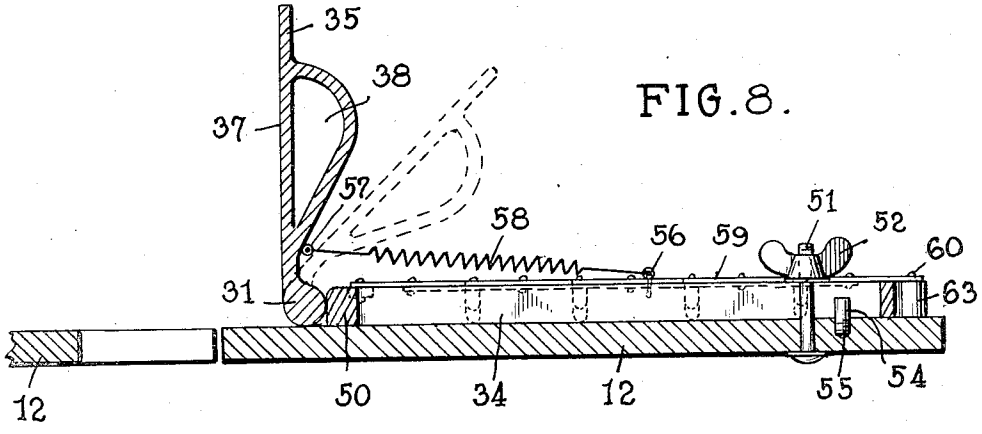
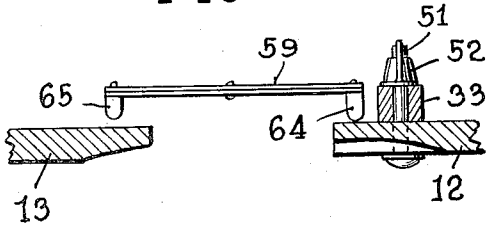


FIG. 9.



HERBERT E. TAUTZ,
INVENTOR

BY Carl A. Hellmann,
ATTORNEY

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FIG. 10.

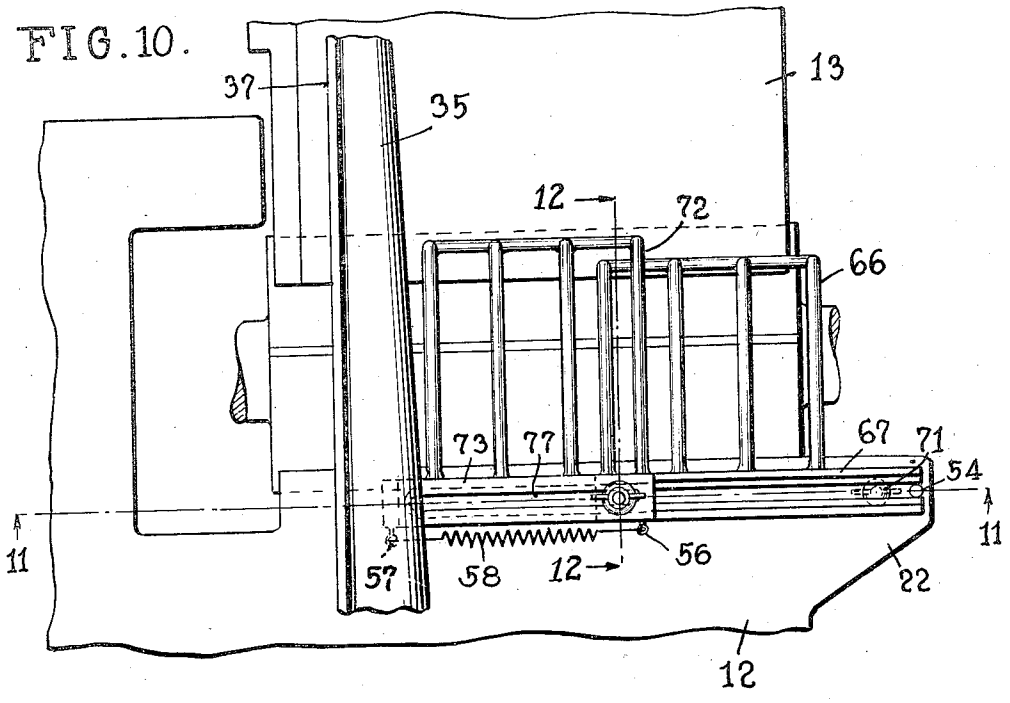


FIG. 11

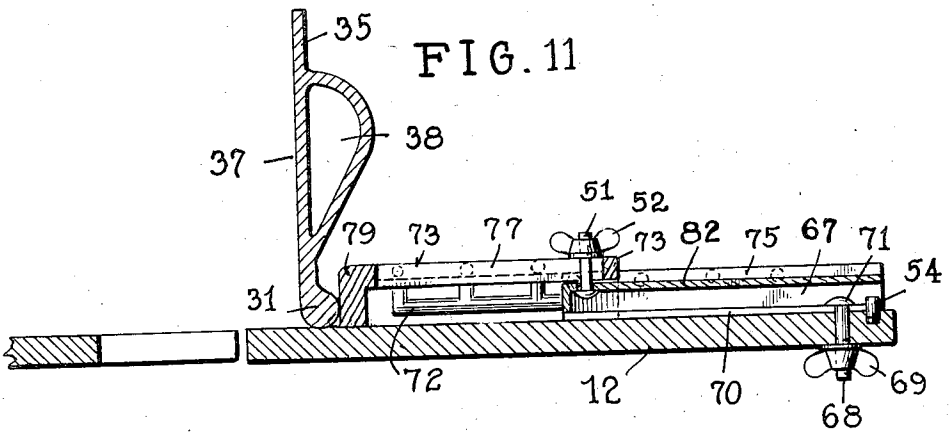
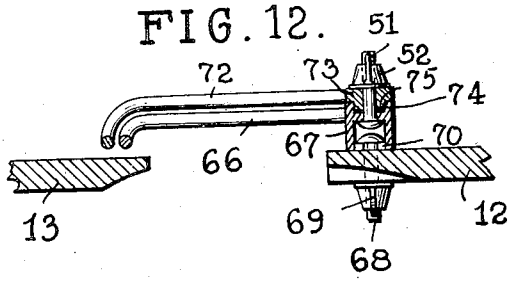


FIG. 12.



HERBERT E. TAUTZ,
INVENTOR

BY Carl A. Hellmann,
ATTORNEY

Patented July 23, 1935 2,009,304

UNITED STATES PATENT OFFICE

2,009,304

COMBINATION GUARD AND SUPPORT FOR JOINTER FENCES

Herbert E. Tautz, Milwaukee, Wis., assignor to Delta Manufacturing Company, Milwaukee, Wis.

Application December 20, 1933, Serial No. 703,314

15 Claims. (Cl. 144—251)

This invention relates to a combination guard and support for a jointer fence.

More specifically it relates to a device for guarding that portion of the jointer cutter which is not being used for a given setting of the jointer fence, namely, ordinarily the portion to the right of the fence.

Another object is to provide means to support the jointer fence at a point remote from the front end thereof, whereby the yielding or play of the jointer fence may be minimized, said support, nevertheless, permitting the fence to be tilted freely to any desired angle with the jointer tables.

A further object is to provide such combined guard and fence support, which need not be removed from the machine regardless of the position of adjustment of the fence, so that no portion of the cutter knives will ordinarily be exposed, the new guard cooperating with the ordinary guard, which protects the left hand or active portion of the knives, to secure full protection of all parts of the cutters.

Other objects and advantages of the invention will in part be pointed out specifically hereinafter and will also be self-evident and obvious from the present specification and the drawings accompanying the same and illustrating embodiments of the invention.

In said drawings:

Fig. 1 is a top plan view showing the invention as applied to a jointer,

Fig. 2 is a side elevation taken from the left side of a jointer corresponding to Fig. 1, but omitting the left hand or ordinary guard,

Fig. 3 is a top plan view on an enlarged scale showing the new guard and support,

Fig. 4 is a longitudinal section through the fence and guard, on the plane indicated by the line 4—4 of Fig. 3,

Fig. 5 is a cross section through the guard on the plane indicated by the line 5—5 of Fig. 3,

Fig. 6 is a sectional elevation of a jointer fence support,

Fig. 7 is a fragmentary plan view showing a modified form of combined guard and jointer fence support,

Fig. 8 is a sectional elevation of the structure illustrated in Fig. 7 the section being taken on the plane indicated by line 8—8 of said figure,

Fig. 9 is a fragmentary cross sectional elevation of the structure shown in Fig. 7 on the plane indicated by the line 9—9 of said figure,

Fig. 10 is a fragmentary plan view showing a still further modified form of combined guard and fence support,

Fig. 11 is a longitudinal sectional elevation of the same on the plane indicated by the line 11—11 of Fig. 10, and

Fig. 12 is a fragmentary cross sectional elevation through a portion of the structure illustrated in Fig. 10 on the plane indicated by the line 12—12.

Referring first to the device illustrated in Figs. 1 to 5 inclusive, the numeral 10 designates a jointer base frame having a cutter-head 11 mounted in suitable bearings therein and driven in any suitable manner. A front table 12 and a rear table 13 are slidably mounted on inclined ways 14 formed on the base frame 10, so as to be independently raised or lowered with respect to the knives of the cutter-head, as usual. The adjusting means for the tables includes a pair of adjusting nuts 15, each of which is threaded on a respective screw 16 secured to the base frame.

The fence 35 is secured to the rotatable head 25, by screws or similar means 36, said fence having a work-guiding surface 37. The head 25 is supported upon an arcuate annular rib 24 formed on the bracket 19, said rib fitting slidably within a corresponding groove 26 in said head, whereby the head 25 may be rotated about the center of the said fin or rib 24 to thereby carry the fence 35 to any desired angular inclination with respect to the top surface of the work tables 12 and 13, said head being securable to the bracket 19 in the desired angular position by means of the screw 27 having the operating handle 28, and by the scale 81.

The bracket, as a whole, is also slidable transversely of the table 12 by means of slots 17 formed in the lower surface of the front portion of said table 12, the bracket having projections 18 fitting into the said slots and a screw 20 cooperating with the bracket 19 and table 12 to secure the bracket in its position of transverse adjustment, said screw being conveniently provided with an operating handle 21.

The fence may be provided with a supporting lug 39 serving as an intermediate bearing for the same, in order to prevent said fence from sagging downwardly with respect to the tables 12 and 13. The fence 35 is preferably provided with a hollow, as shown at 38, in order to decrease the weight thereof, while still affording adequate strength and stiffness. The fence also has a portion cut away as shown at 40 to accommodate the cutter 11 and prevent contact of the cutter blades with the fence, regardless of any position of adjustment of said fence and tables.

The above details of the construction of the

jointer form no essential part of the present invention, are disclosed in the prior patent of Herbert E. Tautz No. 1,790,288, dated January 27, 1931, and are included here merely to complete the disclosure and assist in showing how the present invention cooperates with a jointer, particularly one of the type disclosed in said prior patent.

A guard 1 having a pivot shaft 2 therein, coacting with a lug 3 on the table 12, may be provided to guard the left hand portion of the cutter blades, that is, the portion shown at the left hand side in Fig. 3 and shown at the bottom in Fig. 1. This guard may be of the now customary type, having a lug 4 thereon with an aperture 5 therein to receive a spring 6, the other end of which may be engaged in a suitable aperture 7 in the table 12, the effect of such spring being to urge the guard 1 upwardly in Fig. 1 or to the right in Fig. 3, so that this guard will always be held against the work-guiding surface 37 of the fence 35, and will effectively cover that portion of the cutter extending to the left of the fence in Fig. 3, the guard being so shaped that it will be automatically pushed away when a board is being machined by the jointer, but will again resume its initial position as soon as the board has passed beyond the cutter head, thus protecting the hand of the operator from accidental contact with the left hand end of the cutter head 11 when using the machine.

In jointers of the type disclosed in the prior patent, even when provided with a guard such as shown at 1, in the present case, there is no protection whatever against accidental contact of the hand or clothing of the operator with the unused or right hand end of the cutter, namely, the portion extending to the right of the fence in Fig. 3 of the present case. It is obvious that inasmuch as, ordinarily, relatively thin boards are being planed in an endwise position upon the jointer, the fence would often be fairly close to the left hand edge of the table, thus leaving a considerable portion of the cutter to the right of the said fence absolutely unprotected in any way. This is particularly the case when the jointer is being used for cutting rabbets, because in such rabbetting operations the jointer fence must necessarily be near the left hand edge of the table, inasmuch as the width of the rabbet is determined by the distance of such fence from such left hand edge and most rabbets are relatively narrow.

In order to protect this unused right hand portion of the cutter 11, there is provided, in one form of the present invention, a guard, indicated generally by the reference character 8, mounted on a support 9, secured preferably to an extension or lug 22 formed on or attached to the front table 12. This support or post 9 may, for example, be secured to said lug 22 by means of a screw-threaded portion 23 threaded into the lug 22, as best shown in Figs. 4 and 5. The top of the support preferably is flat, as indicated at 80, and said post 9 has a screw-threaded bore 29 therein to receive a screw 30 having a convenient star shaped head 32 for operating the same.

The guard is provided with a slot 41 running substantially its entire length and displaced considerably from the center line of the guard. The guard may be provided with a series of ribs 42, more or less arbitrary in number, said ribs thus producing a skeleton or basket type of structure which makes the guard light in weight and yet sufficiently strong, while affording a view of the cutter beneath the same so that the presence of any foreign matter, such as fragments of wood, may be readily seen. The slot 41 is of sufficient width to allow the screw 30 to pass easily therethrough, thus permitting the guard 8 to be shifted freely to the right or left throughout the extent of said slot and then permitting the guard to be clamped by merely tightening the screw 30 by means of the star wheel 32.

It is obvious that the structure thus far described will constitute an efficient guard for the right hand portion of the cutter head 11, and need not include any further features. However, a further purpose may also be served by this guard, namely, it may be made to serve as an additional support or brace for the fence 35.

In order to accomplish this purpose, means, such as the lugs 43 and 44, may be provided, preferably integral with the fence 35, said lugs having preferably parallel grooves 45 and 46 provided therein, the guard 8 having an extension 47 with lugs or pins 48 and 49 provided thereon and slidably engaged in the respective grooves 45 and 46. These lugs or pins 48 and 49 are preferably cylindrical, as shown, so that relative rotation of the lugs in the grooves may take place, thus interposing no obstacle to the free rotation of the fence 35 about the axis of the rotatable head 25, the guard and the lugs on the fence being, of course, so designed that throughout all the possible positions of adjustment of the fence 35 the pins 48 and 49 will remain somewhere in their respective grooves.

By providing a fairly close fit of the pins in these grooves it is clear that play may be substantially prevented between the said parts, so that once the fence 35 is suitably adjusted and clamped by means of the screws 20 and 27, the guard 8 may also be clamped in its resulting position, by means of the star wheel 32, thus providing an additional support for the fence 35 and preventing any yielding thereof toward the right when a workpiece presses against the working face 37 of the same during use of the machine.

The length of the guard 8 is preferably made sufficient to permit the fence 35 to traverse the entire width of the tables 12 and 13 without making it necessary to remove the said guard, thus greatly facilitating the use of the device and making it unnecessary for the user to remove the guard 8 at any time, thereby securing increased safety and avoiding the likelihood of loss of the guard 8 or of failure to replace it due to the added trouble which would be occasioned by the necessity of such removal.

While the guard 8 is herein disclosed as of a basket or "soap dish" shape, it is obvious that such shape is merely a matter of convenience, adopted in order to bring the top of the guard to a convenient level with respect to the fence and to bring the star wheel 32 to a convenient operating position, but is by no means an essential feature of the device, the only necessary condition being that the guard 8 should adequately cover and protect the right hand portion of the cutter head 11, which might be accomplished equally well by a guard placed at a much lower level and of a shape very different from that disclosed, even a substantially flat and unperforated or "solid" guard being adequate, if preferred. However, for the several reasons mentioned and the additional reason of appearance, it is believed preferable to make the guard of the basket shape herein disclosed.

Referring next to the structure illustrated in

Fig. 6 the fence 35 is shown as provided with a curved lower end 31, said curved portion being either cylindrical or spherical in nature, and corresponding in its location to the supporting lug 39 of Fig. 2. The cross section of said portion 31 is, of course, bounded by a circular arc, regardless of whether the actual element is spherical or cylindrical, so that the same illustration serves for both.

This circular portion is so located that the circle of which it is a part is tangential to the work-guiding surface 37 of the fence 35. A slotted bar 33, having a longitudinal slot 34 therein, cooperates with this curved supporting end 31, that is, the left hand end 50 of said bar bears against the right hand extremity of portion 31. The bar 33 is held to the front table 12 in any desired way, for example, by means of a screw 51 having a wing nut 52 and lock washer 53 cooperating therewith, the washer 53 bearing against the upper surface of the bar 33, on opposite sides of the slot thereof, and wing nut 52 serving to secure the bar 33 adjustably to the table 12.

A guide pin 54 is also preferably provided and may be threaded into the table 12, as shown at 55, whereby the free end of the pin projects into the slot 34. This pin 54 is preferably spaced from the bolt 51 and both the shank of the bolt and the pin 54 are preferably of the same diameter and fit fairly snugly into the slot 34 so that the pin 54, together with the bolt 51, will prevent the bar 33 from assuming any other than a desired direction which is substantially at right angles to the general direction of the fence 35.

An eyelet or other securing means 56 is preferably provided on the bar 33 and another eyelet or the like 57 is arranged on the fence 35 as illustrated. A tension spring 58 is arranged to be held by these two eyelets 56 and 57 and is of such length and construction that it will always be under tension regardless of the tilting of the fence 35 and yet will not be strained beyond its proper limits in the course of any such tilting of the fence in either direction. Preferably also the eyelet or the like 57 on the fence 35 will be located at a point not too high above the plane of the top of the table 12, so that the pull of the spring 58 will always be exerted in a direction not exceeding a relatively small angle to the general direction of the bar 33.

The structure just described may be supplemented by a guard for the right hand portion of the jointer knives by combining it with suitable means which will cover said jointer knives and will follow the said bar in its movements. This may be accomplished, for example, as shown in Figs. 7, 8 and 9, wherein the bar 33 is supplemented by a guard for the jointer knives, this guard being a lazy tongs designated generally by the reference character 59 and pivotally supported at one end 60 on the front table 12, whereas its other end 61 is pivotally supported on a lug or the like 62 formed on the bar 33, as best shown in Fig. 7.

The lazy tongs consists, of course, in the customary way, of a series of bars secured to one another by pivots and extensible and contractible in a direction parallel to the length of the bar 33. It is desirable, of course, to support the lazy tongs a slight distance above the tops of the jointer tables in order to avoid interference with the jointer knives and also to provide a more effective guard. This may be accomplished by arranging the pivot 60 upon a raised lug or extension 63, best shown in Fig. 8, and by providing spacing members 64 and 65 below the outer pivots of the lazy tongs 59, as shown best in Fig. 9. These spacing members or feet will, of course, prevent the lazy tongs from sagging and coming into accidental contact with the jointer knives, while permitting the lazy tongs to slide freely back and forth to correspond to the adjustment of the bar 33. The spring 58 supported by the eyelets 56 and 57 is arranged in the same way as in Fig. 6, in fact the form shown in Figs. 7, 8 and 9 contains all the structure of Fig. 6 with the addition of the lazy tongs guard.

A further development of this general idea is illustrated in Figs. 10, 11 and 12. It will be noted that the form illustrated in these three figures combines certain features illustrated in Figs. 1 to 5 with certain other features illustrated in Figs. 6 to 9. This form of device comprises a support, a bar and a guard of the basket type rigidly secured to said bar or integral therewith, the bar, however, being made in two portions, slidable with respect to one another and the guard likewise being made in two sections which also slide with respect to one another.

Referring first to Fig. 10, it will be seen that the front table 12 carries a telescoping guard comprising a flattened or basket-shaped member 66 secured to a slotted bar 67. The said bar 67, however, differs in its details from the bar 33 in that it is formed as a channel bar having slots in two different webs thereof, as best shown in the cross section illustrated in Fig. 12.

The lower slotted web 70, of this bar 67, provides a guideway which permits the bar 67 to slide along over the shank of the bolt 68, which has a wing nut 69 cooperating therewith, the head 71 of said bolt gripping over said portion 70 so that by loosening the wing nut 69 the bar 67 may be slid along to a desired position of adjustment, whereupon tightening the wing nut 69 will serve to secure the member 67 in its adjusted position. The guard 66, which may consist of a series of rods or any other suitable protective structure, may be formed integral with, or secured in any other desired way to, the bar 67 whereby said guard portion will cover the space between the front table 12 and the rear table 13 and prevent accidental contact with the jointer knives.

The pin 54, exactly like the pin 54 of Fig. 6 in function and location, will prevent the bar 67 from getting out of its proper alinement. It is clear that the structure thus far described and comprising the guard 66 carried by the bar 67 is substantially the equivalent of the structures shown in Fig. 3 and in Fig. 6, that is, it provides a rigid non-extensible guard combined with a supporting bar.

However, in certain cases, it is impossible to make the guard 66 of sufficient transverse dimensions to cover the entire unused or free portion of the jointer knives, for if this were done then the guard would project too far to the right when the fence 35 is also moved to its extreme right hand position, so that the guard would then interfere with parts of other or cooperating machines mounted adjacent to the jointer, thus precluding the use of a guard of the type shown in Fig. 3.

This problem is solved, however, by a lazy tongs guard of the type shown in Fig. 7, for such guard will fold up and will never project to the right of its pivot 60. The lazy tongs guard, however, has certain objections, such as greater expense

of manufacture and greater complication and in order to secure certain of the advantages of said type of guard without at the same time incurring this additional expense the guard in Figs. 10 to 12 is made of two telescoping or sliding sections 66 and 72, said sections being substantially similar in structure to a certain extent.

The guard section 72 is supported by a bar 73 which is slidable upon the bar 67 which supports the other section 66 of the guard. This is shown in plan in Fig. 10 and in cross section in Fig. 12, from which figures it is evident that upon loosening the wing nut 52 which is threaded upon the bolt 51 the bar 73 can slide along the lower bar 67. The upper bar 73 may be provided with a depending portion 74 fitting in the upper channel 75 of the lower bar 67 and the bolt 51 passes through a suitable aperture 76 in the web 82 of said bar, thus permitting the bar 73 to be adjusted with respect to said bolt 51, due to the slot 77 therein. A spring 58, together with eyelets 56 and 57, arranged on the bar 73 and on the fence 35 respectively, may be provided, said parts having the same structures and functions as in Fig. 6.

It will be obvious that while in Fig. 7 the extensible guard 59 has a large number of separate parts or sections, namely, the pivoted bars, while the extensible guard shown in Fig. 10 has only two parts or sections, namely, 66 and 72, yet the number of such sections or parts is, of course, arbitrary and the term "number" is, therefore, used in the present specification and the claims in its mathematical sense to designate any integral positive number, inclusive, of course, of unity, that is, the expression "number" is equivalent to the expression "one or more" and does not necessarily mean "a plurality".

The operation of the various devices is as follows:

Referring first to the form illustrated in Figs. 1 to 5 inclusive, the cutter head 11 will be driven in any suitable way, for example, by a belt engaged on the puley 18. The knives or blade of this cutter head are protected from accidental contact with the hands or clothing of the person operating the machine by the two respective guards, 1 on the left and 8 on the right, these guards being shown respectively at the bottom and top in the position in which the parts are illustrated in Fig. 1.

When it is necessary to adjust the fence 35 to expose any desired portion of the cutter head blades to the left of the work-guiding surface 37 of the fence 35, it is requisite merely to loosen the star wheel or nut 32, and then to loosen the screw 20 by means of its handle 21, said parts being best shown in Fig. 2. This permits moving the fence 35 manally to the left or right as desired and upon completion of such adjustment into the desired position, suitable for the work to be done on the machine, said screw 20 is again tightened to clamp the front end of the fence 35 securely to the front table 12.

Meanwhile, the right hand guard 8 will have slid to the right or left, following the fence 35, due to the pins 48 and 49 slidably engaging in the grooves 45 and 46. When the forward end of the fence is thus secured by means of the screw 20 and the guard 8 has assumed a corresponding position of adjustment, the star wheel 32 may be employed to tighten the screw 30 in the bore 29, thereby clamping the guard 8 securely to the post 9 and thus providing a rigid non-yielding support for the fence 35 at a point spaced a considerable distance from the front support provided by the screw 20, thus securing the fence at two widely spaced points and providing extra rigidity for the said fence, so that it will not yield even when unusually heavy work is being done by the jointer.

In addition to performing this function of supporting the fence 35, the guard 8 will also perform the other function of preventing accidental contact of the clothing or body of the operator with the revolving knives of the cutter head 11. By reason of the peculiar nature of the connection between the guard 8 and the fence 35, that is, the slots and pins, the fence 35 may be tilted to any desired working angle with respect to the table 12 without causing the guard 8 to be disengaged from said fence, this adjustment being made, of course, before the star wheel 32 is tightened, whereupon tightening of the star wheel will serve to clamp the fence 35 rigidly in whatever adjustment it may happen to be, both transversely of the table 12 and at an angle to said table. It is also clear that by reason of the slot and pin connection between the guard 8 and the fence 35 no additional means are necessary to cause said guard to follow the fence 35 in its various movements.

Referring now to the fence support illustrated in Fig. 6, the operation thereof will be very readily understood from the drawings. By loosening the wing nut 52, the bar 33 may move freely in a direction transverse to the general direction of the length of the fence 35, and consequently the spring 58, which engages the said fence as well as the bar, will always cause the end 50 of said bar 33 to engage against the arcuate surface at 31 on said fence 35. Therefore, upon adjusting the fence 35 to the left or to the right transversely of the table 12, as permitted by manipulating the screw 20, the bar 33 will always follow said fence 35 and will always abut closely against the arcuate portion 31 thereof.

Furthermore, even if the fence 35 is adjusted angularly, that is, inclined, with respect to the table 12, this will not interfere with the engagement of said end 50 against the portion 31. The only operation necessary in adjusting this device, therefore, is first to loosen the wing nut 52, thereupon adjusting the fence transversely or angularly, or both, as permitted by the screws 20 and 27, then again clamping said fence in its adjusted position by means of said screws and finally tightening the wing nut 52, whereupon the bar 33 will be held securely against the table 12 and the end 50 thereof will afford a non-yielding abutment, preventing the fence 35 from yielding toward the right when in use.

This relatively simple device, of course, provides merely the single function of furnishing a rigid abutment which prevents the fence 35 from yielding when in use, but it is obvious that it may be combined also with a guard for protecting the unused portion of the cutter head.

Referring now to Figs. 7, 8 and 9 it is clearly evident how this additional function may be accomplished in this form of device. The lazy tongs 59 will, of course, follow the bar 33 when said bar is adjusted to the right or left, said bar following the fence 35, due to the pull of the spring 58. When the bar 33 is in the position shown in Figs. 7 and 8, for example, the lazy tongs is extended nearly to its full capacity, and fully protects the unused portion of the cutter head 11.

On the other hand, when the fence 35 is moved toward the right as far as it will go, the lazy

tongs 59 will be collapsed and will then occupy a relatively small space immediately to the right of said extreme position of the fence 35, and will not extend beyond the lug 22 of the table 12.

The supports or buttons 64 and 65 will prevent the lazy tongs 59 from assuming too low a position, where the bars thereof might come into contact with the cutter head or might permit accidental access of the fingers or clothing of the operator to said cutter head. It will be understood, of course, that the number of bars in said lazy tongs may be chosen sufficient to make the intervening unguarded spaces as small as may be believed desirable in any particular case. The bar 33 in this form of the device will operate as a support for the fence 35 precisely as does the identically constructed bar 33 of Fig. 6 so that it is believed to be unnecessary to again describe such operation.

Referring now to Figs. 10, 11 and 12, it will be noted that both the bar and the guard have therein been made in two sections instead of in a single member as in the Figs. 1–6 forms. This has an advantage, in certain cases, in that the said guards, as well as the bars supporting them, will not extend too far to the right when the fence 35 is in its extreme right hand position, this advantage being gained due to the telescoping or sliding action of the two sections of the guard.

The spring 58 is preferably secured to the upper bar 73 so as to hold the left hand end thereof against the arcuate portion 31 of the fence 35, as in the preceding forms, and it will, of course, be obvious that such connection will avoid undue variations in the length of the spring when the fence 35 is moved to the left or to the right, as would be the case if the spring were secured to any other portion of the other bar 67 of the mechanism.

By loosening the wing nut 52 it is possible to move the fence 35 to the left or the right when the screw 20 is loosened, to an extent corresponding to the motion permitted by the bar 73. In such adjustment the section 72 of the guard will move back and forth across the top of the section 66.

For a greater motion of the fence 35 to the right, the wing nut 69 may also be loosened, thus permitting both bars, namely, 67 and 73, jointly to move to the right, and thus also permitting the full rightward motion of the said fence.

The fence 35 can, of course, be tilted just as in the other forms of the device and the spring 58 will provide continuous abutment of the end 79 of said bar 73 against the arcuate portion 31 of the fence, as in the preceding forms. When the fence 35 has been adjusted into its desired position and clamped there by the screws 20 and 27, the additional supporting feature of the bars 73 and 67 may be secured by tightening the wing nuts 52 and 69.

It is obvious, furthermore, that when additional support of the jointer fence is not particularly necessary, as when the jointer is being used for relatively light cuts, or light workpieces, it will not be necessary to take the trouble to tighten the clamping means which hold the various supports in the different forms of the device.

Thus, the device shown in Figs. 1 to 5 may often be used with perfect satisfaction by leaving the star wheel 32 slightly loosened, whereupon the guard 8 will still perform its function of guarding the unused portion of the cutter head but will not perform the stiffening or supporting function, and similarly in the forms shown in Figs. 7 to 12, the wing nuts 52 and 69 may be left loose, thereby still securing the guarding feature without the accompanying supporting feature. This will often be desirable as it facilitates the operation of the machine for light work and eliminates unnecessary manipulations, while it does not in any way interfere with again quickly obtaining the supporting function by merely tightening the various nuts or screws when such feature is desired.

The Fig. 6 form, of course, is of no utility unless the clamping feature provided by the bolt 51 and wing nut 52 is used, because this form does not embody the guarding structure.

It will be obvious that the present invention provides two separate and distinct functions which are, however, produced by unitary or closely combined structures, namely, the guarding function and the supporting function, but, nevertheless, these functions may be used either jointly or independently, in certain cases.

It should therefore be understood that the invention is not limited to either of these features separately or to both in combination, but that the invention is defined solely by the following claims.

I claim:

1. In a machine having a table, a mechanically driven cutter and a work guide, means for supporting said guide and other means separate from said guide for guarding the entire unused portion of the cutter and simultaneously unyieldably supporting the work guide against springing laterally due to a workpiece.

2. In a machine having a table, a mechanically driven cutter and a work guide, said work guide being movable over the table in a direction substantially transverse to the direction of cut of the cutter, means for guarding the used portion of the cutter on one side of said work guide and further means for supporting the work guide and guarding the entire unused portion of the cutter on the other side of said work guide, said last named means being separate from the guide, and providing support against lateral springing of the guide toward said other side.

3. In a machine having a table, a mechanically driven cutter and a work guide, said work guide being movable over the table in a direction substantially transverse to the direction of cut of the cutter, means for guarding the cutter on one side of said work guide and further means separate from the guide for guarding the entire length of the cutter on the other side of said work guide and simultaneously unyieldably supporting the work guide against springing laterally toward said other side.

4. In a machine having a table, a mechanically driven cutter and a work guide, said work guide being movable over the table in a direction substantially transverse to the direction of cut of the cutter, means for guarding the cutter on one side of said work guide and means independent of the guide but engaging the other side of said work guide and thus providing auxiliary unyielding support for the latter to prevent lateral springing of said guide toward said other side.

5. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and means connected thereto for supporting the work guide against lateral yield, said extensible means remaining at the same level whether collapsed or extended.

6. In a machine having a table, a mechanical-

ly driven cutter and a work guide, extensible means comprising a number of slidably arranged sections, for guarding the cutter and means connected thereto for supporting the work guide against lateral yield, said extensible means remaining at the same level whether collapsed or extended.

7. In a machine having a table, a mechanically driven cutter and a work guide, extensible means comprising a number of pivotally connected parts, for guarding the cutter and means connected to said extensible means, for supporting the work guide against lateral yield, said extensible means remaining at the same level whether collapsed or extended.

8. In a machine having a table, a mechanically driven cutter and a work guide, extensible means comprising a lazy tongs for guarding the cutter and a rigid member independent of the table and the work guide connected to said extensible means, for supporting the work guide at a definite position.

9. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and mean connected thereto for supporting the work guide, said last named means comprising a member bearing against the work guide and movable transversely of the table, and releasable means for adjustably securing it to the table.

10. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and a separate member connected thereto for supporting the work guide, said last named means comprising a member movable transversely of the table, means for releasably securing said movable member to the table, and means yieldably holding one end of said member against the work guide.

11. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and comprising a lazy tongs, a rigid member, one end of said rigid member being connected to one end of said lazy tongs and bearing also against the work guide, the other end of the lazy tongs being attached to the table, the rigid member being movable transversely of the table and means for releasably securing said rigid member to the table.

12. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and comprising a lazy tongs, a rigid member, one end of said rigid member being connected to one end of said lazy tongs and bearing also against the work guide, resilient means attached to the work guide and to the rigid member respectively and continually urging said work guide and rigid member into contact with one another, the other end of the lazy tongs being attached to the table, the rigid member being movable transversely of the table and means for releasably securing said rigid member to the table.

13. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and comprising a number of sections slidable with respect to one another, one end of one of said sections bearing against the work guide, resilient means attached to the work guide and to the said section respectively and continually urging said work guide and said section into contact with one another, and means for releasably securing said sections to one another and to the table.

14. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and comprising a number of sections slidable with respect to one another, one end of one of said sections bearing against the work guide, resilient means attached to the work guide and to the said respectively and continually urging said work guide and said section into contact with one another, certain of said sections being slotted, means passing through the slot for securing said sections to one another and other means for releasably securing them to the table.

15. In a machine having a table, a mechanically driven cutter and a work guide, extensible means for guarding the cutter and comprising a number of members movable with respect to one another, one end of one of said members bearing against the work guide, resilient means attached to the work guide and to the said member respectively and continually urging said work guide and said member into contact with one another, and means releasably securing said members to hold them immovable with respect to one another and to the table.

HERBERT E. TAUTZ.

CERTIFICATE OF CORRECTION.

Patent No. 2,009,304. July 23, 1935.

HERBERT E. TAUTZ.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 31, for "into" read in; page 4, first column, line 44, for "puley" read pulley; page 6, first column, line 25, claim 9, for "mean" read means; and second column, line 31, claim 14, before "respectively" insert the word section; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 17th day of September, A. D. 1935.

Leslie Frazer

(Seal) Acting Commissioner of Patents.